STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

VIA ELECTRONIC MAIL

September 9, 2019

Anne Marie Zsamba
Real Estate Specialist
Crown Castle
3 Corporate Drive, Suite 101
Clifton Park, NY 12065

RE: **EM-T-MOBILE-160-190826** – T-Mobile notice of intent to modify an existing telecommunications facility located at 56 Cosgrove Road, Willington, Connecticut.

Dear Ms. Zsamba:

The Connecticut Siting Council (Council) is in receipt of your correspondence of September 6, 2019 submitted in response to the Council's September 5, 2019 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

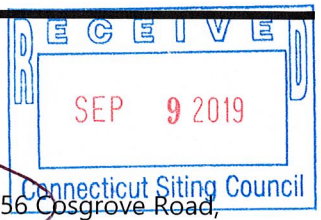
Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman
Executive Director

MAB/MP/lm

Zsamba, Anne Marie



From: Zsamba, Anne Marie
Sent: Friday, September 6, 2019 10:17 AM
To: Mathews, Lisa A
Cc: CSC-DL Siting Council
Subject: RE: Council Incomplete Letter for EM-T-MOBILE-160-190826 (56 Cosgrove Road, Willington)
Attachments: MA Digitally Signed by PE_56 Cosgrove Rd.pdf

Good morning,

Attached please find a digitally signed mount analysis with regard to the above noted T-Mobile exempt modification application.

Same will arrive in hardcopy format pursuant to the Council's correspondence dated 9/5/19.

Please confirm our submission is now complete. Thank you.

Best,
Anne Marie

ANNE MARIE ZSAMBA
Real Estate Specialist
T: (201) 236-9224
F: (724) 416-6112

CROWN CASTLE
3 Corporate Park Drive, Suite 101,
Clifton Park, NY 12065
CrownCastle.com

From: Mathews, Lisa A <Lisa.A.Mathews@ct.gov>
Sent: Friday, September 6, 2019 10:00 AM
To: Zsamba, Anne Marie <AnneMarie.Zsamba@crowncastle.com>
Cc: CSC-DL Siting Council <Siting.Council@ct.gov>
Subject: Council Incomplete Letter for EM-T-MOBILE-160-190826 (56 Cosgrove Road, Willington)

Please see the attached correspondence.

Lisa A. Mathews
Office Assistant
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051
Lisa.A.Mathews@ct.gov
(860) 827-2957

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Phone: (860) 827-2935 Fax: (860) 827-2950

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VIA ELECTRONIC MAIL

September 5, 2019

Anne Marie Zsamba
Real Estate Specialist
Crown Castle
3 Corporate Drive, Suite 101
Clifton Park, NY 12065

RE: **EM-T-MOBILE-160-190826** – T-Mobile notice of intent to modify an existing telecommunications facility located at 56 Cosgrove Road, Willington, Connecticut.

Dear Ms. Zsamba:

The Connecticut Siting Council (Council) received a notice of intent to modify the above-referenced facility on August 26, 2019.

According to Section 16-50j-71 of the Regulations of Connecticut State Agencies, "...any modification, as defined in Section 16-50j-2a of the Regulations of Connecticut State Agencies, to an existing tower site, except as specified in Sections 16-50j-72 and 16-50j-88 of the Regulations of Connecticut State Agencies, may have a substantial adverse environmental effect."

Staff has reviewed this exempt modification request for completeness and has identified a deficiency in the Mount Analysis Report dated June 7, 2019 provided with the filing. The Mount Analysis Report is stamped by a Professional Engineer, but there is no signature on the stamp (either electronic signature or signature in ink).

Therefore, the exempt modification request is incomplete at this time. The Council recommends that Crown Castle provide a signed and stamped copy of the Mount Analysis Report on or before September 26, 2019. If additional time is needed to gather the requested information, please submit a written request for an extension of time prior to September 26, 2019. . **Please provide an electronic version and one hard copy of the requested information for the incomplete exempt modification to be rendered complete and processed. Please include the Council's exempt modification identification number referenced above with the submittal.**

This notice of incompletion shall have the effect of tolling the Federal Communications Commission (FCC) 60-day timeframe in accordance with Paragraph 217 of the FCC Wireless Infrastructure Report and Order issued on October 21, 2014 (FCC 14-153).

Thank you for your attention to this matter. Should you have any questions, please feel free to contact me at 860-827-2951.

Sincerely,

Melanie Bachman
Executive Director

MAB/MP/lm

c: Honorable Erika Wiecenski, First Selectman, Town of Willington
Michael D'Amato, Zoning Agent, Town of Willington

S:\EMS_TS_T_BYTOWN_Willington_CosgroveRd_T_MOBILE_em-t-mobile-160-P[illegible]_CosgroveRd_090520[illegible].docx

Date: **June 7, 2019**

MasTec Network Solutions

Charles McGuirt
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

MasTec Network Solutions
507 Airport Blvd, Suite 111
Morrisville, NC 27560
(919) 244-5207

Subject: **Mount Analysis**

Carrier Designation:

T-Mobile Equipment Change-Out
Carrier Site Number: CT11142A
Carrier Site Name: Willington/ Rt-320/Cosg_1

Crown Castle Designation:

Crown Castle BU Number 806383
Crown Castle Site Name: HRT 087 943325
Crown Castle JDE Job Number: 559177
Crown Castle Order Number: 479813, Rev. 0

Engineering Firm Designation: **MasTec Network Solutions Project Number:** 18811-MNO1

Site Data:

Cosgrove Road Whifford Hill, West Willington,
Tolland County, CT 06279
Latitude: 41° 53' 32.92", Longitude: -72° 15' 38.15"

Structure Information:

Tower Height & Type: **140 ft Self-Support Tower**
Mount Elevation: **101.0 ft**
Mount Type: **4 ft Sector Frame**

Dear Charles McGuirt,

MasTec Network Solutions is pleased to submit this **"Mount Analysis Report"** to determine the structural integrity of T-Mobile's 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 for fall protection or rigging is not part of this document.

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

Sector Frame Mount **Sufficient**

This analysis utilizes an ultimate 3-second gust wind speed of 125 mph as required by the 2018 Connecticut Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Richard Torbert, EI

Respectfully submitted by:

Raphael I. Mohamed, PE, Peng
Senior Director of Engineering
CT PE License No. 25112

Raphael Mohamed

Digitally signed by Raphael Mohamed
DN: E=Raphael.Mohamed@mastec.com, CN=Raphael Mohamed, OU=Users, OU=MasTec Network Solutions, OU=Service Lines, DC=mastec, DC=local
Date: 2019.06.07 12:33:41-04'00'

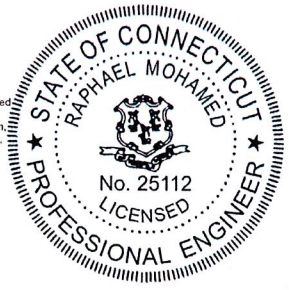


TABLE OF CONTENTS

1) INTRODUCTION

This is a 4' Sector Frame, mapped by Paul J. Ford & Company, dated April 6, 2019.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	125 mph
Exposure Category:	B
Topographic Factor:	1
Ice Thickness:	2 in
Wind Speed with Ice:	50 mph
Seismic Ss:	0.174
Seismic S1:	0.063
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

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Mount / Modification Details
101.0	102.0	3	EMS Wireless	RR90-17-00DP	(3) 4' Sector Frames
		3	RFS	APXVAARR24_43-U-NA20	
		3	Ericsson	KRY 112 144/1	
		3	Ericsson	KRY 112 489/2	
		3	Ericsson	Radio 4449 B12/71	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
4-ORDER INFORMATION	Crown Castle	479813, Rev.0	CCIsites
4-MOUNT MAPPING	Paul J. Ford & Companies	-	On File

3.1) Analysis Method

RISA-3D (Version 17.0.2), a commercially available structural analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various load cases.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Tower Mount Analysis* (Revision C).

3.2) Assumptions

1. The antenna mounting system was properly fabricated, installed, and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2. The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 of the referenced drawings.
3. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected members unless otherwise specified in this report.
4. The 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 have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM 500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

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

4) ANALYSIS RESULTS

Table 3 – Mount Component Stresses vs. Capacity (Sector Frame)

Notes	Component	Beam No.	Centerline (ft)	% Capacity	Pass / Fail
1, 2	Mast Pipe	--	101.0	22.8	Pass
	Frame Rail	--		42.6	Pass
	Stabilizer	--		13.1	Pass
	Mount Pipe	--		20.8	Pass
	1/2" Threaded Rod	--		79.8	Pass

Structure Rating (max from all components) =	79.8%

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) All sectors are typical

Table 4 – Tieback Connection Data Table

Tower Connection Node No.	Existing / Proposed	Resultant End Reaction (lb)	Connected Member Type	Connected Member Size	Member Compressive Capacity (lb)	Notes
N27	Existing	957	Leg	Rohn 2.5 EH	74,4300	1

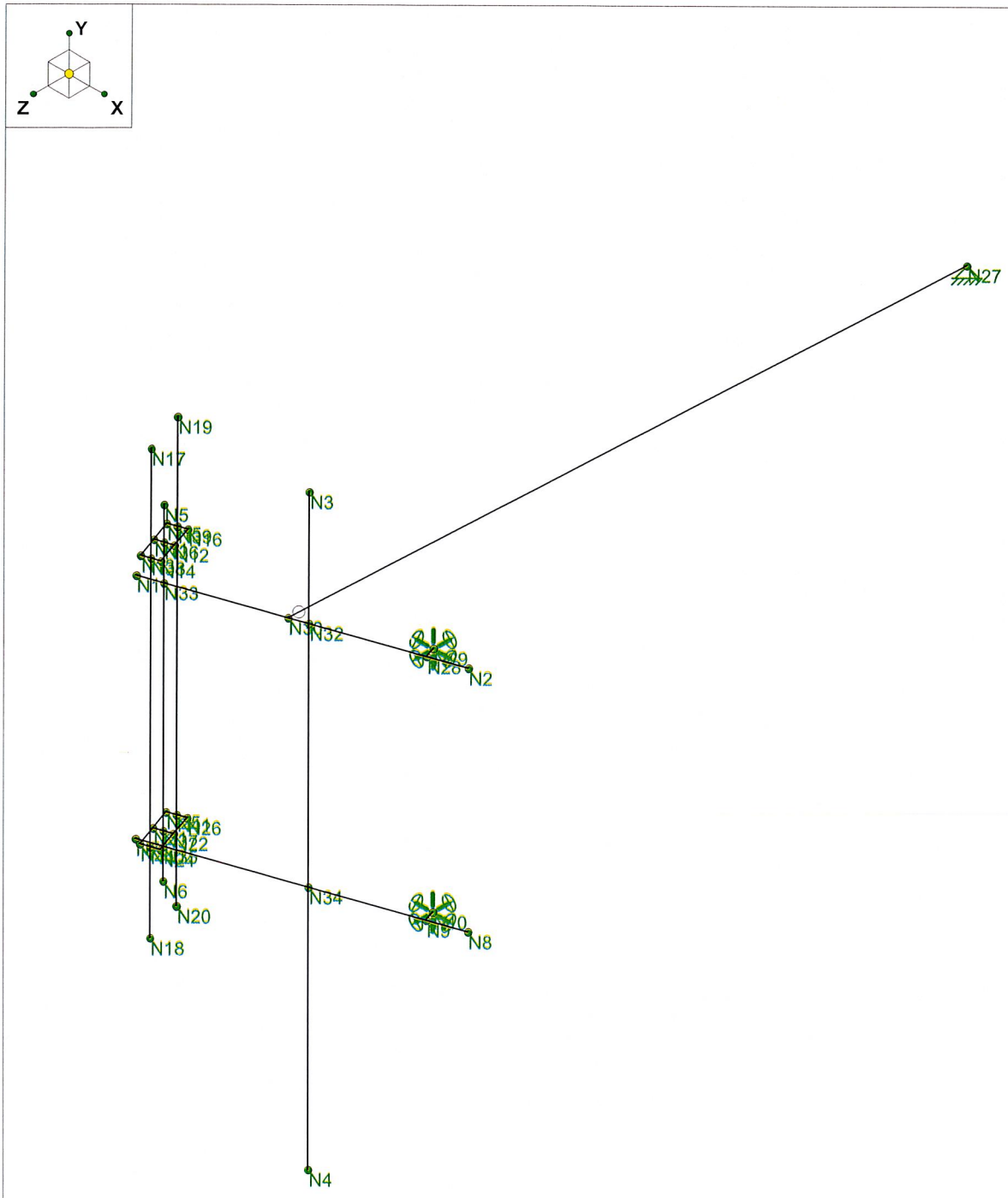
Notes:
1) Tieback connection point is within 25% of either end of the connected tower member

4.1) Recommendations

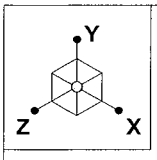
The mount has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

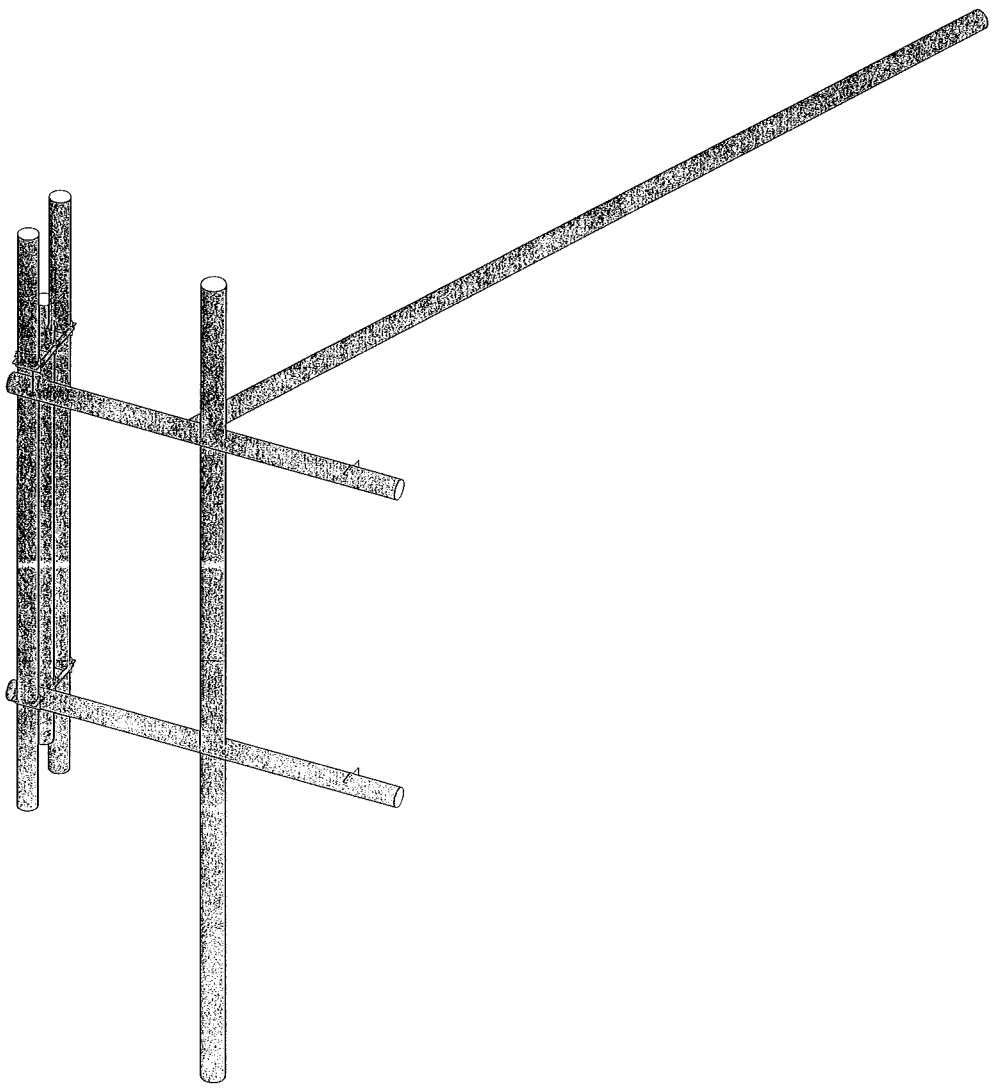
APPENDIX A

WIRE FRAME AND RENDERED MODELS

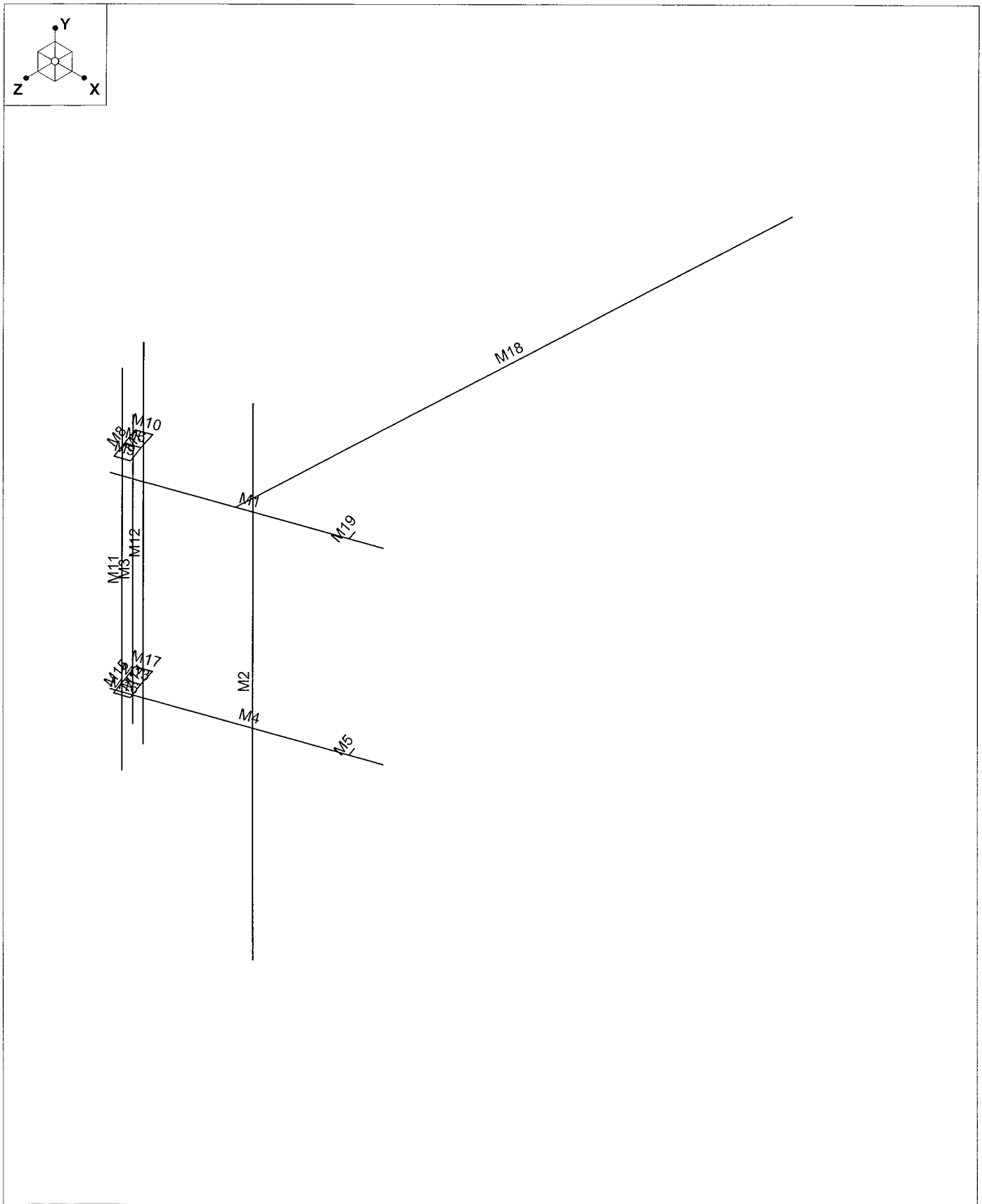


MasTec	806383 - HRT 087 943325	Joint Labels
RJT		June 7, 2019 at 11:58 AM
18811-MNO1		806383.R3D

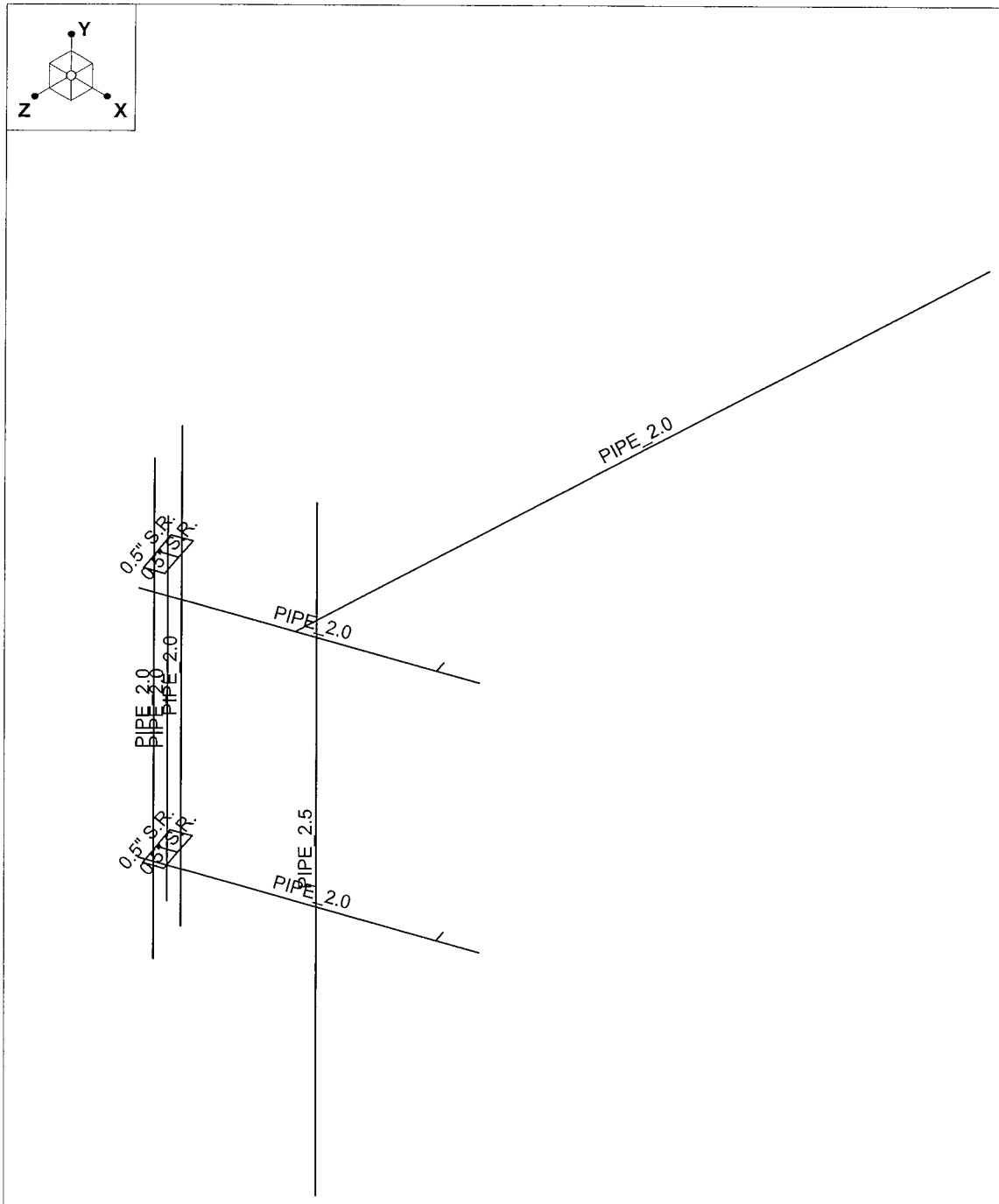




MasTec	806383 - HRT 087 943325	Rendered View
RJT		June 7, 2019 at 11:59 AM
18811-MNO1		806383.R3D



MasTec	806383 - HRT 087 943325	Member Labels
RJT		June 7, 2019 at 11:59 AM
18811-MNO1		806383.R3D



MasTec	806383 - HRT 087 943325	Member Shapes
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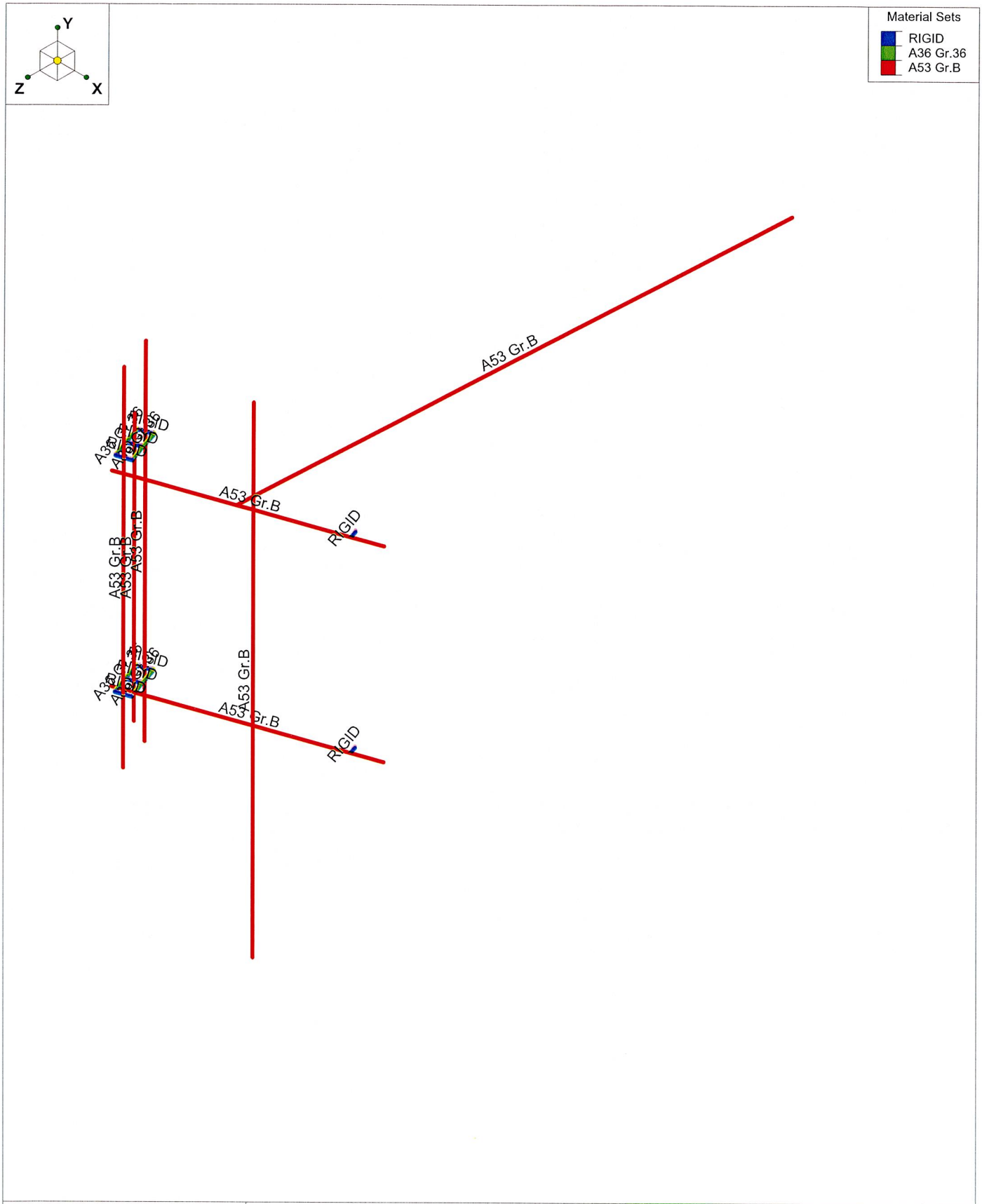
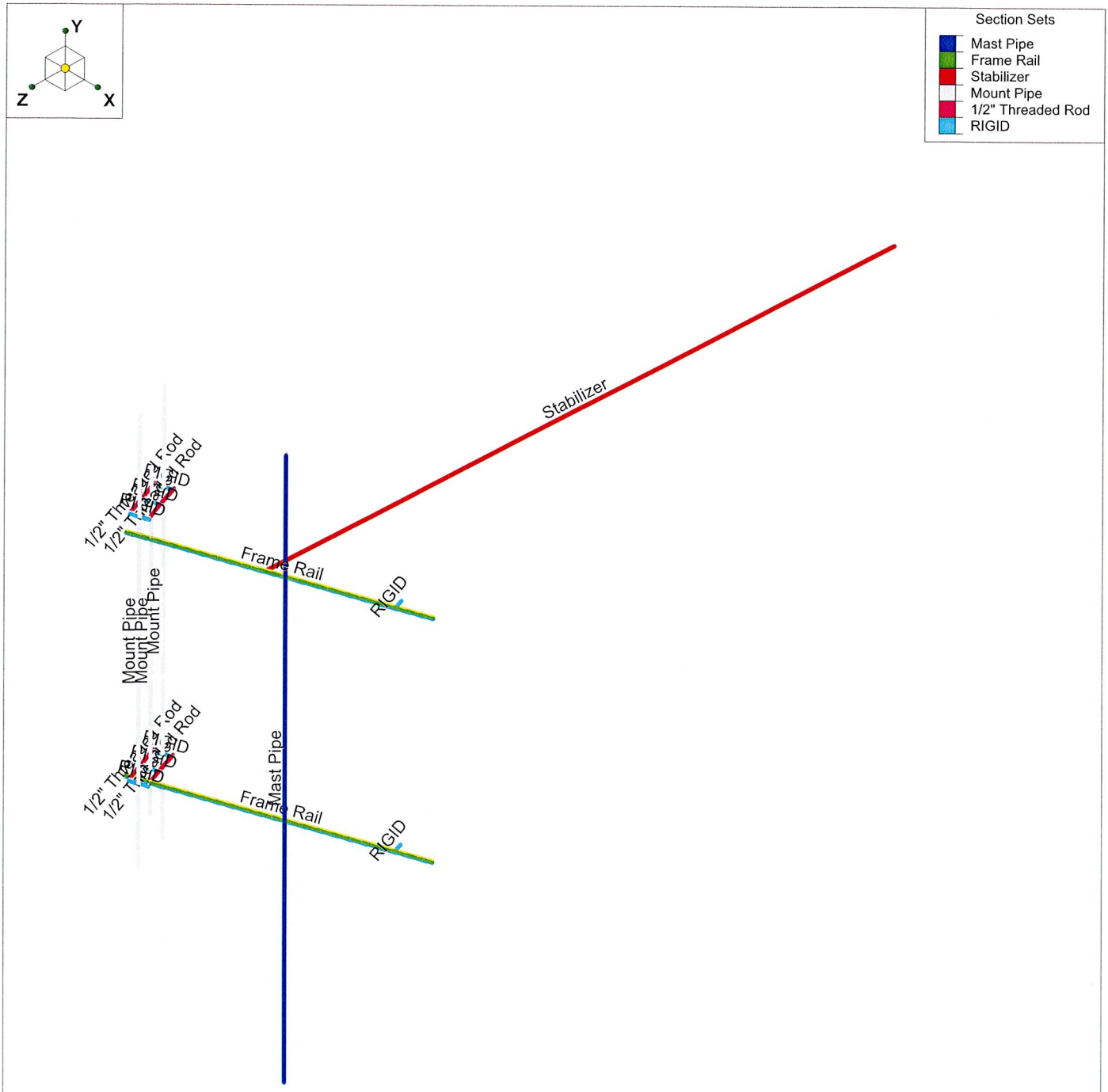
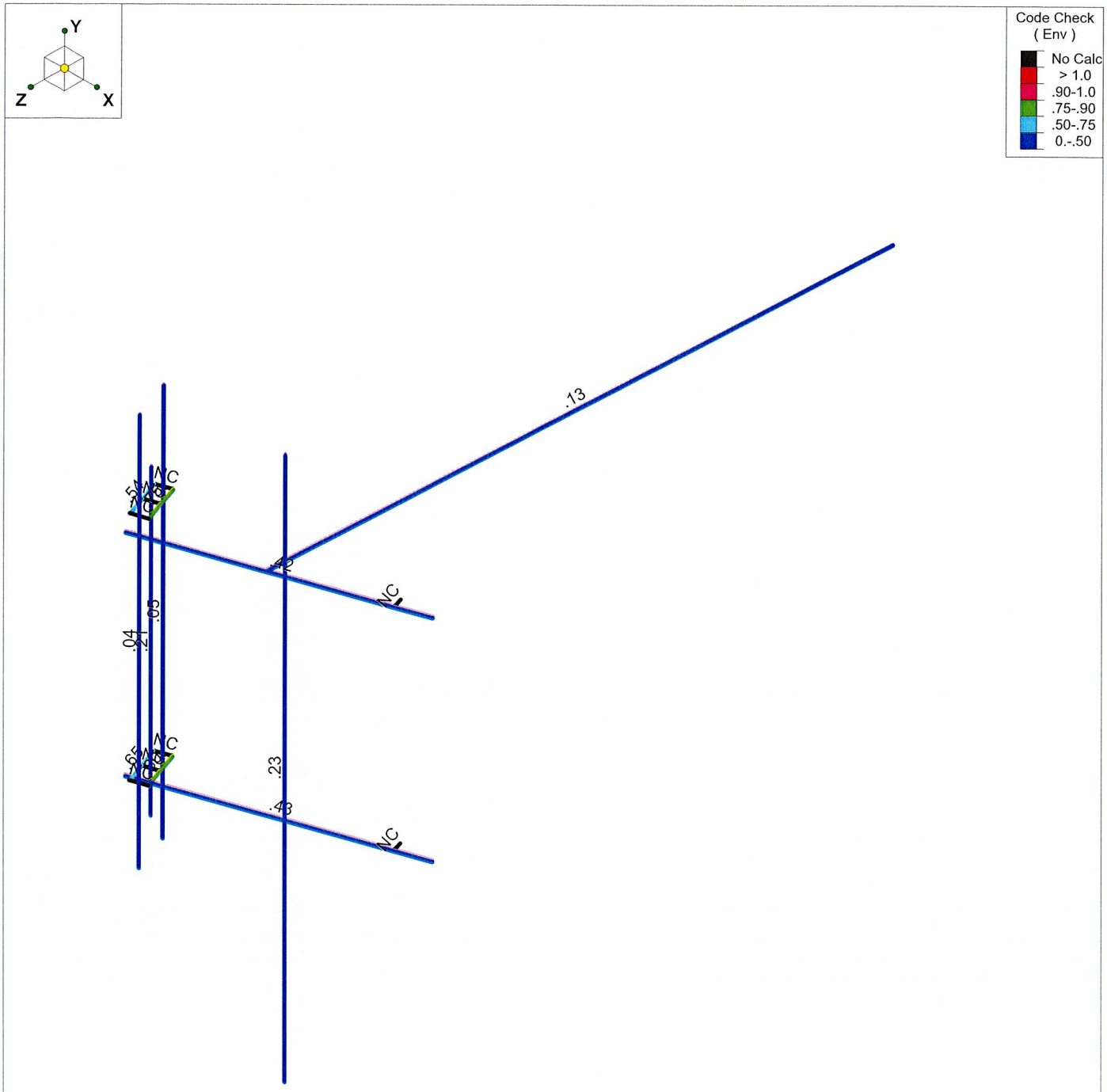
18811-MNO1		806383.R3D



MasTec	806383 - HRT 087 943325	Material Sets
RJT		June 7, 2019 at 12:00 PM
18811-MNO1		806383.R3D

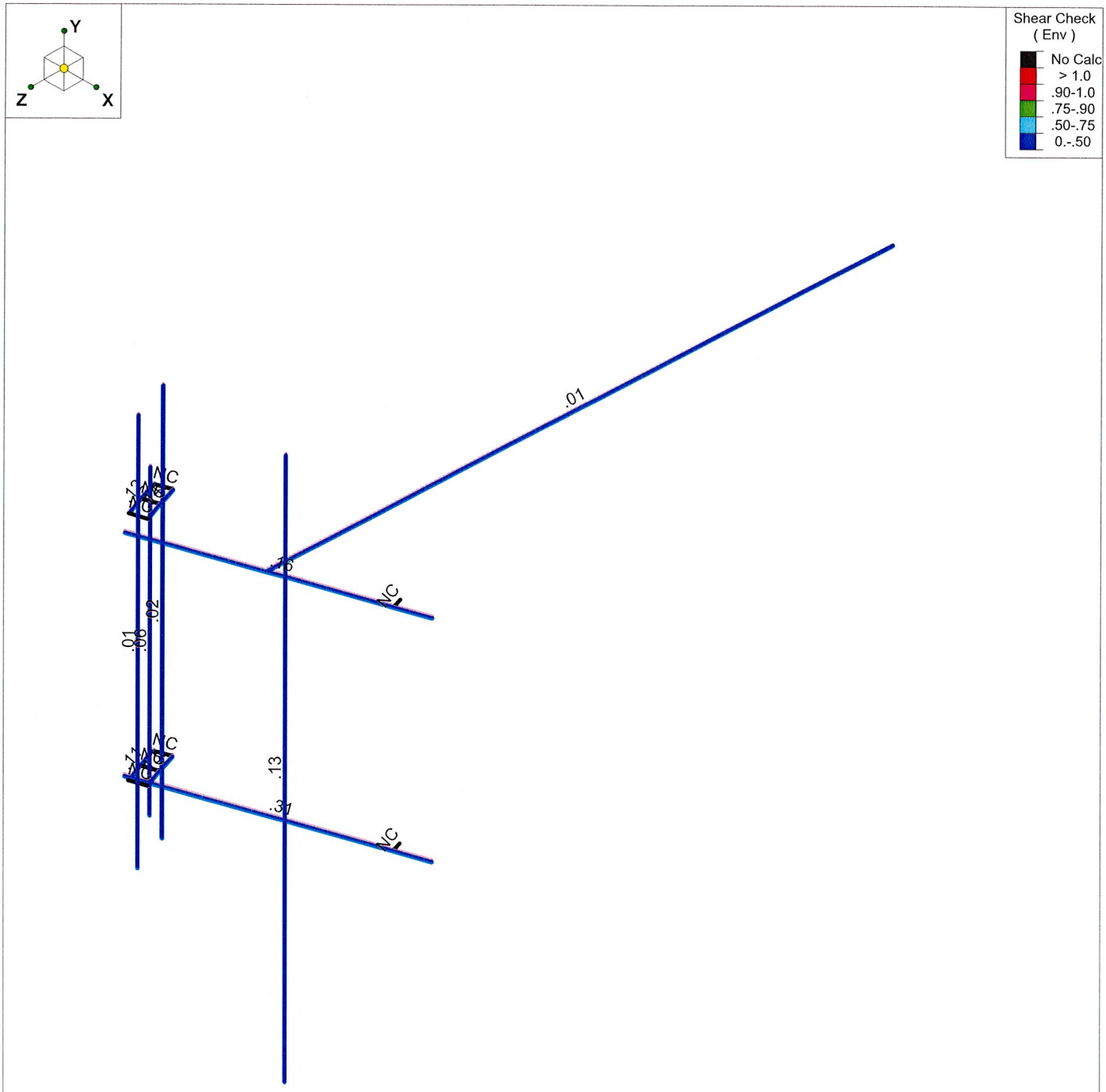


MasTec	806383 - HRT 087 943325	Section Sets
RJT		June 7, 2019 at 12:00 PM
18811-MNO1		806383.R3D



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

MasTec	806383 - HRT 087 943325	Bending Capacity
RJT		June 7, 2019 at 12:00 PM
18811-MNO1		806383.R3D



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

MasTec	806383 - HRT 087 943325	Shear Capacity
RJT		June 7, 2019 at 12:00 PM
18811-MNO1		806383.R3D

APPENDIX B

SOFTWARE INPUT CALCULATIONS

MasTec
Network Solutions

Mount Analysis Tool

Site Name	HRT 087 943325		
Site ID	806383		
Job Number	18811-MNO1	Mount Existing?	Crown
Code	H	Risk Category	II

Legend
Input
Calculated
Notes

Maximum Capacity		
Controlling Capacity	79.8%	PASS

Analysis Parameters		
Mount Height	101	ft
Exposure Category	B	(B,C, or D)
Ultimate Wind Speed	125	mph
Ice Wind Speed	50	mph
Design Ice Thickness, t_i	2	in
Maintenance Wind Speed	30	mph
Run Earthquake Analysis?	Yes	
Ground Elevation	943	ft, Google Earth
S_1	0.063	USGS
S_{DS}	0.185	2.7.5
Vertical Seismic Loads, E_v	0.037	2.7.6
Seismic Response Coefficient, C_s	0.093	2.7.7.1.1
C_s Min	0.030	2.7.7.1.1

Wind Parameters					
Gust Effect Factor, G_h	1.000	2.6.9	K_s	1.000	2.6.7
K_Z	0.991	2.6.5.2	K_e	0.966	2.6.8
K_{Zt}	1.000	2.6.6	K_a	0.900	16.6
K_d	0.950	Table 2-2	*Note for Rooftop Structures greater than 50', unobstructed for 90 deg and protruding 50' above surrounding buildings Ks must be calculated.		
q_z	32.859	psf, 2.6.11.6			
C/D	124.439	Table 2-9			
t_{iz}	2.237	in, 2.6.10			
q_{iz}	5.257	psf, 2.6.9.6	I, Ice	1.000	Table 2-3
C/D_{iz}	49.776	Table 2-9	I, EQ	1.000	Table 2-3
$q_{Maintenance}$	1.952	psf, 2.6.9.6	$K_{es\ (Wind)}$	1.000	Table S-1
$C/D_{Maintenance}$	29.865	Table 2-9	$K_{es\ (Ice)}$	1.000	Table S-1
Ice Dead, Grating	0.020876011	ksf			

Pipe Mounts (Orientation Drawn Top-Down)			
Risa 3D Label	Elevation (ft)	Length (in)	Diameter (in)
M2	101	108	2.875
M12	101	78	2.375

Appurtenances					
Model	Type	Height (in)	Width (in)	Depth (in)	Weight (lbs)
EMS Wireless RR90-17-00DP	Antenna	56	8	2.75	13.5
RFS APXVAARR24_43-U-NA20	Antenna	95.9	24	8.7	128
Ericsson Radio 4449 B12/B71	RRU, TMA, Etc.	14.95	13.19	9.25	75
Ericsson KRY 112 144/1	RRU, TMA, Etc.	7	6	3	11
Ericsson KRY 112 489/2	RRU, TMA, Etc.	11	6.1	3.94	15.4

Pipe Mount	Antenna	Elevation (ft)	Quantity	Orientation (deg)	Front Exposed (%)	Side Exposed (%)	Type	Height (in)	Width (in)	Depth (in)	Weight (lbs)	Front CaAa (ft^2)	Side CaAa (ft^2)	Front F_A (kips)	Side F_A (kips)	Top %	Bottom %
M2	RFS APXVAARR24_43-U-NA20	102	1	0	100.0%	100.0%	Antenna	95.900	24.000	8.700	128.000	20.243	8.889	0.665	0.292	0.0%	83.3%
M2	Ericsson Radio 4449 B12/B71	103	1	0	0.0%	100.0%	RRU, TMA, Etc.	14.950	13.190	9.250	75.000	1.643	1.152	0.000	0.038	20.9%	34.7%
M2																	
M2																	
M2																	
M2																	
M12	EMS Wireless RR90-17-00DP	102	1	90	100.0%	100.0%	Antenna	56.000	8.000	2.750	13.500	4.356	1.974	0.065	0.143	0.0%	70.5%
M12	Ericsson KRY 112 144/1	102	1	0	100.0%	100.0%	RRU, TMA, Etc.	7.000	6.000	3.000	11.000	0.350	0.175	0.012	0.006	30.1%	39.1%
M12	Ericsson KRY 112 489/2	102	1	0	100.0%	100.0%	RRU, TMA, Etc.	11.000	6.100	3.940	15.400	0.559	0.365	0.018	0.012	27.6%	41.7%
M12																	
M12																	
M12																	

Member	Section Set	Member Length (ft)	Flat/Round	Wind Projection (in)	D_c (in)	A_c (in^2)	C_f	Front Wind (klf)	Side Wind (klf)	Front Ice Wind (klf)	Side Ice Wind (klf)	Ice Dead (klf)	Front Maint Wind (klf)	Side Maint Wind (klf)
M1	Frame Rail	3.999999945	Round	2.380	2.380	32.441	1.200	0.007	0.001	0.004	0.003	0.013	0.000	0.000
M2	Mast Pipe	9	Round	2.880	2.880	35.954	1.200	0.009	0.009	0.004	0.004	0.014	0.001	0.001
M3	Mount Pipe	5	Round	0.500	0.500	19.230	1.200	0.002	0.002	0.003	0.003	0.007	0.000	0.000
M4	Frame Rail	3.999999945	Round	2.380	2.380	32.441	1.200	0.007	0.001	0.004	0.003	0.013	0.000	0.000
M5	RIGID	0.166666496	Flat	0.000	0.000	15.717	2.000	0.000	0.000	0.001	0.001	0.006	0.000	0.000
M6	RIGID	0.250000853	Flat	0.000	0.000	15.717	2.000	0.000	0.000	0.005	0.005	0.006	0.000	0.000
M7	1/2" Threaded Rod	0.666666926	Round	0.500	0.500	19.230	1.200	0.000	0.001	0.000	0.001	0.007	0.000	0.000
M8	1/2" Threaded Rod	0.666666592	Round	0.500	0.500	19.230	1.200	0.000	0.001	0.000	0.001	0.007	0.000	0.000
M9	RIGID	0.25000052	Flat	0.000	0.000	15.717	2.000	0.000	0.000	0.005	0.005	0.006	0.000	0.000
M10	RIGID	0.249999577	Flat	0.000	0.000	15.717	2.000	0.000	0.000	0.005	0.005	0.006	0.000	0.000
M11	Mount Pipe	6.5	Round	0.500	0.500	19.230	1.200	0.002	0.002	0.003	0.003	0.007	0.000	0.000
M12	Mount Pipe	6.5	Round	0.500	0.500	19.230	1.200	0.002	0.002	0.003	0.003	0.007	0.000	0.000
M13	RIGID	0.250000853	Flat	0.000	0.000	15.717	2.000	0.000	0.000	0.005	0.005	0.006	0.000	0.000
M14	1/2" Threaded Rod	0.666666926	Round	0.500	0.500	19.230	1.200	0.000	0.001	0.000	0.001	0.007	0.000	0.000
M15	1/2" Threaded Rod	0.666666592	Round	0.500	0.500	19.230	1.200	0.000	0.001	0.000	0.001	0.007	0.000	0.000
M16	RIGID	0.25000052	Flat	0.000	0.000	15.717	2.000	0.000	0.000	0.005	0.005	0.006	0.000	0.000
M17	RIGID	0.249999577	Flat	0.000	0.000	15.717	2.000	0.000	0.000	0.005	0.005	0.006	0.000	0.000
M18	Stabilizer	9.927607183	Round	2.380	2.380	32.441	1.200	0.000	0.008	0.000	0.001	0.013	0.000	0.000
M19	RIGID	0.166666496	Flat	0.000	0.000	15.717	2.000	0.000	0.000	0.001	0.001	0.006	0.000	0.000

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

(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)	12
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 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): LRFD
Cold Formed Steel Code	AISI S100-12: LRFD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-13: Strength
Aluminum Code	AA ADM1-10: ASD - 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
Parme 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

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mast Pipe	PIPE_2.5	Column	Pipe	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
2	Frame Rail	PIPE_2.0	Beam	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
3	Stabilizer	PIPE_2.0	HBrace	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
4	Mount Pipe	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	.627	.627	1.25
5	1/2" Threa...	0.5" S.R.	Beam	BAR	A36 Gr.36	Typical	.196	.003	.003	.006

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
1	N1	-55.484483	0	-80.473406	0	
2	N2	-51.713598	0	-81.807732	0	
3	N3	-53.52048	1.75	-81.168368	0	
4	N4	-53.52048	-7.25	-81.168368	0	
5	N5	-55.170242	1.041667	-80.5846	0	
6	N6	-55.170242	-3.958333	-80.5846	0	
7	N7	-55.484483	-3.5	-80.473406	0	
8	N8	-51.713598	-3.5	-81.807732	0	
9	N9	-52.184958	-3.5	-81.640941	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diap...
10	N10	-52.240555	-3.5	-81.798061	0	
11	N11	-55.288083	0.541667	-80.542902	0	
12	N12	-55.052402	0.541667	-80.626298	0	
13	N13	-55.176889	0.541667	-80.228662	0	
14	N14	-54.941208	0.541667	-80.312057	0	
15	N15	-55.399276	0.541667	-80.857143	0	
16	N16	-55.163596	0.541667	-80.940538	0	
17	N17	-55.059049	2	-80.27036	0	
18	N18	-55.059049	-4.5	-80.27036	0	
19	N19	-55.281436	2	-80.898841	0	
20	N20	-55.281436	-4.5	-80.898841	0	
21	N21	-55.288083	-3.291667	-80.542902	0	
22	N22	-55.052402	-3.291667	-80.626298	0	
23	N23	-55.176889	-3.291667	-80.228662	0	
24	N24	-54.941208	-3.291667	-80.312057	0	
25	N25	-55.399276	-3.291667	-80.857143	0	
26	N26	-55.163596	-3.291667	-80.940538	0	
27	N27	-53.286447	0.	-91.001461	0	
28	N28	-52.184958	0	-81.640941	0	
29	N29	-52.240555	0	-81.798061	0	
30	N30	-53.75616	0	-81.084972	0	
31	N32	-53.52048	0	-81.168368	0	
32	N33	-55.170242	0	-80.5846	0	
33	N34	-53.52048	-3.5	-81.168368	0	
34	N35	-55.170242	-3.5	-80.5846	0	
35	N36	-55.170242	0.541667	-80.5846	0	
36	N37	-55.170242	-3.291667	-80.5846	0	
37	N38	-55.059049	0.541667	-80.27036	0	
38	N39	-55.281436	0.541667	-80.898841	0	
39	N40	-55.059049	-3.291667	-80.27036	0	
40	N41	-55.281436	-3.291667	-80.898841	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N29	Reaction	Reaction	Reaction	Reaction		Reaction
2	N10	Reaction	Reaction	Reaction	Reaction		Reaction
3	N27	Reaction	Reaction	Reaction			

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2			Frame Rail	Beam	Pipe	A53 Gr.B	Typical
2	M2	N3	N4			Mast Pipe	Column	Pipe	A53 Gr.B	Typical
3	M3	N5	N6			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
4	M4	N7	N8			Frame Rail	Beam	Pipe	A53 Gr.B	Typical
5	M5	N9	N10			RIGID	None	None	RIGID	Typical
6	M6	N11	N12			RIGID	None	None	RIGID	Typical
7	M7	N16	N14			1/2" Threaded ...	Beam	BAR	A36 Gr.36	Typical
8	M8	N15	N13			1/2" Threaded ...	Beam	BAR	A36 Gr.36	Typical
9	M9	N13	N14			RIGID	None	None	RIGID	Typical
10	M10	N15	N16			RIGID	None	None	RIGID	Typical
11	M11	N17	N18			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
12	M12	N19	N20			Mount Pipe	Column	Pipe	A53 Gr.B	Typical
13	M13	N21	N22			RIGID	None	None	RIGID	Typical
14	M14	N26	N24			1/2" Threaded ...	Beam	BAR	A36 Gr.36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
15	M15	N25	N23			1/2" Threaded ...	Beam	BAR	A36 Gr.36	Typical
16	M16	N23	N24			RIGID	None	None	RIGID	Typical
17	M17	N25	N26			RIGID	None	None	RIGID	Typical
18	M18	N30	N27			Stabilizer	HBrace	Pipe	A53 Gr.B	Typical
19	M19	N28	N29			RIGID	None	None	RIGID	Typical

Joint Loads and Enforced Displacements (BLC 42 : Man 1 (500 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N34	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 43 : Man 2 (500 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N41	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 44 : Man 3 (500 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N40	L	Y	-.5

Joint Loads and Enforced Displacements (BLC 45 : Man 4 (250 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N8	L	Y	-.25

Joint Loads and Enforced Displacements (BLC 46 : Man 5 (250 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N7	L	Y	-.25

Joint Loads and Enforced Displacements (BLC 47 : Man 6 (250 lbs))

	Joint Label	L,D,M	Direction	Magnitude[(k,k-ft), (in,rad), (k*s^2/f...
1	N34	L	Y	-.25

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Y	-.128	%41.6
2	M2	Y	-.075	%27.8
3	M12	Y	-.014	%35.3
4	M12	Y	-.011	%34.6
5	M12	Y	-.015	%34.6

Member Point Loads (BLC 2 : Ice Dead)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Y	-.606	%41.6
2	M2	Y	-.062	%27.8
3	M12	Y	-.136	%35.3
4	M12	Y	-.014	%34.6
5	M12	Y	-.024	%34.6

Member Point Loads (BLC 3 : Full Wind Antenna (0 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Z	-.333	0
2	M12	Z	-.032	0

Member Point Loads (BLC 3 : Full Wind Antenna (0 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
3	M12	Z	-.012	%34.6
4	M12	Z	-.018	%34.6
5	M2	Z	-.333	%83.3
6	M12	Z	-.032	%70.5

Member Point Loads (BLC 4 : Full Wind Antenna (30 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Z	-.248	0
2	M12	Z	-.037	0
3	M12	Z	-.009	%34.6
4	M12	Z	-.015	%34.6
5	M2	Z	-.248	%83.3
6	M12	Z	-.037	%70.5
7	M2	X	.143	0
8	M2	X	.005	%27.8
9	M12	X	.021	0
10	M12	X	.005	%34.6
11	M12	X	.008	%34.6
12	M2	X	.143	%83.3
13	M12	X	.021	%70.5

Member Point Loads (BLC 5 : Full Wind Antenna (60 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Z	-.096	0
2	M12	Z	-.031	0
3	M12	Z	-.004	%34.6
4	M12	Z	-.007	%34.6
5	M2	Z	-.096	%83.3
6	M12	Z	-.031	%70.5
7	M2	X	.167	0
8	M2	X	.025	%27.8
9	M12	X	.053	0
10	M12	X	.006	%34.6
11	M12	X	.012	%34.6
12	M2	X	.167	%83.3
13	M12	X	.053	%70.5

Member Point Loads (BLC 6 : Full Wind Antenna (90 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Z	0	0
2	M12	Z	0	0
3	M12	Z	0	%34.6
4	M12	Z	0	%34.6
5	M2	Z	0	%83.3
6	M12	Z	0	%70.5
7	M2	X	.146	0
8	M2	X	.038	%27.8
9	M12	X	.072	0
10	M12	X	.006	%34.6
11	M12	X	.012	%34.6
12	M2	X	.146	%83.3
13	M12	X	.072	%70.5

Member Point Loads (BLC 7 : Full Wind Antenna (120 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]

Member Point Loads (BLC 7 : Full Wind Antenna (120 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Z	.096	0
2	M12	Z	.031	0
3	M12	Z	.004	%34.6
4	M12	Z	.007	%34.6
5	M2	Z	.096	%83.3
6	M12	Z	.031	%70.5
7	M2	X	.167	0
8	M2	X	.025	%27.8
9	M12	X	.053	0
10	M12	X	.006	%34.6
11	M12	X	.012	%34.6
12	M2	X	.167	%83.3
13	M12	X	.053	%70.5

Member Point Loads (BLC 8 : Full Wind Antenna (150 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Z	.248	0
2	M12	Z	.037	0
3	M12	Z	.009	%34.6
4	M12	Z	.015	%34.6
5	M2	Z	.248	%83.3
6	M12	Z	.037	%70.5
7	M2	X	.143	0
8	M2	X	.005	%27.8
9	M12	X	.021	0
10	M12	X	.005	%34.6
11	M12	X	.008	%34.6
12	M2	X	.143	%83.3
13	M12	X	.021	%70.5

Member Point Loads (BLC 15 : Ice Wind Antenna (0 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Z	-.065	0
2	M12	Z	-.012	0
3	M12	Z	-.005	%34.6
4	M12	Z	-.007	%34.6
5	M2	Z	-.065	%83.3
6	M12	Z	-.012	%70.5

Member Point Loads (BLC 16 : Ice Wind Antenna (30 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Z	-.05	0
2	M12	Z	-.011	0
3	M12	Z	-.004	%34.6
4	M12	Z	-.006	%34.6
5	M2	Z	-.05	%83.3
6	M12	Z	-.011	%70.5
7	M2	X	.029	0
8	M2	X	.001	%27.8
9	M12	X	.007	0
10	M12	X	.002	%34.6
11	M12	X	.003	%34.6
12	M2	X	.029	%83.3
13	M12	X	.007	%70.5

Member Point Loads (BLC 17 : Ice Wind Antenna (60 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Z	-.021	0
2	M12	Z	-.008	0
3	M12	Z	-.002	%34.6
4	M12	Z	-.003	%34.6
5	M2	Z	-.021	%83.3
6	M12	Z	-.008	%70.5
7	M2	X	.036	0
8	M2	X	.008	%27.8
9	M12	X	.014	0
10	M12	X	.004	%34.6
11	M12	X	.005	%34.6
12	M2	X	.036	%83.3
13	M12	X	.014	%70.5

Member Point Loads (BLC 18 : Ice Wind Antenna (90 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Z	0	0
2	M12	Z	0	0
3	M12	Z	0	%34.6
4	M12	Z	0	%34.6
5	M2	Z	0	%83.3
6	M12	Z	0	%70.5
7	M2	X	.034	0
8	M2	X	.012	%27.8
9	M12	X	.018	0
10	M12	X	.004	%34.6
11	M12	X	.006	%34.6
12	M2	X	.034	%83.3
13	M12	X	.018	%70.5

Member Point Loads (BLC 19 : Ice Wind Antenna (120 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Z	.021	0
2	M12	Z	.008	0
3	M12	Z	.002	%34.6
4	M12	Z	.003	%34.6
5	M2	Z	.021	%83.3
6	M12	Z	.008	%70.5
7	M2	X	.036	0
8	M2	X	.008	%27.8
9	M12	X	.014	0
10	M12	X	.004	%34.6
11	M12	X	.005	%34.6
12	M2	X	.036	%83.3
13	M12	X	.014	%70.5

Member Point Loads (BLC 20 : Ice Wind Antenna (150 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Z	.05	0
2	M12	Z	.008	0
3	M12	Z	.002	%34.6
4	M12	Z	.003	%34.6
5	M2	Z	.05	%83.3
6	M12	Z	.008	%70.5
7	M2	X	.029	0

Member Point Loads (BLC 20 : Ice Wind Antenna (150 Deg)) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
8	M2	X	.008	%27.8
9	M12	X	.014	0
10	M12	X	.004	%34.6
11	M12	X	.005	%34.6
12	M2	X	.029	%83.3
13	M12	X	.014	%70.5

Member Point Loads (BLC 27 : Seismic Antenna (0 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Z	-.012	%41.6
2	M2	Z	-.007	%27.8
3	M12	Z	-.001	%35.3
4	M12	Z	-.001	%34.6
5	M12	Z	-.001	%34.6

Member Point Loads (BLC 28 : Seismic Antenna (90 Deg))

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	X	.012	%41.6
2	M2	X	.007	%27.8
3	M12	X	.001	%35.3
4	M12	X	.001	%34.6
5	M12	X	.001	%34.6

Member Point Loads (BLC 41 : Seismic Vertical Antennas)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Y	-.026	%41.6
2	M2	Y	-.015	%27.8
3	M12	Y	-.003	%35.3
4	M12	Y	-.002	%34.6
5	M12	Y	-.003	%34.6

Member Distributed Loads (BLC 2 : Ice Dead)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Y	-.013	-.013	0	%100
2	M2	Y	-.014	-.014	0	%100
3	M3	Y	-.007	-.007	0	%100
4	M4	Y	-.013	-.013	0	%100
5	M5	Y	-.006	-.006	0	%100
6	M6	Y	-.006	-.006	0	%100
7	M7	Y	-.007	-.007	0	%100
8	M8	Y	-.007	-.007	0	%100
9	M9	Y	-.006	-.006	0	%100
10	M10	Y	-.006	-.006	0	%100
11	M11	Y	-.007	-.007	0	%100
12	M12	Y	-.007	-.007	0	%100
13	M13	Y	-.006	-.006	0	%100
14	M14	Y	-.007	-.007	0	%100
15	M15	Y	-.007	-.007	0	%100
16	M16	Y	-.006	-.006	0	%100
17	M17	Y	-.006	-.006	0	%100
18	M18	Y	-.013	-.013	0	%100
19	M19	Y	-.006	-.006	0	%100

Member Distributed Loads (BLC 9 : Full Wind Members (0 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.007	-.007	0	%100
2	M3	Z	-.002	-.002	0	%100
3	M4	Z	-.007	-.007	0	%100
4	M7	Z	0	0	0	%100
5	M8	Z	0	0	0	%100
6	M11	Z	-.002	-.002	0	%100
7	M12	Z	-.002	-.002	0	%100
8	M14	Z	0	0	0	%100
9	M15	Z	0	0	0	%100
10	M18	Z	0	0	0	%100
11	M2	Z	-.009	-.009	%83.3	%100
12	M1	X	0	0	0	%100
13	M2	X	0	0	0	%100
14	M3	X	0	0	0	%100
15	M4	X	0	0	0	%100
16	M7	X	0	0	0	%100
17	M8	X	0	0	0	%100
18	M11	X	0	0	0	%100
19	M14	X	0	0	0	%100
20	M15	X	0	0	0	%100
21	M18	X	0	0	0	%100
22	M12	X	0	0	%70.5	%100

Member Distributed Loads (BLC 10 : Full Wind Members (30 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.003	-.003	0	%100
2	M3	Z	-.001	-.001	0	%100
3	M4	Z	-.003	-.003	0	%100
4	M7	Z	-.001	-.001	0	%100
5	M8	Z	-.001	-.001	0	%100
6	M11	Z	-.001	-.001	0	%100
7	M12	Z	-.001	-.001	0	%100
8	M14	Z	-.001	-.001	0	%100
9	M15	Z	-.001	-.001	0	%100
10	M18	Z	-.001	-.001	0	%100
11	M2	Z	-.008	-.008	%83.3	%100
12	M1	X	.002	.002	0	%100
13	M2	X	.005	.005	0	%100
14	M3	X	.001	.001	0	%100
15	M4	X	.002	.002	0	%100
16	M7	X	0	0	0	%100
17	M8	X	0	0	0	%100
18	M11	X	.001	.001	0	%100
19	M14	X	0	0	0	%100
20	M15	X	0	0	0	%100
21	M18	X	.001	.001	0	%100
22	M12	X	.001	.001	%70.5	%100

Member Distributed Loads (BLC 11 : Full Wind Members (60 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	0	0	0	%100
2	M3	Z	-.001	-.001	0	%100
3	M4	Z	0	0	0	%100
4	M7	Z	-.001	-.001	0	%100
5	M8	Z	-.001	-.001	0	%100
6	M11	Z	-.001	-.001	0	%100

Member Distributed Loads (BLC 11 : Full Wind Members (60 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
7	M12	Z	-.001	-.001	0	%100
8	M14	Z	-.001	-.001	0	%100
9	M15	Z	-.001	-.001	0	%100
10	M18	Z	-.003	-.003	0	%100
11	M2	Z	-.005	-.005	%83.3	%100
12	M1	X	0	0	0	%100
13	M2	X	.008	.008	0	%100
14	M3	X	.001	.001	0	%100
15	M4	X	0	0	0	%100
16	M7	X	.001	.001	0	%100
17	M8	X	.001	.001	0	%100
18	M11	X	.001	.001	0	%100
19	M14	X	.001	.001	0	%100
20	M15	X	.001	.001	0	%100
21	M18	X	.005	.005	0	%100
22	M12	X	.001	.001	%70.5	%100

Member Distributed Loads (BLC 12 : Full Wind Members (90 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	0	0	0	%100
2	M3	Z	0	0	0	%100
3	M4	Z	0	0	0	%100
4	M7	Z	0	0	0	%100
5	M8	Z	0	0	0	%100
6	M11	Z	0	0	0	%100
7	M12	Z	0	0	0	%100
8	M14	Z	0	0	0	%100
9	M15	Z	0	0	0	%100
10	M18	Z	0	0	0	%100
11	M2	Z	0	0	%83.3	%100
12	M1	X	.001	.001	0	%100
13	M2	X	.009	.009	0	%100
14	M3	X	.002	.002	0	%100
15	M4	X	.001	.001	0	%100
16	M7	X	.001	.001	0	%100
17	M8	X	.001	.001	0	%100
18	M11	X	.002	.002	0	%100
19	M14	X	.001	.001	0	%100
20	M15	X	.001	.001	0	%100
21	M18	X	.008	.008	0	%100
22	M12	X	.002	.002	%70.5	%100

Member Distributed Loads (BLC 13 : Full Wind Members (120 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.002	.002	0	%100
2	M3	Z	.001	.001	0	%100
3	M4	Z	.002	.002	0	%100
4	M7	Z	0	0	0	%100
5	M8	Z	0	0	0	%100
6	M11	Z	.001	.001	0	%100
7	M12	Z	.001	.001	0	%100
8	M14	Z	0	0	0	%100
9	M15	Z	0	0	0	%100
10	M18	Z	.003	.003	0	%100
11	M2	Z	.005	.005	%83.3	%100
12	M1	X	.004	.004	0	%100

Member Distributed Loads (BLC 13 : Full Wind Members (120 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
13	M2	X	.008	.008	0	%100
14	M3	X	.001	.001	0	%100
15	M4	X	.004	.004	0	%100
16	M7	X	.001	.001	0	%100
17	M8	X	.001	.001	0	%100
18	M11	X	.001	.001	0	%100
19	M14	X	.001	.001	0	%100
20	M15	X	.001	.001	0	%100
21	M18	X	.005	.005	0	%100
22	M12	X	.001	.001	%70.5	%100

Member Distributed Loads (BLC 14 : Full Wind Members (150 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.007	.007	0	%100
2	M3	Z	.001	.001	0	%100
3	M4	Z	.007	.007	0	%100
4	M7	Z	0	0	0	%100
5	M8	Z	0	0	0	%100
6	M11	Z	.001	.001	0	%100
7	M12	Z	.001	.001	0	%100
8	M14	Z	0	0	0	%100
9	M15	Z	0	0	0	%100
10	M18	Z	.002	.002	0	%100
11	M2	Z	.008	.008	%83.3	%100
12	M1	X	.004	.004	0	%100
13	M2	X	.005	.005	0	%100
14	M3	X	.001	.001	0	%100
15	M4	X	.004	.004	0	%100
16	M7	X	0	0	0	%100
17	M8	X	0	0	0	%100
18	M11	X	.001	.001	0	%100
19	M14	X	0	0	0	%100
20	M15	X	0	0	0	%100
21	M18	X	.001	.001	0	%100
22	M12	X	.001	.001	%70.5	%100

Member Distributed Loads (BLC 21 : Ice Wind Members (0 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.004	-.004	0	%100
2	M3	Z	-.003	-.003	0	%100
3	M4	Z	-.004	-.004	0	%100
4	M5	Z	-.001	-.001	0	%100
5	M6	Z	-.005	-.005	0	%100
6	M7	Z	0	0	0	%100
7	M8	Z	0	0	0	%100
8	M9	Z	-.005	-.005	0	%100
9	M10	Z	-.005	-.005	0	%100
10	M11	Z	-.003	-.003	0	%100
11	M12	Z	-.003	-.003	0	%100
12	M13	Z	-.005	-.005	0	%100
13	M14	Z	0	0	0	%100
14	M15	Z	0	0	0	%100
15	M16	Z	-.005	-.005	0	%100
16	M17	Z	-.005	-.005	0	%100
17	M18	Z	0	0	0	%100
18	M19	Z	-.001	-.001	0	%100

Member Distributed Loads (BLC 21 : Ice Wind Members (0 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
19	M2	Z	-.004	-.004	%83.3	%100
20	M1	X	0	0	0	%100
21	M2	X	0	0	0	%100
22	M3	X	0	0	0	%100
23	M4	X	0	0	0	%100
24	M5	X	0	0	0	%100
25	M6	X	0	0	0	%100
26	M7	X	0	0	0	%100
27	M8	X	0	0	0	%100
28	M9	X	0	0	0	%100
29	M10	X	0	0	0	%100
30	M11	X	0	0	0	%100
31	M13	X	0	0	0	%100
32	M14	X	0	0	0	%100
33	M15	X	0	0	0	%100
34	M16	X	0	0	0	%100
35	M17	X	0	0	0	%100
36	M18	X	0	0	0	%100
37	M19	X	0	0	0	%100
38	M12	X	0	0	%70.5	%100

Member Distributed Loads (BLC 22 : Ice Wind Members (30 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.003	-.003	0	%100
2	M3	Z	-.003	-.003	0	%100
3	M4	Z	-.003	-.003	0	%100
4	M5	Z	-.001	-.001	0	%100
5	M6	Z	-.005	-.005	0	%100
6	M7	Z	-.001	-.001	0	%100
7	M8	Z	-.001	-.001	0	%100
8	M9	Z	-.005	-.005	0	%100
9	M10	Z	-.005	-.005	0	%100
10	M11	Z	-.003	-.003	0	%100
11	M12	Z	-.003	-.003	0	%100
12	M13	Z	-.005	-.005	0	%100
13	M14	Z	-.001	-.001	0	%100
14	M15	Z	-.001	-.001	0	%100
15	M16	Z	-.005	-.005	0	%100
16	M17	Z	-.005	-.005	0	%100
17	M18	Z	0	0	0	%100
18	M19	Z	-.001	-.001	0	%100
19	M2	Z	-.004	-.004	%83.3	%100
20	M1	X	.001	.001	0	%100
21	M2	X	.002	.002	0	%100
22	M3	X	.002	.002	0	%100
23	M4	X	.001	.001	0	%100
24	M5	X	0	0	0	%100
25	M6	X	.003	.003	0	%100
26	M7	X	0	0	0	%100
27	M8	X	0	0	0	%100
28	M9	X	.003	.003	0	%100
29	M10	X	.003	.003	0	%100
30	M11	X	.001	.001	0	%100
31	M13	X	.003	.003	0	%100
32	M14	X	0	0	0	%100
33	M15	X	0	0	0	%100

Member Distributed Loads (BLC 22 : Ice Wind Members (30 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
34	M16	X	.003	.003	0	%100
35	M17	X	.003	.003	0	%100
36	M18	X	0	0	0	%100
37	M19	X	0	0	0	%100
38	M12	X	.001	.001	%70.5	%100

Member Distributed Loads (BLC 23 : Ice Wind Members (60 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	-.001	-.001	0	%100
2	M3	Z	-.002	-.002	0	%100
3	M4	Z	-.001	-.001	0	%100
4	M5	Z	0	0	0	%100
5	M6	Z	-.003	-.003	0	%100
6	M7	Z	0	0	0	%100
7	M8	Z	0	0	0	%100
8	M9	Z	-.003	-.003	0	%100
9	M10	Z	-.003	-.003	0	%100
10	M11	Z	-.001	-.001	0	%100
11	M12	Z	-.001	-.001	0	%100
12	M13	Z	-.003	-.003	0	%100
13	M14	Z	0	0	0	%100
14	M15	Z	0	0	0	%100
15	M16	Z	-.003	-.003	0	%100
16	M17	Z	-.003	-.003	0	%100
17	M18	Z	0	0	0	%100
18	M19	Z	0	0	0	%100
19	M2	Z	-.002	-.002	%83.3	%100
20	M1	X	.002	.002	0	%100
21	M2	X	.004	.004	0	%100
22	M3	X	.003	.003	0	%100
23	M4	X	.002	.002	0	%100
24	M5	X	.001	.001	0	%100
25	M6	X	.005	.005	0	%100
26	M7	X	.001	.001	0	%100
27	M8	X	.001	.001	0	%100
28	M9	X	.005	.005	0	%100
29	M10	X	.005	.005	0	%100
30	M11	X	.003	.003	0	%100
31	M13	X	.005	.005	0	%100
32	M14	X	.001	.001	0	%100
33	M15	X	.001	.001	0	%100
34	M16	X	.005	.005	0	%100
35	M17	X	.005	.005	0	%100
36	M18	X	.001	.001	0	%100
37	M19	X	.001	.001	0	%100
38	M12	X	.003	.003	%70.5	%100

Member Distributed Loads (BLC 24 : Ice Wind Members (90 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	0	0	0	%100
2	M3	Z	0	0	0	%100
3	M4	Z	0	0	0	%100
4	M5	Z	0	0	0	%100
5	M6	Z	0	0	0	%100
6	M7	Z	0	0	0	%100
7	M8	Z	0	0	0	%100

Member Distributed Loads (BLC 24 : Ice Wind Members (90 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
8	M9	Z	0	0	0	%100
9	M10	Z	0	0	0	%100
10	M11	Z	0	0	0	%100
11	M12	Z	0	0	0	%100
12	M13	Z	0	0	0	%100
13	M14	Z	0	0	0	%100
14	M15	Z	0	0	0	%100
15	M16	Z	0	0	0	%100
16	M17	Z	0	0	0	%100
17	M18	Z	0	0	0	%100
18	M19	Z	0	0	0	%100
19	M2	Z	0	0	%83.3	%100
20	M1	X	.003	.003	0	%100
21	M2	X	.004	.004	0	%100
22	M3	X	.003	.003	0	%100
23	M4	X	.003	.003	0	%100
24	M5	X	.001	.001	0	%100
25	M6	X	.005	.005	0	%100
26	M7	X	.001	.001	0	%100
27	M8	X	.001	.001	0	%100
28	M9	X	.005	.005	0	%100
29	M10	X	.005	.005	0	%100
30	M11	X	.003	.003	0	%100
31	M13	X	.005	.005	0	%100
32	M14	X	.001	.001	0	%100
33	M15	X	.001	.001	0	%100
34	M16	X	.005	.005	0	%100
35	M17	X	.005	.005	0	%100
36	M18	X	.001	.001	0	%100
37	M19	X	.001	.001	0	%100
38	M12	X	.003	.003	%70.5	%100

Member Distributed Loads (BLC 25 : Ice Wind Members (120 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.002	.002	0	%100
2	M3	Z	.002	.002	0	%100
3	M4	Z	.002	.002	0	%100
4	M5	Z	0	0	0	%100
5	M6	Z	.003	.003	0	%100
6	M7	Z	0	0	0	%100
7	M8	Z	0	0	0	%100
8	M9	Z	.003	.003	0	%100
9	M10	Z	.003	.003	0	%100
10	M11	Z	.001	.001	0	%100
11	M12	Z	.001	.001	0	%100
12	M13	Z	.003	.003	0	%100
13	M14	Z	0	0	0	%100
14	M15	Z	0	0	0	%100
15	M16	Z	.003	.003	0	%100
16	M17	Z	.003	.003	0	%100
17	M18	Z	0	0	0	%100
18	M19	Z	0	0	0	%100
19	M2	Z	.002	.002	%83.3	%100
20	M1	X	.003	.003	0	%100
21	M2	X	.004	.004	0	%100
22	M3	X	.003	.003	0	%100

Member Distributed Loads (BLC 25 : Ice Wind Members (120 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
23	M4	X	.003	.003	0	%100
24	M5	X	.001	.001	0	%100
25	M6	X	.005	.005	0	%100
26	M7	X	0	0	0	%100
27	M8	X	0	0	0	%100
28	M9	X	.005	.005	0	%100
29	M10	X	.005	.005	0	%100
30	M11	X	.003	.003	0	%100
31	M13	X	.005	.005	0	%100
32	M14	X	0	0	0	%100
33	M15	X	0	0	0	%100
34	M16	X	.005	.005	0	%100
35	M17	X	.005	.005	0	%100
36	M18	X	.001	.001	0	%100
37	M19	X	.001	.001	0	%100
38	M12	X	.003	.003	%70.5	%100

Member Distributed Loads (BLC 26 : Ice Wind Members (150 Deg))

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M1	Z	.003	.003	0	%100
2	M3	Z	.003	.003	0	%100
3	M4	Z	.003	.003	0	%100
4	M5	Z	.001	.001	0	%100
5	M6	Z	.005	.005	0	%100
6	M7	Z	0	0	0	%100
7	M8	Z	0	0	0	%100
8	M9	Z	.005	.005	0	%100
9	M10	Z	.005	.005	0	%100
10	M11	Z	.003	.003	0	%100
11	M12	Z	.003	.003	0	%100
12	M13	Z	.005	.005	0	%100
13	M14	Z	0	0	0	%100
14	M15	Z	0	0	0	%100
15	M16	Z	.005	.005	0	%100
16	M17	Z	.005	.005	0	%100
17	M18	Z	0	0	0	%100
18	M19	Z	.001	.001	0	%100
19	M2	Z	.004	.004	%83.3	%100
20	M1	X	.002	.002	0	%100
21	M2	X	.002	.002	0	%100
22	M3	X	.002	.002	0	%100
23	M4	X	.002	.002	0	%100
24	M5	X	0	0	0	%100
25	M6	X	.003	.003	0	%100
26	M7	X	0	0	0	%100
27	M8	X	0	0	0	%100
28	M9	X	.003	.003	0	%100
29	M10	X	.003	.003	0	%100
30	M11	X	.001	.001	0	%100
31	M13	X	.003	.003	0	%100
32	M14	X	0	0	0	%100
33	M15	X	0	0	0	%100
34	M16	X	.003	.003	0	%100
35	M17	X	.003	.003	0	%100
36	M18	X	0	0	0	%100
37	M19	X	0	0	0	%100

Member Distributed Loads (BLC 26 : Ice Wind Members (150 Deg)) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
38	M12	X	.001	.001	%70.5	%100

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Dead	None		-1			5			
2	Ice Dead	None					5	19		
3	Full Wind Antenna (0 Deg)	None					6			
4	Full Wind Antenna (30 Deg)	None					13			
5	Full Wind Antenna (60 Deg)	None					13			
6	Full Wind Antenna (90 Deg)	None					13			
7	Full Wind Antenna (120 Deg)	None					13			
8	Full Wind Antenna (150 Deg)	None					13			
9	Full Wind Members (0 Deg)	None						22		
10	Full Wind Members (30 Deg)	None						22		
11	Full Wind Members (60 Deg)	None						22		
12	Full Wind Members (90 Deg)	None						22		
13	Full Wind Members (120 Deg)	None						22		
14	Full Wind Members (150 Deg)	None						22		
15	Ice Wind Antenna (0 Deg)	None					6			
16	Ice Wind Antenna (30 Deg)	None					13			
17	Ice Wind Antenna (60 Deg)	None					13			
18	Ice Wind Antenna (90 Deg)	None					13			
19	Ice Wind Antenna (120 Deg)	None					13			
20	Ice Wind Antenna (150 Deg)	None					13			
21	Ice Wind Members (0 Deg)	None						38		
22	Ice Wind Members (30 Deg)	None						38		
23	Ice Wind Members (60 Deg)	None						38		
24	Ice Wind Members (90 Deg)	None						38		
25	Ice Wind Members (120 Deg)	None						38		
26	Ice Wind Members (150 Deg)	None						38		
27	Seismic Antenna (0 Deg)	None					5			
28	Seismic Antenna (90 Deg)	None					5			
29	Seismic Members (0 Deg)	None		-.037	-.092					
30	Seismic Members (30 Deg)	None	.046	-.037	-.08					
31	Seismic Members (60 Deg)	None	.08	-.037	-.046					
32	Seismic Members (90 Deg)	None	.092	-.037	-5.666e-...					
33	Seismic Members (120 Deg)	None	.08	-.037	.046					
34	Seismic Members (150 Deg)	None	.046	-.037	.08					
35	Seismic Members (180 Deg)	None	1.133e-17	-.037	.092					
36	Seismic Members (210 Deg)	None	-.046	-.037	.08					
37	Seismic Members (240 Deg)	None	-.08	-.037	.046					
38	Seismic Members (270 Deg)	None	-.092	-.037	1.7e-17					
39	Seismic Members (300 Deg)	None	-.08	-.037	-.046					
40	Seismic Members (330 Deg)	None	-.046	-.037	-.08					
41	Seismic Vertical Antennas	None					5			
42	Man 1 (500 lbs)	None				1				
43	Man 2 (500 lbs)	None				1				
44	Man 3 (500 lbs)	None				1				
45	Man 4 (250 lbs)	None				1				
46	Man 5 (250 lbs)	None				1				
47	Man 6 (250 lbs)	None				1				

Load Combinations

	Description	Sol..	PD..	SR..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..
1	1.4D	Yes	Y		1	1.4																				
2	1.2D + 1.0...	Yes	Y		1	1.2	3	1	9	1																
3	1.2D + 1.0...	Yes	Y		1	1.2	4	1	10	1																
4	1.2D + 1.0...	Yes	Y		1	1.2	5	1	11	1																
5	1.2D + 1.0...	Yes	Y		1	1.2	6	1	12	1																
6	1.2D + 1.0...	Yes	Y		1	1.2	7	1	13	1																
7	1.2D + 1.0...	Yes	Y		1	1.2	8	1	14	1																
8	1.2D + 1.0...	Yes	Y		1	1.2	3	-1	9	-1																
9	1.2D + 1.0...	Yes	Y		1	1.2	4	-1	10	-1																
10	1.2D + 1.0...	Yes	Y		1	1.2	5	-1	11	-1																
11	1.2D + 1.0...	Yes	Y		1	1.2	6	-1	12	-1																
12	1.2D + 1.0...	Yes	Y		1	1.2	7	-1	13	-1																
13	1.2D + 1.0...	Yes	Y		1	1.2	8	-1	14	-1																
14	1.2D + 1.0...	Yes	Y		1	1.2	2	1	15	1	21	1														
15	1.2D + 1.0...	Yes	Y		1	1.2	2	1	16	1	22	1														
16	1.2D + 1.0...	Yes	Y		1	1.2	2	1	17	1	23	1														
17	1.2D + 1.0...	Yes	Y		1	1.2	2	1	18	1	24	1														
18	1.2D + 1.0...	Yes	Y		1	1.2	2	1	19	1	25	1														
19	1.2D + 1.0...	Yes	Y		1	1.2	2	1	20	1	26	1														
20	1.2D + 1.0...	Yes	Y		1	1.2	2	1	15	-1	21	-1														
21	1.2D + 1.0...	Yes	Y		1	1.2	2	1	16	-1	22	-1														
22	1.2D + 1.0...	Yes	Y		1	1.2	2	1	17	-1	23	-1														
23	1.2D + 1.0...	Yes	Y		1	1.2	2	1	18	-1	24	-1														
24	1.2D + 1.0...	Yes	Y		1	1.2	2	1	19	-1	25	-1														
25	1.2D + 1.0...	Yes	Y		1	1.2	2	1	20	-1	26	-1														
26	1.2D + 1.5...	Yes	Y		1	1.2	3	.059	9	.059	42	1.5														
27	1.2D + 1.5...	Yes	Y		1	1.2	4	.059	10	.059	42	1.5														
28	1.2D + 1.5...	Yes	Y		1	1.2	5	.059	11	.059	42	1.5														
29	1.2D + 1.5...	Yes	Y		1	1.2	6	.059	12	.059	42	1.5														
30	1.2D + 1.5...	Yes	Y		1	1.2	7	.059	13	.059	42	1.5														
31	1.2D + 1.5...	Yes	Y		1	1.2	8	.059	14	.059	42	1.5														
32	1.2D + 1.5...	Yes	Y		1	1.2	3	-.059	9	-.059	42	1.5														
33	1.2D + 1.5...	Yes	Y		1	1.2	4	-.059	10	-.059	42	1.5														
34	1.2D + 1.5...	Yes	Y		1	1.2	5	-.059	11	-.059	42	1.5														
35	1.2D + 1.5...	Yes	Y		1	1.2	6	-.059	12	-.059	42	1.5														
36	1.2D + 1.5...	Yes	Y		1	1.2	7	-.059	13	-.059	42	1.5														
37	1.2D + 1.5...	Yes	Y		1	1.2	8	-.059	14	-.059	42	1.5														
38	1.2D + 1.5...	Yes	Y		1	1.2	3	.059	9	.059	43	1.5														
39	1.2D + 1.5...	Yes	Y		1	1.2	4	.059	10	.059	43	1.5														
40	1.2D + 1.5...	Yes	Y		1	1.2	5	.059	11	.059	43	1.5														
41	1.2D + 1.5...	Yes	Y		1	1.2	6	.059	12	.059	43	1.5														
42	1.2D + 1.5...	Yes	Y		1	1.2	7	.059	13	.059	43	1.5														
43	1.2D + 1.5...	Yes	Y		1	1.2	8	.059	14	.059	43	1.5														
44	1.2D + 1.5...	Yes	Y		1	1.2	3	-.059	9	-.059	43	1.5														
45	1.2D + 1.5...	Yes	Y		1	1.2	4	-.059	10	-.059	43	1.5														
46	1.2D + 1.5...	Yes	Y		1	1.2	5	-.059	11	-.059	43	1.5														
47	1.2D + 1.5...	Yes	Y		1	1.2	6	-.059	12	-.059	43	1.5														
48	1.2D + 1.5...	Yes	Y		1	1.2	7	-.059	13	-.059	43	1.5														
49	1.2D + 1.5...	Yes	Y		1	1.2	8	-.059	14	-.059	43	1.5														
50	1.2D + 1.5...	Yes	Y		1	1.2	3	.059	9	.059	44	1.5														
51	1.2D + 1.5...	Yes	Y		1	1.2	4	.059	10	.059	44	1.5														
52	1.2D + 1.5...	Yes	Y		1	1.2	5	.059	11	.059	44	1.5														
53	1.2D + 1.5...	Yes	Y		1	1.2	6	.059	12	.059	44	1.5														
54	1.2D + 1.5...	Yes	Y		1	1.2	7	.059	13	.059	44	1.5														
55	1.2D + 1.5...	Yes	Y		1	1.2	8	.059	14	.059	44	1.5														
56	1.2D + 1.5...	Yes	Y		1	1.2	3	-.059	9	-.059	44	1.5														

Load Combinations (Continued)

	Description	Sol..	PD..	SR..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..
57	1.2D + 1.5..	Yes	Y		1	1.2	4	-.059	10	-.059	44	1.5														
58	1.2D + 1.5..	Yes	Y		1	1.2	5	-.059	11	-.059	44	1.5														
59	1.2D + 1.5..	Yes	Y		1	1.2	6	-.059	12	-.059	44	1.5														
60	1.2D + 1.5..	Yes	Y		1	1.2	7	-.059	13	-.059	44	1.5														
61	1.2D + 1.5..	Yes	Y		1	1.2	8	-.059	14	-.059	44	1.5														
62	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																		
63	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																		
64	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																		
65	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																		
66	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																		
67	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																		
68	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																		
69	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																		
70	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																		
71	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																		
72	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																		
73	1.2D + 1.5..	Yes	Y		1	1.2	45	1.5																		
74	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																		
75	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																		
76	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																		
77	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																		
78	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																		
79	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																		
80	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																		
81	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																		
82	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																		
83	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																		
84	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																		
85	1.2D + 1.5..	Yes	Y		1	1.2	46	1.5																		
86	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																		
87	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																		
88	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																		
89	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																		
90	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																		
91	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																		
92	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																		
93	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																		
94	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																		
95	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																		
96	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																		
97	1.2D + 1.5..	Yes	Y		1	1.2	47	1.5																		
98	1.2D + 1.0..	Yes	Y		1	1.2	27	1	28		29	1	40	1												
99	1.2D + 1.0..	Yes	Y		1	1.2	27	.866	28	.5	30	1	40	1												
100	1.2D + 1.0..	Yes	Y		1	1.2	27	.5	28	.866	31	1	40	1												
101	1.2D + 1.0..	Yes	Y		1	1.2	27		28	1	32	1	40	1												
102	1.2D + 1.0..	Yes	Y		1	1.2	27	-.5	28	.866	33	1	40	1												
103	1.2D + 1.0..	Yes	Y		1	1.2	27	-.866	28	.5	34	1	40	1												
104	1.2D + 1.0..	Yes	Y		1	1.2	27	-1	28		35	1	40	1												
105	1.2D + 1.0..	Yes	Y		1	1.2	27	-.866	28	-.5	36	1	40	1												
106	1.2D + 1.0..	Yes	Y		1	1.2	27	-.5	28	-.866	37	1	40	1												
107	1.2D + 1.0..	Yes	Y		1	1.2	27		28	-1	38	1	40	1												
108	1.2D + 1.0..	Yes	Y		1	1.2	27	.5	28	-.866	39	1	40	1												
109	1.2D + 1.0..	Yes	Y		1	1.2	27	.866	28	-.5	40	1	40	1												

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N29	max	.643	24	.929	15	.434	7	-.022	9	0	109	-.097	12
2		min	-.282	6	.029	9	-.534	13	-.378	14	0	1	-.708	18
3	N10	max	.137	10	.934	21	.386	2	.291	7	0	109	.019	2
4		min	-.596	16	.031	3	-.286	8	-.478	13	0	1	-.733	20
5	N27	max	.043	8	.085	19	.952	13	0	109	0	109	0	109
6		min	-.043	2	.021	13	-.954	7	0	1	0	1	0	1
7	Totals:	max	.69	11	1.859	25	.866	2						
8		min	-.69	5	.503	7	-.866	8						

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code C...	Loc[ft]	LC	Shear ...	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-...	phi*Mn z-...	Cb	Eqn
1	M1	PIPE 2.0	.420	3.5	16	.161	1.833		8	26.521	32.13	1.872	1.872	2....	H1-1b
2	M2	PIPE 2.5	.228	5.25	8	.129	5.25		8	26.137	50.715	3.596	3.596	2....	H1-1b
3	M3	PIPE 2.0	.208	4.531	46	.064	4.531		43	23.809	32.13	1.872	1.872	1....	H1-1b
4	M4	PIPE 2.0	.426	3.5	21	.307	3.5		8	26.521	32.13	1.872	1.872	2....	H1-1b
5	M7	0.5" S.R.	.751	.333	43	.142	.333		41	5.096	6.35	.052	.052	1....	H1-1b
6	M8	0.5" S.R.	.541	.333	44	.119	.333		41	5.096	6.35	.052	.052	1....	H1-1b
7	M11	PIPE 2.0	.041	5.281	55	.012	5.281		43	19.36	32.13	1.872	1.872	1....	H1-1b
8	M12	PIPE 2.0	.055	1.422	11	.015	5.281		43	19.36	32.13	1.872	1.872	1....	H1-1b
9	M14	0.5" S.R.	.798	.333	49	.126	.333		48	5.096	6.35	.052	.052	1....	H1-1b
10	M15	0.5" S.R.	.650	.333	38	.110	.333		49	5.096	6.35	.052	.052	1....	H1-1b
11	M18	PIPE 2.0	.131	4.964	25	.009	9.928		24	9.981	32.13	1.872	1.872	1....	H1-1b

APPENDIX D

ADDITIONAL CALCULATIONS

Input Connection Info. For Each Boundary Conditions							
Joint Label	Bolt Qty.	Bolt Axis	Bolt Orientation	Diameter (in.)	Bolt Type	Horizontal Spacing	Vertical Spacing
N29	2	Horizontal	0	0.5	U-Bolt	3	5
N10	2	Horizontal	0	0.5	U-Bolt	3	5
N27	2	Horizontal	90	0.5	U-Bolt	3	5

Bolt Types			
Bolt Type	Fu (ksi)	Fnt (ksi)	Fnv (ksi)
A325N	120	90	54
A325X	120	90	68
A490N	150	113	68
A490X	150	113	85
U-Bolt	58	44	27
Threaded Rod	58	44	27
OTHER	0	0	0

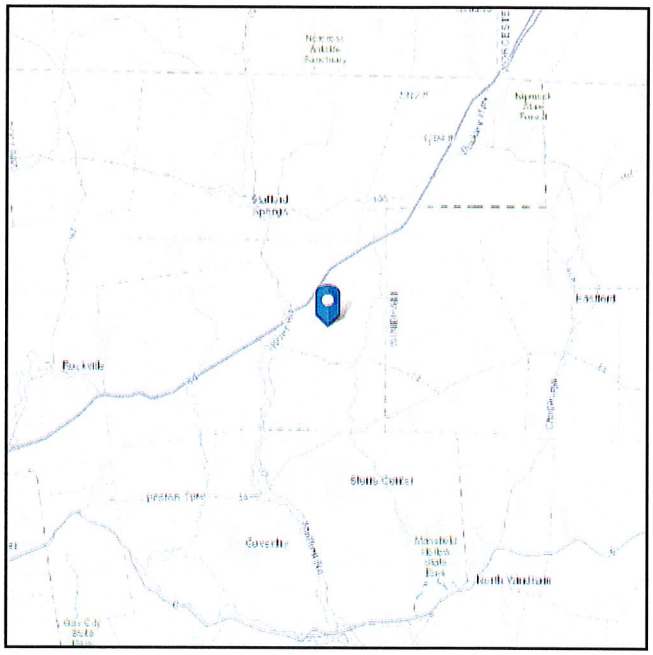
Results	
Limit State	Capacity (%)
Shear	25.4%
Tension	8.5%
Combined	6.6%

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 933.47 ft (NAVD 88)
Latitude: 41.892478
Longitude: -72.260597



Wind

Results:

Wind Speed:	125 Vmph
10-year MRI	77 Vmph
25-year MRI	87 Vmph
50-year MRI	95 Vmph
100-year MRI	102 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:	Fri May 17 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.

ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

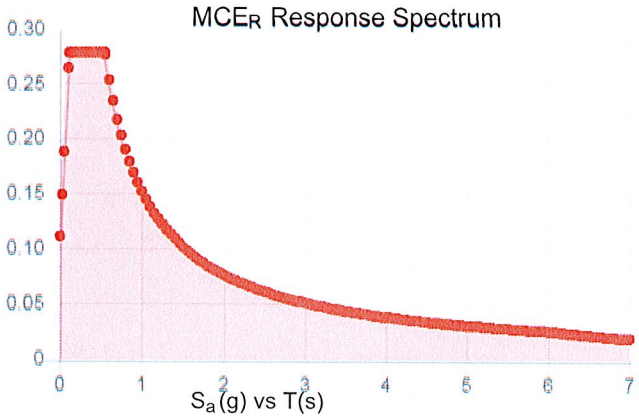
Seismic

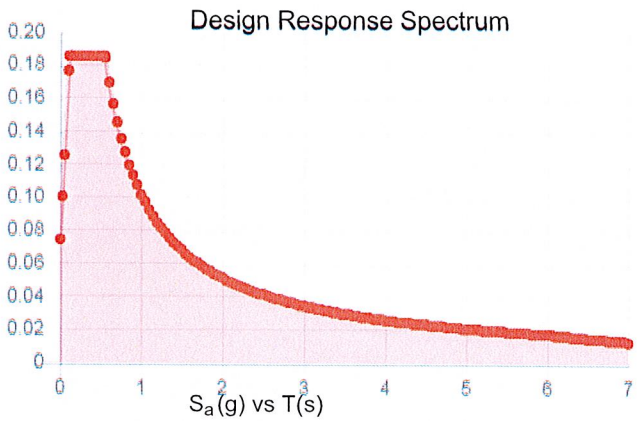
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.174	S_{DS} :	0.185
S_1 :	0.063	S_{D1} :	0.101
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.086
S_{MS} :	0.278	PGA_M :	0.138
S_{M1} :	0.152	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Fri May 17 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:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Fri May 17 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.