



4545 East River Road, Suite 320
West Henrietta, NY 14586

December 23, 2019

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

**RE: Notice of Exempt Modification for Verizon
Crown Site BU: 876339
782 Old Clinton Road, Westbrook, CT
Lat: 41° 17' 25.7" / Long: -72° 28' 7.9"**

Dear Ms. Bachman:

Verizon currently maintains nine (9) total antennas at the 117-foot mount on the existing 160-foot monopole tower, located at 782 Old Clinton Road, Westbrook, CT. The tower is owned by Crown Castle and the property is owned by Richard and Catherine A. Wade. Verizon now intends to replace twelve (12) existing remote radio units with six (6) new remote radio units.

Tower modifications:

- Remove twelve (12) RRUs
- Add six (6) new RRUs
- Add three (3) diplexers

Ground modifications:

- None

Melanie A. Bachman

This facility was approved by the Connecticut Siting Council Petition No. 511 on July 11, 2001. This approval was given without conditions.

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 First Selectman of Westbrook, Noel Bishop, as well as the Planning and Zoning Coordinator, Eric Knapp. A copy of this letter will also be sent to the property owners, Richard and Catherine A. Wade.

Additionally:

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, Verizon 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 my attention at the address listed below.

Sincerely,



Richard Zajac
Network Real Estate Specialist
4545 East River Road, Suite 320
West Henrietta, NY 14586
585-445-5896
richard.zajac@crowncastle.com

Melanie A. Bachman

cc:

Noel Bishop – First Selectman
Town of Westbrook
866 Boston Post Road
Westbrook, CT 06498
860-399-3041

Eric Knapp – Planning, Zoning, and Development Coordinator
Town of Westbrook
866 Boston Post Road
Westbrook, CT 06498
860-399-3041

Richard & Catherine Wade
782 Old Clinton Road
Westbrook, CT 06498

ORIGIN ID: ONHA (585) 445-5896
RICHARD ZAJAC
CROWN CASTLE
4545 EAST RIVER ROAD
SUITE 320
WEST HENRIETTA, NY 14568
UNITED STATES US

SHIP DATE: 23DEC19
ACTWGT: 1.00 LB
CAD: 104924194/NINET4160

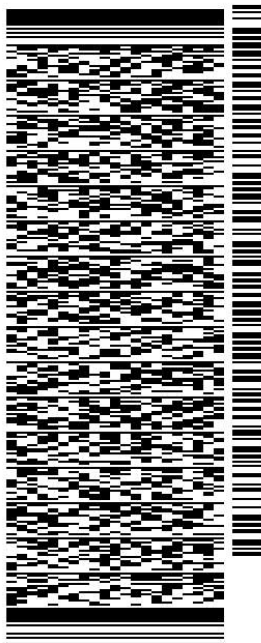
BILL SENDER

TO NOEL BISHOP - FIRST SELECTMAN
TOWN OF WESTBROOK
866 BOSTON POST ROAD

WESTBROOK CT 06498

(860) 399-3041 REF: 1734 7890
INV/ PO DEPT:

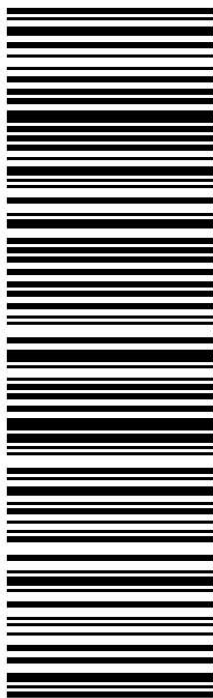
567J2118DD05A2



J192119091901ur

TRK# 7773 2565 5038 TUE - 24 DEC 4:30P
0201 STANDARD OVERNIGHT DSR

XE RSPA 06498
CT-US BDL



After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

ORIGIN ID: ONHA (585) 445-5896
RICHARD ZAJAC
CROWN CASTLE
4545 EAST RIVER ROAD
SUITE 320
WEST HENRIETTA, NY 14568
UNITED STATES US

SHIP DATE: 23DEC19
ACTWGT: 1.00 LB
CAD: 104924194/NINET4160

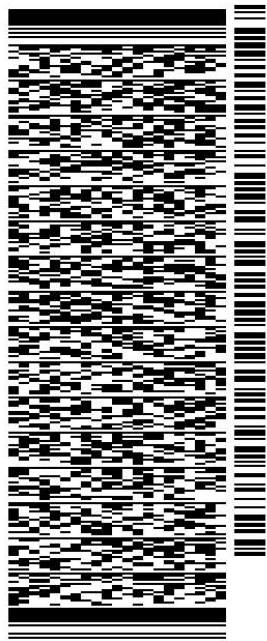
BILL SENDER

TO ERIC KNAPP - PLANNING AND ZONING
TOWN OF WESTBROOK
866 BOSTON POST ROAD

WESTBROOK CT 06498

(860) 399-3041 REF: 1734 7890
INV/ PO: DEPT:

567J2118DD05A2



J192119091901ur

TRK# 7773 2568 0370
0201

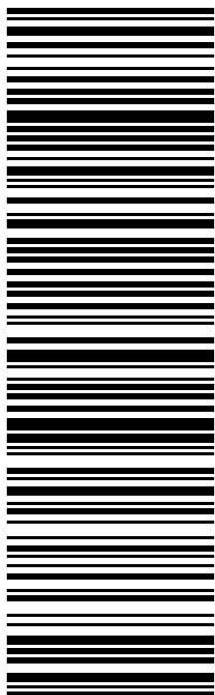
TUE - 24 DEC 4:30P
STANDARD OVERNIGHT

DSR

06498

CT-US BDL

XE RSPA



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4545 EAST RIVER ROAD
SUITE 320
WEST HENRIETTA, NY 14568
UNITED STATES US

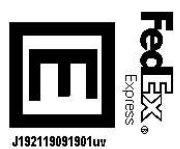
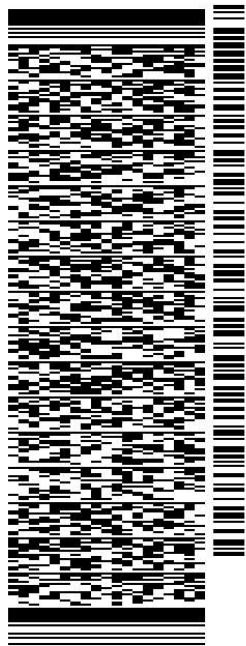
SHIP DATE: 23DEC19
ACTWGT: 1.00 LB
CAD: 104924194/NINET4160
BILL SENDER

TO RICHARD AND CATHERINE WADE

782 OLD CLINTON ROAD

WESTBROOK CT 06498

(585) 445-5896 REF: 1734 7890
INV/ PO: DEPT:



J192119091901ur

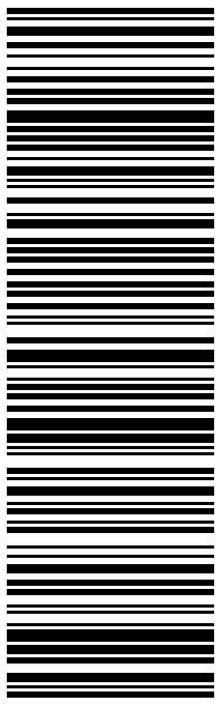
567J2118DD05A2

TRK# 7773 2570 1740
0201

TUE - 24 DEC 4:30P
STANDARD OVERNIGHT

XE RSPA

DSR 06498
CT-US BDL



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Exhibit A

Original Facility Approval



Petition No. 511
Sprint Sites USA
Westbrook, Connecticut
Staff Report
July 11, 2001

On May 24, 2000, Connecticut Siting Council (Council) member William H. Smith and Council Staff Paul M. Aresta met representatives for Sprint Sites USA (SSUSA) and Julie Cashin for an inspection of an existing 160-foot tall monopole tower located at 782 Old Clinton Road, in Westbrook, Connecticut. SSUSA seeks a declaratory ruling that the proposed expansion of the existing compound, modification of the existing access road, co-location of three additional telecommunications carriers, and reinforcement of the existing tower would not have a substantial adverse environmental effect, and that no Certificate of Environmental Compatibility and Public Need (Certificate) would be required.

The existing 160-foot tall monopole tower was approved by the Town of Westbrook on May 26, 1998. The Council approved the shared use of this tower by Omnipoint Communication at a centerline height of 145 feet above ground level (AGL) on June 16, 1999, and Nextel Communication at a centerline height of 130 feet AGL on September 16, 1999. SSUSA contends that the existing tower currently supports antennas for Sprint at the 160 feet AGL, Voicestream's (formerly Omnipoint) at 142.5 AGL, and Nextel at 150 feet AGL. SSUSA request that the Council amend the previous approvals to acknowledge the existing antennas at their current heights.

AT&T Wireless Services (AT&T) proposes to place up to twelve panel antennas on a platform at the 130-foot level; Verizon proposes to place up to fifteen panel antennas on a platform at the 120-foot level; and Springwiche Cellular proposes to place up to twelve panel antennas on a platform at the 110-foot level of the existing tower.

The existing tower and foundation would require reinforcing to support all of the proposed equipment. SSUSA has included two proposals to reinforce the existing structure. SSUSA would either construct a structural support consisting of three approximately 125-foot tall columns with eleven cross-braces around the existing monopole structure. The proposed columns would each be constructed of eight-inch diameter pipe filled with post-tensioned concrete. Alternately, SSUSA could install a collar type reinforcement around the existing monopole tower up to 109 feet AGL. The collar would be bolted together around the existing tower. The reinforcement would involve removing the antennas below the 110-foot height on the tower; installing 20-foot deep rock anchors through the existing foundation at each corner; installing the steel sleeve; and reinstalling the existing antennas. The exterior finish on the collar reinforcement would be galvanized steel.

SSUSA proposes to expand the existing fenced compound from 34 feet by 28 feet to 50 feet by 90 feet to accommodate three 12-foot by 20-foot telecommunications equipment buildings. The existing fence would be removed and a new approximately six-foot tall chain link fence with three strands of barbed wire would be constructed around the expanded compound. All vegetation within the existing compound would be removed. Evergreen landscaping would be installed around the perimeter of the expanded site compound and approximately six eight-foot white pines would be installed approximately 35 feet southwest of the expanded site compound. A vehicle turnaround would be constructed on the west side of the expanded compound, and a portion of the existing ten-foot wide gravel access road would be re-routed, at the request of the landowner. Utilities are available within the existing site compound. Verizon would install a 40-kW emergency diesel generator.

The worst case power density for the existing and proposed telecommunications operations at the site would be approximately 79 percent of the applicable ANSI standard at the base of the tower. SSUSA contends that the proposed expansion of the compound, tower reinforcement, and addition of the three telecommunications entities would not cause a significant change to the physical or environmental characteristics of this site.

Exhibit B

Property Card

782 OLD CLINTON RD

Location 782 OLD CLINTON RD

Mblu 169 / / 018 / /

Acct# E0110900

Owner WADE CATHERINE A

Assessment \$490,930

Appraisal \$702,340

PID 1175

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$587,600	\$114,740	\$702,340

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$416,620	\$74,310	\$490,930

Owner of Record

Owner WADE CATHERINE A

Sale Price \$0

Co-Owner

Certificate

Address 782 OLD CLINTON RD

Book & Page 162 / 83

WESTBROOK, CT 06498

Sale Date 11/10/1993

Instrument 25

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
WADE CATHERINE A	\$0		162 / 83	25	11/10/1993

Building Information

Building 1 : Section 1

Year Built: 1946

Living Area: 3,142

Replacement Cost: \$281,163

Building Percent 58

Good:

Replacement Cost

Less Depreciation: \$163,070

Building Attributes	
Field	Description

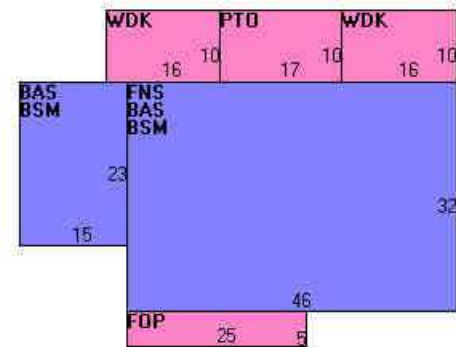
Style	Colonial
Model	Residential
Grade:	C+
Stories	1.9
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gambrel
Roof Cover	Asphalt
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	7
Full Bthrms:	3
Half Baths:	0
Extra Fixtures	3
Total Rooms:	10
Bath Style:	Modern
Kitchen Style:	Average
Extra Kitchens	0
Fireplace(s)	1
Gas Fireplace(s)	0
Stacks	1
Bsmt Garage(s)	0
Callback	
Fin Bsmnt	0
Bsmt Heat	
Int Vs Ext	Same

Building Photo



(<http://images.vgsi.com/photos2/WestbrookCTPhotos//\00\00\50>)

Building Layout



(<http://images.vgsi.com/photos2/WestbrookCTPhotos//Sketches/>)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,817	1,817
FNS	Finished 90% Story	1,472	1,325
BSM	Basement	1,817	0
FOP	Open Porch	125	0
PTO	Patio	170	0
WDK	Deck	320	0
		5,721	3,142

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 101
Description Res Dwelling
Zone RR
Neighborhood 0045
Alt Land Appr Category No

Land Line Valuation

Size (Acres) 5
Depth
Assessed Value \$74,310
Appraised Value \$114,740

Special Land			
Land Use Code	Land Use Description	Units	Unit Type
712	490 Tillable C	2	AC

Outbuildings

Outbuildings							<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #	Comment
FGR1	Garage			868 S.F.	\$10,850	1	2CGAR
TCB	Telecomm Bldg			216 UNITS	\$59,400	1	TELCOMM BLDG
TCS	Telecomm Site			700 UNITS	\$269,500	1	TELCOMM SITE
SPL1	Inground Pool - Typical			512 S.F.	\$4,610	1	IG POOL
SHD1	Shed			180 S.F.	\$1,800	1	SHED 2
BRN1	1 Story Barn			360 S.F.	\$5,400	1	
STB	Stable			310 S.F.	\$6,980	1	
LNT	Lean To			264 S.F.	\$660	1	
SHD1	Shed			140 S.F.	\$1,400	1	
GAZ	Gazebo			77 S.F.	\$770	1	
TCM	Telecomm			100 S.F.&HGT	\$2,450	1	SPRINT
TCM	Telecomm			1 S.F.&HGT	\$10,000	1	VERIZEN
TCM	Telecomm			3 S.F.&HGT	\$10,000	1	3 NEW ANTENNAS & 1 FIBRE CAB
TCM	Telecomm			1 S.F.&HGT	\$10,000	1	ADD 3 ANT;3 RADIOHEADS;CABLE
TCM	Telecomm			1 S.F.&HGT	\$10,000	1	RPLC PANELS-ADD RADIO HEADS
TCM	Telecomm			1 S.F.&HGT	\$10,000	1	SSPRINT ADD 3 ANTEN
TCM	Telecomm			0 S.F.&HGT	\$10,710	1	REMOVE/RPLC

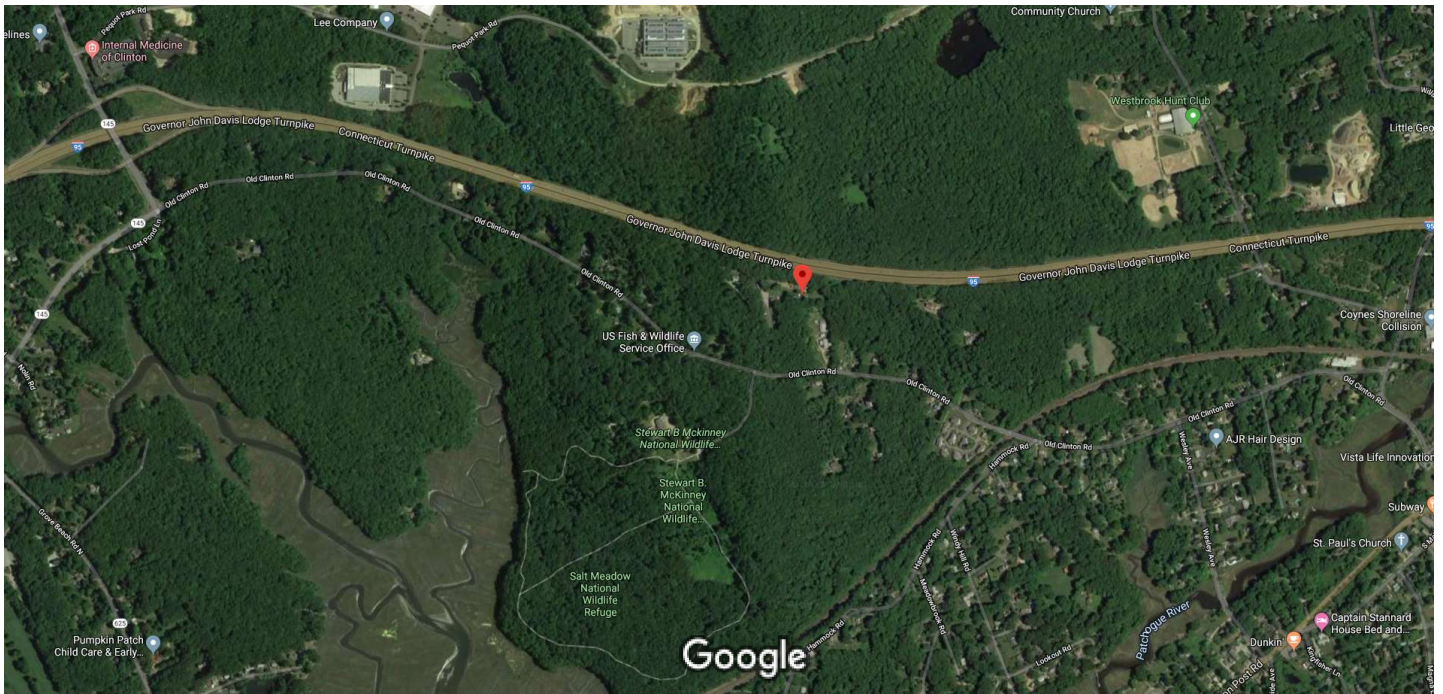
Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$587,600	\$114,740	\$702,340
2017	\$566,890	\$114,740	\$681,630
2016	\$556,890	\$114,740	\$671,630

Assessment			
Valuation Year	Improvements	Land	Total

2018	\$416,620	\$74,310	\$490,930
2017	\$402,120	\$74,310	\$476,430
2016	\$395,120	\$74,310	\$469,430

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Imagery ©2019 Maxar Technologies, New York GIS, U.S. Geological Survey, USDA Farm Service Agency, Map data ©2019 500 ft



41°17'25.7"N 72°28'07.9"W

41.290472, -72.468861



Directions



Save



Nearby



Send to your phone



Share



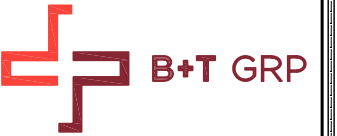
Westbrook School District, Westbrook, CT 06498



7GRJ+5F Westbrook, Connecticut

Exhibit C

Construction Drawings



verizon

WESTBROOK 2 CT

782 OLD CLINTON RD.

WESTBROOK, CT 06498

LOCATION CODE: 468781



400 FRIBERG PARKWAY
WESTBOROUGH, MA 01581
PH: (508) 330-3300

WESTBROOK 2 CT

782 OLD CLINTON RD.
WESTBROOK, CT 06498
MIDDLESEX COUNTY
EXISTING MONOPOLE

PROJECT SUMMARY

SITE NAME: WESTBROOK 2 CT
SITE ADDRESS: 782 OLD CLINTON RD. WESTBROOK, CT 06498 MIDDLESEX COUNTY

TOWER OWNER: CROWN CASTLE
2000 CORPORATE DR
CANONSBURG, PA 15317
876339

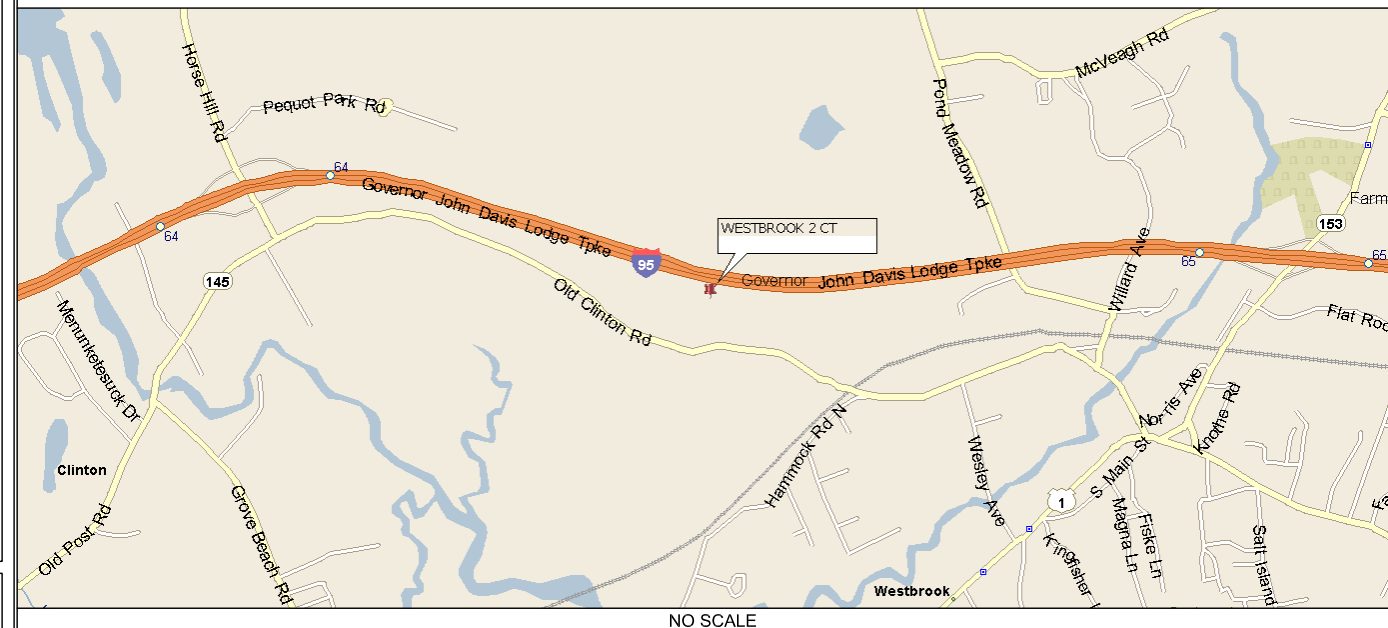
BU NUMBER: 876339

CUSTOMER/APPLICANT: VERIZON WIRELESS
20 ALEXANDER DRIVE
WALLINGFORD, CT 06492
CONTACT: ANDREW LEONE
(617) 620-4175

NAD83
LATITUDE: 41° 17' 25.70" N
LONGITUDE: 72° 28' 5.80" W
ELEVATION: 101'
CURRENT ZONING: RURAL
A&E FIRM: B+T GROUP
1717 S. BOULDER, SUITE 300
TULSA, OK 74119
MIKE OAKES
(918) 587-4630

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

LOCATION MAP



NO SCALE

DRIVING DIRECTIONS

DEPART BRADLEY INTERNATIONAL AIRPORT ON TERMINAL RD. ROAD NAME CHANGES TO BRADLEY FIELD CONNECTOR. ROAD NAME CHANGES TO CT-20. TAKE RAMP ONTO I-91. AT EXIT 22S, TAKE RAMP ONTO CT-9. KEEP STRAIGHT ONTO CT-17. AT EXIT 13, ROAD NAME CHANGES TO CT-9. TAKE RAMP ONTO I-95. AT EXIT 64, TURN RIGHT ONTO RAMP. TURN LEFT ONTO CT-145. TURN LEFT ONTO OLD CLINTON RD. TURN LEFT ONTO LOCAL ROAD AND ARRIVE AT WESTBROOK 2 CT.

DRAWING INDEX

SHEET #	SHEET DESCRIPTION	REV. #
T-1	TITLE SHEET	1
A-1	COMPOUND PLAN AND TOWER ELEVATION	1
A-2	EQUIPMENT DETAILS	1
A-3	AZIMUTH PLAN AND PLUMBING DIAGRAM	1

A/E DOCUMENT REVIEW STATUS

TITLE	SIGNATURE	DATE
OWNER:		
R.F. ENGINEER:		
CONSTRUCTION MGR.:		
LEASING & ZONING:		
VERIZON WIRELESS:		

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.

DO NOT SCALE DRAWINGS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11x17. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



CALL CONNECTICUT ONE CALL
(800) 922-4455
CALL 3 WORKING DAYS
BEFORE YOU DIG!



CODE COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING	2018 CT STATE BLDG CODE
STRUCTURAL	2018 CT STATE BLDG CODE
MECHANICAL	2018 CT STATE BLDG CODE
ELECTRICAL	NEC 2017

PROJECT NO: 77937.006.01

CHECKED BY: FWP

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	11/8/19	BEL	PERMITTING
1	12/19/19	GEH	PERMITTING

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/20

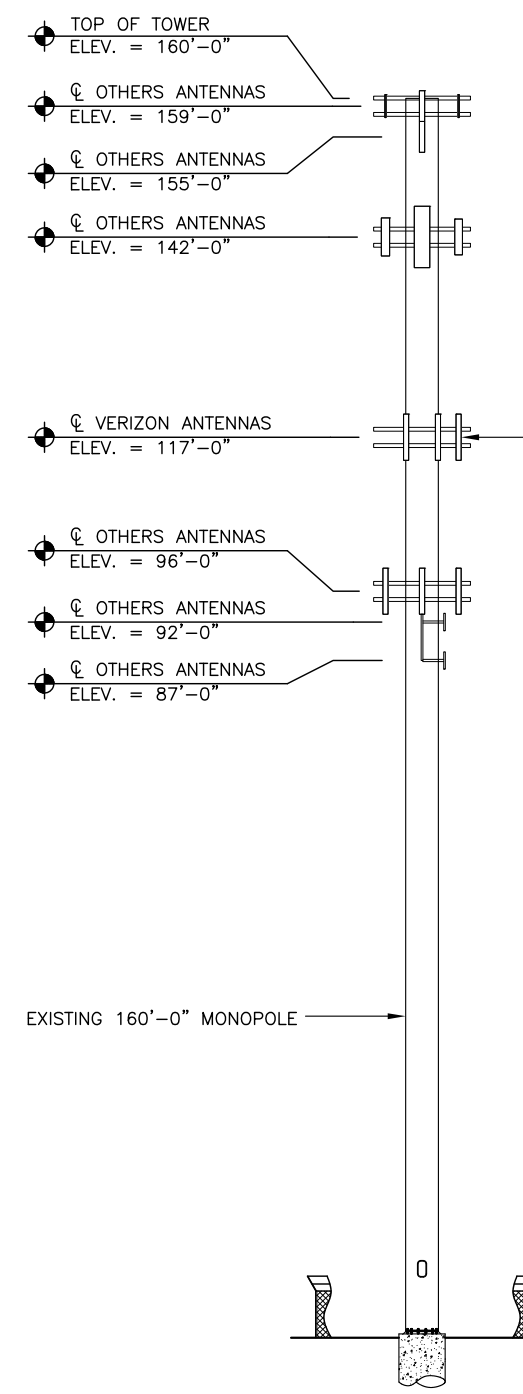
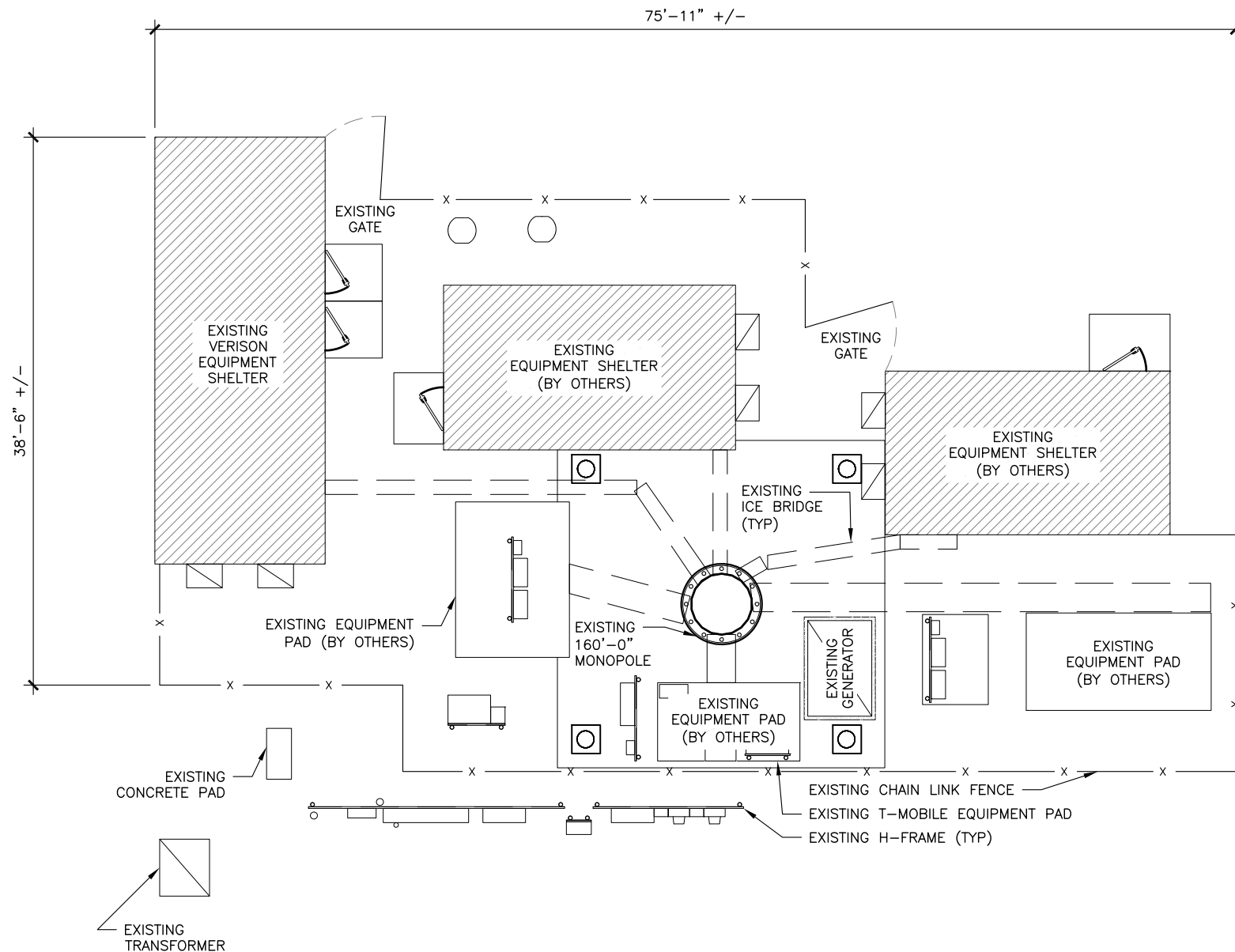


IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: T-1 **REVISION:** 1

T-1 1

- NOTES:
1. CONTRACTOR TO VERIFY EXACT COAX AND ANTENNA INSTALLATION AND ANTENNA HEIGHT WITH LATEST RF DATA SHEETS PRIOR TO INSTALLATION.
 2. STRUCTURAL ANALYSIS DONE BY OTHERS.
 3. VERIZON SHALL PROVIDE A STRUCTURAL ANALYSIS OF THE TOWER PREPARED BY A LICENSED STATE STRUCTURAL ENGINEER CERTIFYING THAT THE EXISTING TOWER AND PROPOSED IMPROVEMENTS HAVE SUFFICIENT CAPACITY TO SUPPORT ALL NEW WORK THAT WILL BE DONE IN COMPLIANCE WITH THE CURRENT EDITION OF BUILDING CODES AND EIA/TIA CRITERIA. THE CONTRACTOR IS RESPONSIBLE TO CONFIRM THAT ANY AND ALL IMPROVEMENTS REQUIRED BY THE STRUCTURAL ANALYSIS CERTIFICATION ARE PROPERLY INSTALLED PRIOR TO THE ADDITION OF ANTENNAS, SUPPORTS AND APPURTENANCES PROPOSED ON THESE DRAWING OTHERWISE NOTED IN THE STRUCTURAL ANALYSIS.CAP AND WEATHERPROFF UNUSED ANTENNA PORTS.
 4. ESTIMATED HYBRIFLEX CABLE LENGTH: 166' (EACH RUN)



- EXISTING TO REMAIN:**
- (6) JAHH-65B-R3B ANTENNAS.
 - (2) LPA-80063-4C4-EDIN-4 ANTENNAS.
 - (1) LPA-80080-4CF ANTENNA.
- EXISTING TO BE REMOVED:**
- (3) 4T4R B5 RRHs.
 - (3) 2x60 AWS RRHs.
 - (3) UHBA B13 RRHs.
 - (3) UHIE B66A RRHs.
- PROPOSED:**
- (3) B2/B66A RRHs.
 - (3) B5/B13 RRHs.
 - (3) CBC78T-DS-43-2X DIPLEXERS.



verizon

400 FRIBERG PARKWAY
WESTBOROUGH, MA 01581
PH: (508) 330-3300

WESTBROOK 2 CT

782 OLD CLINTON RD.
WESTBROOK, CT 06498
MIDDLESEX COUNTY

EXISTING MONOPOLE

PROJECT NO: 77937.006.01

CHECKED BY: FWP

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION
0	11/8/19	BEL	PERMITTING
1	12/19/19	GEH	PERMITTING

B&T ENGINEERING, INC.
PEC.0001564
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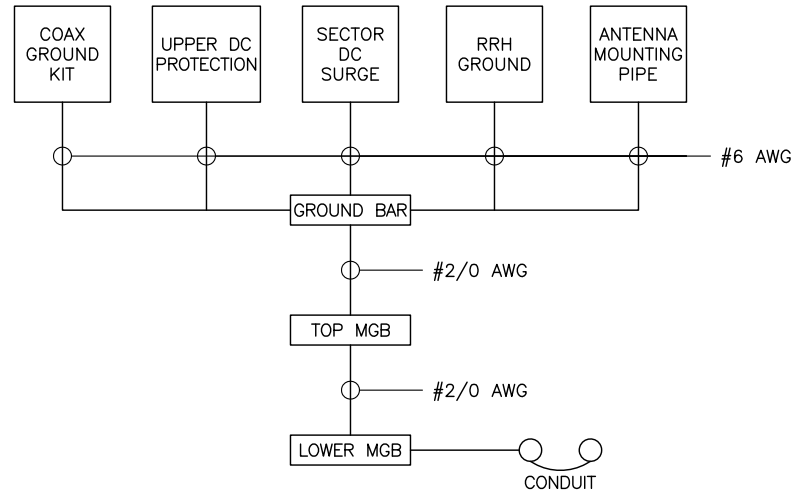
SHEET NUMBER: **A-1** REVISION: **1**

1 COMPOUND PLAN
SCALE: 0' 1' 4' 8' 16'



2 FINAL TOWER ELEVATION
SCALE: 0' 4' 8' 16' 32'

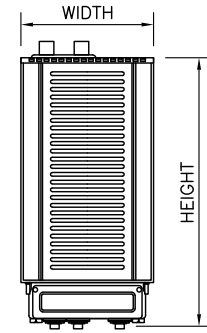
- NOTE:
1. INSTALL ALL EQUIPMENT, MOUNTING BRACKETS AND HARDWARE ACCORDING WITH MANUFACTURE'S RECOMMENDATIONS.
 2. GROUND DISTRIBUTION BOXES, MOUNTING PIPES AND RRHs IN ACCORDANCE WITH MANUFACTURE'S RECOMMENDATIONS.
 3. INSTALLED EQUIPMENT AND MOUNTING BRACKETS SHALL NOT INTERFERE WITH CLIMBING ACCESS NOR ANT INSTALLED SAFETY DEVICES.
 4. EQUIPMENT TO BE INSTALLED AT VERIZON'S RAD. CENTER IN ACCORDANCE WITH TOWER STRUCTURAL ANALYSIS (ANALYSIS BY OTHERS).



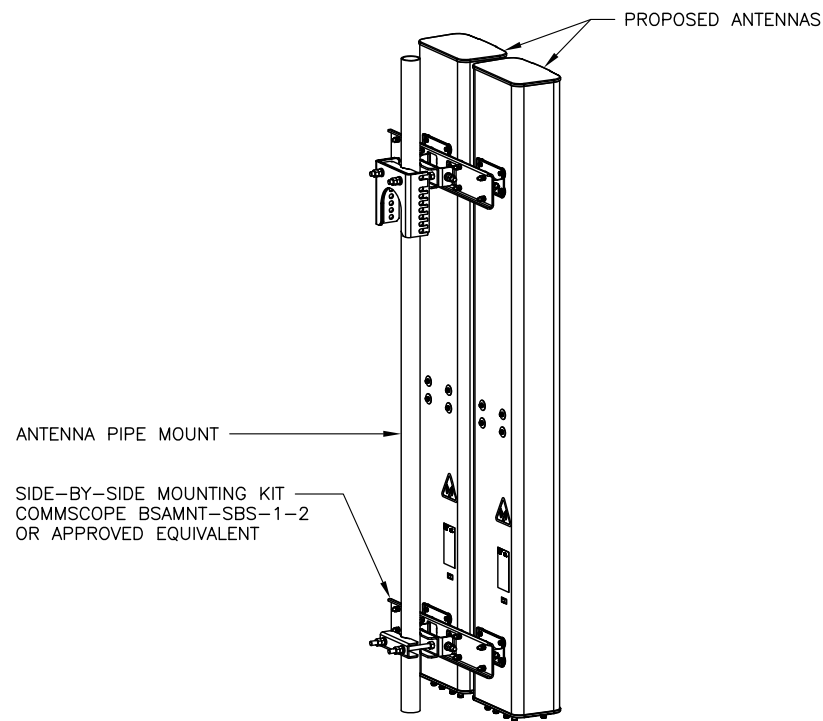
- NOTE:
1. BOND ANTENNA GROUNDING KIT CABLES TO TOP CIBE.
 2. BOND ANTENNA GROUNDING KIT CABLE TO BOTTOM CIBE.
 3. TYPICAL FOR ALL SECTORS.

1 GROUNDING SCHEMATIC DIAGRAM
SCALE: N.T.S.

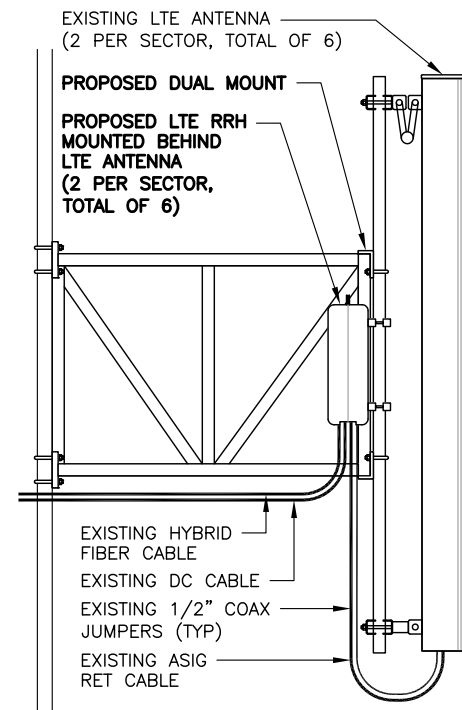
REMOTE RADIO HEAD DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
B2/B66A RRH BR049	15.0"	15.0"	10.0"	84.4 LBS
B5/B13 RRH BR04C	15.0"	15.0"	8.1"	70.3 LBS



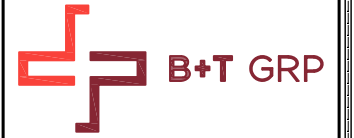
2 RRH SPECIFICATIONS
SCALE: N.T.S.



3 ANTENNA MOUNTING DETAIL
SCALE: N.T.S.



4 ANTENNA MOUNTING DETAIL
SCALE: N.T.S.



400 FRIBERG PARKWAY
WESTBOROUGH, MA 01581
PH: (508) 330-3300

WESTBROOK 2 CT

782 OLD CLINTON RD.
WESTBROOK, CT 06498
MIDDLESEX COUNTY
EXISTING MONOPOLE

PROJECT NO: 77937.006.01
CHECKED BY: FWP

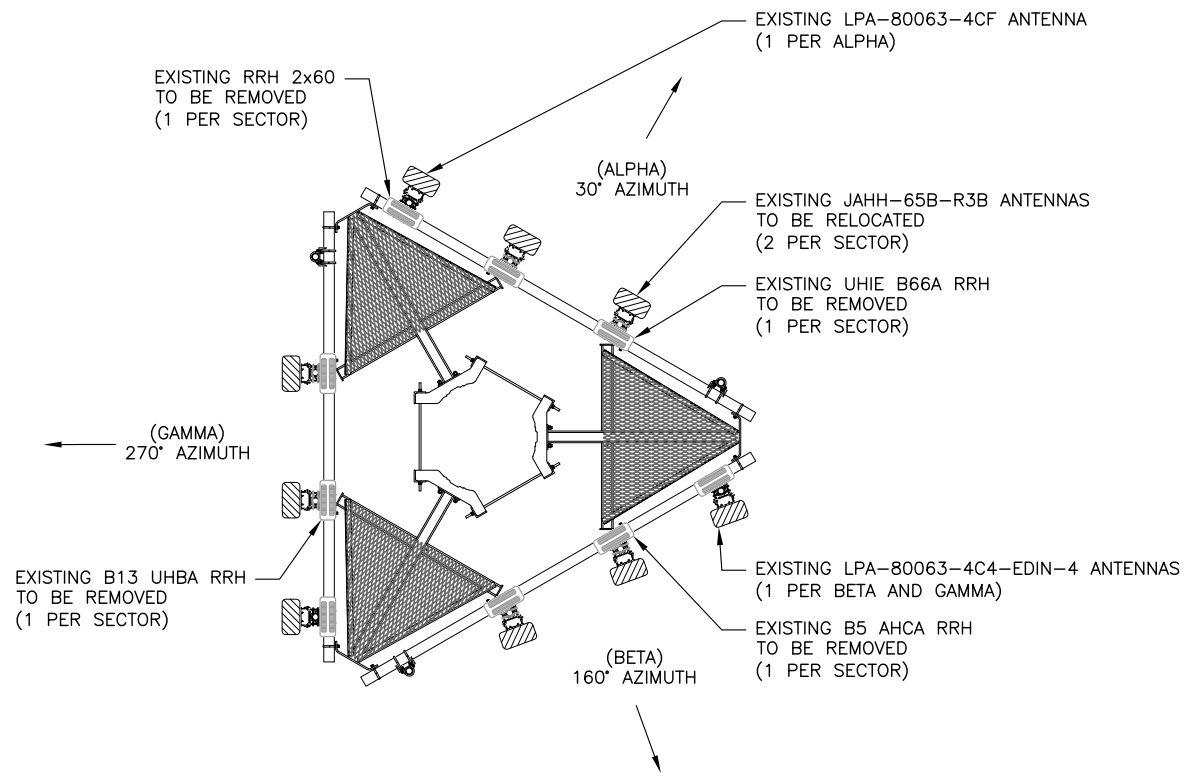
ISSUED FOR:			
REV	DATE	DRWN	DESCRIPTION
0	11/8/19	BEL	PERMITTING
1	12/19/19	GEH	PERMITTING

B&T ENGINEERING, INC.
PEC.0001564
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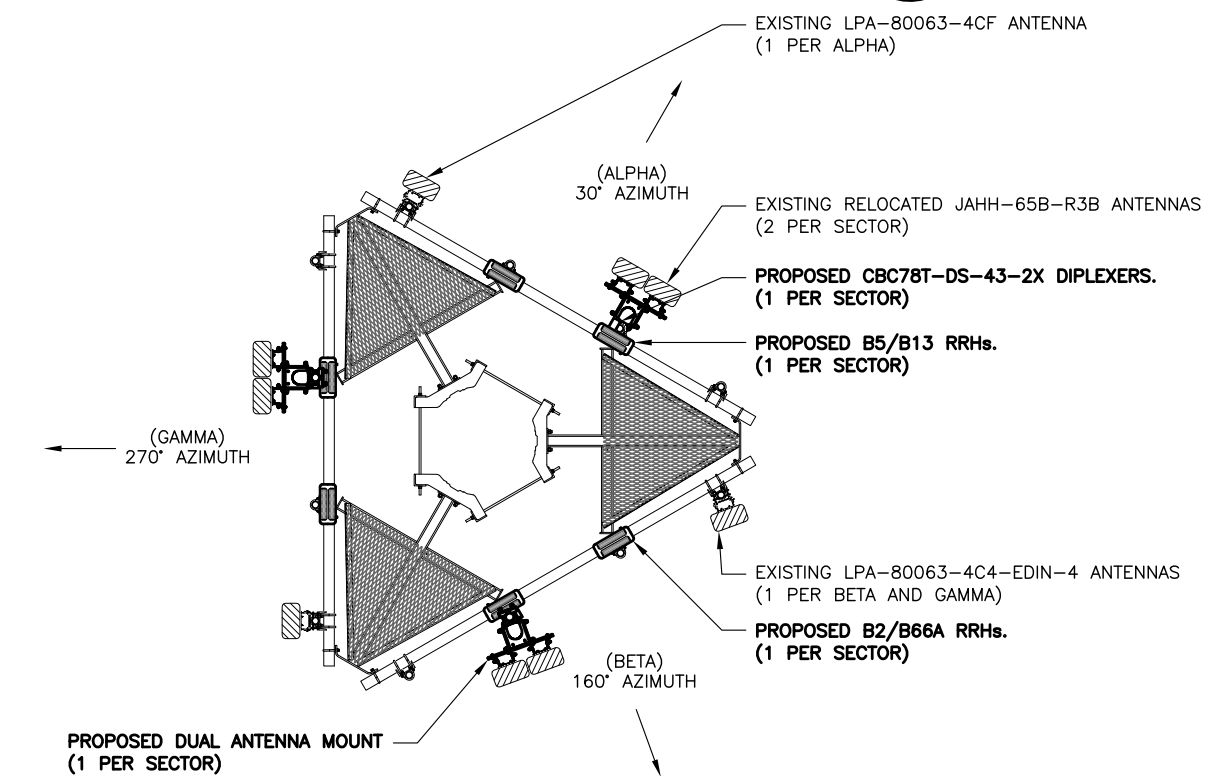


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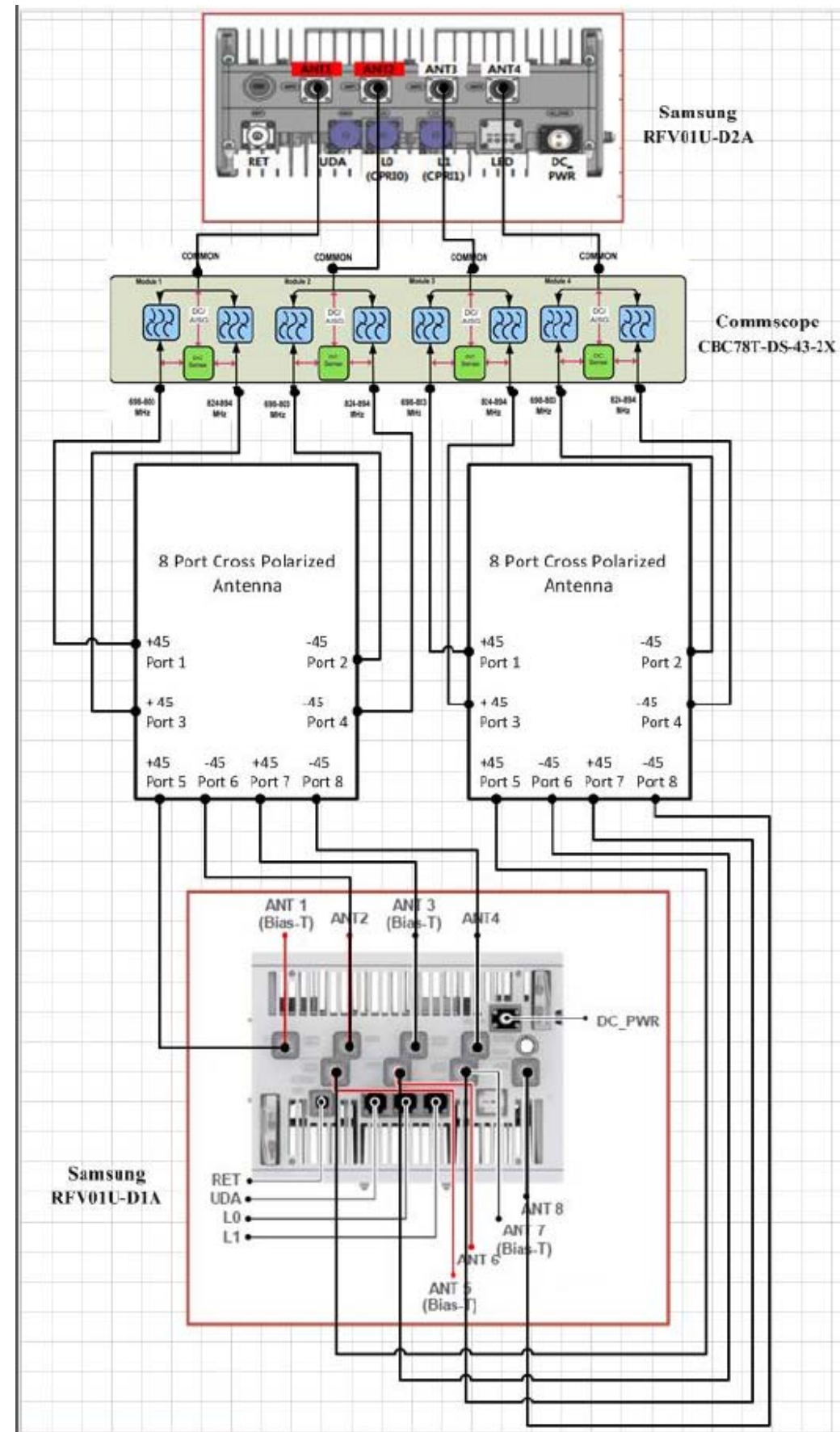
SHEET NUMBER: **A-2** REVISION: **1**



1 EXISTING ANTENNA ORIENTATION
SCALE: N.T.S.



2 PROPOSED ANTENNA ORIENTATION
SCALE: N.T.S.



3 ANTENNA SYSTEM LAYOUT
SCALE: N.T.S.



verizon

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WESTBROOK 2 CT

782 OLD CLINTON RD.
WESTBROOK, CT 06498
MIDDLESEX COUNTY
EXISTING MONOPOLE

PROJECT NO: 77937.006.01
CHECKED BY: FWP

ISSUED FOR:			
REV	DATE	DRWN	DESCRIPTION
0	11/8/19	BEL	PERMITTING
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SHEET NUMBER: **A-3** REVISION: **1**

Exhibit D

Structural Analysis Report

Date: **November 4, 2019**

Amanda D Brown
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

Paul J. Ford and Company
250 E. Broad St., Ste 600
Columbus, OH 43215
614-221-6679

Subject: Structural Analysis Report

Carrier Designation: Verizon Wireless Co-Locate
Carrier Site Number: NG38961
Carrier Site Name: WESTBROOK 2 CT

Crown Castle Designation: Crown Castle BU Number: 876339
Crown Castle Site Name: POND MEADOW RD.
STABLE
Crown Castle JDE Job Number: 592729
Crown Castle Work Order Number: 1803006
Crown Castle Order Number: 506806 Rev. 0

Engineering Firm Designation: Paul J. Ford and Company Project Number: 37519-1581.006.7805

Site Data: 782 Old Clinton Road, WESTBROOK, Middlesex County, CT
Latitude 41° 17' 25.7", Longitude -72° 28' 7.9"
160 Foot - Monopole Tower

Dear Amanda D Brown,

Paul J. Ford and Company is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above mentioned tower.

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: Proposed Equipment Configuration

Sufficient Capacity: 75.5%

This analysis utilizes an ultimate 3-second gust wind speed of 135 mph as required by the 2018 Connecticut State Building Code and Appendix N. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:


Angela Sage, E.I.
Structural Designer
asage@pauljford.com RMF

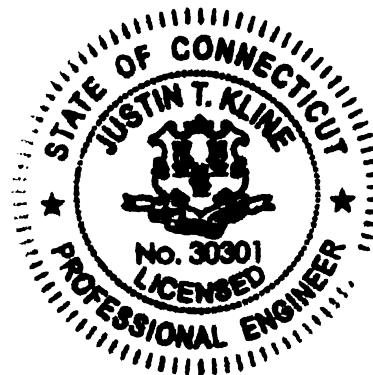


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- 3.2) Assumptions

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6) APPENDIX B

- Base Level Drawing

7) APPENDIX C

- Additional Calculations

1) INTRODUCTION

This tower is a 160 ft Monopole tower designed by VALMONT in July of 1998.

The tower has been modified multiple times to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	135 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
116.0	118.0	2	antel	LPA-80063-4CF-EDIN-5 w/ Mount Pipe	8	1-5/8
		1	antel	LPA-80080/4CF w/ Mount Pipe		
		3	commscope	CBC78T-DS-43-2X		
		6	commscope	JAHH-65B-R3B w/ Mount Pipe		
		2	rfs celwave	DB-T1-6Z-8AB-0Z		
		3	samsung telecommunications	RFV01U-D1A		
	3	samsung telecommunications	RFV01U-D2A			
	116.0	1	tower mounts	Platform Mount [LP 303-1_HR-1]		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
159.0	160.0	3	alcatel lucent	TD-RRH8X20-25	4	1-1/4
		1	rfs celwave	APXV9ERR18-C-A20 w/ Mount Pipe		
		2	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe		
	159.0	1	tower mounts	Platform Mount [LP 602-1]		
155.0	155.0	1	tower mounts	Side Arm Mount [SO 102-3]		
	154.0	3	alcatel lucent	800MHZ 2X50W RRH W/FILTER	-	-
		3	alcatel lucent	PCS 1900MHZ 4X45W-65MHZ		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
142.0	145.0	3	ericsson	AIR 32 B2A B66AA w/ Mount Pipe	10	1-5/8
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe		
		3	ericsson	KRY 112 144/1		
		3	ericsson	RADIO 4449 B12/B71		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
142.0	1	tower mounts	Platform Mount [LP 602-1]			
96.0	103.0	1	gps	GPS_A	1 1 2 12 2	3/8 1/2 3/4 1-5/8 2" Cond
	98.0	3	ericsson	RRUS 11		
		3	ericsson	RRUS 12 B2		
		3	kmw communications	AM-X-CD-14-65-00T-RET w/ Mount Pipe		
		6	powerwave technologies	7770.00 w/ Mount Pipe		
		6	powerwave technologies	TT19-08BP111-001		
	1	raycap	DC6-48-60-18-8F			
96.0	1	tower mounts	T-Arm Mount [TA 602-3]			
92.0	93.0	1	lucent	KS24019-L112A	1	1/2
	92.0	1	tower mounts	Side Arm Mount [SO 701-1]		
87.0	87.0	2	tower mounts	Side Arm Mount [SO 701-1]	-	-

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH, 10-12295E G1, 01/10/2011	1532966	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Semaan, 17818, 07/06/1998	1533020	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Valmont, 17618-98, 07/14/1998	1531985	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, 67311-0118, 04/06/2011	2884023	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 111347, 07/18/2011	2923975	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, 37512-1874, 08/09/2012	3366474	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 128324, 01/11/2013	3633208	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, 37513-0634, 03/11/2013	3678375	CCISITES
4-POST-MODIFICATION INSPECTION	PJF, 31002-0028, 05/19/2003	3682462	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	PJF, 31002-0028, 05/08/2002	3682464	CCISITES
4-POST-MODIFICATION INSPECTION	TEP, 31002-0028, 05/08/2002	4023333	CCISITES

3.1) Analysis Method

tnxTower (version 8.0.5.0) and RISA-3D (version 17.0.3), commercially available analysis software packages, were used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from each analysis is included in Appendix A and C.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. These calculations are presented in Appendix C.

3.2) Assumptions

- 1) Tower and structures have been built and maintained in accordance with the manufacturer's specifications.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 3) Monopole was modified in conformance with the referenced modification drawings.
- 4) The existing base plate grout was considered in this analysis. Grout must be maintained and inspected periodically and must be replaced if damaged or cracked. Refer to Crown Castle document ENG-PRC-10012, Base Plate Grout Repair.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
160 - 155	Pole	TP23.3x22.35x0.2188	Pole	3.5%	Pass
155 - 150	Pole	TP24.251x23.3x0.2188	Pole	7.9%	Pass
150 - 145	Pole	TP25.201x24.251x0.2188	Pole	12.3%	Pass
145 - 140	Pole	TP26.151x25.201x0.2188	Pole	19.8%	Pass
140 - 135	Pole	TP27.102x26.151x0.2188	Pole	27.5%	Pass
135 - 130	Pole	TP28.052x27.102x0.2188	Pole	34.8%	Pass
130 - 125	Pole	TP29.002x28.052x0.2188	Pole	41.8%	Pass
125 - 122	Pole	TP30.46x29.002x0.2188	Pole	45.9%	Pass
122 - 117	Pole	TP30.085x29.135x0.2813	Pole	37.0%	Pass
117 - 112	Pole	TP31.035x30.085x0.2813	Pole	43.2%	Pass
112 - 107	Pole	TP31.985x31.035x0.2813	Pole	48.7%	Pass
107 - 102	Pole	TP32.935x31.985x0.2813	Pole	54.1%	Pass
102 - 97	Pole	TP33.885x32.935x0.2813	Pole	59.5%	Pass
97 - 94	Pole	TP34.455x33.885x0.2813	Pole	63.5%	Pass
94 - 93.75	Pole + Reinf.	TP34.502x34.455x0.3563	Reinf. 8 Compression	65.6%	Pass
93.75 - 88.75	Pole + Reinf.	TP35.452x34.502x0.3563	Reinf. 8 Compression	71.7%	Pass
88.75 - 88	Pole + Reinf.	TP36.64x35.452x0.3563	Reinf. 8 Compression	72.6%	Pass
88 - 81.5	Pole	TP36.273x35.032x0.375	Pole	54.0%	Pass
81.5 - 76.5	Pole	TP37.227x36.273x0.375	Pole	57.8%	Pass
76.5 - 72.25	Pole	TP38.038x37.227x0.375	Pole	60.9%	Pass
72.25 - 72	Pole + Reinf.	TP38.085x38.038x0.4875	Reinf. 5 Tension Rupture	57.4%	Pass
72 - 67	Pole + Reinf.	TP39.039x38.085x0.4813	Reinf. 5 Tension Rupture	60.4%	Pass
67 - 62	Pole + Reinf.	TP39.993x39.039x0.475	Reinf. 5 Tension Rupture	63.3%	Pass
62 - 57	Pole + Reinf.	TP40.947x39.993x0.475	Reinf. 5 Tension Rupture	65.9%	Pass
57 - 53.75	Pole + Reinf.	TP41.568x40.947x0.475	Reinf. 5 Tension Rupture	67.6%	Pass
53.75 - 53.5	Pole + Reinf.	TP41.615x41.568x0.6375	Reinf. 4 Tension Rupture	63.2%	Pass
53.5 - 48.5	Pole + Reinf.	TP42.569x41.615x0.6375	Reinf. 4 Tension Rupture	65.7%	Pass
48.5 - 47	Pole + Reinf.	TP44.08x42.569x0.625	Reinf. 4 Tension Rupture	66.5%	Pass
47 - 39.58	Pole + Reinf.	TP43.509x42.106x0.7	Reinf. 7 Compression	68.4%	Pass
39.58 - 34.58	Pole + Reinf.	TP44.455x43.509x0.7	Reinf. 7 Compression	70.6%	Pass
34.58 - 31.5	Pole + Reinf.	TP45.039x44.455x0.6875	Reinf. 7 Compression	71.9%	Pass
31.5 - 31.25	Pole + Reinf.	TP45.086x45.039x0.7375	Reinf. 7 Compression	67.5%	Pass
31.25 - 28.75	Pole + Reinf.	TP45.559x45.086x0.7375	Reinf. 7 Compression	68.5%	Pass
28.75 - 28.5	Pole + Reinf.	TP45.607x45.559x0.6375	Reinf. 3 Tension Rupture	69.6%	Pass
28.5 - 23.5	Pole + Reinf.	TP46.553x45.607x0.625	Reinf. 3 Tension Rupture	71.4%	Pass
23.5 - 18.5	Pole + Reinf.	TP47.499x46.553x0.625	Reinf. 3 Tension Rupture	73.1%	Pass
18.5 - 13.5	Pole + Reinf.	TP48.445x47.499x0.625	Reinf. 3 Tension Rupture	74.7%	Pass
13.5 - 11	Pole + Reinf.	TP48.918x48.445x0.6125	Reinf. 3 Tension Rupture	75.5%	Pass
11 - 10.75	Pole + Reinf.	TP48.966x48.918x0.7125	Reinf. 3 Tension Rupture	67.0%	Pass
10.75 - 6.25	Pole + Reinf.	TP49.817x48.966x0.7125	Reinf. 3 Tension Rupture	68.3%	Pass
6.25 - 6	Pole + Reinf.	TP49.865x49.817x0.6625	Reinf. 6 Tension Rupture	73.5%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
6 - 5	Pole + Reinf.	TP50.054x49.865x0.6625	Reinf. 6 Tension Rupture	73.8%	Pass
5 - 4.75	Pole + Reinf.	TP50.101x50.054x0.6625	Reinf. 3 Tension Rupture	69.9%	Pass
4.75 - 0	Pole + Reinf.	TP51x50.101x0.6625	Reinf. 3 Tension Rupture	71.2%	Pass
				Summary	
			Pole	63.5%	Pass
			Reinforcement	75.5%	Pass
			Overall	75.5%	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	47.8	Pass
1	Base Plate	0	54.2	Pass
1	Base Foundation Structural Steel	0	47.1	Pass
1	Base Foundation Soil Interaction	0	25.4	Pass

Structure Rating (max from all components) =	75.5%
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Notes:

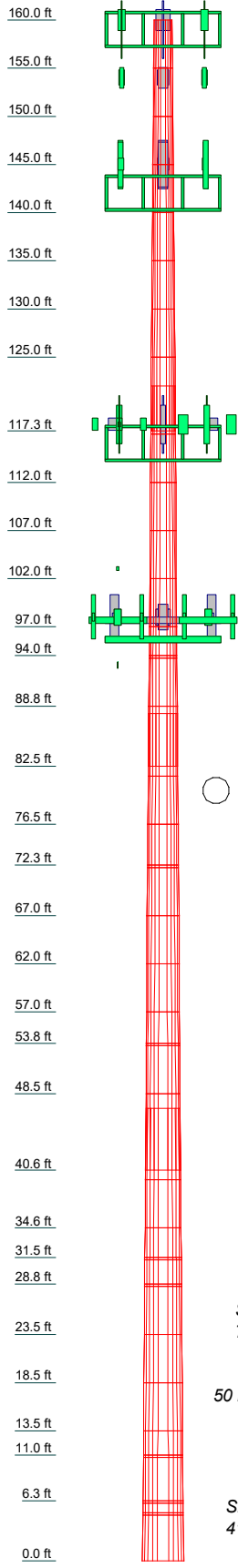
- All structural ratings are per TIA-222-H Section 15.5
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

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

APPENDIX A
TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
2	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
3	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
4	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
5	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
6	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
7	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
8	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
9	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
10	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
11	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
12	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
13	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
14	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
15	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
16	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
17	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
18	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
19	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
20	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
21	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
22	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
23	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
24	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
25	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
26	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
27	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
28	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
29	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
30	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
31	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
32	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
33	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
34	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
35	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
36	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
37	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
38	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
39	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3
40	5.00	12	0.2188	4.67	50.1949	51.0800	A572-65	0.3



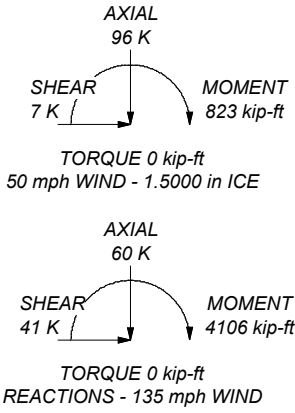
MATERIAL STRENGTH


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

TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 135 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TIA-222-H Annex S

ALL REACTIONS ARE FACTORED



 <p>Paul J. Ford and Company 250 E. Broad St., Ste 600 Columbus, OH 43215 Phone: 614-221-6679 FAX:</p>	Job: 160-Ft Monopole / Pond Meadow		
	Project: 37516-2880.004 / BU# 876339		
	Client: Crown Castle	Drawn by: Angela Sage	App'd:
	Code: TIA-222-H	Date: 11/04/19	Scale: NTS
	Path:	Dwg No. E-1	

Tower Input Data

The tower is a monopole.
 This tower is designed using the TIA-222-H standard.
 The following design criteria apply:

- 1) Tower is located in Middlesex County, Connecticut.
- 2) Tower base elevation above sea level: 94.00 ft.
- 3) Basic wind speed of 135 mph.
- 4) Risk Category II.
- 5) Exposure Category B.
- 6) Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- 7) Topographic Category: 1.
- 8) Crest Height: 0.00 ft.
- 9) Nominal ice thickness of 1.5000 in.
- 10) Ice thickness is considered to increase with height.
- 11) Ice density of 56.00 pcf.
- 12) A wind speed of 50 mph is used in combination with ice.
- 13) Temperature drop of 50 °F.
- 14) Deflections calculated using a wind speed of 60 mph.
- 15) TIA-222-H Annex S.
- 16) A non-linear (P-delta) analysis was used.
- 17) Pressures are calculated at each section.
- 18) Stress ratio used in pole design is 1.05.
- 19) Tower analysis based on target reliabilities in accordance with Annex S.
- 20) Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- 21) 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 Ignore KL/ry For 60 Deg. Angle Legs	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-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <div style="background-color: #e0e0e0; text-align: center; padding: 2px;">Poles</div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
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Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	160.00-155.00	5.00	0.00	12	22.3500	23.3003	0.2188	0.8750	A572-65 (65 ksi)
L2	155.00-150.00	5.00	0.00	12	23.3003	24.2506	0.2188	0.8750	A572-65 (65 ksi)
L3	150.00-145.00	5.00	0.00	12	24.2506	25.2009	0.2188	0.8750	A572-65 (65 ksi)
L4	145.00-140.00	5.00	0.00	12	25.2009	26.1513	0.2188	0.8750	A572-65 (65 ksi)
L5	140.00-135.00	5.00	0.00	12	26.1513	27.1016	0.2188	0.8750	A572-65 (65 ksi)
L6	135.00-130.00	5.00	0.00	12	27.1016	28.0519	0.2188	0.8750	A572-65 (65 ksi)
L7	130.00-125.00	5.00	0.00	12	28.0519	29.0022	0.2188	0.8750	A572-65 (65 ksi)
L8	125.00-117.33	7.67	4.67	12	29.0022	30.4600	0.2188	0.8750	A572-65 (65 ksi)
L9	117.33-117.00	5.00	0.00	12	29.1349	30.0849	0.2813	1.1252	A572-65 (65 ksi)
L10	117.00-112.00	5.00	0.00	12	30.0849	31.0349	0.2813	1.1252	A572-65 (65 ksi)
L11	112.00-107.00	5.00	0.00	12	31.0349	31.9849	0.2813	1.1252	A572-65 (65 ksi)
L12	107.00-102.00	5.00	0.00	12	31.9849	32.9350	0.2813	1.1252	A572-65 (65 ksi)
L13	102.00-97.00	5.00	0.00	12	32.9350	33.8850	0.2813	1.1252	A572-65 (65 ksi)
L14	97.00-94.00	3.00	0.00	12	33.8850	34.4550	0.2813	1.1252	A572-65 (65 ksi)
L15	94.00-93.75	0.25	0.00	12	34.4550	34.5025	0.3563	1.4252	A572-65 (65 ksi)
L16	93.75-88.75	5.00	0.00	12	34.5025	35.4525	0.3563	1.4252	A572-65 (65 ksi)
L17	88.75-82.50	6.25	5.50	12	35.4525	36.6400	0.3563	1.4252	A572-65 (65 ksi)
L18	82.50-81.50	6.50	0.00	12	35.0324	36.2726	0.3750	1.5000	A572-65 (65 ksi)
L19	81.50-76.50	5.00	0.00	12	36.2726	37.2267	0.3750	1.5000	A572-65 (65 ksi)
L20	76.50-72.25	4.25	0.00	12	37.2267	38.0376	0.3750	1.5000	A572-65 (65 ksi)
L21	72.25-72.00	0.25	0.00	12	38.0376	38.0853	0.4875	1.9500	A572-65 (65 ksi)
L22	72.00-67.00	5.00	0.00	12	38.0853	39.0394	0.4813	1.9250	A572-65 (65 ksi)
L23	67.00-62.00	5.00	0.00	12	39.0394	39.9934	0.4750	1.9000	A572-65 (65 ksi)
L24	62.00-57.00	5.00	0.00	12	39.9934	40.9475	0.4750	1.9000	A572-65 (65 ksi)
L25	57.00-53.75	3.25	0.00	12	40.9475	41.5676	0.4750	1.9000	A572-65 (65 ksi)
L26	53.75-53.50	0.25	0.00	12	41.5676	41.6153	0.6375	2.5500	A572-65 (65 ksi)
L27	53.50-48.50	5.00	0.00	12	41.6153	42.5694	0.6375	2.5500	A572-65 (65 ksi)
L28	48.50-40.58	7.92	6.42	12	42.5694	44.0800	0.6250	2.5000	A572-65 (65 ksi)
L29	40.58-39.58	7.42	0.00	12	42.1056	43.5092	0.7000	2.8000	A572-65 (65 ksi)
L30	39.58-34.58	5.00	0.00	12	43.5092	44.4554	0.7000	2.8000	A572-65 (65 ksi)
L31	34.58-31.50	3.08	0.00	12	44.4554	45.0388	0.6875	2.7500	A572-65 (65 ksi)
L32	31.50-31.25	0.25	0.00	12	45.0388	45.0862	0.7375	2.9500	A572-65 (65 ksi)
L33	31.25-28.75	2.50	0.00	12	45.0862	45.5593	0.7375	2.9500	A572-65

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L34	28.75-28.50	0.25	0.00	12	45.5593	45.6066	0.6375	2.5500	(65 ksi) A572-65
L35	28.50-23.50	5.00	0.00	12	45.6066	46.5528	0.6250	2.5000	(65 ksi) A572-65
L36	23.50-18.50	5.00	0.00	12	46.5528	47.4990	0.6250	2.5000	(65 ksi) A572-65
L37	18.50-13.50	5.00	0.00	12	47.4990	48.4452	0.6250	2.5000	(65 ksi) A572-65
L38	13.50-11.00	2.50	0.00	12	48.4452	48.9183	0.6125	2.4500	(65 ksi) A572-65
L39	11.00-10.75	0.25	0.00	12	48.9183	48.9656	0.7125	2.8500	(65 ksi) A572-65
L40	10.75-6.25	4.50	0.00	12	48.9656	49.8172	0.7125	2.8500	(65 ksi) A572-65
L41	6.25-6.00	0.25	0.00	12	49.8172	49.8645	0.6625	2.6500	(65 ksi) A572-65
L42	6.00-5.00	1.00	0.00	12	49.8645	50.0538	0.6625	2.6500	(65 ksi) A572-65
L43	5.00-4.75	0.25	0.00	12	50.0538	50.1011	0.6625	2.6500	(65 ksi) A572-65
L44	4.75-0.00	4.75		12	50.1011	51.0000	0.6625	2.6500	(65 ksi) A572-65

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	23.0613	15.5887	974.5581	7.9230	11.5773	84.1784	1974.7188	7.6723	5.4036	24.702
	24.0451	16.2581	1105.5687	8.2632	12.0696	91.5997	2240.1818	8.0017	5.6582	25.866
L2	24.0451	16.2581	1105.5687	8.2632	12.0696	91.5997	2240.1818	8.0017	5.6582	25.866
	25.0289	16.9275	1247.8238	8.6034	12.5618	99.3346	2528.4294	8.3312	5.9129	27.03
L3	25.0289	16.9275	1247.8238	8.6034	12.5618	99.3346	2528.4294	8.3312	5.9129	27.03
	26.0128	17.5968	1401.7865	8.9436	13.0541	107.3829	2840.3995	8.6606	6.1676	28.195
L4	26.0128	17.5968	1401.7865	8.9436	13.0541	107.3829	2840.3995	8.6606	6.1676	28.195
	26.9966	18.2662	1567.9197	9.2838	13.5464	115.7448	3177.0304	8.9901	6.4223	29.359
L5	26.9966	18.2662	1567.9197	9.2838	13.5464	115.7448	3177.0304	8.9901	6.4223	29.359
	27.9805	18.9356	1746.6864	9.6241	14.0386	124.4201	3539.2602	9.3195	6.6770	30.523
L6	27.9805	18.9356	1746.6864	9.6241	14.0386	124.4201	3539.2602	9.3195	6.6770	30.523
	28.9643	19.6050	1938.5495	9.9643	14.5309	133.4089	3928.0268	9.6490	6.9317	31.688
L7	28.9643	19.6050	1938.5495	9.9643	14.5309	133.4089	3928.0268	9.6490	6.9317	31.688
	29.9481	20.2744	2143.9719	10.3045	15.0231	142.7112	4344.2683	9.9784	7.1863	32.852
L8	29.9481	20.2744	2143.9719	10.3045	15.0231	142.7112	4344.2683	9.9784	7.1863	32.852
	31.4573	21.3012	2486.5036	10.8264	15.7783	157.5903	5038.3305	10.4838	7.5770	34.638
L9	31.4573	21.3012	2486.5036	10.8264	15.7783	157.5903	5038.3305	10.4838	7.5770	34.638
	30.9821	26.1352	2777.2296	10.3296	15.0919	184.0214	5627.4200	12.8629	7.0543	25.077
L10	31.0470	26.9957	3060.6837	10.6697	15.5840	196.3993	6201.7751	13.2865	7.3089	25.982
	32.0305	27.8562	3362.7970	11.0098	16.0761	209.1800	6813.9384	13.7100	7.5635	26.888
L11	32.0305	27.8562	3362.7970	11.0098	16.0761	209.1800	6813.9384	13.7100	7.5635	26.888
	33.0140	28.7167	3684.1641	11.3499	16.5682	222.3636	7465.1153	14.1335	7.8181	27.793
L12	33.0140	28.7167	3684.1641	11.3499	16.5682	222.3636	7465.1153	14.1335	7.8181	27.793
	33.9975	29.5772	4025.3798	11.6900	17.0603	235.9500	8156.5109	14.5570	8.0727	28.698
L13	33.9975	29.5772	4025.3798	11.6900	17.0603	235.9500	8156.5109	14.5570	8.0727	28.698
	34.9811	30.4377	4387.0390	12.0301	17.5524	249.9394	8889.3303	14.9805	8.3273	29.603
L14	34.9811	30.4377	4387.0390	12.0301	17.5524	249.9394	8889.3303	14.9805	8.3273	29.603
	35.9647	31.2959	4750.0000	12.4012	18.0445	264.0000	9583.3333	15.4000	8.5833	30.500
L15	35.5447	39.1209	5805.9066	12.2073	17.8477	325.3032	11764.3409	19.2541	8.2790	23.236
	35.5939	39.1754	5830.2039	12.2243	17.8723	326.2149	11813.5738	19.2810	8.2918	23.272
L16	35.5939	39.1754	5830.2039	12.2243	17.8723	326.2149	11813.5738	19.2810	8.2918	23.272
	36.5774	40.2654	6330.4907	12.5644	18.3644	344.7156	12827.2904	19.8174	8.5464	23.986
L17	36.5774	40.2654	6330.4907	12.5644	18.3644	344.7156	12827.2904	19.8174	8.5464	23.986
	37.0668	41.6278	6995.0745	12.9896	18.9795	368.5591	14173.9175	20.4879	8.8646	24.88
L18	37.2224	41.8488	6415.9434	12.4073	18.1468	353.5583	13000.4408	20.5967	8.3837	22.356
	37.4199	43.3464	7129.6972	12.8514	18.7892	379.4566	14446.6995	21.3338	8.7161	23.243
L19	37.4199	43.3464	7129.6972	12.8514	18.7892	379.4566	14446.6995	21.3338	8.7161	23.243

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L20	38.4076	44.4984	7713.3941	13.1929	19.2834	400.0012	15629.4276	21.9008	8.9718	23.925
	38.4076	44.4984	7713.3941	13.1929	19.2834	400.0012	15629.4276	21.9008	8.9718	23.925
	39.2472	45.4776	8233.8932	13.4832	19.7035	417.8900	16684.1000	22.3827	9.1891	24.504
L21	39.2075	58.9443	10608.4269	13.4429	19.7035	538.4033	21495.5489	29.0106	8.8876	18.231
	39.2569	59.0192	10648.9080	13.4600	19.7282	539.7809	21577.5746	29.0475	8.9004	18.257
L22	39.2591	58.2722	10517.6269	13.4623	19.7282	533.1264	21311.5636	28.6798	8.9171	18.529
	40.2468	59.7507	11338.6318	13.8038	20.2224	560.6966	22975.1421	29.4075	9.1728	19.06
L23	40.2490	58.9842	11196.8198	13.8061	20.2224	553.6840	22687.7926	29.0302	9.1896	19.346
	41.2367	60.4434	12048.5445	14.1476	20.7166	581.5889	24413.6177	29.7484	9.4452	19.885
L24	41.2367	60.4434	12048.5445	14.1476	20.7166	581.5889	24413.6177	29.7484	9.4452	19.885
	42.2244	61.9027	12942.4026	14.4891	21.2108	610.1800	26224.8165	30.4666	9.7009	20.423
L25	42.2244	61.9027	12942.4026	14.4891	21.2108	610.1800	26224.8165	30.4666	9.7009	20.423
	42.8664	62.8511	13546.4862	14.7112	21.5320	629.1321	27448.8537	30.9334	9.8671	20.773
L26	42.8091	84.0193	17965.9752	14.6530	21.5320	834.3840	36403.9365	41.3517	9.4316	14.795
	42.8585	84.1172	18028.8642	14.6701	21.5567	836.3449	36531.3668	41.3999	9.4444	14.815
L27	42.8585	84.1172	18028.8642	14.6701	21.5567	836.3449	36531.3668	41.3999	9.4444	14.815
	43.8462	86.0756	19317.6562	15.0116	22.0509	876.0473	39142.8088	42.3638	9.7001	15.216
L28	43.8506	84.4130	18955.8209	15.0161	22.0509	859.6382	38409.6323	41.5455	9.7336	15.574
	45.4145	87.4532	21078.5679	15.5569	22.8334	923.1446	42710.8933	43.0418	10.1384	16.222
L29	44.6012	93.3282	20422.8496	14.8232	21.8107	936.3689	41382.2302	45.9333	9.4083	13.44
	44.7971	96.4919	22571.0071	15.3257	22.5378	1001.4751	45734.9796	47.4904	9.7845	13.978
L30	44.7971	96.4919	22571.0071	15.3257	22.5378	1001.4751	45734.9796	47.4904	9.7845	13.978
	45.7767	98.6247	24100.9987	15.6644	23.0279	1046.5999	48835.1575	48.5401	10.0380	14.34
L31	45.7811	96.8912	23690.9161	15.6689	23.0279	1028.7918	48004.2190	47.6869	10.0715	14.65
	46.3851	98.1828	24651.0178	15.8778	23.3301	1056.6177	49949.6453	48.3226	10.2279	14.877
L32	46.3675	105.2046	26354.4847	15.8599	23.3301	1129.6334	53401.3310	51.7785	10.0939	13.687
	46.4165	105.3170	26439.0091	15.8768	23.3546	1132.0672	53572.6005	51.8338	10.1066	13.704
L33	46.4165	105.3170	26439.0091	15.8768	23.3546	1132.0672	53572.6005	51.8338	10.1066	13.704
	46.9063	106.4405	27294.2152	16.0462	23.5997	1156.5494	55305.4798	52.3868	10.2334	13.876
L34	46.9415	92.2131	23751.5714	16.0820	23.5997	1006.4354	48127.1231	45.3845	10.5014	16.473
	46.9905	92.3103	23826.6946	16.0989	23.6242	1008.5713	48279.3431	45.4323	10.5141	16.493
L35	46.9949	90.5254	23378.9896	16.1034	23.6242	989.6202	47372.1713	44.5539	10.5476	16.876
	47.9745	92.4297	24885.6174	16.4421	24.1143	1031.9840	50425.0077	45.4911	10.8011	17.282
L36	47.9745	92.4297	24885.6174	16.4421	24.1143	1031.9840	50425.0077	45.4911	10.8011	17.282
	48.9541	94.3339	26455.6218	16.7809	24.6045	1075.2358	53606.2623	46.4283	11.0547	17.688
L37	48.9541	94.3339	26455.6218	16.7809	24.6045	1075.2358	53606.2623	46.4283	11.0547	17.688
	49.9337	96.2382	28090.3084	17.1196	25.0946	1119.3756	56918.5806	47.3655	11.3083	18.093
L38	49.9381	94.3381	27550.0954	17.1241	25.0946	1097.8485	55823.9625	46.4303	11.3418	18.517
	50.4279	95.2712	28375.6918	17.2935	25.3397	1119.8120	57496.8446	46.8896	11.4686	18.724
L39	50.3926	110.5962	32803.8851	17.2577	25.3397	1294.5652	66469.5648	54.4321	11.2006	15.72
	50.4416	110.7048	32900.5643	17.2746	25.3642	1297.1260	66665.4631	54.4855	11.2133	15.738
L40	50.4416	110.7048	32900.5643	17.2746	25.3642	1297.1260	66665.4631	54.4855	11.2133	15.738
	51.3232	112.6585	34673.4211	17.5795	25.8053	1343.6537	70257.7516	55.4471	11.4415	16.058
L41	51.3409	104.8593	32338.7829	17.5974	25.8053	1253.1825	65527.1415	51.6086	11.5755	17.472
	51.3899	104.9603	32432.2497	17.6143	25.8298	1255.6121	65716.5307	51.6582	11.5882	17.492
L42	51.3899	104.9603	32432.2497	17.6143	25.8298	1255.6121	65716.5307	51.6582	11.5882	17.492
	51.5858	105.3640	32807.9180	17.6821	25.9279	1265.3538	66477.7365	51.8569	11.6389	17.568
L43	51.5858	105.3640	32807.9180	17.6821	25.9279	1265.3538	66477.7365	51.8569	11.6389	17.568
	51.6348	105.4649	32902.2861	17.6990	25.9524	1267.7952	66668.9520	51.9066	11.6516	17.587
L44	51.6348	105.4649	32902.2861	17.6990	25.9524	1267.7952	66668.9520	51.9066	11.6516	17.587
	52.5654	107.3825	34729.8280	18.0208	26.4180	1314.6275	70372.0472	52.8504	11.8925	17.951

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1 160.00-155.00				1	1	1			
L2 155.00-150.00				1	1	1			
L3 150.00-145.00				1	1	1			
L4 145.00-140.00				1	1	1			
L5 140.00-135.00				1	1	1			
L6 135.00-130.00				1	1	1			
L7 130.00-125.00				1	1	1			
L8 125.00-117.33				1	1	1			
L9 117.33-117.00				1	1	1			
L10 117.00-112.00				1	1	1			
L11 112.00-107.00				1	1	1			
L12 107.00-102.00				1	1	1			

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L13 102.00-97.00				1	1	1			
L14 97.00-94.00				1	1	1			
L15 94.00-93.75				1	1	1.13634			
L16 93.75-88.75				1	1	1.12695			
L17 88.75-82.50				1	1	1.12558			
L18 82.50-81.50				1	1	1			
L19 81.50-76.50				1	1	1			
L20 76.50-72.25				1	1	1			
L21 72.25-72.00				1	1	0.975148			
L22 72.00-67.00				1	1	0.982491			
L23 67.00-62.00				1	1	0.990289			
L24 62.00-57.00				1	1	0.985555			
L25 57.00-53.75				1	1	0.982596			
L26 53.75-53.50				1	1	0.96925			
L27 53.50-48.50				1	1	0.960581			
L28 48.50-40.58				1	1	0.976929			
L29 40.58-39.58				1	1	0.973266			
L30 39.58-34.58				1	1	0.965735			
L31 34.58-31.50				1	1	0.978453			
L32 31.50-31.25				1	1	0.970749			
L33 31.25-28.75				1	1	0.966764			
L34 28.75-28.50				1	1	0.969016			
L35 28.50-23.50				1	1	0.982186			
L36 23.50-18.50				1	1	0.97649			
L37 18.50-13.50				1	1	0.971019			
L38 13.50-11.00				1	1	0.987871			
L39 11.00-10.75				1	1	1.01358			
L40 10.75-6.25				1	1	1.00665			
L41 6.25-6.00				1	1	1.07366			
L42 6.00-5.00				1	1	1.07208			
L43 5.00-4.75				1	1	1.0254			
L44 4.75-0.00				1	1	1.01888			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter r	Perimeter r	Weight plf
								in	in	
6.25 x 1.25	B	No	Surface Af (CaAa)	7.00 - 0.00	1	1	0.292 0.292	6.2500	15.0000	0.00
6.875 x 1.25	C	No	Surface Af (CaAa)	29.25 - 0.00	1	1	-0.458 -0.458	6.8750	16.2500	0.00
6.875 x 1.25	A	No	Surface Af (CaAa)	29.25 - 0.00	1	1	-0.458 -0.458	6.8750	16.2500	0.00
6.875 x 1.25	B	No	Surface Af (CaAa)	29.25 - 0.00	1	1	-0.458 -0.458	6.8750	16.2500	0.00
5.25 x 1.25	A	No	Surface Af (CaAa)	56.00 - 29.33	1	1	-0.458 -0.458	5.2500	13.0000	0.00
5.25 x 1.25	C	No	Surface Af (CaAa)	56.00 - 29.33	1	1	-0.458 -0.458	5.2500	13.0000	0.00
5.25 x 1.25	B	No	Surface Af (CaAa)	56.00 - 29.33	1	1	-0.458 -0.458	5.2500	13.0000	0.00
*										
4 x 1	A	No	Surface Af (CaAa)	74.00 - 44.00	1	1	-0.208 -0.208	4.0000	10.0000	0.00
4 x 1	C	No	Surface Af (CaAa)	74.00 - 44.00	1	1	-0.208 -0.208	4.0000	10.0000	0.00
4 x 1	B	No	Surface Af (CaAa)	74.00 - 44.00	1	1	-0.208 -0.208	4.0000	10.0000	0.00
*										
6 x 1	A	No	Surface Af (CaAa)	13.00 - 3.00	1	1	-0.208 -0.208	6.0000	14.0000	0.00

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
6 x 1	C	No	Surface Af (CaAa)	13.00 - 3.00	1	1	0.042 0.042	6.0000	14.0000	0.00
6 x 1	B	No	Surface Af (CaAa)	13.00 - 3.00	1	1	0.042 0.042	6.0000	14.0000	0.00
4.5 x 1	A	No	Surface Af (CaAa)	42.25 - 27.25	1	1	0.042 0.042	4.5000	11.0000	0.00
4.5 x 1	C	No	Surface Af (CaAa)	42.25 - 27.25	1	1	0.042 0.042	4.5000	11.0000	0.00
4.5 x 1	B	No	Surface Af (CaAa)	42.25 - 27.25	1	1	0.042 0.042	4.5000	11.0000	0.00
4.5 x 1	C	No	Surface Af (CaAa)	96.50 - 86.50	1	1	0.292 0.292	4.5000	11.0000	0.00
4.5 x 1	C	No	Surface Af (CaAa)	96.50 - 86.50	1	1	-0.458 -0.458	4.5000	11.0000	0.00
4.5 x 1	B	No	Surface Af (CaAa)	96.50 - 86.50	1	1	-0.208 -0.208	4.5000	11.0000	0.00
*										
HSS4.5x4.5x4	A	No	Surface Af (CaAa)	108.00 - 88.00	1	1	-0.208 -0.208	4.5000	18.0000	13.91
HSS4.5x4.5x4	A	No	Surface Af (CaAa)	108.00 - 88.00	1	1	-0.458 -0.458	4.5000	18.0000	13.91
HSS4.5x4.5x4	C	No	Surface Af (CaAa)	108.00 - 88.00	1	1	0.042 0.042	4.5000	18.0000	13.91
HSS4.5x4.5x4	C	No	Surface Af (CaAa)	108.00 - 88.00	1	1	-0.208 -0.208	4.5000	18.0000	13.91
HSS4.5x4.5x4	B	No	Surface Af (CaAa)	108.00 - 88.00	1	1	0.292 0.292	4.5000	18.0000	13.91
HSS4.5x4.5x4	B	No	Surface Af (CaAa)	108.00 - 88.00	1	1	0.042 0.042	4.5000	18.0000	13.91
HSS4.5x4.5x4	B	No	Surface Af (CaAa)	108.00 - 88.00	1	1	-0.458 -0.458	4.5000	18.0000	13.91
HSS4.5x4.5x4	A	No	Surface Af (CaAa)	108.00 - 88.00	1	1	0.292 0.292	4.5000	18.0000	13.91
*										
HSS4.5x4.5x4	C	No	Surface Af (CaAa)	80.00 - 74.00	1	1	-0.458 -0.458	4.5000	18.0000	13.91
HSS4.5x4.5x4	A	No	Surface Af (CaAa)	80.00 - 74.00	1	1	0.292 0.292	4.5000	18.0000	13.91
LDF7-50A(1-5/8)	B	No	Surface Ar (CaAa)	96.00 - 0.00	12	6	-0.500 -0.252	1.9800		0.82
2" (Nominal) Conduit	B	No	Surface Ar (CaAa)	96.00 - 0.00	1	1	-0.429 -0.429	2.3750		0.72

LDF4-50A(1/2)	A	No	Surface Ar (CaAa)	92.00 - 0.00	1	1	0.391 0.391	0.6250		0.15

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _{AA} ft ² /ft	Weight plf

HB114-1-08U4-M5J(1-1/4)	C	No	No	Inside Pole	159.00 - 0.00	3	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	1.08 1.08 1.08 1.08
HB114-21U3M12-XXXF(1-1/4)	C	No	No	Inside Pole	159.00 - 0.00	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.00 0.00 0.00 0.00	1.22 1.22 1.22 1.22

LDF7-50A(1-5/8)	C	No	No	Inside Pole	142.00 - 0.00	6	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.82 0.82 0.82

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C _{AA}		Weight
							ft ² /ft	plf	
MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	C	No	No	Inside Pole	142.00 - 0.00	1	2" Ice	0.00	0.82
							No Ice	0.00	1.07
							1/2" Ice	0.00	1.07
							1" Ice	0.00	1.07
							2" Ice	0.00	1.07
HCS 6X12 4AWG(1-5/8)	C	No	No	Inside Pole	142.00 - 0.00	3	No Ice	0.00	2.40
							1/2" Ice	0.00	2.40
							1" Ice	0.00	2.40
							2" Ice	0.00	2.40

LDF7-50A(1-5/8)	C	No	No	Inside Pole	116.00 - 0.00	6	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
							2" Ice	0.00	0.82

HB158-1-08U8-S8J18(1-5/8)	C	No	No	Inside Pole	116.00 - 0.00	2	No Ice	0.00	1.30
							1/2" Ice	0.00	1.30
							1" Ice	0.00	1.30
							2" Ice	0.00	1.30

LDF4-50A(1/2)	C	No	No	Inside Pole	96.00 - 0.00	1	No Ice	0.00	0.15
							1/2" Ice	0.00	0.15
							1" Ice	0.00	0.15
							2" Ice	0.00	0.15

WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	96.00 - 0.00	2	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
							2" Ice	0.00	0.58

2" (Nominal) Conduit	C	No	No	Inside Pole	96.00 - 0.00	1	No Ice	0.00	0.72
							1/2" Ice	0.00	0.72
							1" Ice	0.00	0.72
							2" Ice	0.00	0.72

FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	96.00 - 0.00	1	No Ice	0.00	0.06
							1/2" Ice	0.00	0.06
							1" Ice	0.00	0.06
							2" Ice	0.00	0.06

Feed Line/Linear Appurtenances Section Areas

Tower Section n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	160.00-155.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L2	155.00-150.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L3	150.00-145.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L4	145.00-140.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.05
L5	140.00-135.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.09
L6	135.00-130.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.09
L7	130.00-125.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.09
L8	125.00-117.33	A	0.000	0.000	0.000	0.000	0.00

Tower Sectio n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.14
L9	117.33-117.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.01
L10	117.00-112.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.12
L11	112.00-107.00	A	0.000	0.000	2.250	0.000	0.04
		B	0.000	0.000	2.250	0.000	0.04
		C	0.000	0.000	1.500	0.000	0.15
L12	107.00-102.00	A	0.000	0.000	11.250	0.000	0.21
		B	0.000	0.000	11.250	0.000	0.21
		C	0.000	0.000	7.500	0.000	0.26
L13	102.00-97.00	A	0.000	0.000	11.250	0.000	0.21
		B	0.000	0.000	11.250	0.000	0.21
		C	0.000	0.000	7.500	0.000	0.26
L14	97.00-94.00	A	0.000	0.000	6.750	0.000	0.13
		B	0.000	0.000	11.476	0.000	0.15
		C	0.000	0.000	8.250	0.000	0.16
L15	94.00-93.75	A	0.000	0.000	0.563	0.000	0.01
		B	0.000	0.000	1.106	0.000	0.01
		C	0.000	0.000	0.750	0.000	0.01
L16	93.75-88.75	A	0.000	0.000	11.453	0.000	0.21
		B	0.000	0.000	22.128	0.000	0.26
		C	0.000	0.000	15.000	0.000	0.28
L17	88.75-82.50	A	0.000	0.000	2.078	0.000	0.03
		B	0.000	0.000	12.284	0.000	0.10
		C	0.000	0.000	4.500	0.000	0.19
L18	82.50-81.50	A	0.000	0.000	0.063	0.000	0.00
		B	0.000	0.000	1.426	0.000	0.01
		C	0.000	0.000	0.000	0.000	0.03
L19	81.50-76.50	A	0.000	0.000	2.339	0.000	0.05
		B	0.000	0.000	7.127	0.000	0.05
		C	0.000	0.000	2.026	0.000	0.19
L20	76.50-72.25	A	0.000	0.000	2.880	0.000	0.04
		B	0.000	0.000	7.225	0.000	0.04
		C	0.000	0.000	2.614	0.000	0.15
L21	72.25-72.00	A	0.000	0.000	0.182	0.000	0.00
		B	0.000	0.000	0.523	0.000	0.00
		C	0.000	0.000	0.167	0.000	0.01
L22	72.00-67.00	A	0.000	0.000	3.646	0.000	0.00
		B	0.000	0.000	10.461	0.000	0.05
		C	0.000	0.000	3.333	0.000	0.14
L23	67.00-62.00	A	0.000	0.000	3.646	0.000	0.00
		B	0.000	0.000	10.461	0.000	0.05
		C	0.000	0.000	3.333	0.000	0.14
L24	62.00-57.00	A	0.000	0.000	3.646	0.000	0.00
		B	0.000	0.000	10.461	0.000	0.05
		C	0.000	0.000	3.333	0.000	0.14
L25	57.00-53.75	A	0.000	0.000	4.339	0.000	0.00
		B	0.000	0.000	8.768	0.000	0.03
		C	0.000	0.000	4.135	0.000	0.09
L26	53.75-53.50	A	0.000	0.000	0.401	0.000	0.00
		B	0.000	0.000	0.742	0.000	0.00
		C	0.000	0.000	0.385	0.000	0.01
L27	53.50-48.50	A	0.000	0.000	8.021	0.000	0.00
		B	0.000	0.000	14.836	0.000	0.05
		C	0.000	0.000	7.708	0.000	0.14
L28	48.50-40.58	A	0.000	0.000	11.672	0.000	0.00
		B	0.000	0.000	22.463	0.000	0.08
		C	0.000	0.000	11.178	0.000	0.22
L29	40.58-39.58	A	0.000	0.000	1.688	0.000	0.00
		B	0.000	0.000	3.051	0.000	0.01
		C	0.000	0.000	1.625	0.000	0.03
L30	39.58-34.58	A	0.000	0.000	8.438	0.000	0.00
		B	0.000	0.000	15.253	0.000	0.05
		C	0.000	0.000	8.125	0.000	0.14
L31	34.58-31.50	A	0.000	0.000	5.203	0.000	0.00

Tower Section n	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L32	31.50-31.25	B	0.000	0.000	9.405	0.000	0.03
		C	0.000	0.000	5.010	0.000	0.08
		A	0.000	0.000	0.422	0.000	0.00
L33	31.25-28.75	B	0.000	0.000	0.763	0.000	0.00
		C	0.000	0.000	0.406	0.000	0.01
		A	0.000	0.000	4.284	0.000	0.00
L34	28.75-28.50	B	0.000	0.000	7.692	0.000	0.03
		C	0.000	0.000	4.128	0.000	0.07
		A	0.000	0.000	0.490	0.000	0.00
L35	28.50-23.50	B	0.000	0.000	0.830	0.000	0.00
		C	0.000	0.000	0.474	0.000	0.01
		A	0.000	0.000	6.979	0.000	0.00
L36	23.50-18.50	B	0.000	0.000	13.794	0.000	0.05
		C	0.000	0.000	6.667	0.000	0.14
		A	0.000	0.000	6.042	0.000	0.00
L37	18.50-13.50	B	0.000	0.000	12.857	0.000	0.05
		C	0.000	0.000	5.729	0.000	0.14
		A	0.000	0.000	6.042	0.000	0.00
L38	13.50-11.00	B	0.000	0.000	12.857	0.000	0.05
		C	0.000	0.000	5.729	0.000	0.14
		A	0.000	0.000	4.845	0.000	0.00
L39	11.00-10.75	B	0.000	0.000	8.253	0.000	0.03
		C	0.000	0.000	4.689	0.000	0.07
		A	0.000	0.000	0.530	0.000	0.00
L40	10.75-6.25	B	0.000	0.000	0.871	0.000	0.00
		C	0.000	0.000	0.514	0.000	0.01
		A	0.000	0.000	9.542	0.000	0.00
L41	6.25-6.00	B	0.000	0.000	16.303	0.000	0.05
		C	0.000	0.000	9.261	0.000	0.12
		A	0.000	0.000	0.530	0.000	0.00
L42	6.00-5.00	B	0.000	0.000	1.080	0.000	0.00
		C	0.000	0.000	0.514	0.000	0.01
		A	0.000	0.000	2.120	0.000	0.00
L43	5.00-4.75	B	0.000	0.000	4.320	0.000	0.01
		C	0.000	0.000	2.058	0.000	0.03
		A	0.000	0.000	0.530	0.000	0.00
L44	4.75-0.00	B	0.000	0.000	1.080	0.000	0.00
		C	0.000	0.000	0.514	0.000	0.01
		A	0.000	0.000	7.336	0.000	0.00
		B	0.000	0.000	17.783	0.000	0.05
		C	0.000	0.000	3.601	0.000	0.13

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section n	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	160.00-155.00	A	1.491	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L2	155.00-150.00	A	1.486	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L3	150.00-145.00	A	1.481	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.02
L4	145.00-140.00	A	1.476	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.05
L5	140.00-135.00	A	1.471	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.09
L6	135.00-130.00	A	1.465	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.09
L7	130.00-125.00	A	1.460	0.000	0.000	0.000	0.00	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.09
L8	125.00-117.33	A	1.452	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.14
L9	117.33-117.00	A	1.447	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.01
L10	117.00-112.00	A	1.444	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.12
L11	112.00-107.00	A	1.437	0.000	0.000	3.112	0.000	0.08
		B		0.000	0.000	3.112	0.000	0.08
		C		0.000	0.000	2.075	0.000	0.18
L12	107.00-102.00	A	1.431	0.000	0.000	15.542	0.000	0.40
		B		0.000	0.000	15.542	0.000	0.40
		C		0.000	0.000	10.362	0.000	0.40
L13	102.00-97.00	A	1.424	0.000	0.000	15.521	0.000	0.40
		B		0.000	0.000	15.521	0.000	0.40
		C		0.000	0.000	10.348	0.000	0.39
L14	97.00-94.00	A	1.418	0.000	0.000	9.302	0.000	0.24
		B		0.000	0.000	16.301	0.000	0.34
		C		0.000	0.000	10.756	0.000	0.29
L15	94.00-93.75	A	1.416	0.000	0.000	0.775	0.000	0.02
		B		0.000	0.000	1.592	0.000	0.03
		C		0.000	0.000	0.972	0.000	0.02
L16	93.75-88.75	A	1.411	0.000	0.000	16.605	0.000	0.41
		B		0.000	0.000	31.824	0.000	0.64
		C		0.000	0.000	19.425	0.000	0.49
L17	88.75-82.50	A	1.403	0.000	0.000	4.462	0.000	0.08
		B		0.000	0.000	19.075	0.000	0.33
		C		0.000	0.000	5.637	0.000	0.25
L18	82.50-81.50	A	1.396	0.000	0.000	0.343	0.000	0.00
		B		0.000	0.000	2.354	0.000	0.04
		C		0.000	0.000	0.000	0.000	0.03
L19	81.50-76.50	A	1.391	0.000	0.000	4.299	0.000	0.11
		B		0.000	0.000	11.743	0.000	0.20
		C		0.000	0.000	2.595	0.000	0.23
L20	76.50-72.25	A	1.383	0.000	0.000	4.943	0.000	0.10
		B		0.000	0.000	11.616	0.000	0.18
		C		0.000	0.000	3.502	0.000	0.20
L21	72.25-72.00	A	1.379	0.000	0.000	0.320	0.000	0.00
		B		0.000	0.000	0.821	0.000	0.01
		C		0.000	0.000	0.236	0.000	0.01
L22	72.00-67.00	A	1.374	0.000	0.000	6.393	0.000	0.06
		B		0.000	0.000	16.410	0.000	0.23
		C		0.000	0.000	4.707	0.000	0.18
L23	67.00-62.00	A	1.363	0.000	0.000	6.373	0.000	0.06
		B		0.000	0.000	16.377	0.000	0.23
		C		0.000	0.000	4.697	0.000	0.18
L24	62.00-57.00	A	1.352	0.000	0.000	6.351	0.000	0.06
		B		0.000	0.000	16.341	0.000	0.23
		C		0.000	0.000	4.686	0.000	0.18
L25	57.00-53.75	A	1.343	0.000	0.000	6.688	0.000	0.06
		B		0.000	0.000	13.174	0.000	0.17
		C		0.000	0.000	5.612	0.000	0.14
L26	53.75-53.50	A	1.338	0.000	0.000	0.602	0.000	0.01
		B		0.000	0.000	1.100	0.000	0.01
		C		0.000	0.000	0.519	0.000	0.01
L27	53.50-48.50	A	1.332	0.000	0.000	12.016	0.000	0.10
		B		0.000	0.000	21.981	0.000	0.28
		C		0.000	0.000	10.372	0.000	0.22
L28	48.50-40.58	A	1.314	0.000	0.000	17.453	0.000	0.15
		B		0.000	0.000	33.196	0.000	0.42
		C		0.000	0.000	14.878	0.000	0.34
L29	40.58-39.58	A	1.300	0.000	0.000	2.476	0.000	0.02
		B		0.000	0.000	4.464	0.000	0.05
		C		0.000	0.000	2.151	0.000	0.04
L30	39.58-34.58	A	1.290	0.000	0.000	12.307	0.000	0.10

Tower Section	Tower Elevation	Face or Leg	Ice Thickness	A _R	A _F	C _A A _A In Face	C _A A _A Out Face	Weight
n	ft		in	ft ²	ft ²	ft ²	ft ²	K
		B		0.000	0.000	22.220	0.000	0.27
		C		0.000	0.000	10.705	0.000	0.22
L31	34.58-31.50	A	1.275	0.000	0.000	7.561	0.000	0.06
		B		0.000	0.000	13.662	0.000	0.16
		C		0.000	0.000	6.582	0.000	0.14
L32	31.50-31.25	A	1.269	0.000	0.000	0.612	0.000	0.00
		B		0.000	0.000	1.106	0.000	0.01
		C		0.000	0.000	0.533	0.000	0.01
L33	31.25-28.75	A	1.263	0.000	0.000	6.158	0.000	0.05
		B		0.000	0.000	11.098	0.000	0.13
		C		0.000	0.000	5.371	0.000	0.11
L34	28.75-28.50	A	1.257	0.000	0.000	0.678	0.000	0.01
		B		0.000	0.000	1.172	0.000	0.01
		C		0.000	0.000	0.600	0.000	0.01
L35	28.50-23.50	A	1.245	0.000	0.000	9.780	0.000	0.08
		B		0.000	0.000	19.636	0.000	0.24
		C		0.000	0.000	8.223	0.000	0.20
L36	23.50-18.50	A	1.219	0.000	0.000	8.479	0.000	0.06
		B		0.000	0.000	18.302	0.000	0.23
		C		0.000	0.000	6.948	0.000	0.19
L37	18.50-13.50	A	1.186	0.000	0.000	8.413	0.000	0.06
		B		0.000	0.000	18.196	0.000	0.22
		C		0.000	0.000	6.915	0.000	0.18
L38	13.50-11.00	A	1.155	0.000	0.000	6.246	0.000	0.05
		B		0.000	0.000	11.118	0.000	0.13
		C		0.000	0.000	5.513	0.000	0.11
L39	11.00-10.75	A	1.141	0.000	0.000	0.675	0.000	0.00
		B		0.000	0.000	1.161	0.000	0.01
		C		0.000	0.000	0.602	0.000	0.01
L40	10.75-6.25	A	1.113	0.000	0.000	12.081	0.000	0.09
		B		0.000	0.000	21.522	0.000	0.23
		C		0.000	0.000	10.798	0.000	0.20
L41	6.25-6.00	A	1.077	0.000	0.000	0.667	0.000	0.00
		B		0.000	0.000	1.387	0.000	0.01
		C		0.000	0.000	0.597	0.000	0.01
L42	6.00-5.00	A	1.066	0.000	0.000	2.661	0.000	0.02
		B		0.000	0.000	5.540	0.000	0.06
		C		0.000	0.000	2.385	0.000	0.04
L43	5.00-4.75	A	1.053	0.000	0.000	0.664	0.000	0.00
		B		0.000	0.000	1.382	0.000	0.01
		C		0.000	0.000	0.595	0.000	0.01
L44	4.75-0.00	A	0.980	0.000	0.000	9.381	0.000	0.06
		B		0.000	0.000	22.909	0.000	0.23
		C		0.000	0.000	4.128	0.000	0.15

Feed Line Center of Pressure

Section	Elevation	CP _x	CP _z	CP _x	CP _z
	ft	in	in	Ice in	Ice in
L1	160.00-155.00	0.0000	0.0000	0.0000	0.0000
L2	155.00-150.00	0.0000	0.0000	0.0000	0.0000
L3	150.00-145.00	0.0000	0.0000	0.0000	0.0000
L4	145.00-140.00	0.0000	0.0000	0.0000	0.0000
L5	140.00-135.00	0.0000	0.0000	0.0000	0.0000
L6	135.00-130.00	0.0000	0.0000	0.0000	0.0000
L7	130.00-125.00	0.0000	0.0000	0.0000	0.0000
L8	125.00-117.33	0.0000	0.0000	0.0000	0.0000
L9	117.33-117.00	0.0000	0.0000	0.0000	0.0000
L10	117.00-112.00	0.0000	0.0000	0.0000	0.0000
L11	112.00-107.00	0.1555	0.8825	0.1562	0.8862
L12	107.00-102.00	0.3079	1.7471	0.3354	1.9028
L13	102.00-97.00	0.3140	1.7813	0.3425	1.9435
L14	97.00-94.00	1.0314	-0.5803	1.0869	-0.8190
L15	94.00-93.75	1.2115	-1.2908	1.2717	-1.6443

Section	Elevation	CP _x	CP _z	CP _x	CP _z
	ft	in	in	Ice in	Ice in
L16	93.75-88.75	1.2083	-1.3494	1.2217	-1.8493
L17	88.75-82.50	1.6009	-5.0162	1.4255	-5.6861
L18	82.50-81.50	1.4703	-6.4584	1.2995	-7.0652
L19	81.50-76.50	3.3649	-7.4247	2.8567	-7.7881
L20	76.50-72.25	2.6918	-6.3434	2.3273	-6.8052
L21	72.25-72.00	1.0371	-4.5576	0.9625	-5.2227
L22	72.00-67.00	1.0430	-4.5838	0.9693	-5.2575
L23	67.00-62.00	1.0540	-4.6329	0.9820	-5.3223
L24	62.00-57.00	1.0647	-4.6810	0.9946	-5.3854
L25	57.00-53.75	0.7629	-3.3547	0.8147	-4.4074
L26	53.75-53.50	0.7006	-3.0809	0.7522	-4.0677
L27	53.50-48.50	0.7051	-3.1008	0.7582	-4.0970
L28	48.50-40.58	0.7445	-3.2750	0.8057	-4.3462
L29	40.58-39.58	0.6995	-3.0772	0.7596	-4.0974
L30	39.58-34.58	0.7044	-3.0989	0.7667	-4.1233
L31	34.58-31.50	0.7109	-3.1276	0.7755	-4.1635
L32	31.50-31.25	0.7136	-3.1399	0.7792	-4.1802
L33	31.25-28.75	0.7102	-3.1250	0.7787	-4.1751
L34	28.75-28.50	0.6637	-2.9207	0.7387	-3.9576
L35	28.50-23.50	0.7828	-3.4448	0.8765	-4.6889
L36	23.50-18.50	0.8384	-3.6898	0.9430	-5.0281
L37	18.50-13.50	0.8461	-3.7243	0.9543	-5.0666
L38	13.50-11.00	0.3112	-1.6374	0.4442	-2.9066
L39	11.00-10.75	0.2075	-1.2334	0.3430	-2.4768
L40	10.75-6.25	0.4601	-1.0469	0.5806	-2.2792
L41	6.25-6.00	1.6255	-0.1638	1.6804	-1.3616
L42	6.00-5.00	1.6279	-0.1637	1.6833	-1.3570
L43	5.00-4.75	1.6302	-0.1636	1.6862	-1.3517
L44	4.75-0.00	0.1820	-1.1863	0.2596	-2.5091

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L11	23	HSS4.5x4.5x4	107.00 - 108.00	1.0000	1.0000
L11	24	HSS4.5x4.5x4	107.00 - 108.00	1.0000	1.0000
L11	25	HSS4.5x4.5x4	107.00 - 108.00	1.0000	1.0000
L11	26	HSS4.5x4.5x4	107.00 - 108.00	1.0000	1.0000
L11	27	HSS4.5x4.5x4	107.00 - 108.00	1.0000	1.0000
L11	28	HSS4.5x4.5x4	107.00 - 108.00	1.0000	1.0000
L11	29	HSS4.5x4.5x4	107.00 - 108.00	1.0000	1.0000
L11	30	HSS4.5x4.5x4	107.00 - 108.00	1.0000	1.0000
L12	23	HSS4.5x4.5x4	102.00 - 107.00	1.0000	1.0000
L12	24	HSS4.5x4.5x4	102.00 - 107.00	1.0000	1.0000
L12	25	HSS4.5x4.5x4	102.00 - 107.00	1.0000	1.0000
L12	26	HSS4.5x4.5x4	102.00 - 107.00	1.0000	1.0000
L12	27	HSS4.5x4.5x4	102.00 - 107.00	1.0000	1.0000
L12	28	HSS4.5x4.5x4	102.00 - 107.00	1.0000	1.0000
L12	29	HSS4.5x4.5x4	102.00 - 107.00	1.0000	1.0000
L12	30	HSS4.5x4.5x4	102.00 - 107.00	1.0000	1.0000
L13	23	HSS4.5x4.5x4	97.00 - 102.00	1.0000	1.0000
L13	24	HSS4.5x4.5x4	97.00 - 102.00	1.0000	1.0000
L13	25	HSS4.5x4.5x4	97.00 - 102.00	1.0000	1.0000
L13	26	HSS4.5x4.5x4	97.00 - 102.00	1.0000	1.0000
L13	27	HSS4.5x4.5x4	97.00 - 102.00	1.0000	1.0000
L13	28	HSS4.5x4.5x4	97.00 - 102.00	1.0000	1.0000
L13	29	HSS4.5x4.5x4	97.00 - 102.00	1.0000	1.0000
L13	30	HSS4.5x4.5x4	97.00 - 102.00	1.0000	1.0000
L14	19	4.5 x 1	94.00 - 96.50	1.0000	1.0000
L14	20	4.5 x 1	94.00 - 96.50	1.0000	1.0000
L14	21	4.5 x 1	94.00 - 96.50	1.0000	1.0000
L14	23	HSS4.5x4.5x4	94.00 - 97.00	1.0000	1.0000
L14	24	HSS4.5x4.5x4	94.00 - 97.00	1.0000	1.0000
L14	25	HSS4.5x4.5x4	94.00 - 97.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L14	26	HSS4.5x4.5x4	94.00 - 97.00	1.0000	1.0000
L14	27	HSS4.5x4.5x4	94.00 - 97.00	1.0000	1.0000
L14	28	HSS4.5x4.5x4	94.00 - 97.00	1.0000	1.0000
L14	29	HSS4.5x4.5x4	94.00 - 97.00	1.0000	1.0000
L14	30	HSS4.5x4.5x4	94.00 - 97.00	1.0000	1.0000
L14	49	LDF7-50A(1-5/8)	94.00 - 96.00	1.0000	1.0000
L14	50	2" (Nominal) Conduit	94.00 - 96.00	1.0000	1.0000
L15	19	4.5 x 1	93.75 - 94.00	1.0000	1.0000
L15	20	4.5 x 1	93.75 - 94.00	1.0000	1.0000
L15	21	4.5 x 1	93.75 - 94.00	1.0000	1.0000
L15	23	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L15	24	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L15	25	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L15	26	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L15	27	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L15	28	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L15	29	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L15	30	HSS4.5x4.5x4	93.75 - 94.00	1.0000	1.0000
L15	49	LDF7-50A(1-5/8)	93.75 - 94.00	1.0000	1.0000
L15	50	2" (Nominal) Conduit	93.75 - 94.00	1.0000	1.0000
L16	19	4.5 x 1	88.75 - 93.75	1.0000	1.0000
L16	20	4.5 x 1	88.75 - 93.75	1.0000	1.0000
L16	21	4.5 x 1	88.75 - 93.75	1.0000	1.0000
L16	23	HSS4.5x4.5x4	88.75 - 93.75	1.0000	1.0000
L16	24	HSS4.5x4.5x4	88.75 - 93.75	1.0000	1.0000
L16	25	HSS4.5x4.5x4	88.75 - 93.75	1.0000	1.0000
L16	26	HSS4.5x4.5x4	88.75 - 93.75	1.0000	1.0000
L16	27	HSS4.5x4.5x4	88.75 - 93.75	1.0000	1.0000
L16	28	HSS4.5x4.5x4	88.75 - 93.75	1.0000	1.0000
L16	29	HSS4.5x4.5x4	88.75 - 93.75	1.0000	1.0000
L16	30	HSS4.5x4.5x4	88.75 - 93.75	1.0000	1.0000
L16	49	LDF7-50A(1-5/8)	88.75 - 93.75	1.0000	1.0000
L16	50	2" (Nominal) Conduit	88.75 - 93.75	1.0000	1.0000
L16	53	LDF4-50A(1/2)	88.75 - 92.00	1.0000	1.0000
L17	19	4.5 x 1	86.50 - 88.75	1.0000	1.0000
L17	20	4.5 x 1	86.50 - 88.75	1.0000	1.0000
L17	21	4.5 x 1	86.50 - 88.75	1.0000	1.0000
L17	23	HSS4.5x4.5x4	88.00 - 88.75	1.0000	1.0000
L17	24	HSS4.5x4.5x4	88.00 - 88.75	1.0000	1.0000
L17	25	HSS4.5x4.5x4	88.00 - 88.75	1.0000	1.0000
L17	26	HSS4.5x4.5x4	88.00 - 88.75	1.0000	1.0000
L17	27	HSS4.5x4.5x4	88.00 - 88.75	1.0000	1.0000
L17	28	HSS4.5x4.5x4	88.00 - 88.75	1.0000	1.0000
L17	29	HSS4.5x4.5x4	88.00 - 88.75	1.0000	1.0000
L17	30	HSS4.5x4.5x4	88.00 - 88.75	1.0000	1.0000
L17	49	LDF7-50A(1-5/8)	82.50 - 88.75	1.0000	1.0000
L17	50	2" (Nominal) Conduit	82.50 - 88.75	1.0000	1.0000
L17	53	LDF4-50A(1/2)	82.50 - 88.75	1.0000	1.0000
L19	32	HSS4.5x4.5x4	76.50 - 80.00	1.0000	1.0000
L19	33	HSS4.5x4.5x4	76.50 - 80.00	1.0000	1.0000
L19	49	LDF7-50A(1-5/8)	76.50 - 81.50	1.0000	1.0000
L19	50	2" (Nominal) Conduit	76.50 - 81.50	1.0000	1.0000
L19	53	LDF4-50A(1/2)	76.50 - 81.50	1.0000	1.0000
L20	9	4 x 1	72.25 - 74.00	1.0000	1.0000
L20	10	4 x 1	72.25 - 74.00	1.0000	1.0000
L20	11	4 x 1	72.25 - 74.00	1.0000	1.0000
L20	32	HSS4.5x4.5x4	74.00 - 76.50	1.0000	1.0000
L20	33	HSS4.5x4.5x4	74.00 - 76.50	1.0000	1.0000
L20	49	LDF7-50A(1-5/8)	72.25 - 76.50	1.0000	1.0000
L20	50	2" (Nominal) Conduit	72.25 - 76.50	1.0000	1.0000
L20	53	LDF4-50A(1/2)	72.25 - 76.50	1.0000	1.0000
L21	9	4 x 1	72.00 - 72.25	1.0000	1.0000
L21	10	4 x 1	72.00 - 72.25	1.0000	1.0000
L21	11	4 x 1	72.00 - 72.25	1.0000	1.0000
L21	49	LDF7-50A(1-5/8)	72.00 - 72.25	1.0000	1.0000
L21	50	2" (Nominal) Conduit	72.00 - 72.25	1.0000	1.0000
L21	53	LDF4-50A(1/2)	72.00 - 72.25	1.0000	1.0000
L22	9	4 x 1	67.00 - 72.00	1.0000	1.0000
L22	10	4 x 1	67.00 - 72.00	1.0000	1.0000
L22	11	4 x 1	67.00 - 72.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L22	49	LDF7-50A(1-5/8)	67.00 - 72.00	1.0000	1.0000
L22	50	2" (Nominal) Conduit	67.00 - 72.00	1.0000	1.0000
L22	53	LDF4-50A(1/2)	67.00 - 72.00	1.0000	1.0000
L23	9	4 x 1	62.00 - 67.00	1.0000	1.0000
L23	10	4 x 1	62.00 - 67.00	1.0000	1.0000
L23	11	4 x 1	62.00 - 67.00	1.0000	1.0000
L23	49	LDF7-50A(1-5/8)	62.00 - 67.00	1.0000	1.0000
L23	50	2" (Nominal) Conduit	62.00 - 67.00	1.0000	1.0000
L23	53	LDF4-50A(1/2)	62.00 - 67.00	1.0000	1.0000
L24	9	4 x 1	57.00 - 62.00	1.0000	1.0000
L24	10	4 x 1	57.00 - 62.00	1.0000	1.0000
L24	11	4 x 1	57.00 - 62.00	1.0000	1.0000
L24	49	LDF7-50A(1-5/8)	57.00 - 62.00	1.0000	1.0000
L24	50	2" (Nominal) Conduit	57.00 - 62.00	1.0000	1.0000
L24	53	LDF4-50A(1/2)	57.00 - 62.00	1.0000	1.0000
L25	5	5.25 x 1.25	53.75 - 56.00	1.0000	1.0000
L25	6	5.25 x 1.25	53.75 - 56.00	1.0000	1.0000
L25	7	5.25 x 1.25	53.75 - 56.00	1.0000	1.0000
L25	9	4 x 1	53.75 - 57.00	1.0000	1.0000
L25	10	4 x 1	53.75 - 57.00	1.0000	1.0000
L25	11	4 x 1	53.75 - 57.00	1.0000	1.0000
L25	49	LDF7-50A(1-5/8)	53.75 - 57.00	1.0000	1.0000
L25	50	2" (Nominal) Conduit	53.75 - 57.00	1.0000	1.0000
L25	53	LDF4-50A(1/2)	53.75 - 57.00	1.0000	1.0000
L26	5	5.25 x 1.25	53.50 - 53.75	1.0000	1.0000
L26	6	5.25 x 1.25	53.50 - 53.75	1.0000	1.0000
L26	7	5.25 x 1.25	53.50 - 53.75	1.0000	1.0000
L26	9	4 x 1	53.50 - 53.75	1.0000	1.0000
L26	10	4 x 1	53.50 - 53.75	1.0000	1.0000
L26	11	4 x 1	53.50 - 53.75	1.0000	1.0000
L26	49	LDF7-50A(1-5/8)	53.50 - 53.75	1.0000	1.0000
L26	50	2" (Nominal) Conduit	53.50 - 53.75	1.0000	1.0000
L26	53	LDF4-50A(1/2)	53.50 - 53.75	1.0000	1.0000
L27	5	5.25 x 1.25	48.50 - 53.50	1.0000	1.0000
L27	6	5.25 x 1.25	48.50 - 53.50	1.0000	1.0000
L27	7	5.25 x 1.25	48.50 - 53.50	1.0000	1.0000
L27	9	4 x 1	48.50 - 53.50	1.0000	1.0000
L27	10	4 x 1	48.50 - 53.50	1.0000	1.0000
L27	11	4 x 1	48.50 - 53.50	1.0000	1.0000
L27	49	LDF7-50A(1-5/8)	48.50 - 53.50	1.0000	1.0000
L27	50	2" (Nominal) Conduit	48.50 - 53.50	1.0000	1.0000
L27	53	LDF4-50A(1/2)	48.50 - 53.50	1.0000	1.0000
L28	5	5.25 x 1.25	40.58 - 48.50	1.0000	1.0000
L28	6	5.25 x 1.25	40.58 - 48.50	1.0000	1.0000
L28	7	5.25 x 1.25	40.58 - 48.50	1.0000	1.0000
L28	9	4 x 1	44.00 - 48.50	1.0000	1.0000
L28	10	4 x 1	44.00 - 48.50	1.0000	1.0000
L28	11	4 x 1	44.00 - 48.50	1.0000	1.0000
L28	16	4.5 x 1	40.58 - 42.25	1.0000	1.0000
L28	17	4.5 x 1	40.58 - 42.25	1.0000	1.0000
L28	18	4.5 x 1	40.58 - 42.25	1.0000	1.0000
L28	49	LDF7-50A(1-5/8)	40.58 - 48.50	1.0000	1.0000
L28	50	2" (Nominal) Conduit	40.58 - 48.50	1.0000	1.0000
L28	53	LDF4-50A(1/2)	40.58 - 48.50	1.0000	1.0000
L30	5	5.25 x 1.25	34.58 - 39.58	1.0000	1.0000
L30	6	5.25 x 1.25	34.58 - 39.58	1.0000	1.0000
L30	7	5.25 x 1.25	34.58 - 39.58	1.0000	1.0000
L30	16	4.5 x 1	34.58 - 39.58	1.0000	1.0000
L30	17	4.5 x 1	34.58 - 39.58	1.0000	1.0000
L30	18	4.5 x 1	34.58 - 39.58	1.0000	1.0000
L30	49	LDF7-50A(1-5/8)	34.58 - 39.58	1.0000	1.0000
L30	50	2" (Nominal) Conduit	34.58 - 39.58	1.0000	1.0000
L30	53	LDF4-50A(1/2)	34.58 - 39.58	1.0000	1.0000
L31	5	5.25 x 1.25	31.50 - 34.58	1.0000	1.0000
L31	6	5.25 x 1.25	31.50 - 34.58	1.0000	1.0000
L31	7	5.25 x 1.25	31.50 - 34.58	1.0000	1.0000
L31	16	4.5 x 1	31.50 - 34.58	1.0000	1.0000
L31	17	4.5 x 1	31.50 - 34.58	1.0000	1.0000
L31	18	4.5 x 1	31.50 - 34.58	1.0000	1.0000
L31	49	LDF7-50A(1-5/8)	31.50 - 34.58	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L31	50	2" (Nominal) Conduit	31.50 - 34.58	1.0000	1.0000
L31	53	LDF4-50A(1/2)	31.50 - 34.58	1.0000	1.0000
L32	5	5.25 x 1.25	31.25 - 31.50	1.0000	1.0000
L32	6	5.25 x 1.25	31.25 - 31.50	1.0000	1.0000
L32	7	5.25 x 1.25	31.25 - 31.50	1.0000	1.0000
L32	16	4.5 x 1	31.25 - 31.50	1.0000	1.0000
L32	17	4.5 x 1	31.25 - 31.50	1.0000	1.0000
L32	18	4.5 x 1	31.25 - 31.50	1.0000	1.0000
L32	49	LDF7-50A(1-5/8)	31.25 - 31.50	1.0000	1.0000
L32	50	2" (Nominal) Conduit	31.25 - 31.50	1.0000	1.0000
L32	53	LDF4-50A(1/2)	31.25 - 31.50	1.0000	1.0000
L33	2	6.875 x 1.25	28.75 - 29.25	1.0000	1.0000
L33	3	6.875 x 1.25	28.75 - 29.25	1.0000	1.0000
L33	4	6.875 x 1.25	28.75 - 29.25	1.0000	1.0000
L33	5	5.25 x 1.25	29.33 - 31.25	1.0000	1.0000
L33	6	5.25 x 1.25	29.33 - 31.25	1.0000	1.0000
L33	7	5.25 x 1.25	29.33 - 31.25	1.0000	1.0000
L33	16	4.5 x 1	28.75 - 31.25	1.0000	1.0000
L33	17	4.5 x 1	28.75 - 31.25	1.0000	1.0000
L33	18	4.5 x 1	28.75 - 31.25	1.0000	1.0000
L33	49	LDF7-50A(1-5/8)	28.75 - 31.25	1.0000	1.0000
L33	50	2" (Nominal) Conduit	28.75 - 31.25	1.0000	1.0000
L33	53	LDF4-50A(1/2)	28.75 - 31.25	1.0000	1.0000
L34	2	6.875 x 1.25	28.50 - 28.75	1.0000	1.0000
L34	3	6.875 x 1.25	28.50 - 28.75	1.0000	1.0000
L34	4	6.875 x 1.25	28.50 - 28.75	1.0000	1.0000
L34	16	4.5 x 1	28.50 - 28.75	1.0000	1.0000
L34	17	4.5 x 1	28.50 - 28.75	1.0000	1.0000
L34	18	4.5 x 1	28.50 - 28.75	1.0000	1.0000
L34	49	LDF7-50A(1-5/8)	28.50 - 28.75	1.0000	1.0000
L34	50	2" (Nominal) Conduit	28.50 - 28.75	1.0000	1.0000
L34	53	LDF4-50A(1/2)	28.50 - 28.75	1.0000	1.0000
L35	2	6.875 x 1.25	23.50 - 28.50	1.0000	1.0000
L35	3	6.875 x 1.25	23.50 - 28.50	1.0000	1.0000
L35	4	6.875 x 1.25	23.50 - 28.50	1.0000	1.0000
L35	16	4.5 x 1	27.25 - 28.50	1.0000	1.0000
L35	17	4.5 x 1	27.25 - 28.50	1.0000	1.0000
L35	18	4.5 x 1	27.25 - 28.50	1.0000	1.0000
L35	49	LDF7-50A(1-5/8)	23.50 - 28.50	1.0000	1.0000
L35	50	2" (Nominal) Conduit	23.50 - 28.50	1.0000	1.0000
L35	53	LDF4-50A(1/2)	23.50 - 28.50	1.0000	1.0000
L36	2	6.875 x 1.25	18.50 - 23.50	1.0000	1.0000
L36	3	6.875 x 1.25	18.50 - 23.50	1.0000	1.0000
L36	4	6.875 x 1.25	18.50 - 23.50	1.0000	1.0000
L36	49	LDF7-50A(1-5/8)	18.50 - 23.50	1.0000	1.0000
L36	50	2" (Nominal) Conduit	18.50 - 23.50	1.0000	1.0000
L36	53	LDF4-50A(1/2)	18.50 - 23.50	1.0000	1.0000
L37	2	6.875 x 1.25	13.50 - 18.50	1.0000	1.0000
L37	3	6.875 x 1.25	13.50 - 18.50	1.0000	1.0000
L37	4	6.875 x 1.25	13.50 - 18.50	1.0000	1.0000
L37	49	LDF7-50A(1-5/8)	13.50 - 18.50	1.0000	1.0000
L37	50	2" (Nominal) Conduit	13.50 - 18.50	1.0000	1.0000
L37	53	LDF4-50A(1/2)	13.50 - 18.50	1.0000	1.0000
L38	2	6.875 x 1.25	11.00 - 13.50	1.0000	1.0000
L38	3	6.875 x 1.25	11.00 - 13.50	1.0000	1.0000
L38	4	6.875 x 1.25	11.00 - 13.50	1.0000	1.0000
L38	13	6 x 1	11.00 - 13.00	1.0000	1.0000
L38	14	6 x 1	11.00 - 13.00	1.0000	1.0000
L38	15	6 x 1	11.00 - 13.00	1.0000	1.0000
L38	49	LDF7-50A(1-5/8)	11.00 - 13.50	1.0000	1.0000
L38	50	2" (Nominal) Conduit	11.00 - 13.50	1.0000	1.0000
L38	53	LDF4-50A(1/2)	11.00 - 13.50	1.0000	1.0000
L39	2	6.875 x 1.25	10.75 - 11.00	1.0000	1.0000
L39	3	6.875 x 1.25	10.75 - 11.00	1.0000	1.0000
L39	4	6.875 x 1.25	10.75 - 11.00	1.0000	1.0000
L39	13	6 x 1	10.75 - 11.00	1.0000	1.0000
L39	14	6 x 1	10.75 - 11.00	1.0000	1.0000
L39	15	6 x 1	10.75 - 11.00	1.0000	1.0000
L39	49	LDF7-50A(1-5/8)	10.75 - 11.00	1.0000	1.0000
L39	50	2" (Nominal) Conduit	10.75 - 11.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L39	53	LDF4-50A(1/2)	10.75 - 11.00	1.0000	1.0000
L40	1	6.25 x 1.25	6.25 - 7.00	1.0000	1.0000
L40	2	6.875 x 1.25	6.25 - 10.75	1.0000	1.0000
L40	3	6.875 x 1.25	6.25 - 10.75	1.0000	1.0000
L40	4	6.875 x 1.25	6.25 - 10.75	1.0000	1.0000
L40	13	6 x 1	6.25 - 10.75	1.0000	1.0000
L40	14	6 x 1	6.25 - 10.75	1.0000	1.0000
L40	15	6 x 1	6.25 - 10.75	1.0000	1.0000
L40	49	LDF7-50A(1-5/8)	6.25 - 10.75	1.0000	1.0000
L40	50	2" (Nominal) Conduit	6.25 - 10.75	1.0000	1.0000
L40	53	LDF4-50A(1/2)	6.25 - 10.75	1.0000	1.0000
L41	1	6.25 x 1.25	6.00 - 6.25	1.0000	1.0000
L41	2	6.875 x 1.25	6.00 - 6.25	1.0000	1.0000
L41	3	6.875 x 1.25	6.00 - 6.25	1.0000	1.0000
L41	4	6.875 x 1.25	6.00 - 6.25	1.0000	1.0000
L41	13	6 x 1	6.00 - 6.25	1.0000	1.0000
L41	14	6 x 1	6.00 - 6.25	1.0000	1.0000
L41	15	6 x 1	6.00 - 6.25	1.0000	1.0000
L41	49	LDF7-50A(1-5/8)	6.00 - 6.25	1.0000	1.0000
L41	50	2" (Nominal) Conduit	6.00 - 6.25	1.0000	1.0000
L41	53	LDF4-50A(1/2)	6.00 - 6.25	1.0000	1.0000
L42	1	6.25 x 1.25	5.00 - 6.00	1.0000	1.0000
L42	2	6.875 x 1.25	5.00 - 6.00	1.0000	1.0000
L42	3	6.875 x 1.25	5.00 - 6.00	1.0000	1.0000
L42	4	6.875 x 1.25	5.00 - 6.00	1.0000	1.0000
L42	13	6 x 1	5.00 - 6.00	1.0000	1.0000
L42	14	6 x 1	5.00 - 6.00	1.0000	1.0000
L42	15	6 x 1	5.00 - 6.00	1.0000	1.0000
L42	49	LDF7-50A(1-5/8)	5.00 - 6.00	1.0000	1.0000
L42	50	2" (Nominal) Conduit	5.00 - 6.00	1.0000	1.0000
L42	53	LDF4-50A(1/2)	5.00 - 6.00	1.0000	1.0000
L43	1	6.25 x 1.25	4.75 - 5.00	1.0000	1.0000
L43	2	6.875 x 1.25	4.75 - 5.00	1.0000	1.0000
L43	3	6.875 x 1.25	4.75 - 5.00	1.0000	1.0000
L43	4	6.875 x 1.25	4.75 - 5.00	1.0000	1.0000
L43	13	6 x 1	4.75 - 5.00	1.0000	1.0000
L43	14	6 x 1	4.75 - 5.00	1.0000	1.0000
L43	15	6 x 1	4.75 - 5.00	1.0000	1.0000
L43	49	LDF7-50A(1-5/8)	4.75 - 5.00	1.0000	1.0000
L43	50	2" (Nominal) Conduit	4.75 - 5.00	1.0000	1.0000
L43	53	LDF4-50A(1/2)	4.75 - 5.00	1.0000	1.0000
L44	1	6.25 x 1.25	0.00 - 4.75	1.0000	1.0000
L44	2	6.875 x 1.25	3.00 - 4.75	1.0000	1.0000
L44	3	6.875 x 1.25	0.00 - 4.75	1.0000	1.0000
L44	4	6.875 x 1.25	0.00 - 4.75	1.0000	1.0000
L44	13	6 x 1	3.00 - 4.75	1.0000	1.0000
L44	14	6 x 1	3.00 - 4.75	1.0000	1.0000
L44	15	6 x 1	3.00 - 4.75	1.0000	1.0000
L44	49	LDF7-50A(1-5/8)	0.00 - 4.75	1.0000	1.0000
L44	50	2" (Nominal) Conduit	0.00 - 4.75	1.0000	1.0000
L44	53	LDF4-50A(1/2)	0.00 - 4.75	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C _A A _A Front	C _A A _A Side	Weight
			ft ft ft	°	ft	ft ²	ft ²	K
APXV9ERR18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.00	159.00	No Ice 1/2" Ice	4.60 5.05 4.89	0.10 0.16 0.23

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral	Vert					
			ft	ft	ft	°	ft	ft ²	ft ²	K
							1" Ice	6.44	5.82	0.42
							2" Ice			
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00	0.00	159.00		No Ice	4.60	4.01	0.10
			0.00				1/2" Ice	5.05	4.45	0.16
			1.00				Ice	5.50	4.89	0.23
							1" Ice	6.44	5.82	0.42
							2" Ice			
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00	0.00	159.00		No Ice	4.60	4.01	0.10
			0.00				1/2" Ice	5.05	4.45	0.16
			1.00				Ice	5.50	4.89	0.23
							1" Ice	6.44	5.82	0.42
							2" Ice			
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00	0.00	159.00		No Ice	4.09	2.86	0.08
			0.00				1/2" Ice	4.48	3.23	0.13
			1.00				Ice	4.88	3.61	0.19
							1" Ice	5.71	4.40	0.33
							2" Ice			
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00	0.00	159.00		No Ice	4.09	2.86	0.08
			0.00				1/2" Ice	4.48	3.23	0.13
			1.00				Ice	4.88	3.61	0.19
							1" Ice	5.71	4.40	0.33
							2" Ice			
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00	0.00	159.00		No Ice	4.09	2.86	0.08
			0.00				1/2" Ice	4.48	3.23	0.13
			1.00				Ice	4.88	3.61	0.19
							1" Ice	5.71	4.40	0.33
							2" Ice			
TD-RRH8X20-25	A	From Leg	4.00	0.00	159.00		No Ice	4.05	1.53	0.07
			0.00				1/2" Ice	4.30	1.71	0.10
			1.00				Ice	4.56	1.90	0.13
							1" Ice	5.10	2.30	0.20
							2" Ice			
TD-RRH8X20-25	B	From Leg	4.00	0.00	159.00		No Ice	4.05	1.53	0.07
			0.00				1/2" Ice	4.30	1.71	0.10
			1.00				Ice	4.56	1.90	0.13
							1" Ice	5.10	2.30	0.20
							2" Ice			
TD-RRH8X20-25	C	From Leg	4.00	0.00	159.00		No Ice	4.05	1.53	0.07
			0.00				1/2" Ice	4.30	1.71	0.10
			1.00				Ice	4.56	1.90	0.13
							1" Ice	5.10	2.30	0.20
							2" Ice			
Platform Mount [LP 602-1]	C	None		0.00	159.00		No Ice	31.07	31.07	1.34
							1/2" Ice	34.82	34.82	1.97
							Ice	38.48	38.48	2.67
							1" Ice	45.60	45.60	4.31
							2" Ice			
(2) 2.375" OD x 6' Mount Pipe	A	From Leg	4.00	0.00	159.00		No Ice	1.43	1.43	0.03
			0.00				1/2" Ice	1.92	1.92	0.04
			0.00				Ice	2.29	2.29	0.05
							1" Ice	3.06	3.06	0.09
							2" Ice			
(2) 2.375" OD x 6' Mount Pipe	B	From Leg	4.00	0.00	159.00		No Ice	1.43	1.43	0.03
			0.00				1/2" Ice	1.92	1.92	0.04
			0.00				Ice	2.29	2.29	0.05
							1" Ice	3.06	3.06	0.09
							2" Ice			
(2) 2.375" OD x 6' Mount Pipe	C	From Leg	4.00	0.00	159.00		No Ice	1.43	1.43	0.03
			0.00				1/2" Ice	1.92	1.92	0.04
			0.00				Ice	2.29	2.29	0.05
							1" Ice	3.06	3.06	0.09
							2" Ice			

800MHZ 2X50W RRH W/FILTER	A	From Leg	4.00	0.00	155.00		No Ice	2.06	1.93	0.06
			0.00					2.24	2.11	0.09

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight
			Horz	Lateral	Vert					
					-1.00		1/2" Ice	2.43	2.29	0.11
							2" Ice	2.83	2.68	0.17
800MHZ 2X50W RRH W/FILTER	B	From Leg	4.00	0.00	155.00	0.00	No Ice	2.06	1.93	0.06
			0.00				1/2" Ice	2.24	2.11	0.09
			-1.00				1" Ice	2.43	2.29	0.11
							2" Ice	2.83	2.68	0.17
800MHZ 2X50W RRH W/FILTER	C	From Leg	4.00	0.00	155.00	0.00	No Ice	2.06	1.93	0.06
			0.00				1/2" Ice	2.24	2.11	0.09
			-1.00				1" Ice	2.43	2.29	0.11
							2" Ice	2.83	2.68	0.17
PCS 1900MHZ 4X45W-65MHZ	A	From Leg	4.00	0.00	155.00	0.00	No Ice	2.32	2.24	0.06
			0.00				1/2" Ice	2.53	2.44	0.08
			-1.00				1" Ice	2.74	2.65	0.11
							2" Ice	3.19	3.09	0.17
PCS 1900MHZ 4X45W-65MHZ	B	From Leg	4.00	0.00	155.00	0.00	No Ice	2.32	2.24	0.06
			0.00				1/2" Ice	2.53	2.44	0.08
			-1.00				1" Ice	2.74	2.65	0.11
							2" Ice	3.19	3.09	0.17
PCS 1900MHZ 4X45W-65MHZ	C	From Leg	4.00	0.00	155.00	0.00	No Ice	2.32	2.24	0.06
			0.00				1/2" Ice	2.53	2.44	0.08
			-1.00				1" Ice	2.74	2.65	0.11
							2" Ice	3.19	3.09	0.17
Side Arm Mount [SO 102-3]	C	None		0.00	155.00	0.00	No Ice	3.60	3.60	0.07
							1/2" Ice	4.18	4.18	0.11
							1" Ice	4.75	4.75	0.14
							2" Ice	5.90	5.90	0.20

AIR 32 B2A B66AA w/ Mount Pipe	A	From Leg	4.00	0.00	142.00	0.00	No Ice	7.09	6.37	0.16
			0.00				1/2" Ice	7.56	7.23	0.23
			3.00				1" Ice	8.02	7.97	0.30
							2" Ice	8.97	9.51	0.46
AIR 32 B2A B66AA w/ Mount Pipe	B	From Leg	4.00	0.00	142.00	0.00	No Ice	7.09	6.37	0.16
			0.00				1/2" Ice	7.56	7.23	0.23
			3.00				1" Ice	8.02	7.97	0.30
							2" Ice	8.97	9.51	0.46
AIR 32 B2A B66AA w/ Mount Pipe	C	From Leg	4.00	0.00	142.00	0.00	No Ice	7.09	6.37	0.16
			0.00				1/2" Ice	7.56	7.23	0.23
			3.00				1" Ice	8.02	7.97	0.30
							2" Ice	8.97	9.51	0.46
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00	0.00	142.00	0.00	No Ice	6.33	5.64	0.11
			0.00				1/2" Ice	6.78	6.43	0.17
			3.00				1" Ice	7.21	7.13	0.23
							2" Ice	8.12	8.59	0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00	0.00	142.00	0.00	No Ice	6.33	5.64	0.11
			0.00				1/2" Ice	6.78	6.43	0.17
			3.00				1" Ice	7.21	7.13	0.23
							2" Ice	8.12	8.59	0.38
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00	0.00	142.00	0.00	No Ice	6.33	5.64	0.11
			0.00				1/2" Ice	6.78	6.43	0.17
			3.00				1" Ice	7.21	7.13	0.23
							2" Ice	8.12	8.59	0.38

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight	
			Horz	Lateral						Vert
			ft	ft	°	ft	ft ²	ft ²	K	
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00	0.00	0.00	142.00	No Ice	14.69	6.87	0.19
			0.00				1/2"	15.46	7.55	0.31
			3.00				Ice	16.23	8.25	0.46
							1" Ice	17.82	9.67	0.79
							2" Ice			
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00	0.00	0.00	142.00	No Ice	14.69	6.87	0.19
			0.00				1/2"	15.46	7.55	0.31
			3.00				Ice	16.23	8.25	0.46
							1" Ice	17.82	9.67	0.79
							2" Ice			
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00	0.00	0.00	142.00	No Ice	14.69	6.87	0.19
			0.00				1/2"	15.46	7.55	0.31
			3.00				Ice	16.23	8.25	0.46
							1" Ice	17.82	9.67	0.79
							2" Ice			
KRY 112 144/1	A	From Leg	4.00	0.00	0.00	142.00	No Ice	0.35	0.17	0.01
			0.00				1/2"	0.43	0.23	0.01
			3.00				Ice	0.51	0.30	0.02
							1" Ice	0.70	0.46	0.03
							2" Ice			
KRY 112 144/1	B	From Leg	4.00	0.00	0.00	142.00	No Ice	0.35	0.17	0.01
			0.00				1/2"	0.43	0.23	0.01
			3.00				Ice	0.51	0.30	0.02
							1" Ice	0.70	0.46	0.03
							2" Ice			
KRY 112 144/1	C	From Leg	4.00	0.00	0.00	142.00	No Ice	0.35	0.17	0.01
			0.00				1/2"	0.43	0.23	0.01
			3.00				Ice	0.51	0.30	0.02
							1" Ice	0.70	0.46	0.03
							2" Ice			
RADIO 4449 B12/B71	A	From Leg	4.00	0.00	0.00	142.00	No Ice	1.65	1.16	0.07
			0.00				1/2"	1.81	1.30	0.09
			3.00				Ice	1.98	1.45	0.11
							1" Ice	2.34	1.76	0.16
							2" Ice			
RADIO 4449 B12/B71	B	From Leg	4.00	0.00	0.00	142.00	No Ice	1.65	1.16	0.07
			0.00				1/2"	1.81	1.30	0.09
			3.00				Ice	1.98	1.45	0.11
							1" Ice	2.34	1.76	0.16
							2" Ice			
RADIO 4449 B12/B71	C	From Leg	4.00	0.00	0.00	142.00	No Ice	1.65	1.16	0.07
			0.00				1/2"	1.81	1.30	0.09
			3.00				Ice	1.98	1.45	0.11
							1" Ice	2.34	1.76	0.16
							2" Ice			
Platform Mount [LP 602-1]	C	None			0.00	142.00	No Ice	31.07	31.07	1.34
							1/2"	34.82	34.82	1.97
							Ice	38.48	38.48	2.67
							1" Ice	45.60	45.60	4.31
							2" Ice			
*** LPA-80080/4CF w/ Mount Pipe	A	From Leg	4.00	0.00	0.00	116.00	No Ice	2.86	6.57	0.03
			0.00				1/2"	3.22	7.19	0.08
			2.00				Ice	3.59	7.84	0.13
							1" Ice	4.34	9.17	0.25
							2" Ice			
LPA-80063-4CF-EDIN-5 w/ Mount Pipe	B	From Leg	4.00	0.00	0.00	116.00	No Ice	6.38	6.56	0.04
			0.00				1/2"	6.78	7.19	0.10
			2.00				Ice	7.19	7.84	0.18
							1" Ice	8.03	9.17	0.34
							2" Ice			
LPA-80063-4CF-EDIN-5 w/ Mount Pipe	C	From Leg	4.00	0.00	0.00	116.00	No Ice	6.38	6.56	0.04
			0.00				1/2"	6.78	7.19	0.10
			2.00				Ice	7.19	7.84	0.18
							1" Ice	8.03	9.17	0.34
							2" Ice			

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight
			Horz	Lateral	Vert					
			ft	ft	ft	°	ft	ft ²	ft ²	K
(2) JAHH-65B-R3B w/ Mount Pipe	A	From Leg	4.00	0.00	116.00	0.00	2" Ice			
			0.00				No Ice	5.50	4.38	0.10
			2.00				1/2"	5.97	4.84	0.17
							Ice	6.45	5.30	0.25
(2) JAHH-65B-R3B w/ Mount Pipe	B	From Leg	4.00	0.00	116.00	0.00	1" Ice	7.44	6.26	0.46
			0.00				2" Ice			
			2.00				No Ice	5.50	4.38	0.10
							1/2"	5.97	4.84	0.17
(2) JAHH-65B-R3B w/ Mount Pipe	C	From Leg	4.00	0.00	116.00	0.00	Ice	6.45	5.30	0.25
			0.00				1" Ice	7.44	6.26	0.46
			2.00				2" Ice			
							No Ice	5.50	4.38	0.10
(2) DB-T1-6Z-8AB-0Z	B	From Leg	4.00	0.00	116.00	0.00	1/2"	5.97	4.84	0.17
			0.00				Ice	6.45	5.30	0.25
			2.00				1" Ice	7.44	6.26	0.46
							2" Ice			
(2) RFV01U-D1A	A	From Leg	4.00	0.00	116.00	0.00	No Ice	4.80	2.00	0.04
			0.00				1/2"	5.07	2.19	0.08
			2.00				Ice	5.35	2.39	0.12
							1" Ice	5.93	2.81	0.21
RFV01U-D1A	C	From Leg	4.00	0.00	116.00	0.00	2" Ice			
			0.00				No Ice	1.88	1.25	0.08
			2.00				1/2"	2.05	1.39	0.10
							Ice	2.22	1.54	0.12
CBC78T-DS-43-2X	A	From Leg	4.00	0.00	116.00	0.00	1" Ice	2.60	1.86	0.18
			0.00				2" Ice			
			2.00				No Ice	0.37	0.51	0.02
							1/2"	0.45	0.60	0.03
CBC78T-DS-43-2X	B	From Leg	4.00	0.00	116.00	0.00	Ice	0.53	0.70	0.04
			0.00				1" Ice	0.72	0.93	0.06
			2.00				2" Ice			
							No Ice	0.37	0.51	0.02
CBC78T-DS-43-2X	C	From Leg	4.00	0.00	116.00	0.00	1/2"	0.45	0.60	0.03
			0.00				Ice	0.53	0.70	0.04
			2.00				1" Ice	0.72	0.93	0.06
							2" Ice			
RFV01U-D2A	B	From Leg	4.00	0.00	116.00	0.00	No Ice	0.37	0.51	0.02
			0.00				1/2"	0.45	0.60	0.03
			2.00				Ice	0.53	0.70	0.04
							1" Ice	0.72	0.93	0.06
(2) RFV01U-D2A	C	From Leg	4.00	0.00	116.00	0.00	2" Ice			
			0.00				No Ice	1.88	1.01	0.07
			2.00				1/2"	2.05	1.14	0.09
							Ice	2.22	1.28	0.11
2.375" OD x 6' Mount Pipe	A	From Leg	4.00	0.00	116.00	0.00	1" Ice	2.60	1.59	0.15
			0.00				2" Ice			
			2.00				No Ice	1.43	1.43	0.03
							1/2"	1.92	1.92	0.04
2.375" OD x 6' Mount Pipe	B	From Leg	4.00	0.00	116.00	0.00	Ice	2.29	2.29	0.05
			0.00				1" Ice	3.06	3.06	0.09
			2.00				2" Ice			
							No Ice	1.43	1.43	0.03
2.375" OD x 6' Mount Pipe	B	From Leg	4.00	0.00	116.00	0.00	1/2"	1.92	1.92	0.04
			0.00				Ice	2.29	2.29	0.05
			2.00				1" Ice	3.06	3.06	0.09
							2" Ice			

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight			
			Horz	Lateral	Vert						ft	ft ²	ft ²
			ft	ft	ft	°	ft	ft ²	ft ²	K			
2.375" OD x 6' Mount Pipe	C	From Leg	4.00	0.00	116.00		2" Ice	1.43	1.43	0.03			
			0.00				No Ice						
			2.00				1/2"				1.92	1.92	0.04
							Ice				2.29	2.29	0.05
							1" Ice				3.06	3.06	0.09
Platform Mount [LP 303-1_HR-1]	C	None		0.00	116.00		2" Ice	17.09	17.09	1.50			
							No Ice						
							1/2"				21.47	21.47	1.88
							Ice				25.72	25.72	2.35
							1" Ice				33.96	33.96	3.52
						2" Ice							
*** AM-X-CD-14-65-00T-RET w/ Mount Pipe	A	From Leg	4.00	0.00	96.00		No Ice	2.99	2.14	0.05			
			0.00				1/2"				3.30	2.43	0.10
			2.00				Ice				3.62	2.73	0.14
							1" Ice				4.28	3.36	0.27
							2" Ice						
AM-X-CD-14-65-00T-RET w/ Mount Pipe	B	From Leg	4.00	0.00	96.00		No Ice	2.99	2.14	0.05			
			0.00				1/2"				3.30	2.43	0.10
			2.00				Ice				3.62	2.73	0.14
							1" Ice				4.28	3.36	0.27
							2" Ice						
AM-X-CD-14-65-00T-RET w/ Mount Pipe	C	From Leg	4.00	0.00	96.00		No Ice	2.99	2.14	0.05			
			0.00				1/2"				3.30	2.43	0.10
			2.00				Ice				3.62	2.73	0.14
							1" Ice				4.28	3.36	0.27
							2" Ice						
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.00	0.00	96.00		No Ice	5.75	4.25	0.06			
			0.00				1/2"				6.18	5.01	0.10
			2.00				Ice				6.61	5.71	0.16
							1" Ice				7.49	7.16	0.29
							2" Ice						
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00	0.00	96.00		No Ice	5.75	4.25	0.06			
			0.00				1/2"				6.18	5.01	0.10
			2.00				Ice				6.61	5.71	0.16
							1" Ice				7.49	7.16	0.29
							2" Ice						
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00	0.00	96.00		No Ice	5.75	4.25	0.06			
			0.00				1/2"				6.18	5.01	0.10
			2.00				Ice				6.61	5.71	0.16
							1" Ice				7.49	7.16	0.29
							2" Ice						
GPS_A	C	From Leg	4.00	0.00	96.00		No Ice	0.26	0.26	0.00			
			0.00				1/2"				0.32	0.32	0.00
			7.00				Ice				0.39	0.39	0.01
							1" Ice				0.56	0.56	0.02
							2" Ice						
(2) TT19-08BP111-001	A	From Leg	4.00	0.00	96.00		No Ice	0.55	0.45	0.02			
			0.00				1/2"				0.65	0.53	0.02
			2.00				Ice				0.75	0.63	0.03
							1" Ice				0.98	0.84	0.05
							2" Ice						
(2) TT19-08BP111-001	B	From Leg	4.00	0.00	96.00		No Ice	0.55	0.45	0.02			
			0.00				1/2"				0.65	0.53	0.02
			2.00				Ice				0.75	0.63	0.03
							1" Ice				0.98	0.84	0.05
							2" Ice						
(2) TT19-08BP111-001	C	From Leg	4.00	0.00	96.00		No Ice	0.55	0.45	0.02			
			0.00				1/2"				0.65	0.53	0.02
			2.00				Ice				0.75	0.63	0.03
							1" Ice				0.98	0.84	0.05
							2" Ice						
RRUS 12 B2	A	From Leg	4.00	0.00	96.00		No Ice	3.14	1.28	0.05			
			0.00				1/2"				3.36	1.43	0.07
			2.00				Ice				3.59	1.60	0.10

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} _{Front}	C _{AA} _{Side}	Weight	
			Horz	Lateral	Vert						ft
			ft	ft	ft	°	ft	ft ²	ft ²	K	
RRUS 12 B2	B	From Leg	4.00	0.00	2.00	0.00	96.00	1" Ice	4.07	1.95	0.16
								2" Ice	3.14	1.28	0.05
								No Ice	3.36	1.43	0.07
								1/2" Ice	3.59	1.60	0.10
RRUS 12 B2	C	From Leg	4.00	0.00	2.00	0.00	96.00	1" Ice	4.07	1.95	0.16
								2" Ice	3.14	1.28	0.05
								No Ice	3.36	1.43	0.07
								1/2" Ice	3.59	1.60	0.10
RRUS 11	A	From Leg	4.00	0.00	2.00	0.00	96.00	1" Ice	4.07	1.95	0.16
								2" Ice	2.79	1.19	0.05
								No Ice	3.00	1.34	0.07
								1/2" Ice	3.21	1.50	0.10
RRUS 11	B	From Leg	4.00	0.00	2.00	0.00	96.00	1" Ice	3.67	1.84	0.15
								2" Ice	2.79	1.19	0.05
								No Ice	3.00	1.34	0.07
								1/2" Ice	3.21	1.50	0.10
RRUS 11	C	From Leg	4.00	0.00	2.00	0.00	96.00	1" Ice	3.67	1.84	0.15
								2" Ice	2.79	1.19	0.05
								No Ice	3.00	1.34	0.07
								1/2" Ice	3.21	1.50	0.10
DC6-48-60-18-8F	A	From Leg	4.00	0.00	2.00	0.00	96.00	1" Ice	2.57	2.57	0.14
								2" Ice	1.21	1.21	0.03
								No Ice	1.89	1.89	0.05
								1/2" Ice	2.11	2.11	0.08
T-Arm Mount [TA 602-3]	C	None				0.00	96.00	1" Ice	25.86	25.86	2.05
								2" Ice	13.40	13.40	0.77
								No Ice	16.44	16.44	1.00
								1/2" Ice	19.70	19.70	1.29
*** KS24019-L112A	C	From Leg	4.00	0.00	1.00	0.00	92.00	1" Ice	0.41	0.41	0.02
								2" Ice	0.85	1.67	0.07
								No Ice	1.14	2.34	0.08
								1/2" Ice	1.43	3.01	0.09
Side Arm Mount [SO 701-1]	C	None				0.00	92.00	1" Ice	2.01	4.35	0.12
								2" Ice	0.85	1.67	0.07
								No Ice	1.14	2.34	0.08
								1/2" Ice	1.43	3.01	0.09
*** Side Arm Mount [SO 701-1]	A	None				0.00	87.00	1" Ice	2.01	4.35	0.12
								2" Ice	0.85	1.67	0.07
								No Ice	1.14	2.34	0.08
								1/2" Ice	1.43	3.01	0.09
Side Arm Mount [SO 701-1]	B	None				0.00	87.00	1" Ice	2.01	4.35	0.12
								2" Ice	0.85	1.67	0.07
								No Ice	1.14	2.34	0.08
								1/2" Ice	1.43	3.01	0.09

Tower Pressures - No Ice

$G_H = 1.100$

Section Elevation ft	z ft	K_z	q_z psf	A_G ft ²	F a c e	A_F ft ²	A_R ft ²	A_{leg} ft ²	Leg %	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²
L1 160.00-155.00	157.48	1.125	47.22	9.814	A	0.000	9.814	9.814	100.00	0.000	0.000
					B	0.000	9.814		100.00	0.000	0.000
					C	0.000	9.814		100.00	0.000	0.000
L2 155.00-150.00	152.48	1.115	46.78	10.224	A	0.000	10.224	10.224	100.00	0.000	0.000
					B	0.000	10.224		100.00	0.000	0.000
					C	0.000	10.224		100.00	0.000	0.000
L3 150.00-145.00	147.48	1.104	46.34	10.634	A	0.000	10.634	10.634	100.00	0.000	0.000
					B	0.000	10.634		100.00	0.000	0.000
					C	0.000	10.634		100.00	0.000	0.000
L4 145.00-140.00	142.48	1.093	45.88	11.044	A	0.000	11.044	11.044	100.00	0.000	0.000
					B	0.000	11.044		100.00	0.000	0.000
					C	0.000	11.044		100.00	0.000	0.000
L5 140.00-135.00	137.49	1.082	45.42	11.454	A	0.000	11.454	11.454	100.00	0.000	0.000
					B	0.000	11.454		100.00	0.000	0.000
					C	0.000	11.454		100.00	0.000	0.000
L6 135.00-130.00	132.49	1.071	44.94	11.863	A	0.000	11.863	11.863	100.00	0.000	0.000
					B	0.000	11.863		100.00	0.000	0.000
					C	0.000	11.863		100.00	0.000	0.000
L7 130.00-125.00	127.49	1.059	44.45	12.273	A	0.000	12.273	12.273	100.00	0.000	0.000
					B	0.000	12.273		100.00	0.000	0.000
					C	0.000	12.273		100.00	0.000	0.000
L8 125.00-117.33	121.13	1.044	43.81	19.624	A	0.000	19.624	19.624	100.00	0.000	0.000
					B	0.000	19.624		100.00	0.000	0.000
					C	0.000	19.624		100.00	0.000	0.000
L9 117.33-117.00	117.16	1.034	43.39	0.853	A	0.000	0.853	0.853	100.00	0.000	0.000
					B	0.000	0.853		100.00	0.000	0.000
					C	0.000	0.853		100.00	0.000	0.000
L10 117.00-112.00	114.49	1.027	43.10	13.141	A	0.000	13.141	13.141	100.00	0.000	0.000
					B	0.000	13.141		100.00	0.000	0.000
					C	0.000	13.141		100.00	0.000	0.000
L11 112.00-107.00	109.49	1.014	42.56	13.551	A	0.000	13.551	13.551	100.00	2.250	0.000
					B	0.000	13.551		100.00	2.250	0.000
					C	0.000	13.551		100.00	1.500	0.000
L12 107.00-102.00	104.49	1.001	41.99	13.961	A	0.000	13.961	13.961	100.00	11.250	0.000
					B	0.000	13.961		100.00	11.250	0.000
					C	0.000	13.961		100.00	7.500	0.000
L13 102.00-97.00	99.49	0.987	41.41	14.371	A	0.000	14.371	14.371	100.00	11.250	0.000
					B	0.000	14.371		100.00	11.250	0.000
					C	0.000	14.371		100.00	7.500	0.000
L14 97.00-94.00	95.50	0.975	40.93	8.819	A	0.000	8.819	8.819	100.00	6.750	0.000
					B	0.000	8.819		100.00	11.476	0.000
					C	0.000	8.819		100.00	8.250	0.000
L15 94.00-93.75	93.87	0.971	40.73	0.741	A	0.000	0.741	0.741	100.00	0.563	0.000
					B	0.000	0.741		100.00	1.106	0.000
					C	0.000	0.741		100.00	0.750	0.000
L16 93.75-88.75	91.24	0.963	40.40	15.036	A	0.000	15.036	15.036	100.00	11.453	0.000
					B	0.000	15.036		100.00	22.128	0.000
					C	0.000	15.036		100.00	15.000	0.000
L17 88.75-82.50	85.61	0.945	39.67	19.371	A	0.000	19.371	19.371	100.00	2.078	0.000
					B	0.000	19.371		100.00	12.284	0.000
					C	0.000	19.371		100.00	4.500	0.000
L18 82.50-81.50	82.00	0.934	39.18	3.110	A	0.000	3.110	3.110	100.00	0.063	0.000
					B	0.000	3.110		100.00	1.426	0.000
					C	0.000	3.110		100.00	0.000	0.000
L19 81.50-76.50	78.99	0.924	38.77	15.797	A	0.000	15.797	15.797	100.00	2.339	0.000
					B	0.000	15.797		100.00	7.127	0.000
					C	0.000	15.797		100.00	2.026	0.000
L20 76.50-72.25	74.37	0.908	38.11	13.751	A	0.000	13.751	13.751	100.00	2.880	0.000
					B	0.000	13.751		100.00	7.225	0.000
					C	0.000	13.751		100.00	2.614	0.000
L21 72.25-72.00	72.12	0.9	37.77	0.817	A	0.000	0.817	0.817	100.00	0.182	0.000
					B	0.000	0.817		100.00	0.523	0.000
					C	0.000	0.817		100.00	0.167	0.000

Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
L22 72.00-67.00	69.49	0.891	37.37	16.564	A	0.000	16.564	16.564	100.00	3.646	0.000
					B	0.000	16.564		100.00	10.461	0.000
					C	0.000	16.564		100.00	3.333	0.000
L23 67.00-62.00	64.49	0.872	36.59	16.976	A	0.000	16.976	16.976	100.00	3.646	0.000
					B	0.000	16.976		100.00	10.461	0.000
					C	0.000	16.976		100.00	3.333	0.000
L24 62.00-57.00	59.49	0.852	35.75	17.388	A	0.000	17.388	17.388	100.00	3.646	0.000
					B	0.000	17.388		100.00	10.461	0.000
					C	0.000	17.388		100.00	3.333	0.000
L25 57.00-53.75	55.37	0.835	35.03	11.523	A	0.000	11.523	11.523	100.00	4.339	0.000
					B	0.000	11.523		100.00	8.768	0.000
					C	0.000	11.523		100.00	4.135	0.000
L26 53.75-53.50	53.62	0.827	34.71	0.892	A	0.000	0.892	0.892	100.00	0.401	0.000
					B	0.000	0.892		100.00	0.742	0.000
					C	0.000	0.892		100.00	0.385	0.000
L27 53.50-48.50	50.99	0.815	34.21	18.063	A	0.000	18.063	18.063	100.00	8.021	0.000
					B	0.000	18.063		100.00	14.836	0.000
					C	0.000	18.063		100.00	7.708	0.000
L28 48.50-40.58	44.52	0.784	32.91	29.446	A	0.000	29.446	29.446	100.00	11.672	0.000
					B	0.000	29.446		100.00	22.463	0.000
					C	0.000	29.446		100.00	11.178	0.000
L29 40.58-39.58	40.08	0.761	31.94	3.725	A	0.000	3.725	3.725	100.00	1.688	0.000
					B	0.000	3.725		100.00	3.051	0.000
					C	0.000	3.725		100.00	1.625	0.000
L30 39.58-34.58	37.07	0.744	31.23	18.870	A	0.000	18.870	18.870	100.00	8.438	0.000
					B	0.000	18.870		100.00	15.253	0.000
					C	0.000	18.870		100.00	8.125	0.000
L31 34.58-31.50	33.04	0.72	30.22	11.840	A	0.000	11.840	11.840	100.00	5.203	0.000
					B	0.000	11.840		100.00	9.405	0.000
					C	0.000	11.840		100.00	5.010	0.000
L32 31.50-31.25	31.37	0.71	29.78	0.966	A	0.000	0.966	0.966	100.00	0.422	0.000
					B	0.000	0.966		100.00	0.763	0.000
					C	0.000	0.966		100.00	0.406	0.000
L33 31.25-28.75	30.00	0.701	29.40	9.721	A	0.000	9.721	9.721	100.00	4.284	0.000
					B	0.000	9.721		100.00	7.692	0.000
					C	0.000	9.721		100.00	4.128	0.000
L34 28.75-28.50	28.62	0.7	29.37	0.978	A	0.000	0.978	0.978	100.00	0.490	0.000
					B	0.000	0.978		100.00	0.830	0.000
					C	0.000	0.978		100.00	0.474	0.000
L35 28.50-23.50	25.99	0.7	29.37	19.785	A	0.000	19.785	19.785	100.00	6.979	0.000
					B	0.000	19.785		100.00	13.794	0.000
					C	0.000	19.785		100.00	6.667	0.000
L36 23.50-18.50	20.99	0.7	29.37	20.193	A	0.000	20.193	20.193	100.00	6.042	0.000
					B	0.000	20.193		100.00	12.857	0.000
					C	0.000	20.193		100.00	5.729	0.000
L37 18.50-13.50	15.99	0.7	29.37	20.602	A	0.000	20.602	20.602	100.00	6.042	0.000
					B	0.000	20.602		100.00	12.857	0.000
					C	0.000	20.602		100.00	5.729	0.000
L38 13.50-11.00	12.25	0.7	29.37	10.455	A	0.000	10.455	10.455	100.00	4.845	0.000
					B	0.000	10.455		100.00	8.253	0.000
					C	0.000	10.455		100.00	4.689	0.000
L39 11.00-10.75	10.87	0.7	29.37	1.050	A	0.000	1.050	1.050	100.00	0.530	0.000
					B	0.000	1.050		100.00	0.871	0.000
					C	0.000	1.050		100.00	0.514	0.000
L40 10.75-6.25	8.49	0.7	29.37	19.081	A	0.000	19.081	19.081	100.00	9.542	0.000
					B	0.000	19.081		100.00	16.303	0.000
					C	0.000	19.081		100.00	9.261	0.000
L41 6.25-6.00	6.12	0.7	29.37	1.070	A	0.000	1.070	1.070	100.00	0.530	0.000
					B	0.000	1.070		100.00	1.080	0.000
					C	0.000	1.070		100.00	0.514	0.000
L42 6.00-5.00	5.50	0.7	29.37	4.291	A	0.000	4.291	4.291	100.00	2.120	0.000
					B	0.000	4.291		100.00	4.320	0.000
					C	0.000	4.291		100.00	2.058	0.000
L43 5.00-4.75	4.87	0.7	29.37	1.075	A	0.000	1.075	1.075	100.00	0.530	0.000
					B	0.000	1.075		100.00	1.080	0.000
					C	0.000	1.075		100.00	0.514	0.000
L44 4.75-0.00	2.37	0.7	29.37	20.623	A	0.000	20.623	20.623	100.00	7.336	0.000
					B	0.000	20.623		100.00	17.783	0.000

Section Elevation	z	K_z	q_z	A_G	F a c e	A_F	A_R	A_{leg}	Leg %	$C_A A_A$ In Face	$C_A A_A$ Out Face
ft	ft		psf	ft ²		ft ²	ft ²	ft ²		ft ²	ft ²
					C	0.000	20.623		100.00	3.601	0.000

Tower Pressure - With Ice

$G_H = 1.100$

Section Elevation	z	K_z	q_z	t_z	A_G	F a c e	A_F	A_R	A_{leg}	Leg %	$C_A A_A$ In Face	$C_A A_A$ Out Face
ft	ft		psf	in	ft ²		ft ²	ft ²	ft ²		ft ²	ft ²
L1 160.00-155.00	157.48	1.125	6.48	1.4907	11.056	A	0.000	11.056	11.056	100.00	0.000	0.000
						B	0.000	11.056		100.00	0.000	0.000
						C	0.000	11.056		100.00	0.000	0.000
L2 155.00-150.00	152.48	1.115	6.42	1.4859	11.462	A	0.000	11.462	11.462	100.00	0.000	0.000
						B	0.000	11.462		100.00	0.000	0.000
						C	0.000	11.462		100.00	0.000	0.000
L3 150.00-145.00	147.48	1.104	6.36	1.4809	11.868	A	0.000	11.868	11.868	100.00	0.000	0.000
						B	0.000	11.868		100.00	0.000	0.000
						C	0.000	11.868		100.00	0.000	0.000
L4 145.00-140.00	142.48	1.093	6.29	1.4758	12.273	A	0.000	12.273	12.273	100.00	0.000	0.000
						B	0.000	12.273		100.00	0.000	0.000
						C	0.000	12.273		100.00	0.000	0.000
L5 140.00-135.00	137.49	1.082	6.23	1.4706	12.679	A	0.000	12.679	12.679	100.00	0.000	0.000
						B	0.000	12.679		100.00	0.000	0.000
						C	0.000	12.679		100.00	0.000	0.000
L6 135.00-130.00	132.49	1.071	6.16	1.4651	13.084	A	0.000	13.084	13.084	100.00	0.000	0.000
						B	0.000	13.084		100.00	0.000	0.000
						C	0.000	13.084		100.00	0.000	0.000
L7 130.00-125.00	127.49	1.059	6.10	1.4595	13.490	A	0.000	13.490	13.490	100.00	0.000	0.000
						B	0.000	13.490		100.00	0.000	0.000
						C	0.000	13.490		100.00	0.000	0.000
L8 125.00-117.33	121.13	1.044	6.01	1.4521	21.480	A	0.000	21.480	21.480	100.00	0.000	0.000
						B	0.000	21.480		100.00	0.000	0.000
						C	0.000	21.480		100.00	0.000	0.000
L9 117.33-117.00	117.16	1.034	5.95	1.4472	0.933	A	0.000	0.933	0.933	100.00	0.000	0.000
						B	0.000	0.933		100.00	0.000	0.000
						C	0.000	0.933		100.00	0.000	0.000
L10 117.00-112.00	114.49	1.027	5.91	1.4439	14.344	A	0.000	14.344	14.344	100.00	0.000	0.000
						B	0.000	14.344		100.00	0.000	0.000
						C	0.000	14.344		100.00	0.000	0.000
L11 112.00-107.00	109.49	1.014	5.84	1.4375	14.749	A	0.000	14.749	14.749	100.00	3.112	0.000
						B	0.000	14.749		100.00	3.112	0.000
						C	0.000	14.749		100.00	2.075	0.000
L12 107.00-102.00	104.49	1.001	5.76	1.4308	15.153	A	0.000	15.153	15.153	100.00	15.542	0.000
						B	0.000	15.153		100.00	15.542	0.000
						C	0.000	15.153		100.00	10.362	0.000
L13 102.00-97.00	99.49	0.987	5.68	1.4238	15.557	A	0.000	15.557	15.557	100.00	15.521	0.000
						B	0.000	15.557		100.00	15.521	0.000
						C	0.000	15.557		100.00	10.348	0.000
L14 97.00-94.00	95.50	0.975	5.61	1.4179	9.528	A	0.000	9.528	9.528	100.00	9.302	0.000
						B	0.000	9.528		100.00	16.301	0.000
						C	0.000	9.528		100.00	10.756	0.000
L15 94.00-93.75	93.87	0.971	5.59	1.4155	0.800	A	0.000	0.800	0.800	100.00	0.775	0.000
						B	0.000	0.800		100.00	1.592	0.000
						C	0.000	0.800		100.00	0.972	0.000
L16 93.75-88.75	91.24	0.963	5.54	1.4115	16.212	A	0.000	16.212	16.212	100.00	16.605	0.000
						B	0.000	16.212		100.00	31.824	0.000
						C	0.000	16.212		100.00	19.425	0.000
L17 88.75-82.50	85.61	0.945	5.44	1.4025	20.832	A	0.000	20.832	20.832	100.00	4.462	0.000
						B	0.000	20.832		100.00	19.075	0.000
						C	0.000	20.832		100.00	5.637	0.000
L18 82.50-81.50	82.00	0.934	5.38	1.3965	3.344	A	0.000	3.344	3.344	100.00	0.343	0.000
						B	0.000	3.344		100.00	2.354	0.000
						C	0.000	3.344		100.00	0.000	0.000

Section Elevation	z	K_z	q_z	t_z	A_G	F a c e	A_F	A_R	A_{leg}	Leg %	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²
ft	ft		psf	in	ft ²		ft ²	ft ²	ft ²		ft ²	ft ²
L19 81.50-76.50	78.99	0.924	5.32	1.3913	16.957	A	0.000	16.957	16.957	100.00	4.299	0.000
						B	0.000	16.957		100.00	11.743	0.000
						C	0.000	16.957		100.00	2.595	0.000
L20 76.50-72.25	74.37	0.908	5.23	1.3829	14.731	A	0.000	14.731	14.731	100.00	4.943	0.000
						B	0.000	14.731		100.00	11.616	0.000
						C	0.000	14.731		100.00	3.502	0.000
L21 72.25-72.00	72.12	0.9	5.18	1.3787	0.875	A	0.000	0.875	0.875	100.00	0.320	0.000
						B	0.000	0.875		100.00	0.821	0.000
						C	0.000	0.875		100.00	0.236	0.000
L22 72.00-67.00	69.49	0.891	5.13	1.3736	17.708	A	0.000	17.708	17.708	100.00	6.393	0.000
						B	0.000	17.708		100.00	16.410	0.000
						C	0.000	17.708		100.00	4.707	0.000
L23 67.00-62.00	64.49	0.872	5.02	1.3634	18.112	A	0.000	18.112	18.112	100.00	6.373	0.000
						B	0.000	18.112		100.00	16.377	0.000
						C	0.000	18.112		100.00	4.697	0.000
L24 62.00-57.00	59.49	0.852	4.90	1.3524	18.515	A	0.000	18.515	18.515	100.00	6.351	0.000
						B	0.000	18.515		100.00	16.341	0.000
						C	0.000	18.515		100.00	4.686	0.000
L25 57.00-53.75	55.37	0.835	4.80	1.3427	12.250	A	0.000	12.250	12.250	100.00	6.688	0.000
						B	0.000	12.250		100.00	13.174	0.000
						C	0.000	12.250		100.00	5.612	0.000
L26 53.75-53.50	53.62	0.827	4.76	1.3384	0.948	A	0.000	0.948	0.948	100.00	0.602	0.000
						B	0.000	0.948		100.00	1.100	0.000
						C	0.000	0.948		100.00	0.519	0.000
L27 53.50-48.50	50.99	0.815	4.69	1.3317	19.173	A	0.000	19.173	19.173	100.00	12.016	0.000
						B	0.000	19.173		100.00	21.981	0.000
						C	0.000	19.173		100.00	10.372	0.000
L28 48.50-40.58	44.52	0.784	4.51	1.3138	31.180	A	0.000	31.180	31.180	100.00	17.453	0.000
						B	0.000	31.180		100.00	33.196	0.000
						C	0.000	31.180		100.00	14.878	0.000
L29 40.58-39.58	40.08	0.761	4.38	1.3000	3.944	A	0.000	3.944	3.944	100.00	2.476	0.000
						B	0.000	3.944		100.00	4.464	0.000
						C	0.000	3.944		100.00	2.151	0.000
L30 39.58-34.58	37.07	0.744	4.28	1.2899	19.944	A	0.000	19.944	19.944	100.00	12.307	0.000
						B	0.000	19.944		100.00	22.220	0.000
						C	0.000	19.944		100.00	10.705	0.000
L31 34.58-31.50	33.04	0.72	4.15	1.2751	12.495	A	0.000	12.495	12.495	100.00	7.561	0.000
						B	0.000	12.495		100.00	13.662	0.000
						C	0.000	12.495		100.00	6.582	0.000
L32 31.50-31.25	31.37	0.71	4.08	1.2686	1.019	A	0.000	1.019	1.019	100.00	0.612	0.000
						B	0.000	1.019		100.00	1.106	0.000
						C	0.000	1.019		100.00	0.533	0.000
L33 31.25-28.75	30.00	0.701	4.03	1.2629	10.247	A	0.000	10.247	10.247	100.00	6.158	0.000
						B	0.000	10.247		100.00	11.098	0.000
						C	0.000	10.247		100.00	5.371	0.000
L34 28.75-28.50	28.62	0.7	4.03	1.2570	1.031	A	0.000	1.031	1.031	100.00	0.678	0.000
						B	0.000	1.031		100.00	1.172	0.000
						C	0.000	1.031		100.00	0.600	0.000
L35 28.50-23.50	25.99	0.7	4.03	1.2449	20.823	A	0.000	20.823	20.823	100.00	9.780	0.000
						B	0.000	20.823		100.00	19.636	0.000
						C	0.000	20.823		100.00	8.223	0.000
L36 23.50-18.50	20.99	0.7	4.03	1.2186	21.209	A	0.000	21.209	21.209	100.00	8.479	0.000
						B	0.000	21.209		100.00	18.302	0.000
						C	0.000	21.209		100.00	6.948	0.000
L37 18.50-13.50	15.99	0.7	4.03	1.1859	21.590	A	0.000	21.590	21.590	100.00	8.413	0.000
						B	0.000	21.590		100.00	18.196	0.000
						C	0.000	21.590		100.00	6.915	0.000
L38 13.50-11.00	12.25	0.7	4.03	1.1547	10.936	A	0.000	10.936	10.936	100.00	6.246	0.000
						B	0.000	10.936		100.00	11.118	0.000
						C	0.000	10.936		100.00	5.513	0.000
L39 11.00-10.75	10.87	0.7	4.03	1.1410	1.098	A	0.000	1.098	1.098	100.00	0.675	0.000
						B	0.000	1.098		100.00	1.161	0.000
						C	0.000	1.098		100.00	0.602	0.000
L40 10.75-6.25	8.49	0.7	4.03	1.1132	19.916	A	0.000	19.916	19.916	100.00	12.081	0.000
						B	0.000	19.916		100.00	21.522	0.000
						C	0.000	19.916		100.00	10.798	0.000
L41 6.25-6.00	6.12	0.7	4.03	1.0774	1.115	A	0.000	1.115	1.115	100.00	0.667	0.000
						B	0.000	1.115		100.00	1.387	0.000

Section Elevation ft	z ft	K_z	q_z psf	t_z in	A_G ft ²	F a c e	A_F ft ²	A_R ft ²	A_{leg} ft ²	Leg %	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²
L42 6.00-5.00	5.50	0.7	4.03	1.0658	4.468	C	0.000	1.115	4.468	100.00	0.597	0.000
						A	0.000	4.468		100.00	2.661	0.000
						B	0.000	4.468		100.00	5.540	0.000
L43 5.00-4.75	4.87	0.7	4.03	1.0531	1.119	C	0.000	4.468	1.119	100.00	2.385	0.000
						A	0.000	1.119		100.00	0.664	0.000
						B	0.000	1.119		100.00	1.382	0.000
L44 4.75-0.00	2.37	0.7	4.03	0.9797	21.399	C	0.000	1.119	21.399	100.00	0.595	0.000
						A	0.000	21.399		100.00	9.381	0.000
						B	0.000	21.399		100.00	22.909	0.000
						C	0.000	21.399		100.00	4.128	0.000

Tower Pressure - Service

$G_H = 1.100$

Section Elevation ft	z ft	K_z	q_z psf	A_G ft ²	F a c e	A_F ft ²	A_R ft ²	A_{leg} ft ²	Leg %	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²
L1 160.00-155.00	157.48	1.125	8.78	9.814	A	0.000	9.814	9.814	100.00	0.000	0.000
					B	0.000	9.814		100.00	0.000	0.000
					C	0.000	9.814		100.00	0.000	0.000
L2 155.00-150.00	152.48	1.115	8.70	10.224	A	0.000	10.224	10.224	100.00	0.000	0.000
					B	0.000	10.224		100.00	0.000	0.000
					C	0.000	10.224		100.00	0.000	0.000
L3 150.00-145.00	147.48	1.104	8.62	10.634	A	0.000	10.634	10.634	100.00	0.000	0.000
					B	0.000	10.634		100.00	0.000	0.000
					C	0.000	10.634		100.00	0.000	0.000
L4 145.00-140.00	142.48	1.093	8.54	11.044	A	0.000	11.044	11.044	100.00	0.000	0.000
					B	0.000	11.044		100.00	0.000	0.000
					C	0.000	11.044		100.00	0.000	0.000
L5 140.00-135.00	137.49	1.082	8.45	11.454	A	0.000	11.454	11.454	100.00	0.000	0.000
					B	0.000	11.454		100.00	0.000	0.000
					C	0.000	11.454		100.00	0.000	0.000
L6 135.00-130.00	132.49	1.071	8.36	11.863	A	0.000	11.863	11.863	100.00	0.000	0.000
					B	0.000	11.863		100.00	0.000	0.000
					C	0.000	11.863		100.00	0.000	0.000
L7 130.00-125.00	127.49	1.059	8.27	12.273	A	0.000	12.273	12.273	100.00	0.000	0.000
					B	0.000	12.273		100.00	0.000	0.000
					C	0.000	12.273		100.00	0.000	0.000
L8 125.00-117.33	121.13	1.044	8.15	19.624	A	0.000	19.624	19.624	100.00	0.000	0.000
					B	0.000	19.624		100.00	0.000	0.000
					C	0.000	19.624		100.00	0.000	0.000
L9 117.33-117.00	117.16	1.034	8.07	0.853	A	0.000	0.853	0.853	100.00	0.000	0.000
					B	0.000	0.853		100.00	0.000	0.000
					C	0.000	0.853		100.00	0.000	0.000
L10 117.00-112.00	114.49	1.027	8.02	13.141	A	0.000	13.141	13.141	100.00	0.000	0.000
					B	0.000	13.141		100.00	0.000	0.000
					C	0.000	13.141		100.00	0.000	0.000
L11 112.00-107.00	109.49	1.014	7.92	13.551	A	0.000	13.551	13.551	100.00	2.250	0.000
					B	0.000	13.551		100.00	2.250	0.000
					C	0.000	13.551		100.00	1.500	0.000
L12 107.00-102.00	104.49	1.001	7.81	13.961	A	0.000	13.961	13.961	100.00	11.250	0.000
					B	0.000	13.961		100.00	11.250	0.000
					C	0.000	13.961		100.00	7.500	0.000
L13 102.00-97.00	99.49	0.987	7.70	14.371	A	0.000	14.371	14.371	100.00	11.250	0.000
					B	0.000	14.371		100.00	11.250	0.000
					C	0.000	14.371		100.00	7.500	0.000
L14 97.00-94.00	95.50	0.975	7.61	8.819	A	0.000	8.819	8.819	100.00	6.750	0.000
					B	0.000	8.819		100.00	11.476	0.000
					C	0.000	8.819		100.00	8.250	0.000
L15 94.00-93.75	93.87	0.971	7.58	0.741	A	0.000	0.741	0.741	100.00	0.563	0.000
					B	0.000	0.741		100.00	1.106	0.000
					C	0.000	0.741		100.00	0.750	0.000

Section Elevation	z	K _z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	ft ²		ft ²	ft ²	ft ²		ft ²	ft ²
L16 93.75- 88.75	91.24	0.963	7.52	15.036	A	0.000	15.036	15.036	100.00	11.453	0.000
					B	0.000	15.036		100.00	22.128	0.000
					C	0.000	15.036		100.00	15.000	0.000
L17 88.75- 82.50	85.61	0.945	7.38	19.371	A	0.000	19.371	19.371	100.00	2.078	0.000
					B	0.000	19.371		100.00	12.284	0.000
					C	0.000	19.371		100.00	4.500	0.000
L18 82.50- 81.50	82.00	0.934	7.29	3.110	A	0.000	3.110	3.110	100.00	0.063	0.000
					B	0.000	3.110		100.00	1.426	0.000
					C	0.000	3.110		100.00	0.000	0.000
L19 81.50- 76.50	78.99	0.924	7.21	15.797	A	0.000	15.797	15.797	100.00	2.339	0.000
					B	0.000	15.797		100.00	7.127	0.000
					C	0.000	15.797		100.00	2.026	0.000
L20 76.50- 72.25	74.37	0.908	7.09	13.751	A	0.000	13.751	13.751	100.00	2.880	0.000
					B	0.000	13.751		100.00	7.225	0.000
					C	0.000	13.751		100.00	2.614	0.000
L21 72.25- 72.00	72.12	0.9	7.03	0.817	A	0.000	0.817	0.817	100.00	0.182	0.000
					B	0.000	0.817		100.00	0.523	0.000
					C	0.000	0.817		100.00	0.167	0.000
L22 72.00- 67.00	69.49	0.891	6.95	16.564	A	0.000	16.564	16.564	100.00	3.646	0.000
					B	0.000	16.564		100.00	10.461	0.000
					C	0.000	16.564		100.00	3.333	0.000
L23 67.00- 62.00	64.49	0.872	6.81	16.976	A	0.000	16.976	16.976	100.00	3.646	0.000
					B	0.000	16.976		100.00	10.461	0.000
					C	0.000	16.976		100.00	3.333	0.000
L24 62.00- 57.00	59.49	0.852	6.65	17.388	A	0.000	17.388	17.388	100.00	3.646	0.000
					B	0.000	17.388		100.00	10.461	0.000
					C	0.000	17.388		100.00	3.333	0.000
L25 57.00- 53.75	55.37	0.835	6.52	11.523	A	0.000	11.523	11.523	100.00	4.339	0.000
					B	0.000	11.523		100.00	8.768	0.000
					C	0.000	11.523		100.00	4.135	0.000
L26 53.75- 53.50	53.62	0.827	6.46	0.892	A	0.000	0.892	0.892	100.00	0.401	0.000
					B	0.000	0.892		100.00	0.742	0.000
					C	0.000	0.892		100.00	0.385	0.000
L27 53.50- 48.50	50.99	0.815	6.36	18.063	A	0.000	18.063	18.063	100.00	8.021	0.000
					B	0.000	18.063		100.00	14.836	0.000
					C	0.000	18.063		100.00	7.708	0.000
L28 48.50- 40.58	44.52	0.784	6.12	29.446	A	0.000	29.446	29.446	100.00	11.672	0.000
					B	0.000	29.446		100.00	22.463	0.000
					C	0.000	29.446		100.00	11.178	0.000
L29 40.58- 39.58	40.08	0.761	5.94	3.725	A	0.000	3.725	3.725	100.00	1.688	0.000
					B	0.000	3.725		100.00	3.051	0.000
					C	0.000	3.725		100.00	1.625	0.000
L30 39.58- 34.58	37.07	0.744	5.81	18.870	A	0.000	18.870	18.870	100.00	8.438	0.000
					B	0.000	18.870		100.00	15.253	0.000
					C	0.000	18.870		100.00	8.125	0.000
L31 34.58- 31.50	33.04	0.72	5.62	11.840	A	0.000	11.840	11.840	100.00	5.203	0.000
					B	0.000	11.840		100.00	9.405	0.000
					C	0.000	11.840		100.00	5.010	0.000
L32 31.50- 31.25	31.37	0.71	5.54	0.966	A	0.000	0.966	0.966	100.00	0.422	0.000
					B	0.000	0.966		100.00	0.763	0.000
					C	0.000	0.966		100.00	0.406	0.000
L33 31.25- 28.75	30.00	0.701	5.47	9.721	A	0.000	9.721	9.721	100.00	4.284	0.000
					B	0.000	9.721		100.00	7.692	0.000
					C	0.000	9.721		100.00	4.128	0.000
L34 28.75- 28.50	28.62	0.7	5.46	0.978	A	0.000	0.978	0.978	100.00	0.490	0.000
					B	0.000	0.978		100.00	0.830	0.000
					C	0.000	0.978		100.00	0.474	0.000
L35 28.50- 23.50	25.99	0.7	5.46	19.785	A	0.000	19.785	19.785	100.00	6.979	0.000
					B	0.000	19.785		100.00	13.794	0.000
					C	0.000	19.785		100.00	6.667	0.000
L36 23.50- 18.50	20.99	0.7	5.46	20.193	A	0.000	20.193	20.193	100.00	6.042	0.000
					B	0.000	20.193		100.00	12.857	0.000
					C	0.000	20.193		100.00	5.729	0.000
L37 18.50- 13.50	15.99	0.7	5.46	20.602	A	0.000	20.602	20.602	100.00	6.042	0.000
					B	0.000	20.602		100.00	12.857	0.000
					C	0.000	20.602		100.00	5.729	0.000
L38 13.50- 11.00	12.25	0.7	5.46	10.455	A	0.000	10.455	10.455	100.00	4.845	0.000
					B	0.000	10.455		100.00	8.253	0.000

Section Elevation ft	z ft	K_z	q_z psf	A_G ft ²	F a c e	A_F ft ²	A_R ft ²	A_{leg} ft ²	Leg %	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²
L39 11.00-10.75	10.87	0.7	5.46	1.050	C	0.000	10.455	1.050	100.00	4.689	0.000
					A	0.000	1.050		100.00	0.530	0.000
					B	0.000	1.050		100.00	0.871	0.000
L40 10.75-6.25	8.49	0.7	5.46	19.081	C	0.000	1.050	19.081	100.00	0.514	0.000
					A	0.000	19.081		100.00	9.542	0.000
					B	0.000	19.081		100.00	16.303	0.000
L41 6.25-6.00	6.12	0.7	5.46	1.070	C	0.000	19.081	1.070	100.00	9.261	0.000
					A	0.000	1.070		100.00	0.530	0.000
					B	0.000	1.070		100.00	1.080	0.000
L42 6.00-5.00	5.50	0.7	5.46	4.291	C	0.000	1.070	4.291	100.00	0.514	0.000
					A	0.000	4.291		100.00	2.120	0.000
					B	0.000	4.291		100.00	4.320	0.000
L43 5.00-4.75	4.87	0.7	5.46	1.075	C	0.000	4.291	1.075	100.00	2.058	0.000
					A	0.000	1.075		100.00	0.530	0.000
					B	0.000	1.075		100.00	1.080	0.000
L44 4.75-0.00	2.37	0.7	5.46	20.623	C	0.000	1.075	20.623	100.00	0.514	0.000
					A	0.000	20.623		100.00	7.336	0.000
					B	0.000	20.623		100.00	17.783	0.000
					C	0.000	20.623		100.00	3.601	0.000

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 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

Comb. No.	Description
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
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	160 - 155	Pole	Max Tension	21	0.00	-0.00	-0.00
			Max. Compression	26	-7.17	-0.00	0.00
			Max. Mx	20	-2.65	17.94	0.00
			Max. My	2	-2.65	0.00	17.92
			Max. Vy	20	-4.31	17.94	0.00
			Max. Vx	2	-4.30	0.00	17.92
			Max. Torque	18			0.00
L2	155 - 150	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-8.87	-0.00	0.00
			Max. Mx	20	-3.42	44.08	0.00
			Max. My	2	-3.43	0.00	44.03
			Max. Vy	20	-5.60	44.08	0.00
			Max. Vx	2	-5.59	0.00	44.03
			Max. Torque	18			0.00
L3	150 - 145	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-9.49	-0.00	0.00
			Max. Mx	20	-3.75	73.44	0.01
			Max. My	2	-3.76	0.01	73.36
			Max. Vy	20	-6.15	73.44	0.01
			Max. Vx	2	-6.14	0.01	73.36
			Max. Torque	18			0.00
L4	145 - 140	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-18.57	-0.00	0.00
			Max. Mx	20	-7.24	124.62	0.01
			Max. My	2	-7.26	0.01	124.50
			Max. Vy	20	-11.64	124.62	0.01
			Max. Vx	2	-11.63	0.01	124.50
			Max. Torque	18			0.00
L5	140 - 135	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-19.31	-0.00	0.00
			Max. Mx	20	-7.70	184.24	0.02
			Max. My	2	-7.72	0.01	184.05
			Max. Vy	20	-12.21	184.24	0.02
			Max. Vx	2	-12.20	0.01	184.05
			Max. Torque	18			0.00
L6	135 - 130	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.08	-0.00	0.00
			Max. Mx	20	-8.18	246.72	0.03
			Max. My	2	-8.20	0.02	246.46
			Max. Vy	20	-12.79	246.72	0.03
			Max. Vx	2	-12.77	0.02	246.46
			Max. Torque	18			0.00
L7	130 - 125	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.86	-0.00	0.00
			Max. Mx	20	-8.69	312.10	0.03
			Max. My	2	-8.71	0.03	311.77
			Max. Vy	20	-13.37	312.10	0.03
			Max. Vx	2	-13.36	0.03	311.77
			Max. Torque	18			0.00
L8	125 - 117.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.35	-0.00	0.00
			Max. Mx	20	-9.00	352.73	0.04

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L9	117.33 - 117	Pole	Max. My	2	-9.03	0.03	352.35
			Max. Vy	20	-13.72	352.73	0.04
			Max. Vx	2	-13.71	0.03	352.35
			Max. Torque	18			0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-22.95	-0.00	0.00
			Max. Mx	20	-10.03	422.97	0.05
			Max. My	2	-10.06	0.04	422.51
			Max. Vy	20	-14.38	422.97	0.05
			Max. Vx	2	-14.36	0.04	422.51
L10	117 - 112	Pole	Max. Torque	12			-0.00
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-31.62	-0.16	-1.08
			Max. Mx	20	-13.88	517.79	0.27
			Max. My	14	-13.94	-0.07	-515.51
			Max. Vy	20	-18.85	517.79	0.27
			Max. Vx	2	-18.57	0.86	515.08
			Max. Torque	6			-0.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.89	-0.16	-1.05
L11	112 - 107	Pole	Max. Mx	20	-14.77	613.52	0.64
			Max. My	14	-14.83	-0.42	-609.82
			Max. Vy	20	-19.46	613.52	0.64
			Max. Vx	2	-19.18	1.21	609.42
			Max. Torque	6			-0.45
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.12	-0.12	-0.91
			Max. Mx	20	-16.18	713.98	1.08
			Max. My	14	-16.23	-0.75	-708.77
			Max. Vy	20	-20.74	713.98	1.08
L12	107 - 102	Pole	Max. Vx	2	-20.46	1.58	708.54
			Max. Torque	6			-0.52
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.38	-0.09	-0.76
			Max. Mx	20	-17.62	820.84	1.53
			Max. My	14	-17.68	-1.09	-814.11
			Max. Vy	20	-22.01	820.84	1.53
			Max. Vx	2	-21.73	1.96	814.04
			Max. Torque	6			-0.58
			Max Tension	1	0.00	0.00	0.00
L13	102 - 97	Pole	Max. Compression	26	-43.81	-0.14	-0.09
			Max. Mx	20	-20.47	897.57	1.99
			Max. My	2	-20.53	2.15	890.09
			Max. Vy	20	-25.59	897.57	1.99
			Max. Vx	2	-25.23	2.15	890.09
			Max. Torque	6			-0.58
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.95	-0.15	-0.08
			Max. Mx	20	-20.57	903.97	2.01
			Max. My	2	-20.63	2.16	896.41
L14	97 - 94	Pole	Max. Vy	20	-25.67	903.97	2.01
			Max. Vx	2	-25.31	2.16	896.41
			Max. Torque	7			-0.37
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.02	-0.40	0.13
			Max. Mx	20	-22.46	1036.24	2.49
			Max. My	2	-22.53	2.48	1026.59
			Max. Vy	20	-27.26	1036.24	2.49
			Max. Vx	2	-26.72	2.48	1026.59
			Max. Torque	7			-0.37
L15	94 - 93.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.95	-0.15	-0.08
			Max. Mx	20	-20.57	903.97	2.01
			Max. My	2	-20.63	2.16	896.41
			Max. Vy	20	-25.67	903.97	2.01
			Max. Vx	2	-25.31	2.16	896.41
			Max. Torque	7			-0.37
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.29	-0.44	0.16
			Max. Mx	20	-22.66	1056.72	2.55
L16	93.75 - 88.75	Pole	Max. My	2	-22.73	2.52	1046.66
			Max. Vy	20	-27.40	1056.72	2.55
			Max. Vx	2	-26.81	2.52	1046.66
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.29	-0.44	0.16
			Max. Mx	20	-22.66	1056.72	2.55
			Max. My	2	-22.73	2.52	1046.66
			Max. Vy	20	-27.40	1056.72	2.55
			Max. Vx	2	-26.81	2.52	1046.66
L17	88.75 - 82.5	Pole	Max. Torque	7			-0.37
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.29	-0.44	0.16
			Max. Mx	20	-22.66	1056.72	2.55
			Max. My	2	-22.73	2.52	1046.66
			Max. Vy	20	-27.40	1056.72	2.55
			Max. Vx	2	-26.81	2.52	1046.66
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.29	-0.44	0.16
L18	82.5 - 81.5	Pole	Max. Mx	20	-22.66	1056.72	2.55
			Max. My	2	-22.73	2.52	1046.66
			Max. Vy	20	-27.40	1056.72	2.55
			Max. Vx	2	-26.81	2.52	1046.66
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.29	-0.44	0.16
			Max. Mx	20	-22.66	1056.72	2.55
			Max. My	2	-22.73	2.52	1046.66
			Max. Vy	20	-27.40	1056.72	2.55

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L19	81.5 - 76.5	Pole	Max. Compression	26	-51.20	-0.82	0.39
			Max. Mx	20	-25.37	1240.09	3.08
			Max. My	2	-25.47	2.86	1224.77
			Max. Vy	20	-28.90	1240.09	3.08
			Max. Vx	2	-27.86	2.86	1224.77
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.02	-1.13	0.57
			Max. Mx	20	-26.69	1386.82	3.48
			Max. My	2	-26.80	3.10	1365.53
L20	76.5 - 72.25	Pole	Max. Vy	20	-29.86	1386.82	3.48
			Max. Vx	2	-28.45	3.10	1365.53
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.61	-1.40	0.72
			Max. Mx	20	-27.83	1514.94	3.82
			Max. My	2	-27.94	3.30	1487.46
			Max. Vy	20	-30.50	1514.94	3.82
			Max. Vx	2	-28.94	3.30	1487.46
			Max. Torque	7			-0.35
L21	72.25 - 72	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.71	-1.41	0.73
			Max. Mx	20	-27.91	1522.56	3.85
			Max. My	2	-28.02	3.32	1494.70
			Max. Vy	20	-30.55	1522.56	3.85
			Max. Vx	2	-28.98	3.32	1494.70
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.74	-1.70	0.93
			Max. Mx	20	-29.39	1677.01	4.26
L22	72 - 67	Pole	Max. My	2	-29.50	3.57	1641.03
			Max. Vy	20	-31.31	1677.01	4.26
			Max. Vx	14	29.70	-3.72	-1639.04
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.80	-1.99	1.12
			Max. Mx	20	-30.92	1835.11	4.67
			Max. My	2	-31.02	3.83	1790.35
			Max. Vy	20	-32.00	1835.11	4.67
			Max. Vx	14	30.29	-4.17	-1788.90
L23	67 - 62	Pole	Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-60.89	-2.29	1.32
			Max. Mx	20	-32.47	1996.61	5.09
			Max. My	2	-32.57	4.08	1942.59
			Max. Vy	20	-32.67	1996.61	5.09
			Max. Vx	14	30.87	-4.63	-1941.67
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.33	-2.48	1.46
L24	62 - 57	Pole	Max. Mx	20	-33.50	2103.49	5.35
			Max. My	2	-33.59	4.24	2043.30
			Max. Vy	20	-33.18	2103.49	5.35
			Max. Vx	14	31.37	-4.92	-2042.72
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.46	-2.50	1.47
			Max. Mx	20	-33.61	2111.78	5.38
			Max. My	2	-33.70	4.25	2051.11
			Max. Vy	20	-33.23	2111.78	5.38
L25	57 - 53.75	Pole	Max. Vx	14	31.42	-4.95	-2050.56
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.13	-2.80	1.67
			Max. Mx	20	-35.57	2279.75	5.79
			Max. My	2	-35.65	4.50	2209.47
			Max. Vy	20	-34.04	2279.75	5.79
			Max. Vx	14	32.20	-5.40	-2209.44
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
L26	53.75 - 53.5	Pole	Max. Compression	26	-65.13	-2.80	1.67
			Max. Mx	20	-35.57	2279.75	5.79
			Max. My	2	-35.65	4.50	2209.47
			Max. Vy	20	-34.04	2279.75	5.79
			Max. Vx	14	32.20	-5.40	-2209.44
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.13	-2.80	1.67
			Max. Mx	20	-35.57	2279.75	5.79
			Max. My	2	-35.65	4.50	2209.47
L27	53.5 - 48.5	Pole	Max. Vy	20	-34.04	2279.75	5.79
			Max. Vx	14	32.20	-5.40	-2209.44
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.13	-2.80	1.67
			Max. Mx	20	-35.57	2279.75	5.79
			Max. My	2	-35.65	4.50	2209.47
			Max. Vy	20	-34.04	2279.75	5.79
			Max. Vx	14	32.20	-5.40	-2209.44
			Max. Torque	7			-0.35

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L28	48.5 - 40.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.93	-2.89	1.74
			Max. Mx	20	-36.16	2330.93	5.91
			Max. My	14	-36.24	-5.54	-2257.87
			Max. Vy	20	-34.28	2330.93	5.91
			Max. Vx	14	32.43	-5.54	-2257.87
			Max. Torque	7			-0.35
L29	40.583 - 39.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-72.85	-3.35	2.05
			Max. Mx	20	-41.56	2589.78	6.53
			Max. My	14	-41.64	-6.22	-2502.94
			Max. Vy	20	-35.57	2589.78	6.53
			Max. Vx	14	33.69	-6.22	-2502.94
			Max. Torque	7			-0.35
L30	39.583 - 34.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-75.77	-3.66	2.25
			Max. Mx	20	-43.80	2769.29	6.95
			Max. My	14	-43.86	-6.68	-2673.07
			Max. Vy	20	-36.31	2769.29	6.95
			Max. Vx	14	34.42	-6.68	-2673.07
			Max. Torque	7			-0.35
L31	34.583 - 31.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-77.58	-3.86	2.38
			Max. Mx	20	-45.19	2881.78	7.21
			Max. My	14	-45.25	-6.97	-2779.78
			Max. Vy	20	-36.74	2881.78	7.21
			Max. Vx	14	34.86	-6.97	-2779.78
			Max. Torque	7			-0.35
L32	31.5 - 31.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-77.73	-3.87	2.40
			Max. Mx	20	-45.32	2890.97	7.23
			Max. My	14	-45.38	-6.99	-2788.50
			Max. Vy	20	-36.79	2890.97	7.23
			Max. Vx	14	34.90	-6.99	-2788.50
			Max. Torque	7			-0.35
L33	31.25 - 28.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.27	-4.03	2.50
			Max. Mx	20	-46.51	2983.26	7.44
			Max. My	14	-46.57	-7.22	-2876.10
			Max. Vy	20	-37.13	2983.26	7.44
			Max. Vx	14	35.25	-7.22	-2876.10
			Max. Torque	7			-0.35
L34	28.75 - 28.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-79.41	-4.05	2.51
			Max. Mx	20	-46.63	2992.54	7.46
			Max. My	14	-46.69	-7.24	-2884.91
			Max. Vy	20	-37.18	2992.54	7.46
			Max. Vx	14	35.29	-7.24	-2884.91
			Max. Torque	7			-0.35
L35	28.5 - 23.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-82.17	-4.36	2.72
			Max. Mx	20	-48.79	3179.87	7.87
			Max. My	14	-48.84	-7.71	-3062.39
			Max. Vy	20	-37.84	3179.87	7.87
			Max. Vx	2	-35.86	5.69	3060.93
			Max. Torque	7			-0.35
L36	23.5 - 18.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-84.91	-4.68	2.94
			Max. Mx	20	-50.99	3370.56	8.29
			Max. My	14	-51.03	-8.17	-3242.34
			Max. Vy	20	-38.51	3370.56	8.29
			Max. Vx	2	-36.54	5.93	3241.93
			Max. Torque	7			-0.35
L37	18.5 - 13.5	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L38	13.5 - 11	Pole	Max. Compression	26	-87.67	-5.00	3.15
			Max. Mx	20	-53.22	3564.61	8.71
			Max. My	2	-53.25	6.15	3426.32
			Max. Vy	20	-39.19	3564.61	8.71
			Max. Vx	2	-37.22	6.15	3426.32
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.11	-5.16	3.24
			Max. Mx	20	-54.35	3662.92	8.91
			Max. My	2	-54.37	6.27	3519.81
L39	11 - 10.75	Pole	Max. Vy	20	-39.54	3662.92	8.91
			Max. Vx	2	-37.58	6.27	3519.81
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-89.27	-5.17	3.25
			Max. Mx	20	-54.49	3672.80	8.93
			Max. My	2	-54.51	6.28	3529.20
			Max. Vy	20	-39.57	3672.80	8.93
			Max. Vx	2	-37.61	6.28	3529.20
			Max. Torque	7			-0.35
L40	10.75 - 6.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-92.20	-5.45	3.41
			Max. Mx	20	-56.85	3852.17	9.31
			Max. My	2	-56.86	6.48	3699.93
			Max. Vy	20	-40.23	3852.17	9.31
			Max. Vx	2	-38.28	6.48	3699.93
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-92.37	-5.47	3.42
			Max. Mx	20	-56.99	3862.23	9.33
L41	6.25 - 6	Pole	Max. My	2	-57.00	6.49	3709.50
			Max. Vy	20	-40.26	3862.23	9.33
			Max. Vx	2	-38.31	6.49	3709.50
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-93.02	-5.55	3.45
			Max. Mx	20	-57.51	3902.53	9.41
			Max. My	2	-57.52	6.53	3747.89
			Max. Vy	20	-40.42	3902.53	9.41
			Max. Vx	2	-38.46	6.53	3747.89
L42	6 - 5	Pole	Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-93.18	-5.57	3.46
			Max. Mx	20	-57.65	3912.63	9.43
			Max. My	2	-57.66	6.54	3757.51
			Max. Vy	20	-40.45	3912.63	9.43
			Max. Vx	2	-38.49	6.54	3757.51
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-96.06	-5.89	3.69
L43	5 - 4.75	Pole	Max. Mx	20	-60.07	4106.22	9.82
			Max. My	2	-60.07	6.75	3941.99
			Max. Vy	20	-41.14	4106.22	9.82
			Max. Vx	2	-39.19	6.75	3941.99
			Max. Torque	7			-0.35
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-96.06	-5.89	3.69
			Max. Mx	20	-60.07	4106.22	9.82
			Max. My	2	-60.07	6.75	3941.99
			Max. Vy	20	-41.14	4106.22	9.82
L44	4.75 - 0	Pole	Max. Vx	2	-39.19	6.75	3941.99
			Max. Torque	7			-0.35

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	26	96.06	-0.00	0.00
	Max. H _x	20	60.08	41.12	0.07
	Max. H _z	2	60.08	0.07	39.17
	Max. M _x	2	3941.99	0.07	39.17

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. M _z	8	4084.71	-40.49	-0.07
	Max. Torsion	15	0.33	-0.07	-38.65
	Min. Vert	21	45.06	41.12	0.07
	Min. H _x	8	60.08	-40.49	-0.07
	Min. H _z	14	60.08	-0.07	-38.65
	Min. M _x	14	-3933.53	-0.07	-38.65
	Min. M _z	20	-4106.22	41.12	0.07
	Min. Torsion	7	-0.35	-33.45	19.15

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overtuning Moment, M _x kip-ft	Overtuning Moment, M _z kip-ft	Torque kip-ft
Dead Only	50.07	0.00	-0.00	-1.22	-1.29	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	60.08	-0.07	-39.17	-3941.99	6.75	0.31
0.9 Dead+1.0 Wind 0 deg - No Ice	45.06	-0.07	-39.16	-3906.15	7.07	0.32
1.2 Dead+1.0 Wind 30 deg - No Ice	60.08	19.07	-32.88	-3300.25	-1916.91	0.25
0.9 Dead+1.0 Wind 30 deg - No Ice	45.06	19.07	-32.88	-3270.13	-1899.25	0.26
1.2 Dead+1.0 Wind 60 deg - No Ice	60.08	33.45	-19.15	-1948.42	-3409.08	0.35
0.9 Dead+1.0 Wind 60 deg - No Ice	45.06	33.45	-19.15	-1930.52	-3378.04	0.35
1.2 Dead+1.0 Wind 90 deg - No Ice	60.08	40.49	0.07	6.81	-4084.71	-0.29
0.9 Dead+1.0 Wind 90 deg - No Ice	45.06	40.49	0.07	7.12	-4047.86	-0.29
1.2 Dead+1.0 Wind 120 deg - No Ice	60.08	33.78	19.41	1946.68	-3394.66	-0.09
0.9 Dead+1.0 Wind 120 deg - No Ice	45.06	33.78	19.41	1929.58	-3363.81	-0.09
1.2 Dead+1.0 Wind 150 deg - No Ice	60.08	19.67	33.78	3393.15	-1981.89	-0.16
0.9 Dead+1.0 Wind 150 deg - No Ice	45.06	19.67	33.78	3363.07	-1963.72	-0.17
1.2 Dead+1.0 Wind 180 deg - No Ice	60.08	0.07	38.65	3933.53	-9.89	-0.33
0.9 Dead+1.0 Wind 180 deg - No Ice	45.06	0.07	38.65	3898.45	-9.42	-0.33
1.2 Dead+1.0 Wind 210 deg - No Ice	60.08	-18.50	31.89	3259.38	1891.92	-0.23
0.9 Dead+1.0 Wind 210 deg - No Ice	45.06	-18.50	31.89	3230.18	1875.14	-0.24
1.2 Dead+1.0 Wind 240 deg - No Ice	60.08	-33.90	19.40	1948.13	3410.67	-0.31
0.9 Dead+1.0 Wind 240 deg - No Ice	45.06	-33.90	19.40	1931.01	3380.43	-0.32
1.2 Dead+1.0 Wind 270 deg - No Ice	60.08	-41.12	-0.07	-9.82	4106.22	0.31
0.9 Dead+1.0 Wind 270 deg - No Ice	45.06	-41.12	-0.07	-9.37	4070.06	0.31
1.2 Dead+1.0 Wind 300 deg - No Ice	60.08	-33.38	-19.18	-1948.73	3389.85	0.07
0.9 Dead+1.0 Wind 300 deg - No Ice	45.06	-33.38	-19.18	-1930.84	3359.75	0.08
1.2 Dead+1.0 Wind 330 deg - No Ice	60.08	-19.19	-32.95	-3367.05	1961.95	0.13
0.9 Dead+1.0 Wind 330 deg - No Ice	45.06	-19.19	-32.95	-3336.30	1944.63	0.13
1.2 Dead+1.0 Ice+1.0 Temp	96.06	0.00	-0.00	-3.69	-5.89	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	96.06	-0.01	-7.24	-802.25	-4.65	0.06
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	96.06	3.50	-6.04	-670.65	-393.22	0.05
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	96.06	6.24	-3.57	-398.95	-697.20	0.06
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	96.06	7.40	0.01	-2.28	-823.17	-0.08
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	96.06	6.19	3.56	389.01	-690.19	-0.03
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	96.06	3.63	6.24	684.45	-407.45	-0.04
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	96.06	0.01	7.21	793.37	-7.79	-0.06
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	96.06	-3.47	5.99	661.08	379.70	-0.04
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	96.06	-6.27	3.59	391.83	685.77	-0.06
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	96.06	-7.45	-0.01	-5.42	812.79	0.08
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	96.06	-6.18	-3.55	-396.85	677.98	0.03
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	96.06	-3.62	-6.21	-691.61	394.69	0.03
Dead+Wind 0 deg - Service	50.07	-0.01	-7.29	-730.53	0.23	0.06
Dead+Wind 30 deg - Service	50.07	3.55	-6.12	-611.75	-355.78	0.05
Dead+Wind 60 deg - Service	50.07	6.22	-3.56	-361.58	-631.96	0.06
Dead+Wind 90 deg - Service	50.07	7.53	0.01	0.29	-757.04	-0.06
Dead+Wind 120 deg - Service	50.07	6.28	3.61	359.32	-629.29	-0.02
Dead+Wind 150 deg - Service	50.07	3.66	6.28	627.04	-367.82	-0.03
Dead+Wind 180 deg - Service	50.07	0.01	7.19	727.01	-2.84	-0.06
Dead+Wind 210 deg - Service	50.07	-3.44	5.93	602.15	349.07	-0.05
Dead+Wind 240 deg - Service	50.07	-6.31	3.61	359.59	630.23	-0.06
Dead+Wind 270 deg - Service	50.07	-7.65	-0.01	-2.79	759.01	0.06
Dead+Wind 300 deg - Service	50.07	-6.21	-3.57	-361.64	626.37	0.02
Dead+Wind 330 deg - Service	50.07	-3.57	-6.13	-624.13	362.09	0.03

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-50.07	0.00	-0.00	50.07	0.00	0.000%
2	-0.07	-60.08	-39.17	0.07	60.08	39.17	0.003%
3	-0.07	-45.06	-39.17	0.07	45.06	39.16	0.005%
4	19.07	-60.08	-32.88	-19.07	60.08	32.88	0.000%
5	19.07	-45.06	-32.88	-19.07	45.06	32.88	0.000%
6	33.45	-60.08	-19.15	-33.45	60.08	19.15	0.000%
7	33.45	-45.06	-19.15	-33.45	45.06	19.15	0.000%
8	40.49	-60.08	0.07	-40.49	60.08	-0.07	0.003%
9	40.49	-45.06	0.07	-40.49	45.06	-0.07	0.005%
10	33.78	-60.08	19.41	-33.78	60.08	-19.41	0.000%
11	33.78	-45.06	19.41	-33.78	45.06	-19.41	0.000%
12	19.67	-60.08	33.78	-19.67	60.08	-33.78	0.000%
13	19.67	-45.06	33.78	-19.67	45.06	-33.78	0.000%
14	0.07	-60.08	38.65	-0.07	60.08	-38.65	0.003%
15	0.07	-45.06	38.65	-0.07	45.06	-38.65	0.005%
16	-18.50	-60.08	31.89	18.50	60.08	-31.89	0.000%
17	-18.50	-45.06	31.89	18.50	45.06	-31.89	0.000%
18	-33.90	-60.08	19.40	33.90	60.08	-19.40	0.000%
19	-33.90	-45.06	19.40	33.90	45.06	-19.40	0.000%
20	-41.12	-60.08	-0.07	41.12	60.08	0.07	0.003%
21	-41.12	-45.06	-0.07	41.12	45.06	0.07	0.005%
22	-33.38	-60.08	-19.18	33.38	60.08	19.18	0.000%
23	-33.38	-45.06	-19.18	33.38	45.06	19.18	0.000%
24	-19.19	-60.08	-32.95	19.19	60.08	32.95	0.000%
25	-19.19	-45.06	-32.95	19.19	45.06	32.95	0.000%
26	0.00	-96.06	0.00	-0.00	96.06	0.00	0.000%
27	-0.01	-96.06	-7.24	0.01	96.06	7.24	0.000%
28	3.50	-96.06	-6.04	-3.50	96.06	6.04	0.000%
29	6.24	-96.06	-3.57	-6.24	96.06	3.57	0.000%
30	7.40	-96.06	0.01	-7.40	96.06	-0.01	0.000%
31	6.19	-96.06	3.56	-6.19	96.06	-3.56	0.000%
32	3.63	-96.06	6.24	-3.63	96.06	-6.24	0.000%
33	0.01	-96.06	7.21	-0.01	96.06	-7.21	0.000%
34	-3.47	-96.06	5.99	3.47	96.06	-5.99	0.000%
35	-6.27	-96.06	3.59	6.27	96.06	-3.59	0.000%
36	-7.45	-96.06	-0.01	7.45	96.06	0.01	0.000%
37	-6.18	-96.06	-3.55	6.18	96.06	3.55	0.000%
38	-3.62	-96.06	-6.21	3.62	96.06	6.21	0.000%
39	-0.01	-50.07	-7.29	0.01	50.07	7.29	0.003%
40	3.55	-50.07	-6.12	-3.55	50.07	6.12	0.001%
41	6.22	-50.07	-3.56	-6.22	50.07	3.56	0.001%
42	7.53	-50.07	0.01	-7.53	50.07	-0.01	0.003%
43	6.28	-50.07	3.61	-6.28	50.07	-3.61	0.001%
44	3.66	-50.07	6.29	-3.66	50.07	-6.28	0.001%
45	0.01	-50.07	7.19	-0.01	50.07	-7.19	0.003%
46	-3.44	-50.07	5.93	3.44	50.07	-5.93	0.003%
47	-6.31	-50.07	3.61	6.31	50.07	-3.61	0.001%
48	-7.65	-50.07	-0.01	7.65	50.07	0.01	0.003%
49	-6.21	-50.07	-3.57	6.21	50.07	3.57	0.001%
50	-3.57	-50.07	-6.13	3.57	50.07	6.13	0.001%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	6	0.00000001	0.00000001
2	Yes	17	0.00004164	0.00008741
3	Yes	16	0.00005663	0.00010530
4	Yes	22	0.00000001	0.00014525
5	Yes	22	0.00000001	0.00010801
6	Yes	23	0.00000001	0.00007414
7	Yes	22	0.00000001	0.00011216
8	Yes	17	0.00004153	0.00008833
9	Yes	16	0.00005648	0.00010565
10	Yes	23	0.00000001	0.00007350
11	Yes	22	0.00000001	0.00011129
12	Yes	23	0.00000001	0.00007510
13	Yes	22	0.00000001	0.00011365
14	Yes	17	0.00004165	0.00010946
15	Yes	16	0.00005663	0.00014567
16	Yes	22	0.00000001	0.00014289
17	Yes	22	0.00000001	0.00010647
18	Yes	23	0.00000001	0.00007467
19	Yes	22	0.00000001	0.00011302
20	Yes	17	0.00004152	0.00009975
21	Yes	16	0.00005647	0.00012597
22	Yes	23	0.00000001	0.00007400
23	Yes	22	0.00000001	0.00011206
24	Yes	23	0.00000001	0.00007468
25	Yes	22	0.00000001	0.00011315
26	Yes	6	0.00000001	0.00000001
27	Yes	20	0.00000001	0.00013255
28	Yes	20	0.00000001	0.00013743
29	Yes	20	0.00000001	0.00014116
30	Yes	20	0.00000001	0.00013516
31	Yes	20	0.00000001	0.00013965
32	Yes	20	0.00000001	0.00014066
33	Yes	20	0.00000001	0.00013185
34	Yes	20	0.00000001	0.00013559
35	Yes	20	0.00000001	0.00013946
36	Yes	20	0.00000001	0.00013387
37	Yes	20	0.00000001	0.00013882
38	Yes	20	0.00000001	0.00014020
39	Yes	15	0.00013261	0.00005891
40	Yes	16	0.00000001	0.00008551
41	Yes	16	0.00000001	0.00008759
42	Yes	15	0.00013241	0.00006006
43	Yes	16	0.00000001	0.00008731
44	Yes	16	0.00000001	0.00008980
45	Yes	15	0.00013262	0.00005891
46	Yes	15	0.00013275	0.00014823
47	Yes	16	0.00000001	0.00008987
48	Yes	15	0.00013242	0.00006022
49	Yes	16	0.00000001	0.00008846
50	Yes	16	0.00000001	0.00008836

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 155	18.083	48	1.01	0.00
L2	155 - 150	17.024	48	1.01	0.00
L3	150 - 145	15.968	48	1.00	0.00
L4	145 - 140	14.923	48	0.99	0.00
L5	140 - 135	13.892	48	0.98	0.00

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L6	135 - 130	12.882	48	0.95	0.00
L7	130 - 125	11.901	48	0.92	0.00
L8	125 - 117.33	10.956	48	0.88	0.00
L9	122 - 117	10.407	48	0.86	0.00
L10	117 - 112	9.516	48	0.84	0.00
L11	112 - 107	8.655	48	0.80	0.00
L12	107 - 102	7.837	48	0.76	0.00
L13	102 - 97	7.065	48	0.71	0.00
L14	97 - 94	6.341	48	0.67	0.00
L15	94 - 93.75	5.932	48	0.64	0.00
L16	93.75 - 88.75	5.898	48	0.63	0.00
L17	88.75 - 82.5	5.256	48	0.59	0.00
L18	88 - 81.5	5.163	48	0.59	0.00
L19	81.5 - 76.5	4.385	48	0.55	0.00
L20	76.5 - 72.25	3.831	48	0.51	0.00
L21	72.25 - 72	3.398	48	0.47	0.00
L22	72 - 67	3.374	48	0.46	0.00
L23	67 - 62	2.909	48	0.43	0.00
L24	62 - 57	2.484	48	0.39	0.00
L25	57 - 53.75	2.102	48	0.35	0.00
L26	53.75 - 53.5	1.876	48	0.32	0.00
L27	53.5 - 48.5	1.859	48	0.32	0.00
L28	48.5 - 40.583	1.544	48	0.29	0.00
L29	47 - 39.583	1.455	48	0.28	0.00
L30	39.583 - 34.583	1.043	48	0.25	0.00
L31	34.583 - 31.5	0.796	48	0.22	0.00
L32	31.5 - 31.25	0.660	48	0.20	0.00
L33	31.25 - 28.75	0.649	48	0.20	0.00
L34	28.75 - 28.5	0.548	48	0.19	0.00
L35	28.5 - 23.5	0.538	48	0.18	0.00
L36	23.5 - 18.5	0.363	48	0.15	0.00
L37	18.5 - 13.5	0.223	48	0.12	0.00
L38	13.5 - 11	0.118	48	0.08	0.00
L39	11 - 10.75	0.078	48	0.07	0.00
L40	10.75 - 6.25	0.075	48	0.07	0.00
L41	6.25 - 6	0.026	48	0.04	0.00
L42	6 - 5	0.024	48	0.04	0.00
L43	5 - 4.75	0.016	48	0.03	0.00
L44	4.75 - 0	0.015	48	0.03	0.00

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
159.00	APXV9ERR18-C-A20 w/ Mount Pipe	48	17.871	1.01	0.00	66643
155.00	800MHZ 2X50W RRH W/FILTER	48	17.024	1.01	0.00	66643
142.00	AIR 32 B2A B66AA w/ Mount Pipe	48	14.302	0.98	0.00	16165
116.00	LPA-80080/4CF w/ Mount Pipe	48	9.341	0.83	0.00	8980
96.00	AM-X-CD-14-65-00T-RET w/ Mount Pipe	48	6.203	0.66	0.00	5979
92.00	KS24019-L112A	48	5.669	0.62	0.00	6702
87.00	Side Arm Mount [SO 701-1]	48	5.041	0.58	0.00	9864

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	160 - 155	97.784	20	5.48	0.00
L2	155 - 150	92.057	20	5.47	0.00
L3	150 - 145	86.355	20	5.43	0.00
L4	145 - 140	80.704	20	5.37	0.00
L5	140 - 135	75.132	20	5.28	0.00
L6	135 - 130	69.677	20	5.15	0.00
L7	130 - 125	64.377	20	4.98	0.00
L8	125 - 117.33	59.266	20	4.79	0.00
L9	122 - 117	56.302	20	4.66	0.00
L10	117 - 112	51.481	20	4.55	0.00
L11	112 - 107	46.829	20	4.34	0.00
L12	107 - 102	42.406	20	4.11	0.00
L13	102 - 97	38.229	20	3.87	0.00
L14	97 - 94	34.316	20	3.61	0.00
L15	94 - 93.75	32.101	20	3.45	0.00
L16	93.75 - 88.75	31.921	20	3.43	0.00
L17	88.75 - 82.5	28.444	20	3.21	0.00
L18	88 - 81.5	27.943	20	3.17	0.00
L19	81.5 - 76.5	23.734	20	2.99	0.00
L20	76.5 - 72.25	20.733	20	2.74	0.00
L21	72.25 - 72	18.393	20	2.52	0.00
L22	72 - 67	18.262	20	2.51	0.00
L23	67 - 62	15.743	20	2.30	0.00
L24	62 - 57	13.446	20	2.09	0.00
L25	57 - 53.75	11.376	20	1.87	0.00
L26	53.75 - 53.5	10.154	20	1.72	0.00
L27	53.5 - 48.5	10.063	20	1.72	0.00
L28	48.5 - 40.583	8.354	20	1.55	0.00
L29	47 - 39.583	7.875	20	1.50	0.00
L30	39.583 - 34.583	5.645	20	1.36	0.00
L31	34.583 - 31.5	4.309	20	1.19	0.00
L32	31.5 - 31.25	3.571	20	1.09	0.00
L33	31.25 - 28.75	3.514	20	1.08	0.00
L34	28.75 - 28.5	2.966	20	1.01	0.00
L35	28.5 - 23.5	2.914	20	1.00	0.00
L36	23.5 - 18.5	1.964	20	0.82	0.00
L37	18.5 - 13.5	1.205	20	0.63	0.00
L38	13.5 - 11	0.636	20	0.45	0.00
L39	11 - 10.75	0.423	20	0.36	0.00
L40	10.75 - 6.25	0.404	20	0.35	0.00
L41	6.25 - 6	0.138	20	0.21	0.00
L42	6 - 5	0.127	20	0.20	0.00
L43	5 - 4.75	0.088	20	0.17	0.00
L44	4.75 - 0	0.080	20	0.16	0.00

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
159.00	APXV9ERR18-C-A20 w/ Mount Pipe	20	96.638	5.48	0.00	12528
155.00	800MHZ 2X50W RRRH W/FILTER	20	92.057	5.47	0.00	12528
142.00	AIR 32 B2A B66AA w/ Mount Pipe	20	77.349	5.32	0.00	3036
116.00	LPA-80080/4CF w/ Mount Pipe	20	50.536	4.52	0.00	1681
96.00	AM-X-CD-14-65-00T-RET w/ Mount Pipe	20	33.567	3.55	0.00	1114
92.00	KS24019-L112A	20	30.677	3.36	0.00	1248
87.00	Side Arm Mount [SO 701-1]	20	27.280	3.13	0.00	1834

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in ²	P_u K
L1	160 - 155 (1)	TP23.3003x22.35x0.2188	5.00	0.00	0.0	16.2581	-2.65
L2	155 - 150 (2)	TP24.2506x23.3003x0.2188	5.00	0.00	0.0	16.9275	-3.42
L3	150 - 145 (3)	TP25.2009x24.2506x0.2188	5.00	0.00	0.0	17.5968	-3.75
L4	145 - 140 (4)	TP26.1513x25.2009x0.2188	5.00	0.00	0.0	18.2662	-7.24
L5	140 - 135 (5)	TP27.1016x26.1513x0.2188	5.00	0.00	0.0	18.9356	-7.70
L6	135 - 130 (6)	TP28.0519x27.1016x0.2188	5.00	0.00	0.0	19.6050	-8.18
L7	130 - 125 (7)	TP29.0022x28.0519x0.2188	5.00	0.00	0.0	20.2744	-8.69
L8	125 - 117.33 (8)	TP30.46x29.0022x0.2188	7.67	0.00	0.0	20.6760	-9.00
L9	117.33 - 117 (9)	TP30.0849x29.1349x0.2813	5.00	0.00	0.0	26.9957	-10.03
L10	117 - 112 (10)	TP31.0349x30.0849x0.2813	5.00	0.00	0.0	27.8562	-13.88
L11	112 - 107 (11)	TP31.9849x31.0349x0.2813	5.00	0.00	0.0	28.7167	-14.77
L12	107 - 102 (12)	TP32.935x31.9849x0.2813	5.00	0.00	0.0	29.5772	-16.18
L13	102 - 97 (13)	TP33.885x32.935x0.2813	5.00	0.00	0.0	30.4377	-17.62
L14	97 - 94 (14)	TP34.455x33.885x0.2813	3.00	0.00	0.0	30.9540	-20.47
L15	94 - 93.75 (15)	TP34.5025x34.455x0.3563	0.25	0.00	0.0	39.1754	-20.57
L16	93.75 - 88.75 (16)	TP35.4525x34.5025x0.3563	5.00	0.00	0.0	40.2654	-22.46
L17	88.75 - 82.5 (17)	TP36.64x35.4525x0.3563	6.25	0.00	0.0	40.4289	-22.66
L18	82.5 - 81.5 (18)	TP36.2726x35.0324x0.375	6.50	0.00	0.0	43.3464	-25.37
L19	81.5 - 76.5 (19)	TP37.2267x36.2726x0.375	5.00	0.00	0.0	44.4984	-26.69
L20	76.5 - 72.25 (20)	TP38.0376x37.2267x0.375	4.25	0.00	0.0	45.4776	-27.83
L21	72.25 - 72 (21)	TP38.0853x38.0376x0.4875	0.25	0.00	0.0	59.0192	-27.91
L22	72 - 67 (22)	TP39.0394x38.0853x0.4813	5.00	0.00	0.0	59.7507	-29.39
L23	67 - 62 (23)	TP39.9934x39.0394x0.475	5.00	0.00	0.0	60.4434	-30.92
L24	62 - 57 (24)	TP40.9475x39.9934x0.475	5.00	0.00	0.0	61.9027	-32.47
L25	57 - 53.75 (25)	TP41.5676x40.9475x0.475	3.25	0.00	0.0	62.8512	-33.50
L26	53.75 - 53.5 (26)	TP41.6153x41.5676x0.6375	0.25	0.00	0.0	84.1172	-33.61
L27	53.5 - 48.5 (27)	TP42.5694x41.6153x0.6375	5.00	0.00	0.0	86.0756	-35.57
L28	48.5 - 40.583 (28)	TP44.08x42.5694x0.625	7.92	0.00	0.0	84.9890	-36.16
L29	40.583 - 39.583 (29)	TP43.5092x42.1056x0.7	7.42	0.00	0.0	96.4919	-41.56
L30	39.583 - 34.583 (30)	TP44.4554x43.5092x0.7	5.00	0.00	0.0	98.6247	-43.80
L31	34.583 - 31.5 (31)	TP45.0388x44.4554x0.6875	3.08	0.00	0.0	98.1828	-45.19
L32	31.5 - 31.25 (32)	TP45.0862x45.0388x0.7375	0.25	0.00	0.0	105.3170	-45.32
L33	31.25 - 28.75 (33)	TP45.5593x45.0862x0.7375	2.50	0.00	0.0	106.4400	-46.51
L34	28.75 - 28.5 (34)	TP45.6066x45.5593x0.6375	0.25	0.00	0.0	92.3103	-46.63
L35	28.5 - 23.5 (35)	TP46.5528x45.6066x0.625	5.00	0.00	0.0	92.4297	-48.79
L36	23.5 - 18.5 (36)	TP47.499x46.5528x0.625	5.00	0.00	0.0	94.3339	-50.99
L37	18.5 - 13.5 (37)	TP48.4452x47.499x0.625	5.00	0.00	0.0	96.2382	-53.22
L38	13.5 - 11 (38)	TP48.9183x48.4452x0.6125	2.50	0.00	0.0	95.2712	-54.35
L39	11 - 10.75 (39)	TP48.9656x48.9183x0.7125	0.25	0.00	0.0	110.7050	-54.49
L40	10.75 - 6.25 (40)	TP49.8172x48.9656x0.7125	4.50	0.00	0.0	112.6590	-56.85
L41	6.25 - 6 (41)	TP49.8645x49.8172x0.6625	0.25	0.00	0.0	104.9600	-56.99
L42	6 - 5 (42)	TP50.0538x49.8645x0.6625	1.00	0.00	0.0	105.3640	-57.51
L43	5 - 4.75 (43)	TP50.1011x50.0538x0.6625	0.25	0.00	0.0	105.4650	-57.65
L44	4.75 - 0 (44)	TP51x50.1011x0.6625	4.75	0.00	0.0	107.3820	-60.07

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	M_{uy} kip-ft
L1	160 - 155 (1)	TP23.3003x22.35x0.2188	17.94	0.00
L2	155 - 150 (2)	TP24.2506x23.3003x0.2188	44.08	0.00
L3	150 - 145 (3)	TP25.2009x24.2506x0.2188	73.44	0.00
L4	145 - 140 (4)	TP26.1513x25.2009x0.2188	124.62	0.00
L5	140 - 135 (5)	TP27.1016x26.1513x0.2188	184.24	0.00
L6	135 - 130 (6)	TP28.0519x27.1016x0.2188	246.72	0.00

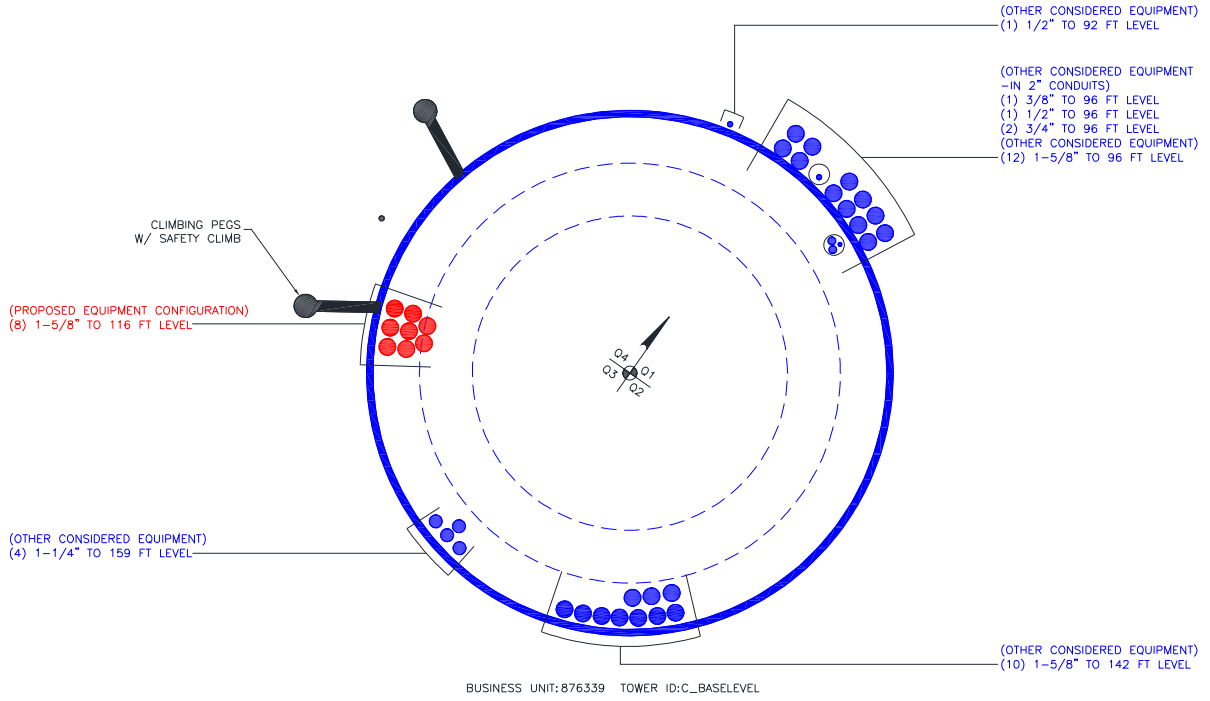
Section No.	Elevation ft	Size	M_{ux} kip-ft	M_{uy} kip-ft
L7	130 - 125 (7)	TP29.0022x28.0519x0.2188	312.10	0.00
L8	125 - 117.33 (8)	TP30.46x29.0022x0.2188	352.73	0.00
L9	117.33 - 117 (9)	TP30.0849x29.1349x0.2813	422.97	0.00
L10	117 - 112 (10)	TP31.0349x30.0849x0.2813	517.79	0.00
L11	112 - 107 (11)	TP31.9849x31.0349x0.2813	613.52	0.00
L12	107 - 102 (12)	TP32.935x31.9849x0.2813	713.98	0.00
L13	102 - 97 (13)	TP33.885x32.935x0.2813	820.84	0.00
L14	97 - 94 (14)	TP34.455x33.885x0.2813	897.58	0.00
L15	94 - 93.75 (15)	TP34.5025x34.455x0.3563	903.98	0.00
L16	93.75 - 88.75 (16)	TP35.4525x34.5025x0.3563	1036.25	0.00
L17	88.75 - 82.5 (17)	TP36.64x35.4525x0.3563	1056.72	0.00
L18	82.5 - 81.5 (18)	TP36.2726x35.0324x0.375	1240.09	0.00
L19	81.5 - 76.5 (19)	TP37.2267x36.2726x0.375	1386.83	0.00
L20	76.5 - 72.25 (20)	TP38.0376x37.2267x0.375	1514.94	0.00
L21	72.25 - 72 (21)	TP38.0853x38.0376x0.4875	1522.57	0.00
L22	72 - 67 (22)	TP39.0394x38.0853x0.4813	1677.02	0.00
L23	67 - 62 (23)	TP39.9934x39.0394x0.475	1835.12	0.00
L24	62 - 57 (24)	TP40.9475x39.9934x0.475	1996.62	0.00
L25	57 - 53.75 (25)	TP41.5676x40.9475x0.475	2103.49	0.00
L26	53.75 - 53.5 (26)	TP41.6153x41.5676x0.6375	2111.79	0.00
L27	53.5 - 48.5 (27)	TP42.5694x41.6153x0.6375	2279.76	0.00
L28	48.5 - 40.583 (28)	TP44.08x42.5694x0.625	2330.94	0.00
L29	40.583 - 39.583 (29)	TP43.5092x42.1056x0.7	2589.79	0.00
L30	39.583 - 34.583 (30)	TP44.4554x43.5092x0.7	2769.30	0.00
L31	34.583 - 31.5 (31)	TP45.0388x44.4554x0.6875	2881.79	0.00
L32	31.5 - 31.25 (32)	TP45.0862x45.0388x0.7375	2890.97	0.00
L33	31.25 - 28.75 (33)	TP45.5593x45.0862x0.7375	2983.27	0.00
L34	28.75 - 28.5 (34)	TP45.6066x45.5593x0.6375	2992.55	0.00
L35	28.5 - 23.5 (35)	TP46.5528x45.6066x0.625	3179.88	0.00
L36	23.5 - 18.5 (36)	TP47.499x46.5528x0.625	3370.57	0.00
L37	18.5 - 13.5 (37)	TP48.4452x47.499x0.625	3564.63	0.00
L38	13.5 - 11 (38)	TP48.9183x48.4452x0.6125	3662.93	0.00
L39	11 - 10.75 (39)	TP48.9656x48.9183x0.7125	3672.81	0.00
L40	10.75 - 6.25 (40)	TP49.8172x48.9656x0.7125	3852.18	0.00
L41	6.25 - 6 (41)	TP49.8645x49.8172x0.6625	3862.24	0.00
L42	6 - 5 (42)	TP50.0538x49.8645x0.6625	3902.54	0.00
L43	5 - 4.75 (43)	TP50.1011x50.0538x0.6625	3912.64	0.00
L44	4.75 - 0 (44)	TP51x50.1011x0.6625	4106.23	0.00

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	Actual T_u kip-ft
L1	160 - 155 (1)	TP23.3003x22.35x0.2188	4.31	0.00
L2	155 - 150 (2)	TP24.2506x23.3003x0.2188	5.60	0.00
L3	150 - 145 (3)	TP25.2009x24.2506x0.2188	6.15	0.00
L4	145 - 140 (4)	TP26.1513x25.2009x0.2188	11.64	0.00
L5	140 - 135 (5)	TP27.1016x26.1513x0.2188	12.21	0.00
L6	135 - 130 (6)	TP28.0519x27.1016x0.2188	12.79	0.00
L7	130 - 125 (7)	TP29.0022x28.0519x0.2188	13.37	0.00
L8	125 - 117.33 (8)	TP30.46x29.0022x0.2188	13.72	0.00
L9	117.33 - 117 (9)	TP30.0849x29.1349x0.2813	14.38	0.00
L10	117 - 112 (10)	TP31.0349x30.0849x0.2813	18.85	0.34
L11	112 - 107 (11)	TP31.9849x31.0349x0.2813	19.46	0.34
L12	107 - 102 (12)	TP32.935x31.9849x0.2813	20.74	0.43
L13	102 - 97 (13)	TP33.885x32.935x0.2813	22.01	0.53
L14	97 - 94 (14)	TP34.455x33.885x0.2813	25.59	0.29
L15	94 - 93.75 (15)	TP34.5025x34.455x0.3563	25.67	0.28
L16	93.75 - 88.75 (16)	TP35.4525x34.5025x0.3563	27.26	0.22
L17	88.75 - 82.5 (17)	TP36.64x35.4525x0.3563	27.41	0.21
L18	82.5 - 81.5 (18)	TP36.2726x35.0324x0.375	28.90	0.01
L19	81.5 - 76.5 (19)	TP37.2267x36.2726x0.375	29.86	0.31
L20	76.5 - 72.25 (20)	TP38.0376x37.2267x0.375	30.50	0.31
L21	72.25 - 72 (21)	TP38.0853x38.0376x0.4875	30.55	0.31

Section No.	Elevation ft	Size	Actual V_u K	Actual T_u kip-ft
L22	72 - 67 (22)	TP39.0394x38.0853x0.4813	31.31	0.31
L23	67 - 62 (23)	TP39.9934x39.0394x0.475	32.00	0.31
L24	62 - 57 (24)	TP40.9475x39.9934x0.475	32.67	0.31
L25	57 - 53.75 (25)	TP41.5676x40.9475x0.475	33.18	0.31
L26	53.75 - 53.5 (26)	TP41.6153x41.5676x0.6375	33.23	0.31
L27	53.5 - 48.5 (27)	TP42.5694x41.6153x0.6375	34.04	0.31
L28	48.5 - 40.583 (28)	TP44.08x42.5694x0.625	34.28	0.31
L29	40.583 - 39.583 (29)	TP43.5092x42.1056x0.7	35.57	0.31
L30	39.583 - 34.583 (30)	TP44.4554x43.5092x0.7	36.31	0.31
L31	34.583 - 31.5 (31)	TP45.0388x44.4554x0.6875	36.74	0.31
L32	31.5 - 31.25 (32)	TP45.0862x45.0388x0.7375	36.79	0.31
L33	31.25 - 28.75 (33)	TP45.5593x45.0862x0.7375	37.13	0.31
L34	28.75 - 28.5 (34)	TP45.6066x45.5593x0.6375	37.18	0.31
L35	28.5 - 23.5 (35)	TP46.5528x45.6066x0.625	37.84	0.31
L36	23.5 - 18.5 (36)	TP47.499x46.5528x0.625	38.51	0.31
L37	18.5 - 13.5 (37)	TP48.4452x47.499x0.625	39.19	0.31
L38	13.5 - 11 (38)	TP48.9183x48.4452x0.6125	39.54	0.31
L39	11 - 10.75 (39)	TP48.9656x48.9183x0.7125	39.57	0.31
L40	10.75 - 6.25 (40)	TP49.8172x48.9656x0.7125	40.23	0.31
L41	6.25 - 6 (41)	TP49.8645x49.8172x0.6625	40.26	0.31
L42	6 - 5 (42)	TP50.0538x49.8645x0.6625	40.42	0.31
L43	5 - 4.75 (43)	TP50.1011x50.0538x0.6625	40.45	0.31
L44	4.75 - 0 (44)	TP51x50.1011x0.6625	41.14	0.31

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Site BU: 876339

Work Order: _____



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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	160	42.67	4.67	12	22.35	30.46	0.21875	Auto	A572-65
2	122	39.5	5.5	12	29.13	36.64	0.2813	Auto	A572-65
3	88	47.417	6.417	12	35.03	44.08	0.375	Auto	A572-65
4	47	47	0	12	42.11	51	0.4375	Auto	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12
1	0	6.25	plate	5.25 x 1.25; (1) (1.1875)	1								o				
2	6.25	31.5	plate	6.875 x 1.25; (1) (1.1875)	1							o					
3	0	31.5	plate	6.875 x 1.25; (1) (1.1875)	2			o								o	
4	31.5	53.75	plate	5.25 x 1.25; (1) (1.1875)	3			o				o				o	
5	45.75	72.25	plate	100FP-040100	3		o				o				o		
6	5	11	plate	MS-600 (1.1875")	3		o			o				o			
7	28.75	40.75	plate	MS-450 (1.1875")	3	o				o				o			
8	88	94	plate	MS-450 (1.1875")	3				o			o			o		
9	0	5	plate	FP 1.25 x 3.5_1	3		c			c				c			
10																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in ²)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L _u (in)	Net Area (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	6.25	1.25	7.8125	0.625	n/a	33.000	19.000	6.250	1.1875	A572-65
2	6.875	1.25	8.59375	0.625	39.000	39.000	18.000	7.031	1.1875	A572-65
3	6.875	1.25	8.59375	0.625	n/a	39.000	18.000	7.031	1.1875	A572-65
4	5.25	1.25	6.5625	0.625	27.000	27.000	22.000	5.000	1.1875	A572-65
5	4	1	4	0.5	20.000	20.000	20.000	2.750	1.1875	A514-GR100
6	6	1	6	0.5	24.000	24.000	16.375	4.750	1.1875	A572-65
7	4.5	1	4.5	0.5	18.000	18.000	20.625	3.250	1.1875	A572-65
8	4.5	1	4.5	0.5	18.000	18.000	20.625	3.250	1.1875	A572-65
9	1.25	3.5	4.375	1.75	n/a	n/a	0.000	4.375	0.0000	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	160 - 155	5		12	22.350	23.300	0.21875	A572-65	1.000
2	155 - 150	5		12	23.300	24.251	0.21875	A572-65	1.000
3	150 - 145	5		12	24.251	25.201	0.21875	A572-65	1.000
4	145 - 140	5		12	25.201	26.151	0.21875	A572-65	1.000
5	140 - 135	5		12	26.151	27.102	0.21875	A572-65	1.000
6	135 - 130	5		12	27.102	28.052	0.21875	A572-65	1.000
7	130 - 125	5		12	28.052	29.002	0.21875	A572-65	1.000
8	125 - 122	7.67	4.67	12	29.002	30.460	0.21875	A572-65	1.000
9	122 - 117	5		12	29.135	30.085	0.2813	A572-65	1.000
10	117 - 112	5		12	30.085	31.035	0.2813	A572-65	1.000
11	112 - 107	5		12	31.035	31.985	0.2813	A572-65	1.000
12	107 - 102	5		12	31.985	32.935	0.2813	A572-65	1.000
13	102 - 97	5		12	32.935	33.885	0.2813	A572-65	1.000
14	97 - 94	3		12	33.885	34.455	0.2813	A572-65	1.000
15	94 - 93.75	0.25		12	34.455	34.502	0.3563	A572-65	1.136
16	93.75 - 88.75	5		12	34.502	35.452	0.3563	A572-65	1.127
17	88.75 - 88	6.25	5.5	12	35.452	36.640	0.3563	A572-65	1.126
18	88 - 81.5	6.5		12	35.032	36.273	0.375	A572-65	1.000
19	81.5 - 76.5	5		12	36.273	37.227	0.375	A572-65	1.000
20	76.5 - 72.25	4.25		12	37.227	38.038	0.375	A572-65	1.000
21	72.25 - 72	0.25		12	38.038	38.085	0.4875	A572-65	0.975
22	72 - 67	5		12	38.085	39.039	0.48125	A572-65	0.982
23	67 - 62	5		12	39.039	39.993	0.475	A572-65	0.990
24	62 - 57	5		12	39.993	40.947	0.475	A572-65	0.986
25	57 - 53.75	3.25		12	40.947	41.568	0.475	A572-65	0.983
26	53.75 - 53.5	0.25		12	41.568	41.615	0.6375	A572-65	0.969
27	53.5 - 48.5	5		12	41.615	42.569	0.6375	A572-65	0.961
28	48.5 - 47	7.917	6.417	12	42.569	44.080	0.625	A572-65	0.977
29	47 - 39.583	7.417		12	42.106	43.509	0.7	A572-65	0.973
30	39.583 - 34.583	5		12	43.509	44.455	0.7	A572-65	0.966
31	34.583 - 31.5	3.083		12	44.455	45.039	0.6875	A572-65	0.978
32	31.5 - 31.25	0.25		12	45.039	45.086	0.7375	A572-65	0.971
33	31.25 - 28.75	2.5		12	45.086	45.559	0.7375	A572-65	0.967
34	28.75 - 28.5	0.25		12	45.559	45.607	0.6375	A572-65	0.969
35	28.5 - 23.5	5		12	45.607	46.553	0.625	A572-65	0.982
36	23.5 - 18.5	5		12	46.553	47.499	0.625	A572-65	0.976
37	18.5 - 13.5	5		12	47.499	48.445	0.625	A572-65	0.971
38	13.5 - 11	2.5		12	48.445	48.918	0.6125	A572-65	0.988
39	11 - 10.75	0.25		12	48.918	48.966	0.7125	A572-65	1.014
40	10.75 - 6.25	4.5		12	48.966	49.817	0.7125	A572-65	1.007
41	6.25 - 6	0.25		12	49.817	49.865	0.6625	A572-65	1.074
42	6 - 5	1		12	49.865	50.054	0.6625	A572-65	1.072
43	5 - 4.75	0.25		12	50.054	50.101	0.6625	A572-65	1.025
44	4.75 - 0	4.75		12	50.101	51.000	0.6625	A572-65	1.019

TNX Section Forces

Increment (ft):		TNX Output		
	5	P _u	M _{ux} (kip-ft)	V _u (K)
	Section Height (ft)	(K)		
1	160 - 155	2.65	17.94	4.31
2	155 - 150	3.42	44.08	5.60
3	150 - 145	3.75	73.44	6.15
4	145 - 140	7.24	124.62	11.64
5	140 - 135	7.70	184.24	12.21
6	135 - 130	8.18	246.72	12.79
7	130 - 125	8.69	312.10	13.37
8	125 - 122	9.00	352.73	13.72
9	122 - 117	10.03	422.97	14.38
10	117 - 112	13.88	517.79	18.85
11	112 - 107	14.77	613.52	19.46
12	107 - 102	16.18	713.98	20.74
13	102 - 97	17.62	820.84	22.01
14	97 - 94	20.47	897.57	25.59
15	94 - 93.75	20.57	903.98	25.67
16	93.75 - 88.75	22.46	1036.25	27.26
17	88.75 - 88	22.66	1056.73	27.41
18	88 - 81.5	25.37	1240.09	28.90
19	81.5 - 76.5	26.69	1386.82	29.86
20	76.5 - 72.25	27.83	1514.94	30.50
21	72.25 - 72	27.91	1522.57	30.55
22	72 - 67	29.39	1677.02	31.31
23	67 - 62	30.92	1835.12	32.00
24	62 - 57	32.47	1996.61	32.67
25	57 - 53.75	33.50	2103.50	33.18
26	53.75 - 53.5	33.61	2111.79	33.23
27	53.5 - 48.5	35.57	2279.76	34.04
28	48.5 - 47	36.16	2330.94	34.28
29	47 - 39.583	41.56	2589.79	35.57
30	39.583 - 34.583	43.80	2769.30	36.31
31	34.583 - 31.5	45.19	2881.79	36.74
32	31.5 - 31.25	45.32	2890.98	36.79
33	31.25 - 28.75	46.51	2983.27	37.13
34	28.75 - 28.5	46.63	2992.55	37.18
35	28.5 - 23.5	48.79	3179.88	37.84
36	23.5 - 18.5	50.99	3370.57	38.51
37	18.5 - 13.5	53.22	3564.62	39.19
38	13.5 - 11	54.35	3662.93	39.54
39	11 - 10.75	54.49	3672.81	39.57
40	10.75 - 6.25	56.85	3852.19	40.23
41	6.25 - 6	56.99	3862.24	40.26
42	6 - 5	57.51	3902.54	40.42
43	5 - 4.75	57.65	3912.64	40.45
44	4.75 - 0	60.07	4106.23	41.14

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
160 - 155	Pole	TP23.3x22.35x0.2188	Pole	3.5%	Pass
155 - 150	Pole	TP24.251x23.3x0.2188	Pole	7.9%	Pass
150 - 145	Pole	TP25.201x24.251x0.2188	Pole	12.3%	Pass
145 - 140	Pole	TP26.151x25.201x0.2188	Pole	19.8%	Pass
140 - 135	Pole	TP27.102x26.151x0.2188	Pole	27.5%	Pass
135 - 130	Pole	TP28.052x27.102x0.2188	Pole	34.8%	Pass
130 - 125	Pole	TP29.002x28.052x0.2188	Pole	41.8%	Pass
125 - 122	Pole	TP30.46x29.002x0.2188	Pole	45.9%	Pass
122 - 117	Pole	TP30.085x29.135x0.2813	Pole	37.0%	Pass
117 - 112	Pole	TP31.035x30.085x0.2813	Pole	43.2%	Pass
112 - 107	Pole	TP31.985x31.035x0.2813	Pole	48.7%	Pass
107 - 102	Pole	TP32.935x31.985x0.2813	Pole	54.1%	Pass
102 - 97	Pole	TP33.885x32.935x0.2813	Pole	59.5%	Pass
97 - 94	Pole	TP34.455x33.885x0.2813	Pole	63.5%	Pass
94 - 93.75	Pole + Reinf.	TP34.502x34.455x0.3563	Reinf. 8 Compression	65.6%	Pass
93.75 - 88.75	Pole + Reinf.	TP35.452x34.502x0.3563	Reinf. 8 Compression	71.7%	Pass
88.75 - 88	Pole + Reinf.	TP36.64x35.452x0.3563	Reinf. 8 Compression	72.6%	Pass
88 - 81.5	Pole	TP36.273x35.032x0.375	Pole	54.0%	Pass
81.5 - 76.5	Pole	TP37.227x36.273x0.375	Pole	57.8%	Pass
76.5 - 72.25	Pole	TP38.038x37.227x0.375	Pole	60.9%	Pass
72.25 - 72	Pole + Reinf.	TP38.085x38.038x0.4875	Reinf. 5 Tension Rupture	57.4%	Pass
72 - 67	Pole + Reinf.	TP39.039x38.085x0.4813	Reinf. 5 Tension Rupture	60.4%	Pass
67 - 62	Pole + Reinf.	TP39.993x39.039x0.475	Reinf. 5 Tension Rupture	63.3%	Pass
62 - 57	Pole + Reinf.	TP40.947x39.993x0.475	Reinf. 5 Tension Rupture	65.9%	Pass
57 - 53.75	Pole + Reinf.	TP41.568x40.947x0.475	Reinf. 5 Tension Rupture	67.6%	Pass
53.75 - 53.5	Pole + Reinf.	TP41.615x41.568x0.6375	Reinf. 4 Tension Rupture	63.2%	Pass
53.5 - 48.5	Pole + Reinf.	TP42.569x41.615x0.6375	Reinf. 4 Tension Rupture	65.7%	Pass
48.5 - 47	Pole + Reinf.	TP44.08x42.569x0.625	Reinf. 4 Tension Rupture	66.5%	Pass
47 - 39.58	Pole + Reinf.	TP43.509x42.106x0.7	Reinf. 7 Compression	68.4%	Pass
39.58 - 34.58	Pole + Reinf.	TP44.455x43.509x0.7	Reinf. 7 Compression	70.6%	Pass
34.58 - 31.5	Pole + Reinf.	TP45.039x44.455x0.6875	Reinf. 7 Compression	71.9%	Pass
31.5 - 31.25	Pole + Reinf.	TP45.086x45.039x0.7375	Reinf. 7 Compression	67.5%	Pass
31.25 - 28.75	Pole + Reinf.	TP45.559x45.086x0.7375	Reinf. 7 Compression	68.5%	Pass
28.75 - 28.5	Pole + Reinf.	TP45.607x45.559x0.6375	Reinf. 3 Tension Rupture	69.6%	Pass
28.5 - 23.5	Pole + Reinf.	TP46.553x45.607x0.625	Reinf. 3 Tension Rupture	71.4%	Pass
23.5 - 18.5	Pole + Reinf.	TP47.499x46.553x0.625	Reinf. 3 Tension Rupture	73.1%	Pass
18.5 - 13.5	Pole + Reinf.	TP48.445x47.499x0.625	Reinf. 3 Tension Rupture	74.7%	Pass
13.5 - 11	Pole + Reinf.	TP48.918x48.445x0.6125	Reinf. 3 Tension Rupture	75.5%	Pass
11 - 10.75	Pole + Reinf.	TP48.966x48.918x0.7125	Reinf. 3 Tension Rupture	67.0%	Pass
10.75 - 6.25	Pole + Reinf.	TP49.817x48.966x0.7125	Reinf. 3 Tension Rupture	68.3%	Pass
6.25 - 6	Pole + Reinf.	TP49.865x49.817x0.6625	Reinf. 6 Tension Rupture	73.5%	Pass
6 - 5	Pole + Reinf.	TP50.054x49.865x0.6625	Reinf. 6 Tension Rupture	73.8%	Pass
5 - 4.75	Pole + Reinf.	TP50.101x50.054x0.6625	Reinf. 3 Tension Rupture	69.9%	Pass
4.75 - 0	Pole + Reinf.	TP51x50.101x0.6625	Reinf. 3 Tension Rupture	71.2%	Pass
				Summary	
			Pole	63.5%	Pass
			Reinforcement	75.5%	Pass
			Overall	75.5%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in ⁴)			Area (in ²)			% Capacity*									
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9
160 - 155	1107	n/a	1107	16.23	n/a	16.23	3.5%									
155 - 150	1250	n/a	1250	16.90	n/a	16.90	7.9%									
150 - 145	1404	n/a	1404	17.57	n/a	17.57	12.3%									
145 - 140	1570	n/a	1570	18.24	n/a	18.24	19.8%									
140 - 135	1749	n/a	1749	18.91	n/a	18.91	27.5%									
135 - 130	1941	n/a	1941	19.58	n/a	19.58	34.8%									
130 - 125	2147	n/a	2147	20.25	n/a	20.25	41.8%									
125 - 122	2277	n/a	2277	20.65	n/a	20.65	45.9%									
122 - 117	3065	n/a	3065	26.96	n/a	26.96	37.0%									
117 - 112	3367	n/a	3367	27.82	n/a	27.82	43.2%									
112 - 107	3689	n/a	3689	28.68	n/a	28.68	48.7%									
107 - 102	4031	n/a	4031	29.53	n/a	29.53	54.1%									
102 - 97	4393	n/a	4393	30.39	n/a	30.39	59.5%									
97 - 94	4620	n/a	4620	30.91	n/a	30.91	63.5%									
94 - 93.75	4740	1190	5930	30.95	13.50	44.45	53.2%								65.6%	
93.75 - 88.75	5141	1258	6399	31.81	13.50	45.31	58.8%								71.7%	
88.75 - 88	5203	1268	6471	31.94	13.50	45.44	59.6%								72.6%	
88 - 81.5	7139	n/a	7139	43.28	n/a	43.28	54.0%									
81.5 - 76.5	7724	n/a	7724	44.43	n/a	44.43	57.8%									
76.5 - 72.25	8245	n/a	8245	45.41	n/a	45.41	60.9%									
72.25 - 72	8276	2300	10576	45.47	12.00	57.47	46.2%					57.4%				
72 - 67	8921	2413	11334	46.62	12.00	58.62	49.2%					60.4%				
67 - 62	9597	2529	12127	47.77	12.00	59.77	52.0%					63.3%				
62 - 57	10307	2648	12955	48.92	12.00	60.92	54.8%					65.9%				
57 - 53.75	10787	2727	13514	49.67	12.00	61.67	56.5%					67.6%				
53.75 - 53.5	10825	7278	18103	49.73	31.69	81.41	42.5%				63.2%	50.7%				
53.5 - 48.5	11594	7605	19199	50.88	31.69	82.56	44.7%				65.7%	52.8%				
48.5 - 47	11831	7705	19536	51.22	31.69	82.91	45.3%				66.5%	53.4%				
47 - 39.58	14387	8309	22697	60.59	33.19	93.78	41.6%				64.5%			68.4%		
39.58 - 34.58	15357	8663	24020	61.92	33.19	95.11	43.3%				66.6%			70.6%		
34.58 - 31.5	15975	8886	24861	62.74	33.19	95.93	44.3%				67.8%			71.9%		
31.5 - 31.25	16026	10568	26594	62.81	39.28	102.09	41.6%		59.3%	59.3%				67.5%		
31.25 - 28.75	16541	10784	27325	63.47	39.28	102.76	42.4%		60.2%	60.2%				68.5%		
28.75 - 28.5	16593	7128	23721	63.54	25.78	89.32	49.1%		69.6%	69.6%						
28.5 - 23.5	17658	7417	25075	64.87	25.78	90.65	50.8%		71.4%	71.4%						
23.5 - 18.5	18767	7711	26478	66.20	25.78	91.98	52.4%		73.1%	73.1%						
18.5 - 13.5	19922	8011	27933	67.53	25.78	93.32	54.1%		74.7%	74.7%						
13.5 - 11	20517	8163	28680	68.20	25.78	93.98	54.9%		75.5%	75.5%						
11 - 10.75	20606	12549	33156	68.27	43.78	112.05	49.8%		64.6%	67.0%			65.4%			
10.75 - 6.25	21709	12977	34686	69.46	43.78	113.25	51.2%		65.9%	68.3%			66.7%			
6.25 - 6	21749	10663	32412	69.53	43.00	112.53	54.8%	65.1%		69.8%			73.5%			
6 - 5	21999	10742	32741	69.80	43.00	112.80	55.2%	65.3%		70.1%			73.8%			
5 - 4.75	22068	10801	32869	69.86	38.13	107.99	55.5%	68.3%		69.9%						68.1%
4.75 - 0	23288	11174	34462	71.13	38.13	109.25	57.0%	69.7%		71.2%						69.3%

Note: Section capacity checked in 5 degree increments.
Rating per TIA-222-H Section 15.5.

v4.5.7 - Effective 2-28-19

Asymmetric Anchor Rod Analysis

Moment = **4106** k-ft TIA Ref. = **H** η = **N/A** for Base Plates, Rev. G Sect. 4.9.9 Use An? **Yes** for Anchors or Bolts
 Axial = **60.0** kips (+Comp, -Tension) ASIF = **N/A** Threads = **N-Included** for Flange Plates, Rev. G & H
 Shear = **41.0** kips Max Ratio = **100.0%** Grout = **0.00** psi, for Base Plates, Rev. H Sect 4.9.9 (Note)
 Anchor Qty = **33** Location = **Base Plate**

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

Item	Nominal Anchor Dia, in	Spec	Fy, ksi	Fu, ksi	Location, degrees	Anchor Circle, in	Type	Area Override, in ²	lar, in	Area, in ²	Max Net Comp, kips	Max Net Tension, kips	Tension Override, kips	Comp Override, kips	Tension Cap, kips	Comp Cap, kips	Capacity Ratio
1	2.250	#18J A615 Gr 75	75	100	0.0	59.30	Original	0.00		3.25	122.05	114.55	0.00	0.00	243.75	243.75	47.8%
2	2.250	#18J A615 Gr 75	75	100	22.5	59.30	Original	0.00		3.25	122.05	114.55	0.00	0.00	243.75	243.75	47.8%
3	2.250	#18J A615 Gr 75	75	100	45.0	59.30	Original	0.00		3.25	122.05	114.55	0.00	0.00	243.75	243.75	47.8%
4	2.250	#18J A615 Gr 75	75	100	67.5	59.30	Original	0.00		3.25	122.05	114.55	0.00	0.00	243.75	243.75	47.8%
5	2.250	#18J A615 Gr 75	75	100	90.0	59.30	Original	0.00		3.25	122.05	114.55	0.00	0.00	243.75	243.75	47.8%
6	2.250	#18J A615 Gr 75	75	100	112.5	59.30	Original	0.00		3.25	122.05	114.55	0.00	0.00	243.75	243.75	47.8%
7	2.250	#18J A615 Gr 75	75	100	135.0	59.30	Original	0.00		3.25	122.05	114.55	0.00	0.00	243.75	243.75	47.8%
8	2.250	#18J A615 Gr 75	75	100	157.5	59.30	Original	0.00		3.25	122.05	114.55	0.00	0.00	243.75	243.75	47.8%
9	2.250	#18J A615 Gr 75	75	100	180.0	59.30	Original	0.00		3.25	122.05	114.55	0.00	0.00	243.75	243.75	47.8%
10	2.250	#18J A615 Gr 75	75	100	202.5	59.30	Original	0.00		3.25	122.05	114.55	0.00	0.00	243.75	243.75	47.8%
11	2.250	#18J A615 Gr 75	75	100	225.0	59.30	Original	0.00		3.25	122.05	114.55	0.00	0.00	243.75	243.75	47.8%
12	2.250	#18J A615 Gr 75	75	100	247.5	59.30	Original	0.00		3.25	122.05	114.55	0.00	0.00	243.75	243.75	47.8%
13	2.250	#18J A615 Gr 75	75	100	270.0	59.30	Original	0.00		3.25	122.05	114.55	0.00	0.00	243.75	243.75	47.8%
14	2.250	#18J A615 Gr 75	75	100	292.5	59.30	Original	0.00		3.25	122.05	114.55	0.00	0.00	243.75	243.75	47.8%
15	2.250	#18J A615 Gr 75	75	100	315.0	59.30	Original	0.00		3.25	122.05	114.55	0.00	0.00	243.75	243.75	47.8%
16	2.250	#18J A615 Gr 75	75	100	337.5	59.30	Original	0.00		3.25	122.05	114.55	0.00	0.00	243.75	243.75	47.8%
17	2.000	A193 Gr B7	105	125	15.0	65.80	Post-Installed	0.00		2.50	100.90	100.90	0.00	0.00	234.21	262.31	36.6%
18	2.000	A193 Gr B7	105	125	45.0	65.80	Post-Installed	0.00		2.50	100.90	100.90	0.00	0.00	234.21	262.31	36.6%
19	2.000	A193 Gr B7	105	125	135.0	65.80	Post-Installed	0.00		2.50	100.90	100.90	0.00	0.00	234.21	262.31	36.6%
20	2.000	A193 Gr B7	105	125	165.0	65.80	Post-Installed	0.00		2.50	100.90	100.90	0.00	0.00	234.21	262.31	36.6%
21	2.000	A193 Gr B7	105	125	255.0	65.80	Post-Installed	0.00		2.50	100.90	100.90	0.00	0.00	234.21	262.31	36.6%
22	2.000	A193 Gr B7	105	125	285.0	65.80	Post-Installed	0.00		2.50	100.90	100.90	0.00	0.00	234.21	262.31	36.6%
23	1.750	A193 Gr B7	105	125	105.0	67.80	Post-Installed	0.00		1.90	79.05	79.05	0.00	0.00	178.07	199.44	37.7%
24	1.750	A193 Gr B7	105	125	225.0	67.80	Post-Installed	0.00		1.90	79.05	79.05	0.00	0.00	178.07	199.44	37.7%
25	1.750	A193 Gr B7	105	125	345.0	67.80	Post-Installed	0.00		1.90	79.05	79.05	0.00	0.00	178.07	199.44	37.7%
26	1.250	Williams R71	120	125	10.0	68.50	Post-Installed	0.00		1.25	52.56	52.56	0.00	0.00	117.19	150.00	33.4%
27	1.250	Williams R71	120	125	55.0	68.50	Post-Installed	0.00		1.25	52.56	52.56	0.00	0.00	117.19	150.00	33.4%
28	1.250	Williams R71	120	125	100.0	68.50	Post-Installed	0.00		1.25	52.56	52.56	0.00	0.00	117.19	150.00	33.4%
29	1.250	Williams R71	120	125	145.0	68.50	Post-Installed	0.00		1.25	52.56	52.56	0.00	0.00	117.19	150.00	33.4%
30	1.250	Williams R71	120	125	190.0	68.50	Post-Installed	0.00		1.25	52.56	52.56	0.00	0.00	117.19	150.00	33.4%
31	1.250	Williams R71	120	125	235.0	68.50	Post-Installed	0.00		1.25	52.56	52.56	0.00	0.00	117.19	150.00	33.4%
32	1.250	Williams R71	120	125	280.0	68.50	Post-Installed	0.00		1.25	52.56	52.56	0.00	0.00	117.19	150.00	33.4%
33	1.250	Williams R71	120	125	325.0	68.50	Post-Installed	0.00		1.25	52.56	52.56	0.00	0.00	117.19	150.00	33.4%
										82.69							

Monopole Base Plate Connection

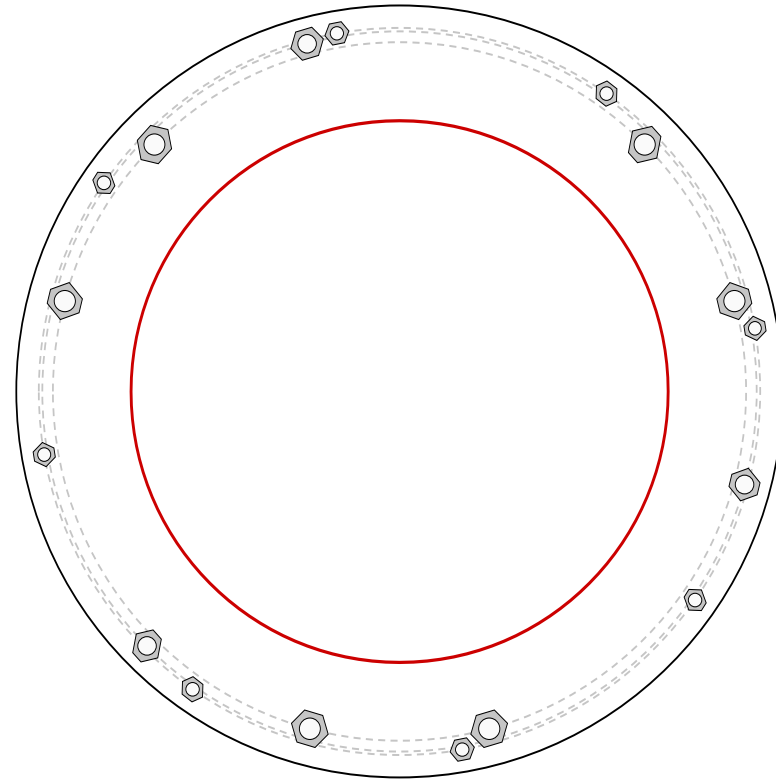


Site Info	
BU #	876339
Site Name	Pnd Meadow Rd Stable
Order #	

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0

Applied Loads	
Moment (kip-ft)	1765.00
Axial Force (kips)	0.00
Shear Force (kips)	0.00

*TIA-222-H Section 15.5 Applied



TOP PLATE

Connection Properties	Analysis Results
-----------------------	------------------

Anchor Rod Data
GROUP 1: (8) 1-1/4" ϕ bolts (WILLIAMS R7S N; $F_y=120$ ksi, $F_u=125$ ksi) on 68.5" BC
GROUP 2: (6) 2" ϕ bolts (A193 Gr. B7 N; $F_y=105$ ksi, $F_u=125$ ksi) on 65.8" BC
GROUP 3: (3) 1-3/4" ϕ bolts (A193 Gr. B7 N; $F_y=105$ ksi, $F_u=125$ ksi) on 67.8" BC

Base Plate Data
72.75" OD x 1.5" Plate (A572-50; $F_y=50$ ksi, $F_u=65$ ksi)

Stiffener Data
N/A

Pole Data
51" x 0.4375" 12-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)

Anchor Rod Summary	<i>(units of kips, kip-in)</i>	
GROUP 1:		
$P_u_c = 52.53$	$\phi P_n_c = 150$	Stress Rating
$V_u = 0$	$\phi V_n = 45$	33.3%
$M_u = n/a$	$\phi M_n = n/a$	Pass
GROUP 2:		
$P_u_c = 100.91$	$\phi P_n_c = 262.5$	Stress Rating
$V_u = 0$	$\phi V_n = 78.75$	36.6%
$M_u = n/a$	$\phi M_n = n/a$	Pass
GROUP 3:		
$P_u_c = 79.02$	$\phi P_n_c = 199.5$	Stress Rating
$V_u = 0$	$\phi V_n = 59.85$	37.7%
$M_u = n/a$	$\phi M_n = n/a$	Pass
Base Plate Summary		
Max Stress (ksi):	25.63	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	54.2%	Pass

Monopole Base Plate Connection

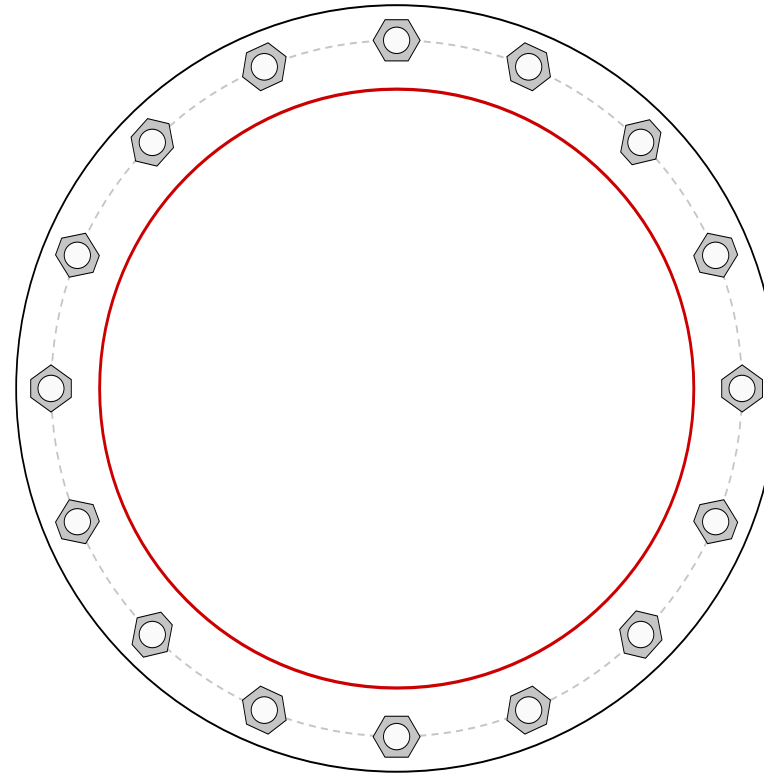


Site Info	
BU #	876339
Site Name	Pnd Meadow Rd Stable
Order #	

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0

Applied Loads	
Moment (kip-ft)	2338.30
Axial Force (kips)	60.00
Shear Force (kips)	41.00

*TIA-222-H Section 15.5 Applied



BOTTOM PLATE

Connection Properties		Analysis Results	
Anchor Rod Data		Anchor Rod Summary <i>(units of kips, kip-in)</i>	
(16) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 59.3" BC		$P_{u_c} = 121.98$	$\phi P_{n_c} = 243.75$ Stress Rating
Base Plate Data		$V_u = 2.56$	$\phi V_n = 73.13$ 47.8%
65.3" OD x 2.75" Plate (A572-60; $F_y=60$ ksi, $F_u=75$ ksi)		$M_u = n/a$	$\phi M_n = n/a$ Pass
Stiffener Data		Base Plate Summary	
N/A		Max Stress (ksi):	16.33 (Flexural)
Pole Data		Allowable Stress (ksi):	54
51" x 0.4375" 12-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)		Stress Rating:	28.8% Pass

Flexible Foundation Analysis

Applied Reactions for RISA-3D

TNX Moment =	4106	k-ft
TNX Axial =	60	kips
TNX Shear =	41	kips
Total Unfactored Axial =	50.0	kips
TIA Standard =	H	

Passive Pressure on Pad/Mat

Horiz Subgr Modulus =	90	kcf
Plate Width =	0.5	ft
Depth to Ignore =	3.3333333	ft
Pad Thickness =	3.7	ft
k (side) =	13.76	k/in
k (corner) =	6.88	k/in

Pad/Mat & Pier Input

Pier Number Sides =	Round	
Pier Width/Diameter =	7	ft
Pier Height =	4.5	ft
Ht Above Grade =	0.5	ft (Pier or Pad)

Location =	Width	Length
Top Bar Quantity =	24	
Top Bar Size #	11	
Top Clear Cover =	3	in

Pad Thickness =	3.67	ft
Pad Width =	23	ft
Pad Length =	23	ft

Bottom Bar Quantity =	24	
Bottom Bar Size #	11	
Bottom Clear Cover =	3	in

Concrete Density =	150	pcf
Concrete f'c =	4	ksi
β1 =	0.85	

As, min =	21.88	in^2
Use Comp Side Rebar?	No	

Rebar Fy =	60	ksi
------------	----	-----

Mu (Comp Top) =	1399	k-ft
Mu (Comp Bot) =	1033	k-ft

Pad/Mat Analysis

Location	Comp Side	c, in	d, in	et, in/in	Mu, k-ft	Φ	ΦMn, k-ft	Ratio	
Width	Top	2.82	38.93	-0.038	1399.0	0.90	6356.4	21.0%	OK
Width	Bot	2.82	38.93	-0.038	1033.0	0.90	6356.4	15.5%	OK

Soil Weight

Soil Unit Weight =	100	pcf
Apply Soil Weight =	Surface Load	
Volume =	1962.1	ft^3
Weight =		kips
Weight per Sq Ft =	0.37	ksf

Soil Modulus by Layer

Layer	Start, ft	End, ft	Vert, pci	Horiz, pci
1	0.0	0.5	0	0
2	0.5	6	90	90
3	6.0	10	225	225
4	10.0	20	270	270
5				
6				
7				
8				
9				

Rock Anchor Capacity

Anchor Type =	Rock Anchor	
Pile Type =	1.75" WILLIAMS R71	
Ag =	2.66	in^2
Ag Override =		in^2
E =	29000	ksi
Lu =	25	ft
k = An (E) / Lu =	257.4	k/in
Pu =	390.0	ksi
Capacity = 0.8 (Pu) =	312.0	kips
Capacity Override =	253.0	kips
Max Tension from RISA =	67.4	kips

Bearing Check

Max Bearing Load =	1.054	kip
Plate Width =	0.5	ft
Plate Length =	0.5	ft
Design Brg Capacity =	30	ksf = Φqn
Bearing Pressure =	4.2	ksf

Ratio = 17.8% OK

Subgrade Modulus Conversion

Subgrade Modulus =		pci
ks =	0.0	kcf

Ratio = 25.4% OK

Pier and Pad Foundation



BU #: 876339
 Site Name: POND MEADOW P
 App. Number:

TIA-222 Revision: H
 Tower Type: Monopole

Top & Bot. Pad Rein. Different?:
 Block Foundation?:

Superstructure Analysis Reactions		
Compression, P_{comp} :	60	kips
Base Shear, V_{u_comp} :	41	kips
Moment, M_u :	4106	ft-kips
Tower Height, H :	160	ft
BP Dist. Above Fdn, bp_{dist} :	6	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	341.22	41.00	11.4%	Pass
<i>Bearing Pressure (ksf)</i>	22.50	5.42		
<i>Overtuning (kip*ft)</i>	6438.21	4462.70		
<i>Pier Flexure (Comp.) (kip*ft)</i>	8675.74	4290.50	47.1%	Pass
<i>Pier Compression (kip)</i>	24494.62	91.17	0.4%	Pass
<i>Pad Flexure (kip*ft)</i>	6417.08	1884.23	28.0%	Pass
<i>Pad Shear - 1-way (kips)</i>	1028.63	294.19	27.2%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.190	0.000	0.0%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	9950.88	2574.30	24.6%	Pass

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, d_{pier} :	7	ft
Ext. Above Grade, E :	0.5	ft
Pier Rebar Size, S_c :	11	
Pier Rebar Quantity, mc :	36	
Pier Tie/Spiral Size, S_t :	5	
Pier Tie/Spiral Quantity, mt :	5	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

*Rating per TIA-222-H Section 15.5

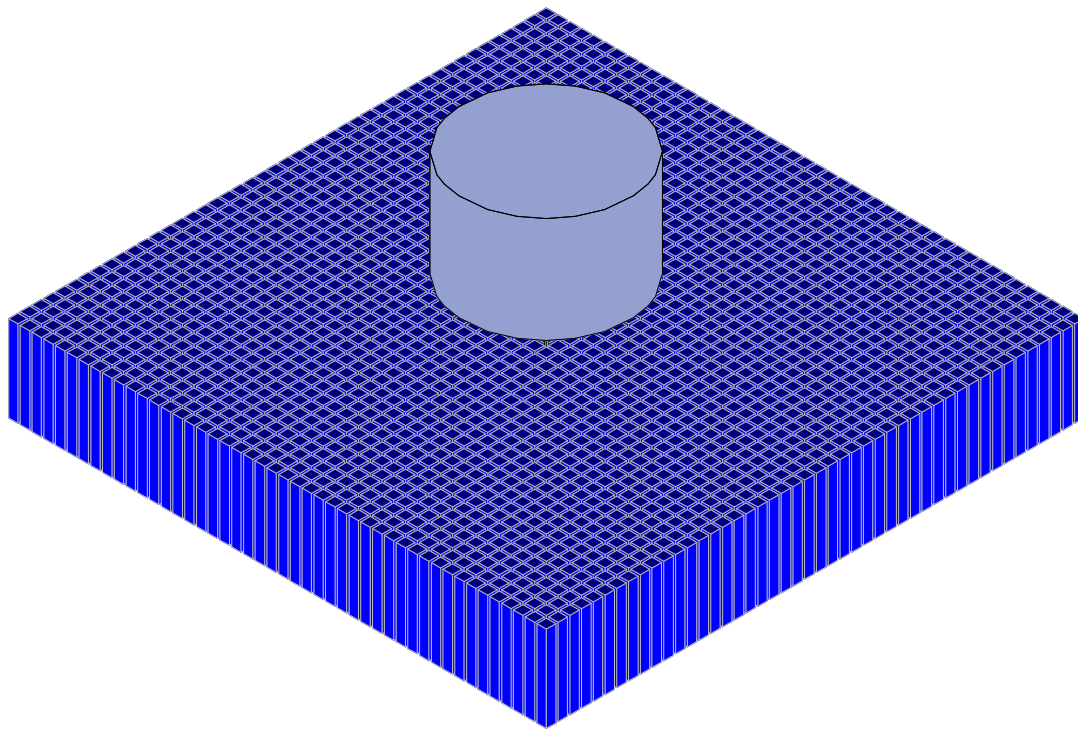
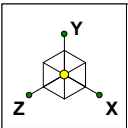
Soil Rating*:	11.4%
Structural Rating*:	47.1%

Pad Properties		
Depth, D :	7.7	ft
Pad Width, W :	23	ft
Pad Thickness, T :	3.7	ft
Pad Rebar Size (Bottom), S_p :	11	
Pad Rebar Quantity (Bottom), mp :	24	
Pad Clear Cover, cc_{pad} :	3	in

Material Properties		
Rebar Grade, F_y :	60	ksi
Concrete Compressive Strength, F'_c :	4	ksi
Dry Concrete Density, δ_c :	150	pcf

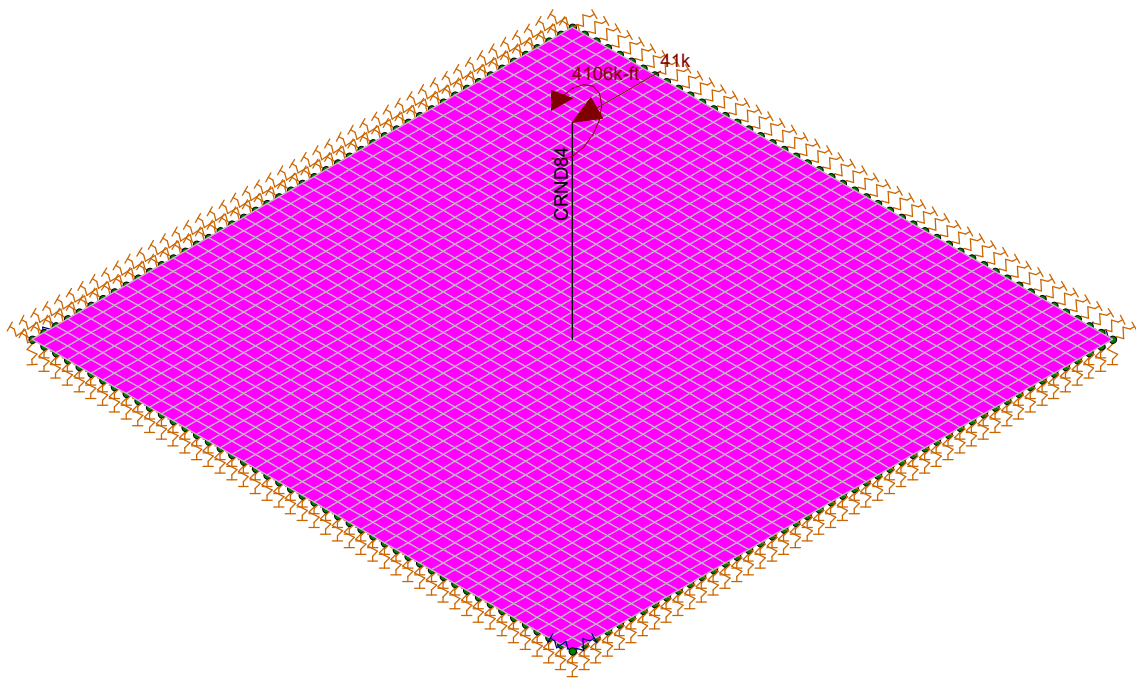
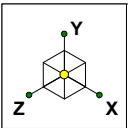
Soil Properties		
Total Soil Unit Weight, γ :	120	pcf
Ultimate Gross Bearing, Q_{ult} :	30.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	33	degrees
SPT Blow Count, N_{blows} :	20	
Base Friction, μ :	0.45	
Neglected Depth, N :	3.30	ft
Foundation Bearing on Rock?	Yes	
Groundwater Depth, gw :	None	ft

<--Toggle between Gross and Net



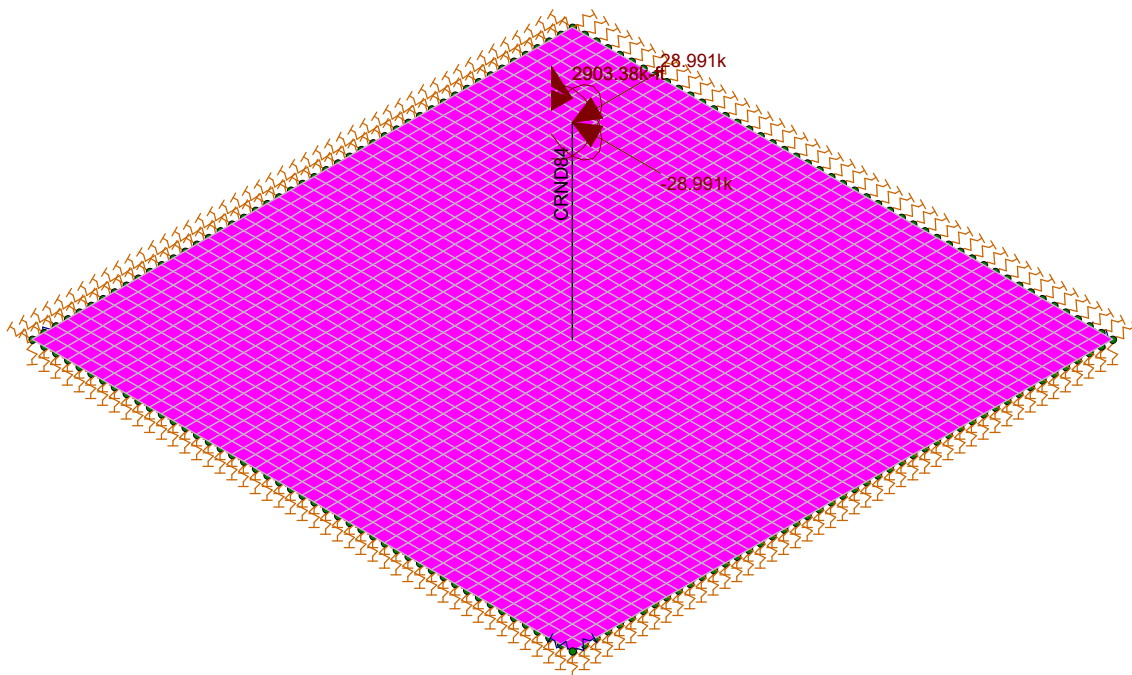
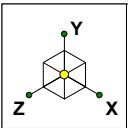
Envelope Only Solution

Paul J. Ford and Company	BU 876339	SK - 1
JGF		Nov 5, 2019 at 9:06 AM
37519-1581.006.7805		37519-1581.006.7805_Composite ...



Loads: BLC 2, Wind 0
Envelope Only Solution

Paul J. Ford and Company	BU 876339	SK - 2
JGF		Nov 5, 2019 at 9:09 AM
37519-1581.006.7805		37519-1581.006.7805_Composite ...



Loads: BLC 3, Wind 45
Envelope Only Solution

Paul J. Ford and Company	BU 876339	SK - 3
JGF		Nov 5, 2019 at 9:10 AM
37519-1581.006.7805		37519-1581.006.7805_Composite ...



(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	None
RISAConnection Code	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	ACI 318-05
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parame Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR SET ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8



(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Basic Load Cases

BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...)	Surface(...)
1 Dead	None		-1		1				2116
2 Wind 0	None				2				
3 Wind 45	None				4				
4 Wind 90	None								
5 Wind 135	None								

Load Combinations

Description	S... P...	S... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...	Fa... B...
1 1.2 Dead + Wind 0	Yes Y	1	1.2	2	1														
2 0.9 Dead + Wind 0	Yes Y	1	.9	2	1														
3 1.2 Dead + Wind 45	Yes Y	1	1.2	3	1														
4 0.9 Dead + Wind 45	Yes Y	1	.9	3	1														
5 1.2 Dead + Wind 90	Y	1	1.2	4	1														
6 0.9 Dead + Wind 90	Y	1	.9	4	1														
7 1.2 Dead + Wind 135	Y	1	1.2	5	1														
8 0.9 Dead + Wind 135	Y	1	.9	5	1														
9 1.2 Dead + Wind 180	Y	1	1.2	2	-1														
10 0.9 Dead + Wind 180	Y	1	.9	2	-1														
11 1.2 Dead + Wind 225	Y	1	1.2	3	-1														
12 0.9 Dead + Wind 225	Y	1	.9	3	-1														
13 1.2 Dead + Wind 270	Y	1	1.2	4	-1														
14 0.9 Dead + Wind 270	Y	1	.9	4	-1														
15 1.2 Dead + Wind 315	Y	1	1.2	5	-1														
16 0.9 Dead + Wind 315	Y	1	.9	5	-1														



Company : Paul J. Ford and Company
 Designer : JGF
 Job Number : 37519-1581.004.7805
 Model Name : BU 876339

Nov 5, 2019
 9:34 AM
 Checked By: _____

Joint Loads and Enforced Displacements (BLC 1 : Dead)

	Joint Label	L,D,M	Direction	Magnitude[(k.k-ft), (in.rad), (k*s^2/ft...
1	CENTER	L	Y	-50

Joint Loads and Enforced Displacements (BLC 2 : Wind 0)

	Joint Label	L,D,M	Direction	Magnitude[(k.k-ft), (in.rad), (k*s^2/ft...
1	CENTER	L	Mx	4106
2	CENTER	L	Z	41

Joint Loads and Enforced Displacements (BLC 3 : Wind 45)

	Joint Label	L,D,M	Direction	Magnitude[(k.k-ft), (in.rad), (k*s^2/ft...
1	CENTER	L	Mz	2903.38
2	CENTER	L	Mx	2903.38
3	CENTER	L	X	-28.991
4	CENTER	L	Z	28.991

Concrete Properties

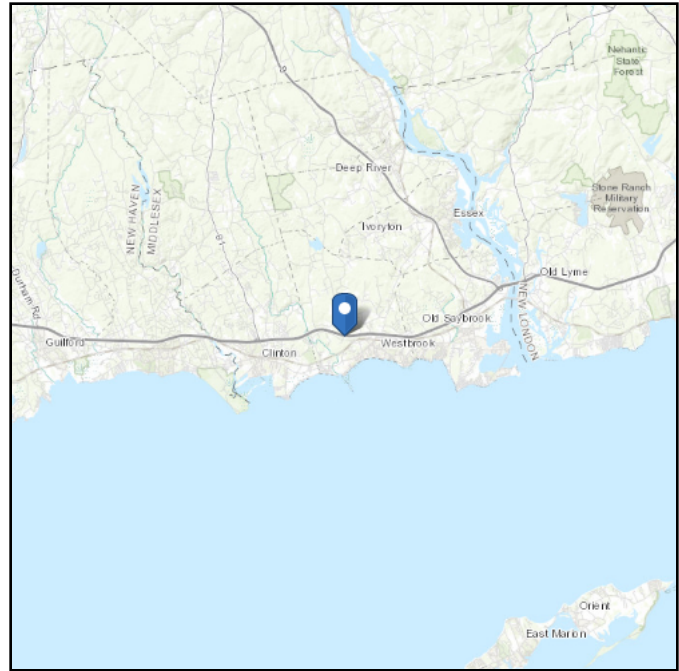
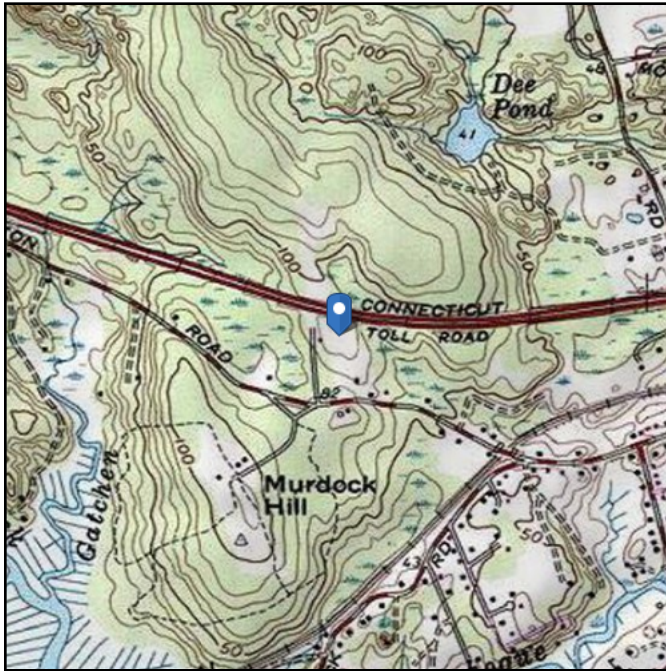
	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[k/ft...	f'c[ksi]	Lambda	Flex Steel[...	Shear Stee...
1	Conc3000NW	3156	1372	.15	.6	.145	3	1	60	60
2	Conc3500NW	3409	1482	.15	.6	.145	3.5	1	60	60
3	Conc4000NW	3644	1584	.15	.6	.145	4	1	60	60
4	Conc3000LW	2085	907	.15	.6	.11	3	.75	60	60
5	Conc3500LW	2252	979	.15	.6	.11	3.5	.75	60	60
6	Conc4000LW	2408	1047	.15	.6	.11	4	.75	60	60

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 94.72 ft (NAVD 88)
Latitude: 41.290472
Longitude: -72.468861



Wind

Results:

Wind Speed:	131 Vmph ← 135 mph per Jurisdiction
10-year MRI	79 Vmph
25-year MRI	89 Vmph
50-year MRI	97 Vmph
100-year MRI	107 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Tue Apr 30 2019

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

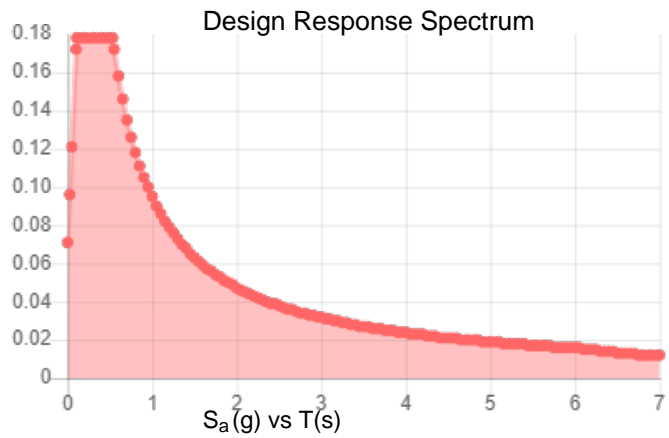
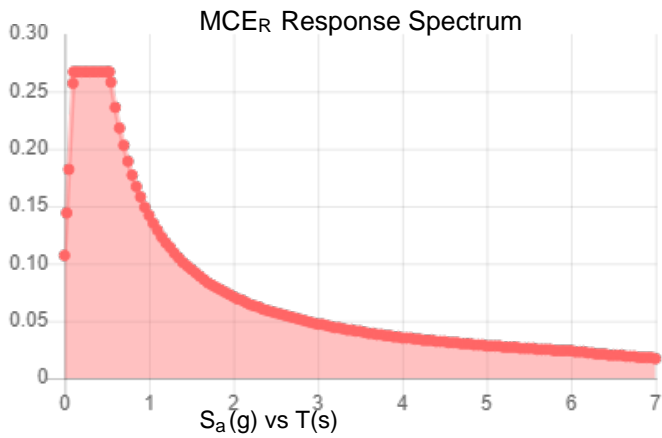
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_S :	0.167	S_{DS} :	0.178
S_1 :	0.059	S_{D1} :	0.095
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.084
S_{MS} :	0.267	PGA _M :	0.134
S_{M1} :	0.142	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Tue Apr 30 2019

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 0.75 in.
Concurrent Temperature: 15 F
Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Tue Apr 30 2019

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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Exhibit E

Mount Analysis

Date: October 28, 2019

Darcy Tarr
Crown Castle
3530 Toringdon Way
Charlotte, NC 28277

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

Subject: Mount Analysis Report

Carrier Designation: Verizon Wireless Equipment Change-out
Carrier Site Number: NG38961
Carrier Site Name: WESTBROOK 2 CT

Crown Castle Designation: Crown Castle BU Number: 876339
Crown Castle Site Name: POND MEADOW RD.
STABLE
Crown Castle JDE Job Number: 592729
Crown Castle Purchase Order Number: 1465367
Crown Castle Order Number: 506806 Rev. 0

Engineering Firm Designation: Paul J Ford and Company Project Number: A37519-1581.005.7190

Site Data: 782 Old Clinton Road, Westbrook, Middlesex County, CT 06498
Latitude 41.290472°, Longitude -72.468861°

Structure Information: Tower Height & Type: 160 Foot Monopole
Mount Elevation: 116 Foot
Mount Type: (1) 12.5 Foot Platform

Dear Darcy Tarr,

Paul J Ford and Company is pleased to submit this "Mount Analysis Report" to determine the structural integrity of the Verizon Wireless antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point is not part of this document.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis we have determined the mount stress level to be:

12.5' Platform

91.8%

SUFFICIENT

This analysis utilizes an ultimate 3-second gust wind speed of 135 mph as required by the 2018 Connecticut State Building Code and Appendix N. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Respectfully submitted by:


Anthony Pelino, E.I.
Structural Designer
apelino@pauljford.com



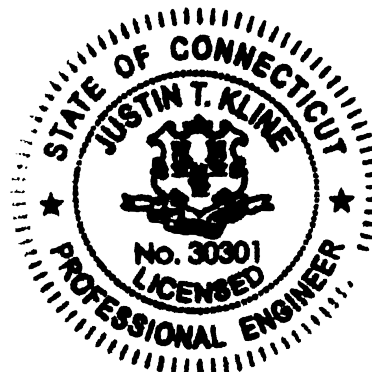


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SOFTWARE ANALYSIS OUTPUT

1) INTRODUCTION

The existing mount under consideration is (1) 12.5' Platform mount estimated based on photos and models of previously analyzed mounts of similar type.

The mount has been modified per reinforcement drawings prepared by Dewberry Engineers, Inc., in August of 2019. Reinforcement consists of installing a support rail kit.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	135 mph
Exposure Category:	B
Topographic Factor at Base:	1.00
Topographic Factor at Mount:	1.00
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb
Man Live Load at Mount Pipes:	500 lb

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
116	118	2	Antel	LPA-80063-4CF-EDIN-5	(1) 12.5' Platform
		1	Antel	LPA-80080/4CF	
		6	CommScope	JAHH-65B-R3B	
		3	CommScope	CBC78T-DS-43-2X	
		2	RFS Celwave	DB-T1-6Z-8AB-0Z	
		3	Samsung Telecommunications	RFV01U-D1A	
		3	Samsung Telecommunications	RFV01U-D2A	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
Photos	Dated: 10/29/2018, 8/30/2019	-	CCISites
Order	ID: 506806 Rev. 0 Dated: 10/22/2019	-	CCISites
Mount Modification Drawings	Dewberry, Dated 8/2/2019	50103536	Crown Castle

3.1) Analysis Method

RISA-3D (version 17.0.3), 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.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision C). In addition, this analysis is in accordance with Verizon's NSTD-445 *Antenna Mounting System Classification Standard*.

3.2) Assumptions

- 1) *The analysis of the existing tower or the effect of the mount attachment to the tower is not within the current scope of work.*
- 2) *The antenna mounting system was properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications and all bolts are tightened as specified by the manufacturer and AISC requirements.*
- 3) *The configuration of antennas, mounts, and other appurtenances are as specified in Table 1.*
- 4) *All member connections have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report. All U-Bolt connections have been properly tightened. This analysis will be required to be revised if the existing conditions in the field differ from those shown in the above referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.*
- 5) *Steel grades are as follows, unless noted otherwise:*

a) Channel, Solid Round, Angle, Plate, Unistrut	ASTM A36 (GR 36)
b) Pipe	ASTM A53 (GR 35)
c) HSS (Rectangular)	ASTM 500 (GR B-46)
d) HSS (Round)	ASTM 500 (GR B-42)
e) Threaded Rods	ASTM F1554 (GR 36)
f) Connection Bolts	ASTM A325
g) U-Bolts	SAE J429 (GR 2)
- 6) *Proposed equipment is to be installed in the locations specified in Appendix A. Any changes to the proposed equipment locations will render this report invalid.*
- 7) *Mount has been modeled based on the photographs and/or the TIA inspection referenced in Table 2. Member information and dimensions not provided have been assumed based on previous experience with similar mounts. No guarantee can be made as to the accuracy of these assumptions without a complete mount mapping.*

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

4) ANALYSIS RESULTS

Table 3- Mount Component Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Face Horizontals	116	26.7	Pass
1	Bracing Members		26.3	Pass
1	Support Rails		32.9	Pass
1	Grating Support Members		20.6	Pass
1	Standoff Members		63.5	Pass
1	Corner Plates		56.3	Pass
1	Mount Pipes		91.8	Pass
1	Mount to Tower Connection		76.6	Pass
Mount Rating (max from all components) =				91.8%

Notes:

- 1) See additional documentation in "Appendix C – Software Analysis Output" for calculations supporting the % capacity consumed.

4.1) Recommendations

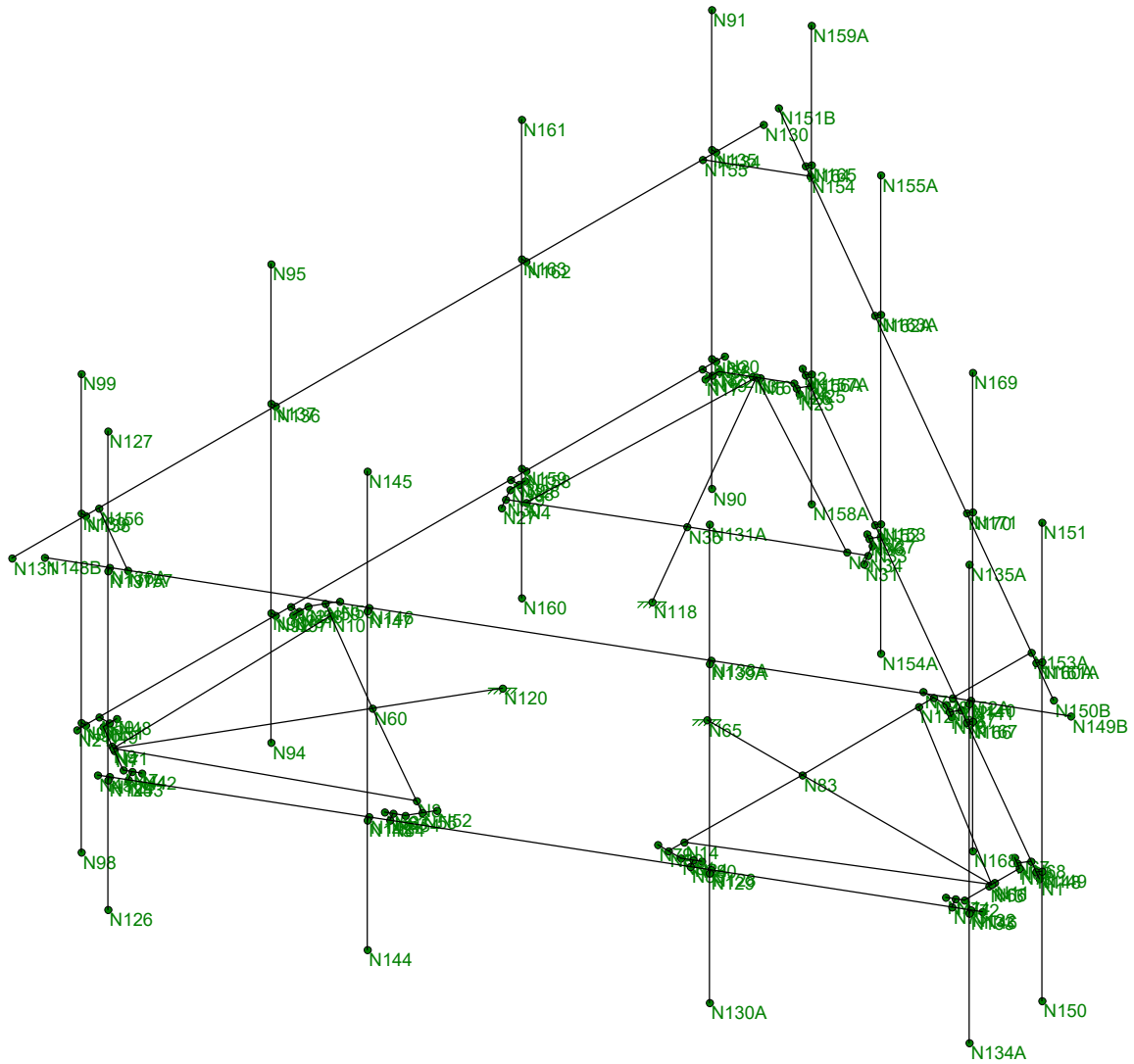
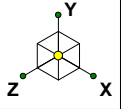
The mount has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

**STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING
SERVICES ON EXISTING MOUNTS BY PAUL J. FORD AND COMPANY**

- 1) It is the responsibility of the client to ensure that the information provided to Paul J. Ford and Company is accurate and complete. Paul J. Ford and Company will rely on the accuracy and completeness of such information in performing or furnishing services under this project.
- 2) If the existing conditions are not as represented on the referenced drawings and/or documents, Paul J. Ford and Company should be contacted immediately to evaluate the significance of the deviation.
- 3) The mount has been analyzed according to the minimum design loads recommended by the Reference Standard. If additional design loads are required, Paul J. Ford and Company should be made aware of this prior to the start of the project.
- 4) The standard of care for all Professional Engineering Services performed or furnished by Paul J. Ford and Company under this project will be the skill and care used by members of the Consultant's profession practicing under similar circumstances at the same time and in the same locality.
- 5) All Services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Paul J. Ford and Company is not responsible for the conclusions, opinions and/or recommendations made by others based on the information supplied herein.

APPENDIX A

WIRE FRAME AND RENDERED MODELS



Envelope Only Solution

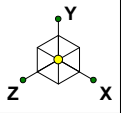
Paul J. Ford and Company
ADP
37519-1581.005.7190

876339 - Pond Meadow Rd. Stable

SK - 1

Oct 28, 2019 at 9:17 AM

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(1) ANTEL LPA-80080/4CF

(1) SAMSUNG TELECOMMUNICATIONS RFV01U-D1A

LEGEND
 EXISTING: BLUE
 PROPOSED: RED

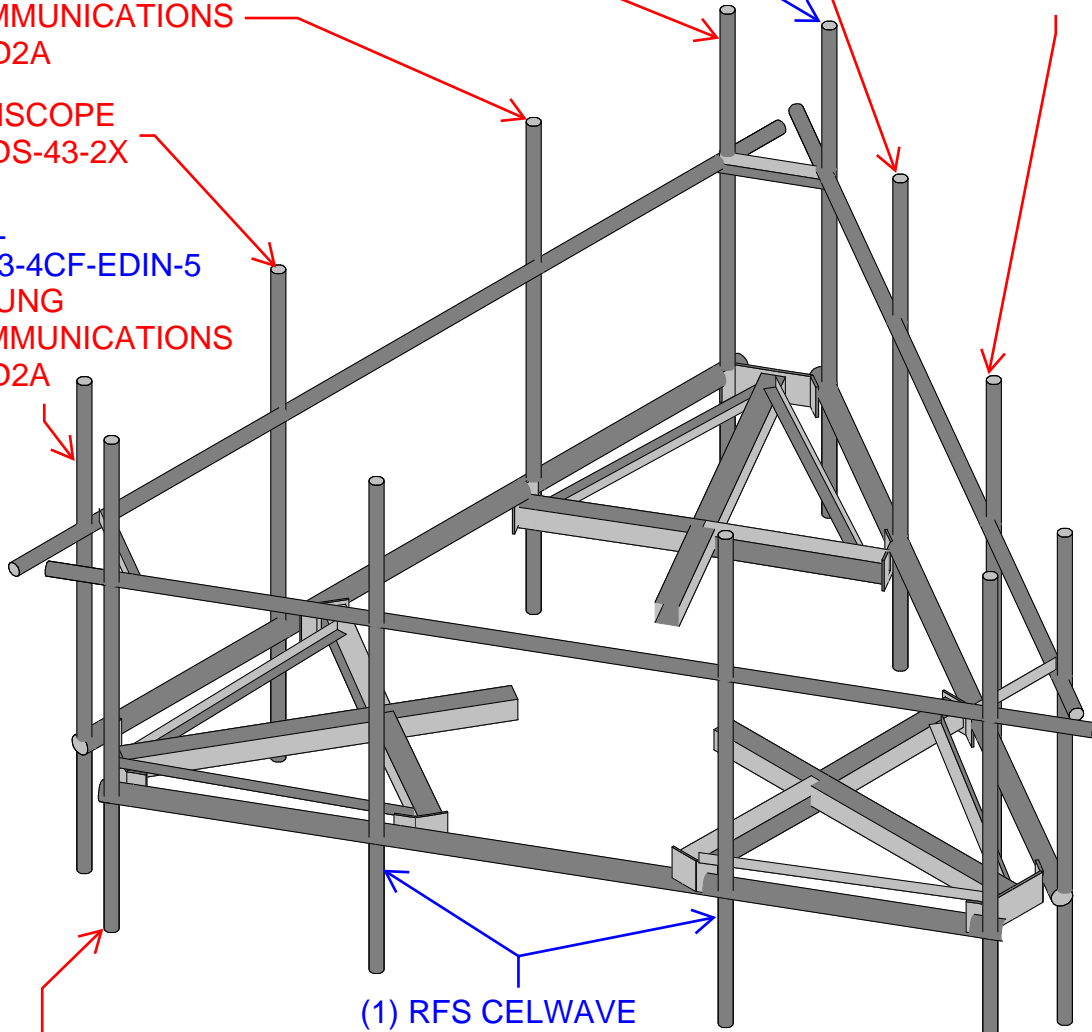
(1) SAMSUNG TELECOMMUNICATIONS RFV01U-D2A

(1) SAMSUNG TELECOMMUNICATIONS RFV01U-D2A

(1) COMMSCOPE CBC78T-DS-43-2X

(1) ANTEL LPA-80063-4CF-EDIN-5
 (1) SAMSUNG TELECOMMUNICATIONS RFV01U-D2A

(1) SAMSUNG TELECOMMUNICATIONS RFV01U-D1A
 (1) COMMSCOPE CBC78T-DS-43-2X



(1) SAMSUNG TELECOMMUNICATIONS RFV01U-D1A

(1) RFS CELWAVE DB-T1-6Z-8AB-0Z
 (1) COMMSCOPE JAHH-65B-R3B (TYP) (PER PIPE)

(1) ANTEL LPA-80063-4CF-EDIN-5
 (1) COMMSCOPE CBC78T-DS-43-2X

NOTES:

- 1) A 6" VERTICAL TOLERANCE FOR PROPOSED EQUIPMENT IS ACCEPTABLE.
- 2) CONTRACTOR TO VERIFY LOCATION OF EXISTING EQUIPMENT PRIOR TO INSTALLATION OF PROPOSED EQUIPMENT. NOTIFY EOR FOR ANY DEVIATIONS.
- 3) INSTALL SHALL NOT CAUSE HARM TO THE STRUCTURE, CLIMBING FACILITY, SAFETY CLIMB OR ANY SYSTEM INSTALLED ON THE STRUCTURE.

Paul J. Ford and Company

ADP

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876339 - Pond Meadow Rd. Stable

SK - 2

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APPENDIX B

SOFTWARE INPUT CALCULATION

Mount Loading per TIA-222-H

Structure & Wind Speed

Analysis Scope = **Client**
 Structure Type = **Mount**
 Mount Type = **3 Sectors**
 Mount Centerline (z) = **116** ft
 C/L Y Coordinate = **0** in
 Ultimate Wind Speed = **135** mph
 Service Wind Speed = **30** mph
 Ice Wind Speed = **50** mph
 Ice Thickness = **1.5** in
 Const. Duration =
 Non-Op Wind Speed = **#N/A** mph
 Op Wind Speed = **30** mph

Topography

Risk Category = **II**
 Exposure Category = **B**
 Topographic Category = **1**
 Structure Base Height (Z₀₁) = **94.72** ft
 Crest Height (H) = ft

Maintenance Point Loads

Label	Node #	Typical Load
L _{1n} = 500 lbs @ N132	132	(Typically 500 lbs)
L _{1s} = 250 lbs @ N46	44	(Typically 250 lbs)

*In negative y-direction

Velocity Pressure Coefficients

Z₀ = **1200** ft (Table 2-4)
 α = **7.00** (Table 2-4)
 K_z = **1.03** (Section 2.6.5.2)
 K_{zmin} = 0.70
 K_{zmax} = 1.03
 K_{zmax} = 2.01
 K_{at} = **1.00** (Section 2.6.6.2.1)
 K_d = **0.95** (Table 2-2)
 K_e = **1.00** (Section 2.6.8)
 G_h = **1.00** (Section 2.6.9)
 K_{ws} = **1.0** (Annex S - Wind Force)
 q_w = **45.54** psf (Section 2.6.11.6)

Ice Loading

I_i = **1.00** (Table 2-3)
 K_{ws} = **1.0** (Annex S - Ice)
 q_{iw} = **6.27** psf (Section 2.6.11.6)
 K_{iw} = **1.13** (Section 2.6.10)
 t_{iw} = **1.70** in (Section 2.6.10)
 h = **1.00** in (Bar Grating Height)
 W_i = **12.60** psf (Grating Ice Weight)

Wind Pressure

K_a Override = for All Antennas and Members
 (q_w) (G_h) (K_{ws}) = **45.54** psf
 (q_w) (G_h) (K_{ws}) = **6.27** psf (Ice)

Antennas

Item	Status	Manufacturer	Antenna	Height (in)	Width (in)	Depth (in)	Flat or Round	Weight (lbs)	Sector / Face	Position	Quantity	Orientation	Use tnxTower C.A.s (CFD)	Top/Bottom Mounting Point Spacing	Override Spacing (in)	Max Antenna C/L (ft)	Min Antenna C/L (ft)	Antenna C/L (ft)	Antenna Top Mount Location from Mount Pipe Bottom (in)	Antenna Bottom Mount Location from Mount Pipe Bottom (in)	Override Top Antenna Mounting Location (in)	Override Bottom Antenna Mounting Location (in)	Normal Wind Force per Antenna (lbs)	Transverse Wind Force per Antenna (lbs)
1		ANTEL	LPA-80080/4CF	47.2	5.5	13.2	Flat	12	A	1	1	Normal	No	41.20		120.117	115.550	118	70.60	29.40			107.346	221.290
2		ANTEL	LPA-80063-4CF-EDIN-5	47.4	15.2	13.1	Flat	20	B	1	1	Normal	No	41.40		120.108	115.558	118	70.70	29.30			251.730	220.879
3		ANTEL	LPA-80063-4CF-EDIN-5	47.4	15.2	13.1	Flat	20	C	1	1	Normal	No	41.40		120.108	115.558	118	70.70	29.30			251.730	220.879
4		COMMSCOPE	JAHH-65B-R3B_CCI CFD	72	13.8	8.2	Flat	63.3	A	2	1	Normal	Yes	66.00		119.083	116.583	118	83.00	17.00			240.920	138.905
5		COMMSCOPE	JAHH-65B-R3B_CCI CFD	72	13.8	8.2	Flat	63.3	A	3	1	Normal	Yes	66.00		119.083	116.583	118	83.00	17.00			240.920	138.905
6		COMMSCOPE	JAHH-65B-R3B_CCI CFD	72	13.8	8.2	Flat	63.3	B	2	1	Normal	Yes	66.00		119.083	116.583	118	83.00	17.00			240.920	138.905
7		COMMSCOPE	JAHH-65B-R3B_CCI CFD	72	13.8	8.2	Flat	63.3	B	3	1	Normal	Yes	66.00		119.083	116.583	118	83.00	17.00			240.920	138.905
8		COMMSCOPE	JAHH-65B-R3B_CCI CFD	72	13.8	8.2	Flat	63.3	C	2	1	Normal	Yes	66.00		119.083	116.583	118	83.00	17.00			240.920	138.905
9		COMMSCOPE	JAHH-65B-R3B_CCI CFD	72	13.8	8.2	Flat	63.3	C	3	1	Normal	Yes	66.00		119.083	116.583	118	83.00	17.00			240.920	138.905
10		SAMSUNG TELECOMMUNICATIONS	RFV01U-D1A	15	15	10	Flat	84.4	A	2	1	Normal	No	9.00		121.458	114.208	118	54.50	45.50			76.853	51.235
11		SAMSUNG TELECOMMUNICATIONS	RFV01U-D1A	15	15	10	Flat	84.4	A	3	1	Normal	No	9.00		121.458	114.208	118	54.50	45.50			76.853	51.235
12		COMMSCOPE	CBC78T-DS-43-2X	6.4	6.9	9.6	Flat	20.7	A	3	1	Normal	No	0.40		121.817	113.850	118	50.20	49.80			15.084	20.986
13		COMMSCOPE	CBC78T-DS-43-2X	6.4	6.9	9.6	Flat	20.7	B	1	1	Normal	No	0.40		121.817	113.850	118	50.20	49.80			15.084	20.986
14		RFS CELWAVE	DB-B1-6C-8AB-0Z	24	24	10	Flat	44	B	2	1	Normal	No	18.00		121.083	114.583	118	59.00	41.00			196.744	81.977
15		RFS CELWAVE	DB-B1-6C-8AB-0Z	24	24	10	Flat	44	B	3	1	Normal	No	18.00		121.083	114.583	118	59.00	41.00			196.744	81.977
16		SAMSUNG TELECOMMUNICATIONS	RFV01U-D2A	15	15	8.1	Flat	70.3	B	4	1	Normal	No	9.00		121.458	114.208	118	54.50	45.50			76.853	41.501
17		SAMSUNG TELECOMMUNICATIONS	RFV01U-D2A	15	15	8.1	Flat	70.3	C	1	1	Normal	No	9.00		121.458	114.208	118	54.50	45.50			76.853	41.501
18		COMMSCOPE	CBC78T-DS-43-2X	6.4	6.9	9.6	Flat	20.7	C	2	1	Normal	No	0.40		121.817	113.850	118	50.20	49.80			15.084	20.986
19		SAMSUNG TELECOMMUNICATIONS	RFV01U-D2A	15	15	8.1	Flat	70.3	C	3	1	Normal	No	9.00		121.458	114.208	118	54.50	45.50			76.853	41.501
20		SAMSUNG TELECOMMUNICATIONS	RFV01U-D1A	15	15	10	Flat	84.4	C	4	1	Normal	No	9.00		121.458	114.208	118	54.50	45.50			76.853	51.235

Dishes

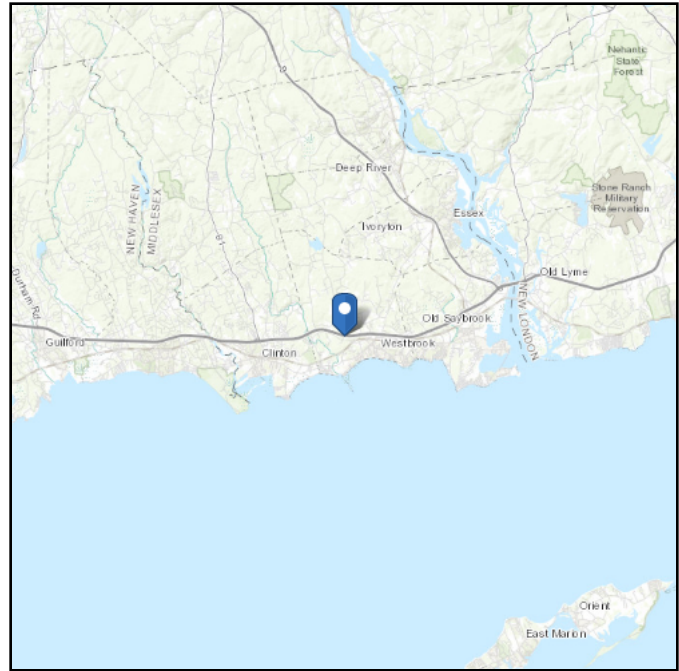
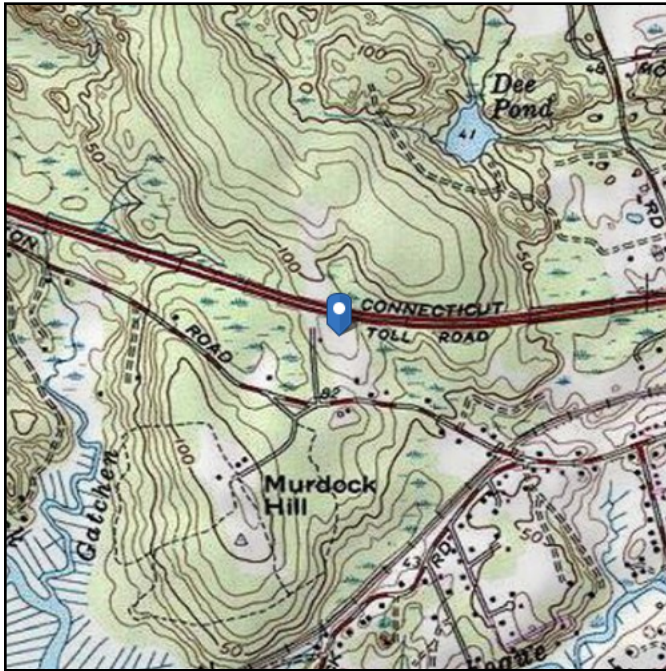
Item	Status	Manufacturer	Microwave Dish	Dia (in)	Dish Type	Weight (lbs)	Sector / Face	Position	Top/Bottom Mounting Point Spacing	Override Spacing (in)	Max Dish C/L (ft)	Min Dish C/L (ft)	Dish C/L (ft)	Dish Top Mount Location from Mount Pipe Bottom	Dish Bottom Mount Location from Mount Pipe Bottom	Override Top Dish Mounting Location (in)	Override Bottom Dish Mounting Location (in)
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ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 94.72 ft (NAVD 88)
Latitude: 41.290472
Longitude: -72.468861



Wind

Results:

Wind Speed:	131 Vmph ← 135 mph per Jurisdiction
10-year MRI	79 Vmph
25-year MRI	89 Vmph
50-year MRI	97 Vmph
100-year MRI	107 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Tue Apr 30 2019

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

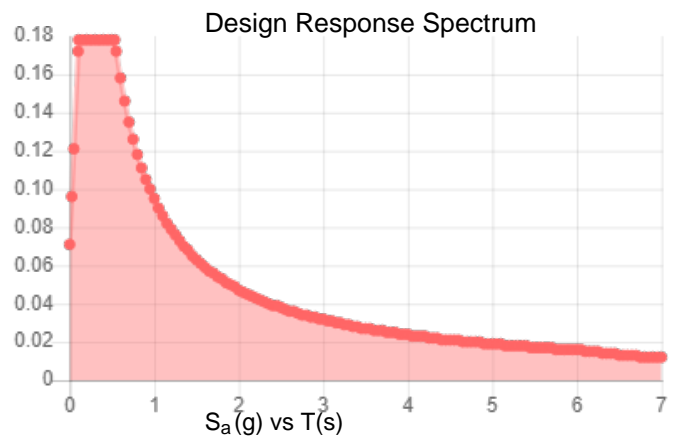
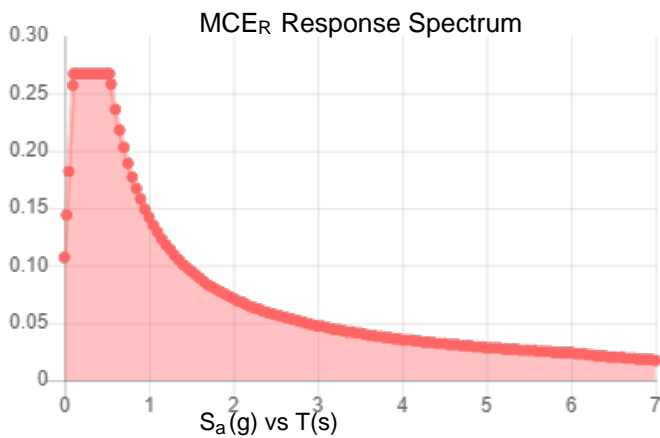
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_S :	0.167	S_{DS} :	0.178
S_1 :	0.059	S_{D1} :	0.095
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.084
S_{MS} :	0.267	PGA _M :	0.134
S_{M1} :	0.142	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Tue Apr 30 2019

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 0.75 in.

Concurrent Temperature: 15 F

Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Tue Apr 30 2019

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

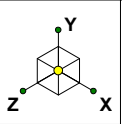
The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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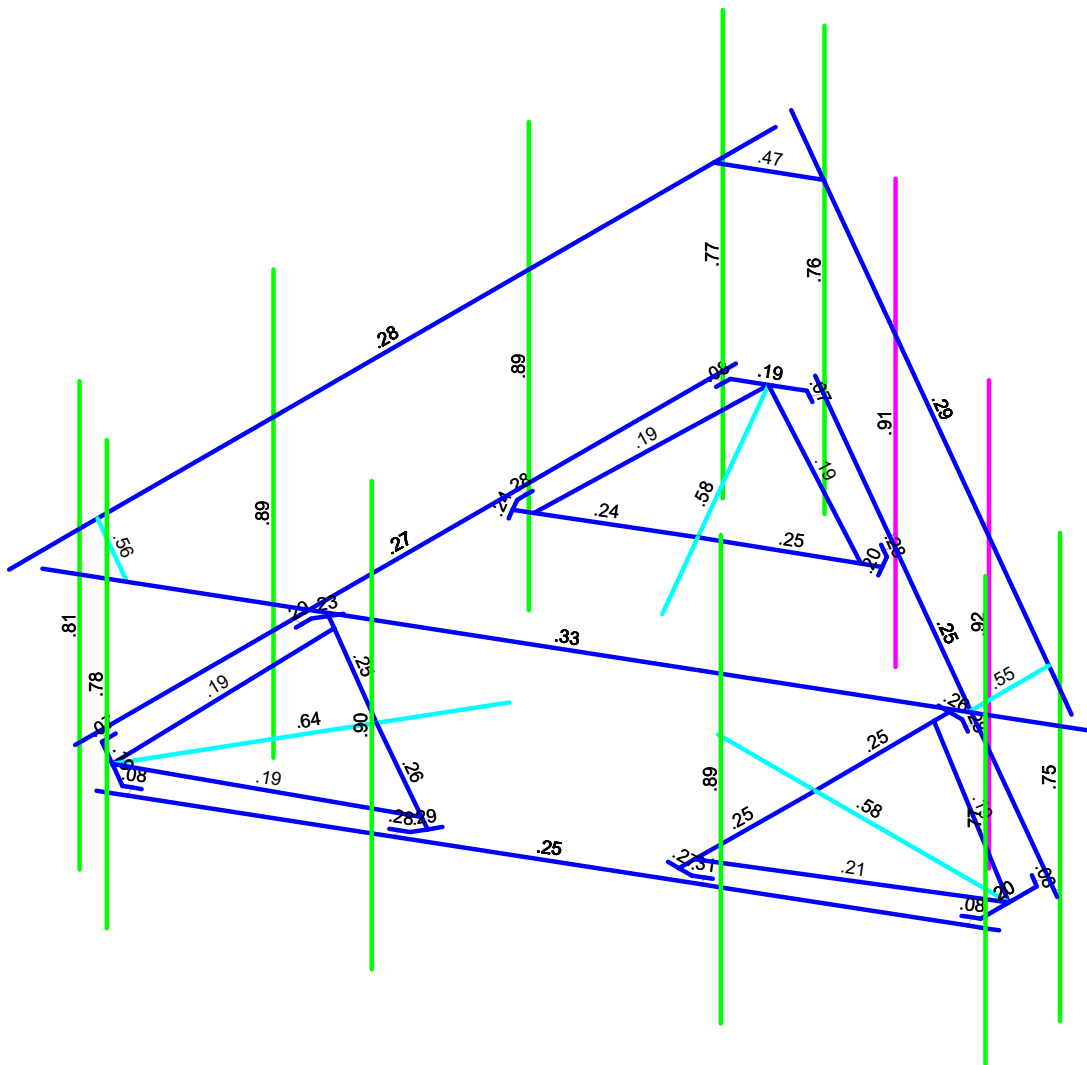
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APPENDIX C

SOFTWARE ANALYSIS OUTPUT

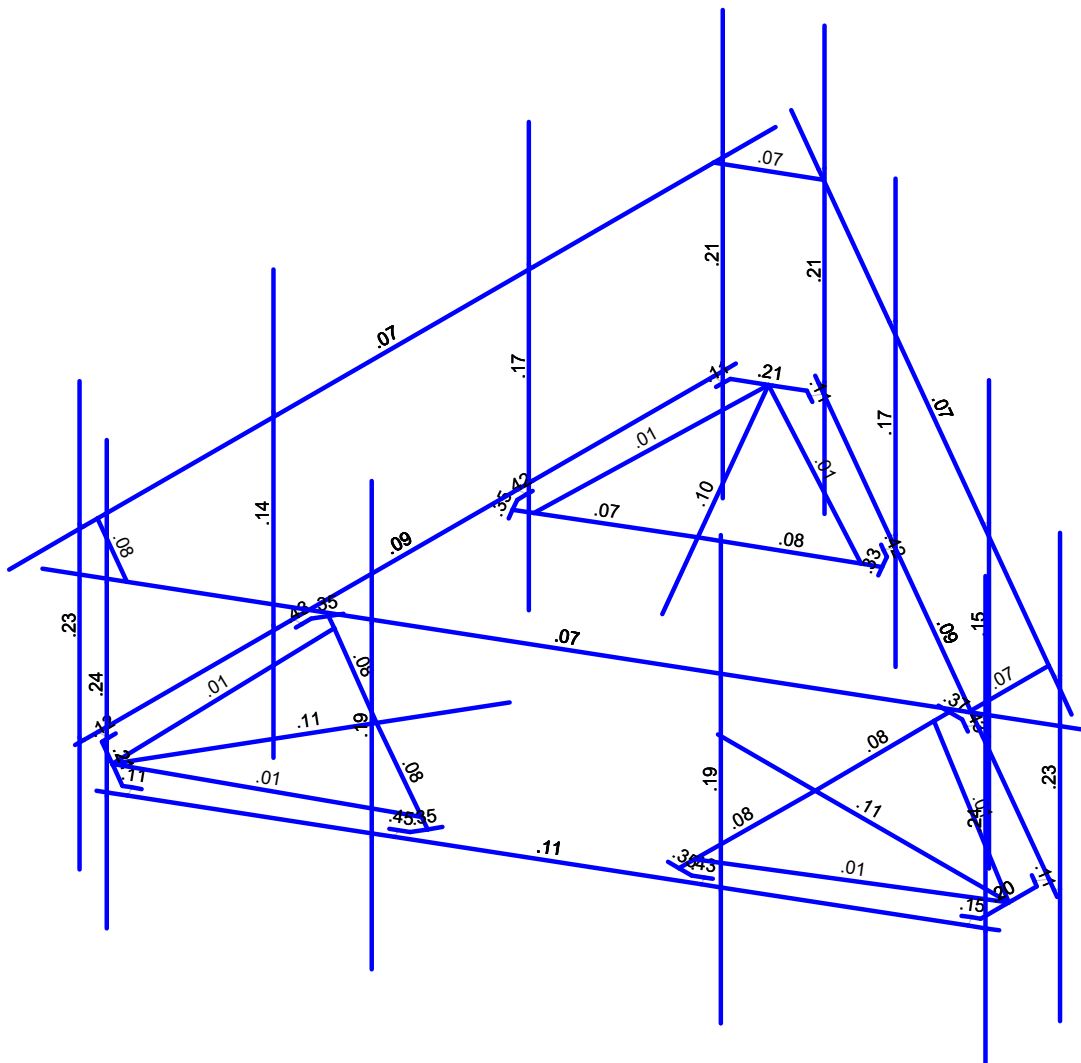
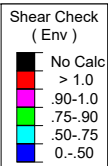
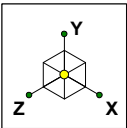


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Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0.-.50



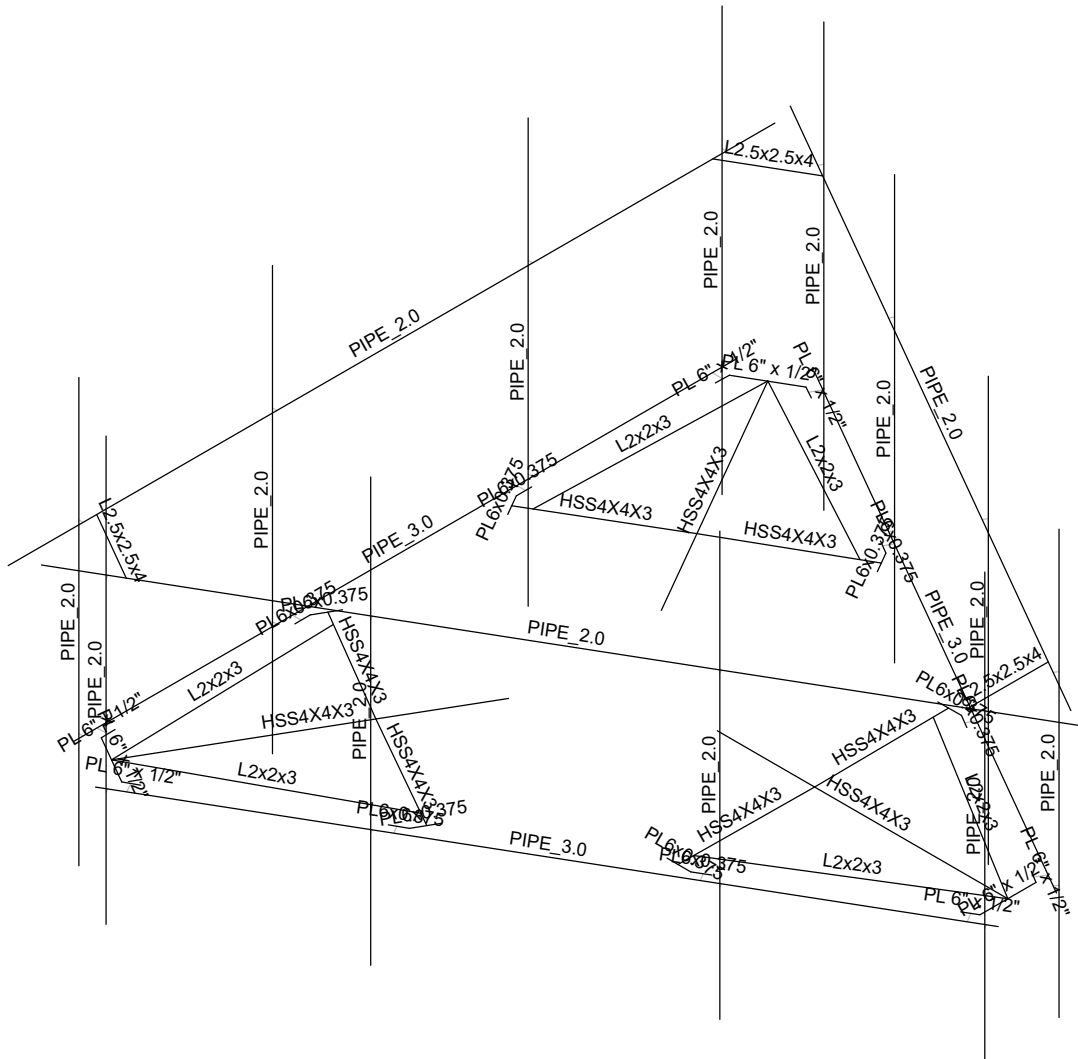
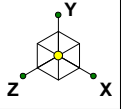
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Envelope Only Solution

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Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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Envelope Only Solution

Paul J. Ford and Company

ADP

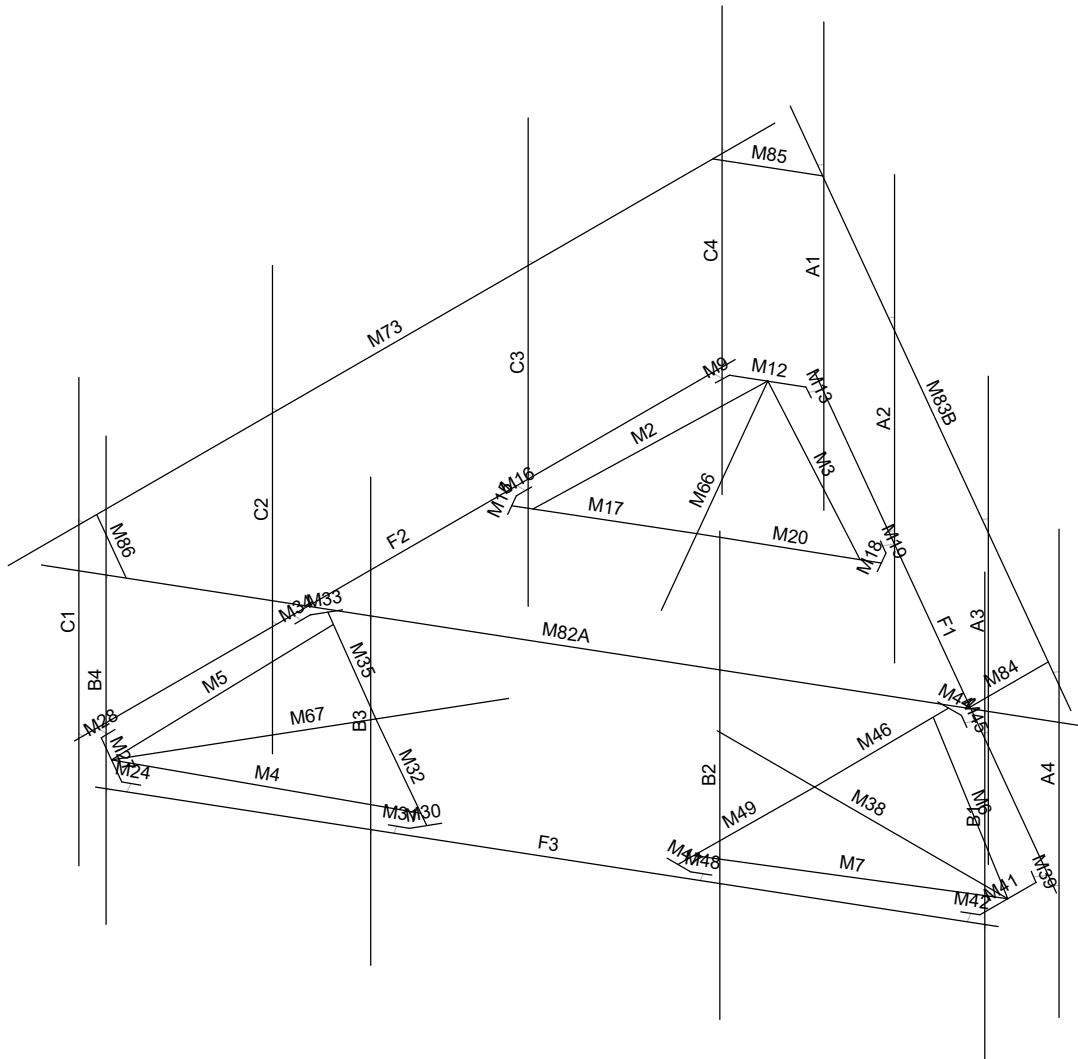
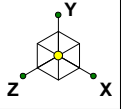
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876339 - Pond Meadow Rd. Stable

SK - 5

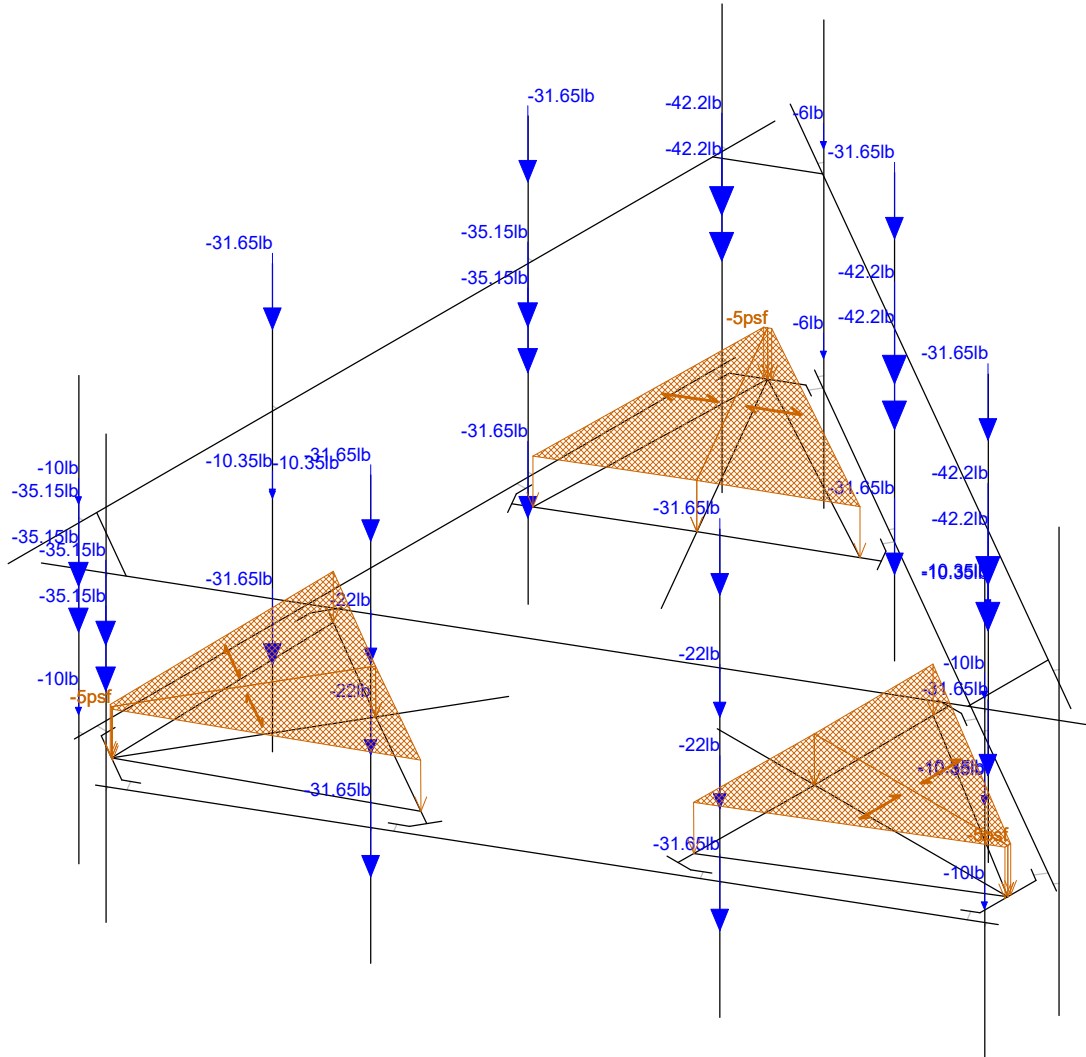
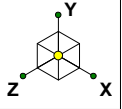
Oct 28, 2019 at 1:26 PM

37519-1581_Client.r3d



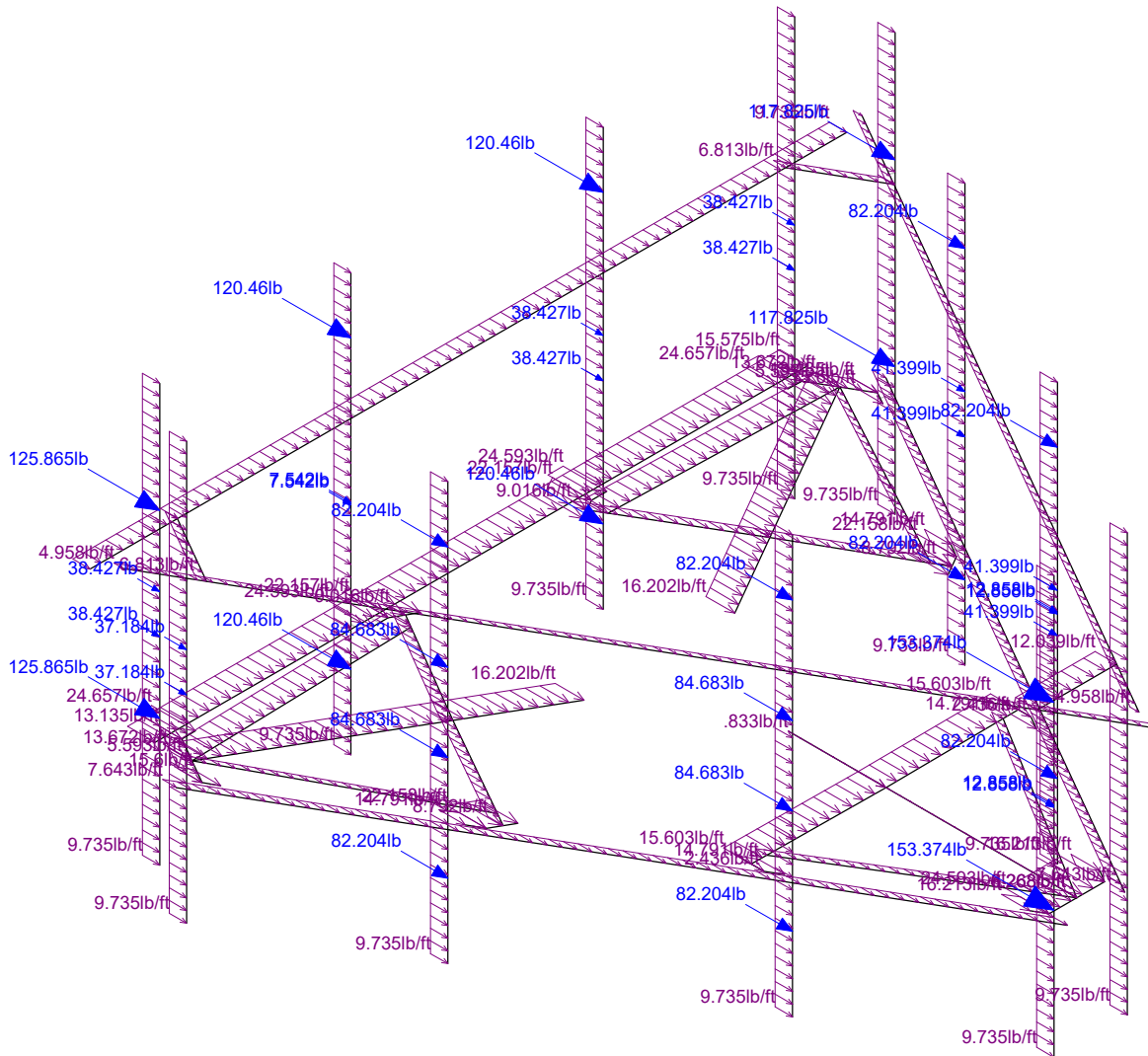
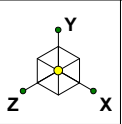
Envelope Only Solution

Paul J. Ford and Company	876339 - Pond Meadow Rd. Stable	SK - 6
ADP		Oct 28, 2019 at 1:27 PM
37519-1581.005.7190		37519-1581_Client.r3d



Loads: BLC 1, Dead
Envelope Only Solution

Paul J. Ford and Company	876339 - Pond Meadow Rd. Stable	SK - 7
ADP		Oct 28, 2019 at 1:27 PM
37519-1581.005.7190		37519-1581_Client.r3d



Loads: BLC 5, Wind 90
Envelope Only Solution

Paul J. Ford and Company	876339 - Pond Meadow Rd. Stable	SK - 9
ADP		Oct 28, 2019 at 1:27 PM
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(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISACONNECTION CODE	None
Cold Formed Steel Code	None
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	None - Building
Stainless Steel Code	None

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parame Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR SET ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8



(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/...	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	F1	N1	N2			PIPE 3.0	None	None	A53 Gr.B	Typical
2	M2	N16	N4		270	L2x2x3	None	None	A36 Gr.36	Typical
3	M3	N16	N6			L2x2x3	None	None	A36 Gr.36	Typical
4	M4	N41	N8		270	L2x2x3	None	None	A36 Gr.36	Typical
5	M5	N41	N10			L2x2x3	None	None	A36 Gr.36	Typical
6	M6	N66	N12		270	L2x2x3	None	None	A36 Gr.36	Typical
7	M7	N66	N14			L2x2x3	None	None	A36 Gr.36	Typical
8	M9	N17	N22			PL 6" x 1/2"	None	None	A36 Gr.36	Typical
9	M10	N18	N19			RIGID	None	None	RIGID	Typical
10	F2	N20	N21			PIPE 3.0	None	None	A53 Gr.B	Typical
11	M12	N24	N22			PL 6" x 1/2"	None	None	A36 Gr.36	Typical
12	M13	N23	N24			PL 6" x 1/2"	None	None	A36 Gr.36	Typical
13	M14	N25	N26			RIGID	None	None	RIGID	Typical
14	M15	N29	N27			PL6x0.375	None	None	A36 Gr.36	Typical
15	M16	N28	N29			PL6x0.375	None	None	A36 Gr.36	Typical
16	M17	N30	N35		180	HSS4X4X3	None	None	A500 Gr.B...	Typical
17	M18	N33	N31			PL6x0.375	None	None	A36 Gr.36	Typical
18	M19	N32	N33			PL6x0.375	None	None	A36 Gr.36	Typical
19	M20	N34	N35		90	HSS4X4X3	None	None	A500 Gr.B...	Typical



Company : Paul J. Ford and Company
 Designer : ADP
 Job Number : 37519-1581.005.7190
 Model Name : 876339 - Pond Meadow Rd. Stable

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Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
20	M21	N37	N36			RIGID	None	None	RIGID	Typical
21	M22	N39	N38			RIGID	None	None	RIGID	Typical
22	M24	N42	N47			PL 6" x 1/2"	None	None	A36 Gr.36	Typical
23	M25	N43	N44			RIGID	None	None	RIGID	Typical
24	F3	N45	N46			PIPE 3.0	None	None	A53 Gr.B	Typical
25	M27	N49	N47			PL 6" x 1/2"	None	None	A36 Gr.36	Typical
26	M28	N48	N49			PL 6" x 1/2"	None	None	A36 Gr.36	Typical
27	M29	N50	N51			RIGID	None	None	RIGID	Typical
28	M30	N54	N52			PL6x0.375	None	None	A36 Gr.36	Typical
29	M31	N53	N54			PL6x0.375	None	None	A36 Gr.36	Typical
30	M32	N55	N60		180	HSS4X4X3	None	None	A500 Gr.B...	Typical
31	M33	N58	N56			PL6x0.375	None	None	A36 Gr.36	Typical
32	M34	N57	N58			PL6x0.375	None	None	A36 Gr.36	Typical
33	M35	N59	N60		90	HSS4X4X3	None	None	A500 Gr.B...	Typical
34	M36	N62	N61			RIGID	None	None	RIGID	Typical
35	M37	N64	N63			RIGID	None	None	RIGID	Typical
36	M38	N65	N66			HSS4X4X3	None	None	A500 Gr.B...	Typical
37	M39	N67	N70			PL 6" x 1/2"	None	None	A36 Gr.36	Typical
38	M40	N68	N69			RIGID	None	None	RIGID	Typical
39	M41	N72	N70			PL 6" x 1/2"	None	None	A36 Gr.36	Typical
40	M42	N71	N72			PL 6" x 1/2"	None	None	A36 Gr.36	Typical
41	M43	N73	N74			RIGID	None	None	RIGID	Typical
42	M44	N77	N75			PL6x0.375	None	None	A36 Gr.36	Typical
43	M45	N76	N77			PL6x0.375	None	None	A36 Gr.36	Typical
44	M46	N78	N83		180	HSS4X4X3	None	None	A500 Gr.B...	Typical
45	M47	N81	N79			PL6x0.375	None	None	A36 Gr.36	Typical
46	M48	N80	N81			PL6x0.375	None	None	A36 Gr.36	Typical
47	M49	N82	N83		90	HSS4X4X3	None	None	A500 Gr.B...	Typical
48	M50	N85	N84			RIGID	None	None	RIGID	Typical
49	M51	N87	N86			RIGID	None	None	RIGID	Typical
50	M52	N89	N88			RIGID	None	None	RIGID	Typical
51	C4	N90	N91			PIPE 2.0	None	None	A53 Gr.B	Typical
52	M54	N93	N92			RIGID	None	None	RIGID	Typical
53	C2	N94	N95			PIPE 2.0	None	None	A53 Gr.B	Typical
54	M56	N97	N96			RIGID	None	None	RIGID	Typical
55	C1	N98	N99			PIPE 2.0	None	None	A53 Gr.B	Typical
56	M66	N118	N16			HSS4X4X3	None	None	A500 Gr.B...	Typical
57	M67	N120	N41			HSS4X4X3	None	None	A500 Gr.B...	Typical
58	M73	N130	N131			PIPE 2.0	None	None	A53 Gr.B	Typical
59	M75	N135	N134			RIGID	None	None	RIGID	Typical
60	M76	N137	N136			RIGID	None	None	RIGID	Typical
61	M77	N139	N138			RIGID	None	None	RIGID	Typical
62	M82A	N148B	N149B			PIPE 2.0	None	None	A53 Gr.B	Typical
63	M83B	N150B	N151B			PIPE 2.0	None	None	A53 Gr.B	Typical
64	M84	N153A	N152A			L2.5x2.5x4	None	None	A36 Gr.36	Typical
65	M85	N155	N154			L2.5x2.5x4	None	None	A36 Gr.36	Typical
66	M86	N157	N156			L2.5x2.5x4	None	None	A36 Gr.36	Typical
67	M87	N159	N158			RIGID	None	None	RIGID	Typical
68	C3	N160	N161			PIPE 2.0	None	None	A53 Gr.B	Typical
69	M89	N163	N162			RIGID	None	None	RIGID	Typical
70	M70	N125	N124			RIGID	None	None	RIGID	Typical
71	B4	N126	N127			PIPE 2.0	None	None	A53 Gr.B	Typical
72	M72	N129	N128			RIGID	None	None	RIGID	Typical
73	B2	N130A	N131A			PIPE 2.0	None	None	A53 Gr.B	Typical
74	M74	N133	N132			RIGID	None	None	RIGID	Typical
75	B1	N134A	N135A			PIPE 2.0	None	None	A53 Gr.B	Typical
76	M76A	N137A	N136A			RIGID	None	None	RIGID	Typical



Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
77	M77A	N139A	N138A			RIGID	None	None	RIGID	Typical
78	M78	N141	N140			RIGID	None	None	RIGID	Typical
79	M79	N143	N142			RIGID	None	None	RIGID	Typical
80	B3	N144	N145			PIPE 2.0	None	None	A53 Gr.B	Typical
81	M81	N147	N146			RIGID	None	None	RIGID	Typical
82	M82	N149	N148			RIGID	None	None	RIGID	Typical
83	A4	N150	N151			PIPE 2.0	None	None	A53 Gr.B	Typical
84	M84A	N153	N152			RIGID	None	None	RIGID	Typical
85	A2	N154A	N155A			PIPE 2.0	None	None	A53 Gr.B	Typical
86	M86A	N157A	N156A			RIGID	None	None	RIGID	Typical
87	A1	N158A	N159A			PIPE 2.0	None	None	A53 Gr.B	Typical
88	M88	N161A	N160A			RIGID	None	None	RIGID	Typical
89	M89A	N163A	N162A			RIGID	None	None	RIGID	Typical
90	M90	N165	N164			RIGID	None	None	RIGID	Typical
91	M91	N167	N166			RIGID	None	None	RIGID	Typical
92	A3	N168	N169			PIPE 2.0	None	None	A53 Gr.B	Typical
93	M93	N171	N170			RIGID	None	None	RIGID	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat..	Analysis ...	Inactive	Seismic...
1	F1						Yes	** NA **			None
2	M2	BenPIN	BenPIN				Yes	** NA **			None
3	M3	BenPIN	BenPIN				Yes	** NA **			None
4	M4	BenPIN	BenPIN				Yes	** NA **			None
5	M5	BenPIN	BenPIN				Yes	** NA **			None
6	M6	BenPIN	BenPIN				Yes	** NA **			None
7	M7	BenPIN	BenPIN				Yes	** NA **			None
8	M9						Yes	** NA **			None
9	M10	BenPIN					Yes	** NA **			None
10	F2						Yes	** NA **			None
11	M12						Yes	** NA **			None
12	M13						Yes	** NA **			None
13	M14	BenPIN					Yes	** NA **			None
14	M15						Yes	** NA **			None
15	M16						Yes	** NA **			None
16	M17						Yes	** NA **			None
17	M18						Yes	** NA **			None
18	M19						Yes	** NA **			None
19	M20						Yes	** NA **			None
20	M21	BenPIN					Yes	** NA **			None
21	M22	BenPIN					Yes	** NA **			None
22	M24						Yes	** NA **			None
23	M25	BenPIN					Yes	** NA **			None
24	F3						Yes	** NA **			None
25	M27						Yes	** NA **			None
26	M28						Yes	** NA **			None
27	M29	BenPIN					Yes	** NA **			None
28	M30						Yes	** NA **			None
29	M31						Yes	** NA **			None
30	M32						Yes	** NA **			None
31	M33						Yes	** NA **			None
32	M34						Yes	** NA **			None
33	M35						Yes	** NA **			None
34	M36	BenPIN					Yes	** NA **			None
35	M37	BenPIN					Yes	** NA **			None



Company : Paul J. Ford and Company
 Designer : ADP
 Job Number : 37519-1581.005.7190
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Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
36	M38						Yes	** NA **			None
37	M39						Yes	** NA **			None
38	M40	BenPIN					Yes	** NA **			None
39	M41						Yes	** NA **			None
40	M42						Yes	** NA **			None
41	M43	BenPIN					Yes	** NA **			None
42	M44						Yes	** NA **			None
43	M45						Yes	** NA **			None
44	M46						Yes	** NA **			None
45	M47						Yes	** NA **			None
46	M48						Yes	** NA **			None
47	M49						Yes	** NA **			None
48	M50	BenPIN					Yes	** NA **			None
49	M51	BenPIN					Yes	** NA **			None
50	M52						Yes	** NA **			None
51	C4						Yes	** NA **			None
52	M54						Yes	** NA **			None
53	C2						Yes	** NA **			None
54	M56						Yes	** NA **			None
55	C1						Yes	** NA **			None
56	M66						Yes	** NA **			None
57	M67						Yes	** NA **			None
58	M73						Yes	** NA **			None
59	M75		OOOXOO				Yes	** NA **			None
60	M76		OOOXOO				Yes	** NA **			None
61	M77		OOOXOO				Yes	** NA **			None
62	M82A						Yes	** NA **			None
63	M83B						Yes	** NA **			None
64	M84						Yes	** NA **			None
65	M85						Yes	** NA **			None
66	M86						Yes	** NA **			None
67	M87						Yes	** NA **			None
68	C3						Yes	** NA **			None
69	M89		OOOXOO				Yes	** NA **			None
70	M70						Yes	** NA **			None
71	B4						Yes	** NA **			None
72	M72						Yes	** NA **			None
73	B2						Yes	** NA **			None
74	M74						Yes	** NA **			None
75	B1						Yes	** NA **			None
76	M76A		OOOXOO				Yes	** NA **			None
77	M77A		OOOXOO				Yes	** NA **			None
78	M78		OOOXOO				Yes	** NA **			None
79	M79						Yes	** NA **			None
80	B3						Yes	** NA **			None
81	M81		OOOXOO				Yes	** NA **			None
82	M82						Yes	** NA **			None
83	A4						Yes	** NA **			None
84	M84A						Yes	** NA **			None
85	A2						Yes	** NA **			None
86	M86A						Yes	** NA **			None
87	A1						Yes	** NA **			None
88	M88		OOOXOO				Yes	** NA **			None
89	M89A		OOOXOO				Yes	** NA **			None
90	M90		OOOXOO				Yes	** NA **			None
91	M91						Yes	** NA **			None
92	A3						Yes	** NA **			None



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Member Advanced Data (Continued)

Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
93	M93		OOOXOO			Yes	** NA **			None

Hot Rolled Steel Design Parameters

Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	F1	PIPE 3.0	150								Lateral
2	M2	L2x2x3	51.837								Lateral
3	M3	L2x2x3	51.837								Lateral
4	M4	L2x2x3	51.837								Lateral
5	M5	L2x2x3	51.837								Lateral
6	M6	L2x2x3	51.837								Lateral
7	M7	L2x2x3	51.837								Lateral
8	M9	PL 6" x 1/2"	3.184								Lateral
9	F2	PIPE 3.0	150								Lateral
10	M12	PL 6" x 1/2"	12.707								Lateral
11	M13	PL 6" x 1/2"	3.184								Lateral
12	M15	PL6x0.375	5.363								Lateral
13	M16	PL6x0.375	3.499								Lateral
14	M17	HSS4X4X3	30.71								Lateral
15	M18	PL6x0.375	5.363								Lateral
16	M19	PL6x0.375	3.499								Lateral
17	M20	HSS4X4X3	30.71								Lateral
18	M24	PL 6" x 1/2"	3.184								Lateral
19	F3	PIPE 3.0	150								Lateral
20	M27	PL 6" x 1/2"	12.707								Lateral
21	M28	PL 6" x 1/2"	3.184								Lateral
22	M30	PL6x0.375	5.363								Lateral
23	M31	PL6x0.375	3.499								Lateral
24	M32	HSS4X4X3	30.71								Lateral
25	M33	PL6x0.375	5.363								Lateral
26	M34	PL6x0.375	3.499								Lateral
27	M35	HSS4X4X3	30.71								Lateral
28	M38	HSS4X4X3	66.014								Lateral
29	M39	PL 6" x 1/2"	3.184								Lateral
30	M41	PL 6" x 1/2"	12.707								Lateral
31	M42	PL 6" x 1/2"	3.184								Lateral
32	M44	PL6x0.375	5.363								Lateral
33	M45	PL6x0.375	3.499								Lateral
34	M46	HSS4X4X3	30.71								Lateral
35	M47	PL6x0.375	5.363								Lateral
36	M48	PL6x0.375	3.499								Lateral
37	M49	HSS4X4X3	30.71								Lateral
38	C4	PIPE 2.0	96								Lateral
39	C2	PIPE 2.0	96								Lateral
40	C1	PIPE 2.0	96								Lateral
41	M66	HSS4X4X3	66.014								Lateral
42	M67	HSS4X4X3	66.014								Lateral
43	M73	PIPE 2.0	174								Lateral
44	M82A	PIPE 2.0	174								Lateral
45	M83B	PIPE 2.0	174								Lateral
46	M84	L2.5x2.5x4	18.243								Lateral
47	M85	L2.5x2.5x4	18.243								Lateral
48	M86	L2.5x2.5x4	18.243								Lateral
49	C3	PIPE 2.0	96								Lateral
50	B4	PIPE 2.0	96								Lateral
51	B2	PIPE 2.0	96								Lateral



Hot Rolled Steel Design Parameters (Continued)

Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
52	B1	PIPE 2.0	96								Lateral
53	B3	PIPE 2.0	96								Lateral
54	A4	PIPE 2.0	96								Lateral
55	A2	PIPE 2.0	96								Lateral
56	A1	PIPE 2.0	96								Lateral
57	A3	PIPE 2.0	96								Lateral

Basic Load Cases

BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	Dead	None	-1.1			40	6	
2	Wind 0	None				80	114	
3	Wind 30	None				80	114	
4	Wind 60	None				80	114	
5	Wind 90	None				80	114	
6	Wind 120	None				80	114	
7	Wind 150	None				80	114	
8	Ice Load	None				40	57	6
9	Ice 0	None				80	114	
10	Ice 30	None				80	114	
11	Ice 60	None				80	114	
12	Ice 90	None				80	114	
13	Ice 120	None				80	114	
14	Ice 150	None				80	114	
15	Lm	None			1			
16	Lv	None			1			
17	BLC 1 Transient Area...	None					45	
18	BLC 8 Transient Area...	None					45	

Load Combinations

Description	So...	P...	S...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...
1	1.4 D	Yes	Y	1	1.4									
2	1.2 D + 1.0 Wo @ 0	Yes	Y	1	1.2	2	1							
3	1.2 D + 1.0 Wo @ 30	Yes	Y	1	1.2	3	1							
4	1.2 D + 1.0 Wo @ 60	Yes	Y	1	1.2	4	1							
5	1.2 D + 1.0 Wo @ 90	Yes	Y	1	1.2	5	1							
6	1.2 D + 1.0 Wo @ 120	Yes	Y	1	1.2	6	1							
7	1.2 D + 1.0 Wo @ 150	Yes	Y	1	1.2	7	1							
8	1.2 D + 1.0 Wo @ 180	Yes	Y	1	1.2	2	-1							
9	1.2 D + 1.0 Wo @ 210	Yes	Y	1	1.2	3	-1							
10	1.2 D + 1.0 Wo @ 240	Yes	Y	1	1.2	4	-1							
11	1.2 D + 1.0 Wo @ 270	Yes	Y	1	1.2	5	-1							
12	1.2 D + 1.0 Wo @ 300	Yes	Y	1	1.2	6	-1							
13	1.2 D + 1.0 Wo @ 330	Yes	Y	1	1.2	7	-1							
14	1.2 D + 1.0 Di + 1.0 Wi ...	Yes	Y	1	1.2	8	1	9	1					
15	1.2 D + 1.0 Di + 1.0 Wi ...	Yes	Y	1	1.2	8	1	10	1					
16	1.2 D + 1.0 Di + 1.0 Wi ...	Yes	Y	1	1.2	8	1	11	1					
17	1.2 D + 1.0 Di + 1.0 Wi ...	Yes	Y	1	1.2	8	1	12	1					
18	1.2 D + 1.0 Di + 1.0 Wi ...	Yes	Y	1	1.2	8	1	13	1					
19	1.2 D + 1.0 Di + 1.0 Wi ...	Yes	Y	1	1.2	8	1	14	1					
20	1.2 D + 1.0 Di + 1.0 Wi ...	Yes	Y	1	1.2	8	1	9	-1					
21	1.2 D + 1.0 Di + 1.0 Wi ...	Yes	Y	1	1.2	8	1	10	-1					
22	1.2 D + 1.0 Di + 1.0 Wi ...	Yes	Y	1	1.2	8	1	11	-1					
23	1.2 D + 1.0 Di + 1.0 Wi ...	Yes	Y	1	1.2	8	1	12	-1					
24	1.2 D + 1.0 Di + 1.0 Wi ...	Yes	Y	1	1.2	8	1	13	-1					



Load Combinations (Continued)

Description	So.	P	S	BLCFac.	BLCFac.	BLCFac.	BLCFac.	BLCFac.	BLCFac.	BLCFac.	BLCFac.	BLCFac.	BLCFac.	BLCFac.
25 1.2 D + 1.0 Di + 1.0 Wi ...	Yes	Y		1	1.2	8	1	14	-1					
26 1.2 D + 1.5 Lm + 1.0 Wm...	Yes	Y		1	1.2	15	1.5	2	.049					
27 1.2 D + 1.5 Lm + 1.0 Wm...	Yes	Y		1	1.2	15	1.5	3	.049					
28 1.2 D + 1.5 Lm + 1.0 Wm...	Yes	Y		1	1.2	15	1.5	4	.049					
29 1.2 D + 1.5 Lm + 1.0 Wm...	Yes	Y		1	1.2	15	1.5	5	.049					
30 1.2 D + 1.5 Lm + 1.0 Wm...	Yes	Y		1	1.2	15	1.5	6	.049					
31 1.2 D + 1.5 Lm + 1.0 Wm...	Yes	Y		1	1.2	15	1.5	7	.049					
32 1.2 D + 1.5 Lm + 1.0 Wm...	Yes	Y		1	1.2	15	1.5	2	-.049					
33 1.2 D + 1.5 Lm + 1.0 Wm...	Yes	Y		1	1.2	15	1.5	3	-.049					
34 1.2 D + 1.5 Lm + 1.0 Wm...	Yes	Y		1	1.2	15	1.5	4	-.049					
35 1.2 D + 1.5 Lm + 1.0 Wm...	Yes	Y		1	1.2	15	1.5	5	-.049					
36 1.2 D + 1.5 Lm + 1.0 Wm...	Yes	Y		1	1.2	15	1.5	6	-.049					
37 1.2 D + 1.5 Lm + 1.0 Wm...	Yes	Y		1	1.2	15	1.5	7	-.049					
38 1.2 D + 1.5 Lv	Yes	Y		1	1.2	16	1.5							
39 1.0 D	Yes	Y		1	1									

Envelope Joint Reactions

Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
1 N65 max	2748.486	11	2933.952	17	973.695	2	3.555	2	18.768	8	86.738	17
2 min	-2740.742	5	8.411	11	-974.443	8	-2.889	32	-18.745	2	-21.663	11
3 N118 max	1223.497	13	2892.085	25	2293.568	13	75.557	25	14.137	4	9.022	7
4 min	-1229.116	7	99.338	7	-2298.16	7	-15.628	7	-14.089	10	-43.156	25
5 N120 max	1428.188	9	3080.42	21	2249.176	3	13.439	3	20.51	12	7.64	3
6 min	-1430.844	3	112.287	3	-2242.8	9	-82.931	21	-20.479	6	-46.943	21
7 Totals: max	5184.324	11	8237.606	17	5044.395	2						
8 min	-5184.349	5	2508.558	39	-5044.388	8						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

Member	Shape	Code Check	Loc[in]	LC	Shear	Loc[in]	Dir	LC	phi*Pnc	phi*Pnt	phi*Mn y	phi*Mn z	Cb	Eqn
1 A3 PIPE 2.0	.918	26	12	.154	26	10	14916.0...	32130	22.459	22.459	2...	H1-1b		
2 A2 PIPE 2.0	.905	26	6	.168	26	8	14916.0...	32130	22.459	22.459	2...	H1-1b		
3 B3 PIPE 2.0	.897	26	5	.185	26	2	14916.0...	32130	22.459	22.459	2...	H1-1b		
4 C3 PIPE 2.0	.893	26	8	.168	26	6	14916.0...	32130	22.459	22.459	2...	H1-1b		
5 B2 PIPE 2.0	.890	26	9	.187	26	12	14916.0...	32130	22.459	22.459	2...	H1-1b		
6 C2 PIPE 2.0	.889	26	13	.143	26	4	14916.0...	32130	22.459	22.459	2...	H1-1b		
7 C1 PIPE 2.0	.812	26	13	.233	26	12	14916.0...	32130	22.459	22.459	1...	H1-1b		
8 B4 PIPE 2.0	.780	26	5	.241	26	6	14916.0...	32130	22.459	22.459	2...	H1-1b		
9 C4 PIPE 2.0	.771	26	8	.212	26	10	14916.0...	32130	22.459	22.459	3...	H1-1b		
10 B1 PIPE 2.0	.766	26	9	.240	68	7	14916.0...	32130	22.459	22.459	2...	H1-1b		
11 A1 PIPE 2.0	.765	26	6	.211	26	4	14916.0...	32130	22.459	22.459	2...	H1-1b		
12 A4 PIPE 2.0	.753	26	12	.225	26	2	14916.0...	32130	22.459	22.459	2...	H1-1b		
13 M67 HSS4X4X3	.635	0	21	.110	0	y	20	94564.3...	106812	151.938	151.938	2...	H1-1b	
14 M66 HSS4X4X3	.579	0	25	.100	0	y	14	94564.3...	106812	151.938	151.938	2...	H1-1b	
15 M38 HSS4X4X3	.577	0	17	.107	0	y	18	94564.3...	106812	151.938	151.938	2...	H1-1b	
16 M86 L2.5x2.5x4	.563	18.243	7	.077	18.243	z	6	35755.3...	38556	13.363	30.449	1...	H2-1	
17 M84 L2.5x2.5x4	.555	0	7	.074	9.692	z	2	35755.3...	38556	13.363	30.449	2...	H2-1	
18 M85 L2.5x2.5x4	.469	18.243	11	.067	0	z	4	35755.3...	38556	13.363	30.449	2...	H2-1	
19 M82A PIPE 2.0	.329	54.375	7	.071	14.5	9	4678.524	32130	22.459	22.459	1...	H1-1b		
20 M48 PL6x0.375	.313	1.422	11	.431	3.499	y	18	68944.9...	72900	6.836	109.35	1...	H1-1b	
21 M83B PIPE 2.0	.292	14.5	12	.071	54.375	6	4678.524	32130	22.459	22.459	2...	H1-1b		
22 M34 PL6x0.375	.290	1.422	3	.427	3.499	y	22	68944.9...	72900	6.836	109.35	1...	H1-1b	
23 M30 PL6x0.375	.289	2.849	12	.350	2.849	y	17	63946.2...	72900	6.836	109.35	1...	H1-1b	
24 M31 PL6x0.375	.283	1.422	3	.452	3.499	y	20	68944.9...	72900	6.836	109.35	1...	H1-1b	
25 M45 PL6x0.375	.281	1.422	11	.435	3.499	y	16	68944.9...	72900	6.836	109.35	1...	H1-1b	



Company : Paul J. Ford and Company
 Designer : ADP
 Job Number : 37519-1581.005.7190
 Model Name : 876339 - Pond Meadow Rd. Stable

Oct 28, 2019
 1:28 PM
 Checked By: _____

Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

Member	Shape	Code Check	Loc[in]	LC Shear	Dir	LC phi*Pnc	phi*Pnt	phi*Mn y	phi*Mn z	Cb	Eqn				
26	M19	PL6x0.375	.281	1.422	7	.421	3.499	y	14	68944.9...	72900	6.836	109.35	1...	H1-1b
27	M73	PIPE 2.0	.280	54.375	11	.071	14.5	y	13	4678.524	32130	22.459	22.459	1...	H1-1b
28	M16	PL6x0.375	.280	1.422	7	.416	3.499	y	24	68944.9...	72900	6.836	109.35	1...	H1-1b
29	M47	PL6x0.375	.274	2.849	2	.350	2.849	y	21	63946.2...	72900	6.836	109.35	1...	H1-1b
30	F2	PIPE 3.0	.267	146....	13	.092	45.313	y	6	28250.5...	65205	68.985	68.985	2...	H1-1b
31	M32	HSS4X4X3	.263	30.71	20	.081	30.71	y	21	104033....	106812	151.938	151.938	1...	H1-1b
32	M44	PL6x0.375	.256	2.849	8	.365	2.849	y	25	63946.2...	72900	6.836	109.35	1...	H1-1b
33	F3	PIPE 3.0	.255	3.125	5	.107	104....	y	12	28250.5...	65205	68.985	68.985	2...	H1-1b
34	M46	HSS4X4X3	.254	30.71	16	.077	30.71	y	17	104033....	106812	151.938	151.938	1...	H1-1b
35	M49	HSS4X4X3	.253	30.71	18	.077	30.71	y	17	104033....	106812	151.938	151.938	1...	H1-1b
36	F1	PIPE 3.0	.250	146....	6	.094	104....	y	8	28250.5...	65205	68.985	68.985	3...	H1-1b
37	M35	HSS4X4X3	.250	30.71	22	.076	30.71	z	21	104033....	106812	151.938	151.938	1...	H1-1b
38	M20	HSS4X4X3	.247	30.71	14	.076	30.71	z	25	104033....	106812	151.938	151.938	1...	H1-1b
39	M17	HSS4X4X3	.245	30.71	24	.074	30.71	y	25	104033....	106812	151.938	151.938	1...	H1-1b
40	M15	PL6x0.375	.236	2.849	13	.347	2.849	y	21	63946.2...	72900	6.836	109.35	1...	H1-1b
41	M33	PL6x0.375	.230	2.849	7	.346	2.849	y	25	63946.2...	72900	6.836	109.35	1...	H1-1b
42	M7	L2x2x3	.206	25.918	6	.013	51.837	y	21	9185.35	23392.8	6.693	12.797	1...	H2-1
43	M41	PL 6" x 1/2"	.200	6.354	5	.204	12.707	y	13	64843.0...	97200	12.15	145.8	1...	H1-1b
44	M18	PL6x0.375	.195	2.849	10	.333	2.849	y	17	63946.2...	72900	6.836	109.35	1...	H1-1b
45	M5	L2x2x3	.195	25.918	10	.013	51.837	y	25	9185.35	23392.8	6.693	12.797	1...	H2-1
46	M4	L2x2x3	.192	25.918	8	.014	51.837	z	17	9185.35	23392.8	6.693	12.797	1...	H2-1
47	M2	L2x2x3	.188	25.918	12	.014	51.837	z	21	9185.35	23392.8	6.693	12.797	1...	H2-1
48	M3	L2x2x3	.188	25.918	2	.014	51.837	y	17	9185.35	23392.8	6.693	12.797	1...	H2-1
49	M6	L2x2x3	.186	25.918	4	.015	51.837	z	25	9185.35	23392.8	6.693	12.797	1...	H2-1
50	M12	PL 6" x 1/2"	.186	6.354	13	.208	0	y	5	64843.0...	97200	12.15	145.8	1...	H1-1b
51	M27	PL 6" x 1/2"	.185	6.354	9	.208	6.354	y	6	64843.0...	97200	12.15	145.8	1...	H1-1b
52	M42	PL 6" x 1/2"	.081	1.659	11	.154	3.184	y	27	94760.1...	97200	12.15	145.8	2...	H1-1b
53	M24	PL 6" x 1/2"	.080	1.659	3	.115	3.184	y	11	94760.1...	97200	12.15	145.8	2...	H1-1b
54	M9	PL 6" x 1/2"	.080	1.659	7	.113	3.184	y	3	94760.1...	97200	12.15	145.8	2...	H1-1b
55	M39	PL 6" x 1/2"	.078	1.659	11	.109	1.659	y	13	94760.1...	97200	12.15	145.8	2...	H1-1b
56	M13	PL 6" x 1/2"	.074	1.659	7	.108	1.659	y	5	94760.1...	97200	12.15	145.8	2...	H1-1b
57	M28	PL 6" x 1/2"	.071	1.659	3	.118	3.184	y	7	94760.1...	97200	12.15	145.8	2...	H1-1b

PJF PAUL J. FORD & COMPANY

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Project # **37519-1581.005.7190**

By **ADP**

Date: 10/28/19

v0.1, Effective 07/10/18

MOUNT TO TOWER CONNECTION CHECKS

REACTIONS - LC 17

Px= **0.631** Kip
 Py= **2.934** Kip
 (Axial)Pz= **0.005** Kip
 Mx= **1.051** Kip-in
 My= **0.433** Kip-in
 (Torque)Mz= **86.738** Kip-in

Number of Bolts	=	4	
Plate Size	b=	9	in
	d=	9	in
Edge distance for Bolts	=	1.5	in
Bolt group centroid y-coordinate, Yc		4.5	in
Bolt group centroid x-coordinate, Xc		4.5	in
Load eccentricity in x-direction, ex		0	in
Load eccentricity in y-direction, ey		0	in
Total Moment including load eccentricity ΣM_x	=	1.051	Kips-in
Total Moment including load eccentricity ΣM_y	=	0.433	Kips-in
Total Moment including load eccentricity ΣM_z	=	86.738	Kips-in

BOLT CHECKS

Tension Reaction	0.12	kip
Shear Reaction	5.76	kip
Bolt Type	A325N	
Bolt Diameter	0.625	in
Tensile Strength	20.7	kips
Shear Strength	12.4	kips
Reduced Tensile Strength	-	kips

Tensile Capacity Used **0.6%**

Shear Capacity Used **46.3%**

Note: Tension reduction not required if tension or shear capacity < 30%

WELD CHECKS

Standoff Member Type	=	Square	
Width	=	4	in
Depth (only for square members)	=	4	in
Assumed Weld Size	=	0.1875	
Total Forces in X direction	=	2.112	kips
Total Forces in Y direction	=	2.400	kips
Total Forces in Z direction	=	0.07	kips
Resultant	=	3.20	kips
$\Phi * F_w$ (Kip/in)/16" weld	=	1.392	
Capacity used		76.56%	

Exhibit F

Power Density/RF Emissions Report

Site Name: Westbrook 2 CT
Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissible Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm ²)	(mW/cm ²)	(%)
VZW 700	746	4	628	2511.04	117	0.0660	0.497333333	13.26%
VZW Cellular	869	1	612	612.42	117	0.0161	0.579333333	2.78%
VZW Cellular	880	4	364	1454.32	117	0.0382	0.586666667	6.51%
VZW PCS	1970	4	1493	5972.52	117	0.1569	1.0	15.69%
VZW AWS	2145	4	1493	5972.52	117	0.1569	1.0	15.69%

Total Percentage of Maximum Permissible Exposure 53.93%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Section 1.13101 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz

mW/cm² = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used, including the following assumptions:

1. closest accessible point is distance from antenna to base of pole;
2. continuous transmission from all available channels at full power for indefinite time period; and,
3. all RF energy is assumed to be directed solely to the base of the pole.