



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

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VIA ELECTRONIC MAIL

June 22, 2021

Richard Zajac
Site Acquisition Specialist
Crown Castle USA
4545 East River Road, Suite 320
West Henrietta, NY 14586

RE: **EM-T-MOBILE-022-210416** – T-Mobile notice of intent to modify an existing telecommunications facility located at 53 Westminster Drive, Canterbury, Connecticut.

Dear Mr. Zajac:

The Connecticut Siting Council (Council) is in receipt of your correspondence of June 18, 2021 submitted in response to the Council's May 4, 2021 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,

s/Melanie A. Bachman

Melanie A. Bachman
Executive Director

MAB/FOC/lm

c: Colin Robinson, Project Manager, Network Building + Consulting

From: [Zajac, Richard](#)
To: [Robidoux, Evan](#)
Cc: [Colin Robinson](#); [CSC-DL Siting Council](#)
Subject: RE: Council Extension Letter for EM-T-MOBILE-022-210416 (53 Westminster Drive, Canterbury)
Date: Friday, June 18, 2021 2:16:12 PM
Attachments: [EM-T-MOBILE-022-210416_incompleteltr_WestminsterDr_Canterbury.pdf](#)
[Revised docs.zip](#)
[Time extension confirmation letter_em-t-mobile-022-210416_extltr_WestminsterRd.pdf](#)

Good afternoon,

Pursuant to the attached notice of incompleteness, please see the attached zip folder containing revised Construction Drawings (CDs), Structural Analysis (SA), and Mount Analysis (MA).

Should you have any questions/comments/concerns or require additional information in order to resume the review of this application, please do not hesitate to contact me.

Thank you,

RICH ZAJAC

Site Acquisition Specialist

T: (585) 445-5896 M: (607) 346-7212

F: (724) 416-4461

CROWN CASTLE

4545 East River Road, Suite 320

West Henrietta, NY 14586

From: Robidoux, Evan <Evan.Robidoux@ct.gov>
Sent: Thursday, May 27, 2021 3:52 PM
To: Zajac, Richard <Richard.Zajac@crowncastle.com>
Cc: Colin Robinson <crobins@nbcllc.com>; CSC-DL Siting Council <Siting.Council@ct.gov>
Subject: Council Extension Letter for EM-T-MOBILE-022-210416 (53 Westminster Drive, Canterbury)

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Please see the attached correspondence.

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Date: **February 4, 2021**

Darcy Tarr
Crown Castle
6325 Ardrey Kell Road, Suite 600
Charlotte, NC 28277
(704) 405-6589



**GPD Engineering and Architecture
Professional Corporation**
520 South Main Street, Suite 2531
Akron, Ohio 44311
(216) 927-8663
CrownMA@gpdgroup.com

Subject: **Mount Analysis Report**

Carrier Designation: **Sprint PCS Loading Modification**
Carrier Site Number: CTNL154A
Carrier Site Name: CTNL154A

Crown Castle Designation: **Crown Castle BU Number:** 876375
Crown Castle Site Name: CANTERBURY / LEMIRE
Crown Castle JDE Job Number: 628854
Crown Castle Order Number: 538779 Rev. 0

Engineering Firm Designation: **GPD Report Designation:** 2021777.876375.01

Site Data: **53 Westminster Rd., Canterbury, Windham County, CT 6331**
Latitude 41° 42' 7.15" Longitude -71° 58' 50.11"

Structure Information: **Tower Height & Type:** **180.0 ft Monopole Tower**
Mount Elevation: **180.0 ft**
Mount Type: **10.7 ft Platform Mount**

Dear Darcy Tarr,

GPD is pleased to submit this “**Mount Analysis Report**” to determine the structural integrity of Sprint PCS’s antenna mounting system with the proposed appurtenance and equipment addition on the above mentioned 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 stress level. Based on our analysis we have determined the mount stress level to be:

Platform Mount

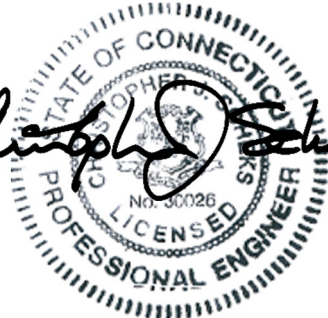

Sufficient – 91.5%

This analysis utilizes an ultimate 3-second gust wind speed of 130 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Eric Nieto

Respectfully Submitted by:

Christopher J. Scheks, P.E.
Connecticut #: 0030026



2/4/2021

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1) INTRODUCTION

This is a modified 10.7' Platform Mount. Mount geometry was obtained from the previous mount analysis by Hudson Design Group LLC (Project #: 3876279 Rev. 1, dated 6/15/2018), site photos, and experience with similar mounts.

The mount has been modified per the mount analysis by Hudson Design Group LLC (Project #: 3876279 Rev. 1, dated 6/15/2018). Reinforcement consists of adding a support rail kit below the bottom face horizontal and a v-stabilizer kit between the new support rail and tower.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	130 mph
Exposure Category:	B
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
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 Details
180.0	183.0	3	Ericsson	AIR6449 B41_T-MOBILE	10.7 ft. Platform Mount
		3	RFS/Celwave	APX16DWV-16DWV-S-E-A20	
		3	RFS/Celwave	APXVAALL24_43-U-NA20_TMO	
		3	Ericsson	RADIO 4415 B66A	
		3	Ericsson	RADIO 4424 B25_TMO	
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE	

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Application	Crown Order Number 538779 Rev. 0	-	CCI
RF Data Sheet	Site ID: CTNL154A, Draft Rev. 1, dated 1/15/2021	-	CCI
Mount Analysis	Hudson Design Group LLC Project #: 3876279 Rev. 1, dated 6/15/2018	7615478	CCI

3.1) Analysis Method

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

A tool internally developed by GPD, using Microsoft Excel, was used to calculate wind loading on all appurtenances, dishes, and mount members for various load cases. Selected output from the analysis is included in Appendix B.

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 and manufacturer's specifications.
- 2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and the referenced drawings.
- 3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
- 4) This analysis assumes all information reference in Table 2 is current and correct.
- 5) Portions of the mount were modeled from site photos. 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.
- 6) Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle	ASTM A36 (GR 36)
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. GPD 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 (Platform Mount)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1,3	Platform Channel	M83	180.0	43.8	Pass
	Platform Inner Bracing	M2		31.5	Pass
	Support Rail	M36		30.9	Pass
	Support Rail Corner Pipe	M38		34.7	Pass
	Pipe Mount	B3		91.5	Pass
	Ladder Support Bracing	M94		34.8	Pass
	Mod Support Rail	M42		26.2	Pass
	Mod Support Rail Corner Pipe	M52A		6.9	Pass
	Mod V-Kit	M46		10.5	Pass
2,3	Mount to Tower Connection	-	21.2	Pass	
	Mod V-Kit to Tower Connection	-	3.4	Pass	

Structure Rating (max from all components) =	91.5%³
-----------------------------------------------------	--------------------------

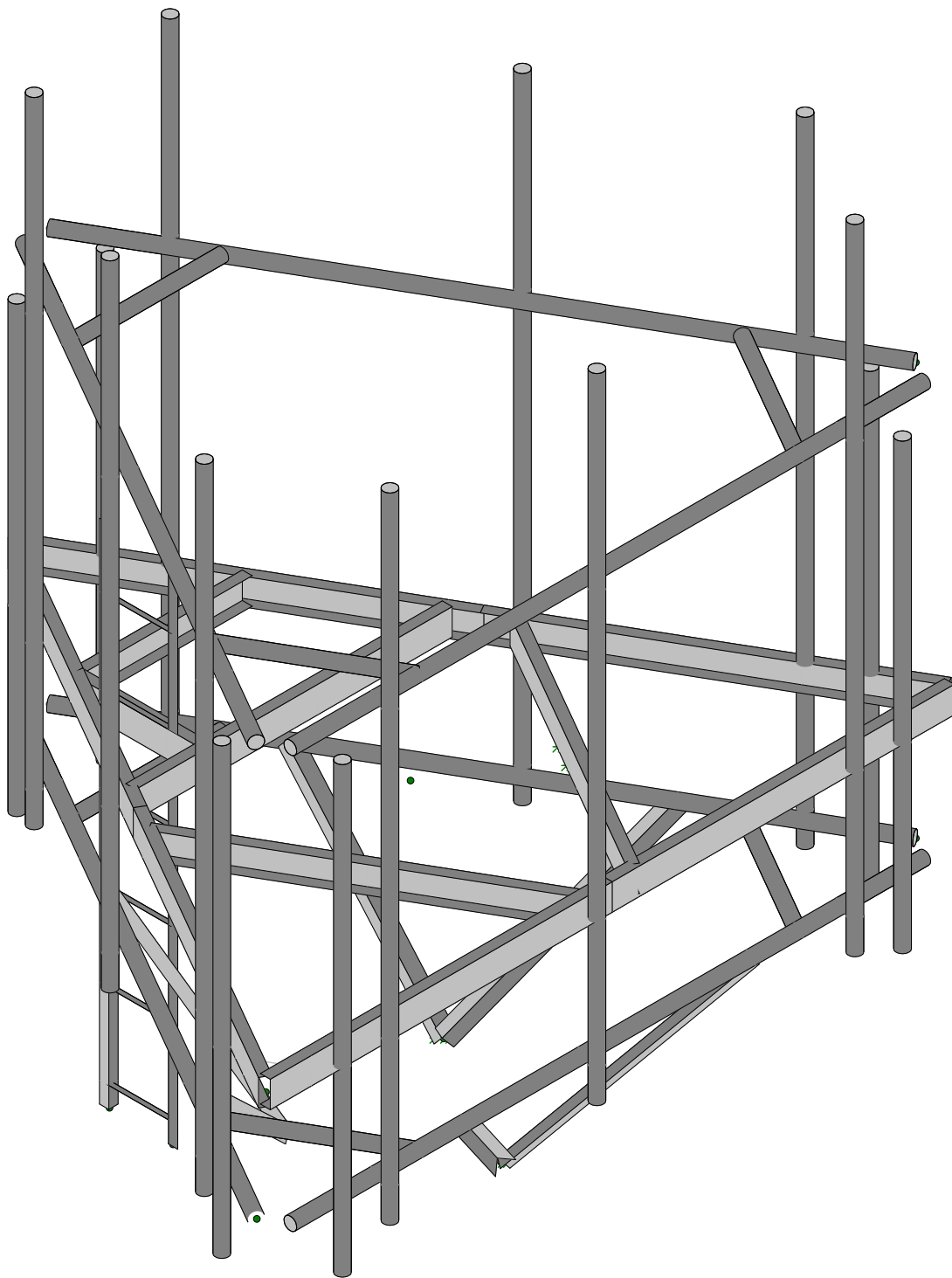
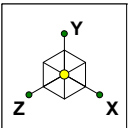
Notes:

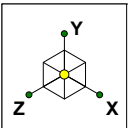
- 1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity consumed.
- 3) Ratings per TIA-222-H section 15.5.

4.1) Recommendations

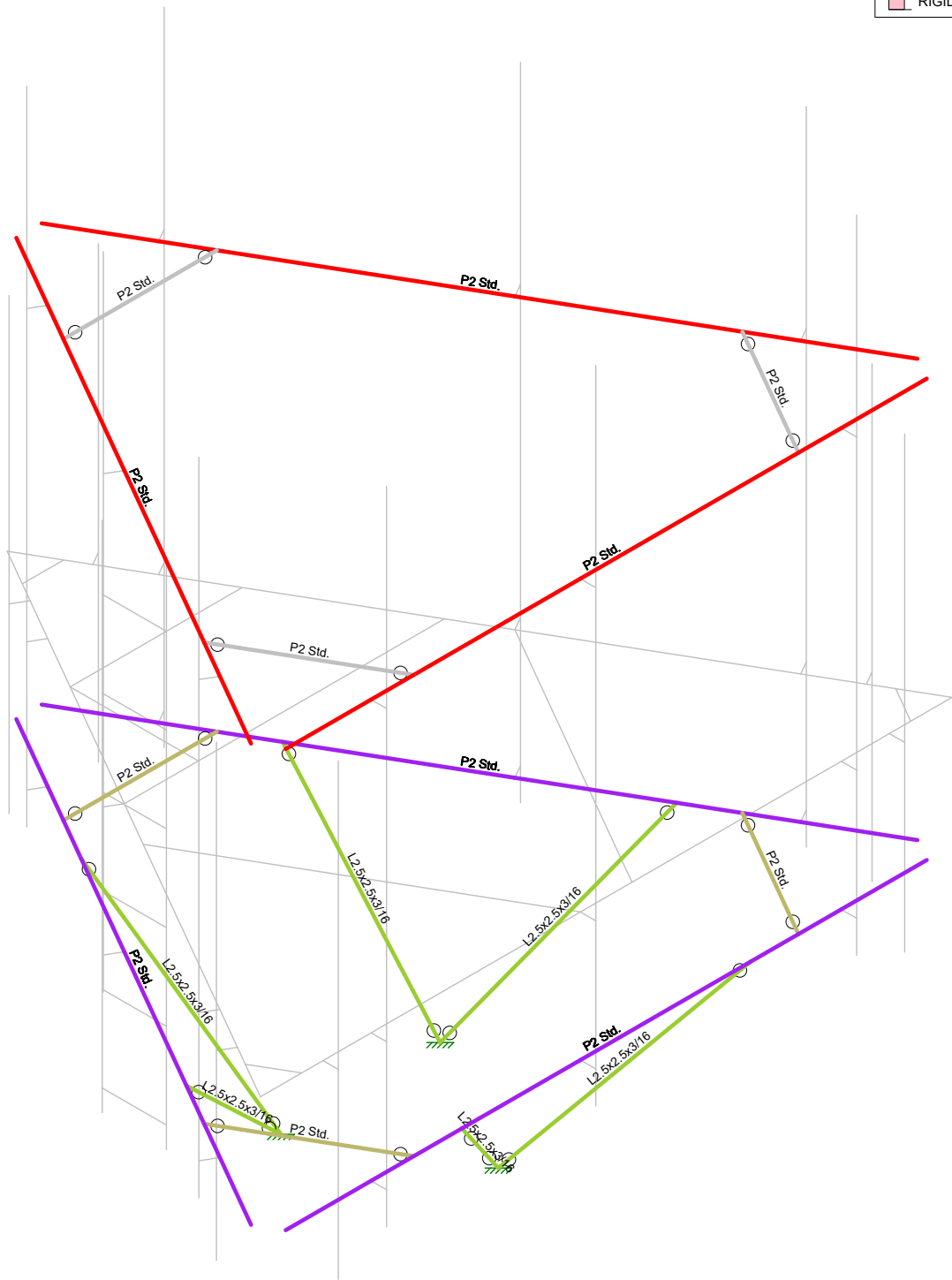
The mount has sufficient capacity to carry the proposed loading configuration. No modifications are required at this time.

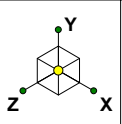
APPENDIX A
WIRE FRAME AND RENDERED MODELS



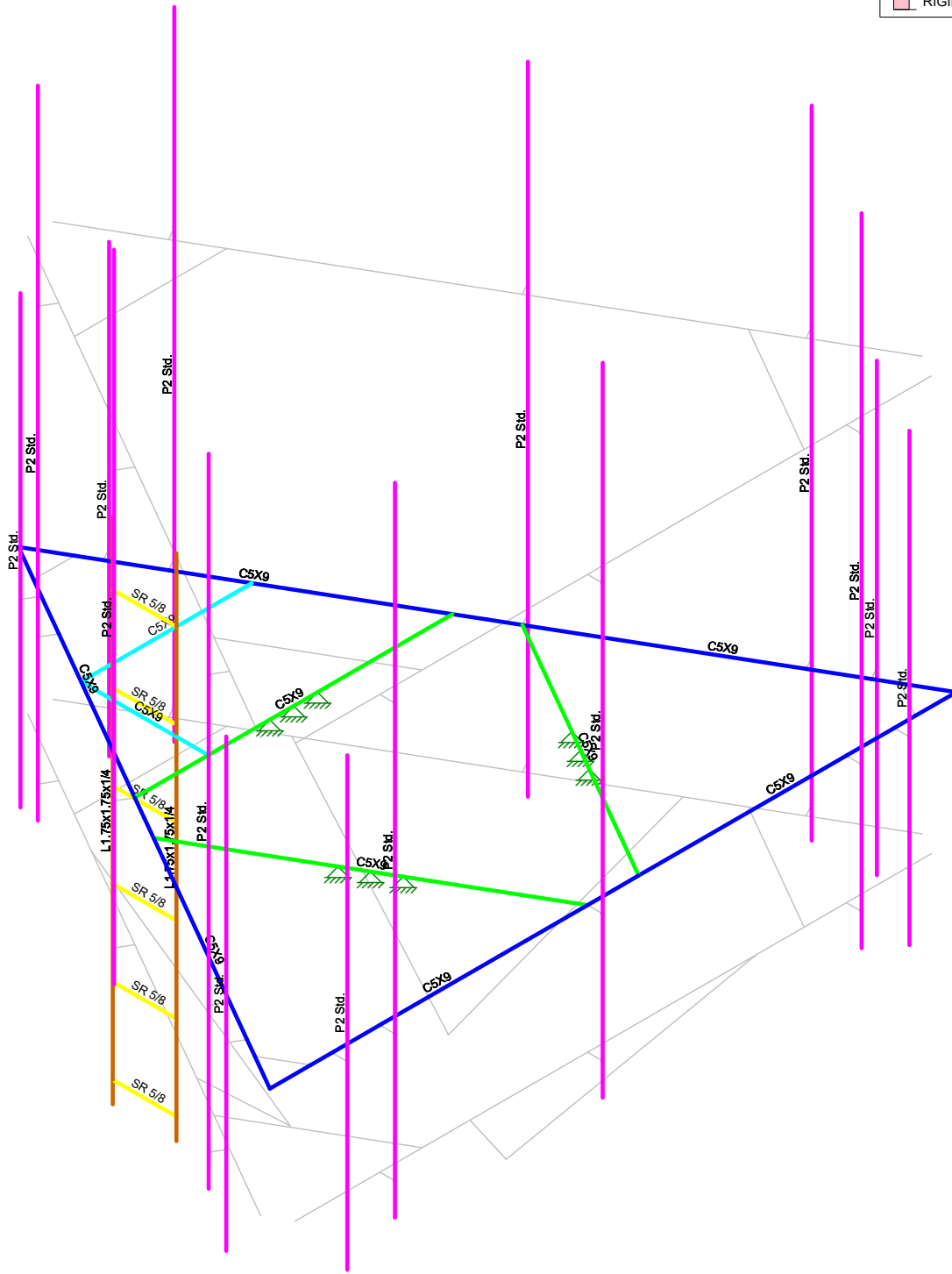


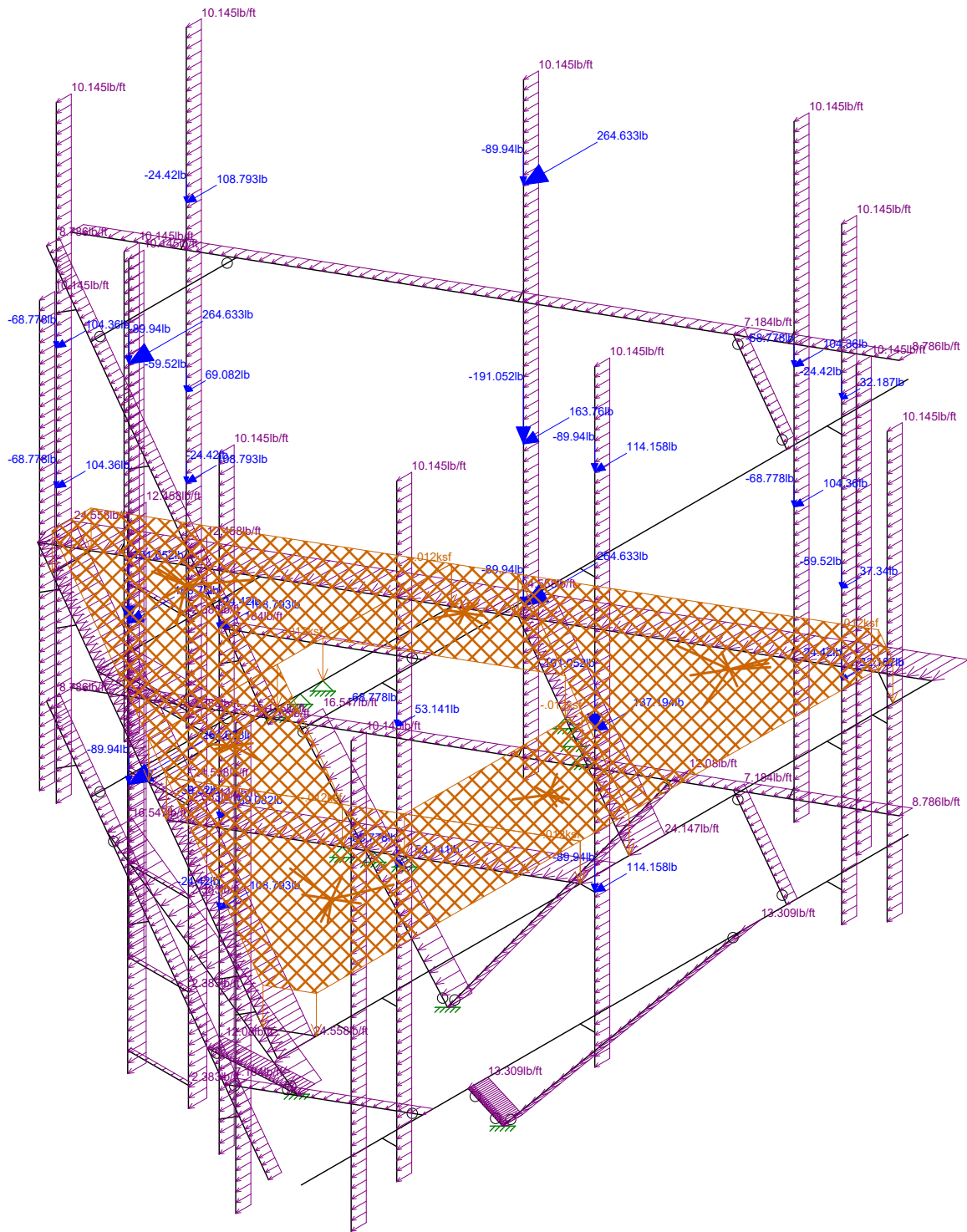
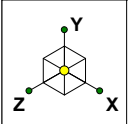
Section Sets	
Blue	Platform Channel
Red	Platform Inner Bracing
Grey	Support Rail
Black	Support Rail Corner Pipe
Pink	Pipe Mount
Cyan	Ladder Support Bracing
Orange	Ladder Rail
Yellow	Ladder Rung
Purple	Mod Support Rail
Light Green	Mod Support Rail Corner Pipe
Dark Green	Mod V-Kit
Pink	RIGID

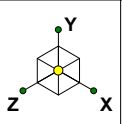




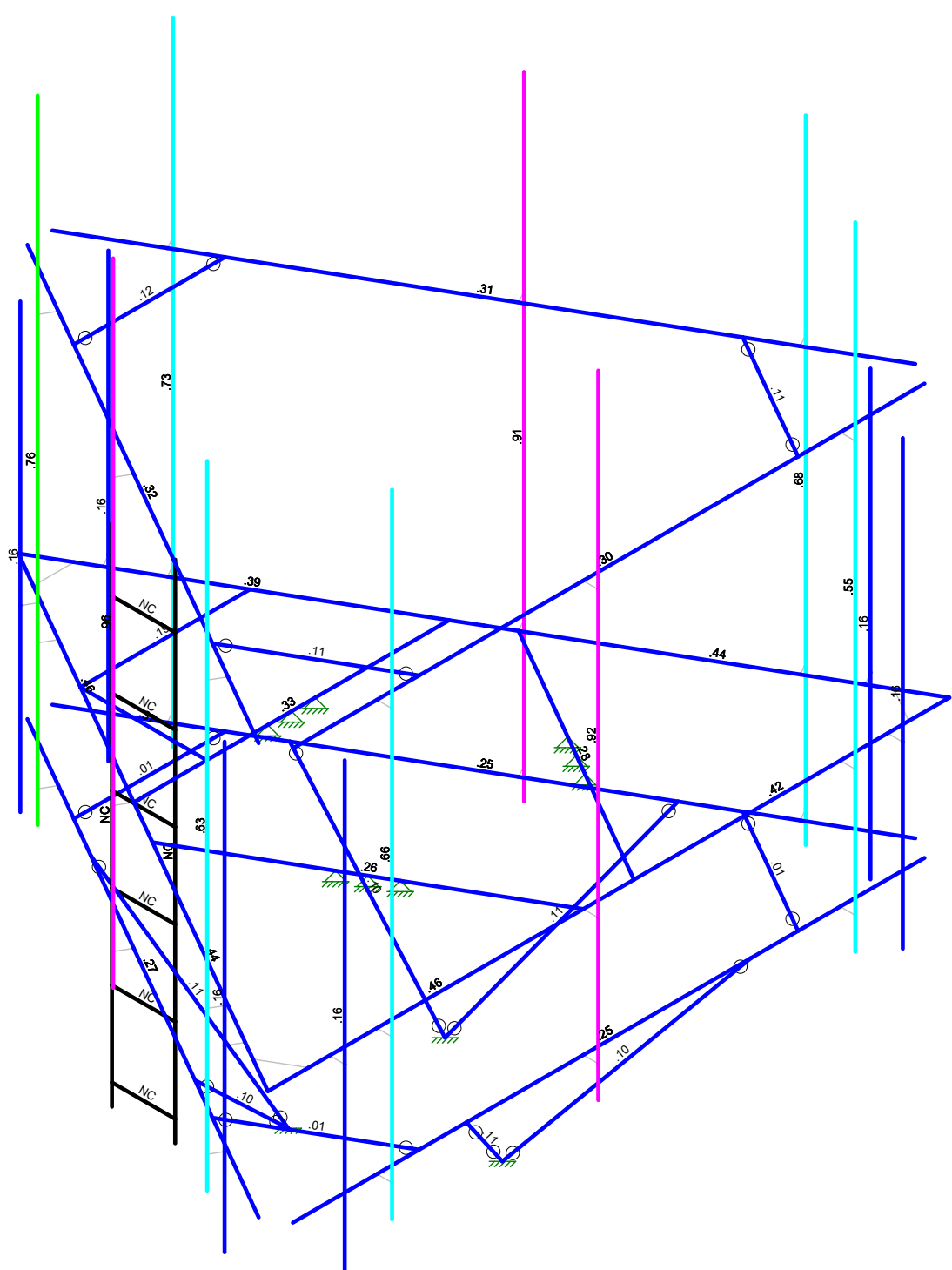
Section Sets	
Blue	Platform Channel
Green	Platform Inner Bracing
Red	Support Rail
Grey	Support Rail Corner Pipe
Pink	Pipe Mount
Cyan	Ladder Support Bracing
Brown	Ladder Rail
Yellow	Ladder Rung
Purple	Mod Support Rail
Olive	Mod Support Rail Corner Pipe
Light Green	Mod V-Kit
Light Pink	RIGID

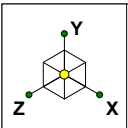




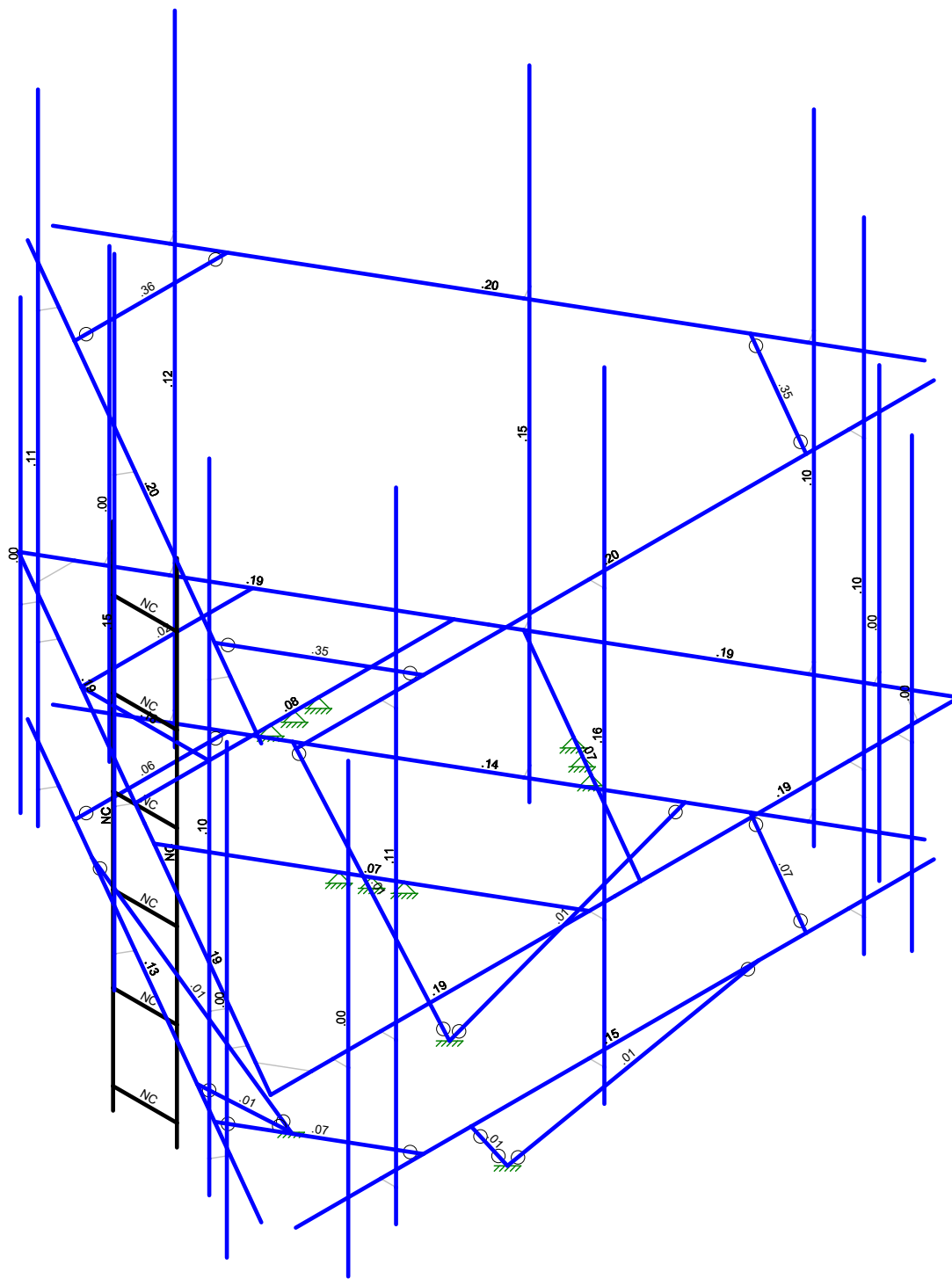


Code Check (Env)	
Black	No Calc
Red	> 1.0
Pink	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50





Shear Check (Env)	
Black	No Calc
Red	> 1.0
Purple	.90-1.0
Green	.75-.90
Yellow	.50-.75
Blue	0-.50



APPENDIX B
SOFTWARE INPUT CALCULATIONS



Structure Information	
Structure Type:	Monopole
Structure Height:	180 ft
z (Mount Centerline) =	180 ft
Gh (Mount Gust Effect Factor) =	1.00
Risk Category:	II

Code Specifications	
TIA/EIA Code:	H
Ultimate Wind Speed (No Ice) =	130 mph (3-s gust)
Ultimate Wind Speed (With Ice) =	50 mph (3-s gust)
Ice Thickness	1.5 in
Exposure Category	B
Tower Base Elevation (AMSL)	338 ft

Topographic Inputs	
Topographic Feature:	N/A

Section Sets										No Ice		Ice Output	
Mount Components	Member Type	Length (in)	Side (Longest seeing wind) (in)	Other Side (in)	Calculated Dc, for ice weight (in)	Dc, for ice weight (in)	Area Type (Round or Flat)	K _s	User's Wind Multiplier	Normal Wind Force (lb/ft)*	Normal Ice Wind Force (lb/ft)*	Ice Weight (lb/ft)*	
Platform Channel	Square/Rect.	64.000	5	1.89		5.35	Flat	0.90	1.00	31.51	5.83	15.47	
Platform Inner Bracing	Square/Rect.	60.000	5	1.89		5.35	Flat	0.90	1.00	30.98	5.76	15.47	
Support Rail	Pipe	120.000	2.375	2.375		2.38	Round	0.90	1.00	11.27	3.80	9.02	
Support Rail Corner Pipe	Pipe	36.000	2.375	2.375		2.38	Round	0.90	1.00	9.22	2.70	9.02	
Pipe Mount	Pipe	120.000	2.375	2.375		2.38	Round	0.90	1.00	11.27	3.80	9.02	
Ladder Support Bracing	Square/Rect.	34.000	5	1.89		5.35	Flat	0.90	1.00	27.51	5.23	15.47	
Ladder Rail	Angle	96.000	1.75	1.75		2.47	Flat	0.90	1.00	13.84	3.99	9.23	
Ladder Rung	Pipe	12.000	0.625	0.625		0.63	Round	0.90	1.00	2.65	1.73	5.22	
Mod Support Rail	Pipe	120.000	2.375	2.375		2.38	Round	0.90	1.00	11.27	3.80	9.02	
Mod Support Rail Corner Pipe	Pipe	36.000	2.375	2.375		2.38	Round	0.90	1.00	9.22	2.70	9.02	
Mod V-Kit	Angle	52.500	2.5	2.5		3.54	Flat	0.90	1.00	18.46	3.87	11.54	

*All forces are unfactored.

Appurtenances							Shielding			No Ice		Ice Output	
Appurtenance Model	Loading Elevation (ft)	Height (in)	Front Width (in)	Side Depth (in)	Wt (lbs)	Type for Area	Front Shielding (%)	Side Shielding (%)	K _s and/or block shielding	Normal Wind Force (lbs)*	Wt (lbs) (no ice)*	Normal Wind Force (lbs) (w/ ice)*	Wt (lbs) (only ice)*
(3) AIR6449 B41_T-MOBILE	183	33.11	20.51	8.54	114.63	Flat	0%	0%	0.90	242.87	114.63	42.21	158.20
(3) APX16DWV-16DWV-S-E-A20	183	55.9	13.3	3.15	40.7	CFD	0%	0%	0.90	268.66	40.70	53.58	143.64
(3) APXVAALL24_43-U-NA20_TMO	183	95.9	24	8.5	149.9	CFD	0%	0%	0.90	629.58	149.90	110.81	439.58
(3) RADIO 4415 B66A	183	16.5	13.5	6.3	49.6	Flat	0%	0%	0.90	79.66	49.60	15.47	63.89
(3) RADIO 4424 B25_TMO	183	17.1	14.4	11.3	86	Flat	0%	0%	0.90	88.06	86.00	16.88	88.53
(3) RADIO 4449 B71 B85A_T-MOBILE	183	17.91	13.2	10.63	73.21	Flat	0%	0%	0.90	84.55	73.21	16.32	84.05

*All forces are unfactored.

APPENDIX C
SOFTWARE ANALYSIS OUTPUT



Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (1E5 F)	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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Desig...A [in2]	Iyy [i...lzz [i...J [in4]
1	Platform Channel	C5X9	None	None	A36 Gr.36	Typical 2.64	.624 8.89 .109
2	Platform Inner Bracing	C5X9	None	None	A36 Gr.36	Typical 2.64	.624 8.89 .109
3	Support Rail	P2 Std.	None	None	A53 Gr.B	Typical 1.077	.67 .67 1.34
4	Support Rail Corner Pipe	P2 Std.	None	None	A53 Gr.B	Typical 1.077	.67 .67 1.34
5	Pipe Mount	P2 Std.	None	None	A53 Gr.B	Typical 1.077	.67 .67 1.34
6	Ladder Support Bracing	C5X9	None	None	A36 Gr.36	Typical 2.64	.624 8.89 .109
7	Ladder Rail	L1.75x1.75x1/4	None	None	A36 Gr.36	Typical .813	.227 .227 .015
8	Ladder Rung	SR 5/8	None	None	A36 Gr.36	Typical .307	.007 .007 .015
9	Mod Support Rail	P2 Std.	None	None	A53 Gr.B	Typical 1.077	.67 .67 1.34
10	Mod Support Rail Corne...	P2 Std.	None	None	A53 Gr.B	Typical 1.077	.67 .67 1.34
11	Mod V-Kit	L2.5x2.5x3/16	None	None	A36 Gr.36	Typical .902	.547 .547 .01

Basic Load Cases

	BLC Description	Category	X Gra...	Y Gra...	Z Grav...	Joint	Point	Distrib...	Area(Member)	Surface(Plate/W...
1	Dead	DL		-1			30		6	
2	No Ice Wind 0 deg	None					30	45		
3	No Ice Wind 30 deg	None					60	90		
4	No Ice Wind 60 deg	None					60	104		
5	No Ice Wind 90 deg	None					30	44		
6	No Ice Wind 120 deg	None					60	104		
7	No Ice Wind 150 deg	None					60	90		
8	No Ice Wind 180 deg	None					30	45		
9	No Ice Wind 210 deg	None					60	90		
10	No Ice Wind 240 deg	None					60	104		
11	No Ice Wind 270 deg	None					30	44		
12	No Ice Wind 300 deg	None					60	104		
13	No Ice Wind 330 deg	None					60	90		
14	Ice Weight	None					30	52	6	
15	Ice Wind 0 deg	None					30	45		
16	Ice Wind 30 deg	None					60	90		
17	Ice Wind 60 deg	None					60	104		
18	Ice Wind 90 deg	None					30	44		
19	Ice Wind 120 deg	None					60	104		
20	Ice Wind 150 deg	None					60	90		
21	Ice Wind 180 deg	None					30	45		
22	Ice Wind 210 deg	None					60	90		
23	Ice Wind 240 deg	None					60	104		
24	Ice Wind 270 deg	None					30	44		
25	Ice Wind 300 deg	None					60	104		
26	Ice Wind 330 deg	None					60	90		
27	Live Load - A1	None					1			
28	Live Load - A2	None					1			
29	Live Load - A3	None					1			



Company : GPD
 Designer : Nieto, Eric
 Job Number : 2021777.876375.01
 Model Name : 876375 - CANTERBURY / LEMIRE

Feb 4, 2021
 1:16 PM
 Checked By: _____

Basic Load Cases (Continued)

	BLC Description	Category	X Gra...	Y Gra...	Z Grav...	Joint	Point	Distrib...	Area(Member)	Surface(Plate/W...
30	Live Load - A4	None					1			
31	Live Load - A5	None					1			
32	Live Load - B1	None					1			
33	Live Load - B2	None					1			
34	Live Load - B3	None					1			
35	Live Load - B4	None					1			
36	Live Load - B5	None					1			
37	Live Load - C1	None					1			
38	Live Load - C2	None					1			
39	Live Load - C3	None					1			
40	Live Load - C4	None					1			
41	Live Load - C5	None					1			
42	Live Load - M1 (Start)	None					1			
43	Live Load - M1 (Middle)	None					1			
44	Live Load - M1 (End)	None					1			
45	Live Load - M2 (Start)	None					1			
46	Live Load - M2 (Middle)	None					1			
47	Live Load - M2 (End)	None					1			
48	Live Load - M21 (Start)	None					1			
49	Live Load - M21 (Middle)	None					1			
50	Live Load - M21 (End)	None					1			
51	Live Load - M32 (Start)	None					1			
52	Live Load - M32 (Middle)	None					1			
53	Live Load - M32 (End)	None					1			
54	Live Load - M33 (Start)	None					1			
55	Live Load - M33 (Middle)	None					1			
56	Live Load - M33 (End)	None					1			
57	Live Load - M41 (Start)	None					1			
58	Live Load - M41 (Middle)	None					1			
59	Live Load - M41 (End)	None					1			
60	Live Load - M42 (Start)	None					1			
61	Live Load - M42 (Middle)	None					1			
62	Live Load - M42 (End)	None					1			
63	Live Load - M43 (Start)	None					1			
64	Live Load - M43 (Middle)	None					1			
65	Live Load - M43 (End)	None					1			
66	Live Load - M52 (Start)	None					1			
67	Live Load - M52 (Middle)	None					1			
68	Live Load - M52 (End)	None					1			
69	Live Load - M63 (Start)	None					1			
70	Live Load - M63 (Middle)	None					1			
71	Live Load - M63 (End)	None					1			
72	Live Load - M64 (Start)	None					1			
73	Live Load - M64 (Middle)	None					1			
74	Live Load - M64 (End)	None					1			
75	Live Load - M83 (Start)	None					1			
76	Live Load - M83 (Middle)	None					1			
77	Live Load - M83 (End)	None					1			
78	Live Load - M94 (Start)	None					1			
79	Live Load - M94 (Middle)	None					1			
80	Live Load - M94 (End)	None					1			
81	Live Load - M95 (Start)	None					1			
82	Live Load - M95 (Middle)	None					1			
83	Live Load - M95 (End)	None					1			
84	BLC 1 Transient Area Loads	None						83		
85	BLC 14 Transient Area Loads	None						83		



Load Combinations (Continued)

	Description	S...	PDel...	SRSSB...	Fa...	B...	Fa...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...
57	1.2 Dead + 1.5 Live_M - A2 + 1.0 ...	Y...	Y		1	1.2	28	1.5	9	.053	0	0	0	0	0	0				
58	1.2 Dead + 1.5 Live_M - A2 + 1.0 ...	Y...	Y		1	1.2	28	1.5	10	.053	0	0	0	0	0	0				
59	1.2 Dead + 1.5 Live_M - A2 + 1.0 ...	Y...	Y		1	1.2	28	1.5	11	.053	0	0	0	0	0	0				
60	1.2 Dead + 1.5 Live_M - A2 + 1.0 ...	Y...	Y		1	1.2	28	1.5	12	.053	0	0	0	0	0	0				
61	1.2 Dead + 1.5 Live_M - A2 + 1.0 ...	Y...	Y		1	1.2	28	1.5	13	.053	0	0	0	0	0	0				
62	1.2 Dead + 1.5 Live_M - A3 + 1.0 ...	Y...	Y		1	1.2	29	1.5	2	.053	0	0	0	0	0	0				
63	1.2 Dead + 1.5 Live_M - A3 + 1.0 ...	Y...	Y		1	1.2	29	1.5	3	.053	0	0	0	0	0	0				
64	1.2 Dead + 1.5 Live_M - A3 + 1.0 ...	Y...	Y		1	1.2	29	1.5	4	.053	0	0	0	0	0	0				
65	1.2 Dead + 1.5 Live_M - A3 + 1.0 ...	Y...	Y		1	1.2	29	1.5	5	.053	0	0	0	0	0	0				
66	1.2 Dead + 1.5 Live_M - A3 + 1.0 ...	Y...	Y		1	1.2	29	1.5	6	.053	0	0	0	0	0	0				
67	1.2 Dead + 1.5 Live_M - A3 + 1.0 ...	Y...	Y		1	1.2	29	1.5	7	.053	0	0	0	0	0	0				
68	1.2 Dead + 1.5 Live_M - A3 + 1.0 ...	Y...	Y		1	1.2	29	1.5	8	.053	0	0	0	0	0	0				
69	1.2 Dead + 1.5 Live_M - A3 + 1.0 ...	Y...	Y		1	1.2	29	1.5	9	.053	0	0	0	0	0	0				
70	1.2 Dead + 1.5 Live_M - A3 + 1.0 ...	Y...	Y		1	1.2	29	1.5	10	.053	0	0	0	0	0	0				
71	1.2 Dead + 1.5 Live_M - A3 + 1.0 ...	Y...	Y		1	1.2	29	1.5	11	.053	0	0	0	0	0	0				
72	1.2 Dead + 1.5 Live_M - A3 + 1.0 ...	Y...	Y		1	1.2	29	1.5	12	.053	0	0	0	0	0	0				
73	1.2 Dead + 1.5 Live_M - A3 + 1.0 ...	Y...	Y		1	1.2	29	1.5	13	.053	0	0	0	0	0	0				
74	1.2 Dead + 1.5 Live_M - A4 + 1.0 ...	Y...	Y		1	1.2	30	1.5	2	.053	0	0	0	0	0	0				
75	1.2 Dead + 1.5 Live_M - A4 + 1.0 ...	Y...	Y		1	1.2	30	1.5	3	.053	0	0	0	0	0	0				
76	1.2 Dead + 1.5 Live_M - A4 + 1.0 ...	Y...	Y		1	1.2	30	1.5	4	.053	0	0	0	0	0	0				
77	1.2 Dead + 1.5 Live_M - A4 + 1.0 ...	Y...	Y		1	1.2	30	1.5	5	.053	0	0	0	0	0	0				
78	1.2 Dead + 1.5 Live_M - A4 + 1.0 ...	Y...	Y		1	1.2	30	1.5	6	.053	0	0	0	0	0	0				
79	1.2 Dead + 1.5 Live_M - A4 + 1.0 ...	Y...	Y		1	1.2	30	1.5	7	.053	0	0	0	0	0	0				
80	1.2 Dead + 1.5 Live_M - A4 + 1.0 ...	Y...	Y		1	1.2	30	1.5	8	.053	0	0	0	0	0	0				
81	1.2 Dead + 1.5 Live_M - A4 + 1.0 ...	Y...	Y		1	1.2	30	1.5	9	.053	0	0	0	0	0	0				
82	1.2 Dead + 1.5 Live_M - A4 + 1.0 ...	Y...	Y		1	1.2	30	1.5	10	.053	0	0	0	0	0	0				
83	1.2 Dead + 1.5 Live_M - A4 + 1.0 ...	Y...	Y		1	1.2	30	1.5	11	.053	0	0	0	0	0	0				
84	1.2 Dead + 1.5 Live_M - A4 + 1.0 ...	Y...	Y		1	1.2	30	1.5	12	.053	0	0	0	0	0	0				
85	1.2 Dead + 1.5 Live_M - A4 + 1.0 ...	Y...	Y		1	1.2	30	1.5	13	.053	0	0	0	0	0	0				
86	1.2 Dead + 1.5 Live_M - A5 + 1.0 ...	Y...	Y		1	1.2	31	1.5	2	.053	0	0	0	0	0	0				
87	1.2 Dead + 1.5 Live_M - A5 + 1.0 ...	Y...	Y		1	1.2	31	1.5	3	.053	0	0	0	0	0	0				
88	1.2 Dead + 1.5 Live_M - A5 + 1.0 ...	Y...	Y		1	1.2	31	1.5	4	.053	0	0	0	0	0	0				
89	1.2 Dead + 1.5 Live_M - A5 + 1.0 ...	Y...	Y		1	1.2	31	1.5	5	.053	0	0	0	0	0	0				
90	1.2 Dead + 1.5 Live_M - A5 + 1.0 ...	Y...	Y		1	1.2	31	1.5	6	.053	0	0	0	0	0	0				
91	1.2 Dead + 1.5 Live_M - A5 + 1.0 ...	Y...	Y		1	1.2	31	1.5	7	.053	0	0	0	0	0	0				
92	1.2 Dead + 1.5 Live_M - A5 + 1.0 ...	Y...	Y		1	1.2	31	1.5	8	.053	0	0	0	0	0	0				
93	1.2 Dead + 1.5 Live_M - A5 + 1.0 ...	Y...	Y		1	1.2	31	1.5	9	.053	0	0	0	0	0	0				
94	1.2 Dead + 1.5 Live_M - A5 + 1.0 ...	Y...	Y		1	1.2	31	1.5	10	.053	0	0	0	0	0	0				
95	1.2 Dead + 1.5 Live_M - A5 + 1.0 ...	Y...	Y		1	1.2	31	1.5	11	.053	0	0	0	0	0	0				
96	1.2 Dead + 1.5 Live_M - A5 + 1.0 ...	Y...	Y		1	1.2	31	1.5	12	.053	0	0	0	0	0	0				
97	1.2 Dead + 1.5 Live_M - A5 + 1.0 ...	Y...	Y		1	1.2	31	1.5	13	.053	0	0	0	0	0	0				
98	1.2 Dead + 1.5 Live_M - B1 + 1.0 ...	Y...	Y		1	1.2	32	1.5	2	.053	0	0	0	0	0	0				
99	1.2 Dead + 1.5 Live_M - B1 + 1.0 ...	Y...	Y		1	1.2	32	1.5	3	.053	0	0	0	0	0	0				
100	1.2 Dead + 1.5 Live_M - B1 + 1.0 ...	Y...	Y		1	1.2	32	1.5	4	.053	0	0	0	0	0	0				
101	1.2 Dead + 1.5 Live_M - B1 + 1.0 ...	Y...	Y		1	1.2	32	1.5	5	.053	0	0	0	0	0	0				
102	1.2 Dead + 1.5 Live_M - B1 + 1.0 ...	Y...	Y		1	1.2	32	1.5	6	.053	0	0	0	0	0	0				
103	1.2 Dead + 1.5 Live_M - B1 + 1.0 ...	Y...	Y		1	1.2	32	1.5	7	.053	0	0	0	0	0	0				
104	1.2 Dead + 1.5 Live_M - B1 + 1.0 ...	Y...	Y		1	1.2	32	1.5	8	.053	0	0	0	0	0	0				
105	1.2 Dead + 1.5 Live_M - B1 + 1.0 ...	Y...	Y		1	1.2	32	1.5	9	.053	0	0	0	0	0	0				
106	1.2 Dead + 1.5 Live_M - B1 + 1.0 ...	Y...	Y		1	1.2	32	1.5	10	.053	0	0	0	0	0	0				
107	1.2 Dead + 1.5 Live_M - B1 + 1.0 ...	Y...	Y		1	1.2	32	1.5	11	.053	0	0	0	0	0	0				
108	1.2 Dead + 1.5 Live_M - B1 + 1.0 ...	Y...	Y		1	1.2	32	1.5	12	.053	0	0	0	0	0	0				
109	1.2 Dead + 1.5 Live_M - B1 + 1.0 ...	Y...	Y		1	1.2	32	1.5	13	.053	0	0	0	0	0	0				
110	1.2 Dead + 1.5 Live_M - B2 + 1.0 ...	Y...	Y		1	1.2	33	1.5	2	.053	0	0	0	0	0	0				
111	1.2 Dead + 1.5 Live_M - B2 + 1.0 ...	Y...	Y		1	1.2	33	1.5	3	.053	0	0	0	0	0	0				
112	1.2 Dead + 1.5 Live_M - B2 + 1.0 ...	Y...	Y		1	1.2	33	1.5	4	.053	0	0	0	0	0	0				
113	1.2 Dead + 1.5 Live_M - B2 + 1.0 ...	Y...	Y		1	1.2	33	1.5	5	.053	0	0	0	0	0	0				



Load Combinations (Continued)

	Description	S...	PDel...	SRSSB...	Fa...	B...	Fa...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...
114	1.2 Dead + 1.5 Live_M - B2 + 1.0 ...	Y...	Y		1	1.2	33	1.5	6	.053	0		0		0		0		0		0	
115	1.2 Dead + 1.5 Live_M - B2 + 1.0 ...	Y...	Y		1	1.2	33	1.5	7	.053	0		0		0		0		0		0	
116	1.2 Dead + 1.5 Live_M - B2 + 1.0 ...	Y...	Y		1	1.2	33	1.5	8	.053	0		0		0		0		0		0	
117	1.2 Dead + 1.5 Live_M - B2 + 1.0 ...	Y...	Y		1	1.2	33	1.5	9	.053	0		0		0		0		0		0	
118	1.2 Dead + 1.5 Live_M - B2 + 1.0 ...	Y...	Y		1	1.2	33	1.5	10	.053	0		0		0		0		0		0	
119	1.2 Dead + 1.5 Live_M - B2 + 1.0 ...	Y...	Y		1	1.2	33	1.5	11	.053	0		0		0		0		0		0	
120	1.2 Dead + 1.5 Live_M - B2 + 1.0 ...	Y...	Y		1	1.2	33	1.5	12	.053	0		0		0		0		0		0	
121	1.2 Dead + 1.5 Live_M - B2 + 1.0 ...	Y...	Y		1	1.2	33	1.5	13	.053	0		0		0		0		0		0	
122	1.2 Dead + 1.5 Live_M - B3 + 1.0 ...	Y...	Y		1	1.2	34	1.5	2	.053	0		0		0		0		0		0	
123	1.2 Dead + 1.5 Live_M - B3 + 1.0 ...	Y...	Y		1	1.2	34	1.5	3	.053	0		0		0		0		0		0	
124	1.2 Dead + 1.5 Live_M - B3 + 1.0 ...	Y...	Y		1	1.2	34	1.5	4	.053	0		0		0		0		0		0	
125	1.2 Dead + 1.5 Live_M - B3 + 1.0 ...	Y...	Y		1	1.2	34	1.5	5	.053	0		0		0		0		0		0	
126	1.2 Dead + 1.5 Live_M - B3 + 1.0 ...	Y...	Y		1	1.2	34	1.5	6	.053	0		0		0		0		0		0	
127	1.2 Dead + 1.5 Live_M - B3 + 1.0 ...	Y...	Y		1	1.2	34	1.5	7	.053	0		0		0		0		0		0	
128	1.2 Dead + 1.5 Live_M - B3 + 1.0 ...	Y...	Y		1	1.2	34	1.5	8	.053	0		0		0		0		0		0	
129	1.2 Dead + 1.5 Live_M - B3 + 1.0 ...	Y...	Y		1	1.2	34	1.5	9	.053	0		0		0		0		0		0	
130	1.2 Dead + 1.5 Live_M - B3 + 1.0 ...	Y...	Y		1	1.2	34	1.5	10	.053	0		0		0		0		0		0	
131	1.2 Dead + 1.5 Live_M - B3 + 1.0 ...	Y...	Y		1	1.2	34	1.5	11	.053	0		0		0		0		0		0	
132	1.2 Dead + 1.5 Live_M - B3 + 1.0 ...	Y...	Y		1	1.2	34	1.5	12	.053	0		0		0		0		0		0	
133	1.2 Dead + 1.5 Live_M - B3 + 1.0 ...	Y...	Y		1	1.2	34	1.5	13	.053	0		0		0		0		0		0	
134	1.2 Dead + 1.5 Live_M - B4 + 1.0 ...	Y...	Y		1	1.2	35	1.5	2	.053	0		0		0		0		0		0	
135	1.2 Dead + 1.5 Live_M - B4 + 1.0 ...	Y...	Y		1	1.2	35	1.5	3	.053	0		0		0		0		0		0	
136	1.2 Dead + 1.5 Live_M - B4 + 1.0 ...	Y...	Y		1	1.2	35	1.5	4	.053	0		0		0		0		0		0	
137	1.2 Dead + 1.5 Live_M - B4 + 1.0 ...	Y...	Y		1	1.2	35	1.5	5	.053	0		0		0		0		0		0	
138	1.2 Dead + 1.5 Live_M - B4 + 1.0 ...	Y...	Y		1	1.2	35	1.5	6	.053	0		0		0		0		0		0	
139	1.2 Dead + 1.5 Live_M - B4 + 1.0 ...	Y...	Y		1	1.2	35	1.5	7	.053	0		0		0		0		0		0	
140	1.2 Dead + 1.5 Live_M - B4 + 1.0 ...	Y...	Y		1	1.2	35	1.5	8	.053	0		0		0		0		0		0	
141	1.2 Dead + 1.5 Live_M - B4 + 1.0 ...	Y...	Y		1	1.2	35	1.5	9	.053	0		0		0		0		0		0	
142	1.2 Dead + 1.5 Live_M - B4 + 1.0 ...	Y...	Y		1	1.2	35	1.5	10	.053	0		0		0		0		0		0	
143	1.2 Dead + 1.5 Live_M - B4 + 1.0 ...	Y...	Y		1	1.2	35	1.5	11	.053	0		0		0		0		0		0	
144	1.2 Dead + 1.5 Live_M - B4 + 1.0 ...	Y...	Y		1	1.2	35	1.5	12	.053	0		0		0		0		0		0	
145	1.2 Dead + 1.5 Live_M - B4 + 1.0 ...	Y...	Y		1	1.2	35	1.5	13	.053	0		0		0		0		0		0	
146	1.2 Dead + 1.5 Live_M - B5 + 1.0 ...	Y...	Y		1	1.2	36	1.5	2	.053	0		0		0		0		0		0	
147	1.2 Dead + 1.5 Live_M - B5 + 1.0 ...	Y...	Y		1	1.2	36	1.5	3	.053	0		0		0		0		0		0	
148	1.2 Dead + 1.5 Live_M - B5 + 1.0 ...	Y...	Y		1	1.2	36	1.5	4	.053	0		0		0		0		0		0	
149	1.2 Dead + 1.5 Live_M - B5 + 1.0 ...	Y...	Y		1	1.2	36	1.5	5	.053	0		0		0		0		0		0	
150	1.2 Dead + 1.5 Live_M - B5 + 1.0 ...	Y...	Y		1	1.2	36	1.5	6	.053	0		0		0		0		0		0	
151	1.2 Dead + 1.5 Live_M - B5 + 1.0 ...	Y...	Y		1	1.2	36	1.5	7	.053	0		0		0		0		0		0	
152	1.2 Dead + 1.5 Live_M - B5 + 1.0 ...	Y...	Y		1	1.2	36	1.5	8	.053	0		0		0		0		0		0	
153	1.2 Dead + 1.5 Live_M - B5 + 1.0 ...	Y...	Y		1	1.2	36	1.5	9	.053	0		0		0		0		0		0	
154	1.2 Dead + 1.5 Live_M - B5 + 1.0 ...	Y...	Y		1	1.2	36	1.5	10	.053	0		0		0		0		0		0	
155	1.2 Dead + 1.5 Live_M - B5 + 1.0 ...	Y...	Y		1	1.2	36	1.5	11	.053	0		0		0		0		0		0	
156	1.2 Dead + 1.5 Live_M - B5 + 1.0 ...	Y...	Y		1	1.2	36	1.5	12	.053	0		0		0		0		0		0	
157	1.2 Dead + 1.5 Live_M - B5 + 1.0 ...	Y...	Y		1	1.2	36	1.5	13	.053	0		0		0		0		0		0	
158	1.2 Dead + 1.5 Live_M - C1 + 1.0 ...	Y...	Y		1	1.2	37	1.5	2	.053	0		0		0		0		0		0	
159	1.2 Dead + 1.5 Live_M - C1 + 1.0 ...	Y...	Y		1	1.2	37	1.5	3	.053	0		0		0		0		0		0	
160	1.2 Dead + 1.5 Live_M - C1 + 1.0 ...	Y...	Y		1	1.2	37	1.5	4	.053	0		0		0		0		0		0	
161	1.2 Dead + 1.5 Live_M - C1 + 1.0 ...	Y...	Y		1	1.2	37	1.5	5	.053	0		0		0		0		0		0	
162	1.2 Dead + 1.5 Live_M - C1 + 1.0 ...	Y...	Y		1	1.2	37	1.5	6	.053	0		0		0		0		0		0	
163	1.2 Dead + 1.5 Live_M - C1 + 1.0 ...	Y...	Y		1	1.2	37	1.5	7	.053	0		0		0		0		0		0	
164	1.2 Dead + 1.5 Live_M - C1 + 1.0 ...	Y...	Y		1	1.2	37	1.5	8	.053	0		0		0		0		0		0	
165	1.2 Dead + 1.5 Live_M - C1 + 1.0 ...	Y...	Y		1	1.2	37	1.5	9	.053	0		0		0		0		0		0	
166	1.2 Dead + 1.5 Live_M - C1 + 1.0 ...	Y...	Y		1	1.2	37	1.5	10	.053	0		0		0		0		0		0	
167	1.2 Dead + 1.5 Live_M - C1 + 1.0 ...	Y...	Y		1	1.2	37	1.5	11	.053	0		0		0		0		0		0	
168	1.2 Dead + 1.5 Live_M - C1 + 1.0 ...	Y...	Y		1	1.2	37	1.5	12	.053	0		0		0		0		0		0	
169	1.2 Dead + 1.5 Live_M - C1 + 1.0 ...	Y...	Y		1	1.2	37	1.5	13	.053	0		0		0		0		0		0	
170	1.2 Dead + 1.5 Live_M - C2 + 1.0 ...	Y...	Y		1	1.2	38	1.5	2	.053	0		0		0		0		0		0	

Load Combinations (Continued)

	Description	S...	PDel...	SRSSB...	Fa...	B...	Fa...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...
171	1.2 Dead + 1.5 Live_M - C2 + 1.0 ...	Y...	Y	1	1.2	38	1.5	3	.053	0	0	0	0	0	0	0				
172	1.2 Dead + 1.5 Live_M - C2 + 1.0 ...	Y...	Y	1	1.2	38	1.5	4	.053	0	0	0	0	0	0	0				
173	1.2 Dead + 1.5 Live_M - C2 + 1.0 ...	Y...	Y	1	1.2	38	1.5	5	.053	0	0	0	0	0	0	0				
174	1.2 Dead + 1.5 Live_M - C2 + 1.0 ...	Y...	Y	1	1.2	38	1.5	6	.053	0	0	0	0	0	0	0				
175	1.2 Dead + 1.5 Live_M - C2 + 1.0 ...	Y...	Y	1	1.2	38	1.5	7	.053	0	0	0	0	0	0	0				
176	1.2 Dead + 1.5 Live_M - C2 + 1.0 ...	Y...	Y	1	1.2	38	1.5	8	.053	0	0	0	0	0	0	0				
177	1.2 Dead + 1.5 Live_M - C2 + 1.0 ...	Y...	Y	1	1.2	38	1.5	9	.053	0	0	0	0	0	0	0				
178	1.2 Dead + 1.5 Live_M - C2 + 1.0 ...	Y...	Y	1	1.2	38	1.5	10	.053	0	0	0	0	0	0	0				
179	1.2 Dead + 1.5 Live_M - C2 + 1.0 ...	Y...	Y	1	1.2	38	1.5	11	.053	0	0	0	0	0	0	0				
180	1.2 Dead + 1.5 Live_M - C2 + 1.0 ...	Y...	Y	1	1.2	38	1.5	12	.053	0	0	0	0	0	0	0				
181	1.2 Dead + 1.5 Live_M - C2 + 1.0 ...	Y...	Y	1	1.2	38	1.5	13	.053	0	0	0	0	0	0	0				
182	1.2 Dead + 1.5 Live_M - C3 + 1.0 ...	Y...	Y	1	1.2	39	1.5	2	.053	0	0	0	0	0	0	0				
183	1.2 Dead + 1.5 Live_M - C3 + 1.0 ...	Y...	Y	1	1.2	39	1.5	3	.053	0	0	0	0	0	0	0				
184	1.2 Dead + 1.5 Live_M - C3 + 1.0 ...	Y...	Y	1	1.2	39	1.5	4	.053	0	0	0	0	0	0	0				
185	1.2 Dead + 1.5 Live_M - C3 + 1.0 ...	Y...	Y	1	1.2	39	1.5	5	.053	0	0	0	0	0	0	0				
186	1.2 Dead + 1.5 Live_M - C3 + 1.0 ...	Y...	Y	1	1.2	39	1.5	6	.053	0	0	0	0	0	0	0				
187	1.2 Dead + 1.5 Live_M - C3 + 1.0 ...	Y...	Y	1	1.2	39	1.5	7	.053	0	0	0	0	0	0	0				
188	1.2 Dead + 1.5 Live_M - C3 + 1.0 ...	Y...	Y	1	1.2	39	1.5	8	.053	0	0	0	0	0	0	0				
189	1.2 Dead + 1.5 Live_M - C3 + 1.0 ...	Y...	Y	1	1.2	39	1.5	9	.053	0	0	0	0	0	0	0				
190	1.2 Dead + 1.5 Live_M - C3 + 1.0 ...	Y...	Y	1	1.2	39	1.5	10	.053	0	0	0	0	0	0	0				
191	1.2 Dead + 1.5 Live_M - C3 + 1.0 ...	Y...	Y	1	1.2	39	1.5	11	.053	0	0	0	0	0	0	0				
192	1.2 Dead + 1.5 Live_M - C3 + 1.0 ...	Y...	Y	1	1.2	39	1.5	12	.053	0	0	0	0	0	0	0				
193	1.2 Dead + 1.5 Live_M - C3 + 1.0 ...	Y...	Y	1	1.2	39	1.5	13	.053	0	0	0	0	0	0	0				
194	1.2 Dead + 1.5 Live_M - C4 + 1.0 ...	Y...	Y	1	1.2	40	1.5	2	.053	0	0	0	0	0	0	0				
195	1.2 Dead + 1.5 Live_M - C4 + 1.0 ...	Y...	Y	1	1.2	40	1.5	3	.053	0	0	0	0	0	0	0				
196	1.2 Dead + 1.5 Live_M - C4 + 1.0 ...	Y...	Y	1	1.2	40	1.5	4	.053	0	0	0	0	0	0	0				
197	1.2 Dead + 1.5 Live_M - C4 + 1.0 ...	Y...	Y	1	1.2	40	1.5	5	.053	0	0	0	0	0	0	0				
198	1.2 Dead + 1.5 Live_M - C4 + 1.0 ...	Y...	Y	1	1.2	40	1.5	6	.053	0	0	0	0	0	0	0				
199	1.2 Dead + 1.5 Live_M - C4 + 1.0 ...	Y...	Y	1	1.2	40	1.5	7	.053	0	0	0	0	0	0	0				
200	1.2 Dead + 1.5 Live_M - C4 + 1.0 ...	Y...	Y	1	1.2	40	1.5	8	.053	0	0	0	0	0	0	0				
201	1.2 Dead + 1.5 Live_M - C4 + 1.0 ...	Y...	Y	1	1.2	40	1.5	9	.053	0	0	0	0	0	0	0				
202	1.2 Dead + 1.5 Live_M - C4 + 1.0 ...	Y...	Y	1	1.2	40	1.5	10	.053	0	0	0	0	0	0	0				
203	1.2 Dead + 1.5 Live_M - C4 + 1.0 ...	Y...	Y	1	1.2	40	1.5	11	.053	0	0	0	0	0	0	0				
204	1.2 Dead + 1.5 Live_M - C4 + 1.0 ...	Y...	Y	1	1.2	40	1.5	12	.053	0	0	0	0	0	0	0				
205	1.2 Dead + 1.5 Live_M - C4 + 1.0 ...	Y...	Y	1	1.2	40	1.5	13	.053	0	0	0	0	0	0	0				
206	1.2 Dead + 1.5 Live_M - C5 + 1.0 ...	Y...	Y	1	1.2	41	1.5	2	.053	0	0	0	0	0	0	0				
207	1.2 Dead + 1.5 Live_M - C5 + 1.0 ...	Y...	Y	1	1.2	41	1.5	3	.053	0	0	0	0	0	0	0				
208	1.2 Dead + 1.5 Live_M - C5 + 1.0 ...	Y...	Y	1	1.2	41	1.5	4	.053	0	0	0	0	0	0	0				
209	1.2 Dead + 1.5 Live_M - C5 + 1.0 ...	Y...	Y	1	1.2	41	1.5	5	.053	0	0	0	0	0	0	0				
210	1.2 Dead + 1.5 Live_M - C5 + 1.0 ...	Y...	Y	1	1.2	41	1.5	6	.053	0	0	0	0	0	0	0				
211	1.2 Dead + 1.5 Live_M - C5 + 1.0 ...	Y...	Y	1	1.2	41	1.5	7	.053	0	0	0	0	0	0	0				
212	1.2 Dead + 1.5 Live_M - C5 + 1.0 ...	Y...	Y	1	1.2	41	1.5	8	.053	0	0	0	0	0	0	0				
213	1.2 Dead + 1.5 Live_M - C5 + 1.0 ...	Y...	Y	1	1.2	41	1.5	9	.053	0	0	0	0	0	0	0				
214	1.2 Dead + 1.5 Live_M - C5 + 1.0 ...	Y...	Y	1	1.2	41	1.5	10	.053	0	0	0	0	0	0	0				
215	1.2 Dead + 1.5 Live_M - C5 + 1.0 ...	Y...	Y	1	1.2	41	1.5	11	.053	0	0	0	0	0	0	0				
216	1.2 Dead + 1.5 Live_M - C5 + 1.0 ...	Y...	Y	1	1.2	41	1.5	12	.053	0	0	0	0	0	0	0				
217	1.2 Dead + 1.5 Live_M - C5 + 1.0 ...	Y...	Y	1	1.2	41	1.5	13	.053	0	0	0	0	0	0	0				
218	1.2 Dead + 1.5 Live_V - M1 (Start)	Y...	Y	1	1.2	42	1.5	0		0	0	0	0	0	0	0				
219	1.2 Dead + 1.5 Live_V - M1 (Middle)	Y...	Y	1	1.2	43	1.5	0		0	0	0	0	0	0	0				
220	1.2 Dead + 1.5 Live_V - M1 (End)	Y...	Y	1	1.2	44	1.5	0		0	0	0	0	0	0	0				
221	1.2 Dead + 1.5 Live_V - M2 (Start)	Y...	Y	1	1.2	45	1.5	0		0	0	0	0	0	0	0				
222	1.2 Dead + 1.5 Live_V - M2 (Middle)	Y...	Y	1	1.2	46	1.5	0		0	0	0	0	0	0	0				
223	1.2 Dead + 1.5 Live_V - M2 (End)	Y...	Y	1	1.2	47	1.5	0		0	0	0	0	0	0	0				
224	1.2 Dead + 1.5 Live_V - M21 (Start)	Y...	Y	1	1.2	48	1.5	0		0	0	0	0	0	0	0				
225	1.2 Dead + 1.5 Live_V - M21 (Mid...	Y...	Y	1	1.2	49	1.5	0		0	0	0	0	0	0	0				
226	1.2 Dead + 1.5 Live_V - M21 (End)	Y...	Y	1	1.2	50	1.5	0		0	0	0	0	0	0	0				
227	1.2 Dead + 1.5 Live_V - M32 (Start)	Y...	Y	1	1.2	51	1.5	0		0	0	0	0	0	0	0				



Load Combinations (Continued)

Description	S...	PDel...	SRSSB...	Fa...	B...	Fa...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...
228	1.2 Dead + 1.5 Live_V - M32 (Midd..	Y...	Y	1	1.2	52	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
229	1.2 Dead + 1.5 Live_V - M32 (End)	Y...	Y	1	1.2	53	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
230	1.2 Dead + 1.5 Live_V - M33 (Start)	Y...	Y	1	1.2	54	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
231	1.2 Dead + 1.5 Live_V - M33 (Midd..	Y...	Y	1	1.2	55	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
232	1.2 Dead + 1.5 Live_V - M33 (End)	Y...	Y	1	1.2	56	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
233	1.2 Dead + 1.5 Live_V - M41 (Start)	Y...	Y	1	1.2	57	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
234	1.2 Dead + 1.5 Live_V - M41 (Midd..	Y...	Y	1	1.2	58	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	1.2 Dead + 1.5 Live_V - M41 (End)	Y...	Y	1	1.2	59	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
236	1.2 Dead + 1.5 Live_V - M42 (Start)	Y...	Y	1	1.2	60	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
237	1.2 Dead + 1.5 Live_V - M42 (Midd..	Y...	Y	1	1.2	61	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
238	1.2 Dead + 1.5 Live_V - M42 (End)	Y...	Y	1	1.2	62	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
239	1.2 Dead + 1.5 Live_V - M43 (Start)	Y...	Y	1	1.2	63	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
240	1.2 Dead + 1.5 Live_V - M43 (Midd..	Y...	Y	1	1.2	64	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
241	1.2 Dead + 1.5 Live_V - M43 (End)	Y...	Y	1	1.2	65	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
242	1.2 Dead + 1.5 Live_V - M52 (Start)	Y...	Y	1	1.2	66	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
243	1.2 Dead + 1.5 Live_V - M52 (Midd..	Y...	Y	1	1.2	67	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
244	1.2 Dead + 1.5 Live_V - M52 (End)	Y...	Y	1	1.2	68	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
245	1.2 Dead + 1.5 Live_V - M63 (Start)	Y...	Y	1	1.2	69	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
246	1.2 Dead + 1.5 Live_V - M63 (Midd..	Y...	Y	1	1.2	70	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
247	1.2 Dead + 1.5 Live_V - M63 (End)	Y...	Y	1	1.2	71	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
248	1.2 Dead + 1.5 Live_V - M64 (Start)	Y...	Y	1	1.2	72	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
249	1.2 Dead + 1.5 Live_V - M64 (Midd..	Y...	Y	1	1.2	73	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
250	1.2 Dead + 1.5 Live_V - M64 (End)	Y...	Y	1	1.2	74	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
251	1.2 Dead + 1.5 Live_V - M83 (Start)	Y...	Y	1	1.2	75	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
252	1.2 Dead + 1.5 Live_V - M83 (Midd..	Y...	Y	1	1.2	76	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253	1.2 Dead + 1.5 Live_V - M83 (End)	Y...	Y	1	1.2	77	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
254	1.2 Dead + 1.5 Live_V - M94 (Start)	Y...	Y	1	1.2	78	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
255	1.2 Dead + 1.5 Live_V - M94 (Midd..	Y...	Y	1	1.2	79	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
256	1.2 Dead + 1.5 Live_V - M94 (End)	Y...	Y	1	1.2	80	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	1.2 Dead + 1.5 Live_V - M95 (Start)	Y...	Y	1	1.2	81	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
258	1.2 Dead + 1.5 Live_V - M95 (Midd..	Y...	Y	1	1.2	82	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
259	1.2 Dead + 1.5 Live_V - M95 (End)	Y...	Y	1	1.2	83	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Envelope Joint Reactions

Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC	
1	N7	m..1078.273	3	2836.027	26	2072.24	10	0	259	0	259	0	259
2		min-1129.8..	14	-799.234	15	-1987.898	23	0	1	0	1	0	1
3	N6	m..2062.277	13	130.689	15	3.921	11	0	259	0	259	0	259
4		min-2093.8..	24	-4428.78	26	-3.921	18	0	1	0	1	0	1
5	N5	m..2235.766	24	3736.958	26	3004.917	9	0	259	0	259	0	259
6		min-2135.7..	13	833.315	15	-3073.83	20	0	1	0	1	0	1
7	N62	m..2545.613	2	3081.504	29	1240.537	4	0	259	0	259	0	259
8		min-2451.9..	15	647.248	21	-1113.068	17	0	1	0	1	0	1
9	N63	m..821.773	8	156.157	21	1402.876	21	0	259	0	259	0	259
10		min-815.179	21	-4187.58	29	-1414.297	8	0	1	0	1	0	1
11	N64	m..1545.321	7	2962.545	31	2061.429	9	0	259	0	259	0	259
12		min-1638.8..	18	-789.397	25	-2167.918	20	0	1	0	1	0	1
13	N119	m..1750.842	23	3142.754	32	1881.521	8	0	259	0	259	0	259
14		min-1884.9..	10	583.519	3	-1880.026	20	0	1	0	1	0	1
15	N120	m..837.481	18	33.955	7	1447.246	18	0	259	0	259	0	259
16		min -831	7	-4202.986	34	-1436.02	7	0	1	0	1	0	1
17	N121	m..2805.832	2	2969.904	35	557.025	13	0	259	0	259	0	259
18		min-2645.37	15	-621.654	9	-596.788	24	0	1	0	1	0	1
19	N64B	m..1240.805	32	1917.112	32	335.553	95	0	8	0	8	0	16
20		min -366.73	3	-618.61	3	-272.35	41	0	21	0	21	0	5

Envelope Joint Reactions (Continued)

Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
21	N82	m..299.747	13	1985.884	35	1056.184	35	0	9	0	17	13
22		min-773.673	37	-597.79	11	-277.318	9	0	20	0	4	24
23	N86	m..191.543	17	1976.665	29	389.575	21	0	8	0	24	17
24		min-620.192	27	-640.223	21	-1136.077	29	0	21	0	13	4
25	Totals:	m..6088.751	2	10704.85	29	6059.25	9					
26		min-6088.7..	14	2976.022	21	-6059.252	20					

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

Member	Shape	Code Che...	Loc[in]	LC	Shear Che...	Loc[in]	Dir	LC	phi*...	phi*...	phi*...	phi*...	Eqn	
1	B3	P2 Std.	.961	90	20	.149	90	4	2383..	3392..	2.006	2.006	H1-...	
2	A3	P2 Std.	.920	90	12	.163	90	20	2383..	3392..	2.006	2.006	H1-...	
3	C3	P2 Std.	.906	90	4	.149	90	12	2383..	3392..	2.006	2.006	H1-...	
4	B4	P2 Std.	.759	90	8	.114	90	20	2383..	3392..	2.006	2.006	H1-...	
5	C2	P2 Std.	.728	90	8	.118	90	8	2383..	3392..	2.006	2.006	H1-...	
6	C4	P2 Std.	.684	90	16	.101	90	24	2383..	3392..	2.006	2.006	H1-...	
7	A4	P2 Std.	.656	90	24	.110	90	20	2383..	3392..	2.006	2.006	H1-...	
8	B2	P2 Std.	.625	90	12	.096	90	16	2383..	3392..	2.006	2.006	H1-...	
9	A2	P2 Std.	.548	90	16	.104	90	8	2383..	3392..	2.006	2.006	H1-...	
10	M83	C5X9	.460	4.72	6	.191	53.269	z	155	3363..	85536	1.909	11.8...	H1-...
11	M52	C5X9	.458	4.72	20	.194	53.269	z	92	3363..	85536	1.909	11.8...	H1-...
12	M21	C5X9	.439	4.72	14	.194	53.269	z	207	3363..	85536	1.909	11.8...	H1-...
13	M63	C5X9	.436	60.012	2	.191	11.463	z	109	3363..	85536	1.909	11.8...	H1-...
14	M32	C5X9	.420	60.012	18	.191	11.463	z	44	3363..	85536	1.909	11.8...	H1-...
15	M1	C5X9	.387	60.012	8	.191	11.463	z	161	3363..	85536	1.909	11.8...	H1-...
16	M94	C5X9	.365	0	20	.178	6	z	20	7523..	85536	1.909	11.8...	H1-...
17	M2	C5X9	.331	59.911	8	.081	34.324	y	37	3845..	85536	1.909	11.8...	H1-...
18	M36	P2 Std.	.324	55	20	.197	103.75	14	1051..	3392..	2.006	2.006	H1-...	
19	M37	P2 Std.	.311	55	4	.197	23.75	2	1051..	3392..	2.006	2.006	H1-...	
20	M35	P2 Std.	.297	55	12	.199	103.75	8	1051..	3392..	2.006	2.006	H1-...	
21	M33	C5X9	.279	59.911	20	.070	34.324	y	27	3845..	85536	1.909	11.8...	H1-...
22	M42	P2 Std.	.275	16.25	24	.132	96.25	22	1051..	3392..	2.006	2.006	H1-...	
23	M64	C5X9	.259	59.911	4	.071	34.324	y	32	3845..	85536	1.909	11.8...	H1-...
24	M43	P2 Std.	.250	33.75	8	.144	23.75	6	1051..	3392..	2.006	2.006	H1-...	
25	M41	P2 Std.	.245	33.75	16	.148	23.75	14	1051..	3392..	2.006	2.006	H1-...	
26	M95	C5X9	.187	0	20	.018	16.099	z	8	6790..	85536	1.909	11.8...	H1-...
27	A5	P2 Std.	.158	49.875	97	.004	49.875	14	4864..	3392..	2.006	2.006	H1-...	
28	B1	P2 Std.	.158	49.875	109	.004	49.875	20	4864..	3392..	2.006	2.006	H1-...	
29	A1	P2 Std.	.158	49.875	49	.004	49.875	14	4864..	3392..	2.006	2.006	H1-...	
30	B5	P2 Std.	.158	49.875	157	.004	49.875	2	4864..	3392..	2.006	2.006	H1-...	
31	C1	P2 Std.	.158	49.875	169	.004	49.875	2	4864..	3392..	2.006	2.006	H1-...	
32	C5	P2 Std.	.158	49.875	217	.004	49.875	8	4864..	3392..	2.006	2.006	H1-...	
33	M38	P2 Std.	.119	15.863	20	.364	0	20	3169..	3392..	2.006	2.006	H3-6	
34	M46	L2.5x2.5x3/16	.110	23.031	37	.006	0	y	20	1887..	2923..	.911	1.766	H2-1
35	M39	P2 Std.	.109	12.87	4	.347	0	4	3169..	3392..	2.006	2.006	H3-6	
36	M40	P2 Std.	.108	12.87	12	.348	0	12	3169..	3392..	2.006	2.006	H3-6	
37	M49	L2.5x2.5x3/16	.106	23.031	29	.006	0	y	4	1887..	2923..	.911	1.766	H2-1
38	M44	L2.5x2.5x3/16	.105	23.031	32	.006	45.122	y	12	1887..	2923..	.911	1.766	H2-1
39	M48	L2.5x2.5x3/16	.101	23.031	27	.006	0	z	8	1887..	2923..	.911	1.766	H2-1
40	M47	L2.5x2.5x3/16	.099	23.031	35	.007	45.122	z	24	1887..	2923..	.911	1.766	H2-1
41	M45A	L2.5x2.5x3/16	.099	23.031	32	.006	0	z	16	1887..	2923..	.911	1.766	H2-1
42	M50	P2 Std.	.012	14.366	26	.055	0	8	3169..	3392..	2.006	2.006	H1-...	
43	M51A	P2 Std.	.012	14.366	29	.071	0	16	3169..	3392..	2.006	2.006	H1-...	
44	M52A	P2 Std.	.012	14.366	35	.072	0	24	3169..	3392..	2.006	2.006	H1-...	

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

Member	Shape	Code Check Actual	Code Check Allowable	Ratio (Act./Allow.)	Loc[in]	LC	Shear Check	Shear Check Allowable	Ratio (Act./Allow.)	Loc[in]	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Egn	
1	B3	P2 Std.	0.961	1.05	0.915*	90	20	0.149	1.05	0.142*	90	2383.491	33925.5	2.006	2.006	1.758	H1-1a
2	A3	P2 Std.	0.92	1.05	0.876*	90	12	0.163	1.05	0.155*	90	2383.491	33925.5	2.006	2.006	1.732	H1-1a
3	C3	P2 Std.	0.906	1.05	0.863*	90	4	0.149	1.05	0.142*	90	2383.491	33925.5	2.006	2.006	1.916	H1-1a
4	B4	P2 Std.	0.759	1.05	0.723*	90	8	0.114	1.05	0.109*	90	2383.491	33925.5	2.006	2.006	1.777	H1-1a
5	C2	P2 Std.	0.728	1.05	0.693*	90	8	0.118	1.05	0.112*	90	2383.491	33925.5	2.006	2.006	2.042	H1-1a
6	C4	P2 Std.	0.684	1.05	0.651*	90	16	0.101	1.05	0.096*	90	2383.491	33925.5	2.006	2.006	2.088	H1-1a
7	A4	P2 Std.	0.656	1.05	0.625*	90	24	0.11	1.05	0.105*	90	2383.491	33925.5	2.006	2.006	1.887	H1-1a
8	B2	P2 Std.	0.625	1.05	0.595*	90	12	0.096	1.05	0.091*	90	2383.491	33925.5	2.006	2.006	2.04	H1-1a
9	A2	P2 Std.	0.548	1.05	0.522*	90	16	0.104	1.05	0.099*	90	2383.491	33925.5	2.006	2.006	1.905	H1-1b
10	M83	C5X9	0.46	1.05	0.438*	4.72	6	0.191	1.05	0.182*	53.27	33638.136	85536	1.909	11.853	2.139	H1-1b
11	M52	C5X9	0.458	1.05	0.436*	4.72	20	0.194	1.05	0.185*	53.27	33638.135	85536	1.909	11.853	2.917	H1-1b
12	M21	C5X9	0.439	1.05	0.418*	4.72	14	0.194	1.05	0.185*	53.27	33638.135	85536	1.909	11.853	2.198	H1-1b
13	M63	C5X9	0.436	1.05	0.415*	60.01	2	0.191	1.05	0.182*	11.46	33638.135	85536	1.909	11.853	1.871	H1-1b
14	M32	C5X9	0.42	1.05	0.4*	60.01	18	0.191	1.05	0.182*	11.46	33638.136	85536	1.909	11.853	1.81	H1-1b
15	M1	C5X9	0.387	1.05	0.368*	60.01	8	0.191	1.05	0.182*	11.46	33638.135	85536	1.909	11.853	1.63	H1-1b
16	M94	C5X9	0.365	1.05	0.348*	0	20	0.178	1.05	0.17*	6	75237.284	85536	1.909	11.853	1.301	H1-1b
17	M2	C5X9	0.331	1.05	0.315*	59.91	8	0.081	1.05	0.077*	34.32	38455.723	85536	1.909	11.853	2.63	H1-1b
18	M36	P2 Std.	0.324	1.05	0.309*	55	20	0.197	1.05	0.188*	103.8	10511.197	33925.5	2.006	2.006	2.828	H1-1b
19	M37	P2 Std.	0.311	1.05	0.296*	55	4	0.197	1.05	0.188*	23.75	10511.197	33925.5	2.006	2.006	2.639	H1-1b
20	M35	P2 Std.	0.297	1.05	0.283*	55	12	0.199	1.05	0.19*	103.8	10511.197	33925.5	2.006	2.006	2.826	H1-1b
21	M33	C5X9	0.279	1.05	0.266*	59.91	20	0.07	1.05	0.067*	34.32	38455.722	85536	1.909	11.853	3.423	H1-1b
22	M42	P2 Std.	0.275	1.05	0.262*	16.25	24	0.132	1.05	0.126*	96.25	10511.197	33925.5	2.006	2.006	1.892	H1-1b
23	M64	C5X9	0.259	1.05	0.247*	59.91	4	0.071	1.05	0.068*	34.32	38455.723	85536	1.909	11.853	3.237	H1-1b
24	M43	P2 Std.	0.25	1.05	0.238*	33.75	8	0.144	1.05	0.137*	23.75	10511.197	33925.5	2.006	2.006	1.717	H1-1b
25	M41	P2 Std.	0.245	1.05	0.233*	33.75	16	0.148	1.05	0.141*	23.75	10511.197	33925.5	2.006	2.006	1.741	H1-1b
26	M95	C5X9	0.187	1.05	0.178*	0	20	0.018	1.05	0.017*	16.1	67900.01	85536	1.909	11.853	2.36	H1-1b
27	A5	P2 Std.	0.158	1.05	0.15*	49.88	97	0.004	1.05	0.004*	49.88	4864.268	33925.5	2.006	2.006	1.507	H1-1b*
28	B1	P2 Std.	0.158	1.05	0.15*	49.88	109	0.004	1.05	0.004*	49.88	4864.268	33925.5	2.006	2.006	1.846	H1-1b*
29	A1	P2 Std.	0.158	1.05	0.15*	49.88	49	0.004	1.05	0.004*	49.88	4864.268	33925.5	2.006	2.006	1.512	H1-1b*
30	B5	P2 Std.	0.158	1.05	0.15*	49.88	157	0.004	1.05	0.004*	49.88	4864.268	33925.5	2.006	2.006	1.817	H1-1b*
31	C1	P2 Std.	0.158	1.05	0.15*	49.88	169	0.004	1.05	0.004*	49.88	4864.268	33925.5	2.006	2.006	1.817	H1-1b*
32	C5	P2 Std.	0.158	1.05	0.15*	49.88	217	0.004	1.05	0.004*	49.88	4864.268	33925.5	2.006	2.006	1.849	H1-1b*
33	M38	P2 Std.	0.119	1.05	0.113*	15.86	20	0.364	1.05	0.347*	0	31697.704	33925.5	2.006	2.006	1.136	H3-6
34	M46	L2.5x2.5x3/16	0.11	1.05	0.105*	23.03	37	0.006	1.05	0.006*	0	18873.637	29235.938	0.911	1.766	1.136	H2-1
35	M39	P2 Std.	0.109	1.05	0.104*	12.87	4	0.347	1.05	0.33*	0	31697.77	33925.5	2.006	2.006	1.136	H3-6
36	M40	P2 Std.	0.108	1.05	0.103*	12.87	12	0.348	1.05	0.331*	0	31697.77	33925.5	2.006	2.006	1.136	H3-6
37	M49	L2.5x2.5x3/16	0.106	1.05	0.101*	23.03	29	0.006	1.05	0.006*	0	18873.83	29235.938	0.911	1.766	1.136	H2-1
38	M44	L2.5x2.5x3/16	0.105	1.05	0.1*	23.03	32	0.006	1.05	0.006*	45.12	18873.632	29235.938	0.911	1.766	1.136	H2-1
39	M48	L2.5x2.5x3/16	0.101	1.05	0.096*	23.03	27	0.006	1.05	0.006*	0	18873.471	29235.938	0.911	1.766	1.136	H2-1
40	M47	L2.5x2.5x3/16	0.099	1.05	0.094*	23.03	35	0.007	1.05	0.007*	45.12	18873.414	29235.938	0.911	1.766	1.136	H2-1
41	M45A	L2.5x2.5x3/16	0.099	1.05	0.094*	23.03	32	0.006	1.05	0.006*	0	18873.632	29235.938	0.911	1.766	1.136	H2-1
42	M50	P2 Std.	0.012	1.05	0.011*	14.37	26	0.055	1.05	0.052*	0	31697.704	33925.5	2.006	2.006	1.136	H1-1b
43	M51A	P2 Std.	0.012	1.05	0.011*	14.37	29	0.071	1.05	0.068*	0	31697.77	33925.5	2.006	2.006	1.136	H1-1b
44	M52A	P2 Std.	0.012	1.05	0.011*	14.37	35	0.072	1.05	0.069*	0	31697.77	33925.5	2.006	2.006	1.136	H1-1b

*Rating per TIA-222-H, Section 15.5

APPENDIX D
ADDITIONAL CALCULATIONS



TIA-222-H CONNECTION CHECK
Mount to Tower Connection - Typ. All Sectors
2021777.876375.01

Bolt Information	
Bolt Diameter (d)	0.75 in
Net Tensile Area (A _n)	0.334 in ²
# of Bolts Total (n)	1
Bolt Grade	A325N
Bolt Tensile Strength (F _{ub})	120 ksi

RISA 3D Reactions	
Moment (M)	0.00 k-ft
Axial (T)	-0.54 kips
Shear (V)	4.43 kips

Bolt Capacity	
Nominal Tensile Strength (R _{nt})	40.135 kips
Nominal Shear Strength (R _{nv})	26.51 kips
Bolt Tensile Force (T _{ub})	-0.54 kips
Bolt Shear Force (V _{ub})	4.429 kips
$T_{ub}/\phi R_{nt}$	-0.01694
$V_{ub}/\phi R_{nv}$	0.21216
$(V_{ub}/\phi R_{nv})^2 + (T_{ub}/\phi R_{nt})^2$	0.04757
Bolt Capacity =	21.2% OK

*Rating per TIA-222-H, Section 15.5



TIA-222-H CONNECTION CHECK
Mod V-Kit to Tower Connection - Typ. All Sectors
2021777.876375.01

Bolt Information		
Bolt Diameter (d)	0.625	in
Net Tensile Area (A _n)	0.226	in ²
# of Bolts Total (n)	4	
Bolt Distance Up-Down	6	in
Bolt Distance Left-Right	6	in
Bolt Grade	A325N	
Bolt Tensile Strength (F _{ub})	120	ksi

RISA 3D Reactions		
Moment (M)	0.00	k-ft
Axial (T)	-1.29	kips
Shear (V)	1.99	kips

Bolt Capacity		
Nominal Tensile Strength (R _{nt})	27.120	kips
Nominal Shear Strength (R _{nv})	18.41	kips
Bolt Tensile Force (T _{ub})	-0.32	kips
Bolt Shear Force (V _{ub})	0.497	kips
T _{ub} /φR _{nt}	-0.01509	
V _{ub} /φR _{nv}	0.03431	
(V _{ub} /φR _{nv}) ² +(T _{ub} /φR _{nt}) ²	0.00148	
Bolt Capacity =	3.4%	OK

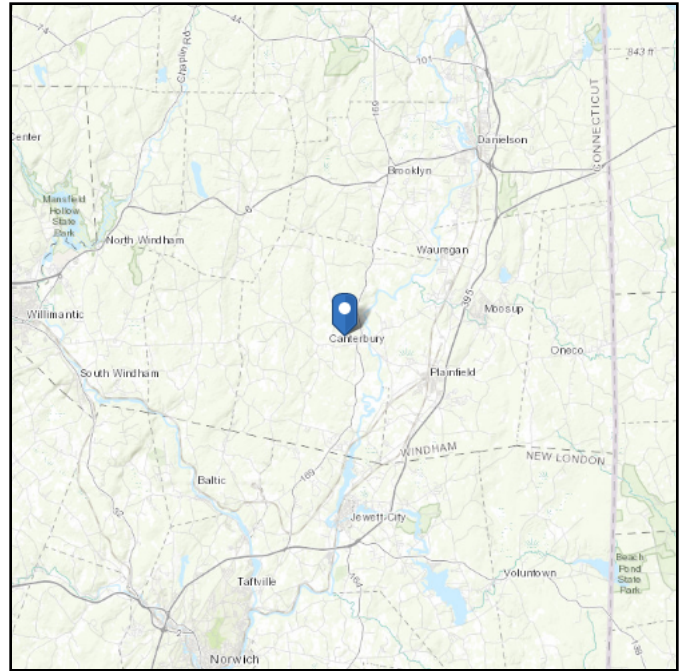
*Rating per TIA-222-H, Section 15.5

ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 338.74 ft (NAVD 88)
Latitude: 41.701986
Longitude: -71.980586



Wind

Results:

Wind Speed:	130 Vmph 130 Vmph per 2018 Connecticut Building Code Appendix N
10-year MRI	79 Vmph
25-year MRI	89 Vmph
50-year MRI	97 Vmph
100-year MRI	106 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: Thu Feb 04 2021

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.

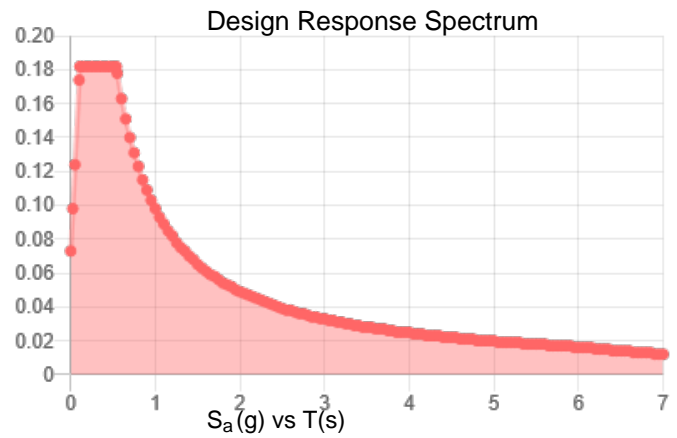
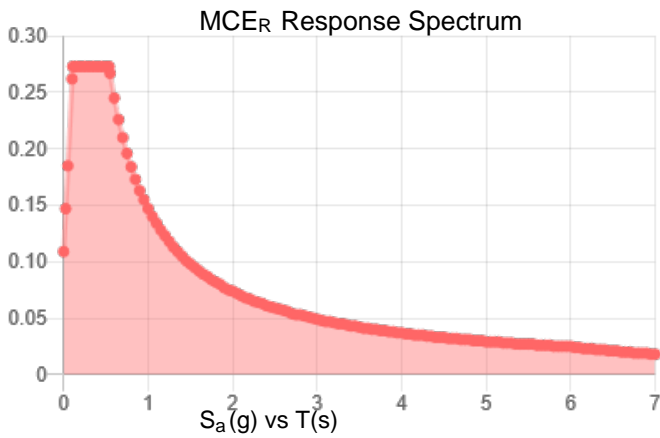
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.171	S_{DS} :	0.182
S_1 :	0.061	S_{D1} :	0.098
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.085
S_{MS} :	0.273	PGA _M :	0.137
S_{M1} :	0.147	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Thu Feb 04 2021

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: Thu Feb 04 2021

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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B+T Group
 1717 S. Boulder, Suite 300
 Tulsa, OK 74119
 (918) 587-4630

Date: **June 3, 2021**

Subject: **Structural Analysis Report**

Carrier Designation: **Sprint PCS Co-Locate**
Site Number: CTNL154A
Site Name: CTNL154A

Crown Castle Designation: **BU Number:** 876375
Site Name: Canterbury / Lemire
JDE Job Number: 628854
Work Order Number: 1919061
Order Number: 538779 Rev. 1

Engineering Firm Designation: **B+T Group Project Number:** 147461.003.01

Site Data: **53 Westminster Rd., Canterbury, Windham County, CT**
Latitude 41° 42' 7.15", Longitude -71° 58' 50.11"
180.5 Foot - Monopole

B+T Group 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 - 90.7%**

This analysis utilizes an ultimate 3-second gust wind speed of 130 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Xavier Jones

Respectfully submitted by: B+T Engineering, Inc.
 COA: PEC.0001564; Expired: 02/10/2022



Chad E. Tuttle, P.E.

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1) INTRODUCTION

This tower is a 180.5 ft. Monopole mapped by FDH Engineering, Inc. in May of 2009. The original design standard and wind speed are unavailable.

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:	130 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)
180.0	183.0	3	Ericsson	AIR6449 B41_T-MOBILE	4	1-5/8
		3	Ericsson	RADIO 4415 B66A		
		3	Ericsson	RADIO 4424 B25_TMO		
		3	Ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	RFS Celwave	APX16DWV-16DWV-S-E-A20		
		3	RFS Celwave	APXVAALL24_43-U-NA20_TMO		
	180.0	1	--	Modified 10.7' Platform Mount		
		1	Site Pro 1	HRK12 Handrail Kit		
		1	Site Pro 1	PRK-1245 Platform Kicker		
		1	Site Pro 1	SFS-V Stabilizer Kit		
78.0	79.0	1	Spectracom	8225	1	1/2
	78.0	1	--	Side Arm Mount [SO 701-1]		

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)
170.0	170.0	1	RFS Celwave	TMA-DB-T1-6Z-8AB-0Z	--	--
		1	--	Side Arm Mount [SO 102-3]		
168.0	170.0	3	Alcatel Lucent	B66A RRH4X45	14	1-5/8
		3	Alcatel Lucent	RRH2X60-700		
		3	Alcatel Lucent	RRH2X60-PCS		
		3	Antel	BXA-171063-12CF-EDIN-X		
		3	Antel	BXA-70063-6CF-EDIN-4		
		6	Commscope	SBNHH-1D65B		
		1	RFS Celwave	DB-T1-6Z-8AB-0Z		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
	168.0	1	--	Platform Mount [LP 303-1]		
160.0	161.0	3	KMW Comm.	AM-X-CD-17-65-00T-RET	12	1-1/4
		6	Powerwave Tech.	7770.00		
		6	Powerwave Tech.	LGP21401		
		6	Powerwave Tech.	LGP21901		
	160.0	1	--	Platform Mount [LP 303-1]		
158.0	160.0	3	Ericsson	RRUS 11 B12	1 2	3/8 7/16
	158.0	1	Raycap	DC6-48-60-18-8F		
		1	--	Side Arm Mount [SO 104-3]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Tower Mapping	2428368	CCI Sites
Mount Analysis Report	9566991	CCI Sites
Tower Modification Drawing	2435769	CCI Sites
Post Modification Inspection	2464622	CCI Sites
Tower Modification Drawing	3364133	CCI Sites
Post Modification Inspection	3841077	CCI Sites
Tower Modification Drawing	7738171	CCI Sites
Post Modification Inspection	8246170	CCI Sites
Foundation Mapping	1615348	CCI Sites
Geotech Report	1615348	CCI Sites
Crown CAD Package	Date: 02/10/2021	CCI Sites

3.1) Analysis Method

tnxTower (version 8.0.7.5), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

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) The tower and structures were maintained in accordance with the TIA-222 Standard.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 3) Following Material grades were assumed:
 - a) Tower Shaft: A572-65
 - b) Anchor Rods: A615-75
 - c) Base Plate: A572-50

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	180.5 - 175.5	Pole	TP18.569x17.62x0.25	1	-3.946	--	11.4	Pass
L2	175.5 - 170.5	Pole	TP19.518x18.569x0.25	2	-4.269	--	19.5	Pass
L3	170.5 - 165.5	Pole	TP20.467x19.518x0.25	3	-6.885	--	30.2	Pass
L4	165.5 - 160.5	Pole	TP21.416x20.467x0.25	4	-7.358	--	40.0	Pass
L5	160.5 - 155.5	Pole	TP22.365x21.416x0.25	5	-10.313	--	51.4	Pass
L6	155.5 - 150.5	Pole	TP23.313x22.365x0.25	6	-10.948	--	61.0	Pass
L7	150.5 - 145.5	Pole	TP24.262x23.313x0.25	7	-11.619	--	69.4	Pass
L8	145.5 - 140.5	Pole	TP25.211x24.262x0.25	8	-12.323	--	77.1	Pass
L9	140.5 - 137.79	Pole	TP26.35x25.211x0.25	9	-12.710	--	80.9	Pass
L10	137.79 - 132.79	Pole	TP26.174x25.225x0.3125	10	-13.743	--	71.2	Pass
L11	132.79 - 127.79	Pole	TP27.123x26.174x0.3125	11	-14.598	--	75.1	Pass
L12	127.79 - 122.79	Pole	TP28.072x27.123x0.3125	12	-15.469	--	78.5	Pass
L13	122.79 - 120.58	Pole	TP28.491x28.072x0.3125	13	-15.861	--	79.8	Pass
L14	120.58 - 120.33	Pole	TP28.539x28.491x0.3125	14	-15.921	--	80.0	Pass
L15	120.33 - 115.33	Pole	TP29.488x28.539x0.3125	15	-16.817	--	82.6	Pass
L16	115.33 - 112.5	Pole	TP30.025x29.488x0.3125	16	-17.336	--	84.0	Pass
L17	112.5 - 112.25	Pole + Reinf.	TP30.073x30.025x0.6375	17	-17.429	--	67.1	Pass
L18	112.25 - 107.82	Pole + Reinf.	TP30.914x30.073x0.675	18	-18.715	--	65.2	Pass
L19	107.82 - 107.57	Pole + Reinf.	TP30.961x30.914x0.675	19	-18.796	--	65.3	Pass
L20	107.57 - 102.57	Pole + Reinf.	TP31.91x30.961x0.6625	20	-20.270	--	67.9	Pass
L21	102.57 - 97.57	Pole + Reinf.	TP32.859x31.91x0.65	21	-21.775	--	70.3	Pass
L22	97.57 - 93.31	Pole + Reinf.	TP34.485x32.859x0.6375	22	-23.075	--	72.2	Pass
L23	93.31 - 88.31	Pole + Reinf.	TP33.991x33.042x0.7	23	-25.828	--	69.6	Pass
L24	88.31 - 87.5	Pole + Reinf.	TP34.145x33.991x0.7	24	-26.101	--	69.9	Pass
L25	87.5 - 87.25	Pole	TP34.192x34.145x0.375	25	-26.162	--	80.5	Pass
L26	87.25 - 82.25	Pole	TP35.141x34.192x0.375	26	-27.313	--	81.4	Pass
L27	82.25 - 80.83	Pole	TP35.41x35.141x0.375	27	-27.640	--	81.6	Pass
L28	80.83 - 80.58	Pole	TP35.457x35.41x0.375	28	-27.720	--	81.7	Pass
L29	80.58 - 75.58	Pole	TP36.406x35.457x0.375	29	-28.980	--	82.7	Pass
L30	75.58 - 70.58	Pole	TP37.355x36.406x0.375	30	-30.206	--	83.8	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L31	70.58 - 65.58	Pole	TP38.304x37.355x0.375	31	-31.458	--	84.9	Pass
L32	65.58 - 60.58	Pole	TP39.253x38.304x0.375	32	-32.734	--	85.8	Pass
L33	60.58 - 55.58	Pole	TP40.202x39.253x0.375	33	-34.035	--	86.7	Pass
L34	55.58 - 53.57	Pole	TP40.584x40.202x0.375	34	-34.566	--	87.1	Pass
L35	53.57 - 53.32	Pole	TP40.632x40.584x0.375	35	-34.645	--	87.1	Pass
L36	53.32 - 49.11	Pole	TP42.438x40.632x0.375	36	-35.756	--	87.8	Pass
L37	49.11 - 42.8	Pole + Reinf.	TP41.878x40.681x0.7	37	-39.449	--	72.9	Pass
L38	42.8 - 38.42	Pole + Reinf.	TP42.71x41.878x0.6875	38	-41.318	--	73.6	Pass
L39	38.42 - 38.07	Pole + Reinf.	TP42.776x42.71x0.6875	39	-41.476	--	73.7	Pass
L40	38.07 - 37.83	Pole + Reinf.	TP42.82x42.776x0.6875	40	-41.578	--	73.7	Pass
L41	37.83 - 32.83	Pole + Reinf.	TP43.769x42.82x0.675	41	-42.449	--	74.5	Pass
L42	32.83 - 27.83	Pole + Reinf.	TP44.718x43.769x0.675	42	-43.750	--	75.3	Pass
L43	27.83 - 23.5	Pole + Reinf.	TP45.54x44.718x0.6625	43	-45.934	--	75.8	Pass
L44	23.5 - 23.25	Pole + Reinf.	TP45.588x45.54x0.6625	44	-47.840	--	75.9	Pass
L45	23.25 - 18.25	Pole + Reinf.	TP46.537x45.588x0.6625	45	-47.959	--	76.5	Pass
L46	18.25 - 13.25	Pole + Reinf.	TP47.486x46.537x0.65	46	-50.189	--	77.1	Pass
L47	13.25 - 8.25	Pole + Reinf.	TP48.434x47.486x0.65	47	-52.445	--	77.6	Pass
L48	8.25 - 7.92	Pole + Reinf.	TP48.498x48.434x0.65	48	-54.718	--	77.7	Pass
L49	7.92 - 7.67	Pole + Reinf.	TP48.545x48.498x0.7	49	-54.870	--	73.4	Pass
L50	7.67 - 5.5	Pole + Reinf.	TP48.956x48.545x0.7	50	-54.998	--	73.6	Pass
L51	5.5 - 5.25	Pole + Reinf.	TP49.004x48.956x0.4125	51	-56.119	--	90.5	Pass
L52	5.25 - 3	Pole + Reinf.	TP49.431x49.004x0.425	52	-56.896	--	90.7	Pass
L53	3 - 2.75	Pole + Reinf.	TP49.478x49.431x0.625	53	-56.915	--	74.6	Pass
L54	2.75 - 0	Pole + Reinf.	TP50x49.478x0.625	54	-57.037	--	74.8	Pass
							Summary	
						Pole (L36)	90.7	Pass
						Reinforcement	83.4	Pass
						Rating =	90.7	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Anchor Rods	Base	73.1	Pass
1,2	Base Plate	Base	73.9	Pass
1,2	Base Foundation (Structure)	Base	84.5	Pass
1,2	Base Foundation (Soil Interaction)	Base	82.0	Pass
Structure Rating (max from all components) =				90.7%

Notes:

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

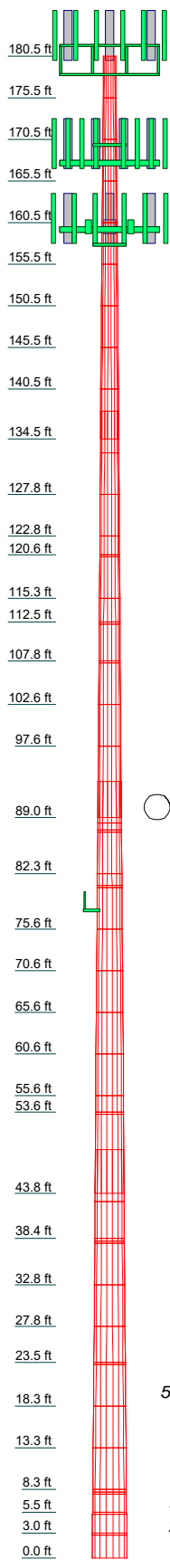
4.1) Recommendations

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	18	18	0.250	3.294	18.5	18.5	A572-65	0.2
2	18	18	0.250	3.294	17.5	17.5	A572-65	0.3
3	18	18	0.250	3.294	17.0	17.0	A572-65	0.3
4	18	18	0.250	3.294	16.5	16.5	A572-65	0.3
5	18	18	0.250	3.294	16.0	16.0	A572-65	0.3
6	18	18	0.250	3.294	15.5	15.5	A572-65	0.3
7	18	18	0.250	3.294	15.0	15.0	A572-65	0.3
8	18	18	0.250	3.294	14.5	14.5	A572-65	0.3
9	18	18	0.250	3.294	14.0	14.0	A572-65	0.3
10	18	18	0.250	3.294	13.5	13.5	A572-65	0.4
11	18	18	0.313	4.311	127.8	127.8	A572-65	0.4
12	18	18	0.313	4.311	122.8	122.8	A572-65	0.5
13	18	18	0.313	4.311	120.6	120.6	A572-65	0.2
14	18	18	0.313	4.311	115.3	115.3	A572-65	0.3
15	18	18	0.313	4.311	112.5	112.5	A572-65	0.3
16	18	18	0.313	4.311	107.8	107.8	A572-65	1.1
17	18	18	0.313	4.311	102.6	102.6	A572-65	1.1
18	18	18	0.313	4.311	97.6	97.6	A572-65	1.9
19	18	18	0.313	4.311	89.0	89.0	A572-65	1.9
20	18	18	0.313	4.311	82.3	82.3	A572-65	0.7
21	18	18	0.375	5.305	75.6	75.6	A572-65	0.7
22	18	18	0.375	5.305	70.6	70.6	A572-65	0.7
23	18	18	0.375	5.305	65.6	65.6	A572-65	0.8
24	18	18	0.375	5.305	60.6	60.6	A572-65	0.8
25	18	18	0.375	5.305	55.6	55.6	A572-65	0.8
26	18	18	0.375	5.305	53.6	53.6	A572-65	1.6
27	18	18	0.375	5.305	43.8	43.8	A572-65	1.6
28	18	18	0.375	5.305	38.4	38.4	A572-65	1.4
29	18	18	0.375	5.305	32.8	32.8	A572-65	1.4
30	18	18	0.375	5.305	27.8	27.8	A572-65	1.4
31	18	18	0.375	5.305	23.5	23.5	A572-65	1.4
32	18	18	0.375	5.305	18.3	18.3	A572-65	1.6
33	18	18	0.375	5.305	13.3	13.3	A572-65	1.6
34	18	18	0.375	5.305	8.3	8.3	A572-65	1.7
35	18	18	0.375	5.305	5.5	5.5	A572-65	1.7
36	18	18	0.375	5.305	3.0	3.0	A572-65	1.7
37	18	18	0.375	5.305	0.0	0.0	A572-65	1.7

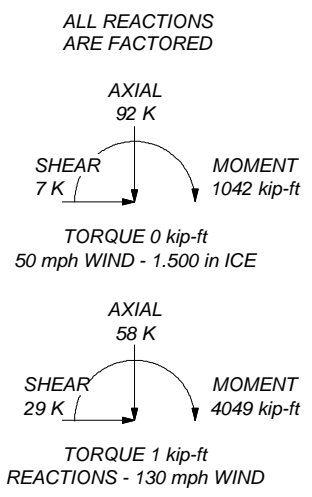


MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Windham County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-H Standard.
3. Tower designed for a 130 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 0.000 ft
8. TIA-222-H Annex S
9. TOWER RATING: 90.7%



B+T Group
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 Tulsa, OK 74119
 Phone: (918) 587-4630
 FAX: (918) 295-0265

Job: 147461.003.01 - CANTERBURY / LEMIRE, CT (BU# 87637)		
Project:		
Client: Crown Castle	Drawn by: JD Prabhu	App'd:
Code: TIA-222-H	Date: 02/13/21	Scale: NTS
Path:		Dwg No. E-1

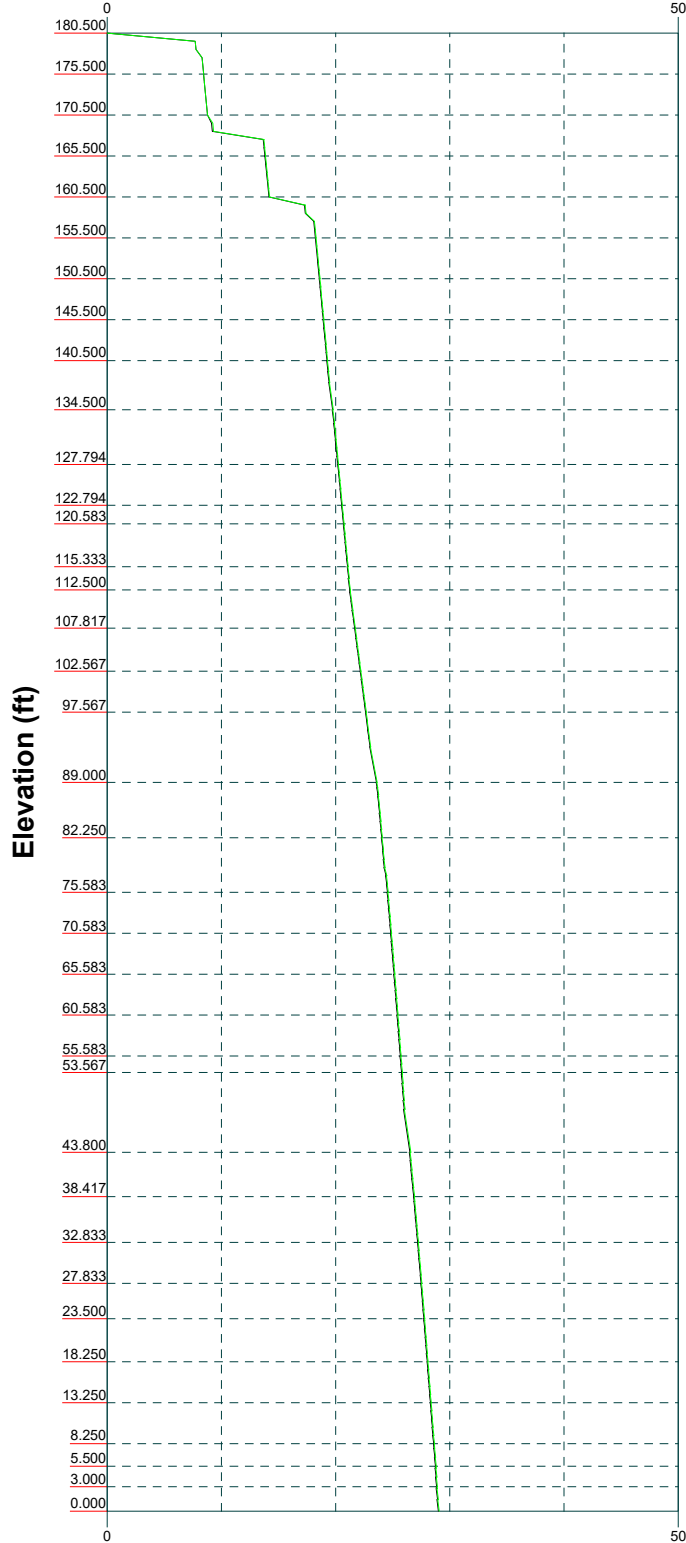
Vx

Vz

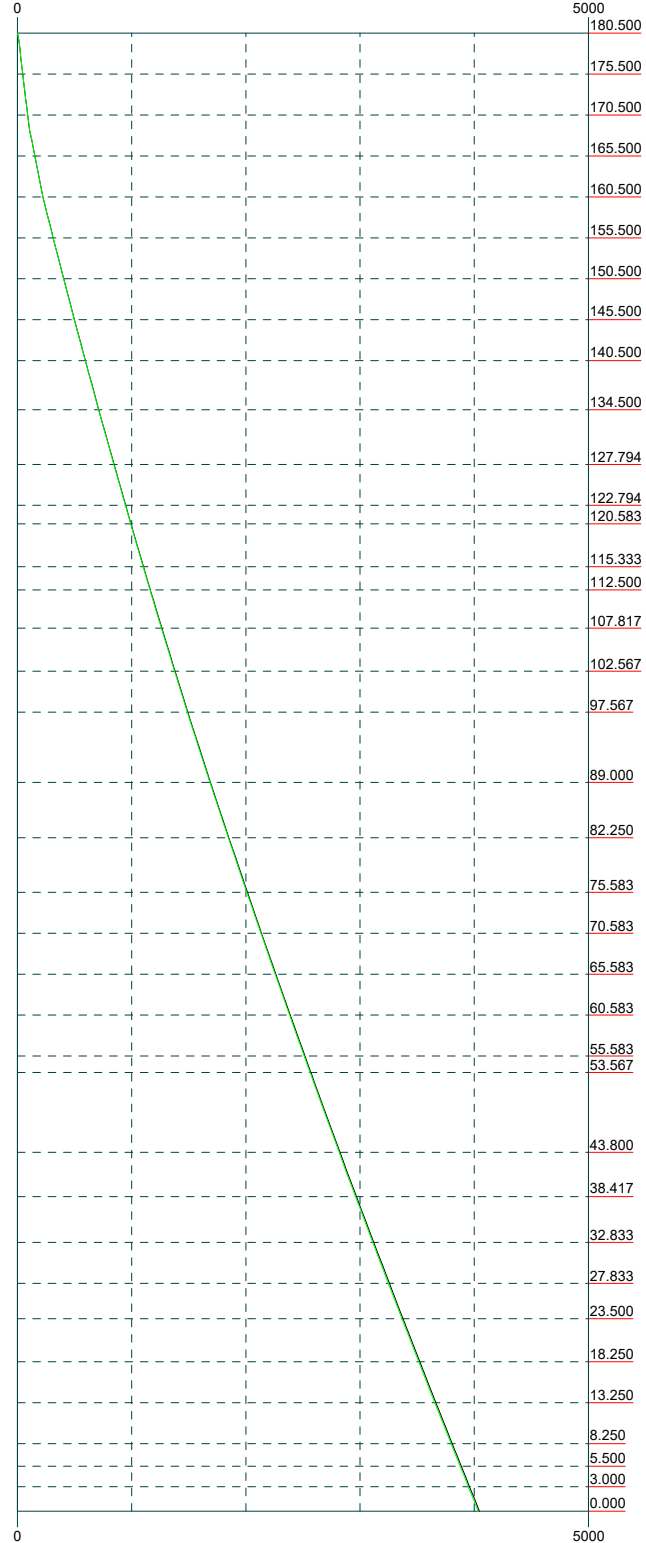
Mx

Mz

Global Mast Shear (K)

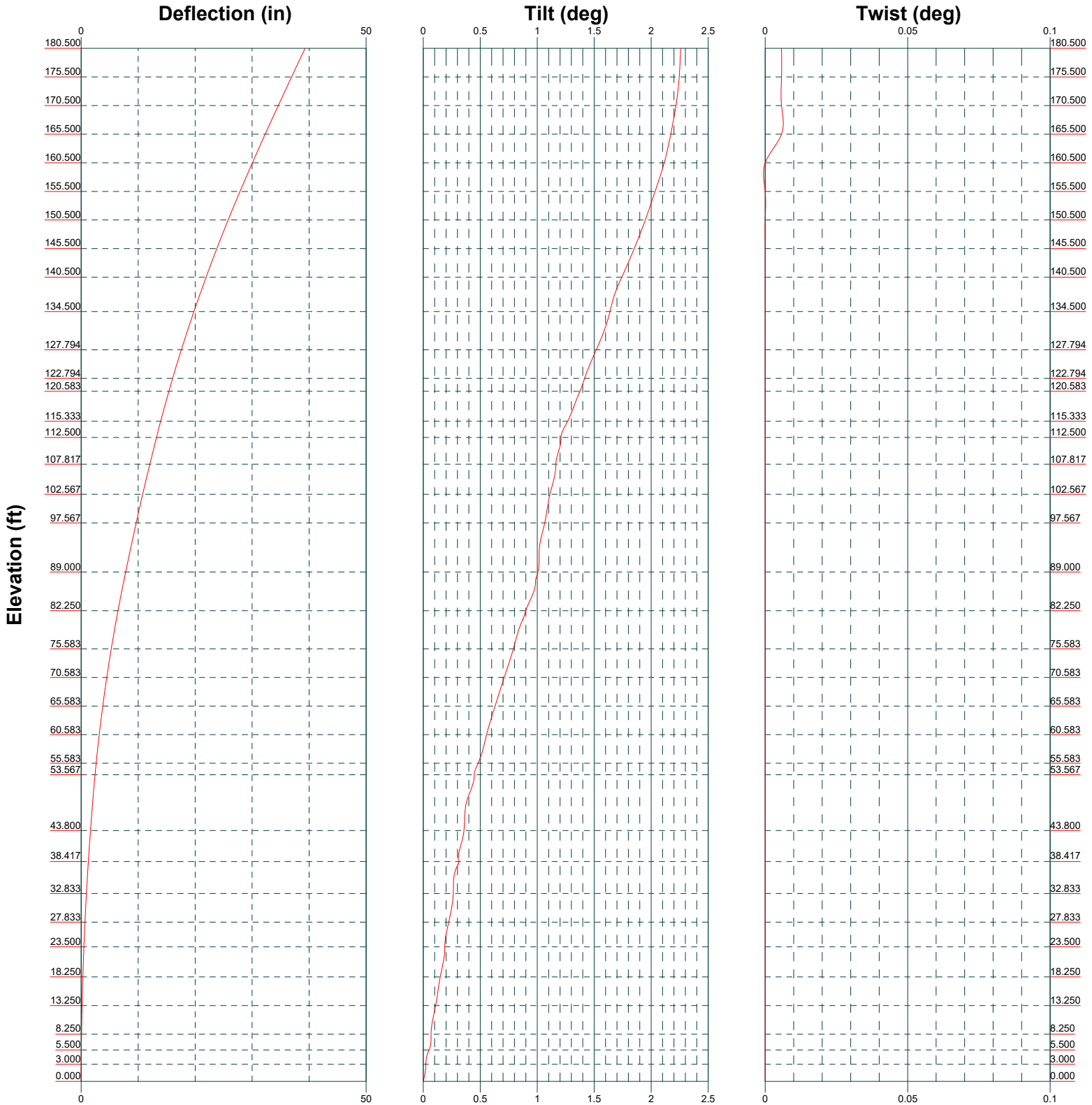



Global Mast Moment (kip-ft)



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Project:		
Client: Crown Castle	Drawn by: JD Prabhu	App'd:
Code: TIA-222-H	Date: 02/13/21	Scale: NTS
Path:	Dwg No. E-4	

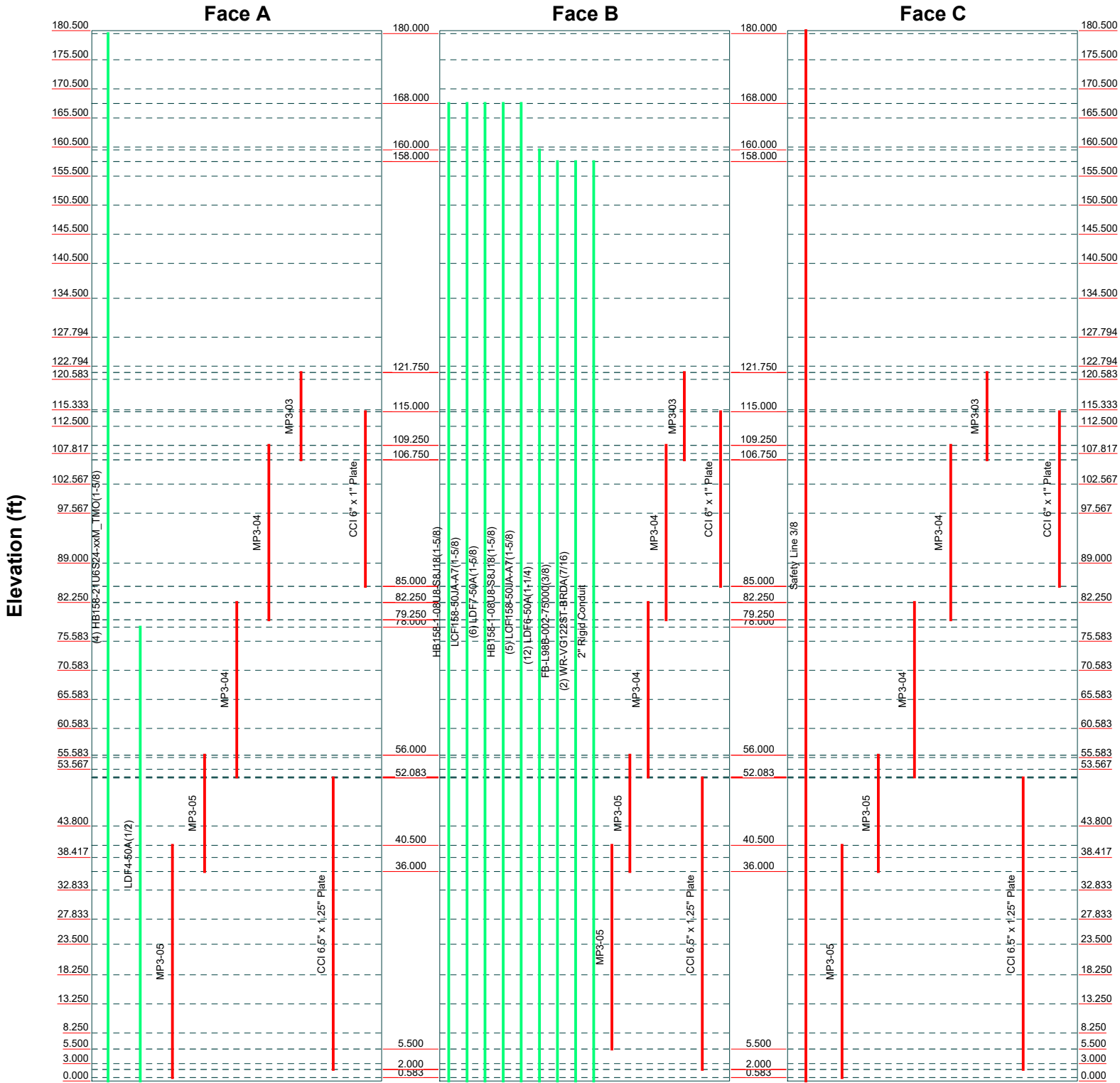


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	Project:		
	Client: Crown Castle	Drawn by: JD Prabhu	App'd:
	Code: TIA-222-H	Date: 02/13/21	Scale: NTS
	Path:	Dwg No. E-5	

Feed Line Distribution Chart

0' - 180'6"

— Round
 — Flat
 — App In Face
 — App Out Face
 — Truss Leg



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	Project:		
	Client: Crown Castle	Drawn by: JD Prabhu	App'd:
	Code: TIA-222-H	Date: 02/13/21	Scale: NTS
	Path:	Dwg No. E-7	

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 147461.003.01 - CANTERBURY / LEMIRE, CT (BU# 876375)	Page 1 of 56
	Project	Date 19:06:20 02/13/21
	Client Crown Castle	Designed by JD Prabhu

Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

Tower is located in Windham County, Connecticut.

Tower base elevation above sea level: 339.000 ft.

Basic wind speed of 130 mph.

Risk Category II.

Exposure Category B.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0.000 ft.

Nominal ice thickness of 1.500 in.

Ice thickness is considered to increase with height.

Ice density of 56.000 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50.000 °F.

Deflections calculated using a wind speed of 60 mph.

TIA-222-H Annex S.

TOWER RATING: 90.7%.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.05.

Tower analysis based on target reliabilities in accordance with Annex S.

Load Modification Factors used: $K_{cs}(F_w) = 0.95$, $K_{cs}(t_i) = 0.85$.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 <li style="text-align: center;">Poles √ 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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	Project	Date 19:06:20 02/13/21
	Client Crown Castle	Designed by JD Prabhu

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	180.500-175.500	5.000	0.000	18	17.620	18.569	0.250	1.000	A572-65 (65 ksi)
L2	175.500-170.500	5.000	0.000	18	18.569	19.518	0.250	1.000	A572-65 (65 ksi)
L3	170.500-165.500	5.000	0.000	18	19.518	20.467	0.250	1.000	A572-65 (65 ksi)
L4	165.500-160.500	5.000	0.000	18	20.467	21.416	0.250	1.000	A572-65 (65 ksi)
L5	160.500-155.500	5.000	0.000	18	21.416	22.365	0.250	1.000	A572-65 (65 ksi)
L6	155.500-150.500	5.000	0.000	18	22.365	23.313	0.250	1.000	A572-65 (65 ksi)
L7	150.500-145.500	5.000	0.000	18	23.313	24.262	0.250	1.000	A572-65 (65 ksi)
L8	145.500-140.500	5.000	0.000	18	24.262	25.211	0.250	1.000	A572-65 (65 ksi)
L9	140.500-134.500	6.000	3.294	18	25.211	26.350	0.250	1.000	A572-65 (65 ksi)
L10	134.500-132.794	5.000	0.000	18	25.225	26.174	0.313	1.250	A572-65 (65 ksi)
L11	132.794-127.794	5.000	0.000	18	26.174	27.123	0.313	1.250	A572-65 (65 ksi)
L12	127.794-122.794	5.000	0.000	18	27.123	28.072	0.313	1.250	A572-65 (65 ksi)
L13	122.794-120.583	2.211	0.000	18	28.072	28.491	0.313	1.250	A572-65 (65 ksi)
L14	120.583-120.333	0.250	0.000	18	28.491	28.539	0.313	1.250	A572-65 (65 ksi)
L15	120.333-115.333	5.000	0.000	18	28.539	29.488	0.313	1.250	A572-65 (65 ksi)
L16	115.333-112.500	2.833	0.000	18	29.488	30.025	0.313	1.250	A572-65 (65 ksi)
L17	112.500-112.250	0.250	0.000	18	30.025	30.073	0.637	2.550	A572-65 (65 ksi)
L18	112.250-107.817	4.433	0.000	18	30.073	30.914	0.675	2.700	A572-65 (65 ksi)
L19	107.817-107.567	0.250	0.000	18	30.914	30.961	0.675	2.700	A572-65 (65 ksi)
L20	107.567-102.567	5.000	0.000	18	30.961	31.910	0.662	2.650	A572-65 (65 ksi)
L21	102.567-97.567	5.000	0.000	18	31.910	32.859	0.650	2.600	A572-65 (65 ksi)
L22	97.567-89.000	8.567	4.311	18	32.859	34.485	0.637	2.550	A572-65 (65 ksi)
L23	89.000-88.311	5.000	0.000	18	33.042	33.991	0.700	2.800	A572-65 (65 ksi)
L24	88.311-87.500	0.811	0.000	18	33.991	34.145	0.700	2.800	A572-65 (65 ksi)
L25	87.500-87.250	0.250	0.000	18	34.145	34.192	0.375	1.500	A572-65 (65 ksi)
L26	87.250-82.250	5.000	0.000	18	34.192	35.141	0.375	1.500	A572-65 (65 ksi)
L27	82.250-80.833	1.417	0.000	18	35.141	35.410	0.375	1.500	A572-65 (65 ksi)
L28	80.833-80.583	0.250	0.000	18	35.410	35.457	0.375	1.500	A572-65 (65 ksi)
L29	80.583-75.583	5.000	0.000	18	35.457	36.406	0.375	1.500	A572-65 (65 ksi)

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	<p>Project</p>	<p>Date 19:06:20 02/13/21</p>
	<p>Client Crown Castle</p>	<p>Designed by JD Prabhu</p>

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
L30	75.583-70.583	5.000	0.000	18	36.406	37.355	0.375	1.500	A572-65 (65 ksi)
L31	70.583-65.583	5.000	0.000	18	37.355	38.304	0.375	1.500	A572-65 (65 ksi)
L32	65.583-60.583	5.000	0.000	18	38.304	39.253	0.375	1.500	A572-65 (65 ksi)
L33	60.583-55.583	5.000	0.000	18	39.253	40.202	0.375	1.500	A572-65 (65 ksi)
L34	55.583-53.567	2.016	0.000	18	40.202	40.584	0.375	1.500	A572-65 (65 ksi)
L35	53.567-53.317	0.250	0.000	18	40.584	40.632	0.375	1.500	A572-65 (65 ksi)
L36	53.317-43.800	9.517	5.305	18	40.632	42.438	0.375	1.500	A572-65 (65 ksi)
L37	43.800-42.800	6.305	0.000	18	40.681	41.878	0.700	2.800	A572-65 (65 ksi)
L38	42.800-38.417	4.383	0.000	18	41.878	42.710	0.688	2.750	A572-65 (65 ksi)
L39	38.417-38.067	0.350	0.000	18	42.710	42.776	0.688	2.750	A572-65 (65 ksi)
L40	38.067-37.833	0.234	0.000	18	42.776	42.820	0.688	2.750	A572-65 (65 ksi)
L41	37.833-32.833	5.000	0.000	18	42.820	43.769	0.675	2.700	A572-65 (65 ksi)
L42	32.833-27.833	5.000	0.000	18	43.769	44.718	0.675	2.700	A572-65 (65 ksi)
L43	27.833-23.500	4.333	0.000	18	44.718	45.540	0.662	2.650	A572-65 (65 ksi)
L44	23.500-23.250	0.250	0.000	18	45.540	45.588	0.662	2.650	A572-65 (65 ksi)
L45	23.250-18.250	5.000	0.000	18	45.588	46.537	0.662	2.650	A572-65 (65 ksi)
L46	18.250-13.250	5.000	0.000	18	46.537	47.486	0.650	2.600	A572-65 (65 ksi)
L47	13.250-8.250	5.000	0.000	18	47.486	48.434	0.650	2.600	A572-65 (65 ksi)
L48	8.250-7.917	0.333	0.000	18	48.434	48.498	0.650	2.600	A572-65 (65 ksi)
L49	7.917-7.667	0.250	0.000	18	48.498	48.545	0.700	2.800	A572-65 (65 ksi)
L50	7.667-5.500	2.167	0.000	18	48.545	48.956	0.700	2.800	A572-65 (65 ksi)
L51	5.500-5.250	0.250	0.000	18	48.956	49.004	0.412	1.650	A572-65 (65 ksi)
L52	5.250-3.000	2.250	0.000	18	49.004	49.431	0.425	1.700	A572-65 (65 ksi)
L53	3.000-2.750	0.250	0.000	18	49.431	49.478	0.625	2.500	A572-65 (65 ksi)
L54	2.750-0.000	2.750		18	49.478	50.000	0.625	2.500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L1	17.853	13.783	525.392	6.166	8.951	58.697	1051.476	6.893	2.661	10.644

<p>tnxTower</p> <p>B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p>Job 147461.003.01 - CANTERBURY / LEMIRE, CT (BU# 876375)</p>	<p>Page 4 of 56</p>
	<p>Project</p>	<p>Date 19:06:20 02/13/21</p>
	<p>Client Crown Castle</p>	<p>Designed by JD Prabhu</p>

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
	18.817	14.536	616.288	6.503	9.433	65.333	1233.386	7.269	2.828	11.313
L2	18.817	14.536	616.288	6.503	9.433	65.333	1233.386	7.269	2.828	11.313
	19.780	15.289	717.105	6.840	9.915	72.325	1435.153	7.646	2.995	11.981
L3	19.780	15.289	717.105	6.840	9.915	72.325	1435.153	7.646	2.995	11.981
	20.744	16.042	828.357	7.177	10.397	79.672	1657.805	8.023	3.162	12.649
L4	20.744	16.042	828.357	7.177	10.397	79.672	1657.805	8.023	3.162	12.649
	21.707	16.795	950.560	7.514	10.879	87.374	1902.370	8.399	3.329	13.317
L5	21.707	16.795	950.560	7.514	10.879	87.374	1902.370	8.399	3.329	13.317
	22.671	17.548	1084.225	7.851	11.361	95.432	2169.878	8.776	3.496	13.985
L6	22.671	17.548	1084.225	7.851	11.361	95.432	2169.878	8.776	3.496	13.985
	23.635	18.301	1229.869	8.188	11.843	103.846	2461.356	9.152	3.663	14.653
L7	23.635	18.301	1229.869	8.188	11.843	103.846	2461.356	9.152	3.663	14.653
	24.598	19.054	1388.004	8.524	12.325	112.614	2777.834	9.529	3.830	15.321
L8	24.598	19.054	1388.004	8.524	12.325	112.614	2777.834	9.529	3.830	15.321
	25.562	19.807	1559.144	8.861	12.807	121.738	3120.339	9.905	3.997	15.989
L9	25.562	19.807	1559.144	8.861	12.807	121.738	3120.339	9.905	3.997	15.989
	26.718	20.710	1782.403	9.265	13.386	133.156	3567.151	10.357	4.198	16.79
L10	26.201	24.710	1937.487	8.844	12.814	151.198	3877.523	12.357	3.890	12.447
	26.529	25.651	2167.421	9.181	13.296	163.010	4337.695	12.828	4.057	12.981
L11	26.529	25.651	2167.421	9.181	13.296	163.010	4337.695	12.828	4.057	12.981
	27.493	26.592	2414.864	9.518	13.778	175.266	4832.905	13.299	4.224	13.515
L12	27.493	26.592	2414.864	9.518	13.778	175.266	4832.905	13.299	4.224	13.515
	28.456	27.534	2680.456	9.854	14.260	187.966	5364.440	13.769	4.391	14.05
L13	28.456	27.534	2680.456	9.854	14.260	187.966	5364.440	13.769	4.391	14.05
	28.882	27.950	2803.856	10.003	14.474	193.723	5611.401	13.978	4.464	14.286
L14	28.882	27.950	2803.856	10.003	14.474	193.723	5611.401	13.978	4.464	14.286
	28.931	27.997	2818.043	10.020	14.498	194.380	5639.793	14.001	4.473	14.313
L15	28.931	27.997	2818.043	10.020	14.498	194.380	5639.793	14.001	4.473	14.313
	29.894	28.938	3111.914	10.357	14.980	207.743	6227.923	14.472	4.640	14.847
L16	29.894	28.938	3111.914	10.357	14.980	207.743	6227.923	14.472	4.640	14.847
	30.440	29.471	3287.146	10.548	15.253	215.511	6578.618	14.738	4.734	15.15
L17	30.390	59.464	6488.131	10.433	15.253	425.374	12984.800	29.738	4.162	6.529
	30.438	59.560	6519.606	10.449	15.277	426.763	13047.792	29.786	4.171	6.542
L18	30.432	62.983	6876.763	10.436	15.277	450.142	13762.574	31.497	4.105	6.081
	31.287	64.785	7484.214	10.735	15.704	476.572	14978.277	32.399	4.253	6.301
L19	31.287	64.785	7484.214	10.735	15.704	476.572	14978.277	32.399	4.253	6.301
	31.335	64.887	7519.498	10.752	15.728	478.085	15048.891	32.450	4.261	6.313
L20	31.337	63.712	7389.390	10.756	15.728	469.813	14788.503	31.862	4.283	6.465
	32.300	65.707	8105.625	11.093	16.210	500.026	16221.915	32.860	4.450	6.717
L21	32.302	64.493	7962.236	11.097	16.210	491.181	15934.949	32.253	4.472	6.88
	33.266	66.451	8709.547	11.434	16.692	521.766	17430.555	33.232	4.639	7.137
L22	33.268	65.198	8552.005	11.439	16.692	512.328	17115.263	32.605	4.661	7.312
	34.919	68.488	9912.983	12.016	17.518	565.862	19839.009	34.250	4.947	7.761
L23	34.274	71.857	9495.925	11.481	16.785	565.730	19004.344	35.935	4.583	6.548
	34.407	73.965	10356.505	11.818	17.267	599.776	20726.636	36.990	4.750	6.786
L24	34.407	73.965	10356.505	11.818	17.267	599.776	20726.636	36.990	4.750	6.786
	34.563	74.307	10500.811	11.873	17.345	605.391	21015.439	37.161	4.777	6.825
L25	34.614	40.194	5791.030	11.988	17.345	333.864	11589.679	20.101	5.349	14.265
	34.662	40.251	5815.472	12.005	17.370	334.808	11638.597	20.129	5.358	14.287
L26	34.662	40.251	5815.472	12.005	17.370	334.808	11638.597	20.129	5.358	14.287
	35.625	41.380	6318.876	12.342	17.852	353.966	12646.067	20.694	5.525	14.733
L27	35.625	41.380	6318.876	12.342	17.852	353.966	12646.067	20.694	5.525	14.733
	35.898	41.700	6466.644	12.437	17.988	359.493	12941.797	20.854	5.572	14.859
L28	35.898	41.700	6466.644	12.437	17.988	359.493	12941.797	20.854	5.572	14.859
	35.946	41.757	6492.951	12.454	18.012	360.472	12994.446	20.882	5.580	14.881
L29	35.946	41.757	6492.951	12.454	18.012	360.472	12994.446	20.882	5.580	14.881
	36.910	42.886	7034.187	12.791	18.494	380.342	14077.629	21.447	5.748	15.327
L30	36.910	42.886	7034.187	12.791	18.494	380.342	14077.629	21.447	5.748	15.327
	37.874	44.016	7604.693	13.128	18.976	400.744	15219.393	22.012	5.915	15.772
L31	37.874	44.016	7604.693	13.128	18.976	400.744	15219.393	22.012	5.915	15.772
	38.837	45.145	8205.242	13.465	19.458	421.680	16421.281	22.577	6.082	16.217
L32	38.837	45.145	8205.242	13.465	19.458	421.680	16421.281	22.577	6.082	16.217

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	<p>Project</p>	<p>Date 19:06:20 02/13/21</p>
	<p>Client Crown Castle</p>	<p>Designed by JD Prabhu</p>

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
L33	39.801	46.274	8836.604	13.802	19.940	443.149	17684.836	23.142	6.249	16.663
	39.801	46.274	8836.604	13.802	19.940	443.149	17684.836	23.142	6.249	16.663
	40.764	47.404	9499.550	14.139	20.423	465.150	19011.600	23.706	6.416	17.108
L34	40.764	47.404	9499.550	14.139	20.423	465.150	19011.600	23.706	6.416	17.108
	41.153	47.859	9775.959	14.274	20.617	474.172	19564.782	23.934	6.483	17.288
L35	41.153	47.859	9775.959	14.274	20.617	474.172	19564.782	23.934	6.483	17.288
	41.201	47.916	9810.605	14.291	20.641	475.297	19634.119	23.962	6.491	17.31
L36	41.201	47.916	9810.605	14.291	20.641	475.297	19634.119	23.962	6.491	17.31
	43.035	50.065	11191.193	14.932	21.559	519.108	22397.111	25.038	6.809	18.158
L37	42.223	88.830	17939.512	14.193	20.666	868.066	35902.630	44.424	5.928	8.468
	42.416	91.489	19598.818	14.618	21.274	921.262	39223.425	45.753	6.138	8.769
L38	42.418	89.882	19266.374	14.623	21.274	905.635	38558.099	44.950	6.160	8.961
	43.262	91.697	20457.265	14.918	21.696	942.886	40941.448	45.857	6.307	9.174
L39	43.262	91.697	20457.265	14.918	21.696	942.886	40941.448	45.857	6.307	9.174
	43.330	91.842	20554.423	14.941	21.730	945.893	41135.893	45.930	6.319	9.191
L40	43.330	91.842	20554.423	14.941	21.730	945.893	41135.893	45.930	6.319	9.191
	43.375	91.939	20619.552	14.957	21.753	947.906	41266.235	45.978	6.326	9.202
L41	43.377	90.294	20262.675	14.962	21.753	931.500	40552.012	45.156	6.348	9.405
	44.340	92.327	21662.303	15.298	22.235	974.254	43353.110	46.172	6.515	9.652
L42	44.340	92.327	21662.303	15.298	22.235	974.254	43353.110	46.172	6.515	9.652
	45.304	94.360	23124.944	15.635	22.717	1017.968	46280.316	47.189	6.682	9.9
L43	45.306	92.639	22716.034	15.640	22.717	999.967	45461.959	46.328	6.704	10.12
	46.141	94.368	24011.887	15.932	23.134	1037.926	48055.370	47.193	6.849	10.338
L44	46.141	94.368	24011.887	15.932	23.134	1037.926	48055.370	47.193	6.849	10.338
	46.189	94.468	24088.121	15.948	23.159	1040.137	48207.938	47.243	6.857	10.351
L45	46.189	94.468	24088.121	15.948	23.159	1040.137	48207.938	47.243	6.857	10.351
	47.152	96.463	25646.873	16.285	23.641	1084.865	51327.492	48.241	7.024	10.603
L46	47.154	94.669	25183.545	16.290	23.641	1065.266	50400.226	47.343	7.046	10.841
	48.118	96.626	26778.338	16.627	24.123	1110.091	53591.912	48.322	7.213	11.098
L47	48.118	96.626	26778.338	16.627	24.123	1110.091	53591.912	48.322	7.213	11.098
	49.081	98.584	28439.078	16.963	24.605	1155.841	56915.578	49.301	7.380	11.355
L48	49.081	98.584	28439.078	16.963	24.605	1155.841	56915.578	49.301	7.380	11.355
	49.145	98.714	28552.059	16.986	24.637	1158.921	57141.687	49.367	7.392	11.372
L49	49.138	106.197	30652.077	16.968	24.637	1244.160	61344.486	53.108	7.304	10.434
	49.186	106.302	30743.442	16.985	24.661	1246.649	61527.336	53.161	7.312	10.446
L50	49.186	106.302	30743.442	16.985	24.661	1246.649	61527.336	53.161	7.312	10.446
	49.603	107.216	31543.012	17.131	24.870	1268.327	63127.529	53.618	7.384	10.549
L51	49.648	63.557	18922.056	17.233	24.870	760.845	37869.011	31.785	7.890	19.128
	49.696	63.619	18977.590	17.250	24.894	762.340	37980.151	31.816	7.899	19.148
L52	49.694	65.530	19537.582	17.245	24.894	784.835	39100.873	32.771	7.877	18.533
	50.128	66.106	20057.307	17.397	25.111	798.753	40141.007	33.059	7.952	18.71
L53	50.097	96.818	29136.378	17.326	25.111	1160.313	58311.094	48.418	7.600	12.16
	50.145	96.912	29221.430	17.343	25.135	1162.584	58481.309	48.465	7.608	12.173
L54	50.145	96.912	29221.430	17.343	25.135	1162.584	58481.309	48.465	7.608	12.173
	50.675	97.948	30167.944	17.528	25.400	1187.714	60375.584	48.983	7.700	12.32

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 in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
L1 180.500-175.5 00				1	1	1			
L2 175.500-170.5 00				1	1	1			
L3 170.500-165.5 00				1	1	1			
L4				1	1	1			

tnxTower

B+T Group
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Client

Crown Castle

Designed by
JD Prabhu

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 in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
L25				1	1	1			
87.500-87.250									
L26				1	1	1			
87.250-82.250									
L27				1	1	1			
82.250-80.833									
L28				1	1	1			
80.833-80.583									
L29				1	1	1			
80.583-75.583									
L30				1	1	1			
75.583-70.583									
L31				1	1	1			
70.583-65.583									
L32				1	1	1			
65.583-60.583									
L33				1	1	1			
60.583-55.583									
L34				1	1	1			
55.583-53.567									
L35				1	1	1			
53.567-53.317									
L36				1	1	1			
53.317-43.800									
L37				1	1	0.991654			
43.800-42.800									
L38				1	1	1.00019			
42.800-38.417									
L39				1	1	0.999477			
38.417-38.067									
L40				1	1	0.998999			
38.067-37.833									
L41				1	1	1.00703			
37.833-32.833									
L42				1	1	0.997306			
32.833-27.833									
L43				1	1	1.00759			
27.833-23.500									
L44				1	1	1.00713			
23.500-23.250									
L45				1	1	0.998003			
23.250-18.250									
L46				1	1	1.008			
18.250-13.250									
L47				1	1	0.999444			
13.250-8.250									
L48				1	1	0.998886			
8.250-7.917									
L49				1	1	0.98227			
7.917-7.667									
L50				1	1	0.978464			
7.667-5.500									
L51				1	1	1.08909			
5.500-5.250									
L52				1	1	1.0558			
5.250-3.000									
L53				1	1	0.978745			
3.000-2.750									
L54				1	1	0.974742			

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 147461.003.01 - CANTERBURY / LEMIRE, CT (BU# 876375)	Page 8 of 56
	Project	Date 19:06:20 02/13/21
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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
2.750-0.000									

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 in	Perimeter in	Weight klf
*										
Safety Line 3/8	C	No	Surface Ar (CaAa)	180.500 - 0.000	1	1	0.200 0.210	0.375		0.000
*										
MP3-05	A	No	Surface Af (CaAa)	40.500 - 0.583	1	1	0.100 0.150	5.330	14.840	0.000
MP3-05	B	No	Surface Af (CaAa)	40.500 - 5.500	1	1	0.100 0.150	5.330	14.840	0.000
MP3-05	C	No	Surface Af (CaAa)	40.500 - 0.583	1	1	0.100 0.150	5.330	14.840	0.000
*										
MP3-05	A	No	Surface Af (CaAa)	56.000 - 36.000	1	1	-0.150 -0.100	5.330	14.840	0.000
MP3-05	B	No	Surface Af (CaAa)	56.000 - 36.000	1	1	-0.150 -0.100	5.330	14.840	0.000
MP3-05	C	No	Surface Af (CaAa)	56.000 - 36.000	1	1	-0.150 -0.100	5.330	14.840	0.000
*										
MP3-04	A	No	Surface Af (CaAa)	82.250 - 52.250	1	1	0.100 0.150	4.780	12.780	0.000
MP3-04	B	No	Surface Af (CaAa)	82.250 - 52.250	1	1	0.100 0.150	4.780	12.780	0.000
MP3-04	C	No	Surface Af (CaAa)	82.250 - 52.250	1	1	0.100 0.150	4.780	12.780	0.000
*										
MP3-04	A	No	Surface Af (CaAa)	109.250 - 79.250	1	1	-0.150 -0.100	4.780	12.780	0.000
MP3-04	B	No	Surface Af (CaAa)	109.250 - 79.250	1	1	-0.150 -0.100	4.780	12.780	0.000
MP3-04	C	No	Surface Af (CaAa)	109.250 - 79.250	1	1	-0.150 -0.100	4.780	12.780	0.000
*										
MP3-03	A	No	Surface Af (CaAa)	121.750 - 106.750	1	1	0.100 0.150	4.060	11.260	0.000
MP3-03	B	No	Surface Af (CaAa)	121.750 - 106.750	1	1	0.100 0.150	4.060	11.260	0.000
MP3-03	C	No	Surface Af (CaAa)	121.750 - 106.750	1	1	0.100 0.150	4.060	11.260	0.000
*										
CCI 6.5" x 1.25" Plate	A	No	Surface Af (CaAa)	52.083 - 2.000	1	1	0.450 0.500	6.500	15.500	0.000
CCI 6.5" x 1.25" Plate	B	No	Surface Af (CaAa)	52.083 - 2.000	1	1	0.450 0.500	6.500	15.500	0.000
CCI 6.5" x 1.25" Plate	C	No	Surface Af (CaAa)	52.083 - 2.000	1	1	0.450 0.500	6.500	15.500	0.000
*										
CCI 6" x 1" Plate	A	No	Surface Af	115.000 -	1	1	0.350	6.000	14.000	0.000

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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 klf
			(CaAa)	85.000			0.400			
CCI 6" x 1" Plate	B	No	Surface Af	115.000 -	1	1	0.350	6.000	14.000	0.000
			(CaAa)	85.000			0.400			
CCI 6" x 1" Plate	C	No	Surface Af	115.000 -	1	1	0.350	6.000	14.000	0.000
			(CaAa)	85.000			0.400			
*										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight klf
HB158-21U6S24-xx M_TMO(1-5/8)	A	No	No	Inside Pole	180.000 - 0.000	4	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.003 0.003 0.003 0.003
*									
HB158-1-08U8-S8J 18(1-5/8)	B	No	No	Inside Pole	168.000 - 0.000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001
LCF158-50JA-A7(1-5/8)	B	No	No	Inside Pole	168.000 - 0.000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001
LDF7-50A(1-5/8)	B	No	No	Inside Pole	168.000 - 0.000	6	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001
HB158-1-08U8-S8J 18(1-5/8)	B	No	No	Inside Pole	168.000 - 0.000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001
LCF158-50JA-A7(1-5/8)	B	No	No	Inside Pole	168.000 - 0.000	5	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001
*									
LDF6-50A(1-1/4)	B	No	No	Inside Pole	160.000 - 0.000	12	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.001 0.001 0.001 0.001
*									
FB-L98B-002-75000 (3/8)	B	No	No	Inside Pole	158.000 - 0.000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000
WR-VG122ST-BRD A(7/16)	B	No	No	Inside Pole	158.000 - 0.000	2	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000
2" Rigid Conduit	B	No	No	Inside Pole	158.000 - 0.000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000	0.003 0.003 0.003 0.003
*									

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Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C _{AA} ft ² /ft	Weight klf
LDF4-50A(1/2)	A	No	No	Inside Pole	78.000 - 0.000	1	No Ice 1/2" Ice 1" Ice 2" Ice	0.000 0.000 0.000 0.000
*								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	180.500-175.500	A	0.000	0.000	0.000	0.000	0.045
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.188	0.000	0.001
L2	175.500-170.500	A	0.000	0.000	0.000	0.000	0.050
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.188	0.000	0.001
L3	170.500-165.500	A	0.000	0.000	0.000	0.000	0.050
		B	0.000	0.000	0.000	0.000	0.030
		C	0.000	0.000	0.188	0.000	0.001
L4	165.500-160.500	A	0.000	0.000	0.000	0.000	0.050
		B	0.000	0.000	0.000	0.000	0.059
		C	0.000	0.000	0.188	0.000	0.001
L5	160.500-155.500	A	0.000	0.000	0.000	0.000	0.050
		B	0.000	0.000	0.000	0.000	0.099
		C	0.000	0.000	0.188	0.000	0.001
L6	155.500-150.500	A	0.000	0.000	0.000	0.000	0.050
		B	0.000	0.000	0.000	0.000	0.111
		C	0.000	0.000	0.188	0.000	0.001
L7	150.500-145.500	A	0.000	0.000	0.000	0.000	0.050
		B	0.000	0.000	0.000	0.000	0.111
		C	0.000	0.000	0.188	0.000	0.001
L8	145.500-140.500	A	0.000	0.000	0.000	0.000	0.050
		B	0.000	0.000	0.000	0.000	0.111
		C	0.000	0.000	0.188	0.000	0.001
L9	140.500-134.500	A	0.000	0.000	0.000	0.000	0.060
		B	0.000	0.000	0.000	0.000	0.133
		C	0.000	0.000	0.225	0.000	0.001
L10	134.500-132.794	A	0.000	0.000	0.000	0.000	0.017
		B	0.000	0.000	0.000	0.000	0.038
		C	0.000	0.000	0.064	0.000	0.000
L11	132.794-127.794	A	0.000	0.000	0.000	0.000	0.050
		B	0.000	0.000	0.000	0.000	0.111
		C	0.000	0.000	0.188	0.000	0.001
L12	127.794-122.794	A	0.000	0.000	0.000	0.000	0.050
		B	0.000	0.000	0.000	0.000	0.111
		C	0.000	0.000	0.188	0.000	0.001
L13	122.794-120.583	A	0.000	0.000	0.790	0.000	0.022
		B	0.000	0.000	0.790	0.000	0.049
		C	0.000	0.000	0.873	0.000	0.000
L14	120.583-120.333	A	0.000	0.000	0.169	0.000	0.003
		B	0.000	0.000	0.169	0.000	0.006
		C	0.000	0.000	0.179	0.000	0.000
L15	120.333-115.333	A	0.000	0.000	3.383	0.000	0.050

Tower Section	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
		B	0.000	0.000	3.383	0.000	0.111
		C	0.000	0.000	3.571	0.000	0.001
L16	115.333-112.500	A	0.000	0.000	4.417	0.000	0.028
		B	0.000	0.000	4.417	0.000	0.063
		C	0.000	0.000	4.523	0.000	0.001
L17	112.500-112.250	A	0.000	0.000	0.419	0.000	0.003
		B	0.000	0.000	0.419	0.000	0.006
		C	0.000	0.000	0.429	0.000	0.000
L18	112.250-107.817	A	0.000	0.000	8.574	0.000	0.044
		B	0.000	0.000	8.574	0.000	0.098
		C	0.000	0.000	8.741	0.000	0.001
L19	107.817-107.567	A	0.000	0.000	0.618	0.000	0.003
		B	0.000	0.000	0.618	0.000	0.006
		C	0.000	0.000	0.628	0.000	0.000
L20	107.567-102.567	A	0.000	0.000	9.536	0.000	0.050
		B	0.000	0.000	9.536	0.000	0.111
		C	0.000	0.000	9.724	0.000	0.001
L21	102.567-97.567	A	0.000	0.000	8.983	0.000	0.050
		B	0.000	0.000	8.983	0.000	0.111
		C	0.000	0.000	9.171	0.000	0.001
L22	97.567-89.000	A	0.000	0.000	15.392	0.000	0.086
		B	0.000	0.000	15.392	0.000	0.190
		C	0.000	0.000	15.713	0.000	0.002
L23	89.000-88.311	A	0.000	0.000	1.238	0.000	0.007
		B	0.000	0.000	1.238	0.000	0.015
		C	0.000	0.000	1.264	0.000	0.000
L24	88.311-87.500	A	0.000	0.000	1.457	0.000	0.008
		B	0.000	0.000	1.457	0.000	0.018
		C	0.000	0.000	1.488	0.000	0.000
L25	87.500-87.250	A	0.000	0.000	0.449	0.000	0.003
		B	0.000	0.000	0.449	0.000	0.006
		C	0.000	0.000	0.459	0.000	0.000
L26	87.250-82.250	A	0.000	0.000	6.233	0.000	0.050
		B	0.000	0.000	6.233	0.000	0.111
		C	0.000	0.000	6.421	0.000	0.001
L27	82.250-80.833	A	0.000	0.000	2.258	0.000	0.014
		B	0.000	0.000	2.258	0.000	0.031
		C	0.000	0.000	2.311	0.000	0.000
L28	80.833-80.583	A	0.000	0.000	0.398	0.000	0.003
		B	0.000	0.000	0.398	0.000	0.006
		C	0.000	0.000	0.408	0.000	0.000
L29	80.583-75.583	A	0.000	0.000	5.045	0.000	0.050
		B	0.000	0.000	5.045	0.000	0.111
		C	0.000	0.000	5.233	0.000	0.001
L30	75.583-70.583	A	0.000	0.000	3.983	0.000	0.051
		B	0.000	0.000	3.983	0.000	0.111
		C	0.000	0.000	4.171	0.000	0.001
L31	70.583-65.583	A	0.000	0.000	3.983	0.000	0.051
		B	0.000	0.000	3.983	0.000	0.111
		C	0.000	0.000	4.171	0.000	0.001
L32	65.583-60.583	A	0.000	0.000	3.983	0.000	0.051
		B	0.000	0.000	3.983	0.000	0.111
		C	0.000	0.000	4.171	0.000	0.001
L33	60.583-55.583	A	0.000	0.000	4.354	0.000	0.051
		B	0.000	0.000	4.354	0.000	0.111
		C	0.000	0.000	4.541	0.000	0.001
L34	55.583-53.567	A	0.000	0.000	3.397	0.000	0.020
		B	0.000	0.000	3.397	0.000	0.045
		C	0.000	0.000	3.473	0.000	0.000
L35	53.567-53.317	A	0.000	0.000	0.421	0.000	0.003
		B	0.000	0.000	0.421	0.000	0.006

Tower Section	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
L36	53.317-43.800	C	0.000	0.000	0.431	0.000	0.000
		A	0.000	0.000	18.278	0.000	0.097
		B	0.000	0.000	18.278	0.000	0.211
L37	43.800-42.800	C	0.000	0.000	18.634	0.000	0.002
		A	0.000	0.000	1.972	0.000	0.010
		B	0.000	0.000	1.972	0.000	0.022
L38	42.800-38.417	C	0.000	0.000	2.009	0.000	0.000
		A	0.000	0.000	10.492	0.000	0.044
		B	0.000	0.000	10.492	0.000	0.097
L39	38.417-38.067	C	0.000	0.000	10.657	0.000	0.001
		A	0.000	0.000	1.001	0.000	0.004
		B	0.000	0.000	1.001	0.000	0.008
L40	38.067-37.833	C	0.000	0.000	1.014	0.000	0.000
		A	0.000	0.000	0.669	0.000	0.002
		B	0.000	0.000	0.669	0.000	0.005
L41	37.833-32.833	C	0.000	0.000	0.678	0.000	0.000
		A	0.000	0.000	11.487	0.000	0.051
		B	0.000	0.000	11.487	0.000	0.111
L42	32.833-27.833	C	0.000	0.000	11.674	0.000	0.001
		A	0.000	0.000	9.858	0.000	0.051
		B	0.000	0.000	9.858	0.000	0.111
L43	27.833-23.500	C	0.000	0.000	10.046	0.000	0.001
		A	0.000	0.000	8.543	0.000	0.044
		B	0.000	0.000	8.543	0.000	0.096
L44	23.500-23.250	C	0.000	0.000	8.706	0.000	0.001
		A	0.000	0.000	0.493	0.000	0.003
		B	0.000	0.000	0.493	0.000	0.006
L45	23.250-18.250	C	0.000	0.000	0.502	0.000	0.000
		A	0.000	0.000	9.858	0.000	0.051
		B	0.000	0.000	9.858	0.000	0.111
L46	18.250-13.250	C	0.000	0.000	10.046	0.000	0.001
		A	0.000	0.000	9.858	0.000	0.051
		B	0.000	0.000	9.858	0.000	0.111
L47	13.250-8.250	C	0.000	0.000	10.046	0.000	0.001
		A	0.000	0.000	9.858	0.000	0.051
		B	0.000	0.000	9.858	0.000	0.111
L48	8.250-7.917	C	0.000	0.000	10.046	0.000	0.001
		A	0.000	0.000	0.657	0.000	0.003
		B	0.000	0.000	0.657	0.000	0.007
L49	7.917-7.667	C	0.000	0.000	0.669	0.000	0.000
		A	0.000	0.000	0.493	0.000	0.003
		B	0.000	0.000	0.493	0.000	0.006
L50	7.667-5.500	C	0.000	0.000	0.502	0.000	0.000
		A	0.000	0.000	4.273	0.000	0.022
		B	0.000	0.000	4.273	0.000	0.048
L51	5.500-5.250	C	0.000	0.000	4.354	0.000	0.000
		A	0.000	0.000	0.493	0.000	0.003
		B	0.000	0.000	0.271	0.000	0.006
L52	5.250-3.000	C	0.000	0.000	0.502	0.000	0.000
		A	0.000	0.000	4.436	0.000	0.023
		B	0.000	0.000	2.438	0.000	0.050
L53	3.000-2.750	C	0.000	0.000	4.521	0.000	0.000
		A	0.000	0.000	0.493	0.000	0.003
		B	0.000	0.000	0.271	0.000	0.006
L54	2.750-0.000	C	0.000	0.000	0.502	0.000	0.000
		A	0.000	0.000	2.738	0.000	0.028
		B	0.000	0.000	0.813	0.000	0.061
		C	0.000	0.000	2.841	0.000	0.001

<p>tnxTower</p> <p>B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p>Job 147461.003.01 - CANTERBURY / LEMIRE, CT (BU# 876375)</p>	<p>Page 13 of 56</p>
	<p>Project</p>	<p>Date 19:06:20 02/13/21</p>
	<p>Client Crown Castle</p>	<p>Designed by JD Prabhu</p>

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L1	180.500-175.500	A	1.509	0.000	0.000	0.000	0.000	0.045
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	1.697	0.000	0.018
L2	175.500-170.500	A	1.505	0.000	0.000	0.000	0.000	0.050
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	1.692	0.000	0.018
L3	170.500-165.500	A	1.500	0.000	0.000	0.000	0.000	0.050
		B		0.000	0.000	0.000	0.000	0.030
		C		0.000	0.000	1.688	0.000	0.018
L4	165.500-160.500	A	1.496	0.000	0.000	0.000	0.000	0.050
		B		0.000	0.000	0.000	0.000	0.059
		C		0.000	0.000	1.683	0.000	0.018
L5	160.500-155.500	A	1.491	0.000	0.000	0.000	0.000	0.050
		B		0.000	0.000	0.000	0.000	0.099
		C		0.000	0.000	1.679	0.000	0.018
L6	155.500-150.500	A	1.486	0.000	0.000	0.000	0.000	0.050
		B		0.000	0.000	0.000	0.000	0.111
		C		0.000	0.000	1.674	0.000	0.018
L7	150.500-145.500	A	1.481	0.000	0.000	0.000	0.000	0.050
		B		0.000	0.000	0.000	0.000	0.111
		C		0.000	0.000	1.669	0.000	0.018
L8	145.500-140.500	A	1.476	0.000	0.000	0.000	0.000	0.050
		B		0.000	0.000	0.000	0.000	0.111
		C		0.000	0.000	1.664	0.000	0.018
L9	140.500-134.500	A	1.471	0.000	0.000	0.000	0.000	0.060
		B		0.000	0.000	0.000	0.000	0.133
		C		0.000	0.000	1.990	0.000	0.021
L10	134.500-132.794	A	1.466	0.000	0.000	0.000	0.000	0.017
		B		0.000	0.000	0.000	0.000	0.038
		C		0.000	0.000	0.566	0.000	0.006
L11	132.794-127.794	A	1.463	0.000	0.000	0.000	0.000	0.050
		B		0.000	0.000	0.000	0.000	0.111
		C		0.000	0.000	1.650	0.000	0.018
L12	127.794-122.794	A	1.457	0.000	0.000	0.000	0.000	0.050
		B		0.000	0.000	0.000	0.000	0.111
		C		0.000	0.000	1.644	0.000	0.017
L13	122.794-120.583	A	1.453	0.000	0.000	1.129	0.000	0.033
		B		0.000	0.000	1.129	0.000	0.060
		C		0.000	0.000	1.854	0.000	0.019
L14	120.583-120.333	A	1.451	0.000	0.000	0.242	0.000	0.005
		B		0.000	0.000	0.242	0.000	0.008
		C		0.000	0.000	0.324	0.000	0.003
L15	120.333-115.333	A	1.448	0.000	0.000	4.831	0.000	0.097
		B		0.000	0.000	4.831	0.000	0.158
		C		0.000	0.000	6.467	0.000	0.064
L16	115.333-112.500	A	1.443	0.000	0.000	5.956	0.000	0.082
		B		0.000	0.000	5.956	0.000	0.117
		C		0.000	0.000	6.880	0.000	0.064
L17	112.500-112.250	A	1.441	0.000	0.000	0.563	0.000	0.008
		B		0.000	0.000	0.563	0.000	0.011
		C		0.000	0.000	0.645	0.000	0.006
L18	112.250-107.817	A	1.438	0.000	0.000	11.537	0.000	0.149
		B		0.000	0.000	11.537	0.000	0.203
		C		0.000	0.000	12.978	0.000	0.119
L19	107.817-107.567	A	1.435	0.000	0.000	0.834	0.000	0.010
		B		0.000	0.000	0.834	0.000	0.013
		C		0.000	0.000	0.915	0.000	0.008
L20	107.567-102.567	A	1.432	0.000	0.000	12.633	0.000	0.162

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
		B		0.000	0.000	12.633	0.000	0.223
		C		0.000	0.000	14.252	0.000	0.129
L21	102.567-97.567	A	1.425	0.000	0.000	11.832	0.000	0.154
		B		0.000	0.000	11.832	0.000	0.215
		C		0.000	0.000	13.445	0.000	0.121
L22	97.567-89.000	A	1.415	0.000	0.000	20.239	0.000	0.262
		B		0.000	0.000	20.239	0.000	0.367
		C		0.000	0.000	22.984	0.000	0.205
L23	89.000-88.311	A	1.407	0.000	0.000	1.628	0.000	0.021
		B		0.000	0.000	1.628	0.000	0.029
		C		0.000	0.000	1.849	0.000	0.016
L24	88.311-87.500	A	1.406	0.000	0.000	1.913	0.000	0.025
		B		0.000	0.000	1.913	0.000	0.035
		C		0.000	0.000	2.172	0.000	0.019
L25	87.500-87.250	A	1.405	0.000	0.000	0.590	0.000	0.008
		B		0.000	0.000	0.590	0.000	0.011
		C		0.000	0.000	0.669	0.000	0.006
L26	87.250-82.250	A	1.401	0.000	0.000	8.265	0.000	0.123
		B		0.000	0.000	8.265	0.000	0.184
		C		0.000	0.000	9.854	0.000	0.089
L27	82.250-80.833	A	1.396	0.000	0.000	3.049	0.000	0.042
		B		0.000	0.000	3.049	0.000	0.059
		C		0.000	0.000	3.498	0.000	0.032
L28	80.833-80.583	A	1.394	0.000	0.000	0.538	0.000	0.007
		B		0.000	0.000	0.538	0.000	0.010
		C		0.000	0.000	0.617	0.000	0.006
L29	80.583-75.583	A	1.390	0.000	0.000	6.805	0.000	0.112
		B		0.000	0.000	6.805	0.000	0.173
		C		0.000	0.000	8.383	0.000	0.078
L30	75.583-70.583	A	1.380	0.000	0.000	5.364	0.000	0.099
		B		0.000	0.000	5.364	0.000	0.159
		C		0.000	0.000	6.932	0.000	0.064
L31	70.583-65.583	A	1.371	0.000	0.000	5.354	0.000	0.099
		B		0.000	0.000	5.354	0.000	0.159
		C		0.000	0.000	6.912	0.000	0.064
L32	65.583-60.583	A	1.360	0.000	0.000	5.344	0.000	0.098
		B		0.000	0.000	5.344	0.000	0.158
		C		0.000	0.000	6.891	0.000	0.063
L33	60.583-55.583	A	1.349	0.000	0.000	5.815	0.000	0.102
		B		0.000	0.000	5.815	0.000	0.162
		C		0.000	0.000	7.352	0.000	0.067
L34	55.583-53.567	A	1.341	0.000	0.000	4.478	0.000	0.060
		B		0.000	0.000	4.478	0.000	0.084
		C		0.000	0.000	5.094	0.000	0.046
L35	53.567-53.317	A	1.338	0.000	0.000	0.555	0.000	0.007
		B		0.000	0.000	0.555	0.000	0.010
		C		0.000	0.000	0.631	0.000	0.006
L36	53.317-43.800	A	1.325	0.000	0.000	23.278	0.000	0.291
		B		0.000	0.000	23.278	0.000	0.406
		C		0.000	0.000	26.157	0.000	0.223
L37	43.800-42.800	A	1.310	0.000	0.000	2.502	0.000	0.031
		B		0.000	0.000	2.502	0.000	0.043
		C		0.000	0.000	2.804	0.000	0.024
L38	42.800-38.417	A	1.302	0.000	0.000	13.317	0.000	0.155
		B		0.000	0.000	13.317	0.000	0.207
		C		0.000	0.000	14.622	0.000	0.123
L39	38.417-38.067	A	1.294	0.000	0.000	1.273	0.000	0.014
		B		0.000	0.000	1.273	0.000	0.018
		C		0.000	0.000	1.376	0.000	0.012
L40	38.067-37.833	A	1.293	0.000	0.000	0.851	0.000	0.009
		B		0.000	0.000	0.851	0.000	0.012

<p>tnxTower</p> <p>B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	<p>Job 147461.003.01 - CANTERBURY / LEMIRE, CT (BU# 876375)</p>	<p>Page 15 of 56</p>
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	<p>Client Crown Castle</p>	<p>Designed by JD Prabhu</p>

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
L41	37.833-32.833	C		0.000	0.000	0.920	0.000	0.008
		A	1.284	0.000	0.000	14.525	0.000	0.169
		B		0.000	0.000	14.525	0.000	0.229
		C		0.000	0.000	15.996	0.000	0.132
L42	32.833-27.833	A	1.264	0.000	0.000	12.387	0.000	0.149
		B		0.000	0.000	12.387	0.000	0.209
		C		0.000	0.000	13.839	0.000	0.112
L43	27.833-23.500	A	1.243	0.000	0.000	10.698	0.000	0.127
		B		0.000	0.000	10.698	0.000	0.179
		C		0.000	0.000	11.938	0.000	0.095
L44	23.500-23.250	A	1.232	0.000	0.000	0.616	0.000	0.007
		B		0.000	0.000	0.616	0.000	0.010
		C		0.000	0.000	0.687	0.000	0.005
L45	23.250-18.250	A	1.217	0.000	0.000	12.293	0.000	0.144
		B		0.000	0.000	12.293	0.000	0.205
		C		0.000	0.000	13.697	0.000	0.107
L46	18.250-13.250	A	1.184	0.000	0.000	12.226	0.000	0.141
		B		0.000	0.000	12.226	0.000	0.201
		C		0.000	0.000	13.598	0.000	0.103
L47	13.250-8.250	A	1.140	0.000	0.000	12.138	0.000	0.137
		B		0.000	0.000	12.138	0.000	0.197
		C		0.000	0.000	13.465	0.000	0.098
L48	8.250-7.917	A	1.108	0.000	0.000	0.804	0.000	0.009
		B		0.000	0.000	0.804	0.000	0.013
		C		0.000	0.000	0.890	0.000	0.006
L49	7.917-7.667	A	1.104	0.000	0.000	0.603	0.000	0.007
		B		0.000	0.000	0.603	0.000	0.010
		C		0.000	0.000	0.668	0.000	0.005
L50	7.667-5.500	A	1.085	0.000	0.000	5.213	0.000	0.057
		B		0.000	0.000	5.213	0.000	0.083
		C		0.000	0.000	5.765	0.000	0.040
L51	5.500-5.250	A	1.063	0.000	0.000	0.599	0.000	0.007
		B		0.000	0.000	0.324	0.000	0.008
		C		0.000	0.000	0.662	0.000	0.004
L52	5.250-3.000	A	1.036	0.000	0.000	5.368	0.000	0.057
		B		0.000	0.000	2.904	0.000	0.068
		C		0.000	0.000	5.919	0.000	0.039
L53	3.000-2.750	A	0.999	0.000	0.000	0.593	0.000	0.006
		B		0.000	0.000	0.321	0.000	0.007
		C		0.000	0.000	0.652	0.000	0.004
L54	2.750-0.000	A	0.928	0.000	0.000	3.279	0.000	0.047
		B		0.000	0.000	0.952	0.000	0.066
		C		0.000	0.000	3.892	0.000	0.024

Feed Line Center of Pressure

Section	Elevation ft	CP _x in	CP _z in	CP _x Ice in	CP _z Ice in
L1	180.500-175.500	-0.125	0.273	-0.527	1.151
L2	175.500-170.500	-0.125	0.273	-0.532	1.163
L3	170.500-165.500	-0.125	0.273	-0.537	1.173
L4	165.500-160.500	-0.125	0.273	-0.542	1.183
L5	160.500-155.500	-0.125	0.274	-0.545	1.191
L6	155.500-150.500	-0.125	0.274	-0.549	1.199
L7	150.500-145.500	-0.125	0.274	-0.552	1.205
L8	145.500-140.500	-0.125	0.274	-0.555	1.211

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 147461.003.01 - CANTERBURY / LEMIRE, CT (BU# 876375)	Page 16 of 56
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Section	Elevation	CP _x	CP _z	CP _x	CP _z
		in	in	Ice in	Ice in
L9	140.500-134.500	-0.125	0.274	-0.557	1.217
L10	134.500-132.794	-0.125	0.274	-0.558	1.220
L11	132.794-127.794	-0.125	0.274	-0.559	1.220
L12	127.794-122.794	-0.126	0.274	-0.560	1.224
L13	122.794-120.583	-0.078	0.171	-0.390	0.852
L14	120.583-120.333	-0.059	0.129	-0.307	0.672
L15	120.333-115.333	-0.059	0.130	-0.310	0.677
L16	115.333-112.500	-0.036	0.078	-0.206	0.449
L17	112.500-112.250	-0.034	0.075	-0.198	0.433
L18	112.250-107.817	-0.031	0.068	-0.182	0.397
L19	107.817-107.567	-0.026	0.057	-0.154	0.336
L20	107.567-102.567	-0.032	0.070	-0.189	0.412
L21	102.567-97.567	-0.034	0.075	-0.200	0.437
L22	97.567-89.000	-0.035	0.077	-0.205	0.447
L23	89.000-88.311	-0.036	0.078	-0.206	0.449
L24	88.311-87.500	-0.036	0.078	-0.205	0.449
L25	87.500-87.250	-0.036	0.078	-0.206	0.449
L26	87.250-82.250	-0.046	0.101	-0.255	0.558
L27	82.250-80.833	-0.040	0.087	-0.221	0.483
L28	80.833-80.583	-0.040	0.087	-0.222	0.484
L29	80.583-75.583	-0.054	0.117	-0.287	0.626
L30	75.583-70.583	-0.062	0.135	-0.322	0.704
L31	70.583-65.583	-0.063	0.137	-0.325	0.709
L32	65.583-60.583	-0.063	0.139	-0.327	0.714
L33	60.583-55.583	-0.061	0.134	-0.317	0.692
L34	55.583-53.567	-0.042	0.092	-0.229	0.500
L35	53.567-53.317	-0.042	0.092	-0.229	0.501
L36	53.317-43.800	-0.039	0.085	-0.218	0.476
L37	43.800-42.800	-0.039	0.084	-0.216	0.471
L38	42.800-38.417	-0.034	0.074	-0.190	0.414
L39	38.417-38.067	-0.030	0.065	-0.168	0.368
L40	38.067-37.833	-0.030	0.065	-0.168	0.368
L41	37.833-32.833	-0.036	0.078	-0.196	0.428
L42	32.833-27.833	-0.040	0.088	-0.216	0.473
L43	27.833-23.500	-0.041	0.089	-0.217	0.473
L44	23.500-23.250	-0.041	0.089	-0.216	0.473
L45	23.250-18.250	-0.041	0.090	-0.216	0.472
L46	18.250-13.250	-0.042	0.091	-0.215	0.469
L47	13.250-8.250	-0.042	0.092	-0.211	0.462
L48	8.250-7.917	-0.043	0.093	-0.208	0.455
L49	7.917-7.667	-0.043	0.093	-0.208	0.454
L50	7.667-5.500	-0.043	0.093	-0.206	0.450
L51	5.500-5.250	-2.931	0.180	-2.732	0.554
L52	5.250-3.000	-2.940	0.181	-2.730	0.546
L53	3.000-2.750	-2.949	0.181	-2.727	0.535
L54	2.750-0.000	-3.528	0.250	-3.037	0.694

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
L1	19	Safety Line 3/8	175.50 -	1.0000	1.0000

tnxTower

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Crown Castle

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L2	19	Safety Line 3/8	180.50 170.50 - 175.50	1.0000	1.0000
L3	19	Safety Line 3/8	165.50 - 170.50	1.0000	1.0000
L4	19	Safety Line 3/8	160.50 - 165.50	1.0000	1.0000
L5	19	Safety Line 3/8	155.50 - 160.50	1.0000	1.0000
L6	19	Safety Line 3/8	150.50 - 155.50	1.0000	1.0000
L7	19	Safety Line 3/8	145.50 - 150.50	1.0000	1.0000
L8	19	Safety Line 3/8	140.50 - 145.50	1.0000	1.0000
L9	19	Safety Line 3/8	134.50 - 140.50	1.0000	1.0000
L10	19	Safety Line 3/8	132.79 - 134.50	1.0000	1.0000
L11	19	Safety Line 3/8	127.79 - 132.79	1.0000	1.0000
L12	19	Safety Line 3/8	122.79 - 127.79	1.0000	1.0000
L13	19	Safety Line 3/8	120.58 - 122.79	1.0000	1.0000
L13	37	MP3-03	120.58 - 121.75	1.0000	1.0000
L13	38	MP3-03	120.58 - 121.75	1.0000	1.0000
L13	39	MP3-03	120.58 - 121.75	1.0000	1.0000
L14	19	Safety Line 3/8	120.33 - 120.58	1.0000	1.0000
L14	37	MP3-03	120.33 - 120.58	1.0000	1.0000
L14	38	MP3-03	120.33 - 120.58	1.0000	1.0000
L14	39	MP3-03	120.33 - 120.58	1.0000	1.0000
L15	19	Safety Line 3/8	115.33 - 120.33	1.0000	1.0000
L15	37	MP3-03	115.33 - 120.33	1.0000	1.0000
L15	38	MP3-03	115.33 - 120.33	1.0000	1.0000
L15	39	MP3-03	115.33 - 120.33	1.0000	1.0000
L16	19	Safety Line 3/8	112.50 - 115.33	1.0000	1.0000
L16	37	MP3-03	112.50 - 115.33	1.0000	1.0000
L16	38	MP3-03	112.50 - 115.33	1.0000	1.0000
L16	39	MP3-03	112.50 - 115.33	1.0000	1.0000
L16	45	CCI 6" x 1" Plate	112.50 - 115.00	1.0000	1.0000
L16	46	CCI 6" x 1" Plate	112.50 - 115.00	1.0000	1.0000
L16	47	CCI 6" x 1" Plate	112.50 - 115.00	1.0000	1.0000
L17	19	Safety Line 3/8	112.25 -	1.0000	1.0000

tnxTower

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Crown Castle

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JD Prabhu

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L17	37	MP3-03	112.50 112.25 - 112.50	1.0000	1.0000
L17	38	MP3-03	112.25 - 112.50	1.0000	1.0000
L17	39	MP3-03	112.25 - 112.50	1.0000	1.0000
L17	45	CCI 6" x 1" Plate	112.25 - 112.50	1.0000	1.0000
L17	46	CCI 6" x 1" Plate	112.25 - 112.50	1.0000	1.0000
L17	47	CCI 6" x 1" Plate	112.25 - 112.50	1.0000	1.0000
L18	19	Safety Line 3/8	107.82 - 112.25	1.0000	1.0000
L18	33	MP3-04	107.82 - 109.25	1.0000	1.0000
L18	34	MP3-04	107.82 - 109.25	1.0000	1.0000
L18	35	MP3-04	107.82 - 109.25	1.0000	1.0000
L18	37	MP3-03	107.82 - 112.25	1.0000	1.0000
L18	38	MP3-03	107.82 - 112.25	1.0000	1.0000
L18	39	MP3-03	107.82 - 112.25	1.0000	1.0000
L18	45	CCI 6" x 1" Plate	107.82 - 112.25	1.0000	1.0000
L18	46	CCI 6" x 1" Plate	107.82 - 112.25	1.0000	1.0000
L18	47	CCI 6" x 1" Plate	107.82 - 112.25	1.0000	1.0000
L19	19	Safety Line 3/8	107.57 - 107.82	1.0000	1.0000
L19	33	MP3-04	107.57 - 107.82	1.0000	1.0000
L19	34	MP3-04	107.57 - 107.82	1.0000	1.0000
L19	35	MP3-04	107.57 - 107.82	1.0000	1.0000
L19	37	MP3-03	107.57 - 107.82	1.0000	1.0000
L19	38	MP3-03	107.57 - 107.82	1.0000	1.0000
L19	39	MP3-03	107.57 - 107.82	1.0000	1.0000
L19	45	CCI 6" x 1" Plate	107.57 - 107.82	1.0000	1.0000
L19	46	CCI 6" x 1" Plate	107.57 - 107.82	1.0000	1.0000
L19	47	CCI 6" x 1" Plate	107.57 - 107.82	1.0000	1.0000
L20	19	Safety Line 3/8	102.57 - 107.57	1.0000	1.0000
L20	33	MP3-04	102.57 - 107.57	1.0000	1.0000
L20	34	MP3-04	102.57 - 107.57	1.0000	1.0000
L20	35	MP3-04	102.57 - 107.57	1.0000	1.0000
L20	37	MP3-03	106.75 -	1.0000	1.0000

tnxTower

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1717 S. Boulder, Suite 300
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Client
Crown Castle
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JD Prabhu

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L20	38	MP3-03	107.57 - 106.75	1.0000	1.0000
L20	39	MP3-03	107.57 - 106.75	1.0000	1.0000
L20	45	CCI 6" x 1" Plate	107.57 - 102.57	1.0000	1.0000
L20	46	CCI 6" x 1" Plate	107.57 - 102.57	1.0000	1.0000
L20	47	CCI 6" x 1" Plate	107.57 - 102.57	1.0000	1.0000
L21	19	Safety Line 3/8	97.57 - 102.57	1.0000	1.0000
L21	33	MP3-04	97.57 - 102.57	1.0000	1.0000
L21	34	MP3-04	97.57 - 102.57	1.0000	1.0000
L21	35	MP3-04	97.57 - 102.57	1.0000	1.0000
L21	45	CCI 6" x 1" Plate	97.57 - 102.57	1.0000	1.0000
L21	46	CCI 6" x 1" Plate	97.57 - 102.57	1.0000	1.0000
L21	47	CCI 6" x 1" Plate	97.57 - 102.57	1.0000	1.0000
L22	19	Safety Line 3/8	89.00 - 97.57	1.0000	1.0000
L22	33	MP3-04	89.00 - 97.57	1.0000	1.0000
L22	34	MP3-04	89.00 - 97.57	1.0000	1.0000
L22	35	MP3-04	89.00 - 97.57	1.0000	1.0000
L22	45	CCI 6" x 1" Plate	89.00 - 97.57	1.0000	1.0000
L22	46	CCI 6" x 1" Plate	89.00 - 97.57	1.0000	1.0000
L22	47	CCI 6" x 1" Plate	89.00 - 97.57	1.0000	1.0000
L23	19	Safety Line 3/8	88.31 - 89.00	1.0000	1.0000
L23	33	MP3-04	88.31 - 89.00	1.0000	1.0000
L23	34	MP3-04	88.31 - 89.00	1.0000	1.0000
L23	35	MP3-04	88.31 - 89.00	1.0000	1.0000
L23	45	CCI 6" x 1" Plate	88.31 - 89.00	1.0000	1.0000
L23	46	CCI 6" x 1" Plate	88.31 - 89.00	1.0000	1.0000
L23	47	CCI 6" x 1" Plate	88.31 - 89.00	1.0000	1.0000
L24	19	Safety Line 3/8	87.50 - 88.31	1.0000	1.0000
L24	33	MP3-04	87.50 - 88.31	1.0000	1.0000
L24	34	MP3-04	87.50 - 88.31	1.0000	1.0000
L24	35	MP3-04	87.50 - 88.31	1.0000	1.0000
L24	45	CCI 6" x 1" Plate	87.50 - 88.31	1.0000	1.0000
L24	46	CCI 6" x 1" Plate	87.50 - 88.31	1.0000	1.0000
L24	47	CCI 6" x 1" Plate	87.50 - 88.31	1.0000	1.0000
L25	19	Safety Line 3/8	87.25 - 87.50	1.0000	1.0000
L25	33	MP3-04	87.25 - 87.50	1.0000	1.0000
L25	34	MP3-04	87.25 - 87.50	1.0000	1.0000
L25	35	MP3-04	87.25 - 87.50	1.0000	1.0000
L25	45	CCI 6" x 1" Plate	87.25 - 87.50	1.0000	1.0000
L25	46	CCI 6" x 1" Plate	87.25 - 87.50	1.0000	1.0000
L25	47	CCI 6" x 1" Plate	87.25 - 87.50	1.0000	1.0000
L26	19	Safety Line 3/8	82.25 - 87.25	1.0000	1.0000
L26	33	MP3-04	82.25 - 87.25	1.0000	1.0000
L26	34	MP3-04	82.25 - 87.25	1.0000	1.0000
L26	35	MP3-04	82.25 - 87.25	1.0000	1.0000
L26	45	CCI 6" x 1" Plate	85.00 - 87.25	1.0000	1.0000
L26	46	CCI 6" x 1" Plate	85.00 - 87.25	1.0000	1.0000
L26	47	CCI 6" x 1" Plate	85.00 - 87.25	1.0000	1.0000
L27	19	Safety Line 3/8	80.83 - 82.25	1.0000	1.0000
L27	29	MP3-04	80.83 - 82.25	1.0000	1.0000
L27	30	MP3-04	80.83 - 82.25	1.0000	1.0000
L27	31	MP3-04	80.83 - 82.25	1.0000	1.0000
L27	33	MP3-04	80.83 - 82.25	1.0000	1.0000
L27	34	MP3-04	80.83 - 82.25	1.0000	1.0000
L27	35	MP3-04	80.83 - 82.25	1.0000	1.0000
L28	19	Safety Line 3/8	80.58 - 80.83	1.0000	1.0000
L28	29	MP3-04	80.58 - 80.83	1.0000	1.0000

tnxTower

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Client
Crown Castle

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JD Prabhu

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L28	30	MP3-04	80.58 - 80.83	1.0000	1.0000
L28	31	MP3-04	80.58 - 80.83	1.0000	1.0000
L28	33	MP3-04	80.58 - 80.83	1.0000	1.0000
L28	34	MP3-04	80.58 - 80.83	1.0000	1.0000
L28	35	MP3-04	80.58 - 80.83	1.0000	1.0000
L29	19	Safety Line 3/8	75.58 - 80.58	1.0000	1.0000
L29	29	MP3-04	75.58 - 80.58	1.0000	1.0000
L29	30	MP3-04	75.58 - 80.58	1.0000	1.0000
L29	31	MP3-04	75.58 - 80.58	1.0000	1.0000
L29	33	MP3-04	79.25 - 80.58	1.0000	1.0000
L29	34	MP3-04	79.25 - 80.58	1.0000	1.0000
L29	35	MP3-04	79.25 - 80.58	1.0000	1.0000
L30	19	Safety Line 3/8	70.58 - 75.58	1.0000	1.0000
L30	29	MP3-04	70.58 - 75.58	1.0000	1.0000
L30	30	MP3-04	70.58 - 75.58	1.0000	1.0000
L30	31	MP3-04	70.58 - 75.58	1.0000	1.0000
L31	19	Safety Line 3/8	65.58 - 70.58	1.0000	1.0000
L31	29	MP3-04	65.58 - 70.58	1.0000	1.0000
L31	30	MP3-04	65.58 - 70.58	1.0000	1.0000
L31	31	MP3-04	65.58 - 70.58	1.0000	1.0000
L32	19	Safety Line 3/8	60.58 - 65.58	1.0000	1.0000
L32	29	MP3-04	60.58 - 65.58	1.0000	1.0000
L32	30	MP3-04	60.58 - 65.58	1.0000	1.0000
L32	31	MP3-04	60.58 - 65.58	1.0000	1.0000
L33	19	Safety Line 3/8	55.58 - 60.58	1.0000	1.0000
L33	25	MP3-05	55.58 - 56.00	1.0000	1.0000
L33	26	MP3-05	55.58 - 56.00	1.0000	1.0000
L33	27	MP3-05	55.58 - 56.00	1.0000	1.0000
L33	29	MP3-04	55.58 - 60.58	1.0000	1.0000
L33	30	MP3-04	55.58 - 60.58	1.0000	1.0000
L33	31	MP3-04	55.58 - 60.58	1.0000	1.0000
L34	19	Safety Line 3/8	53.57 - 55.58	1.0000	1.0000
L34	25	MP3-05	53.57 - 55.58	1.0000	1.0000
L34	26	MP3-05	53.57 - 55.58	1.0000	1.0000
L34	27	MP3-05	53.57 - 55.58	1.0000	1.0000
L34	29	MP3-04	53.57 - 55.58	1.0000	1.0000
L34	30	MP3-04	53.57 - 55.58	1.0000	1.0000
L34	31	MP3-04	53.57 - 55.58	1.0000	1.0000
L35	19	Safety Line 3/8	53.32 - 53.57	1.0000	1.0000
L35	25	MP3-05	53.32 - 53.57	1.0000	1.0000
L35	26	MP3-05	53.32 - 53.57	1.0000	1.0000
L35	27	MP3-05	53.32 - 53.57	1.0000	1.0000
L35	29	MP3-04	53.32 - 53.57	1.0000	1.0000
L35	30	MP3-04	53.32 - 53.57	1.0000	1.0000
L35	31	MP3-04	53.32 - 53.57	1.0000	1.0000
L36	19	Safety Line 3/8	43.80 - 53.32	1.0000	1.0000
L36	25	MP3-05	43.80 - 53.32	1.0000	1.0000
L36	26	MP3-05	43.80 - 53.32	1.0000	1.0000
L36	27	MP3-05	43.80 - 53.32	1.0000	1.0000
L36	29	MP3-04	52.25 - 53.32	1.0000	1.0000
L36	30	MP3-04	52.25 - 53.32	1.0000	1.0000
L36	31	MP3-04	52.25 - 53.32	1.0000	1.0000
L36	41	CCI 6.5" x 1.25" Plate	43.80 - 52.08	1.0000	1.0000
L36	42	CCI 6.5" x 1.25" Plate	43.80 - 52.08	1.0000	1.0000
L36	43	CCI 6.5" x 1.25" Plate	43.80 - 52.08	1.0000	1.0000
L37	19	Safety Line 3/8	42.80 - 43.80	1.0000	1.0000
L37	25	MP3-05	42.80 - 43.80	1.0000	1.0000
L37	26	MP3-05	42.80 - 43.80	1.0000	1.0000
L37	27	MP3-05	42.80 - 43.80	1.0000	1.0000
L37	41	CCI 6.5" x 1.25" Plate	42.80 - 43.80	1.0000	1.0000
L37	42	CCI 6.5" x 1.25" Plate	42.80 - 43.80	1.0000	1.0000
L37	43	CCI 6.5" x 1.25" Plate	42.80 - 43.80	1.0000	1.0000

tnxTower

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Client
Crown Castle

Designed by
JD Prabhu

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L38	19	Safety Line 3/8	38.42 - 42.80	1.0000	1.0000
L38	21	MP3-05	38.42 - 40.50	1.0000	1.0000
L38	22	MP3-05	38.42 - 40.50	1.0000	1.0000
L38	23	MP3-05	38.42 - 40.50	1.0000	1.0000
L38	25	MP3-05	38.42 - 42.80	1.0000	1.0000
L38	26	MP3-05	38.42 - 42.80	1.0000	1.0000
L38	27	MP3-05	38.42 - 42.80	1.0000	1.0000
L38	41	CCI 6.5" x 1.25" Plate	38.42 - 42.80	1.0000	1.0000
L38	42	CCI 6.5" x 1.25" Plate	38.42 - 42.80	1.0000	1.0000
L38	43	CCI 6.5" x 1.25" Plate	38.42 - 42.80	1.0000	1.0000
L39	19	Safety Line 3/8	38.07 - 38.42	1.0000	1.0000
L39	21	MP3-05	38.07 - 38.42	1.0000	1.0000
L39	22	MP3-05	38.07 - 38.42	1.0000	1.0000
L39	23	MP3-05	38.07 - 38.42	1.0000	1.0000
L39	25	MP3-05	38.07 - 38.42	1.0000	1.0000
L39	26	MP3-05	38.07 - 38.42	1.0000	1.0000
L39	27	MP3-05	38.07 - 38.42	1.0000	1.0000
L39	41	CCI 6.5" x 1.25" Plate	38.07 - 38.42	1.0000	1.0000
L39	42	CCI 6.5" x 1.25" Plate	38.07 - 38.42	1.0000	1.0000
L39	43	CCI 6.5" x 1.25" Plate	38.07 - 38.42	1.0000	1.0000
L40	19	Safety Line 3/8	37.83 - 38.07	1.0000	1.0000
L40	21	MP3-05	37.83 - 38.07	1.0000	1.0000
L40	22	MP3-05	37.83 - 38.07	1.0000	1.0000
L40	23	MP3-05	37.83 - 38.07	1.0000	1.0000
L40	25	MP3-05	37.83 - 38.07	1.0000	1.0000
L40	26	MP3-05	37.83 - 38.07	1.0000	1.0000
L40	27	MP3-05	37.83 - 38.07	1.0000	1.0000
L40	41	CCI 6.5" x 1.25" Plate	37.83 - 38.07	1.0000	1.0000
L40	42	CCI 6.5" x 1.25" Plate	37.83 - 38.07	1.0000	1.0000
L40	43	CCI 6.5" x 1.25" Plate	37.83 - 38.07	1.0000	1.0000
L41	19	Safety Line 3/8	32.83 - 37.83	1.0000	1.0000
L41	21	MP3-05	32.83 - 37.83	1.0000	1.0000
L41	22	MP3-05	32.83 - 37.83	1.0000	1.0000
L41	23	MP3-05	32.83 - 37.83	1.0000	1.0000
L41	25	MP3-05	36.00 - 37.83	1.0000	1.0000
L41	26	MP3-05	36.00 - 37.83	1.0000	1.0000
L41	27	MP3-05	36.00 - 37.83	1.0000	1.0000
L41	41	CCI 6.5" x 1.25" Plate	32.83 - 37.83	1.0000	1.0000
L41	42	CCI 6.5" x 1.25" Plate	32.83 - 37.83	1.0000	1.0000
L41	43	CCI 6.5" x 1.25" Plate	32.83 - 37.83	1.0000	1.0000
L42	19	Safety Line 3/8	27.83 - 32.83	1.0000	1.0000
L42	21	MP3-05	27.83 - 32.83	1.0000	1.0000
L42	22	MP3-05	27.83 - 32.83	1.0000	1.0000
L42	23	MP3-05	27.83 - 32.83	1.0000	1.0000
L42	41	CCI 6.5" x 1.25" Plate	27.83 - 32.83	1.0000	1.0000
L42	42	CCI 6.5" x 1.25" Plate	27.83 - 32.83	1.0000	1.0000
L42	43	CCI 6.5" x 1.25" Plate	27.83 - 32.83	1.0000	1.0000
L43	19	Safety Line 3/8	23.50 - 27.83	1.0000	1.0000
L43	21	MP3-05	23.50 - 27.83	1.0000	1.0000
L43	22	MP3-05	23.50 - 27.83	1.0000	1.0000
L43	23	MP3-05	23.50 - 27.83	1.0000	1.0000
L43	41	CCI 6.5" x 1.25" Plate	23.50 - 27.83	1.0000	1.0000
L43	42	CCI 6.5" x 1.25" Plate	23.50 - 27.83	1.0000	1.0000
L43	43	CCI 6.5" x 1.25" Plate	23.50 - 27.83	1.0000	1.0000
L44	19	Safety Line 3/8	23.25 - 23.50	1.0000	1.0000
L44	21	MP3-05	23.25 - 23.50	1.0000	1.0000
L44	22	MP3-05	23.25 - 23.50	1.0000	1.0000
L44	23	MP3-05	23.25 - 23.50	1.0000	1.0000
L44	41	CCI 6.5" x 1.25" Plate	23.25 - 23.50	1.0000	1.0000
L44	42	CCI 6.5" x 1.25" Plate	23.25 - 23.50	1.0000	1.0000
L44	43	CCI 6.5" x 1.25" Plate	23.25 - 23.50	1.0000	1.0000
L45	19	Safety Line 3/8	18.25 - 23.25	1.0000	1.0000

tnxTower

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Project

Date
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Client
Crown Castle

Designed by
JD Prabhu

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L45	21	MP3-05	18.25 - 23.25	1.0000	1.0000
L45	22	MP3-05	18.25 - 23.25	1.0000	1.0000
L45	23	MP3-05	18.25 - 23.25	1.0000	1.0000
L45	41	CCI 6.5" x 1.25" Plate	18.25 - 23.25	1.0000	1.0000
L45	42	CCI 6.5" x 1.25" Plate	18.25 - 23.25	1.0000	1.0000
L45	43	CCI 6.5" x 1.25" Plate	18.25 - 23.25	1.0000	1.0000
L46	19	Safety Line 3/8	13.25 - 18.25	1.0000	1.0000
L46	21	MP3-05	13.25 - 18.25	1.0000	1.0000
L46	22	MP3-05	13.25 - 18.25	1.0000	1.0000
L46	23	MP3-05	13.25 - 18.25	1.0000	1.0000
L46	41	CCI 6.5" x 1.25" Plate	13.25 - 18.25	1.0000	1.0000
L46	42	CCI 6.5" x 1.25" Plate	13.25 - 18.25	1.0000	1.0000
L46	43	CCI 6.5" x 1.25" Plate	13.25 - 18.25	1.0000	1.0000
L47	19	Safety Line 3/8	8.25 - 13.25	1.0000	1.0000
L47	21	MP3-05	8.25 - 13.25	1.0000	1.0000
L47	22	MP3-05	8.25 - 13.25	1.0000	1.0000
L47	23	MP3-05	8.25 - 13.25	1.0000	1.0000
L47	41	CCI 6.5" x 1.25" Plate	8.25 - 13.25	1.0000	1.0000
L47	42	CCI 6.5" x 1.25" Plate	8.25 - 13.25	1.0000	1.0000
L47	43	CCI 6.5" x 1.25" Plate	8.25 - 13.25	1.0000	1.0000
L48	19	Safety Line 3/8	7.92 - 8.25	1.0000	1.0000
L48	21	MP3-05	7.92 - 8.25	1.0000	1.0000
L48	22	MP3-05	7.92 - 8.25	1.0000	1.0000
L48	23	MP3-05	7.92 - 8.25	1.0000	1.0000
L48	41	CCI 6.5" x 1.25" Plate	7.92 - 8.25	1.0000	1.0000
L48	42	CCI 6.5" x 1.25" Plate	7.92 - 8.25	1.0000	1.0000
L48	43	CCI 6.5" x 1.25" Plate	7.92 - 8.25	1.0000	1.0000
L49	19	Safety Line 3/8	7.67 - 7.92	1.0000	1.0000
L49	21	MP3-05	7.67 - 7.92	1.0000	1.0000
L49	22	MP3-05	7.67 - 7.92	1.0000	1.0000
L49	23	MP3-05	7.67 - 7.92	1.0000	1.0000
L49	41	CCI 6.5" x 1.25" Plate	7.67 - 7.92	1.0000	1.0000
L49	42	CCI 6.5" x 1.25" Plate	7.67 - 7.92	1.0000	1.0000
L49	43	CCI 6.5" x 1.25" Plate	7.67 - 7.92	1.0000	1.0000
L50	19	Safety Line 3/8	5.50 - 7.67	1.0000	1.0000
L50	21	MP3-05	5.50 - 7.67	1.0000	1.0000
L50	22	MP3-05	5.50 - 7.67	1.0000	1.0000
L50	23	MP3-05	5.50 - 7.67	1.0000	1.0000
L50	41	CCI 6.5" x 1.25" Plate	5.50 - 7.67	1.0000	1.0000
L50	42	CCI 6.5" x 1.25" Plate	5.50 - 7.67	1.0000	1.0000
L50	43	CCI 6.5" x 1.25" Plate	5.50 - 7.67	1.0000	1.0000
L51	19	Safety Line 3/8	5.25 - 5.50	1.0000	1.0000
L51	21	MP3-05	5.25 - 5.50	1.0000	1.0000
L51	23	MP3-05	5.25 - 5.50	1.0000	1.0000
L51	41	CCI 6.5" x 1.25" Plate	5.25 - 5.50	1.0000	1.0000
L51	42	CCI 6.5" x 1.25" Plate	5.25 - 5.50	1.0000	1.0000
L51	43	CCI 6.5" x 1.25" Plate	5.25 - 5.50	1.0000	1.0000
L52	19	Safety Line 3/8	3.00 - 5.25	1.0000	1.0000
L52	21	MP3-05	3.00 - 5.25	1.0000	1.0000
L52	23	MP3-05	3.00 - 5.25	1.0000	1.0000
L52	41	CCI 6.5" x 1.25" Plate	3.00 - 5.25	1.0000	1.0000
L52	42	CCI 6.5" x 1.25" Plate	3.00 - 5.25	1.0000	1.0000
L52	43	CCI 6.5" x 1.25" Plate	3.00 - 5.25	1.0000	1.0000
L53	19	Safety Line 3/8	2.75 - 3.00	1.0000	1.0000
L53	21	MP3-05	2.75 - 3.00	1.0000	1.0000
L53	23	MP3-05	2.75 - 3.00	1.0000	1.0000
L53	41	CCI 6.5" x 1.25" Plate	2.75 - 3.00	1.0000	1.0000
L53	42	CCI 6.5" x 1.25" Plate	2.75 - 3.00	1.0000	1.0000
L53	43	CCI 6.5" x 1.25" Plate	2.75 - 3.00	1.0000	1.0000
L54	19	Safety Line 3/8	0.00 - 2.75	1.0000	1.0000
L54	21	MP3-05	0.58 - 2.75	1.0000	1.0000
L54	23	MP3-05	0.58 - 2.75	1.0000	1.0000

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 147461.003.01 - CANTERBURY / LEMIRE, CT (BU# 876375)	Page 23 of 56
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	Client Crown Castle	Designed by JD Prabhu

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L54	41	CCI 6.5" x 1.25" Plate	2.00 - 2.75	1.0000	1.0000
L54	42	CCI 6.5" x 1.25" Plate	2.00 - 2.75	1.0000	1.0000
L54	43	CCI 6.5" x 1.25" Plate	2.00 - 2.75	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L13	37	MP3-03	120.58 - 121.75	Auto	0.0000
L13	38	MP3-03	120.58 - 121.75	Auto	0.0000
L13	39	MP3-03	120.58 - 121.75	Auto	0.0000
L14	37	MP3-03	120.33 - 120.58	Auto	0.0000
L14	38	MP3-03	120.33 - 120.58	Auto	0.0000
L14	39	MP3-03	120.33 - 120.58	Auto	0.0000
L15	37	MP3-03	115.33 - 120.33	Auto	0.0000
L15	38	MP3-03	115.33 - 120.33	Auto	0.0000
L15	39	MP3-03	115.33 - 120.33	Auto	0.0000
L16	37	MP3-03	112.50 - 115.33	Auto	0.0000
L16	38	MP3-03	112.50 - 115.33	Auto	0.0000
L16	39	MP3-03	112.50 - 115.33	Auto	0.0000
L16	45	CCI 6" x 1" Plate	112.50 - 115.00	Auto	0.2179
L16	46	CCI 6" x 1" Plate	112.50 - 115.00	Auto	0.2179
L16	47	CCI 6" x 1" Plate	112.50 - 115.00	Auto	0.2179
L17	37	MP3-03	112.25 - 112.50	Auto	0.0000
L17	38	MP3-03	112.25 - 112.50	Auto	0.0000
L17	39	MP3-03	112.25 - 112.50	Auto	0.0000
L17	45	CCI 6" x 1" Plate	112.25 - 112.50	Auto	0.3056
L17	46	CCI 6" x 1" Plate	112.25 - 112.50	Auto	0.3056
L17	47	CCI 6" x 1" Plate	112.25 - 112.50	Auto	0.3056
L18	33	MP3-04	107.82 - 109.25	Auto	0.1153
L18	34	MP3-04	107.82 -	Auto	0.1153

tnxTower

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Job
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Client
Crown Castle

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JD Prabhu

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L18	35	MP3-04	109.25 107.82 - 109.25	Auto	0.1153
L18	37	MP3-03	107.82 - 112.25	Auto	0.0000
L18	38	MP3-03	107.82 - 112.25	Auto	0.0000
L18	39	MP3-03	107.82 - 112.25	Auto	0.0000
L18	45	CCI 6" x 1" Plate	107.82 - 112.25	Auto	0.3035
L18	46	CCI 6" x 1" Plate	107.82 - 112.25	Auto	0.3035
L18	47	CCI 6" x 1" Plate	107.82 - 112.25	Auto	0.3035
L19	33	MP3-04	107.57 - 107.82	Auto	0.1094
L19	34	MP3-04	107.57 - 107.82	Auto	0.1094
L19	35	MP3-04	107.57 - 107.82	Auto	0.1094
L19	37	MP3-03	107.57 - 107.82	Auto	0.0000
L19	38	MP3-03	107.57 - 107.82	Auto	0.0000
L19	39	MP3-03	107.57 - 107.82	Auto	0.0000
L19	45	CCI 6" x 1" Plate	107.57 - 107.82	Auto	0.2905
L19	46	CCI 6" x 1" Plate	107.57 - 107.82	Auto	0.2905
L19	47	CCI 6" x 1" Plate	107.57 - 107.82	Auto	0.2905
L20	33	MP3-04	102.57 - 107.57	Auto	0.0865
L20	34	MP3-04	102.57 - 107.57	Auto	0.0865
L20	35	MP3-04	102.57 - 107.57	Auto	0.0865
L20	37	MP3-03	106.75 - 107.57	Auto	0.0000
L20	38	MP3-03	106.75 - 107.57	Auto	0.0000
L20	39	MP3-03	106.75 - 107.57	Auto	0.0000
L20	45	CCI 6" x 1" Plate	102.57 - 107.57	Auto	0.2722
L20	46	CCI 6" x 1" Plate	102.57 - 107.57	Auto	0.2722
L20	47	CCI 6" x 1" Plate	102.57 - 107.57	Auto	0.2722
L21	33	MP3-04	97.57 - 102.57	Auto	0.0469
L21	34	MP3-04	97.57 - 102.57	Auto	0.0469
L21	35	MP3-04	97.57 - 102.57	Auto	0.0469
L21	45	CCI 6" x 1" Plate	97.57 - 102.57	Auto	0.2407
L21	46	CCI 6" x 1" Plate	97.57 - 102.57	Auto	0.2407
L21	47	CCI 6" x 1" Plate	97.57 - 102.57	Auto	0.2407
L22	33	MP3-04	89.00 - 97.57	Auto	0.0052
L22	34	MP3-04	89.00 - 97.57	Auto	0.0052
L22	35	MP3-04	89.00 - 97.57	Auto	0.0052
L22	45	CCI 6" x 1" Plate	89.00 - 97.57	Auto	0.1993

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L22	46	CCI 6" x 1" Plate	89.00 - 97.57	Auto	0.1993
L22	47	CCI 6" x 1" Plate	89.00 - 97.57	Auto	0.1993
L23	33	MP3-04	88.31 - 89.00	Auto	0.0086
L23	34	MP3-04	88.31 - 89.00	Auto	0.0086
L23	35	MP3-04	88.31 - 89.00	Auto	0.0086
L23	45	CCI 6" x 1" Plate	88.31 - 89.00	Auto	0.2102
L23	46	CCI 6" x 1" Plate	88.31 - 89.00	Auto	0.2102
L23	47	CCI 6" x 1" Plate	88.31 - 89.00	Auto	0.2102
L24	33	MP3-04	87.50 - 88.31	Auto	0.0034
L24	34	MP3-04	87.50 - 88.31	Auto	0.0034
L24	35	MP3-04	87.50 - 88.31	Auto	0.0034
L24	45	CCI 6" x 1" Plate	87.50 - 88.31	Auto	0.2060
L24	46	CCI 6" x 1" Plate	87.50 - 88.31	Auto	0.2060
L24	47	CCI 6" x 1" Plate	87.50 - 88.31	Auto	0.2060
L25	33	MP3-04	87.25 - 87.50	Auto	0.0000
L25	34	MP3-04	87.25 - 87.50	Auto	0.0000
L25	35	MP3-04	87.25 - 87.50	Auto	0.0000
L25	45	CCI 6" x 1" Plate	87.25 - 87.50	Auto	0.1077
L25	46	CCI 6" x 1" Plate	87.25 - 87.50	Auto	0.1077
L25	47	CCI 6" x 1" Plate	87.25 - 87.50	Auto	0.1077
L26	33	MP3-04	82.25 - 87.25	Auto	0.0000
L26	34	MP3-04	82.25 - 87.25	Auto	0.0000
L26	35	MP3-04	82.25 - 87.25	Auto	0.0000
L26	45	CCI 6" x 1" Plate	85.00 - 87.25	Auto	0.1008
L26	46	CCI 6" x 1" Plate	85.00 - 87.25	Auto	0.1008
L26	47	CCI 6" x 1" Plate	85.00 - 87.25	Auto	0.1008
L27	29	MP3-04	80.83 - 82.25	Auto	0.0000
L27	30	MP3-04	80.83 - 82.25	Auto	0.0000
L27	31	MP3-04	80.83 - 82.25	Auto	0.0000
L27	33	MP3-04	80.83 - 82.25	Auto	0.0000
L27	34	MP3-04	80.83 - 82.25	Auto	0.0000
L27	35	MP3-04	80.83 - 82.25	Auto	0.0000
L28	29	MP3-04	80.58 - 80.83	Auto	0.0000
L28	30	MP3-04	80.58 - 80.83	Auto	0.0000
L28	31	MP3-04	80.58 - 80.83	Auto	0.0000
L28	33	MP3-04	80.58 - 80.83	Auto	0.0000
L28	34	MP3-04	80.58 - 80.83	Auto	0.0000
L28	35	MP3-04	80.58 - 80.83	Auto	0.0000
L29	29	MP3-04	75.58 - 80.58	Auto	0.0000
L29	30	MP3-04	75.58 - 80.58	Auto	0.0000
L29	31	MP3-04	75.58 - 80.58	Auto	0.0000
L29	33	MP3-04	79.25 - 80.58	Auto	0.0000
L29	34	MP3-04	79.25 - 80.58	Auto	0.0000
L29	35	MP3-04	79.25 - 80.58	Auto	0.0000
L30	29	MP3-04	70.58 - 75.58	Auto	0.0000
L30	30	MP3-04	70.58 - 75.58	Auto	0.0000
L30	31	MP3-04	70.58 - 75.58	Auto	0.0000
L31	29	MP3-04	65.58 - 70.58	Auto	0.0000
L31	30	MP3-04	65.58 - 70.58	Auto	0.0000
L31	31	MP3-04	65.58 - 70.58	Auto	0.0000
L32	29	MP3-04	60.58 - 65.58	Auto	0.0000
L32	30	MP3-04	60.58 - 65.58	Auto	0.0000
L32	31	MP3-04	60.58 - 65.58	Auto	0.0000
L33	25	MP3-05	55.58 - 56.00	Auto	0.0000
L33	26	MP3-05	55.58 - 56.00	Auto	0.0000
L33	27	MP3-05	55.58 - 56.00	Auto	0.0000
L33	29	MP3-04	55.58 - 60.58	Auto	0.0000
L33	30	MP3-04	55.58 - 60.58	Auto	0.0000
L33	31	MP3-04	55.58 - 60.58	Auto	0.0000
L34	25	MP3-05	53.57 - 55.58	Auto	0.0000
L34	26	MP3-05	53.57 - 55.58	Auto	0.0000

tnxTower

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Client
Crown Castle

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JD Prabhu

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L34	27	MP3-05	53.57 - 55.58	Auto	0.0000
L34	29	MP3-04	53.57 - 55.58	Auto	0.0000
L34	30	MP3-04	53.57 - 55.58	Auto	0.0000
L34	31	MP3-04	53.57 - 55.58	Auto	0.0000
L35	25	MP3-05	53.32 - 53.57	Auto	0.0000
L35	26	MP3-05	53.32 - 53.57	Auto	0.0000
L35	27	MP3-05	53.32 - 53.57	Auto	0.0000
L35	29	MP3-04	53.32 - 53.57	Auto	0.0000
L35	30	MP3-04	53.32 - 53.57	Auto	0.0000
L35	31	MP3-04	53.32 - 53.57	Auto	0.0000
L36	25	MP3-05	43.80 - 53.32	Auto	0.0000
L36	26	MP3-05	43.80 - 53.32	Auto	0.0000
L36	27	MP3-05	43.80 - 53.32	Auto	0.0000
L36	29	MP3-04	52.25 - 53.32	Auto	0.0000
L36	30	MP3-04	52.25 - 53.32	Auto	0.0000
L36	31	MP3-04	52.25 - 53.32	Auto	0.0000
L36	41	CCI 6.5" x 1.25" Plate	43.80 - 52.08	Auto	0.0000
L36	42	CCI 6.5" x 1.25" Plate	43.80 - 52.08	Auto	0.0000
L36	43	CCI 6.5" x 1.25" Plate	43.80 - 52.08	Auto	0.0000
L37	25	MP3-05	42.80 - 43.80	Auto	0.0000
L37	26	MP3-05	42.80 - 43.80	Auto	0.0000
L37	27	MP3-05	42.80 - 43.80	Auto	0.0000
L37	41	CCI 6.5" x 1.25" Plate	42.80 - 43.80	Auto	0.0582
L37	42	CCI 6.5" x 1.25" Plate	42.80 - 43.80	Auto	0.0582
L37	43	CCI 6.5" x 1.25" Plate	42.80 - 43.80	Auto	0.0582
L38	21	MP3-05	38.42 - 40.50	Auto	0.0000
L38	22	MP3-05	38.42 - 40.50	Auto	0.0000
L38	23	MP3-05	38.42 - 40.50	Auto	0.0000
L38	25	MP3-05	38.42 - 42.80	Auto	0.0000
L38	26	MP3-05	38.42 - 42.80	Auto	0.0000
L38	27	MP3-05	38.42 - 42.80	Auto	0.0000
L38	41	CCI 6.5" x 1.25" Plate	38.42 - 42.80	Auto	0.0410
L38	42	CCI 6.5" x 1.25" Plate	38.42 - 42.80	Auto	0.0410
L38	43	CCI 6.5" x 1.25" Plate	38.42 - 42.80	Auto	0.0410
L39	21	MP3-05	38.07 - 38.42	Auto	0.0000
L39	22	MP3-05	38.07 - 38.42	Auto	0.0000
L39	23	MP3-05	38.07 - 38.42	Auto	0.0000
L39	25	MP3-05	38.07 - 38.42	Auto	0.0000
L39	26	MP3-05	38.07 - 38.42	Auto	0.0000
L39	27	MP3-05	38.07 - 38.42	Auto	0.0000
L39	41	CCI 6.5" x 1.25" Plate	38.07 - 38.42	Auto	0.0288
L39	42	CCI 6.5" x 1.25" Plate	38.07 - 38.42	Auto	0.0288
L39	43	CCI 6.5" x 1.25" Plate	38.07 - 38.42	Auto	0.0288
L40	21	MP3-05	37.83 - 38.07	Auto	0.0000
L40	22	MP3-05	37.83 - 38.07	Auto	0.0000
L40	23	MP3-05	37.83 - 38.07	Auto	0.0000
L40	25	MP3-05	37.83 - 38.07	Auto	0.0000
L40	26	MP3-05	37.83 - 38.07	Auto	0.0000
L40	27	MP3-05	37.83 - 38.07	Auto	0.0000
L40	41	CCI 6.5" x 1.25" Plate	37.83 - 38.07	Auto	0.0273
L40	42	CCI 6.5" x 1.25" Plate	37.83 - 38.07	Auto	0.0273
L40	43	CCI 6.5" x 1.25" Plate	37.83 - 38.07	Auto	0.0273
L41	21	MP3-05	32.83 - 37.83	Auto	0.0000
L41	22	MP3-05	32.83 - 37.83	Auto	0.0000
L41	23	MP3-05	32.83 - 37.83	Auto	0.0000
L41	25	MP3-05	36.00 - 37.83	Auto	0.0000
L41	26	MP3-05	36.00 - 37.83	Auto	0.0000
L41	27	MP3-05	36.00 - 37.83	Auto	0.0000
L41	41	CCI 6.5" x 1.25" Plate	32.83 - 37.83	Auto	0.0106
L41	42	CCI 6.5" x 1.25" Plate	32.83 - 37.83	Auto	0.0106
L41	43	CCI 6.5" x 1.25" Plate	32.83 - 37.83	Auto	0.0106

tnxTower

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Date
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Client
Crown Castle

Designed by
JD Prabhu

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L42	21	MP3-05	27.83 - 32.83	Auto	0.0000
L42	22	MP3-05	27.83 - 32.83	Auto	0.0000
L42	23	MP3-05	27.83 - 32.83	Auto	0.0000
L42	41	CCI 6.5" x 1.25" Plate	27.83 - 32.83	Auto	0.0000
L42	42	CCI 6.5" x 1.25" Plate	27.83 - 32.83	Auto	0.0000
L42	43	CCI 6.5" x 1.25" Plate	27.83 - 32.83	Auto	0.0000
L43	21	MP3-05	23.50 - 27.83	Auto	0.0000
L43	22	MP3-05	23.50 - 27.83	Auto	0.0000
L43	23	MP3-05	23.50 - 27.83	Auto	0.0000
L43	41	CCI 6.5" x 1.25" Plate	23.50 - 27.83	Auto	0.0000
L43	42	CCI 6.5" x 1.25" Plate	23.50 - 27.83	Auto	0.0000
L43	43	CCI 6.5" x 1.25" Plate	23.50 - 27.83	Auto	0.0000
L44	21	MP3-05	23.25 - 23.50	Auto	0.0000
L44	22	MP3-05	23.25 - 23.50	Auto	0.0000
L44	23	MP3-05	23.25 - 23.50	Auto	0.0000
L44	41	CCI 6.5" x 1.25" Plate	23.25 - 23.50	Auto	0.0000
L44	42	CCI 6.5" x 1.25" Plate	23.25 - 23.50	Auto	0.0000
L44	43	CCI 6.5" x 1.25" Plate	23.25 - 23.50	Auto	0.0000
L45	21	MP3-05	18.25 - 23.25	Auto	0.0000
L45	22	MP3-05	18.25 - 23.25	Auto	0.0000
L45	23	MP3-05	18.25 - 23.25	Auto	0.0000
L45	41	CCI 6.5" x 1.25" Plate	18.25 - 23.25	Auto	0.0000
L45	42	CCI 6.5" x 1.25" Plate	18.25 - 23.25	Auto	0.0000
L45	43	CCI 6.5" x 1.25" Plate	18.25 - 23.25	Auto	0.0000
L46	21	MP3-05	13.25 - 18.25	Auto	0.0000
L46	22	MP3-05	13.25 - 18.25	Auto	0.0000
L46	23	MP3-05	13.25 - 18.25	Auto	0.0000
L46	41	CCI 6.5" x 1.25" Plate	13.25 - 18.25	Auto	0.0000
L46	42	CCI 6.5" x 1.25" Plate	13.25 - 18.25	Auto	0.0000
L46	43	CCI 6.5" x 1.25" Plate	13.25 - 18.25	Auto	0.0000
L47	21	MP3-05	8.25 - 13.25	Auto	0.0000
L47	22	MP3-05	8.25 - 13.25	Auto	0.0000
L47	23	MP3-05	8.25 - 13.25	Auto	0.0000
L47	41	CCI 6.5" x 1.25" Plate	8.25 - 13.25	Auto	0.0000
L47	42	CCI 6.5" x 1.25" Plate	8.25 - 13.25	Auto	0.0000
L47	43	CCI 6.5" x 1.25" Plate	8.25 - 13.25	Auto	0.0000
L48	21	MP3-05	7.92 - 8.25	Auto	0.0000
L48	22	MP3-05	7.92 - 8.25	Auto	0.0000
L48	23	MP3-05	7.92 - 8.25	Auto	0.0000
L48	41	CCI 6.5" x 1.25" Plate	7.92 - 8.25	Auto	0.0000
L48	42	CCI 6.5" x 1.25" Plate	7.92 - 8.25	Auto	0.0000
L48	43	CCI 6.5" x 1.25" Plate	7.92 - 8.25	Auto	0.0000
L49	21	MP3-05	7.67 - 7.92	Auto	0.0000
L49	22	MP3-05	7.67 - 7.92	Auto	0.0000
L49	23	MP3-05	7.67 - 7.92	Auto	0.0000
L49	41	CCI 6.5" x 1.25" Plate	7.67 - 7.92	Auto	0.0000
L49	42	CCI 6.5" x 1.25" Plate	7.67 - 7.92	Auto	0.0000
L49	43	CCI 6.5" x 1.25" Plate	7.67 - 7.92	Auto	0.0000
L50	21	MP3-05	5.50 - 7.67	Auto	0.0000
L50	22	MP3-05	5.50 - 7.67	Auto	0.0000
L50	23	MP3-05	5.50 - 7.67	Auto	0.0000
L50	41	CCI 6.5" x 1.25" Plate	5.50 - 7.67	Auto	0.0000
L50	42	CCI 6.5" x 1.25" Plate	5.50 - 7.67	Auto	0.0000
L50	43	CCI 6.5" x 1.25" Plate	5.50 - 7.67	Auto	0.0000
L51	21	MP3-05	5.25 - 5.50	Auto	0.0000
L51	23	MP3-05	5.25 - 5.50	Auto	0.0000
L51	41	CCI 6.5" x 1.25" Plate	5.25 - 5.50	Auto	0.0000
L51	42	CCI 6.5" x 1.25" Plate	5.25 - 5.50	Auto	0.0000
L51	43	CCI 6.5" x 1.25" Plate	5.25 - 5.50	Auto	0.0000
L52	21	MP3-05	3.00 - 5.25	Auto	0.0000
L52	23	MP3-05	3.00 - 5.25	Auto	0.0000

tnxTower B+T Group 1717 S. Boulder, Suite 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job 147461.003.01 - CANTERBURY / LEMIRE, CT (BU# 876375)	Page 28 of 56
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	Client Crown Castle	Designed by JD Prabhu

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L52	41	CCI 6.5" x 1.25" Plate	3.00 - 5.25	Auto	0.0000
L52	42	CCI 6.5" x 1.25" Plate	3.00 - 5.25	Auto	0.0000
L52	43	CCI 6.5" x 1.25" Plate	3.00 - 5.25	Auto	0.0000
L53	21	MP3-05	2.75 - 3.00	Auto	0.0000
L53	23	MP3-05	2.75 - 3.00	Auto	0.0000
L53	41	CCI 6.5" x 1.25" Plate	2.75 - 3.00	Auto	0.0000
L53	42	CCI 6.5" x 1.25" Plate	2.75 - 3.00	Auto	0.0000
L53	43	CCI 6.5" x 1.25" Plate	2.75 - 3.00	Auto	0.0000
L54	21	MP3-05	0.58 - 2.75	Auto	0.0000
L54	23	MP3-05	0.58 - 2.75	Auto	0.0000
L54	41	CCI 6.5" x 1.25" Plate	2.00 - 2.75	Auto	0.0000
L54	42	CCI 6.5" x 1.25" Plate	2.00 - 2.75	Auto	0.0000
L54	43	CCI 6.5" x 1.25" Plate	2.00 - 2.75	Auto	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _A A _{Front}	C _A A _{Side}	Weight	
			Horz Lateral	Vert						
			ft	ft	°	ft	ft ²	ft ²	K	
APX16DWV-16DWV-S-E-A 20	A	From Leg	4.000	0.000	0.000	180.000	No Ice	6.260	1.500	0.041
			0.000	0.000			1/2" Ice	6.850	2.000	0.074
			3.000	0.000			1" Ice	7.460	2.520	0.113
				0.000			2" Ice	8.720	3.620	0.205
APX16DWV-16DWV-S-E-A 20	B	From Leg	4.000	0.000	0.000	180.000	No Ice	6.260	1.500	0.041
			0.000	0.000			1/2" Ice	6.850	2.000	0.074
			3.000	0.000			1" Ice	7.460	2.520	0.113
				0.000			2" Ice	8.720	3.620	0.205
APX16DWV-16DWV-S-E-A 20	C	From Leg	4.000	0.000	0.000	180.000	No Ice	6.260	1.500	0.041
			0.000	0.000			1/2" Ice	6.850	2.000	0.074
			3.000	0.000			1" Ice	7.460	2.520	0.113
				0.000			2" Ice	8.720	3.620	0.205
APXVAALL24_43-U-NA20 _TMO	A	From Leg	4.000	0.000	0.000	180.000	No Ice	14.670	5.320	0.150
			0.000	0.000			1/2" Ice	15.430	5.990	0.262
			3.000	0.000			1" Ice	16.210	6.680	0.382
				0.000			2" Ice	17.810	8.080	0.649
APXVAALL24_43-U-NA20 _TMO	B	From Leg	4.000	0.000	0.000	180.000	No Ice	14.670	5.320	0.150
			0.000	0.000			1/2" Ice	15.430	5.990	0.262
			3.000	0.000			1" Ice	16.210	6.680	0.382
				0.000			2" Ice	17.810	8.080	0.649
APXVAALL24_43-U-NA20 _TMO	C	From Leg	4.000	0.000	0.000	180.000	No Ice	14.670	5.320	0.150
			0.000	0.000			1/2" Ice	15.430	5.990	0.262
			3.000	0.000			1" Ice	16.210	6.680	0.382
				0.000			2" Ice	17.810	8.080	0.649
AIR6449 B41_T-MOBILE	A	From Leg	4.000	0.000	0.000	180.000	No Ice	5.659	2.477	0.115
			0.000	0.000			1/2" Ice	5.961	2.704	0.154
			3.000	0.000			1" Ice	6.270	2.938	0.197
				0.000			2" Ice	6.910	3.427	0.296
AIR6449 B41_T-MOBILE	B	From Leg	4.000	0.000	0.000	180.000	No Ice	5.659	2.477	0.115
			0.000	0.000			1/2" Ice	5.961	2.704	0.154
			3.000	0.000			1" Ice	6.270	2.938	0.197
				0.000			2" Ice	6.910	3.427	0.296

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K	
			Horz Lateral ft	Vert ft						
AIR6449 B41_T-MOBILE	C	From Leg	4.000	0.000	0.000	180.000	2" Ice	6.910	3.427	0.296
			0.000				No Ice	5.659	2.477	0.115
			3.000				1/2" Ice	5.961	2.704	0.154
							1" Ice	6.270	2.938	0.197
RADIO 4415 B66A	A	From Leg	4.000	0.000	0.000	180.000	2" Ice	6.910	3.427	0.296
			0.000				No Ice	1.856	0.870	0.050
			3.000				1/2" Ice	2.027	0.997	0.064
							1" Ice	2.204	1.134	0.081
RADIO 4415 B66A	B	From Leg	4.000	0.000	0.000	180.000	2" Ice	2.582	1.432	0.124
			0.000				No Ice	1.856	0.870	0.050
			3.000				1/2" Ice	2.027	0.997	0.064
							1" Ice	2.204	1.134	0.081
RADIO 4415 B66A	C	From Leg	4.000	0.000	0.000	180.000	2" Ice	2.582	1.432	0.124
			0.000				No Ice	1.856	0.870	0.050
			3.000				1/2" Ice	2.027	0.997	0.064
							1" Ice	2.204	1.134	0.081
RADIO 4424 B25_TMO	A	From Leg	4.000	0.000	0.000	180.000	2" Ice	2.582	1.432	0.124
			0.000				No Ice	2.052	1.610	0.086
			3.000				1/2" Ice	2.231	1.772	0.107
							1" Ice	2.417	1.941	0.131
RADIO 4424 B25_TMO	B	From Leg	4.000	0.000	0.000	180.000	2" Ice	2.811	2.301	0.188
			0.000				No Ice	2.052	1.610	0.086
			3.000				1/2" Ice	2.231	1.772	0.107
							1" Ice	2.417	1.941	0.131
RADIO 4424 B25_TMO	C	From Leg	4.000	0.000	0.000	180.000	2" Ice	2.811	2.301	0.188
			0.000				No Ice	2.052	1.610	0.086
			3.000				1/2" Ice	2.231	1.772	0.107
							1" Ice	2.417	1.941	0.131
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.000	0.000	0.000	180.000	2" Ice	2.811	2.301	0.188
			0.000				No Ice	1.970	1.587	0.073
			3.000				1/2" Ice	2.147	1.749	0.093
							1" Ice	2.331	1.918	0.116
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.000	0.000	0.000	180.000	2" Ice	2.721	2.280	0.170
			0.000				No Ice	1.970	1.587	0.073
			3.000				1/2" Ice	2.147	1.749	0.093
							1" Ice	2.331	1.918	0.116
RADIO 4449 B71 B85A_T-MOBILE	C	From Leg	4.000	0.000	0.000	180.000	2" Ice	2.721	2.280	0.170
			0.000				No Ice	1.970	1.587	0.073
			3.000				1/2" Ice	2.147	1.749	0.093
							1" Ice	2.331	1.918	0.116
(3) 10' x 2" Mount Pipe	A	From Leg	4.000	0.000	0.000	180.000	2" Ice	2.721	2.280	0.170
			0.000				No Ice	2.375	2.375	0.037
			1.000				1/2" Ice	3.403	3.403	0.054
							1" Ice	4.448	4.448	0.079
(3) 10' x 2" Mount Pipe	B	From Leg	4.000	0.000	0.000	180.000	2" Ice	5.911	5.911	0.148
			0.000				No Ice	2.375	2.375	0.037
			1.000				1/2" Ice	3.403	3.403	0.054
							1" Ice	4.448	4.448	0.079
(3) 10' x 2" Mount Pipe	C	From Leg	4.000	0.000	0.000	180.000	2" Ice	5.911	5.911	0.148
			0.000				No Ice	2.375	2.375	0.037
			1.000				1/2" Ice	3.403	3.403	0.054
							1" Ice	4.448	4.448	0.079
(2) 6' x 2" Mount Pipe	A	From Leg	4.000	0.000	0.000	180.000	2" Ice	5.911	5.911	0.148
			0.000				No Ice	1.425	1.425	0.022
			0.000				1/2" Ice	1.925	1.925	0.033
							1" Ice	2.294	2.294	0.048
						2" Ice	3.060	3.060	0.090	

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	Client Crown Castle	Designed by JD Prabhu

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA}		Weight K	
			Horz Lateral ft	Vert ft			Front ft ²	Side ft ²		
(2) 6' x 2" Mount Pipe	B	From Leg	4.000	0.000	0.000	180.000	No Ice	1.425	1.425	0.022
			0.000	0.000			1/2" Ice	1.925	1.925	0.033
			0.000	0.000			1" Ice	2.294	2.294	0.048
							2" Ice	3.060	3.060	0.090
							No Ice	1.425	1.425	0.022
(2) 6' x 2" Mount Pipe	C	From Leg	4.000	0.000	0.000	180.000	1/2" Ice	1.925	1.925	0.033
			0.000	0.000			1" Ice	2.294	2.294	0.048
			0.000	0.000			2" Ice	3.060	3.060	0.090
							No Ice	1.094	0.005	0.080
							1/2" Ice	1.403	0.024	0.086
(2) L2.5x2.5x3/16x4.333'	A	From Leg	2.000	0.000	0.000	180.000	1" Ice	1.720	0.049	0.097
			0.000	0.000			2" Ice	2.375	0.123	0.129
			-3.000	0.000			No Ice	1.094	0.005	0.080
							1/2" Ice	1.403	0.024	0.086
							1" Ice	1.720	0.049	0.097
(2) L2.5x2.5x3/16x4.333'	B	From Leg	2.000	0.000	0.000	180.000	2" Ice	2.375	0.123	0.129
			0.000	0.000			No Ice	1.094	0.005	0.080
			-3.000	0.000			1/2" Ice	1.403	0.024	0.086
							1" Ice	1.720	0.049	0.097
							2" Ice	2.375	0.123	0.129
(2) L2.5x2.5x3/16x4.333'	C	From Leg	2.000	0.000	0.000	180.000	No Ice	1.094	0.005	0.080
			0.000	0.000			1/2" Ice	1.403	0.024	0.086
			-3.000	0.000			1" Ice	1.720	0.049	0.097
							2" Ice	2.375	0.123	0.129
							No Ice	3.600	3.600	0.075
Side Arm Mount [SO 102-3]	C	None		0.000	178.000	1/2" Ice	4.180	4.180	0.105	
Miscellaneous [NA 507-1]	C	None		0.000	178.000	1" Ice	4.750	4.750	0.135	
						2" Ice	5.900	5.900	0.195	
						No Ice	4.560	4.560	0.245	
						1/2" Ice	6.390	6.390	0.311	
Platform Mount [LP 602-1]	C	None		0.000	180.000	1" Ice	8.180	8.180	0.402	
						2" Ice	11.660	11.660	0.657	
						No Ice	31.070	31.070	1.343	
						1/2" Ice	34.820	34.820	1.967	
						1" Ice	38.480	38.480	2.669	
Transition Ladder	C	From Leg	2.000	0.000	180.000	2" Ice	45.600	45.600	4.314	
			0.000	0.000		No Ice	6.000	6.000	0.160	
			-3.000	0.000		1/2" Ice	8.000	8.000	0.240	
						1" Ice	10.000	10.000	0.320	
* TMA-DB-T1-6Z-8AB-0Z	A	From Leg	1.000	0.000	170.000	2" Ice	14.000	14.000	0.480	
			0.000	0.000		No Ice	4.800	2.000	0.044	
			0.000	0.000		1/2" Ice	5.070	2.193	0.080	
						1" Ice	5.348	2.393	0.120	
						2" Ice	5.926	2.815	0.213	
Side Arm Mount [SO 102-3]	C	None		0.000	170.000	No Ice	3.600	3.600	0.075	
						1/2" Ice	4.180	4.180	0.105	
						1" Ice	4.750	4.750	0.135	
						2" Ice	5.900	5.900	0.195	
						No Ice	4.090	3.300	0.066	
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.000	0.000	168.000	1/2" Ice	4.490	3.680	0.130	
			0.000	0.000		1" Ice	4.890	4.070	0.204	
			2.000	0.000		2" Ice	5.720	4.870	0.386	
						No Ice	4.090	3.300	0.066	
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.000	0.000	168.000	1/2" Ice	4.490	3.680	0.130	
			0.000	0.000		1" Ice	4.890	4.070	0.204	
			2.000	0.000		2" Ice	5.720	4.870	0.386	
						No Ice	4.090	3.300	0.066	
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.000	0.000	168.000	1/2" Ice	4.490	3.680	0.130	
			0.000	0.000		1" Ice	4.890	4.070	0.204	
			2.000	0.000		2" Ice	5.720	4.870	0.386	

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	Client		Crown Castle		Designed by		JD Prabhu	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
RRH2X60-700	A	From Leg	4.000	0.000	168.000	2" Ice	5.720	4.870	0.386
			0.000	0.000		No Ice	3.500	1.816	0.060
			2.000	0.000		1/2" Ice	3.761	2.052	0.083
				0.000		1" Ice	4.029	2.289	0.109
RRH2X60-700	B	From Leg	4.000	0.000	168.000	2" Ice	4.585	2.785	0.173
			0.000	0.000		No Ice	3.500	1.816	0.060
			2.000	0.000		1/2" Ice	3.761	2.052	0.083
				0.000		1" Ice	4.029	2.289	0.109
RRH2X60-700	C	From Leg	4.000	0.000	168.000	2" Ice	4.585	2.785	0.173
			0.000	0.000		No Ice	3.500	1.816	0.060
			2.000	0.000		1/2" Ice	3.761	2.052	0.083
				0.000		1" Ice	4.029	2.289	0.109
RRH2X60-PCS	A	From Leg	4.000	0.000	168.000	2" Ice	4.585	2.785	0.173
			0.000	0.000		No Ice	2.200	1.723	0.055
			2.000	0.000		1/2" Ice	2.393	1.901	0.075
				0.000		1" Ice	2.593	2.087	0.099
RRH2X60-PCS	B	From Leg	4.000	0.000	168.000	2" Ice	3.015	2.480	0.155
			0.000	0.000		No Ice	2.200	1.723	0.055
			2.000	0.000		1/2" Ice	2.393	1.901	0.075
				0.000		1" Ice	2.593	2.087	0.099
RRH2X60-PCS	C	From Leg	4.000	0.000	168.000	2" Ice	3.015	2.480	0.155
			0.000	0.000		No Ice	2.200	1.723	0.055
			2.000	0.000		1/2" Ice	2.393	1.901	0.075
				0.000		1" Ice	2.593	2.087	0.099
B66A RRH4X45	A	From Leg	4.000	0.000	168.000	2" Ice	3.015	2.480	0.155
			0.000	0.000		No Ice	2.537	1.610	0.057
			2.000	0.000		1/2" Ice	2.750	1.791	0.077
				0.000		1" Ice	2.970	1.978	0.100
B66A RRH4X45	B	From Leg	4.000	0.000	168.000	2" Ice	3.432	2.374	0.157
			0.000	0.000		No Ice	2.537	1.610	0.057
			2.000	0.000		1/2" Ice	2.750	1.791	0.077
				0.000		1" Ice	2.970	1.978	0.100
B66A RRH4X45	C	From Leg	4.000	0.000	168.000	2" Ice	3.432	2.374	0.157
			0.000	0.000		No Ice	2.537	1.610	0.057
			2.000	0.000		1/2" Ice	2.750	1.791	0.077
				0.000		1" Ice	2.970	1.978	0.100
DB-T1-6Z-8AB-0Z	C	From Leg	4.000	0.000	168.000	2" Ice	3.432	2.374	0.157
			0.000	0.000		No Ice	4.800	2.000	0.044
			2.000	0.000		1/2" Ice	5.070	2.193	0.080
				0.000		1" Ice	5.348	2.393	0.120
BXA-70063-6CF-EDIN-4 w/ Mount Pipe	A	From Leg	4.000	0.000	168.000	2" Ice	5.926	2.815	0.213
			0.000	0.000		No Ice	7.806	5.398	0.042
			2.000	0.000		1/2" Ice	8.357	6.546	0.101
				0.000		1" Ice	8.872	7.409	0.168
BXA-70063-6CF-EDIN-4 w/ Mount Pipe	B	From Leg	4.000	0.000	168.000	2" Ice	9.927	9.184	0.327
			0.000	0.000		No Ice	7.806	5.398	0.042
			2.000	0.000		1/2" Ice	8.357	6.546	0.101
				0.000		1" Ice	8.872	7.409	0.168
BXA-70063-6CF-EDIN-4 w/ Mount Pipe	C	From Leg	4.000	0.000	168.000	2" Ice	9.927	9.184	0.327
			0.000	0.000		No Ice	7.806	5.398	0.042
			2.000	0.000		1/2" Ice	8.357	6.546	0.101
				0.000		1" Ice	8.872	7.409	0.168
BXA-171063-12CF-EDIN-X w/ Mount Pipe	A	From Leg	4.000	0.000	168.000	2" Ice	9.927	9.184	0.327
			0.000	0.000		No Ice	5.029	5.289	0.041
			2.000	0.000		1/2" Ice	5.583	6.459	0.087
				0.000		1" Ice	6.103	7.348	0.140
					2" Ice	7.166	9.148	0.273	

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	Client Crown Castle						Designed by JD Prabhu		

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Vert						°
BXA-171063-12CF-EDIN-X w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	168.000	No Ice	5.029	5.289	0.041
			0.000				1/2" Ice	5.583	6.459	0.087
			2.000				1" Ice	6.103	7.348	0.140
							2" Ice	7.166	9.148	0.273
BXA-171063-12CF-EDIN-X w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	168.000	No Ice	5.029	5.289	0.041
			0.000				1/2" Ice	5.583	6.459	0.087
			2.000				1" Ice	6.103	7.348	0.140
							2" Ice	7.166	9.148	0.273
Platform Mount [LP 303-1]	C	None			0.000	168.000	No Ice	14.690	14.690	1.250
							1/2" Ice	18.010	18.010	1.569
							1" Ice	21.340	21.340	1.942
							2" Ice	28.080	28.080	2.852
* AM-X-CD-17-65-00T-RET w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	160.000	No Ice	6.090	4.310	0.092
			0.000				1/2" Ice	6.660	4.860	0.170
			1.000				1" Ice	7.240	5.420	0.261
							2" Ice	8.430	6.570	0.484
AM-X-CD-17-65-00T-RET w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	160.000	No Ice	6.090	4.310	0.092
			0.000				1/2" Ice	6.660	4.860	0.170
			1.000				1" Ice	7.240	5.420	0.261
							2" Ice	8.430	6.570	0.484
AM-X-CD-17-65-00T-RET w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	160.000	No Ice	6.090	4.310	0.092
			0.000				1/2" Ice	6.660	4.860	0.170
			1.000				1" Ice	7.240	5.420	0.261
							2" Ice	8.430	6.570	0.484
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	160.000	No Ice	5.746	4.254	0.055
			0.000				1/2" Ice	6.179	5.014	0.103
			1.000				1" Ice	6.607	5.711	0.157
							2" Ice	7.488	7.155	0.287
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	160.000	No Ice	5.746	4.254	0.055
			0.000				1/2" Ice	6.179	5.014	0.103
			1.000				1" Ice	6.607	5.711	0.157
							2" Ice	7.488	7.155	0.287
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	160.000	No Ice	5.746	4.254	0.055
			0.000				1/2" Ice	6.179	5.014	0.103
			1.000				1" Ice	6.607	5.711	0.157
							2" Ice	7.488	7.155	0.287
(2) LGP21401	A	From Leg	4.000	0.000	0.000	160.000	No Ice	1.104	0.207	0.014
			0.000				1/2" Ice	1.239	0.274	0.021
			1.000				1" Ice	1.381	0.348	0.030
							2" Ice	1.688	0.521	0.055
(2) LGP21401	B	From Leg	4.000	0.000	0.000	160.000	No Ice	1.104	0.207	0.014
			0.000				1/2" Ice	1.239	0.274	0.021
			1.000				1" Ice	1.381	0.348	0.030
							2" Ice	1.688	0.521	0.055
(2) LGP21401	C	From Leg	4.000	0.000	0.000	160.000	No Ice	1.104	0.207	0.014
			0.000				1/2" Ice	1.239	0.274	0.021
			1.000				1" Ice	1.381	0.348	0.030
							2" Ice	1.688	0.521	0.055
(2) LGP21901	A	From Leg	4.000	0.000	0.000	160.000	No Ice	0.231	0.158	0.006
			0.000				1/2" Ice	0.294	0.213	0.008
			1.000				1" Ice	0.365	0.276	0.011
							2" Ice	0.528	0.423	0.022
(2) LGP21901	B	From Leg	4.000	0.000	0.000	160.000	No Ice	0.231	0.158	0.006
			0.000				1/2" Ice	0.294	0.213	0.008
			1.000				1" Ice	0.365	0.276	0.011
							2" Ice	0.528	0.423	0.022

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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
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
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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	180.5 - 175.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-12.137	1.054	-0.625
			Max. Mx	20	-3.950	46.601	-0.204
			Max. My	14	-3.946	0.346	-46.422
			Max. Vy	20	-8.446	46.601	-0.204
			Max. Vx	14	8.448	0.346	-46.422
			Max. Torque	13			-0.761
L2	175.5 - 170.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-12.711	1.083	-0.659
			Max. Mx	20	-4.274	89.679	-0.224
			Max. My	14	-4.270	0.371	-89.510
			Max. Vy	20	-8.789	89.679	-0.224
			Max. Vx	14	8.791	0.371	-89.510
			Max. Torque	13			-0.761
L3	170.5 - 165.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-21.082	1.854	-0.804
			Max. Mx	20	-6.911	153.134	-0.486
			Max. My	14	-6.894	0.778	-153.037
			Max. Vy	20	-13.810	153.134	-0.486
			Max. Vx	14	13.867	0.778	-153.037
			Max. Torque	13			-1.049
L4	165.5 - 160.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-21.774	1.894	-0.848
			Max. Mx	20	-7.384	223.053	-0.752
			Max. My	14	-7.367	1.050	-223.244
			Max. Vy	20	-14.166	223.053	-0.752
			Max. Vx	14	14.223	1.050	-223.244
			Max. Torque	13			-1.049
L5	160.5 - 155.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-29.557	1.649	-1.066
			Max. Mx	20	-10.342	312.526	-1.071
			Max. My	14	-10.323	1.250	-313.163
			Max. Vy	20	-18.234	312.526	-1.071
			Max. Vx	14	18.293	1.250	-313.163
			Max. Torque	13			-1.048
L6	155.5 - 150.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-30.358	1.692	-1.115
			Max. Mx	20	-10.975	404.520	-1.344
			Max. My	14	-10.958	1.529	-405.452
			Max. Vy	20	-18.579	404.520	-1.344
			Max. Vx	14	18.638	1.529	-405.452
			Max. Torque	13			-0.984
L7	150.5 - 145.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-31.181	1.731	-1.163
			Max. Mx	20	-11.645	498.215	-1.617
			Max. My	14	-11.628	1.805	-499.443
			Max. Vy	20	-18.918	498.215	-1.617
			Max. Vx	14	18.977	1.805	-499.443
			Max. Torque	13			-0.983
L8	145.5 - 140.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-32.028	1.766	-1.209
			Max. Mx	20	-12.348	593.582	-1.888
			Max. My	14	-12.331	2.080	-595.107
			Max. Vy	20	-19.251	593.582	-1.888
			Max. Vx	14	19.310	2.080	-595.107
			Max. Torque	13			-0.981
L9	140.5 - 134.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-32.497	1.783	-1.233
			Max. Mx	20	-12.734	645.883	-2.034
			Max. My	14	-12.718	2.228	-647.569
			Max. Vy	20	-19.432	645.883	-2.034

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L10	134.5 - 132.794	Pole	Max. Vx	14	19.492	2.228	-647.569
			Max. Torque	13			-0.979
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-33.909	1.814	-1.277
			Max. Mx	20	-13.767	744.098	-2.304
			Max. My	14	-13.751	2.502	-746.082
			Max. Vy	20	-19.863	744.098	-2.304
L11	132.794 - 127.794	Pole	Max. Vx	14	19.922	2.502	-746.082
			Max. Torque	13			-0.978
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-34.907	1.843	-1.320
			Max. Mx	20	-14.621	844.175	-2.573
			Max. My	14	-14.606	2.774	-846.458
			Max. Vy	20	-20.201	844.175	-2.573
L12	127.794 - 122.794	Pole	Max. Vx	14	20.260	2.774	-846.458
			Max. Torque	13			-0.977
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-35.931	1.869	-1.361
			Max. Mx	20	-15.490	945.967	-2.841
			Max. My	14	-15.476	3.044	-948.549
			Max. Vy	20	-20.543	945.967	-2.841
L13	122.794 - 120.583	Pole	Max. Vx	14	20.602	3.044	-948.549
			Max. Torque	13			-0.976
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-36.426	1.880	-1.379
			Max. Mx	20	-15.881	991.523	-2.960
			Max. My	14	-15.867	3.163	-994.237
			Max. Vy	20	-20.694	991.523	-2.960
L14	120.583 - 120.333	Pole	Max. Vx	14	20.754	3.163	-994.237
			Max. Torque	13			-0.974
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-36.486	1.883	-1.383
			Max. Mx	20	-15.941	996.695	-2.973
			Max. My	14	-15.928	3.177	-999.424
			Max. Vy	20	-20.701	996.695	-2.973
L15	120.333 - 115.333	Pole	Max. Vx	14	20.760	3.177	-999.424
			Max. Torque	13			-0.973
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-37.691	1.904	-1.422
			Max. Mx	20	-16.836	1101.012	-3.239
			Max. My	14	-16.823	3.444	-1104.040
			Max. Vy	20	-21.046	1101.012	-3.239
L16	115.333 - 112.5	Pole	Max. Vx	14	21.106	3.444	-1104.040
			Max. Torque	13			-0.973
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-38.467	1.915	-1.444
			Max. Mx	20	-17.354	1160.861	-3.390
			Max. My	14	-17.342	3.595	-1164.058
			Max. Vy	20	-21.241	1160.861	-3.390
L17	112.5 - 112.25	Pole	Max. Vx	14	21.301	3.595	-1164.058
			Max. Torque	13			-0.971
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-38.564	1.921	-1.449
			Max. Mx	20	-17.447	1166.169	-3.404

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft			
L18	112.25 - 107.817	Pole	Max. My	14	-17.435	3.610	-1169.381			
			Max. Vy	20	-21.246	1166.169	-3.404			
			Max. Vx	14	21.305	3.610	-1169.381			
			Max. Torque	13			-0.971			
			Max Tension	1	0.000	0.000	0.000			
			Max. Compression	26	-40.399	1.935	-1.481			
			Max. Mx	20	-18.732	1261.265	-3.639			
			Max. My	14	-18.720	3.845	-1264.742			
			Max. Vy	20	-21.671	1261.265	-3.639			
			Max. Vx	14	21.730	3.845	-1264.742			
L19	107.817 - 107.567	Pole	Max. Torque	13			-0.971			
			Max Tension	1	0.000	0.000	0.000			
			Max. Compression	26	-40.509	1.940	-1.486			
			Max. Mx	20	-18.814	1266.684	-3.653			
			Max. My	14	-18.802	3.860	-1270.176			
			Max. Vy	20	-21.689	1266.684	-3.653			
			Max. Vx	14	21.749	3.860	-1270.176			
			Max. Torque	13			-0.970			
			Max Tension	1	0.000	0.000	0.000			
			L20	107.567 - 102.567	Pole	Max. Compression	26	-42.587	1.956	-1.523
Max. Mx	20	-20.287				1376.283	-3.918			
Max. My	14	-20.276				4.126	-1380.076			
Max. Vy	20	-22.164				1376.283	-3.918			
Max. Vx	14	22.223				4.126	-1380.076			
Max. Torque	13						-0.970			
Max Tension	1	0.000				0.000	0.000			
Max. Compression	26	-44.668				1.976	-1.563			
Max. Mx	20	-21.791				1488.218	-4.185			
Max. My	14	-21.780				4.394	-1492.312			
L22	97.567 - 89	Pole	Max. Vy	20	-22.629	1488.218	-4.185			
			Max. Vx	14	22.689	4.394	-1492.312			
			Max. Torque	13			-0.969			
			Max Tension	1	0.000	0.000	0.000			
			Max. Compression	26	-46.460	1.993	-1.597			
			Max. Mx	20	-23.091	1585.315	-4.412			
			Max. My	14	-23.080	4.622	-1589.666			
			Max. Vy	20	-23.020	1585.315	-4.412			
			Max. Vx	14	23.080	4.622	-1589.666			
			Max. Torque	13			-0.968			
L23	89 - 88.311	Pole	Max Tension	1	0.000	0.000	0.000			
			Max. Compression	26	-50.098	2.013	-1.638			
			Max. Mx	20	-25.844	1701.944	-4.680			
			Max. My	14	-25.833	4.891	-1706.599			
			Max. Vy	20	-23.629	1701.944	-4.680			
			Max. Vx	14	23.689	4.891	-1706.599			
			Max. Torque	13			-0.968			
			Max Tension	1	0.000	0.000	0.000			
			Max. Compression	26	-50.465	2.016	-1.645			
			Max. Mx	20	-26.116	1721.131	-4.724			
L24	88.311 - 87.5	Pole	Max. My	14	-26.106	4.935	-1725.835			
			Max. Vy	20	-23.704	1721.131	-4.724			
			Max. Vx	14	23.765	4.935	-1725.835			
			Max. Torque	13			-0.967			
			Max Tension	1	0.000	0.000	0.000			
			Max. Compression	26	-50.547	2.019	-1.648			
			Max. Mx	20	-26.177	1727.057	-4.738			
			Max. My	14	-26.167	4.949	-1731.776			
			L25	87.5 - 87.25	Pole	Max. My	14	-26.167	4.949	-1731.776
						Max. Vy	20	-23.704	1721.131	-4.724
Max. Vx	14	23.765				4.935	-1725.835			
Max. Torque	13						-0.967			
Max Tension	1	0.000				0.000	0.000			

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L26	87.25 - 82.25	Pole	Max. Vy	20	-23.719	1727.057	-4.738
			Max. Vx	14	23.779	4.949	-1731.776
			Max. Torque	13			-0.967
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-52.121	2.024	-1.677
			Max. Mx	20	-27.328	1846.402	-5.005
			Max. My	14	-27.318	5.217	-1851.425
			Max. Vy	20	-24.046	1846.402	-5.005
L27	82.25 - 80.833	Pole	Max. Vx	14	24.107	5.217	-1851.425
			Max. Torque	13			-0.967
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-52.594	2.024	-1.683
			Max. Mx	20	-27.654	1880.511	-5.081
			Max. My	14	-27.645	5.292	-1885.620
			Max. Vy	20	-24.143	1880.511	-5.081
			Max. Vx	14	24.204	5.292	-1885.620
L28	80.833 - 80.583	Pole	Max. Torque	13			-0.966
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-52.677	2.027	-1.687
			Max. Mx	20	-27.734	1886.541	-5.094
			Max. My	14	-27.725	5.306	-1891.666
			Max. Vy	20	-24.138	1886.541	-5.094
			Max. Vx	14	24.198	5.306	-1891.666
			Max. Torque	13			-0.966
L29	80.583 - 75.583	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-54.403	2.366	-1.907
			Max. Mx	20	-28.993	2008.364	-5.415
			Max. My	14	-28.983	5.692	-2013.757
			Max. Vy	20	-24.539	2008.364	-5.415
			Max. Vx	14	24.615	5.692	-2013.757
			Max. Torque	13			-1.245
			Max Tension	1	0.000	0.000	0.000
L30	75.583 - 70.583	Pole	Max. Compression	26	-55.971	2.365	-1.932
			Max. Mx	20	-30.218	2131.700	-5.609
			Max. My	14	-30.209	5.885	-2137.475
			Max. Vy	20	-24.837	2131.700	-5.609
			Max. Vx	14	24.913	5.885	-2137.475
			Max. Torque	13			-1.244
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-57.566	2.365	-1.957
L31	70.583 - 65.583	Pole	Max. Mx	20	-31.468	2256.506	-5.800
			Max. My	14	-31.460	6.076	-2262.660
			Max. Vy	20	-25.128	2256.506	-5.800
			Max. Vx	14	25.203	6.076	-2262.660
			Max. Torque	13			-1.243
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-59.189	2.365	-1.983
			Max. Mx	20	-32.743	2382.736	-5.990
L32	65.583 - 60.583	Pole	Max. My	14	-32.736	6.264	-2389.269
			Max. Vy	20	-25.408	2382.736	-5.990
			Max. Vx	14	25.483	6.264	-2389.269
			Max. Torque	13			-1.242
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-60.850	2.365	-2.009
			Max. Mx	20	-34.043	2510.343	-6.177
			Max. My	14	-34.043	6.264	-2389.269
L33	60.583 - 55.583	Pole	Max. Vy	20	-24.046	1846.402	-5.005
			Max. Vx	14	24.107	5.217	-1851.425
			Max. Torque	13			-0.967
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-52.121	2.024	-1.677
			Max. Mx	20	-27.328	1846.402	-5.005
			Max. My	14	-27.318	5.217	-1851.425
			Max. Vy	20	-24.046	1846.402	-5.005

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	Crown Castle	JD Prabhu

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft			
L34	55.583 - 53.567	Pole	Max. My	14	-34.037	6.450	-2517.251			
			Max. Vy	20	-25.679	2510.343	-6.177			
			Max. Vx	14	25.753	6.450	-2517.251			
			Max. Torque	13			-1.241			
			Max Tension	1	0.000	0.000	0.000			
			Max. Compression	26	-61.585	2.365	-2.019			
			Max. Mx	20	-34.574	2562.173	-6.252			
			Max. My	14	-34.568	6.524	-2569.232			
			Max. Vy	20	-25.785	2562.173	-6.252			
			Max. Vx	14	25.859	6.524	-2569.232			
L35	53.567 - 53.317	Pole	Max. Torque	13			-1.241			
			Max Tension	1	0.000	0.000	0.000			
			Max. Compression	26	-61.676	2.367	-2.022			
			Max. Mx	20	-34.652	2568.615	-6.261			
			Max. My	14	-34.647	6.533	-2575.693			
			Max. Vy	20	-25.782	2568.615	-6.261			
			Max. Vx	14	25.857	6.533	-2575.693			
			Max. Torque	13			-1.240			
			Max Tension	1	0.000	0.000	0.000			
			L36	53.317 - 43.8	Pole	Max. Compression	26	-63.239	2.365	-2.043
Max. Mx	20	-35.763				2677.618	-6.416			
Max. My	14	-35.758				6.686	-2685.010			
Max. Vy	20	-26.007				2677.618	-6.416			
Max. Vx	14	26.081				6.686	-2685.010			
Max. Torque	13						-1.240			
Max Tension	1	0.000				0.000	0.000			
Max. Compression	26	-68.075				2.365	-2.076			
Max. Mx	20	-39.454				2843.234	-6.647			
L37	43.8 - 42.8	Pole				Max. My	14	-39.450	6.915	-2851.095
			Max. Vy	20	-26.546	2843.234	-6.647			
			Max. Vx	14	26.620	6.915	-2851.095			
			Max. Torque	13			-1.240			
			Max Tension	1	0.000	0.000	0.000			
			Max. Compression	26	-70.520	2.365	-2.099			
			Max. Mx	20	-41.323	2960.166	-6.807			
			Max. My	14	-41.319	7.074	-2968.352			
			Max. Vy	20	-26.841	2960.166	-6.807			
			L38	42.8 - 38.417	Pole	Max. Vx	14	26.915	7.074	-2968.352
Max. Torque	13						-1.239			
Max Tension	1	0.000				0.000	0.000			
Max. Compression	26	-70.722				2.367	-2.102			
Max. Mx	20	-41.481				2969.559	-6.819			
Max. My	14	-41.477				7.086	-2977.771			
Max. Vy	20	-26.854				2969.559	-6.819			
Max. Vx	14	26.927				7.086	-2977.771			
Max. Torque	13						-1.239			
L39	38.417 - 38.067	Pole				Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-70.722	2.367	-2.102			
			Max. Mx	20	-41.481	2969.559	-6.819			
			Max. My	14	-41.477	7.086	-2977.771			
			Max. Vy	20	-26.854	2969.559	-6.819			
			Max. Vx	14	26.927	7.086	-2977.771			
			Max. Torque	13			-1.239			
			Max Tension	1	0.000	0.000	0.000			
			Max. Compression	26	-70.857	2.368	-2.104			
			L40	38.067 - 37.833	Pole	Max. Mx	20	-41.583	2975.843	-6.828
Max. My	14	-41.579				7.095	-2984.073			
Max. Vy	20	-26.868				2975.843	-6.828			
Max. Vx	14	26.942				7.095	-2984.073			
Max. Torque	13						-1.239			
Max Tension	1	0.000				0.000	0.000			
Max. Compression	26	-73.650				2.365	-2.128			
Max. Mx	20	-43.734				3110.943	-7.009			
L41	37.833 - 32.833	Pole				Max. My	14	-41.579	7.095	-2984.073
						Max. Vy	20	-26.868	2975.843	-6.828

tnxTower

B+T Group
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Client
Crown Castle

Designed by
JD Prabhu

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L42	32.833 - 27.833	Pole	Max. My	14	-43.731	7.274	-3119.542
			Max. Vy	20	-27.192	3110.943	-7.009
			Max. Vx	14	27.265	7.274	-3119.542
			Max. Torque	13			-1.239
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-76.408	2.365	-2.154
			Max. Mx	20	-45.918	3247.558	-7.189
			Max. My	14	-45.915	7.452	-3256.526
			Max. Vy	20	-27.486	3247.558	-7.189
			Max. Vx	14	27.559	7.452	-3256.526
L43	27.833 - 23.5	Pole	Max. Torque	13			-1.239
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-78.813	2.365	-2.176
			Max. Mx	20	-47.830	3367.122	-7.344
			Max. My	14	-47.828	7.605	-3376.407
			Max. Vy	20	-27.736	3367.122	-7.344
			Max. Vx	14	27.809	7.605	-3376.407
			Max. Torque	13			-1.239
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-78.953	2.367	-2.179
L44	23.5 - 23.25	Pole	Max. Mx	20	-47.950	3374.053	-7.353
			Max. My	14	-47.947	7.614	-3383.357
			Max. Vy	20	-27.737	3374.053	-7.353
			Max. Vx	14	27.810	7.614	-3383.357
			Max. Torque	13			-1.239
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-81.741	2.365	-2.203
			Max. Mx	20	-50.172	3513.425	-7.530
			Max. My	14	-50.170	7.788	-3523.093
			Max. Vy	20	-28.033	3513.425	-7.530
L45	23.25 - 18.25	Pole	Max. Vx	14	28.106	7.788	-3523.093
			Max. Torque	13			-1.239
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-84.540	2.365	-2.228
			Max. Mx	20	-52.428	3654.204	-7.706
			Max. My	14	-52.426	7.961	-3664.235
			Max. Vy	20	-28.313	3654.204	-7.706
			Max. Vx	14	28.385	7.961	-3664.235
			Max. Torque	13			-1.238
			Max Tension	1	0.000	0.000	0.000
L46	18.25 - 13.25	Pole	Max. Compression	26	-87.342	2.365	-2.251
			Max. Mx	20	-54.706	3796.372	-7.880
			Max. My	14	-54.706	8.132	-3806.764
			Max. Vy	20	-28.590	3796.372	-7.880
			Max. Vx	14	28.661	8.132	-3806.764
			Max. Torque	13			-1.238
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-87.529	2.365	-2.253
			Max. Mx	20	-54.866	3805.889	-7.891
			Max. My	14	-54.865	8.144	-3816.305
L47	13.25 - 8.25	Pole	Max. Vy	20	-28.596	3805.889	-7.891
			Max. Vx	14	28.668	8.144	-3816.305
			Max. Torque	13			-1.238
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-87.675	2.366	-2.255
			Max. Mx	20	-54.987	3813.038	-7.900
			Max. My	14	-54.987	8.152	-3823.473
			Max. Vy	20	-28.609	3813.038	-7.900
			Max. Vx	14	28.681	8.152	-3823.473
			Max. Torque	13			-1.238
L48	8.25 - 7.917	Pole	Max. Torque	13			-1.238
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-87.675	2.366	-2.255
			Max. Mx	20	-54.987	3813.038	-7.900
			Max. My	14	-54.987	8.152	-3823.473
			Max. Vy	20	-28.609	3813.038	-7.900
			Max. Vx	14	28.681	8.152	-3823.473
			Max. Torque	13			-1.238
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-87.675	2.366	-2.255
L49	7.917 - 7.667	Pole	Max. Mx	20	-54.987	3813.038	-7.900
			Max. My	14	-54.987	8.152	-3823.473
			Max. Vy	20	-28.609	3813.038	-7.900
			Max. Vx	14	28.681	8.152	-3823.473
			Max. Torque	13			-1.238
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-87.675	2.366	-2.255
			Max. Mx	20	-54.987	3813.038	-7.900
			Max. My	14	-54.987	8.152	-3823.473
			Max. Vy	20	-28.609	3813.038	-7.900

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		JD Prabhu

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L50	7.667 - 5.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-88.938	2.365	-2.264
			Max. Mx	20	-56.026	3875.160	-7.975
			Max. My	14	-56.025	8.226	-3885.749
			Max. Vy	20	-28.748	3875.160	-7.975
			Max. Vx	14	28.819	8.226	-3885.749
			Max. Torque	13			-1.238
L51	5.5 - 5.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-89.046	2.369	-2.266
			Max. Mx	20	-56.120	3882.343	-7.983
			Max. My	14	-56.119	8.234	-3892.951
			Max. Vy	20	-28.745	3882.343	-7.983
			Max. Vx	14	28.816	8.234	-3892.951
			Max. Torque	13			-1.238
L52	5.25 - 3	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-90.007	2.405	-2.286
			Max. Mx	20	-56.897	3947.094	-8.060
			Max. My	14	-56.896	8.310	-3957.862
			Max. Vy	20	-28.850	3947.094	-8.060
			Max. Vx	14	28.920	8.310	-3957.862
			Max. Torque	13			-1.238
L53	3 - 2.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-90.139	2.409	-2.288
			Max. Mx	20	-57.022	3954.300	-8.069
			Max. My	14	-57.021	8.318	-3965.087
			Max. Vy	20	-28.836	3954.300	-8.069
			Max. Vx	14	28.907	8.318	-3965.087
			Max. Torque	13			-1.238
L54	2.75 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-91.521	2.439	-2.307
			Max. Mx	20	-58.237	4033.787	-8.162
			Max. My	14	-58.237	8.410	-4044.769
			Max. Vy	20	-29.004	4033.787	-8.162
			Max. Vx	14	29.074	8.410	-4044.769
			Max. Torque	13			-1.238

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	91.521	0.003	-7.012
	Max. H _x	20	58.251	28.977	-0.033
	Max. H _z	2	58.251	-0.033	29.048
	Max. M _x	2	4043.623	-0.033	29.048
	Max. M _z	8	4032.126	-28.977	0.033
	Max. Torsion	25	1.229	14.460	25.139
	Min. Vert	19	43.688	25.111	-14.553
	Min. H _x	9	43.688	-28.977	0.033
	Min. H _z	14	58.251	0.033	-29.048
	Min. M _x	14	-4044.769	0.033	-29.048
	Min. M _z	20	-4033.787	28.977	-0.033
	Min. Torsion	13	-1.238	-14.460	-25.139

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Tower Mast Reaction Summary

Load Combination	Vertical	Shear _x	Shear _z	Overtuning Moment, M _x	Overtuning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	48.542	0.000	0.000	0.444	0.643	-0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	58.251	0.033	-29.048	-4043.623	-6.784	-1.057
0.9 Dead+1.0 Wind 0 deg - No Ice	43.688	0.033	-29.048	-3963.541	-6.830	-1.075
1.2 Dead+1.0 Wind 30 deg - No Ice	58.251	14.517	-25.173	-3505.557	-2022.153	-0.620
0.9 Dead+1.0 Wind 30 deg - No Ice	43.688	14.517	-25.173	-3436.139	-1982.223	-0.630
1.2 Dead+1.0 Wind 60 deg - No Ice	58.251	25.111	-14.553	-2028.106	-3495.512	-0.011
0.9 Dead+1.0 Wind 60 deg - No Ice	43.688	25.111	-14.553	-1987.987	-3426.362	-0.010
1.2 Dead+1.0 Wind 90 deg - No Ice	58.251	28.977	-0.033	-7.032	-4032.126	0.605
0.9 Dead+1.0 Wind 90 deg - No Ice	43.688	28.977	-0.033	-7.008	-3952.334	0.616
1.2 Dead+1.0 Wind 120 deg - No Ice	58.251	25.078	14.495	2016.188	-3488.106	1.056
0.9 Dead+1.0 Wind 120 deg - No Ice	43.688	25.078	14.495	1976.061	-3419.121	1.074
1.2 Dead+1.0 Wind 150 deg - No Ice	58.251	14.460	25.139	3499.244	-2009.084	1.217
0.9 Dead+1.0 Wind 150 deg - No Ice	43.688	14.460	25.139	3429.679	-1969.456	1.238
1.2 Dead+1.0 Wind 180 deg - No Ice	58.251	-0.033	29.048	4044.769	8.410	1.049
0.9 Dead+1.0 Wind 180 deg - No Ice	43.688	-0.033	29.048	3964.372	8.004	1.067
1.2 Dead+1.0 Wind 210 deg - No Ice	58.251	-14.517	25.173	3506.714	2023.795	0.603
0.9 Dead+1.0 Wind 210 deg - No Ice	43.688	-14.517	25.173	3436.979	1983.409	0.613
1.2 Dead+1.0 Wind 240 deg - No Ice	58.251	-25.111	14.553	2029.255	3497.171	0.002
0.9 Dead+1.0 Wind 240 deg - No Ice	43.688	-25.111	14.553	1988.820	3427.562	0.001
1.2 Dead+1.0 Wind 270 deg - No Ice	58.251	-28.977	0.033	8.162	4033.787	-0.597
0.9 Dead+1.0 Wind 270 deg - No Ice	43.688	-28.977	0.033	7.826	3953.539	-0.608
1.2 Dead+1.0 Wind 300 deg - No Ice	58.251	-25.078	-14.495	-2015.069	3489.752	-1.038
0.9 Dead+1.0 Wind 300 deg - No Ice	43.688	-25.078	-14.495	-1975.251	3420.310	-1.057
1.2 Dead+1.0 Wind 330 deg - No Ice	58.251	-14.460	-25.139	-3498.117	2010.711	-1.208
0.9 Dead+1.0 Wind 330 deg - No Ice	43.688	-14.460	-25.139	-3428.863	1970.631	-1.229
1.2 Dead+1.0 Ice+1.0 Temp	91.521	-0.000	0.000	2.307	2.439	-0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	91.521	0.003	-7.012	-1035.287	1.437	-0.265
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	91.521	3.502	-6.074	-896.832	-516.154	-0.147
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	91.521	6.062	-3.509	-517.418	-894.750	0.010
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	91.521	6.998	-0.003	1.292	-1032.906	0.164

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	91.521	6.059	3.504	520.311	-893.603	0.275
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	91.521	3.497	6.072	900.567	-514.164	0.311
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	91.521	-0.003	7.012	1040.171	3.736	0.264
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	91.521	-3.502	6.074	901.716	521.329	0.147
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	91.521	-6.062	3.509	522.302	899.926	-0.010
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	91.521	-6.998	0.003	3.591	1038.082	-0.164
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	91.521	-6.059	-3.504	-515.429	898.778	-0.274
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	91.521	-3.497	-6.072	-895.685	519.339	-0.311
Dead+Wind 0 deg - Service	48.542	0.007	-5.828	-803.728	-0.803	-0.222
Dead+Wind 30 deg - Service	48.542	2.913	-5.050	-696.740	-401.580	-0.129
Dead+Wind 60 deg - Service	48.542	5.038	-2.920	-402.929	-694.564	-0.002
Dead+Wind 90 deg - Service	48.542	5.814	-0.007	-1.023	-801.251	0.127
Dead+Wind 120 deg - Service	48.542	5.031	2.908	401.293	-693.065	0.221
Dead+Wind 150 deg - Service	48.542	2.901	5.044	696.205	-398.967	0.256
Dead+Wind 180 deg - Service	48.542	-0.007	5.828	804.700	2.215	0.222
Dead+Wind 210 deg - Service	48.542	-2.913	5.050	697.713	402.992	0.129
Dead+Wind 240 deg - Service	48.542	-5.038	2.920	403.901	695.977	0.001
Dead+Wind 270 deg - Service	48.542	-5.814	0.007	1.995	802.664	-0.126
Dead+Wind 300 deg - Service	48.542	-5.031	-2.908	-400.322	694.477	-0.220
Dead+Wind 330 deg - Service	48.542	-2.901	-5.044	-695.233	400.379	-0.256

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	0.000	-48.542	0.000	0.000	48.542	0.000	0.000%
2	0.033	-58.251	-29.048	-0.033	58.251	29.048	0.000%
3	0.033	-43.688	-29.048	-0.033	43.688	29.048	0.000%
4	14.517	-58.251	-25.173	-14.517	58.251	25.173	0.000%
5	14.517	-43.688	-25.173	-14.517	43.688	25.173	0.000%
6	25.111	-58.251	-14.553	-25.111	58.251	14.553	0.000%
7	25.111	-43.688	-14.553	-25.111	43.688	14.553	0.000%
8	28.977	-58.251	-0.033	-28.977	58.251	0.033	0.000%
9	28.977	-43.688	-0.033	-28.977	43.688	0.033	0.000%
10	25.078	-58.251	14.495	-25.078	58.251	-14.495	0.000%
11	25.078	-43.688	14.495	-25.078	43.688	-14.495	0.000%
12	14.460	-58.251	25.139	-14.460	58.251	-25.139	0.000%
13	14.460	-43.688	25.139	-14.460	43.688	-25.139	0.000%
14	-0.033	-58.251	29.048	0.033	58.251	-29.048	0.000%
15	-0.033	-43.688	29.048	0.033	43.688	-29.048	0.000%
16	-14.517	-58.251	25.173	14.517	58.251	-25.173	0.000%
17	-14.517	-43.688	25.173	14.517	43.688	-25.173	0.000%
18	-25.111	-58.251	14.553	25.111	58.251	-14.553	0.000%
19	-25.111	-43.688	14.553	25.111	43.688	-14.553	0.000%
20	-28.977	-58.251	0.033	28.977	58.251	-0.033	0.000%
21	-28.977	-43.688	0.033	28.977	43.688	-0.033	0.000%
22	-25.078	-58.251	-14.495	25.078	58.251	14.495	0.000%
23	-25.078	-43.688	-14.495	25.078	43.688	14.495	0.000%
24	-14.460	-58.251	-25.139	14.460	58.251	25.139	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
25	-14.460	-43.688	-25.139	14.460	43.688	25.139	0.000%
26	0.000	-91.521	0.000	0.000	91.521	-0.000	0.000%
27	0.003	-91.521	-7.012	-0.003	91.521	7.012	0.000%
28	3.502	-91.521	-6.074	-3.502	91.521	6.074	0.000%
29	6.062	-91.521	-3.509	-6.062	91.521	3.509	0.000%
30	6.998	-91.521	-0.003	-6.998	91.521	0.003	0.000%
31	6.059	-91.521	3.504	-6.059	91.521	-3.504	0.000%
32	3.497	-91.521	6.071	-3.497	91.521	-6.072	0.000%
33	-0.003	-91.521	7.012	0.003	91.521	-7.012	0.000%
34	-3.502	-91.521	6.074	3.502	91.521	-6.074	0.000%
35	-6.062	-91.521	3.509	6.062	91.521	-3.509	0.000%
36	-6.998	-91.521	0.003	6.998	91.521	-0.003	0.000%
37	-6.059	-91.521	-3.504	6.059	91.521	3.504	0.000%
38	-3.497	-91.521	-6.071	3.497	91.521	6.072	0.000%
39	0.007	-48.542	-5.828	-0.007	48.542	5.828	0.000%
40	2.913	-48.542	-5.050	-2.913	48.542	5.050	0.000%
41	5.038	-48.542	-2.920	-5.038	48.542	2.920	0.000%
42	5.814	-48.542	-0.007	-5.814	48.542	0.007	0.000%
43	5.031	-48.542	2.908	-5.031	48.542	-2.908	0.000%
44	2.901	-48.542	5.044	-2.901	48.542	-5.044	0.000%
45	-0.007	-48.542	5.828	0.007	48.542	-5.828	0.000%
46	-2.913	-48.542	5.050	2.913	48.542	-5.050	0.000%
47	-5.038	-48.542	2.920	5.038	48.542	-2.920	0.000%
48	-5.814	-48.542	0.007	5.814	48.542	-0.007	0.000%
49	-5.031	-48.542	-2.908	5.031	48.542	2.908	0.000%
50	-2.901	-48.542	-5.044	2.901	48.542	5.044	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	6	0.00000001	0.00022162
3	Yes	6	0.00000001	0.00007128
4	Yes	8	0.00000001	0.00012877
5	Yes	7	0.00000001	0.00032251
6	Yes	8	0.00000001	0.00012979
7	Yes	7	0.00000001	0.00032547
8	Yes	6	0.00000001	0.00011943
9	Yes	5	0.00000001	0.00055282
10	Yes	8	0.00000001	0.00013130
11	Yes	7	0.00000001	0.00033029
12	Yes	8	0.00000001	0.00012765
13	Yes	7	0.00000001	0.00031986
14	Yes	6	0.00000001	0.00043886
15	Yes	6	0.00000001	0.00013996
16	Yes	8	0.00000001	0.00013045
17	Yes	7	0.00000001	0.00032749
18	Yes	8	0.00000001	0.00012948
19	Yes	7	0.00000001	0.00032480
20	Yes	6	0.00000001	0.00031087
21	Yes	6	0.00000001	0.00009739
22	Yes	8	0.00000001	0.00012788
23	Yes	7	0.00000001	0.00032062
24	Yes	8	0.00000001	0.00013148
25	Yes	7	0.00000001	0.00033077

tnxTower

B+T Group
 1717 S. Boulder, Suite 300
 Tulsa, OK 74119
 Phone: (918) 587-4630
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Crown Castle

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26	Yes	5	0.00000001	0.00051290
27	Yes	8	0.00000001	0.00039620
28	Yes	8	0.00000001	0.00064271
29	Yes	8	0.00000001	0.00064403
30	Yes	8	0.00000001	0.00039477
31	Yes	8	0.00000001	0.00065075
32	Yes	8	0.00000001	0.00064281
33	Yes	8	0.00000001	0.00039934
34	Yes	8	0.00000001	0.00066068
35	Yes	8	0.00000001	0.00065857
36	Yes	8	0.00000001	0.00039880
37	Yes	8	0.00000001	0.00064450
38	Yes	8	0.00000001	0.00065321
39	Yes	5	0.00000001	0.00028946
40	Yes	6	0.00000001	0.00022517
41	Yes	6	0.00000001	0.00022893
42	Yes	5	0.00000001	0.00025210
43	Yes	6	0.00000001	0.00023408
44	Yes	6	0.00000001	0.00021934
45	Yes	5	0.00000001	0.00030531
46	Yes	6	0.00000001	0.00023591
47	Yes	6	0.00000001	0.00023138
48	Yes	5	0.00000001	0.00026302
49	Yes	6	0.00000001	0.00022068
50	Yes	6	0.00000001	0.00023618

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	180.5 - 175.5	39.283	46	2.259	0.004
L2	175.5 - 170.5	36.923	46	2.246	0.004
L3	170.5 - 165.5	34.586	46	2.216	0.004
L4	165.5 - 160.5	32.288	46	2.172	0.003
L5	160.5 - 155.5	30.045	46	2.111	0.003
L6	155.5 - 150.5	27.872	46	2.036	0.002
L7	150.5 - 145.5	25.787	46	1.947	0.002
L8	145.5 - 140.5	23.799	46	1.849	0.002
L9	140.5 - 134.5	21.919	46	1.743	0.002
L10	137.794 - 132.794	20.948	46	1.683	0.001
L11	132.794 - 127.794	19.215	46	1.616	0.001
L12	127.794 - 122.794	17.575	46	1.517	0.001
L13	122.794 - 120.583	16.040	46	1.417	0.001
L14	120.583 - 120.333	15.394	46	1.372	0.001
L15	120.333 - 115.333	15.322	46	1.367	0.001
L16	115.333 - 112.5	13.943	46	1.266	0.001
L17	112.5 - 112.25	13.209	46	1.209	0.001
L18	112.25 - 107.817	13.146	46	1.207	0.001
L19	107.817 - 107.567	12.045	46	1.164	0.001
L20	107.567 - 102.567	11.984	46	1.162	0.001
L21	102.567 - 97.567	10.793	46	1.113	0.001
L22	97.567 - 89	9.653	46	1.065	0.001
L23	93.311 - 88.311	8.723	46	1.023	0.001
L24	88.311 - 87.5	7.665	46	0.996	0.001
L25	87.5 - 87.25	7.496	46	0.988	0.001
L26	87.25 - 82.25	7.445	46	0.984	0.001
L27	82.25 - 80.833	6.458	46	0.900	0.001
L28	80.833 - 80.583	6.194	46	0.877	0.001
L29	80.583 - 75.583	6.149	46	0.873	0.001

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L30	75.583 - 70.583	5.277	46	0.791	0.000
L31	70.583 - 65.583	4.491	46	0.711	0.000
L32	65.583 - 60.583	3.788	46	0.632	0.000
L33	60.583 - 55.583	3.167	46	0.555	0.000
L34	55.583 - 53.567	2.626	46	0.479	0.000
L35	53.567 - 53.317	2.430	46	0.449	0.000
L36	53.317 - 43.8	2.406	46	0.445	0.000
L37	49.105 - 42.8	2.041	46	0.383	0.000
L38	42.8 - 38.417	1.557	46	0.347	0.000
L39	38.417 - 38.067	1.255	46	0.311	0.000
L40	38.067 - 37.833	1.233	46	0.308	0.000
L41	37.833 - 32.833	1.218	46	0.306	0.000
L42	32.833 - 27.833	0.919	46	0.265	0.000
L43	27.833 - 23.5	0.663	46	0.224	0.000
L44	23.5 - 23.25	0.475	46	0.189	0.000
L45	23.25 - 18.25	0.466	46	0.187	0.000
L46	18.25 - 13.25	0.290	46	0.148	0.000
L47	13.25 - 8.25	0.156	46	0.109	0.000
L48	8.25 - 7.917	0.062	46	0.071	0.000
L49	7.917 - 7.667	0.057	46	0.068	0.000
L50	7.667 - 5.5	0.053	46	0.066	0.000
L51	5.5 - 5.25	0.027	46	0.051	0.000
L52	5.25 - 3	0.024	46	0.048	0.000
L53	3 - 2.75	0.007	46	0.023	0.000
L54	2.75 - 0	0.006	46	0.021	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.000	APX16DWV-16DWV-S-E-A20	46	39.046	2.258	0.004	13029
178.000	Side Arm Mount [SO 102-3]	46	38.101	2.254	0.004	13029
170.000	TMA-DB-T1-6Z-8AB-0Z	46	34.355	2.213	0.004	7542
168.000	(2) SBNHH-1D65B w/ Mount Pipe	46	33.431	2.196	0.003	6442
160.000	AM-X-CD-17-65-00T-RET w/ Mount Pipe	46	29.824	2.105	0.003	4130
158.000	RRUS 11 B12	46	28.949	2.075	0.003	3811
78.000	8225	46	5.688	0.831	0.001	3510

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	180.5 - 175.5	196.482	14	11.322	0.022
L2	175.5 - 170.5	184.745	14	11.260	0.020
L3	170.5 - 165.5	173.116	14	11.116	0.018
L4	165.5 - 160.5	161.671	14	10.898	0.016
L5	160.5 - 155.5	150.493	14	10.597	0.013
L6	155.5 - 150.5	139.662	14	10.222	0.012
L7	150.5 - 145.5	129.253	14	9.780	0.010

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L8	145.5 - 140.5	119.326	14	9.288	0.009
L9	140.5 - 134.5	109.930	16	8.758	0.008
L10	137.794 - 132.794	105.082	16	8.460	0.007
L11	132.794 - 127.794	96.424	16	8.123	0.007
L12	127.794 - 122.794	88.222	16	7.627	0.006
L13	122.794 - 120.583	80.534	16	7.125	0.005
L14	120.583 - 120.333	77.301	16	6.902	0.005
L15	120.333 - 115.333	76.941	16	6.877	0.005
L16	115.333 - 112.5	70.032	16	6.371	0.004
L17	112.5 - 112.25	66.349	16	6.085	0.004
L18	112.25 - 107.817	66.032	16	6.072	0.004
L19	107.817 - 107.567	60.511	16	5.858	0.004
L20	107.567 - 102.567	60.206	16	5.846	0.004
L21	102.567 - 97.567	54.229	16	5.602	0.003
L22	97.567 - 89	48.506	16	5.357	0.003
L23	93.311 - 88.311	43.837	16	5.146	0.003
L24	88.311 - 87.5	38.524	16	5.010	0.003
L25	87.5 - 87.25	37.678	16	4.972	0.003
L26	87.25 - 82.25	37.419	16	4.951	0.003
L27	82.25 - 80.833	32.465	16	4.530	0.003
L28	80.833 - 80.583	31.140	16	4.414	0.003
L29	80.583 - 75.583	30.910	16	4.393	0.003
L30	75.583 - 70.583	26.533	16	3.981	0.002
L31	70.583 - 65.583	22.581	16	3.577	0.002
L32	65.583 - 60.583	19.046	16	3.181	0.002
L33	60.583 - 55.583	15.923	16	2.792	0.001
L34	55.583 - 53.567	13.201	16	2.410	0.001
L35	53.567 - 53.317	12.216	16	2.259	0.001
L36	53.317 - 43.8	12.098	16	2.240	0.001
L37	49.105 - 42.8	10.261	16	1.928	0.001
L38	42.8 - 38.417	7.828	16	1.745	0.001
L39	38.417 - 38.067	6.311	16	1.562	0.001
L40	38.067 - 37.833	6.197	16	1.547	0.001
L41	37.833 - 32.833	6.121	16	1.538	0.001
L42	32.833 - 27.833	4.620	16	1.330	0.001
L43	27.833 - 23.5	3.334	16	1.128	0.000
L44	23.5 - 23.25	2.390	16	0.952	0.000
L45	23.25 - 18.25	2.341	16	0.942	0.000
L46	18.25 - 13.25	1.458	16	0.745	0.000
L47	13.25 - 8.25	0.782	16	0.548	0.000
L48	8.25 - 7.917	0.309	16	0.355	0.000
L49	7.917 - 7.667	0.285	16	0.342	0.000
L50	7.667 - 5.5	0.267	16	0.333	0.000
L51	5.5 - 5.25	0.133	16	0.257	0.000
L52	5.25 - 3	0.120	16	0.242	0.000
L53	3 - 2.75	0.036	16	0.115	0.000
L54	2.75 - 0	0.030	16	0.106	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.000	APX16DWV-16DWV-S-E-A20	14	195.306	11.317	0.021	2921
178.000	Side Arm Mount [SO 102-3]	14	190.606	11.298	0.021	2921
170.000	TMA-DB-T1-6Z-8AB-0Z	14	171.962	11.097	0.017	1651
168.000	(2) SBNHH-1D65B w/ Mount Pipe	14	167.365	11.016	0.017	1406

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Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
160.000	AM-X-CD-17-65-00T-RET w/ Mount Pipe	14	149.393	10.563	0.013	890
158.000	RRUS 11 B12	14	145.030	10.419	0.013	818
78.000	8225	16	28.595	4.179	0.002	706

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
L1	180.5 - 175.5	TP18.569x17.62x0.25	5.000	0.000	0.0	14.536	-3.946	850.359	0.005
L2	175.5 - 170.5	TP19.518x18.569x0.25	5.000	0.000	0.0	15.289	-4.269	894.408	0.005
L3	170.5 - 165.5	TP20.467x19.518x0.25	5.000	0.000	0.0	16.042	-6.885	938.456	0.007
L4	165.5 - 160.5	TP21.416x20.467x0.25	5.000	0.000	0.0	16.795	-7.358	982.504	0.007
L5	160.5 - 155.5	TP22.365x21.416x0.25	5.000	0.000	0.0	17.548	-10.313	1026.550	0.010
L6	155.5 - 150.5	TP23.313x22.365x0.25	5.000	0.000	0.0	18.301	-10.948	1070.600	0.010
L7	150.5 - 145.5	TP24.262x23.313x0.25	5.000	0.000	0.0	19.054	-11.619	1114.650	0.010
L8	145.5 - 140.5	TP25.211x24.262x0.25	5.000	0.000	0.0	19.807	-12.323	1158.700	0.011
L9	140.5 - 134.5	TP26.35x25.211x0.25	6.000	0.000	0.0	20.214	-12.710	1182.540	0.011
L10	134.5 - 132.794 (10)	TP26.174x25.225x0.313	5.000	0.000	0.0	25.651	-13.743	1500.590	0.009
L11	132.794 - 127.794 (11)	TP27.123x26.174x0.313	5.000	0.000	0.0	26.592	-14.598	1555.650	0.009
L12	127.794 - 122.794 (12)	TP28.072x27.123x0.313	5.000	0.000	0.0	27.534	-15.469	1610.710	0.010
L13	122.794 - 120.583 (13)	TP28.491x28.072x0.313	2.211	0.000	0.0	27.950	-15.861	1635.060	0.010
L14	120.583 - 120.333 (14)	TP28.539x28.491x0.313	0.250	0.000	0.0	27.997	-15.921	1637.810	0.010
L15	120.333 - 115.333 (15)	TP29.488x28.539x0.313	5.000	0.000	0.0	28.938	-16.817	1692.870	0.010
L16	115.333 - 112.5 (16)	TP30.025x29.488x0.313	2.833	0.000	0.0	29.471	-17.336	1724.070	0.010
L17	112.5 - 112.25 (17)	TP30.073x30.025x0.638	0.250	0.000	0.0	59.560	-17.429	3484.240	0.005
L18	112.25 - 107.817 (18)	TP30.914x30.073x0.675	4.433	0.000	0.0	64.785	-18.715	3789.940	0.005
L19	107.817 - 107.567 (19)	TP30.961x30.914x0.675	0.250	0.000	0.0	64.887	-18.796	3795.890	0.005
L20	107.567 - 102.567 (20)	TP31.91x30.961x0.663	5.000	0.000	0.0	65.707	-20.270	3843.860	0.005
L21	102.567 - 97.567 (21)	TP32.859x31.91x0.65	5.000	0.000	0.0	66.451	-21.775	3887.370	0.006

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
L22	97.567 - 89 (22)	TP34.485x32.859x0.638	8.567	0.000	0.0	66.832	-23.075	3909.700	0.006
L23	89 - 88.311 (23)	TP33.991x33.042x0.7	5.000	0.000	0.0	73.965	-25.828	4326.980	0.006
L24	88.311 - 87.5 (24)	TP34.145x33.991x0.7	0.811	0.000	0.0	74.307	-26.101	4346.980	0.006
L25	87.5 - 87.25 (25)	TP34.192x34.145x0.375	0.250	0.000	0.0	40.251	-26.162	2354.670	0.011
L26	87.25 - 82.25 (26)	TP35.141x34.192x0.375	5.000	0.000	0.0	41.380	-27.313	2420.740	0.011
L27	82.25 - 80.833 (27)	TP35.41x35.141x0.375	1.417	0.000	0.0	41.700	-27.640	2439.470	0.011
L28	80.833 - 80.583 (28)	TP35.457x35.41x0.375	0.250	0.000	0.0	41.757	-27.720	2442.770	0.011
L29	80.583 - 75.583 (29)	TP36.406x35.457x0.375	5.000	0.000	0.0	42.886	-28.980	2508.840	0.012
L30	75.583 - 70.583 (30)	TP37.355x36.406x0.375	5.000	0.000	0.0	44.016	-30.206	2574.910	0.012
L31	70.583 - 65.583 (31)	TP38.304x37.355x0.375	5.000	0.000	0.0	45.145	-31.458	2640.990	0.012
L32	65.583 - 60.583 (32)	TP39.253x38.304x0.375	5.000	0.000	0.0	46.275	-32.734	2707.060	0.012
L33	60.583 - 55.583 (33)	TP40.202x39.253x0.375	5.000	0.000	0.0	47.404	-34.035	2773.130	0.012
L34	55.583 - 53.567 (34)	TP40.584x40.202x0.375	2.016	0.000	0.0	47.859	-34.566	2799.770	0.012
L35	53.567 - 53.317 (35)	TP40.632x40.584x0.375	0.250	0.000	0.0	47.916	-34.645	2803.070	0.012
L36	53.317 - 43.8 (36)	TP42.438x40.632x0.375	9.517	0.000	0.0	48.867	-35.756	2858.730	0.013
L37	43.8 - 42.8 (37)	TP41.878x40.681x0.7	6.305	0.000	0.0	91.489	-39.449	5352.090	0.007
L38	42.8 - 38.417 (38)	TP42.71x41.878x0.688	4.383	0.000	0.0	91.697	-41.318	5364.290	0.008
L39	38.417 - 38.067 (39)	TP42.776x42.71x0.688	0.350	0.000	0.0	91.842	-41.476	5372.770	0.008
L40	38.067 - 37.833 (40)	TP42.82x42.776x0.688	0.234	0.000	0.0	91.939	-41.578	5378.440	0.008
L41	37.833 - 32.833 (41)	TP43.769x42.82x0.675	5.000	0.000	0.0	91.107	-42.449	5329.790	0.008
L42	32.833 - 27.833 (42)	TP44.718x43.769x0.675	5.000	0.000	0.0	92.327	-43.750	5401.140	0.008
L43	27.833 - 23.5 (43)	TP45.54x44.718x0.663	4.333	0.000	0.0	92.639	-45.934	5419.380	0.008
L44	23.5 - 23.25 (44)	TP45.588x45.54x0.663	0.250	0.000	0.0	94.368	-47.840	5520.530	0.009
L45	23.25 - 18.25 (45)	TP46.537x45.588x0.663	5.000	0.000	0.0	94.468	-47.959	5526.370	0.009
L46	18.25 - 13.25 (46)	TP47.486x46.537x0.65	5.000	0.000	0.0	94.669	-50.189	5538.120	0.009
L47	13.25 - 8.25 (47)	TP48.434x47.486x0.65	5.000	0.000	0.0	96.626	-52.445	5652.640	0.009
L48	8.25 - 7.917 (48)	TP48.498x48.434x0.65	0.333	0.000	0.0	98.584	-54.718	5767.160	0.009
L49	7.917 - 7.667 (49)	TP48.545x48.498x0.7	0.250	0.000	0.0	106.197	-54.870	6212.500	0.009
L50	7.667 - 5.5 (50)	TP48.956x48.545x0.7	2.167	0.000	0.0	106.302	-54.998	6218.670	0.009
L51	5.5 - 5.25 (51)	TP49.004x48.956x0.413	0.250	0.000	0.0	63.619	-56.119	3721.730	0.015
L52	5.25 - 3 (52)	TP49.431x49.004x0.425	2.250	0.000	0.0	66.106	-56.896	3867.210	0.015
L53	3 - 2.75 (53)	TP49.478x49.431x0.625	0.250	0.000	0.0	96.818	-56.915	5663.870	0.010
L54	2.75 - 0 (54)	TP50x49.478x0.625	2.750	0.000	0.0	96.912	-57.037	5669.370	0.010

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
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Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L1	180.5 - 175.5 (1)	TP18.569x17.62x0.25	46.677	404.493	0.115	0.000	404.493	0.000
L2	175.5 - 170.5 (2)	TP19.518x18.569x0.25	89.767	447.781	0.200	0.000	447.781	0.000
L3	170.5 - 165.5 (3)	TP20.467x19.518x0.25	153.466	493.269	0.311	0.000	493.269	0.000
L4	165.5 - 160.5 (4)	TP21.416x20.467x0.25	223.817	540.957	0.414	0.000	540.957	0.000
L5	160.5 - 155.5 (5)	TP22.365x21.416x0.25	313.827	590.845	0.531	0.000	590.845	0.000
L6	155.5 - 150.5 (6)	TP23.313x22.365x0.25	406.266	642.934	0.632	0.000	642.934	0.000
L7	150.5 - 145.5 (7)	TP24.262x23.313x0.25	500.406	695.496	0.719	0.000	695.496	0.000
L8	145.5 - 140.5 (8)	TP25.211x24.262x0.25	596.219	744.672	0.801	0.000	744.672	0.000
L9	140.5 - 134.5 (9)	TP26.35x25.211x0.25	648.761	771.739	0.841	0.000	771.739	0.000
L10	134.5 - 132.794 (10)	TP26.174x25.225x0.313	747.423	1009.233	0.741	0.000	1009.233	0.000
L11	132.794 - 127.794 (11)	TP27.123x26.174x0.313	847.950	1085.117	0.781	0.000	1085.117	0.000
L12	127.794 - 122.794 (12)	TP28.072x27.123x0.313	950.192	1163.742	0.816	0.000	1163.742	0.000
L13	122.794 - 120.583 (13)	TP28.491x28.072x0.313	995.942	1199.392	0.830	0.000	1199.392	0.000
L14	120.583 - 120.333 (14)	TP28.539x28.491x0.313	1001.133	1203.450	0.832	0.000	1203.450	0.000
L15	120.333 - 115.333 (15)	TP29.488x28.539x0.313	1105.900	1286.183	0.860	0.000	1286.183	0.000
L16	115.333 - 112.5 (16)	TP30.025x29.488x0.313	1166.000	1334.283	0.874	0.000	1334.283	0.000
L17	112.5 - 112.25 (17)	TP30.073x30.025x0.638	1171.333	2642.192	0.443	0.000	2642.192	0.000
L18	112.25 - 107.817 (18)	TP30.914x30.073x0.675	1266.825	2950.575	0.429	0.000	2950.575	0.000
L19	107.817 - 107.567 (19)	TP30.961x30.914x0.675	1272.267	2959.942	0.430	0.000	2959.942	0.000
L20	107.567 - 102.567 (20)	TP31.91x30.961x0.663	1382.317	3095.783	0.447	0.000	3095.783	0.000
L21	102.567 - 97.567 (21)	TP32.859x31.91x0.65	1494.700	3230.383	0.463	0.000	3230.383	0.000
L22	97.567 - 89 (22)	TP34.485x32.859x0.638	1592.183	3334.550	0.477	0.000	3334.550	0.000
L23	89 - 88.311 (23)	TP33.991x33.042x0.7	1709.267	3713.358	0.460	0.000	3713.358	0.000
L24	88.311 - 87.5 (24)	TP34.145x33.991x0.7	1728.525	3748.133	0.461	0.000	3748.133	0.000
L25	87.5 - 87.25 (25)	TP34.192x34.145x0.375	1734.475	2072.875	0.837	0.000	2072.875	0.000

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	<p>Project</p>	<p>Date 19:06:20 02/13/21</p>
	<p>Client Crown Castle</p>	<p>Designed by JD Prabhu</p>

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{rx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{rx}}$	M_{uy} kip-ft	ϕM_{ry} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ry}}$
L26	87.25 - 82.25 (26)	TP35.141x34.192x0.375	1854.275	2191.492	0.846	0.000	2191.492	0.000
L27	82.25 - 80.833 (27)	TP35.41x35.141x0.375	1888.517	2225.708	0.848	0.000	2225.708	0.000
L28	80.833 - 80.583 (28)	TP35.457x35.41x0.375	1894.567	2231.775	0.849	0.000	2231.775	0.000
L29	80.583 - 75.583 (29)	TP36.406x35.457x0.375	2016.842	2348.758	0.859	0.000	2348.758	0.000
L30	75.583 - 70.583 (30)	TP37.355x36.406x0.375	2140.625	2459.008	0.871	0.000	2459.008	0.000
L31	70.583 - 65.583 (31)	TP38.304x37.355x0.375	2265.883	2570.908	0.881	0.000	2570.908	0.000
L32	65.583 - 60.583 (32)	TP39.253x38.304x0.375	2392.558	2684.392	0.891	0.000	2684.392	0.000
L33	60.583 - 55.583 (33)	TP40.202x39.253x0.375	2520.600	2799.392	0.900	0.000	2799.392	0.000
L34	55.583 - 53.567 (34)	TP40.584x40.202x0.375	2572.608	2846.175	0.904	0.000	2846.175	0.000
L35	53.567 - 53.317 (35)	TP40.632x40.584x0.375	2579.075	2852.000	0.904	0.000	2852.000	0.000
L36	53.317 - 43.8 (36)	TP42.438x40.632x0.375	2688.442	2950.550	0.911	0.000	2950.550	0.000
L37	43.8 - 42.8 (37)	TP41.878x40.681x0.7	2854.608	5703.758	0.500	0.000	5703.758	0.000
L38	42.8 - 38.417 (38)	TP42.71x41.878x0.688	2971.917	5837.641	0.509	0.000	5837.641	0.000
L39	38.417 - 38.067 (39)	TP42.776x42.71x0.688	2981.342	5856.258	0.509	0.000	5856.258	0.000
L40	38.067 - 37.833 (40)	TP42.82x42.776x0.688	2987.650	5868.725	0.509	0.000	5868.725	0.000
L41	37.833 - 32.833 (41)	TP43.769x42.82x0.675	3041.675	5872.317	0.518	0.000	5872.317	0.000
L42	32.833 - 27.833 (42)	TP44.718x43.769x0.675	3123.183	6031.850	0.518	0.000	6031.850	0.000
L43	27.833 - 23.5 (43)	TP45.54x44.718x0.663	3260.225	6191.050	0.527	0.000	6191.050	0.000
L44	23.5 - 23.25 (44)	TP45.588x45.54x0.663	3380.158	6426.058	0.526	0.000	6426.058	0.000
L45	23.25 - 18.25 (45)	TP46.537x45.588x0.663	3387.117	6439.750	0.526	0.000	6439.750	0.000
L46	18.25 - 13.25 (46)	TP47.486x46.537x0.65	3526.908	6595.325	0.535	0.000	6595.325	0.000
L47	13.25 - 8.25 (47)	TP48.434x47.486x0.65	3668.108	6872.850	0.534	0.000	6872.850	0.000
L48	8.25 - 7.917 (48)	TP48.498x48.434x0.65	3810.700	7156.100	0.533	0.000	7156.100	0.000
L49	7.917 - 7.667 (49)	TP48.545x48.498x0.7	3820.242	7702.908	0.496	0.000	7702.908	0.000
L50	7.667 - 5.5 (50)	TP48.956x48.545x0.7	3827.417	7718.317	0.496	0.000	7718.317	0.000
L51	5.5 - 5.25 (51)	TP49.004x48.956x0.413	3896.925	4450.758	0.876	0.000	4450.758	0.000
L52	5.25 - 3 (52)	TP49.431x49.004x0.425	3961.858	4694.217	0.844	0.000	4694.217	0.000
L53	3 - 2.75 (53)	TP49.478x49.431x0.625	3961.858	7183.791	0.552	0.000	7183.791	0.000
L54	2.75 - 0 (54)	TP50x49.478x0.625	3969.083	7197.850	0.551	0.000	7197.850	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio V_u ϕV_n	Actual T_u kip-ft	ϕT_n kip-ft	Ratio T_u ϕT_n
L1	180.5 - 175.5 (1)	TP18.569x17.62x0.25	8.448	255.108	0.033	0.002	409.264	0.000
L2	175.5 - 170.5 (2)	TP19.518x18.569x0.25	8.791	268.322	0.033	0.002	452.762	0.000
L3	170.5 - 165.5 (3)	TP20.467x19.518x0.25	13.896	281.537	0.049	0.601	498.455	0.001
L4	165.5 - 160.5 (4)	TP21.416x20.467x0.25	14.252	294.751	0.048	0.600	546.346	0.001
L5	160.5 - 155.5 (5)	TP22.365x21.416x0.25	18.323	307.966	0.059	0.477	596.432	0.001
L6	155.5 - 150.5 (6)	TP23.313x22.365x0.25	18.668	321.180	0.058	0.476	648.715	0.001
L7	150.5 - 145.5 (7)	TP24.262x23.313x0.25	19.007	334.395	0.057	0.476	703.193	0.001
L8	145.5 - 140.5 (8)	TP25.211x24.262x0.25	19.340	347.609	0.056	0.475	759.869	0.001
L9	140.5 - 134.5 (9)	TP26.35x25.211x0.25	19.522	354.761	0.055	0.474	791.457	0.001
L10	134.5 - 132.794 (10)	TP26.174x25.225x0.313	19.952	450.177	0.044	0.474	1019.558	0.000
L11	132.794 - 127.794 (11)	TP27.123x26.174x0.313	20.290	466.695	0.043	0.473	1095.750	0.000
L12	127.794 - 122.794 (12)	TP28.072x27.123x0.313	20.632	483.213	0.043	0.472	1174.692	0.000
L13	122.794 - 120.583 (13)	TP28.491x28.072x0.313	20.784	490.518	0.042	0.471	1210.475	0.000
L14	120.583 - 120.333 (14)	TP28.539x28.491x0.313	20.790	491.343	0.042	0.471	1214.550	0.000
L15	120.333 - 115.333 (15)	TP29.488x28.539x0.313	21.135	507.861	0.042	0.471	1297.583	0.000
L16	115.333 - 112.5 (16)	TP30.025x29.488x0.313	21.330	517.220	0.041	0.470	1345.850	0.000
L17	112.5 - 112.25 (17)	TP30.073x30.025x0.638	21.336	1045.270	0.020	0.470	2694.483	0.000
L18	112.25 - 107.817 (18)	TP30.914x30.073x0.675	21.760	1136.980	0.019	0.470	3010.925	0.000
L19	107.817 - 107.567 (19)	TP30.961x30.914x0.675	21.779	1138.770	0.019	0.470	3020.383	0.000
L20	107.567 - 102.567 (20)	TP31.91x30.961x0.663	22.253	1153.160	0.019	0.469	3155.642	0.000
L21	102.567 - 97.567 (21)	TP32.859x31.91x0.65	22.719	1166.210	0.019	0.469	3289.550	0.000
L22	97.567 - 89 (22)	TP34.485x32.859x0.638	23.110	1172.910	0.020	0.469	3392.692	0.000
L23	89 - 88.311 (23)	TP33.991x33.042x0.7	23.720	1298.090	0.018	0.468	3784.508	0.000
L24	88.311 - 87.5 (24)	TP34.145x33.991x0.7	23.795	1304.090	0.018	0.468	3819.583	0.000
L25	87.5 - 87.25 (25)	TP34.192x34.145x0.375	23.808	706.402	0.034	0.468	2092.033	0.000
L26	87.25 - 82.25 (26)	TP35.141x34.192x0.375	24.137	726.223	0.033	0.468	2211.083	0.000
L27	82.25 - 80.833 (27)	TP35.41x35.141x0.375	24.234	731.840	0.033	0.468	2245.417	0.000
L28	80.833 - 80.583 (28)	TP35.457x35.41x0.375	24.227	732.832	0.033	0.467	2251.508	0.000
L29	80.583 - 75.583 (29)	TP36.406x35.457x0.375	24.629	752.653	0.033	0.606	2374.950	0.000
L30	75.583 - 70.583 (30)	TP37.355x36.406x0.375	24.927	772.474	0.032	0.605	2501.683	0.000
L31	70.583 - 65.583 (31)	TP38.304x37.355x0.375	25.216	792.296	0.032	0.605	2631.717	0.000
L32	65.583 - 60.583 (32)	TP39.253x38.304x0.375	25.497	812.117	0.031	0.604	2765.042	0.000
L33	60.583 - 55.583 (33)	TP40.202x39.253x0.375	25.766	831.938	0.031	0.604	2901.667	0.000
L34	55.583 - 53.567 (34)	TP40.584x40.202x0.375	25.872	839.930	0.031	0.604	2957.683	0.000
L35	53.567 - 53.317 (35)	TP40.632x40.584x0.375	25.868	840.921	0.031	0.604	2964.667	0.000
L36	53.317 - 43.8 (36)	TP42.438x40.632x0.375	26.094	857.619	0.030	0.603	3083.567	0.000
L37	43.8 - 42.8 (37)	TP41.878x40.681x0.7	26.633	1605.630	0.017	0.603	5790.117	0.000
L38	42.8 - 38.417 (38)	TP42.71x41.878x0.688	26.928	1609.290	0.017	0.603	5922.300	0.000
L39	38.417 - 38.067	TP42.776x42.71x0.688	26.939	1611.830	0.017	0.603	5941.033	0.000

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	Client Crown Castle	Designed by JD Prabhu

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L40	38.067 - 37.833 (39)	TP42.82x42.776x0.688	26.953	1613.530	0.017	0.603	5953.583	0.000
L41	37.833 - 32.833 (40)	TP43.769x42.82x0.675	27.153	1606.070	0.017	0.603	5954.617	0.000
L42	32.833 - 27.833 (41)	TP44.718x43.769x0.675	27.337	1627.480	0.017	0.603	6115.125	0.000
L43	27.833 - 23.5 (42)	TP45.54x44.718x0.663	27.635	1633.400	0.017	0.603	6272.658	0.000
L44	23.5 - 23.25 (44)	TP45.588x45.54x0.663	27.821	1657.910	0.017	0.603	6508.991	0.000
L45	23.25 - 18.25 (45)	TP46.537x45.588x0.663	27.891	1664.910	0.017	0.603	6522.767	0.000
L46	18.25 - 13.25 (46)	TP47.486x46.537x0.65	28.174	1668.310	0.017	0.603	6676.517	0.000
L47	13.25 - 8.25 (47)	TP48.434x47.486x0.65	28.452	1702.660	0.017	0.603	6955.491	0.000
L48	8.25 - 7.917 (48)	TP48.498x48.434x0.65	28.679	1732.440	0.017	0.603	7240.175	0.000
L49	7.917 - 7.667 (49)	TP48.545x48.498x0.7	28.692	1865.600	0.015	0.603	7801.425	0.000
L50	7.667 - 5.5 (50)	TP48.956x48.545x0.7	28.769	1873.620	0.015	0.603	7816.917	0.000
L51	5.5 - 5.25 (51)	TP49.004x48.956x0.413	28.828	1116.520	0.026	0.603	4751.200	0.000
L52	5.25 - 3 (52)	TP49.431x49.004x0.425	28.932	1160.160	0.025	0.603	4979.042	0.000
L53	3 - 2.75 (53)	TP49.478x49.431x0.625	28.919	1700.810	0.017	0.603	7262.475	0.000
L54	2.75 - 0 (54)	TP50x49.478x0.625	29.013	1709.900	0.017	0.603	7276.608	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	180.5 - 175.5 (1)	0.005	0.115	0.000	0.033	0.000	0.121	1.050	4.8.2 ✓
L2	175.5 - 170.5 (2)	0.005	0.200	0.000	0.033	0.000	0.206	1.050	4.8.2 ✓
L3	170.5 - 165.5 (3)	0.007	0.311	0.000	0.049	0.001	0.321	1.050	4.8.2 ✓
L4	165.5 - 160.5 (4)	0.007	0.414	0.000	0.048	0.001	0.424	1.050	4.8.2 ✓
L5	160.5 - 155.5 (5)	0.010	0.531	0.000	0.059	0.001	0.545	1.050	4.8.2 ✓
L6	155.5 - 150.5 (6)	0.010	0.632	0.000	0.058	0.001	0.646	1.050	4.8.2 ✓
L7	150.5 - 145.5 (7)	0.010	0.719	0.000	0.057	0.001	0.733	1.050	4.8.2 ✓
L8	145.5 - 140.5 (8)	0.011	0.801	0.000	0.056	0.001	0.814	1.050	4.8.2 ✓
L9	140.5 - 134.5 (9)	0.011	0.841	0.000	0.055	0.001	0.854	1.050	4.8.2 ✓
L10	134.5 - 132.794 (10)	0.009	0.741	0.000	0.044	0.000	0.752	1.050	4.8.2 ✓
L11	132.794 - 127.794 (11)	0.009	0.781	0.000	0.043	0.000	0.793	1.050	4.8.2 ✓
L12	127.794 - 122.794 (12)	0.010	0.816	0.000	0.043	0.000	0.828	1.050	4.8.2 ✓
L13	122.794 - 120.583 (13)	0.010	0.830	0.000	0.042	0.000	0.842	1.050	4.8.2 ✓

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L14	120.583 - 120.333 (14)	0.010	0.832	0.000	0.042	0.000	0.843	1.050	4.8.2 ✓
L15	120.333 - 115.333 (15)	0.010	0.860	0.000	0.042	0.000	0.872	1.050	4.8.2 ✓
L16	115.333 - 112.5 (16)	0.010	0.874	0.000	0.041	0.000	0.886	1.050	4.8.2 ✓
L17	112.5 - 112.25 (17)	0.005	0.443	0.000	0.020	0.000	0.449	1.050	4.8.2 ✓
L18	112.25 - 107.817 (18)	0.005	0.429	0.000	0.019	0.000	0.435	1.050	4.8.2 ✓
L19	107.817 - 107.567 (19)	0.005	0.430	0.000	0.019	0.000	0.435	1.050	4.8.2 ✓
L20	107.567 - 102.567 (20)	0.005	0.447	0.000	0.019	0.000	0.452	1.050	4.8.2 ✓
L21	102.567 - 97.567 (21)	0.006	0.463	0.000	0.019	0.000	0.469	1.050	4.8.2 ✓
L22	97.567 - 89 (22)	0.006	0.477	0.000	0.020	0.000	0.484	1.050	4.8.2 ✓
L23	89 - 88.311 (23)	0.006	0.460	0.000	0.018	0.000	0.467	1.050	4.8.2 ✓
L24	88.311 - 87.5 (24)	0.006	0.461	0.000	0.018	0.000	0.468	1.050	4.8.2 ✓
L25	87.5 - 87.25 (25)	0.011	0.837	0.000	0.034	0.000	0.849	1.050	4.8.2 ✓
L26	87.25 - 82.25 (26)	0.011	0.846	0.000	0.033	0.000	0.859	1.050	4.8.2 ✓
L27	82.25 - 80.833 (27)	0.011	0.848	0.000	0.033	0.000	0.861	1.050	4.8.2 ✓
L28	80.833 - 80.583 (28)	0.011	0.849	0.000	0.033	0.000	0.861	1.050	4.8.2 ✓
L29	80.583 - 75.583 (29)	0.012	0.859	0.000	0.033	0.000	0.871	1.050	4.8.2 ✓
L30	75.583 - 70.583 (30)	0.012	0.871	0.000	0.032	0.000	0.883	1.050	4.8.2 ✓
L31	70.583 - 65.583 (31)	0.012	0.881	0.000	0.032	0.000	0.894	1.050	4.8.2 ✓
L32	65.583 - 60.583 (32)	0.012	0.891	0.000	0.031	0.000	0.904	1.050	4.8.2 ✓
L33	60.583 - 55.583 (33)	0.012	0.900	0.000	0.031	0.000	0.914	1.050	4.8.2 ✓
L34	55.583 - 53.567 (34)	0.012	0.904	0.000	0.031	0.000	0.917	1.050	4.8.2 ✓
L35	53.567 - 53.317 (35)	0.012	0.904	0.000	0.031	0.000	0.918	1.050	4.8.2 ✓
L36	53.317 - 43.8 (36)	0.013	0.911	0.000	0.030	0.000	0.925	1.050	4.8.2 ✓
L37	43.8 - 42.8 (37)	0.007	0.500	0.000	0.017	0.000	0.508	1.050	4.8.2 ✓
L38	42.8 - 38.417 (38)	0.008	0.509	0.000	0.017	0.000	0.517	1.050	4.8.2 ✓
L39	38.417 - 38.067 (39)	0.008	0.509	0.000	0.017	0.000	0.517	1.050	4.8.2 ✓

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Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L40	38.067 - 37.833 (40)	0.008	0.509	0.000	0.017	0.000	0.517	1.050	4.8.2 ✓
L41	37.833 - 32.833 (41)	0.008	0.518	0.000	0.017	0.000	0.526	1.050	4.8.2 ✓
L42	32.833 - 27.833 (42)	0.008	0.518	0.000	0.017	0.000	0.526	1.050	4.8.2 ✓
L43	27.833 - 23.5 (43)	0.008	0.527	0.000	0.017	0.000	0.535	1.050	4.8.2 ✓
L44	23.5 - 23.25 (44)	0.009	0.526	0.000	0.017	0.000	0.535	1.050	4.8.2 ✓
L45	23.25 - 18.25 (45)	0.009	0.526	0.000	0.017	0.000	0.535	1.050	4.8.2 ✓
L46	18.25 - 13.25 (46)	0.009	0.535	0.000	0.017	0.000	0.544	1.050	4.8.2 ✓
L47	13.25 - 8.25 (47)	0.009	0.534	0.000	0.017	0.000	0.543	1.050	4.8.2 ✓
L48	8.25 - 7.917 (48)	0.009	0.533	0.000	0.017	0.000	0.542	1.050	4.8.2 ✓
L49	7.917 - 7.667 (49)	0.009	0.496	0.000	0.015	0.000	0.505	1.050	4.8.2 ✓
L50	7.667 - 5.5 (50)	0.009	0.496	0.000	0.015	0.000	0.505	1.050	4.8.2 ✓
L51	5.5 - 5.25 (51)	0.015	0.876	0.000	0.026	0.000	0.891	1.050	4.8.2 ✓
L52	5.25 - 3 (52)	0.015	0.844	0.000	0.025	0.000	0.859	1.050	4.8.2 ✓
L53	3 - 2.75 (53)	0.010	0.552	0.000	0.017	0.000	0.562	1.050	4.8.2 ✓
L54	2.75 - 0 (54)	0.010	0.551	0.000	0.017	0.000	0.562	1.050	4.8.2 ✓

Section Capacity Table

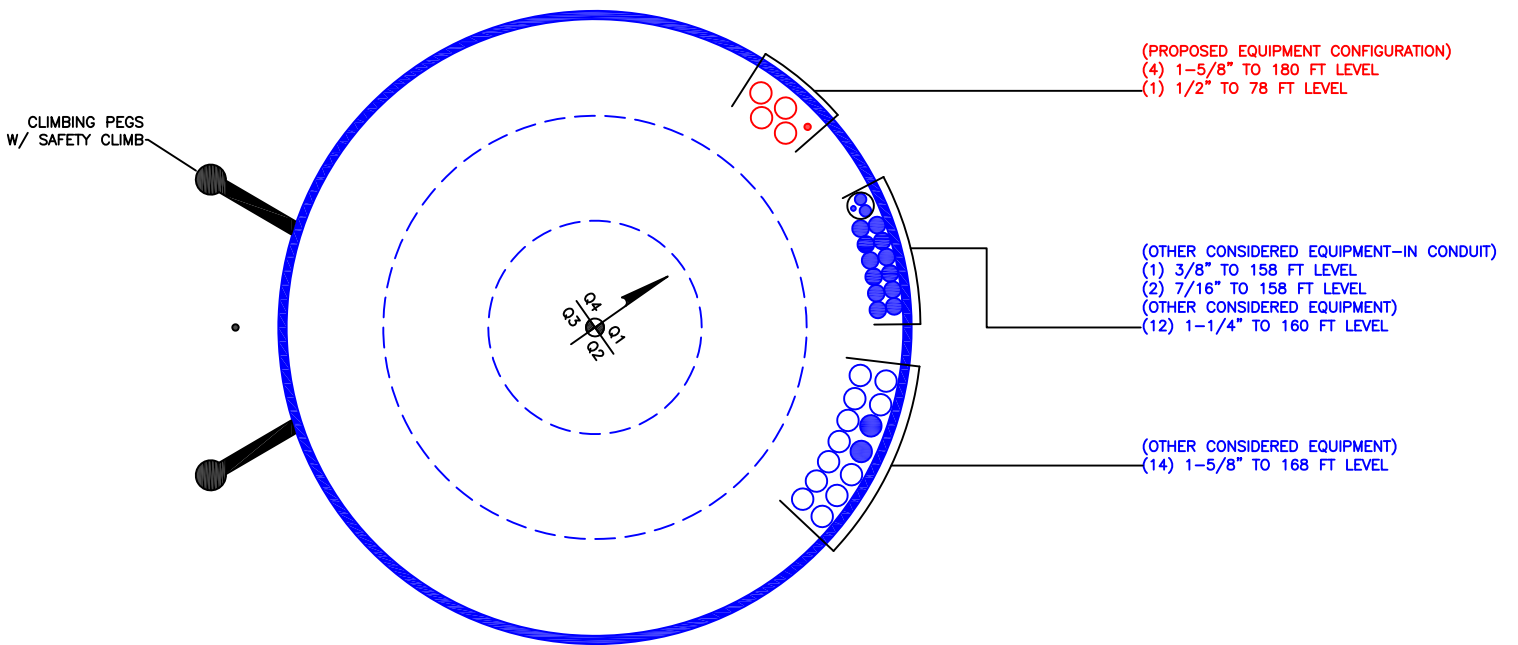
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	180.5 - 175.5	Pole	TP18.569x17.62x0.25	1	-3.946	892.877	**	**
L2	175.5 - 170.5	Pole	TP19.518x18.569x0.25	2	-4.269	939.128	**	**
L3	170.5 - 165.5	Pole	TP20.467x19.518x0.25	3	-6.885	985.379	**	**
L4	165.5 - 160.5	Pole	TP21.416x20.467x0.25	4	-7.358	1031.629	**	**
L5	160.5 - 155.5	Pole	TP22.365x21.416x0.25	5	-10.313	1077.877	**	**
L6	155.5 - 150.5	Pole	TP23.313x22.365x0.25	6	-10.948	1124.130	**	**
L7	150.5 - 145.5	Pole	TP24.262x23.313x0.25	7	-11.619	1170.382	**	**
L8	145.5 - 140.5	Pole	TP25.211x24.262x0.25	8	-12.323	1216.635	**	**
L9	140.5 - 134.5	Pole	TP26.35x25.211x0.25	9	-12.710	1241.667	**	**
L10	134.5 - 132.794	Pole	TP26.174x25.225x0.313	10	-13.743	1575.619	**	**
L11	132.794 - 127.794	Pole	TP27.123x26.174x0.313	11	-14.598	1633.432	**	**
L12	127.794 - 122.794	Pole	TP28.072x27.123x0.313	12	-15.469	1691.245	**	**
L13	122.794 - 120.583	Pole	TP28.491x28.072x0.313	13	-15.861	1716.813	**	**
L14	120.583 - 120.333	Pole	TP28.539x28.491x0.313	14	-15.921	1719.700	**	**
L15	120.333 - 115.333	Pole	TP29.488x28.539x0.313	15	-16.817	1777.513	**	**
L16	115.333 - 112.5	Pole	TP30.025x29.488x0.313	16	-17.336	1810.273	**	**

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Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
L17	112.5 - 112.25	Pole	TP30.073x30.025x0.638	17	-17.429	3658.452	**	**	
L18	112.25 - 107.817	Pole	TP30.914x30.073x0.675	18	-18.715	3979.437	**	**	
L19	107.817 - 107.567	Pole	TP30.961x30.914x0.675	19	-18.796	3985.684	**	**	
L20	107.567 - 102.567	Pole	TP31.91x30.961x0.663	20	-20.270	4036.053	**	**	
L21	102.567 - 97.567	Pole	TP32.859x31.91x0.65	21	-21.775	4081.738	**	**	
L22	97.567 - 89	Pole	TP34.485x32.859x0.638	22	-23.075	4105.185	**	**	
L23	89 - 88.311	Pole	TP33.991x33.042x0.7	23	-25.828	4543.329	**	**	
L24	88.311 - 87.5	Pole	TP34.145x33.991x0.7	24	-26.101	4564.329	**	**	
L25	87.5 - 87.25	Pole	TP34.192x34.145x0.375	25	-26.162	2472.403	**	**	
L26	87.25 - 82.25	Pole	TP35.141x34.192x0.375	26	-27.313	2541.777	**	**	
L27	82.25 - 80.833	Pole	TP35.41x35.141x0.375	27	-27.640	2561.443	**	**	
L28	80.833 - 80.583	Pole	TP35.457x35.41x0.375	28	-27.720	2564.908	**	**	
L29	80.583 - 75.583	Pole	TP36.406x35.457x0.375	29	-28.980	2634.282	**	**	
L30	75.583 - 70.583	Pole	TP37.355x36.406x0.375	30	-30.206	2703.655	**	**	
L31	70.583 - 65.583	Pole	TP38.304x37.355x0.375	31	-31.458	2773.039	**	**	
L32	65.583 - 60.583	Pole	TP39.253x38.304x0.375	32	-32.734	2842.413	**	**	
L33	60.583 - 55.583	Pole	TP40.202x39.253x0.375	33	-34.035	2911.786	**	**	
L34	55.583 - 53.567	Pole	TP40.584x40.202x0.375	34	-34.566	2939.758	**	**	
L35	53.567 - 53.317	Pole	TP40.632x40.584x0.375	35	-34.645	2943.223	**	**	
L36	53.317 - 43.8	Pole	TP42.438x40.632x0.375	36	-35.756	3001.666	**	**	
L37	43.8 - 42.8	Pole	TP41.878x40.681x0.7	37	-39.449	5619.694	**	**	
L38	42.8 - 38.417	Pole	TP42.71x41.878x0.688	38	-41.318	5632.504	**	**	
L39	38.417 - 38.067	Pole	TP42.776x42.71x0.688	39	-41.476	5641.408	**	**	
L40	38.067 - 37.833	Pole	TP42.82x42.776x0.688	40	-41.578	5647.362	**	**	
L41	37.833 - 32.833	Pole	TP43.769x42.82x0.675	41	-42.449	5596.279	**	**	
L42	32.833 - 27.833	Pole	TP44.718x43.769x0.675	42	-43.750	5671.197	**	**	
L43	27.833 - 23.5	Pole	TP45.54x44.718x0.663	43	-45.934	5690.349	**	**	
L44	23.5 - 23.25	Pole	TP45.588x45.54x0.663	44	-47.840	5796.556	**	**	
L45	23.25 - 18.25	Pole	TP46.537x45.588x0.663	45	-47.959	5802.688	**	**	
L46	18.25 - 13.25	Pole	TP47.486x46.537x0.65	46	-50.189	5815.026	**	**	
L47	13.25 - 8.25	Pole	TP48.434x47.486x0.65	47	-52.445	5935.272	**	**	
L48	8.25 - 7.917	Pole	TP48.498x48.434x0.65	48	-54.718	6055.518	**	**	
L49	7.917 - 7.667	Pole	TP48.545x48.498x0.7	49	-54.870	6523.125	**	**	
L50	7.667 - 5.5	Pole	TP48.956x48.545x0.7	50	-54.998	6529.603	**	**	
L51	5.5 - 5.25	Pole	TP49.004x48.956x0.413	51	-56.119	3907.816	**	**	
L52	5.25 - 3	Pole	TP49.431x49.004x0.425	52	-56.896	4060.570	**	**	
L53	3 - 2.75	Pole	TP49.478x49.431x0.625	53	-56.915	5947.063	**	**	
L54	2.75 - 0	Pole	TP50x49.478x0.625	54	-57.037	5952.838	**	**	
							Summary		
							Pole (L36)	**	**
							RATING =	**	**

** Above stress ratios for reinforced sections are approximate. More exact calculations are presented in Appendix C.

APPENDIX B
BASE LEVEL DRAWING



BUSINESS UNIT: 876375

APPENDIX C
ADDITIONAL CALCULATIONS

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	180.5	46	3.294	18	17.62	26.35	0.25	Auto	A572-65
2	137.794	48.794	4.311	18	25.22	34.485	0.3125	Auto	A572-65
3	93.311	49.511	5.305	18	33.04	42.438	0.375	Auto	A572-65
4	49.105	49.105	0	18	40.68	50	0.375	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	13	14	15	16	17	18
1	3	38.083	channel	MP3-05 (1.1875in)	2			E2												E2			
2	7.917	38.083	channel	MP3-05 (1.1875in)	1									E2									
3	38.417	53.583	channel	MP3-05 (1.1875in)	3					E2					E2							E2	
4	53.667	80.833	channel	MP3-04 (1.1875in)	3			E2						E2							E2		
5	80.833	107.833	channel	MP3-04 (1.1875in)	3					E2					E2							E2	
6	107.917	120.583	channel	MP3-03 (1.1875in)	3									E2							E2		
7	5.5	23.5	plate	CCI-AFP-065125	3	E3					E3						E3						
8	23.5	48.583	plate	CCI-AFP-065125	3	E3					E3						E3						
9	87.5	112.5	plate	CCI-AFP-060100	3		E3						E3						E3				
10	0	3	plate	TS1-5x1.25	4		-4		4												-4	3	
11	0	7.917	plate	TS2-4.5625x1.25	2								-2		3								
12																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in ²)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	A572-65
2	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	A572-65
3	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	A572-65
4	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.593	1.1875	A572-65
5	4.78	1.61	4.13	0.61	PC 8.8 - M20 (100)	17	PC 8.8 - M20 (100)	17.000	18.000	3.593	1.1875	A572-65
6	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.545	1.1875	A572-65
7	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	42	PC 8.8 - M20 (100)	42.000	19.000	6.563	1.1875	A572-65
8	6.5	1.25	8.125	0.625	PC 8.8 - M20 (100)	42	PC 8.8 - M20 (100)	42.000	19.000	6.563	1.1875	A572-65
9	6	1	6	0.5	PC 8.8 - M20 (100)	30	PC 8.8 - M20 (100)	30.000	16.000	4.750	1.1875	A572-65
10	1.25	5	6.25	2.5	Welded	n/a	Welded	n/a	0.750	6.250	0.0000	A572-65
11	1.25	4.5625	5.70313	2.28125	Welded	n/a	Welded	n/a	0.750	5.703	0.0000	A572-65

Connection Details for Custom Reinforcements

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
TS1-5x1.25	Top	-	-	-	-	70	None	-	-	-	-	44.25	0.375	-
	Bottom	-	-	-	-	70	CJP Groove	10	0.625	45	0.625	-	-	-
TS2-4.5625x1.25	Top	-	-	-	-	70	None	-	-	-	-	107.25	0.375	-
	Bottom	-	-	-	-	70	CJP Groove	9.125	0.625	45	0.625	-	-	-

TNX Geometry Input

Increment (ft): [Export to TNX](#)

	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	180.5 - 175.5	5		18	17.620	18.569	0.25	A572-65	1.000
2	175.5 - 170.5	5		18	18.569	19.518	0.25	A572-65	1.000
3	170.5 - 165.5	5		18	19.518	20.467	0.25	A572-65	1.000
4	165.5 - 160.5	5		18	20.467	21.416	0.25	A572-65	1.000
5	160.5 - 155.5	5		18	21.416	22.365	0.25	A572-65	1.000
6	155.5 - 150.5	5		18	22.365	23.313	0.25	A572-65	1.000
7	150.5 - 145.5	5		18	23.313	24.262	0.25	A572-65	1.000
8	145.5 - 140.5	5		18	24.262	25.211	0.25	A572-65	1.000
9	140.5 - 137.794	6	3.294	18	25.211	26.350	0.25	A572-65	1.000
10	137.794 - 132.794	5		18	25.225	26.174	0.3125	A572-65	1.000
11	132.794 - 127.794	5		18	26.174	27.123	0.3125	A572-65	1.000
12	127.794 - 122.794	5		18	27.123	28.072	0.3125	A572-65	1.000
13	122.794 - 120.583	2.211		18	28.072	28.491	0.3125	A572-65	1.000
14	120.583 - 120.333	0.25		18	28.491	28.539	0.3125	A572-65	1.000
15	120.333 - 115.333	5		18	28.539	29.488	0.3125	A572-65	1.000
16	115.333 - 112.5	2.833		18	29.488	30.025	0.3125	A572-65	1.000
17	112.5 - 112.25	0.25		18	30.025	30.073	0.6375	A572-65	0.945
18	112.25 - 107.817	4.433		18	30.073	30.914	0.675	A572-65	0.938
19	107.817 - 107.567	0.25		18	30.914	30.961	0.675	A572-65	0.937
20	107.567 - 102.567	5		18	30.961	31.910	0.6625	A572-65	0.940
21	102.567 - 97.567	5		18	31.910	32.859	0.65	A572-65	0.943
22	97.567 - 93.311	8.567	4.311	18	32.859	34.485	0.6375	A572-65	0.950
23	93.311 - 88.311	5		18	33.042	33.991	0.7	A572-65	0.952
24	88.311 - 87.5	0.811		18	33.991	34.145	0.7	A572-65	0.950
25	87.5 - 87.25	0.25		18	34.145	34.192	0.375	A572-65	1.000
26	87.25 - 82.25	5		18	34.192	35.141	0.375	A572-65	1.000
27	82.25 - 80.833	1.417		18	35.141	35.410	0.375	A572-65	1.000
28	80.833 - 80.583	0.25		18	35.410	35.457	0.375	A572-65	1.000
29	80.583 - 75.583	5		18	35.457	36.406	0.375	A572-65	1.000
30	75.583 - 70.583	5		18	36.406	37.355	0.375	A572-65	1.000
31	70.583 - 65.583	5		18	37.355	38.304	0.375	A572-65	1.000
32	65.583 - 60.583	5		18	38.304	39.253	0.375	A572-65	1.000
33	60.583 - 55.583	5		18	39.253	40.202	0.375	A572-65	1.000
34	55.583 - 53.567	2.016		18	40.202	40.584	0.375	A572-65	1.000
35	53.567 - 53.317	0.25		18	40.584	40.632	0.375	A572-65	1.000
36	53.317 - 49.105	9.517	5.305	18	40.632	42.438	0.375	A572-65	1.000
37	49.105 - 42.8	6.305		18	40.681	41.878	0.7	A572-65	0.992
38	42.8 - 38.417	4.383		18	41.878	42.710	0.6875	A572-65	1.000
39	38.417 - 38.067	0.35		18	42.710	42.776	0.6875	A572-65	0.999
40	38.067 - 37.833	0.234		18	42.776	42.820	0.6875	A572-65	0.999
41	37.833 - 32.833	5		18	42.820	43.769	0.675	A572-65	1.007
42	32.833 - 27.833	5		18	43.769	44.718	0.675	A572-65	0.997
43	27.833 - 23.5	4.333		18	44.718	45.540	0.6625	A572-65	1.008
44	23.5 - 23.25	0.25		18	45.540	45.588	0.6625	A572-65	1.007
45	23.25 - 18.25	5		18	45.588	46.537	0.6625	A572-65	0.998
46	18.25 - 13.25	5		18	46.537	47.486	0.65	A572-65	1.008
47	13.25 - 8.25	5		18	47.486	48.434	0.65	A572-65	0.999
48	8.25 - 7.917	0.333		18	48.434	48.498	0.65	A572-65	0.999
49	7.917 - 7.667	0.25		18	48.498	48.545	0.7	A572-65	0.982
50	7.667 - 5.5	2.167		18	48.545	48.956	0.7	A572-65	0.978
51	5.5 - 5.25	0.25		18	48.956	49.004	0.4125	A572-65	1.089
52	5.25 - 3	2.25		18	49.004	49.431	0.425	A572-65	1.056
53	3 - 2.75	0.25		18	49.431	49.478	0.625	A572-65	0.979
54	2.75 - 0	2.75		18	49.478	50.000	0.625	A572-65	0.975

TNX Section Forces

Increment (ft):		TNX Output		
5				
	Section Height (ft)	P _u (K)	M _{ux} (kip-ft)	V _u (K)
1	180.5 - 175.5	3.95	46.68	8.45
2	175.5 - 170.5	4.27	89.77	8.79
3	170.5 - 165.5	6.89	153.47	13.90
4	165.5 - 160.5	7.36	223.82	14.25
5	160.5 - 155.5	10.31	313.83	18.32
6	155.5 - 150.5	10.95	406.27	18.67
7	150.5 - 145.5	11.62	500.41	19.01
8	145.5 - 140.5	12.32	596.22	19.34
9	140.5 - 137.794	12.71	648.76	19.52
10	137.794 - 132.794	13.74	747.42	19.95
11	132.794 - 127.794	14.60	847.95	20.29
12	127.794 - 122.794	15.47	950.19	20.63
13	122.794 - 120.583	15.86	995.94	20.78
14	120.583 - 120.333	15.92	1001.14	20.79
15	120.333 - 115.333	16.82	1105.90	21.14
16	115.333 - 112.5	17.34	1166.00	21.33
17	112.5 - 112.25	17.43	1171.33	21.34
18	112.25 - 107.817	18.71	1266.83	21.76
19	107.817 - 107.567	18.80	1272.27	21.78
20	107.567 - 102.567	20.27	1382.32	22.25
21	102.567 - 97.567	21.77	1494.70	22.72
22	97.567 - 93.311	23.08	1592.18	23.11
23	93.311 - 88.311	25.83	1709.27	23.72
24	88.311 - 87.5	26.10	1728.53	23.80
25	87.5 - 87.25	26.16	1734.48	23.81
26	87.25 - 82.25	27.31	1854.28	24.14
27	82.25 - 80.833	27.64	1888.51	24.23
28	80.833 - 80.583	27.72	1894.57	24.23
29	80.583 - 75.583	28.98	2016.84	24.63
30	75.583 - 70.583	30.21	2140.63	24.93
31	70.583 - 65.583	31.46	2265.88	25.22
32	65.583 - 60.583	32.73	2392.55	25.50
33	60.583 - 55.583	34.03	2520.60	25.77
34	55.583 - 53.567	34.57	2572.61	25.87
35	53.567 - 53.317	34.65	2579.07	25.87
36	53.317 - 49.105	35.76	2688.44	26.09
37	49.105 - 42.8	39.45	2854.61	26.63
38	42.8 - 38.417	41.32	2971.92	26.93
39	38.417 - 38.067	41.48	2981.34	26.94
40	38.067 - 37.833	41.58	2987.65	26.95
41	37.833 - 32.833	43.73	3123.18	27.28
42	32.833 - 27.833	45.91	3260.23	27.57
43	27.833 - 23.5	47.83	3380.16	27.82
44	23.5 - 23.25	47.95	3387.11	27.82
45	23.25 - 18.25	50.17	3526.91	28.12
46	18.25 - 13.25	52.43	3668.11	28.40
47	13.25 - 8.25	54.71	3810.70	28.67
48	8.25 - 7.917	54.86	3820.25	28.68
49	7.917 - 7.667	54.99	3827.42	28.69
50	7.667 - 5.5	56.03	3889.72	28.83
51	5.5 - 5.25	56.12	3896.92	28.83
52	5.25 - 3	56.90	3961.86	28.93
53	3 - 2.75	57.02	3969.09	28.92
54	2.75 - 0	58.24	4048.80	29.09

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
180.5 - 175.5	Pole	TP18.569x17.62x0.25	Pole	11.4%	Pass
175.5 - 170.5	Pole	TP19.518x18.569x0.25	Pole	19.5%	Pass
170.5 - 165.5	Pole	TP20.467x19.518x0.25	Pole	30.2%	Pass
165.5 - 160.5	Pole	TP21.416x20.467x0.25	Pole	40.0%	Pass
160.5 - 155.5	Pole	TP22.365x21.416x0.25	Pole	51.4%	Pass
155.5 - 150.5	Pole	TP23.313x22.365x0.25	Pole	61.0%	Pass
150.5 - 145.5	Pole	TP24.262x23.313x0.25	Pole	69.4%	Pass
145.5 - 140.5	Pole	TP25.211x24.262x0.25	Pole	77.1%	Pass
140.5 - 137.79	Pole	TP26.35x25.211x0.25	Pole	80.9%	Pass
137.79 - 132.79	Pole	TP26.174x25.225x0.3125	Pole	71.2%	Pass
132.79 - 127.79	Pole	TP27.123x26.174x0.3125	Pole	75.1%	Pass
127.79 - 122.79	Pole	TP28.072x27.123x0.3125	Pole	78.5%	Pass
122.79 - 120.58	Pole	TP28.491x28.072x0.3125	Pole	79.8%	Pass
120.58 - 120.33	Pole	TP28.539x28.491x0.3125	Pole	80.0%	Pass
120.33 - 115.33	Pole	TP29.488x28.539x0.3125	Pole	82.6%	Pass
115.33 - 112.5	Pole	TP30.025x29.488x0.3125	Pole	84.0%	Pass
112.5 - 112.25	Pole + Reinf.	TP30.073x30.025x0.6375	Reinf. 9 Tension Rupture	67.1%	Pass
112.25 - 107.82	Pole + Reinf.	TP30.914x30.073x0.675	Reinf. 9 Tension Rupture	65.2%	Pass
107.82 - 107.57	Pole + Reinf.	TP30.961x30.914x0.675	Reinf. 9 Tension Rupture	65.3%	Pass
107.57 - 102.57	Pole + Reinf.	TP31.91x30.961x0.6625	Reinf. 9 Tension Rupture	67.9%	Pass
102.57 - 97.57	Pole + Reinf.	TP32.859x31.91x0.65	Reinf. 9 Tension Rupture	70.3%	Pass
97.57 - 93.31	Pole + Reinf.	TP34.485x32.859x0.6375	Reinf. 9 Tension Rupture	72.2%	Pass
93.31 - 88.31	Pole + Reinf.	TP33.991x33.042x0.7	Reinf. 9 Tension Rupture	69.6%	Pass
88.31 - 87.5	Pole + Reinf.	TP34.145x33.991x0.7	Reinf. 9 Tension Rupture	69.9%	Pass
87.5 - 87.25	Pole	TP34.192x34.145x0.375	Pole	80.5%	Pass
87.25 - 82.25	Pole	TP35.141x34.192x0.375	Pole	81.4%	Pass
82.25 - 80.83	Pole	TP35.41x35.141x0.375	Pole	81.6%	Pass
80.83 - 80.58	Pole	TP35.457x35.41x0.375	Pole	81.7%	Pass
80.58 - 75.58	Pole	TP36.406x35.457x0.375	Pole	82.7%	Pass
75.58 - 70.58	Pole	TP37.355x36.406x0.375	Pole	83.8%	Pass
70.58 - 65.58	Pole	TP38.304x37.355x0.375	Pole	84.9%	Pass
65.58 - 60.58	Pole	TP39.253x38.304x0.375	Pole	85.8%	Pass
60.58 - 55.58	Pole	TP40.202x39.253x0.375	Pole	86.7%	Pass
55.58 - 53.57	Pole	TP40.584x40.202x0.375	Pole	87.1%	Pass
53.57 - 53.32	Pole	TP40.632x40.584x0.375	Pole	87.1%	Pass
53.32 - 49.11	Pole	TP42.438x40.632x0.375	Pole	87.8%	Pass
49.11 - 42.8	Pole + Reinf.	TP41.878x40.681x0.7	Reinf. 8 Tension Rupture	72.9%	Pass
42.8 - 38.42	Pole + Reinf.	TP42.71x41.878x0.6875	Reinf. 8 Tension Rupture	73.6%	Pass
38.42 - 38.07	Pole + Reinf.	TP42.776x42.71x0.6875	Reinf. 8 Tension Rupture	73.7%	Pass
38.07 - 37.83	Pole + Reinf.	TP42.82x42.776x0.6875	Reinf. 8 Tension Rupture	73.7%	Pass
37.83 - 32.83	Pole + Reinf.	TP43.769x42.82x0.675	Reinf. 8 Tension Rupture	74.5%	Pass
32.83 - 27.83	Pole + Reinf.	TP44.718x43.769x0.675	Reinf. 8 Tension Rupture	75.3%	Pass
27.83 - 23.5	Pole + Reinf.	TP45.54x44.718x0.6625	Reinf. 8 Tension Rupture	75.8%	Pass
23.5 - 23.25	Pole + Reinf.	TP45.588x45.54x0.6625	Reinf. 7 Tension Rupture	75.9%	Pass
23.25 - 18.25	Pole + Reinf.	TP46.537x45.588x0.6625	Reinf. 7 Tension Rupture	76.5%	Pass
18.25 - 13.25	Pole + Reinf.	TP47.486x46.537x0.65	Reinf. 7 Tension Rupture	77.1%	Pass
13.25 - 8.25	Pole + Reinf.	TP48.434x47.486x0.65	Reinf. 7 Tension Rupture	77.6%	Pass
8.25 - 7.92	Pole + Reinf.	TP48.498x48.434x0.65	Reinf. 7 Tension Rupture	77.7%	Pass
7.92 - 7.67	Pole + Reinf.	TP48.545x48.498x0.7	Reinf. 1 Tension Rupture	73.4%	Pass
7.67 - 5.5	Pole + Reinf.	TP48.956x48.545x0.7	Reinf. 1 Tension Rupture	73.6%	Pass
5.5 - 5.25	Pole + Reinf.	TP49.004x48.956x0.4125	Pole	90.5%	Pass
5.25 - 3	Pole + Reinf.	TP49.431x49.004x0.425	Pole	90.7%	Pass
3 - 2.75	Pole + Reinf.	TP49.478x49.431x0.625	Reinf. 11 Compression	74.6%	Pass
2.75 - 0	Pole + Reinf.	TP50x49.478x0.625	Reinf. 11 Compression	74.8%	Pass
				Summary	
			Pole	90.7%	Pass
			Reinforcement	83.4%	Pass
			Overall	90.7%	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	R10	R11
180.5 - 175.5	616	n/a	616	14.54	n/a	14.54	11.4%											
175.5 - 170.5	717	n/a	717	15.29	n/a	15.29	19.5%											
170.5 - 165.5	828	n/a	828	16.04	n/a	16.04	30.2%											
165.5 - 160.5	950	n/a	950	16.79	n/a	16.79	40.0%											
160.5 - 155.5	1084	n/a	1084	17.55	n/a	17.55	51.4%											
155.5 - 150.5	1229	n/a	1229	18.30	n/a	18.30	61.0%											
150.5 - 145.5	1388	n/a	1388	19.05	n/a	19.05	69.4%											
145.5 - 140.5	1559	n/a	1559	19.81	n/a	19.81	77.1%											
140.5 - 137.79	1657	n/a	1657	20.21	n/a	20.21	80.9%											
137.79 - 132.79	2167	n/a	2167	25.65	n/a	25.65	71.2%											
132.79 - 127.79	2414	n/a	2414	26.59	n/a	26.59	75.1%											
127.79 - 122.79	2680	n/a	2680	27.53	n/a	27.53	78.5%											
122.79 - 120.58	2803	n/a	2803	27.95	n/a	27.95	79.8%											
120.58 - 120.33	2817	n/a	2817	28.00	n/a	28.00	80.0%											
120.33 - 115.33	3111	n/a	3111	28.94	n/a	28.94	82.6%											
115.33 - 112.5	3286	n/a	3286	29.47	n/a	29.47	84.0%											
112.5 - 112.25	3302	3272	6574	29.52	26.76	56.28	41.7%						64.5%				67.1%	
112.25 - 107.82	3590	3925	7515	30.35	30.39	60.74	40.9%					62.3%					65.2%	
107.82 - 107.57	3607	3937	7543	30.40	30.39	60.79	41.0%					62.4%					65.3%	
107.57 - 102.57	3952	4171	8123	31.34	30.39	61.73	42.9%					64.9%					67.9%	
102.57 - 97.57	4319	4413	8731	32.28	30.39	62.67	44.8%					67.1%					70.3%	
97.57 - 93.31	4648	4623	9272	33.08	30.39	63.47	46.4%					68.9%					72.2%	
93.31 - 88.31	5710	4709	10420	40.01	30.39	70.40	43.4%					66.5%					69.6%	
88.31 - 87.5	5789	4750	10540	40.19	30.39	70.58	43.6%					66.8%					69.9%	
87.5 - 87.25	5813	n/a	5813	40.25	n/a	40.25	80.5%											
87.25 - 82.25	6317	n/a	6317	41.38	n/a	41.38	81.4%											
82.25 - 80.83	6464	n/a	6464	41.70	n/a	41.70	81.6%											
80.83 - 80.58	6491	n/a	6491	41.76	n/a	41.76	81.7%											
80.58 - 75.58	7032	n/a	7032	42.88	n/a	42.88	82.7%											
75.58 - 70.58	7602	n/a	7602	44.01	n/a	44.01	83.8%											
70.58 - 65.58	8202	n/a	8202	45.14	n/a	45.14	84.9%											
65.58 - 60.58	8834	n/a	8834	46.27	n/a	46.27	85.8%											
60.58 - 55.58	9496	n/a	9496	47.40	n/a	47.40	86.7%											
55.58 - 53.57	9773	n/a	9773	47.86	n/a	47.86	87.1%											
53.57 - 53.32	9807	n/a	9807	47.91	n/a	47.91	87.1%											
53.32 - 49.11	10403	n/a	10403	48.87	n/a	48.87	87.8%											
49.11 - 42.8	10764	8689	19454	49.40	41.33	90.72	51.9%			72.7%						72.9%		
42.8 - 38.42	11424	9025	20449	50.39	41.33	91.71	52.7%			73.4%						73.6%		
38.42 - 38.07	11478	9052	20530	50.47	41.33	91.79	52.8%	73.5%	69.6%							73.7%		
38.07 - 37.83	11514	9070	20584	50.52	41.33	91.84	52.8%	73.5%	69.7%							73.7%		
37.83 - 32.83	12303	9461	21764	51.65	41.33	92.97	53.7%	74.2%	70.4%							74.5%		
32.83 - 27.83	13127	9860	22988	52.78	41.33	94.10	54.6%	74.9%	71.1%							75.3%		
27.83 - 23.5	13871	10213	24084	53.76	41.33	95.08	55.4%	75.4%	71.6%							75.8%		
23.5 - 23.25	13915	10234	24149	53.81	41.33	95.14	55.4%	75.4%	71.6%						75.9%			
23.25 - 18.25	14809	10649	25458	54.94	41.33	96.27	56.3%	76.0%	72.2%						76.5%			
18.25 - 13.25	15740	11073	26813	56.07	41.33	97.40	57.1%	76.5%	72.8%						77.1%			
13.25 - 8.25	16710	11505	28215	57.20	41.33	98.53	57.9%	77.0%	73.3%						77.6%			
8.25 - 7.92	16776	11534	28310	57.28	41.33	98.60	57.9%	77.1%	73.3%						77.7%			
7.92 - 7.67	16966	14172	31138	57.33	47.08	104.41	54.4%	73.4%							72.9%			60.5%
7.67 - 5.5	17402	14404	31806	57.82	47.08	104.90	54.8%	73.6%							73.2%			60.7%
5.5 - 5.25	17357	1694	19052	57.88	11.41	69.28	90.5%											83.3%
5.25 - 3	17968	2273	20241	58.39	11.41	69.79	90.7%											83.4%
3 - 2.75	17836	11654	29491	58.44	36.41	94.85	59.7%										68.7%	74.6%
2.75 - 0	18410	11877	30287	59.06	36.41	95.47	60.2%										68.9%	74.8%

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

Monopole Base Plate Connection

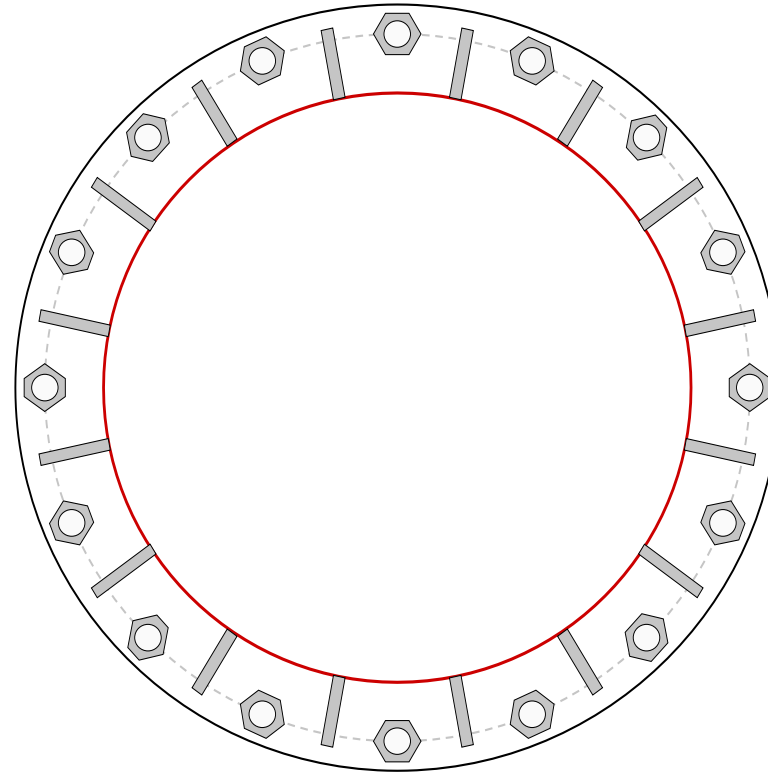


Site Info	
BU #	876375
Site Name	ANTERBURY / LEMIRE,
Order #	538779 Rev# 1

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1.625

Applied Loads	
Moment (kip-ft)	4048.80
Axial Force (kips)	58.24
Shear Force (kips)	29.09

*TIA-222-H Section 15.5 Applied



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 60" BC	$P_{u_c} = 205.96$	$\phi P_{n_c} = 268.39$ Stress Rating
Base Plate Data	$V_u = 1.82$	$\phi V_n = 120.77$ 73.1%
65" OD x 2" Plate (A572-50; $F_y=50$ ksi, $F_u=65$ ksi)	$M_u = n/a$	$\phi M_n = n/a$ Pass
Stiffener Data	Base Plate Summary	
(16) 18"H x 6"W x 1"T, Notch: 0.75" plate: $F_y = 50$ ksi ; weld: $F_y = 70$ ksi horiz. weld: 0.5" groove, 45° dbl bevel, 0.5" fillet vert. weld: 0.375" fillet	Max Stress (ksi): 34.93	(Roark's Flexural)
Pole Data	Allowable Stress (ksi): 45	
50" x 0.375" 18-sided pole (A572-65; $F_y=65$ ksi, $F_u=80$ ksi)	Stress Rating: 73.9%	Pass
	Stiffener Summary	
	Horizontal Weld: 62.1%	Pass
	Vertical Weld: 52.8%	Pass
	Plate Flexure+Shear: 16.3%	Pass
	Plate Tension+Shear: 62.6%	Pass
	Plate Compression: 62.9%	Pass
	Pole Summary	
	Punching Shear: 14.3%	Pass

Pier and Pad Foundation



BU #: 876375
 Site Name: CANTERBURY / LE
 App. Number: 538779, Rev. 1

TIA-222 Revision: H
 Tower Type: Monopole

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

Superstructure Analysis Reactions		
Compression, P_{comp} :	58	kips
Base Shear, Vu_{comp} :	29	kips
Moment, M_u :	4049	ft-kips
Tower Height, H :	180.5	ft
BP Dist. Above Fdn, bp_{dist} :	3.875	in

Foundation Analysis Checks				
	Capacity	Demand	Rating*	Check
<i>Lateral (Sliding) (kips)</i>	187.63	29.00	14.7%	Pass
<i>Bearing Pressure (ksf)</i>	45.42	3.79	8.4%	Pass
<i>Overturning (kip*ft)</i>	5162.23	4232.36	82.0%	Pass
<i>Pier Flexure (Comp.) (kip*ft)</i>	4663.76	4136.00	84.5%	Pass
<i>Pier Compression (kip)</i>	26891.28	80.82	0.3%	Pass
<i>Pad Flexure (kip*ft)</i>	4554.58	2272.75	47.5%	Pass
<i>Pad Shear - 1-way (kips)</i>	878.58	322.19	34.9%	Pass
<i>Pad Shear - 2-way (Comp) (ksi)</i>	0.190	0.000	0.0%	Pass
<i>Flexural 2-way (Comp) (kip*ft)</i>	4800.18	2481.60	49.2%	Pass

Pier Properties		
Pier Shape:	Square	
Pier Diameter, $dpier$:	6.5	ft
Ext. Above Grade, E :	1	ft
Pier Rebar Size, Sc :	8	
Pier Rebar Quantity, mc :	39	
Pier Tie/Spiral Size, St :	4	
Pier Tie/Spiral Quantity, mt :	4	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier} :	3	in

*Rating per TIA-222-H Section 15.5

Soil Rating*:	82.0%
Structural Rating*:	84.5%

Pad Properties		
Depth, D :	5	ft
Pad Width, W_1 :	24.5	ft
Pad Thickness, T :	3	ft
Pad Rebar Size (Top dir.2), Sp_{top2} :	8	
Pad Rebar Quantity (Top dir. 2), mp_{top2} :	28	
Pad Rebar Size (Bottom dir. 2), Sp_2 :	8	
Pad Rebar Quantity (Bottom dir. 2), mp_2 :	42	
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 :	113	pcf
Ultimate Net Bearing, Q_{net} :	60.000	ksf
Cohesion, C_u :	0.000	ksf
Friction Angle, ϕ :	31	degrees
SPT Blow Count, N_{blows} :		
Base Friction, μ :	0.45	
Neglected Depth, N :	3.25	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, gw :	N/A	ft

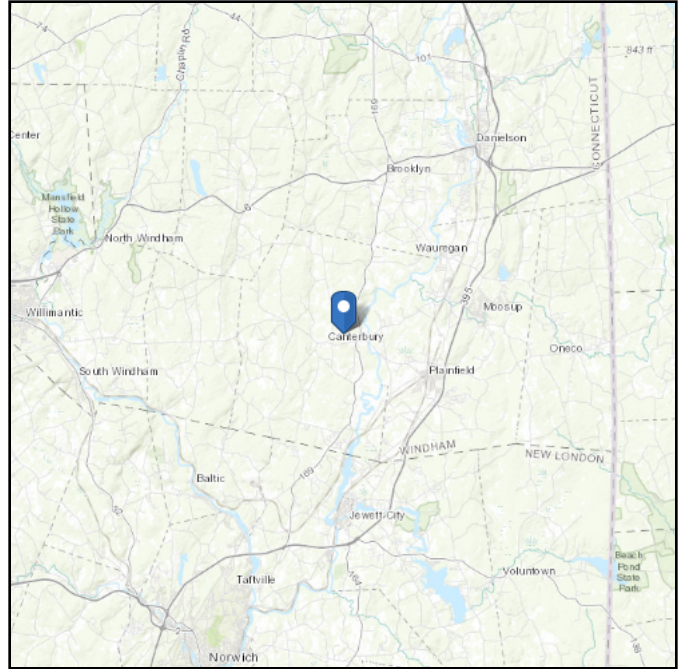
<--Toggle between Gross and Net

ASCE 7 Hazards Report

Address:
No Address at This
Location

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

Elevation: 338.74 ft (NAVD 88)
Latitude: 41.701986
Longitude: -71.980586

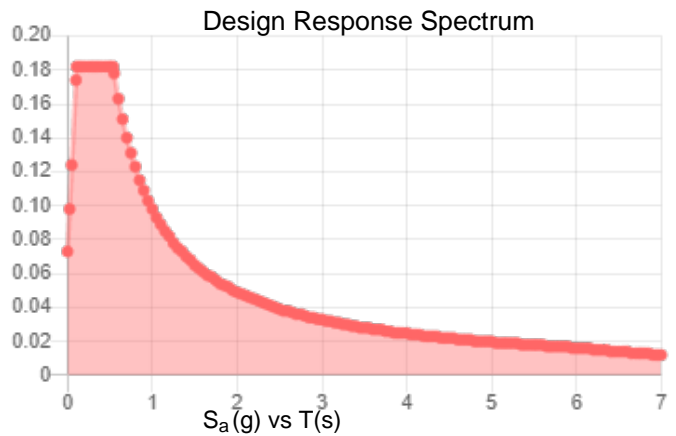
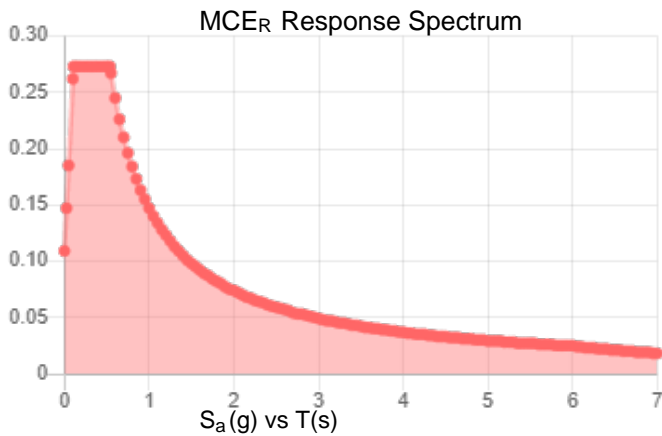


Site Soil Class: D - Stiff Soil

Results:

S_S :	0.171	S_{DS} :	0.182
S_1 :	0.061	S_{D1} :	0.098
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.085
S_{MS} :	0.273	PGA _M :	0.137
S_{M1} :	0.147	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Fri Feb 12 2021

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: Fri Feb 12 2021

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.

ASCE does not intend, nor should anyone interpret, the results provided by this Tool to replace the sound judgment of a competent professional, having knowledge and experience in the appropriate field(s) of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the contents of this Tool or the ASCE 7 standard.

In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

T-Mobile

T-MOBILE SITE NUMBER: CTNL154A

T-MOBILE SITE NAME: CTNL154A

SITE TYPE: MONOPOLE

TOWER HEIGHT: 180'-0"

BUSINESS UNIT #: 876375

**SITE ADDRESS: 53 WESTMINSTER RD
CANTERBURY, CT 6331**

COUNTY: WINDHAM

JURISDICTION: TOWN OF CANTERBURY

T-MOBILE SPRINT RETAIN SITE CONFIGURATION: 67D5A998C 6160 (GSM ONLY)

T-Mobile

4 SYLVAN WAY
PARSIPPANY, NJ 07054

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

B+T GRP

1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
CTNL154A

BU #: **876375**
CANTERBURY/LEMIRE

53 WESTMINSTER RD
CANTERBURY, CT 6331

EXISTING
180'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	6/14/21	GEH	CONSTRUCTION	GEH

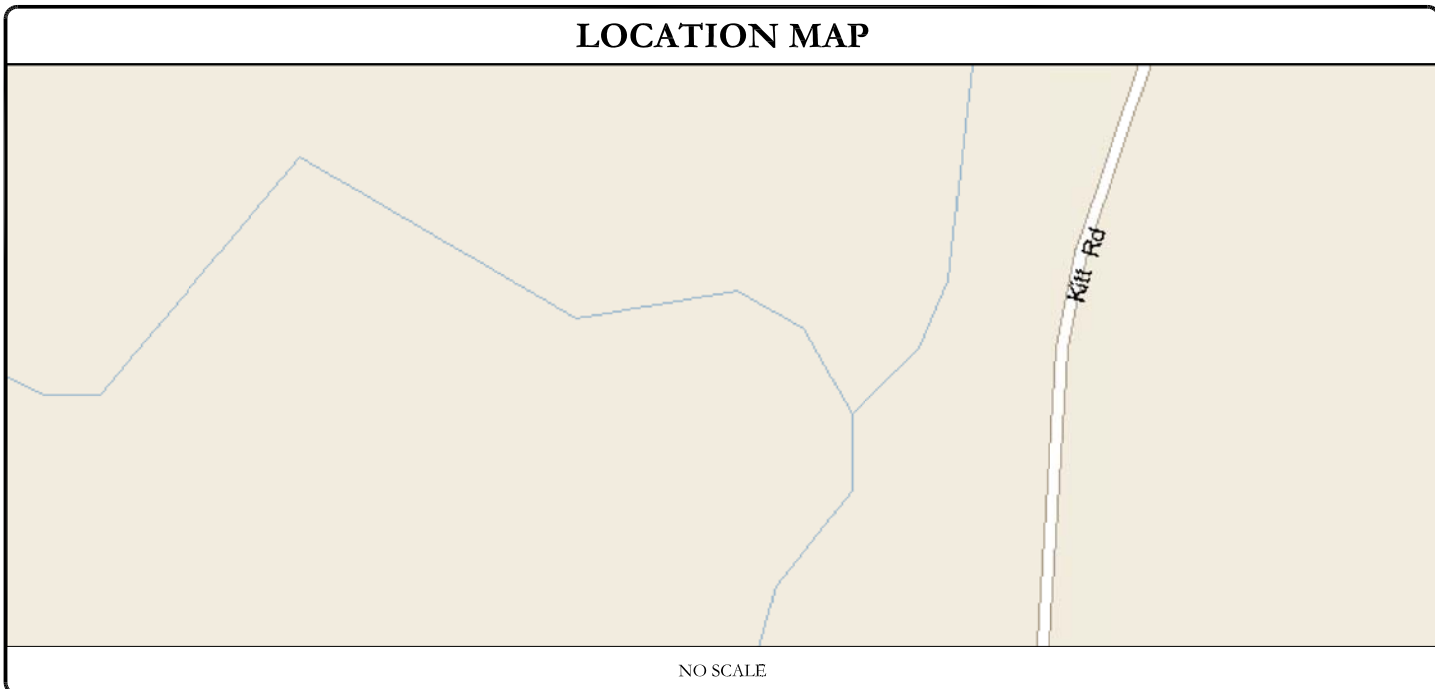
SITE INFORMATION	
CROWN CASTLE USA INC. SITE NAME:	CANTERBURY/LEMIRE
SITE ADDRESS:	53 WESTMINSTER RD CANTERBURY, CT 6331
COUNTY:	WINDHAM
MAP/PARCEL #:	CT-022-46-32
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.7019861°
LONGITUDE:	-71.9805861°
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	358 FT
CURRENT ZONING:	RD
JURISDICTION:	TOWN OF CANTERBURY
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	LEMIRE JOHN R 142 HANOVER VERSAILLES RD BALTIMORE, CT 06330
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 35 GRIFFIN ROAD BLOOMFIELD, CT 06002
ELECTRIC PROVIDER:	CONNECTICUT LIGHT AND POWER COMPANY
TELCO PROVIDER:	SOUTHERN NEW ENGLAND TELEPHONE COMPANY

PROJECT TEAM	
A&E FIRM:	CROWN CASTLE USA INC. 2000 CORPORATE DRIVE CANONSBURG, PA 15317 CROWN.AE.APPROVAL@CROWNCastle.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	1500 CORPORATE DRIVE CANONSBURG, PA 15317

DRAWING INDEX	
SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	CODE SUMMARY
T-3	CODE SUMMARY
T-4	GENERAL NOTES
C-1.1	OVERALL SITE PLAN
C-1.2	SITE PLAN & ENLARGED SITE PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4	PLUMBING DIAGRAM
C-5	EQUIPMENT SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 24X36. 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.

PROJECT DESCRIPTION	
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.	
TOWER SCOPE OF WORK:	<ul style="list-style-type: none"> REMOVE (6) ANTENNAS REMOVE (12) RADIOS REMOVE (4) HYBRID CABLES INSTALL (9) ANTENNAS INSTALL (9) RRHS INSTALL (4) HYBRID CABLES
GROUND SCOPE OF WORK:	<ul style="list-style-type: none"> REMOVE (2) SPRINT CABINETS INSTALL (1) 6160 SSC INSTALL (1) RBS 6601 INSTALL (1) B160 BATTERY CABINET INSTALL (1) BB 6648 INSTALL (3) BB 6630s INSTALL (1) PSU 4813 VOLTAGE BOOSTER IN ENCLOSURE 6160 SSC CABINET INSTALL (1) CSR IXRE V2 IN ENCLOSURE 6160 SSC CABINET INSTALL (1) DUG 20 IN SSC
NOTE:	PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.



APPLICABLE CODES/REFERENCE DOCUMENTS	
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	2015 IBC / 2018 CONNECTICUT STATE BUILDING CODE
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC
REFERENCE DOCUMENTS:	
STRUCTURAL ANALYSIS:	B+T GROUP
DATED:	2/19/21
MOUNT ANALYSIS:	BY OTHERS
DATED:	
RFDS REVISION:	1
DATED:	1/15/21
ORDER ID:	538779
REVISION:	1

APPROVALS		
APPROVAL	SIGNATURE	DATE
PROPERTY OWNER OR REP.	_____	_____
LAND USE PLANNER	_____	_____
T-MOBILE	_____	_____
OPERATIONS	_____	_____
RF	_____	_____
NETWORK	_____	_____
BACKHAUL	_____	_____
CONSTRUCTION MANAGER	_____	_____

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

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

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SHEET NUMBER: T-1	REVISION: 0
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CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

- 1. NOTICE TO PROCEED- NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800-788-7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.

GENERAL NOTES:

- 1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY: CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION CARRIER: T-MOBILE TOWER OWNER: CROWN CASTLE USA INC.

ELECTRICAL INSTALLATION NOTES:

- 1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

- 1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.

Table with 3 columns: SYSTEM, CONDUCTOR, COLOR. Rows include 120/240V, 1Ø; 120/208V, 3Ø; 277/480V, 3Ø; and DC VOLTAGE.

APWA UNIFORM COLOR CODE:

- WHITE PROPOSED EXCAVATION
PINK TEMPORARY SURVEY MARKINGS
RED ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS

GREENFIELD GROUNDING NOTES:

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

ABBREVIATIONS:

- ANT ANTENNA
(E) EXISTING
FIF FACILITY INTERFACE FRAME
GEN GENERATOR

T-Mobile logo and address: 4 SYLVAN WAY PARSIPPANY, NJ 07054

CROWN CASTLE logo and address: 3530 TORINGDON WAY, SUITE 300 CHARLOTTE, NC 28277

B+T GRP logo and address: 1717 S. BOULDER SUITE 300 TULSA, OK 74119

T-MOBILE SITE NUMBER: CTNL154A
BU #: 876375
CANTERBURY/LEMIRE
53 WESTMINSTER RD CANTERBURY, CT 6331
EXISTING 180'-0" MONOPOLE

Table for ISSUED FOR: REV, DATE, DRWN, DESCRIPTION, DES./QA. Row 1: 0, 6/14/21, GEH, CONSTRUCTION, GEH

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SHEET NUMBER: T-4 REVISION: 0

147461.002.01_Canterbury_Lemire_ETR_T-MOBILE_10.21.2020.dwg - Sheet1-4 - User: ghoyes - Jun 14, 2021 - 11:46am

147461.002.01_Conterbury_Lemire_ETI_MOBILE_10.21.2020.dwg - Sheet: C-1.1 - User: ghoyes - Jun 14, 2021 - 11:46am



SITE PLAN DISCLAIMER:
 PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM TAX ASSESSORS DATA. CROWN CASTLE USA INC. HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET.

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EXISTING
 180'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	6/14/21	GEH	CONSTRUCTION	GEH

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 PEC.0001564
 Expires 2/10/22

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1 OVERALL SITE PLAN
 SCALE: 1" = 100'-0" (FULL SIZE)
 1" = 200'-0" (11x17)

SHEET NUMBER: C-1.1
REVISION: 0

T-MOBILE SITE NUMBER:
CTNL154A

BU #: **876375**
CANTERBURY/LEMIRE

53 WESTMINSTER RD
CANTERBURY, CT 6331

EXISTING
180'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	6/14/21	GEH	CONSTRUCTION	GEH

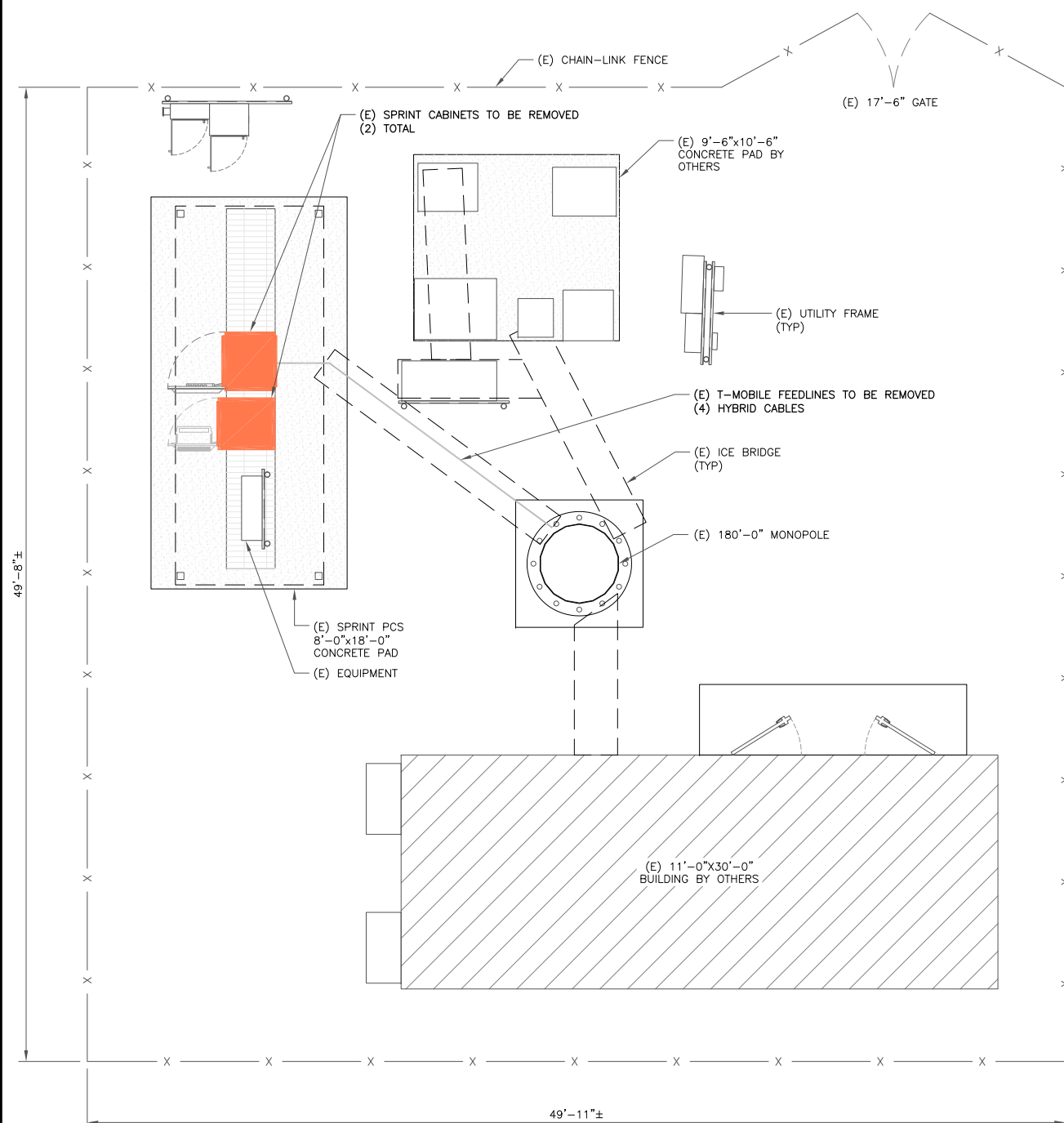


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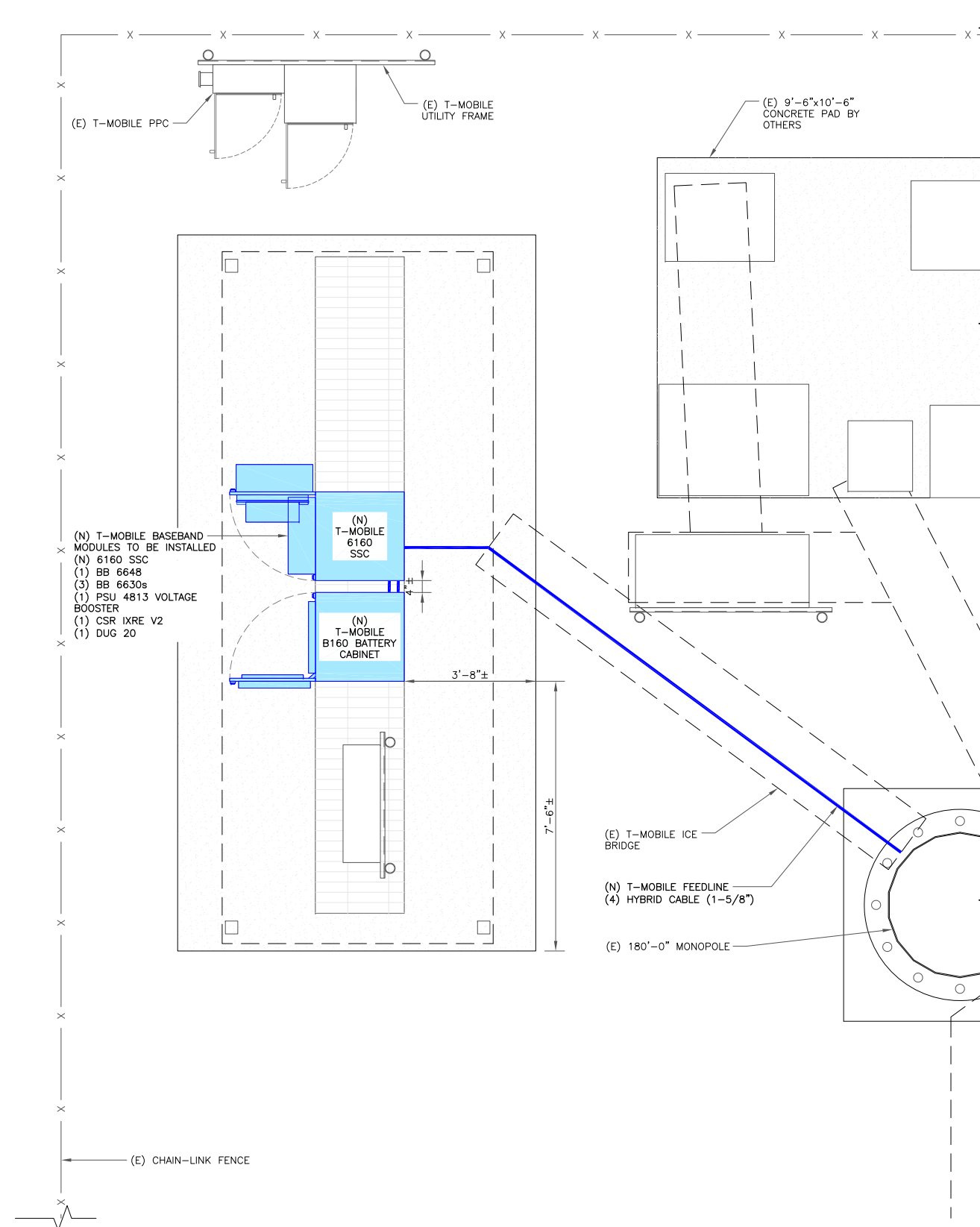
SHEET NUMBER: REVISION:

C-1.2 **0**



1 SITE PLAN

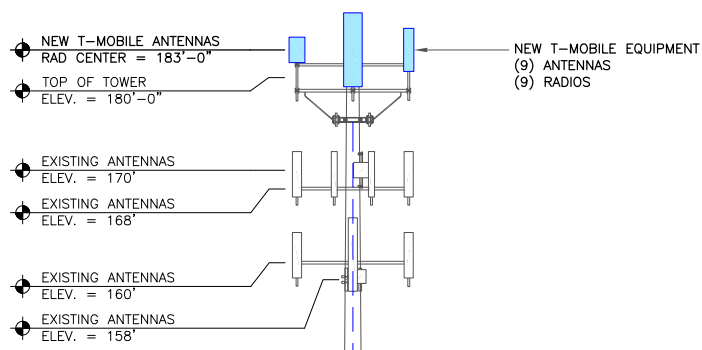
SCALE: 1/4"=1'-0" (FULL SIZE)
1/8"=1'-0" (11x17)



2 ENLARGED SITE PLAN

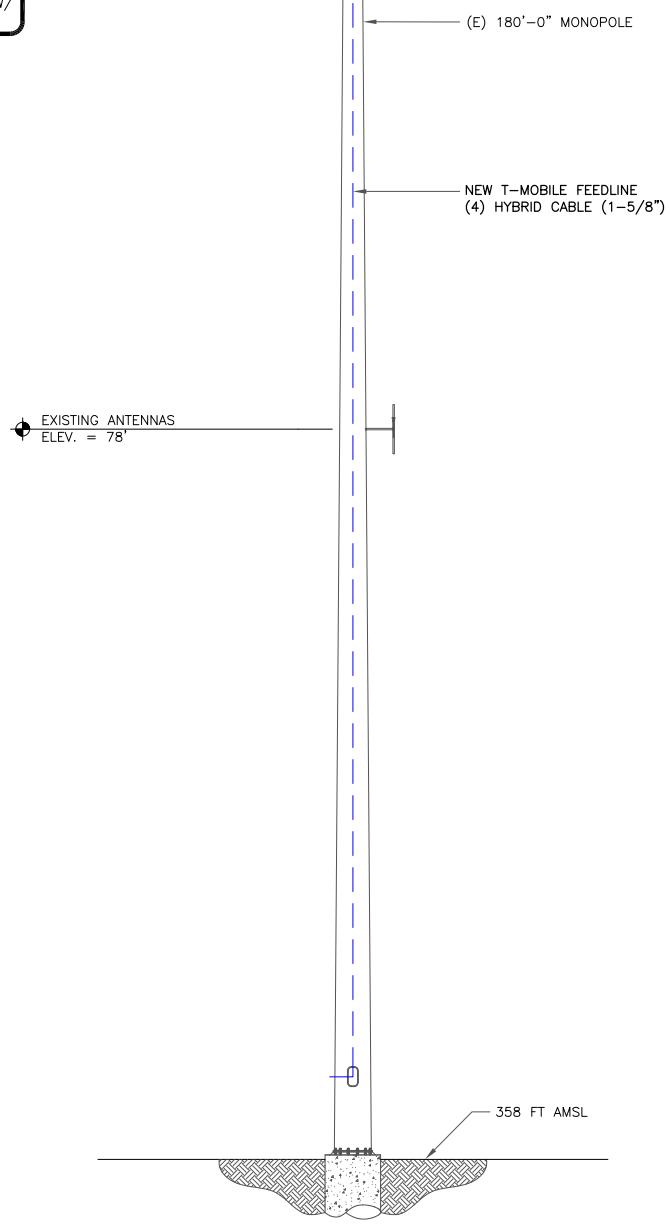
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1/4"=1'-0" (11x17)



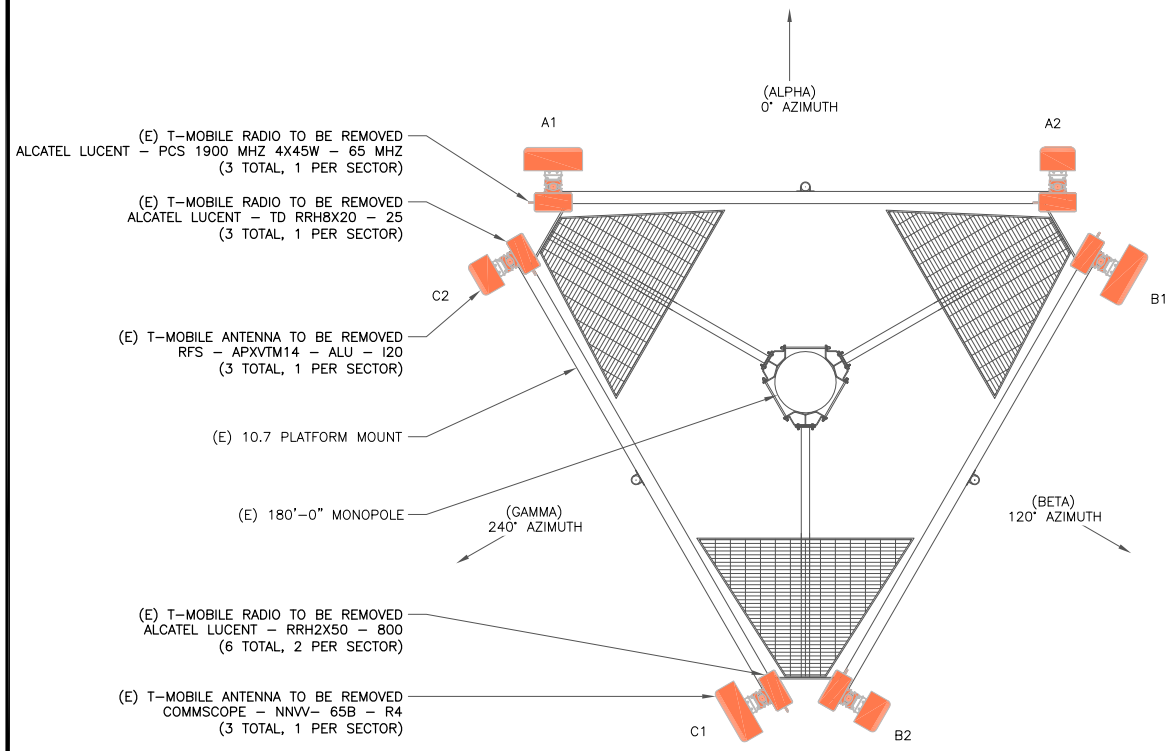


T-MOBILE EQUIPMENT
ANTENNA CL: 183'-0"
MOUNT CL: 180'-0"

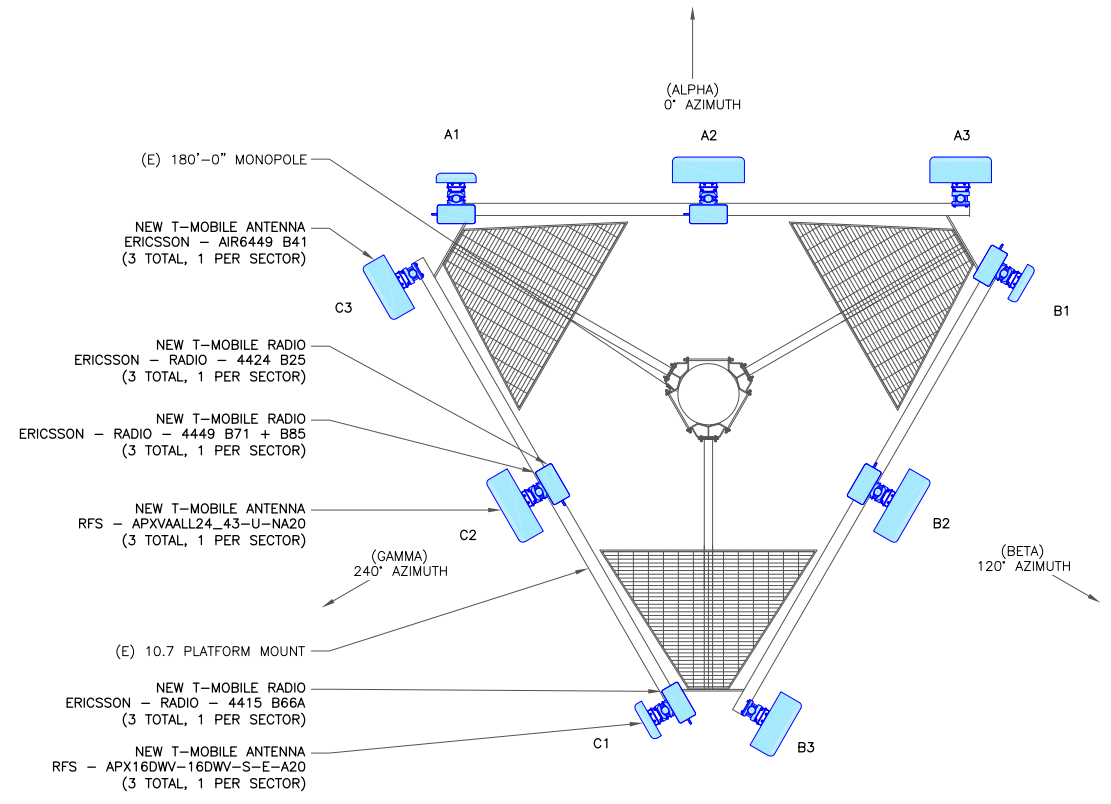
ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB



1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA LAYOUT
SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

T-Mobile

4 SYLVAN WAY
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53 WESTMINSTER RD
CANTERBURY, CT 6331

EXISTING
180'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	6/14/21	GEH	CONSTRUCTION	GEH

B&T ENGINEERING, INC.
PEC.0001564
Expires 2/10/22

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SHEET NUMBER: **C-2** REVISION: **0**

147461.002.01_Canterbury Lemire_ETC_T-Mobile_10.21.2020.dwg - Sheet: C-2 - User: ghoyes - Jun 14, 2021 - 11:46am

T-MOBILE SITE NUMBER:
CTNL154A

BU #: **876375**
CANTERBURY/LEMIRE

53 WESTMINSTER RD
CANTERBURY, CT 6331

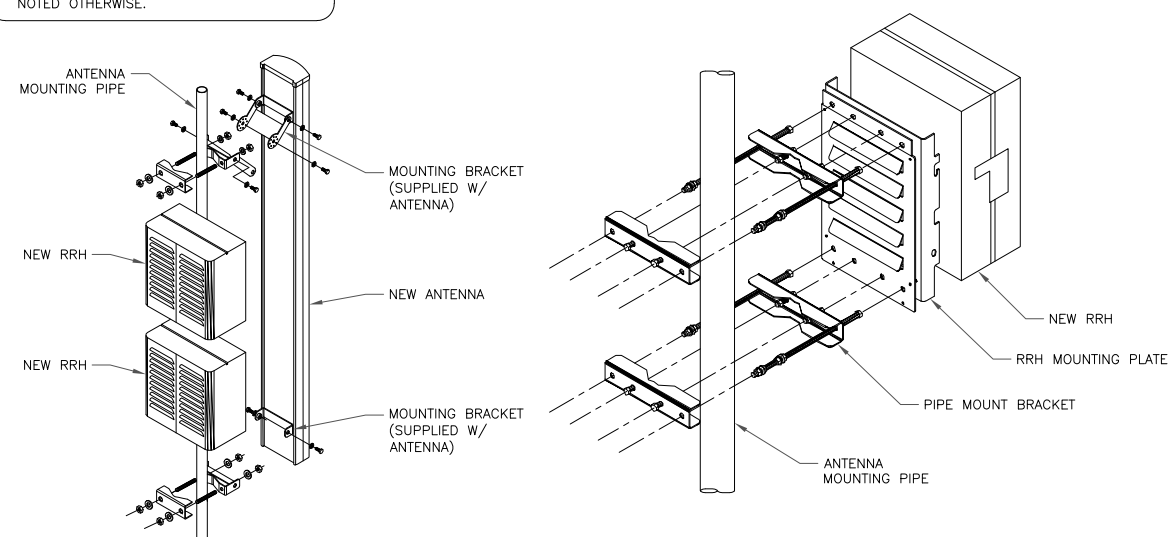
EXISTING
180'-0" MONOPOLE

RF SYSTEM SCHEDULE										
SECTOR	ANTENNA	TECH	MANUFACTURER	ANTENNA MODEL	AZIMUTH	M-TILT	E-TILT	RAD CENTER	TMA/RRU	FEEDLINE TYPE
ALPHA	A-1	L2100	RFS	APX16DWV-16DWV-S-E-A20	0°	0°	2'	183'-0"	(1) RADIO - 4415 B66A	(4) HYBRID
	A-2	L700 / L600 / N600 / L1900 / G1900	RFS	APXVAARR24_43-U-NA20	0°	0°	2'/2'	183'-0"	(1) RADIO - 4449 B71 + B85 (1) RADIO - 4424 B25	
	A-3	L2500 / N2500	ERICSSON	AIR6449 B41	0°	0°	2'	183'-0"	-	
BETA	B-1	L2100	RFS	APX16DWV-16DWV-S-E-A20	120°	0°	2'	183'-0"	(1) RADIO - 4415 B66A	-
	B-2	L700 / L600 / N600 / L1900 / G1900	RFS	APXVAARR24_43-U-NA20	120°	0°	2'/2'	183'-0"	(1) RADIO - 4449 B71 + B85 (1) RADIO - 4424 B25	
	B-3	L2500 / N2500	ERICSSON	AIR6449 B41	120°	0°	2'	183'-0"	-	
GAMMA	C-1	L2100	RFS	APX16DWV-16DWV-S-E-A20	240°	0°	2'	183'-0"	(1) RADIO - 4415 B66A	-
	C-2	L700 / L600 / N600 / L1900 / G1900	RFS	APXVAARR24_43-U-NA20	240°	0°	2'/2'	183'-0"	(1) RADIO - 4449 B71 + B85 (1) RADIO - 4424 B25	
	C-3	L2500 / N2500	ERICSSON	AIR6449 B41	240°	0°	2'	183'-0"	-	

1 ANTENNA AND CABLE SCHEDULE
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



2 ANTENNA WITH RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	6/14/21	GEH	CONSTRUCTION	GEH



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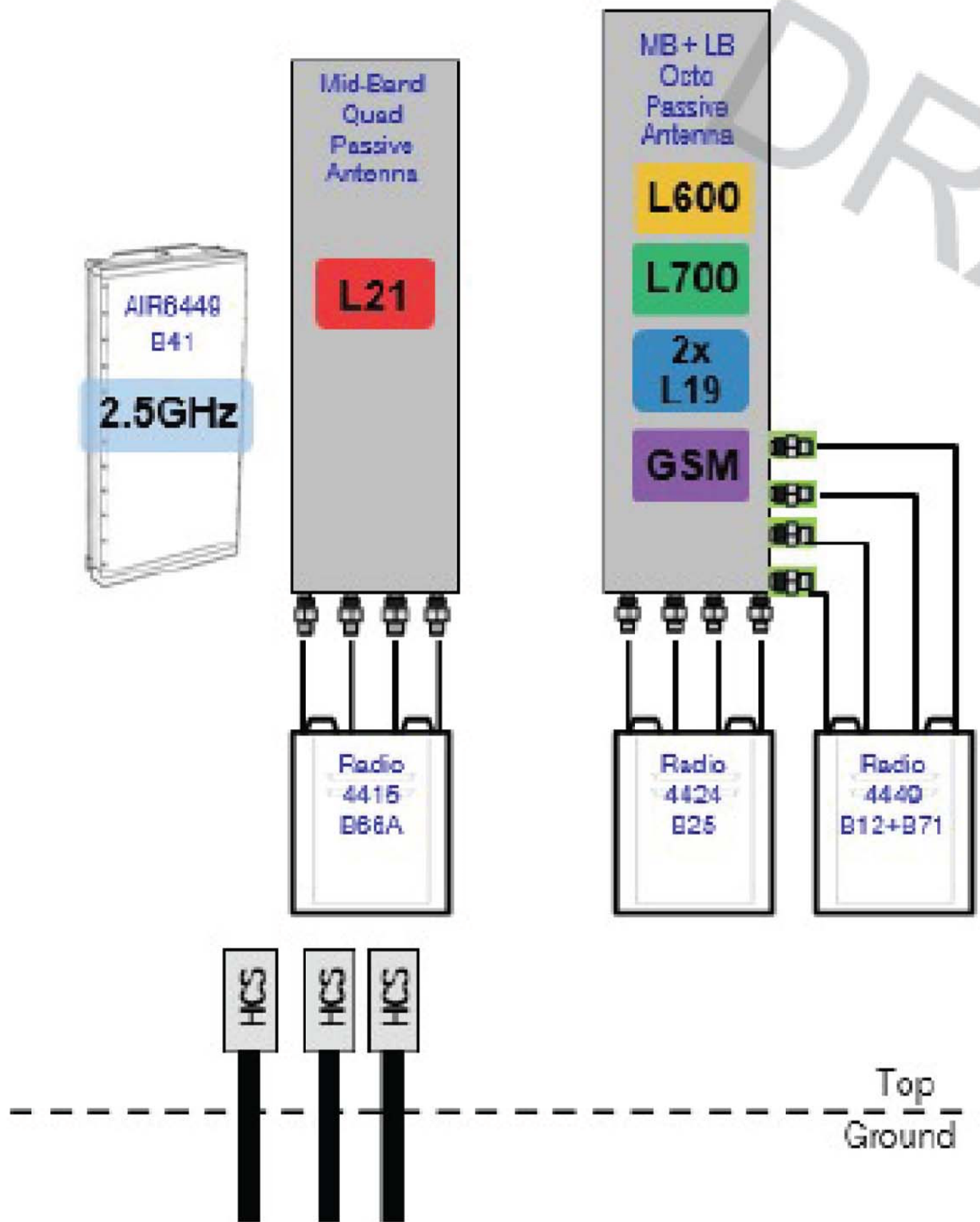
SHEET NUMBER:

C-3

REVISION:

0

147461.002.01_Canterbury_Lemire_ETA_T-MOBILE_10.21.2020.dwg - Sheet: C-4 - User: ghoyes - Jun 14, 2021 - 11:46am



1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

T-Mobile
 4 SYLVAN WAY
 PARSIPPANY, NJ 07054

CROWN CASTLE
 3530 TORINGDON WAY, SUITE 300
 CHARLOTTE, NC 28277

B+T GRP
 1717 S. BOULDER
 SUITE 300
 TULSA, OK 74119
 PH: (918) 587-4630
 www.btgrp.com

T-MOBILE SITE NUMBER:
CTNL154A

BU #: **876375**
CANTERBURY/LEMIRE

53 WESTMINSTER RD
 CANTERBURY, CT 6331

EXISTING
 180'-0" MONOPOLE

ISSUED FOR:

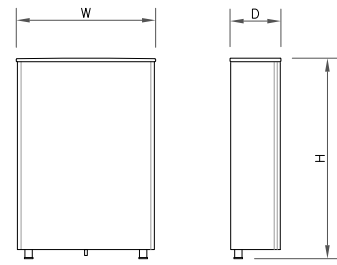
REV	DATE	DRWN	DESCRIPTION	DES./QA
0	6/14/21	GEH	CONSTRUCTION	GEH



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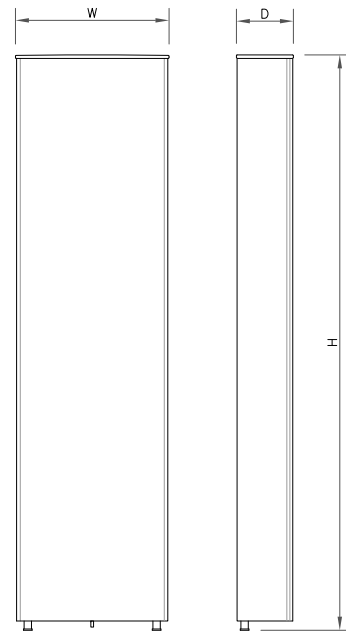
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SHEET NUMBER: **C-4** REVISION: **0**



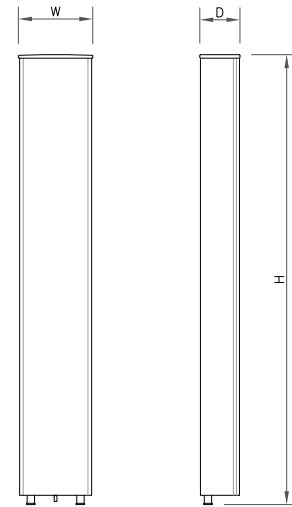
ANTENNA SPECS	
MANUFACTURER	ERICSSON
MODEL #	AIR6449 B41
WIDTH	20.51"
DEPTH	8.54"
HEIGHT	33.11"
WEIGHT	114.63 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



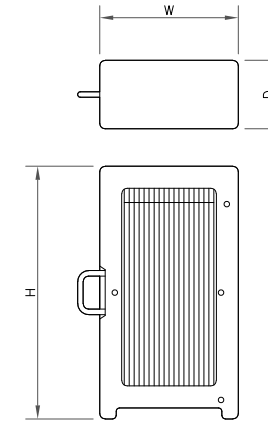
ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APXVAALL24_43-U-NA20
WIDTH	24"
DEPTH	8.5"
HEIGHT	95.90"
WEIGHT	149.9 LBS

2 ANTENNA SPECS
SCALE: NOT TO SCALE



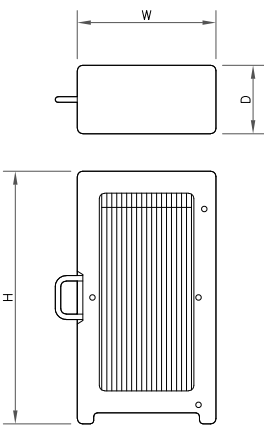
ANTENNA SPECS	
MANUFACTURER	RFS
MODEL #	APX16DWV-16DWV-S-E-A20
WIDTH	13.3"
DEPTH	3.15"
HEIGHT	55.9"
WEIGHT	40.7 LBS

3 ANTENNA SPECS
SCALE: NOT TO SCALE



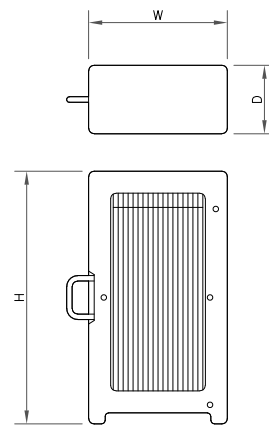
RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4449 B71+B85
WIDTH	13.2"
DEPTH	10.63"
HEIGHT	17.91"
WEIGHT	73.21 LBS

4 RRU SPECS
SCALE: NOT TO SCALE



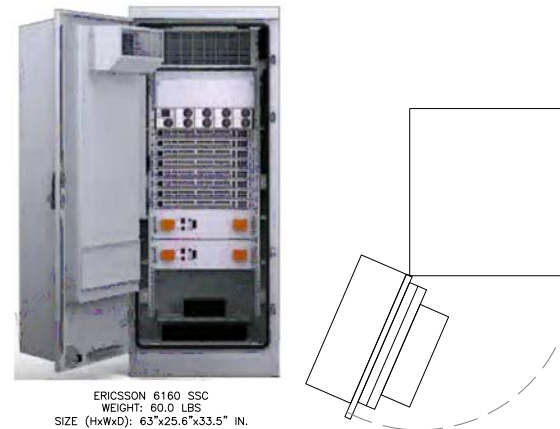
RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4415 B66A
WIDTH	13.5"
DEPTH	6.3"
HEIGHT	16.5"
WEIGHT	49.6 LBS

5 RRU SPECS
SCALE: NOT TO SCALE



RRU SPECIFICATIONS	
MANUFACTURER	ERICSSON
MODEL #	RADIO 4424 B25
WIDTH	14.4"
DEPTH	11.3"
HEIGHT	17.1"
WEIGHT	86 LBS

6 RRU SPECS
SCALE: NOT TO SCALE



7 ERICSSON 6160 SSC
SCALE: NOT TO SCALE



BATTERY CABINET SPECIFICATIONS	
MODEL #	B160
MANUF.	ERICSSON
HEIGHT	63"
WIDTH	26"
DEPTH	26"
WEIGHT	

8 ERICSSON B160 BATTERY CABINET
SCALE: NOT TO SCALE

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BU #: **876375**
CANTERBURY/LEMIRE

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CANTERBURY, CT 6331

EXISTING
180'-0" MONOPOLE

ISSUED FOR:				
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FINAL PANEL SCHEDULE							
LOAD	POLES	AMPS	BUS		AMPS	POLES	LOAD
			L1	L2			
MBTS	2	100A	1	7	80A	2	SURGE PROTECTION
LIGHTS	1	20A	3	9	20A	1	GFCI
6160 CABINET	2	200A	4	10	20A	1	SPARE
FAN	1	10A	5	11	15A	1	GFI
			6	12	XXA	1	SPARE

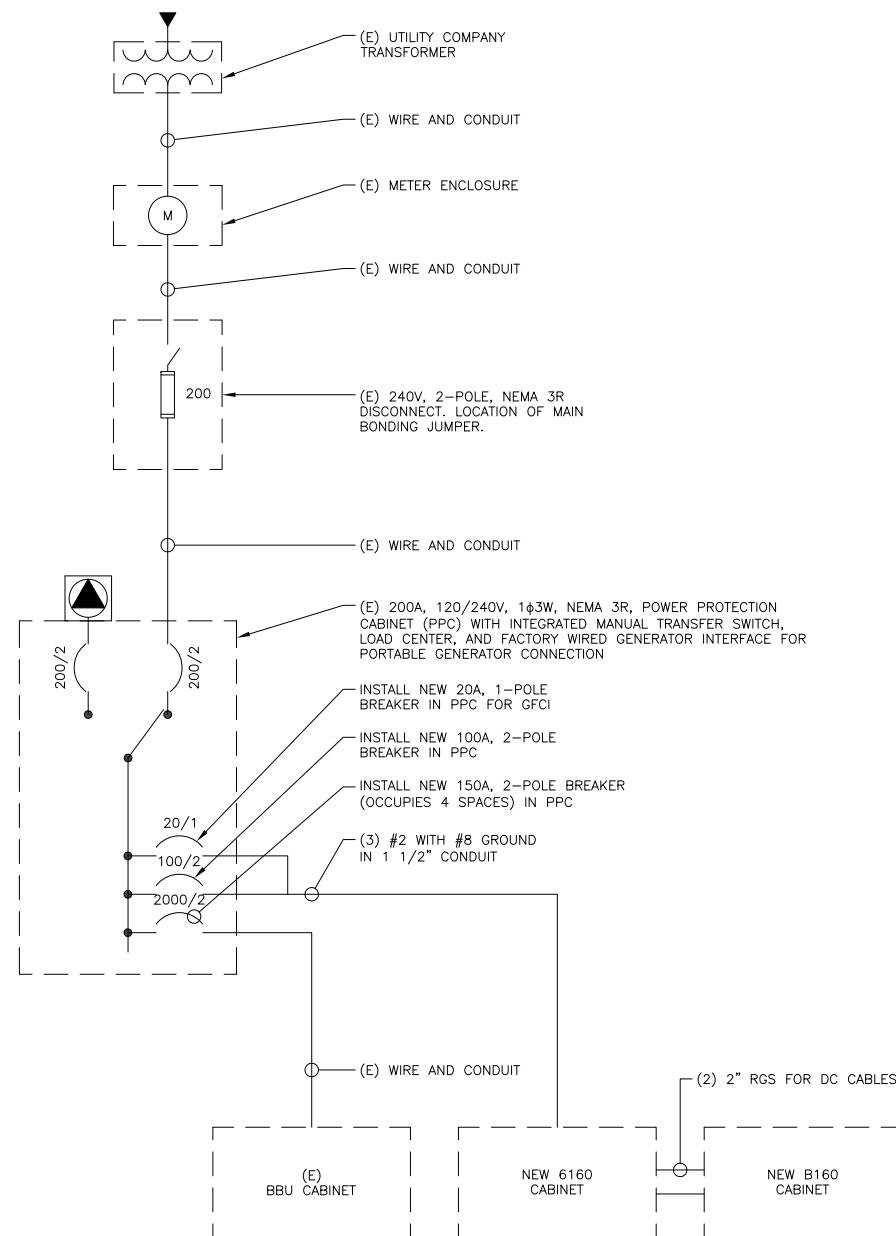
RATED VOLTAGE: 120/240 1 PHASE, 3 WIRE
 BRANCH POLES: 12 24
 RATED AMPS: 100 200 400
 CABINET: SURFACE FLUSH
 MAIN LUGS ONLY MAIN 200 AMPS BREAKER FUSED SWITCH HINGED DOOR
 FUSED CIRCUIT BREAKER BRANCH DEVICES TO BE GFCI BREAKERS
 ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL

ADD NEW BREAKER IN POSITION 4 AND 5 WITH A NEW 2P 200A BREAKER
 ADD NEW BREAKER IN POSITION 9 WITH A NEW 1P 20A BREAKER
 REPLACE EXISTING WIRES FOR EXISTING BBU CABINET WITH (3) 1/0 AWG THWN (COPPER) AND (1) #2G AWG. MINIMUM CONDUIT SIZE TO BE 2".
 IF 200A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL Q012040M200RB (OR APPROVED EQUAL).
 UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
 FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING DOCUMENTS AND PHOTOS

1 FINAL T-MOBILE PANEL DETAIL
 SCALE: NOT TO SCALE

NOTES:

1. ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, OR XHHW-2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.



NOTES:

1. ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.

2 ONE LINE DIAGRAM
 SCALE: NOT TO SCALE



4 SYLVAN WAY
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E-1

REVISION:

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T-Mobile

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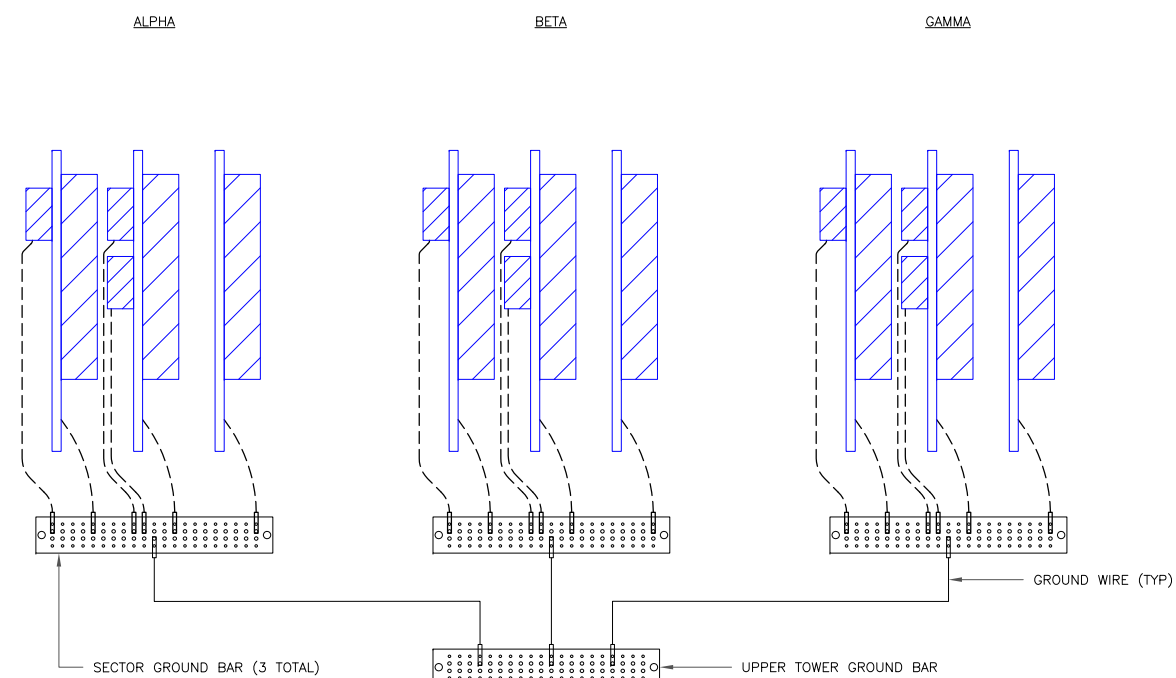
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G-1

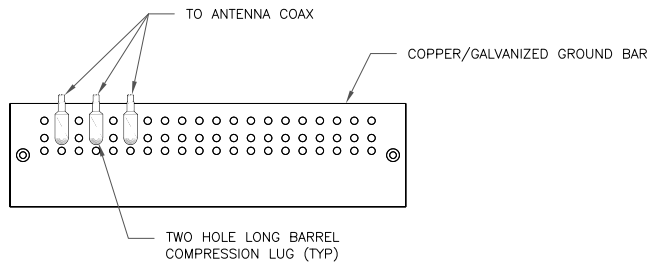
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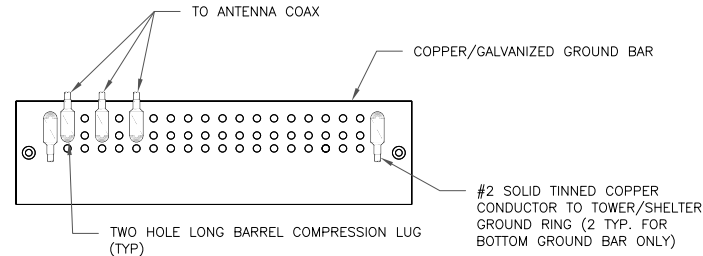
NOTE:
ALL NEW GROUNDS TO BE #6 STRANDED
COPPER WITH GREEN INSULATION UNLESS
NOTED OTHERWISE.

1 ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE



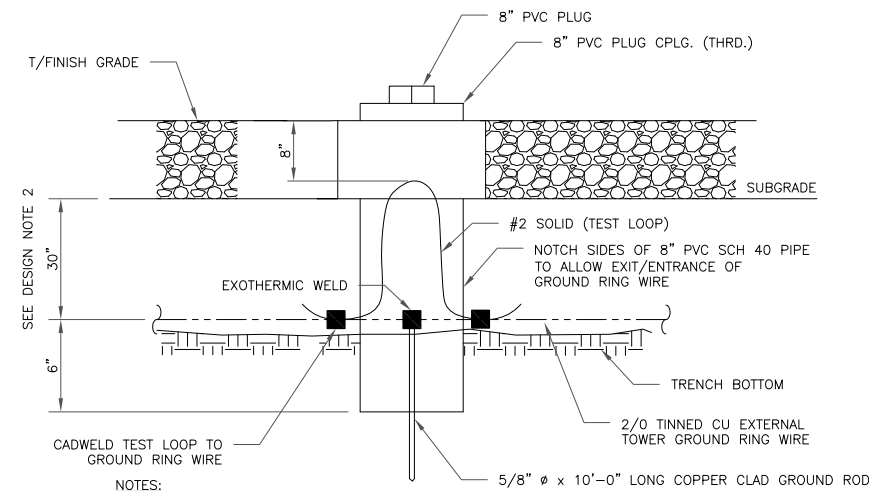
- NOTES:**
1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
 2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
 3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



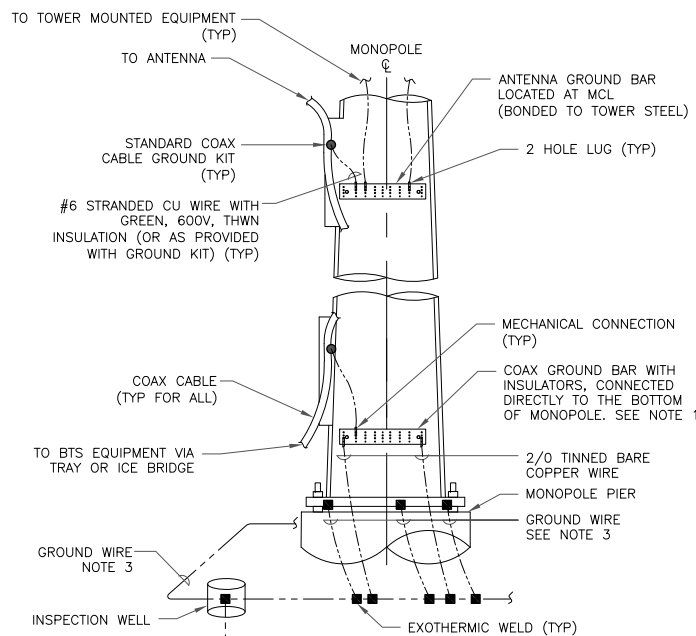
- NOTES:**
1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
 2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
 3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



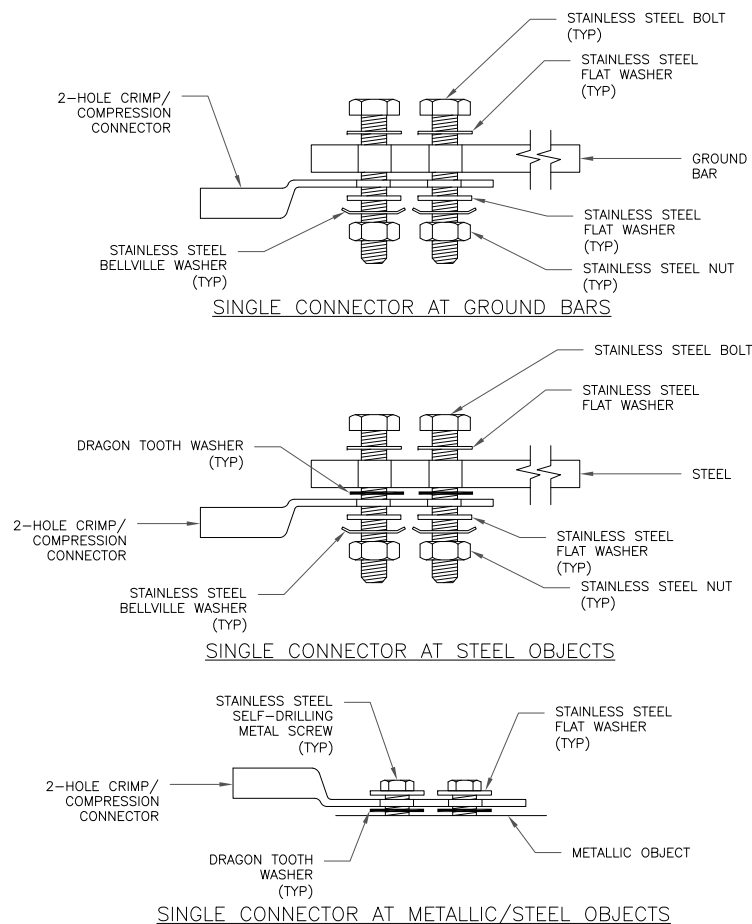
- NOTES:**
1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
 2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D).

3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE

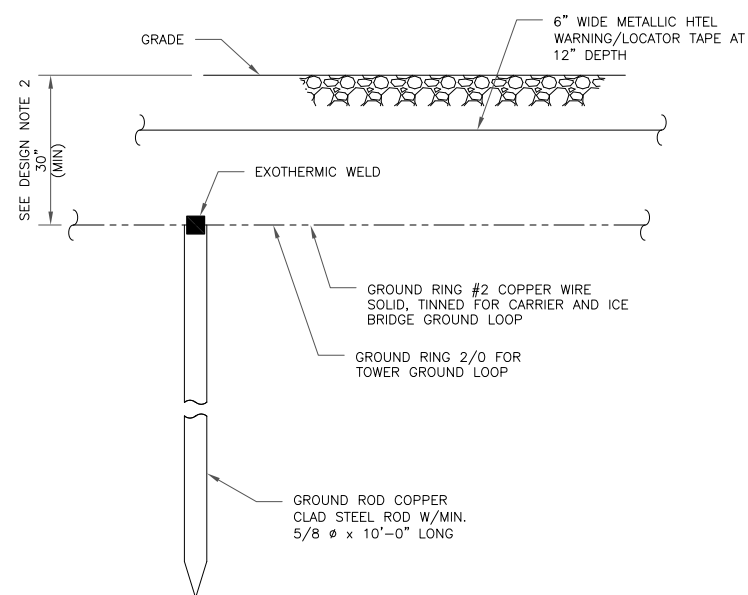


- NOTES:**
1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
 2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE USA INC. TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
 3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



- NOTES:**
1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
 2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D).

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

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EXISTING
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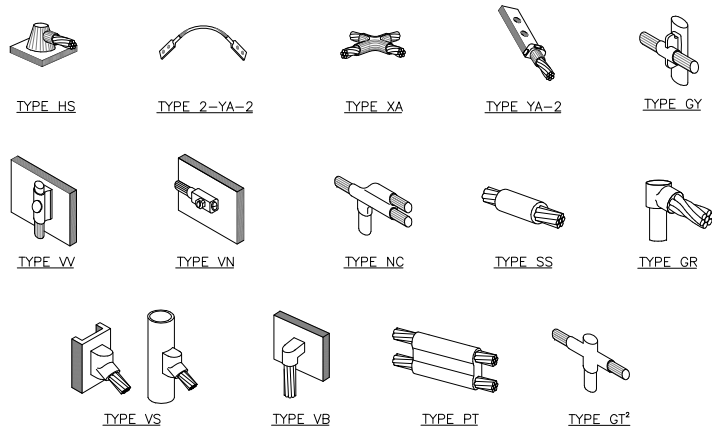
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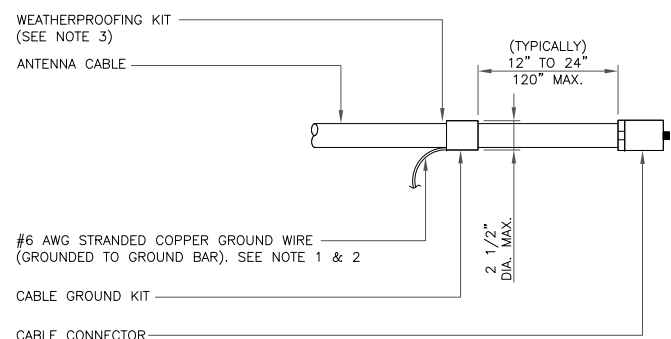
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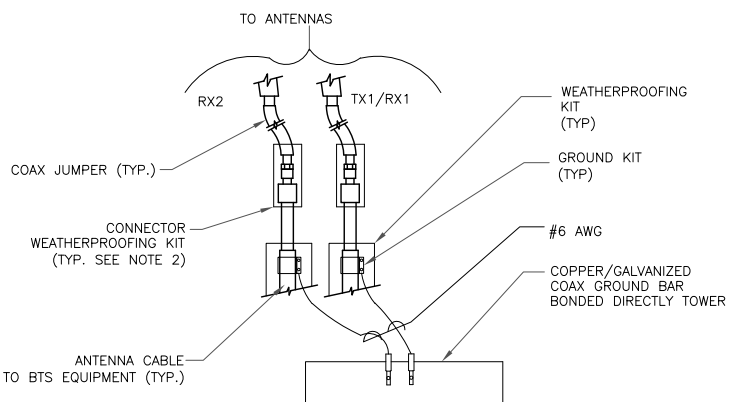
NOTE:
 1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
 2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

1 CADWELD GROUNDING CONNECTIONS
 SCALE: NOT TO SCALE



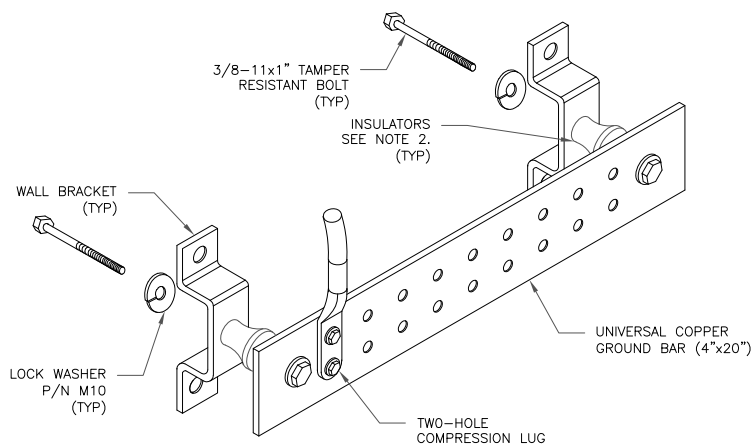
NOTES:
 1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
 2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
 3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

3 CABLE GROUND KIT CONNECTION
 SCALE: NOT TO SCALE



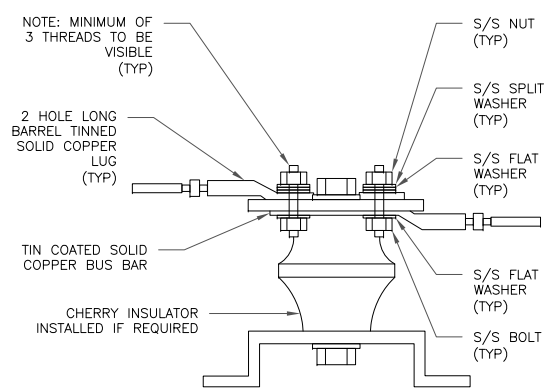
NOTES:
 1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
 2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

4 GROUND CABLE CONNECTION
 SCALE: NOT TO SCALE



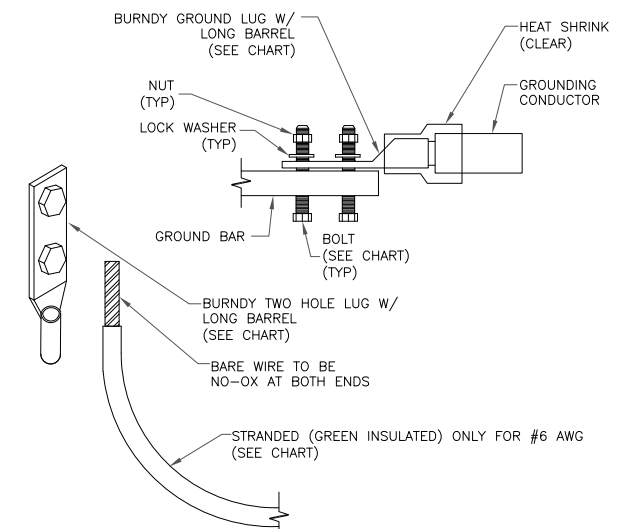
NOTES:
 1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
 2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

6 GROUND BAR DETAIL
 SCALE: NOT TO SCALE



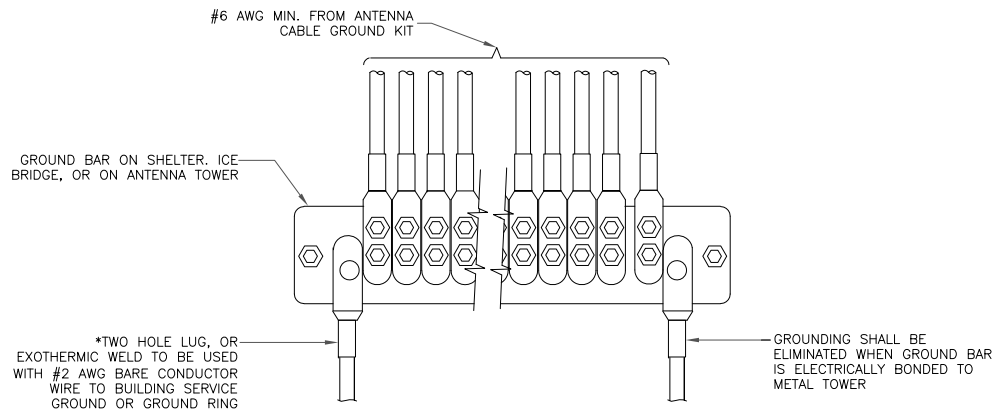
7 LUG DETAIL
 SCALE: NOT TO SCALE

WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT

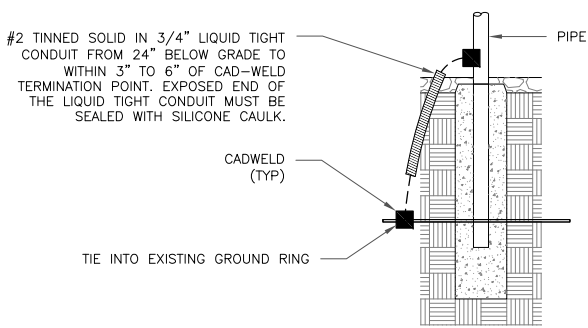


NOTES:
 1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

2 MECHANICAL LUG CONNECTION
 SCALE: NOT TO SCALE



5 GROUNDWIRE INSTALLATION
 SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
 SCALE: NOT TO SCALE

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SHEET NUMBER: **G-3** REVISION: **0**

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