STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

E-Mail: siting.council@ct.gov

Internet: ct.gov/csc

Daniel F. Caruso
Chairman

May 6, 2009

Thomas J. Regan, Esq.
Brown Rudnick LLP
CityPlace I, 185 Asylum Street
Hartford, CT 06103

RE: **EM-T-MOBILE-011-090406** - T-Mobile USA, Inc. notice of intent to modify an existing telecommunications facility located at 28 Brewer Street, Bloomfield, Connecticut.

Dear Attorney Regan:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated April 6, 2009, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

S/ Derek Phelps
Executive Director

SDP/MP/laf

c: The Honorable Sydney Schulman, Mayor, Town of Bloomfield
Louie Chapman, Jr., Town Manager, Town of Bloomfield
Thomas B. Hooper, Director of Planning, Town of Bloomfield
Crown Castle USA, Inc.

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
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E-Mail: siting.council@ct.gov
www.ct.gov/csc

April 8, 2009

The Honorable Sydney Schulman
Mayor
Town of Bloomfield
Town Hall
800 Bloomfield Avenue
P. O. Box 337
Bloomfield, CT 06002-0337

RE: **EM-T-MOBILE-011-090406 -** Omnipoint Communications, as subsidiary of T-Mobile USA, Inc., notice of intent to modify an existing telecommunications facility located at 28 Brewer Street, Bloomfield, Connecticut.

Dear Mayor Schulman:

The Connecticut Siting Council (Council) received this request to modify an existing telecommunications facility, pursuant to Regulations of Connecticut State Agencies Section 16-50j-72.

If you have any questions or comments regarding this proposal, please call me or inform the Council by April 22, 2009.

Thank you for your cooperation and consideration.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/jb

Enclosure: Notice of Intent

c: Thomas B. Hooper, Director of Planning, Town of Bloomfield
Louie Chapman, Jr., Town Manager, Town of Bloomfield

CONNEC

In re: EM-T-MOBILE-011-090406

T-Mobile USA, Inc. Notice to Make an Exempt Modification to an Existing Facility at 28 Brewer Street, Bloomfield, Connecticut.	:	EXEMPT MODIFICATION NO.
	:	
ORIGINAL	:	April 6, 2009

RECEIVED
APR - 6 2009
CONNECTICUT SITING COUNCIL

NOTICE OF EXEMPT MODIFICATION

Pursuant to Conn. Agencies Regs. §§ 16-50j-73 and 16-50j-72(b), T-Mobile USA, Inc. ("T-Mobile") hereby gives notice to the Connecticut Siting Council ("Council") and the Town of Bloomfield of T-Mobile's intent to make an exempt modification to an existing monopole (the "Tower") located at 28 Brewer Street in Bloomfield, Connecticut. Specifically, T-Mobile plans to upgrade its wireless system in Connecticut by implementing its Universal Mobile Telecommunications System ("UMTS"). UMTS is a third-generation ("3G") technology that utilizes a code division multiple access ("CDMA") base to allow for fast and large data transfers. To accomplish this upgrade, T-Mobile must modify its antenna and equipment configurations at many of its existing sites.

Once the UMTS upgrade is complete, T-Mobile will operate on a more unified communication system, allowing international wireless telephones to function world-wide. Furthermore, UMTS will enhance Global Positioning System ("GPS") navigation capabilities and provide emergency responders with more advanced tracking capabilities. The proposed UMTS technology is compatible with the existing second-generation ("2G") Global System for Mobile Communication ("GSM") currently on the Tower and the proposed upgrade is expected to enhance the existing 2G system. In order to accomplish the upgrade at this site, T-Mobile plans to add UMTS technology and install associated equipment at the base of the tower.

BROWN RUDNICK LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

Under the Council's regulations (Conn. Agencies Regs. § 16-50j-72(b)), T-Mobile's plans do not constitute a modification subject to the Council's review because T-Mobile will not change the height of the Tower, will not extend the boundaries of the compound, will not increase the noise levels at the site, and will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards.

The Tower is a 120-foot monopole located at 28 Brewer Street in Bloomfield, Connecticut (41° 50' 6.57", -72° 44' 28.2"). There are multiple carriers on the Tower. The Tower is owned by Crown Castle International. Currently, T-Mobile has 3 antennas and 6 Tower Mounted Amplifiers ("TMA") located on the Tower with a centerline of 107 feet. A site plan with Tower specifications is attached.

T-Mobile plans to add 3 quad pole UMTS antennas and add 3 UMTS Twin TMA to the Tower. The proposed antennas and TMA will have the same centerline as the existing antennas and TMA – 107 feet. To confirm the Tower can support these changes, T-Mobile commissioned B&T Engineering, Inc. to perform a structural analysis of the Tower (attached). According to the structural analysis, dated March 24, 2009, "the tower stress level for the structure and foundation, under the following load case, to be: LC1: Existing + Reserved + Proposed Equipment – Sufficient Capacity" (Page 1, Structural Analysis Report).

In addition, T-Mobile proposes to locate 6, 1 5/8 inch coax cable that under the existing ice bridge from the proposed UMTS equipment cabinet to the proposed UMTS antennas. T-Mobile proposes to install the UMTS equipment cabinet on its existing 32-foot by 48-foot (approximately) concrete pad. Hence, no increase in the size of the concrete pad is necessary.

Therefore, excluding brief, minor, construction-related noise during the addition of the antennas and the installation of the equipment cabinet, T-Mobile's changes to the Tower will not increase noise levels at the site.

BROWN RUDNICK LLP
CITYPLACE I
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HARTFORD, CT 06103
(860) 509-6500

The proposed antennas and TMA will not adversely impact the health and safety of the surrounding community or the people working on the Tower. The total radio frequency exposure measured around the Tower will be well below the National Council on Radiation Protection and Measurements' ("NCRP") standard adopted by the Federal Communications Commission ("FCC"). The worst-case power density analysis measured at the base of the Tower indicates that T-Mobile's antennas will emit 10.06% of the NCRP's standard for maximum permissible exposure. A cumulative power density analysis indicates that together, all of the antennas on the Tower will emit only 30.21% of the NCRP's standard for maximum permissible exposure. Therefore, the power density levels will be well below the FCC mandated radio frequency exposure limits in all locations around the Tower, even with extremely conservative assumptions. The power density analysis is attached.

In conclusion, T-Mobile's proposed plan to add antennas and add TMA at this site does not constitute a modification subject to the Council's jurisdiction because T-Mobile will not increase the height of the Tower, will not extend the boundaries of the site, will not increase the noise levels at the site, and the total radio frequency electromagnetic radiation power density will stay within all applicable standards. *See* Conn. Agencies Regs. § 16-50j-72.

T-Mobile USA, Inc.

By: _____

Thomas J. Regan
Brown Rudnick LLP
185 Asylum Street, CityPlace I
Hartford, CT 06103-3402
Email - tregan@brownrudnick.com
Phone - 860.509.6522
Fax - 860.509.6622

BROWN RUDNICK LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500

Certificate of Service

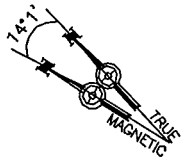
This is to certify that on this 10th day of April, 2009, the foregoing Notice of Exempt Modification was sent, via first class mail, to the following:

Town of Bloomfield
Mayor Sydney T. Schulman
Town Hall
800 Bloomfield Avenue
Bloomfield, CT 06002

By: _____
Thomas J. Regan

40258213 v1 - 025064/0016

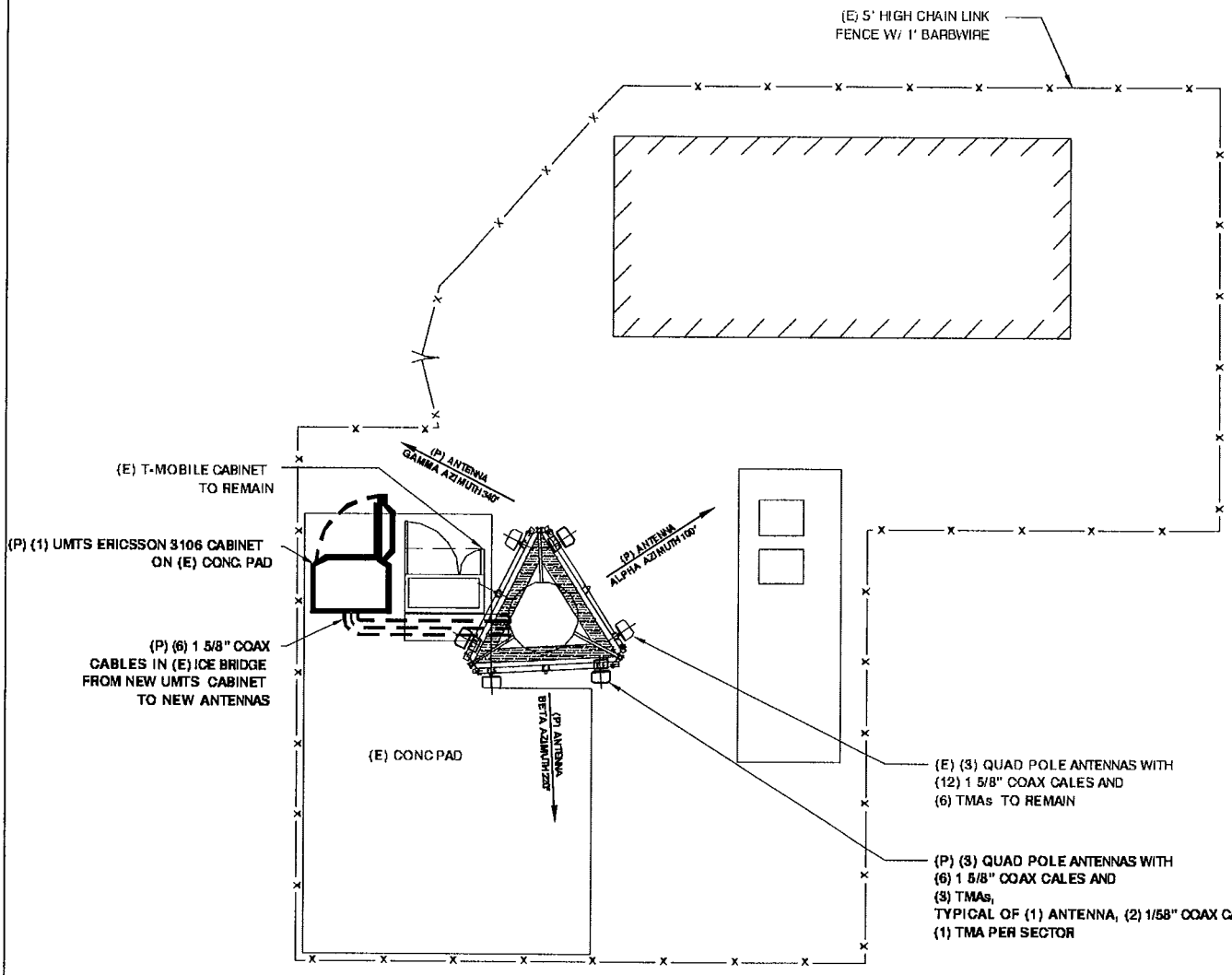
BROWN RUDNICK LLP
CITYPLACE I
185 ASYLUM STREET
HARTFORD, CT 06103
(860) 509-6500



PROJECT DESCRIPTION:

T-MOBILE IS PROPOSING TO INSTALL TELECOMMUNICATIONS EQUIPMENT AT THIS EXISTING SITE THAT CONSISTS OF:

EQUIPMENT CABINETS:	(P) (1) UMTS ERICSSON 3106 CABINET ON EXISTING CONC. PAD. (E) (1) NORTEL 12000 CABINET TO REMAIN
ANTENNAS:	(P) (3) QUAD POLE APX16DWV-16WVS-A20 SECTOR PANEL ANTENNAS MOUNTED TO (E) ANTENNA FRAME. (E) (3) QUAD POLE DR65-18-02DP ANTENNAS TO REMAIN.
TMA:	(P) (3) TWIN TMAs AND (E) (6) TMAs TO REMAIN
COAX:	(P) (6) 1 5/8" COAX CABLES (E) (12) 1 5/8" COAX CABLES TO REMAIN



ALL EQUIPMENT LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO APPROVAL BY LESSEE/LICENSEE'S STRUCTURAL & RF ENGINEERS. LOCATIONS OF POWER & TELEPHONE FACILITIES ARE SUBJECT TO APPROVAL BY UTILITY COMPANIES.

1
SHT-2

SITE PLAN

SCALE: 1" = 10'-0"

10 0 10 20 30

TRANSCEND WIRELESS
10 INDUSTRIAL AVENUE
MAHWAH, NJ 07430
OFFICE: 201-316-2005
FAX: 201-584-0055

FOR
OMNIPOINT COMMUNICATIONS, INC.
DBA T-MOBILE USA, INC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7159

ATLANTIS GROUP
15 Cypress St., Suite 300
Newton Centre, MA 02459
Office: 617-965-0789
Fax: 617-663-6032

SITE NAME:	BLOOMFIELD/DTWN
SITE NUMBER:	CT11278A
ADDRESS:	28 BREWER STREET BLOOMFIELD, CT 06002

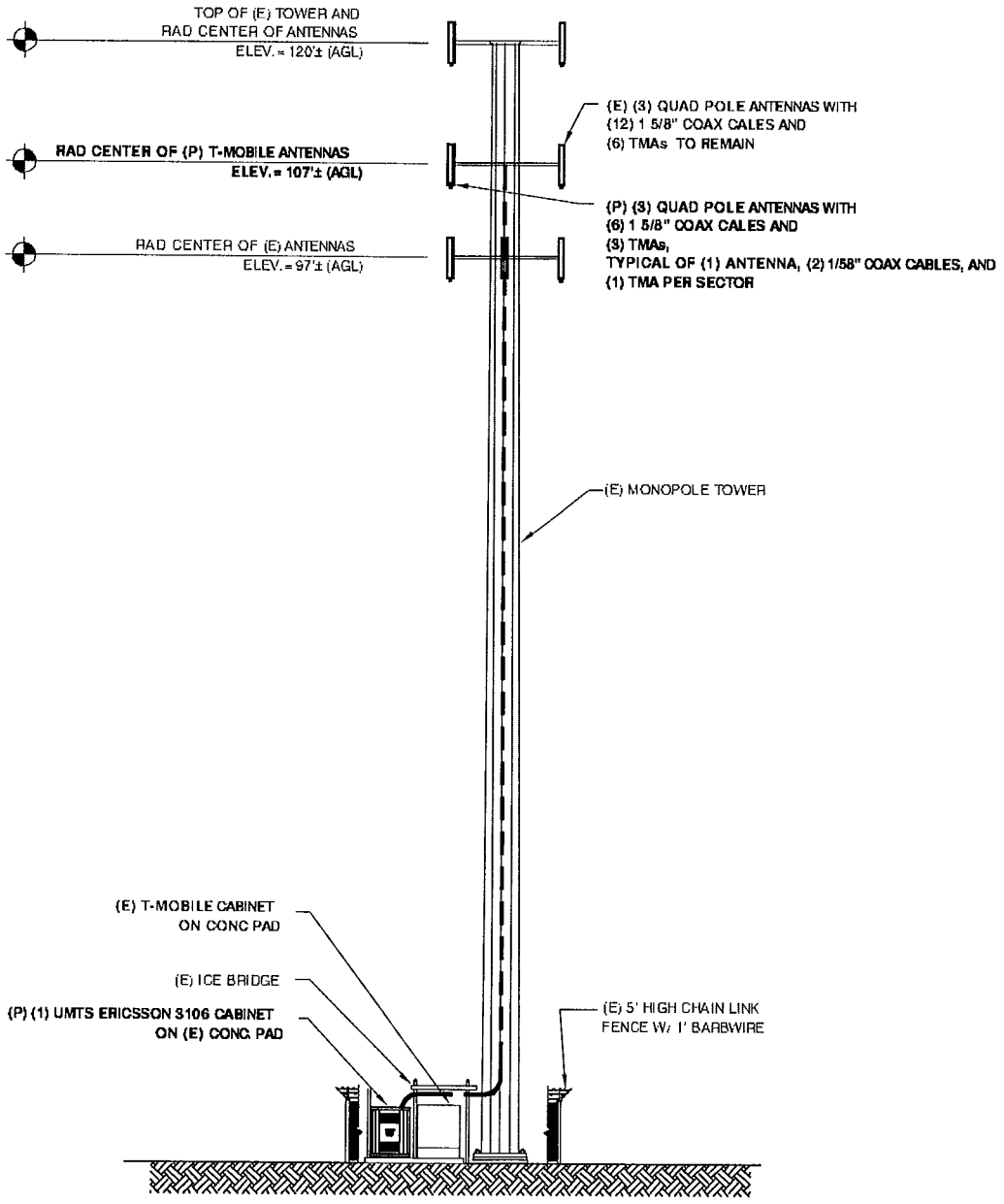
NUMBER	REVISION	DATE
0:	FINAL LE	03-27-09
A:	REVIEW	02-05-09

DRAWN BY: S.B.
DRAWING NO: SHT 1

APPROVALS

Site Owner	Date
Construction Manager	Date
RF Engineer	Date
Site Acquisition	Date

The above parties 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 or modifications they may impose.



SOUTH ELEVATION VIEW

SCALE: 1" = 20'-0"

20 0 20 40 60

TRANSCEND WIRELESS
10 INDUSTRIAL AVENUE
MAHWAH, NJ 07430
OFFICE: 201-315-2085
FAX: 201-584-0055

FOR

OMNIPOINT COMMUNICATIONS, INC.
DBA T-MOBILE USA, INC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7159

ATLANTIS GROUP
15 Cypress St., Suite 300
Newton Centre, MA 02459
Office: 617-965-0789
Fax: 617-663-6032

SITE NAME: BLOOMFIELD/DTWN

SITE NUMBER: CT11278A

ADDRESS: 28 BREWER STREET
BLOOMFIELD, CT 06002

NUMBER	REVISION	DATE
0:	FINAL LE	03-27-09
A:	REVIEW	02-05-09

DRAWN BY: S.B.

DRAWING NO: SHT-2

APPROVALS

Site Owner _____ Date _____

Construction Manager _____ Date _____

RF Engineer _____ Date _____

Site Acquisition _____ Date _____

The above parties 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 or modifications they may impose.

March 24, 2009

Mr. Kevin DePatie
Crown Castle USA Inc.
12725 Morris Road Ext., Suite 400
Alpharetta, GA 30004
(678)366-1228

B&T Engineering, Inc.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
ctuttle@btengineering.com

Subject: **Structural Analysis Report**

Carrier Designation: ***T-Mobile* Co-Locate**
Carrier Site Number: CT11278A
Carrier Site Name: Bloomfield/Dtwn

Crown Castle Designation: **Crown Castle BU Number:** 876329
Crown Castle Site Name: Mtn. View Cemetery (Filley Park)
Crown Castle JDE Job Number: 116654
Crown Castle Work Order Number: 259513

Engineering Firm Designation: **B&T Engineering, Inc. Project Number:** 80145

Site Data: **28 Brewer Dr., Bloomfield, CT, Hartford County**
Latitude *41° 50' 6.57"*, Longitude *-72° 44' 28.2"*
120 Foot - Monopole

Dear Mr. DePatie,

B&T Engineering, Inc. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 323557, in accordance with application 75829, revision 0.

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

LC1: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard and the 2003 IBC (State Building Code, 2005 CT Supplement) based upon a wind speed of 80 mph fastest mile.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *B&T Engineering, Inc.* appreciate the opportunity of providing our continuing professional services to you and Crown Castle USA Inc. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:
B&T Engineering, Inc.

STATE OF CONNECTICUT ★ CHAD TUTTLE ★ No. 23924 LICENSED PROFESSIONAL ENGINEER 3/24/09

Jeff Roberts
Project Engineer

Chad E. Tuttle, P.E.
President

RISA Tower Report - version 5.3.1.0

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 120 ft Monopole designed by ROHN in October of 1996. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-E. The tower has been reinforced multiple times and those modifications have been incorporated in this analysis.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice, 69.3 mph with 0.5 inch ice thickness and 60 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
107	107	9	Andrew	ONEBASE TWIN DUAL DUPLEX TMA	6	1 5/8	
		3	Celwave	APX16DWV-16DWV-S-E-ACU			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
116	120	6	EMS Wireless	RR90-17-00DP	6	1 5/8	1, 4
		3	EMS Wireless	RR90-17-00DP	3	1 5/8	2, 4
		9	MLA	6' x 1' x 6" Panel	9	1 5/8	3, 4
	116	1	--	Platform With Rails	--	--	1
107	107	1	--	Low Profile Platform	12	1 5/8	1
		3	EMS Wireless	DR65-18-00DP			
97	100	3	Powerwave	7770.00	3	7/8	2
		6	Powerwave	LGP13519			
		6	ADC	DB 800/1900 FB	9	7/8	1
		6	CSS	DUO1417-8686			
	97	1	--	Platform With Rails			
87	87	3	--	T-Frames	12	1 5/8	2
		6	Antel	LPA-185063/12CFx4			
		6	Antel	LPA-80063/4CFx5			
59	63	1	Decibel	DB536	1	1/2	1
	59	1	--	Standoff			
50	50	1	--	Standoff	1	1 5/8	1
		1	--	GPS			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) MLA Equipment
4) Analysis Performed Using MLA Equipment

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
120	120	1	--	Cellular Platform	12	1 5/8
		12	Swedcom	ALP9212		
100	100	1	--	Cellular Platform	12	1 5/8
		12	Swedcom	ALP9212		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Online Application	T-Mobile Application	App ID: 75829 Rev 0	Crown OTG
Tower Manufacturing Drawings	ROHN File No.34738/SW	2158527	Crown OTG
Tower Modification Drawings	Semaan Engineering Solutions Project No. CT03XC076	Date: 07/24/07	Crown OTG
Tower Modification Drawings	Vertical Solutions Project No.080063.01	Date: 01/22/08	Crown OTG
Tower Modification Drawings	Aero Solutions/B&T Engineering Project No.79582	Date: 09/24/08	Crown OTG
Foundation Drawings	ROHN Eng. File 34738SW	1616549	Crown OTG
Geotech Report	Dr. Clearence Welti, P.E., P.C. Date: 08/9/1996	1529722	Crown OTG
Antenna Configuration	Crown CAD Package	Date: 03/13/09	Crown OTG

3.1) Analysis Method

RISATower (version 5.3.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1. Tower and structures were built in accordance with the manufacturer's specifications.
2. The tower and structures have been maintained in accordance with manufacturer's specifications.
3. The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4. When applicable, transmission cables are considered to be structural components for calculating wind loads, as allowed by TIA/EIA-222-F.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and B&T Engineering, Inc. should be allowed to review any new information to determine its effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	120 - 90	Pole	P24x1/4	1	-8.421	589.190	71.2	Pass
L2	90 - 81	Pole	P24x3/8	2	-11.170	934.940	66.3	Pass
L3	81 - 69	Pole	P24x3/8+4(PL3x1.25)	3	-13.576	1438.307	68.7	Pass
L4	69 - 60	Pole	P24x3/8+4(C8x11.5)	4	-15.397	1387.653	90.9	Pass
L5	60 - 36	Pole	P30x3/8+4(C8x11.5)	5	-21.073	1626.300	99.7	Pass
L6	36 - 30	Pole	P30x3/8+4(C8x11.5)+4(MP3-05)	6	-23.126	2793.608	65.5	Pass
L7	30 - 3	Pole	P36x3/8+4(C8x18.75)	7	-30.536	2149.609	98.2	Pass
L8	3 - 0	Pole	P36x3/8+4(C8x18.75)+3(FL3x1.25)	8	-31.345	2516.317	87.2	Pass
							Summary	
						Pole (L5)	99.7	Pass
						Rating =	99.7	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC1

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	73.6	Pass
1	Base Plate	Base	75.3	Pass
1	Flange Connection	90	54.7	Pass
1	Flange Connection	60	79.8	Pass
	Flange Connection	30	93.7	Pass
1	Base Foundation	Base	78.0	Pass

Structure Rating (max from all components) =	99.7 %

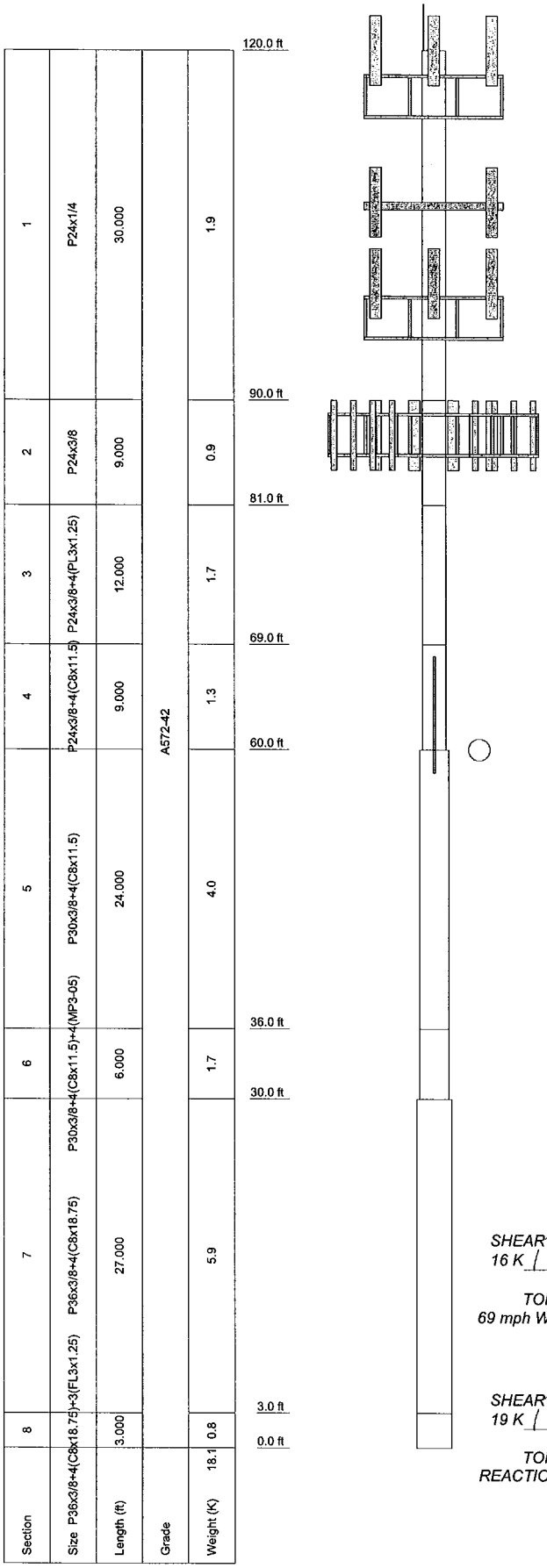
Notes:
1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.
2) The percent capacities shown above (excluding foundations) include the 1/3 increase in allowable stresses as allowed by TIA/EIA-222-F.

4.1) Recommendations

N/A

APPENDIX A

RISA TOWER OUTPUT



DESIGNED APPURTENANCE LOADING

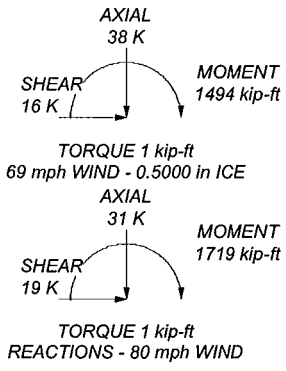
TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod (E)	120	(2) DUO1417-8686 (E)	100
(3) 6'x1'x6" Panel (MLA)	120	7770.00 (E)	100
(3) 6'x1'x6" Panel (MLA)	120	7770.00 (E)	100
(3) 6'x1'x6" Panel (MLA)	120	7770.00 (E)	100
Platform With Rails (E)	116	(2) DB 800/1900 FB Masthead (E)	100
APX16DWV-16DWV-S-E-ACU (P)	107	(2) DB 800/1900 FB Masthead (E)	100
		(2) DB 800/1900 FB Masthead (E)	100
APX16DWV-16DWV-S-E-ACU (P)	107	(2) LGP13519 (R)	100
		(2) LGP13519 (R)	100
APX16DWV-16DWV-S-E-ACU (P)	107	(2) LGP13519 (R)	100
		Platform With Rails (E)	97
DR65-18-00DP (E)	107	(2) LPA-80063/4CFx5 (R)	87
DR65-18-00DP (E)	107	(2) LPA-80063/4CFx5 (R)	87
DR65-18-00DP (E)	107	(2) LPA-80063/4CFx5 (R)	87
(3) ONEBASE TWIN DUAL DUPLEX TMA (P)	107	(2) LPA-185063/12CFx4 (R)	87
(3) ONEBASE TWIN DUAL DUPLEX TMA (P)	107	(2) LPA-185063/12CFx4 (R)	87
		(2) LPA-185063/12CFx4 (R)	87
(3) ONEBASE TWIN DUAL DUPLEX TMA (P)	107	(3) T-Frames (R)	87
		DB536 (E)	63
Low Profile Platform (E)	107	Standoff (E)	59
(2) DUO1417-8686 (E)	100	GPS_Reserved (E)	50
(2) DUO1417-8686 (E)	100	Standoff (E)	50

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-42	42 ksi	60 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 60 mph wind.
5. TOWER RATING: 99.7%



B&T Engineering, Inc.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: 918.587.4630
FAX: 918.295.0265

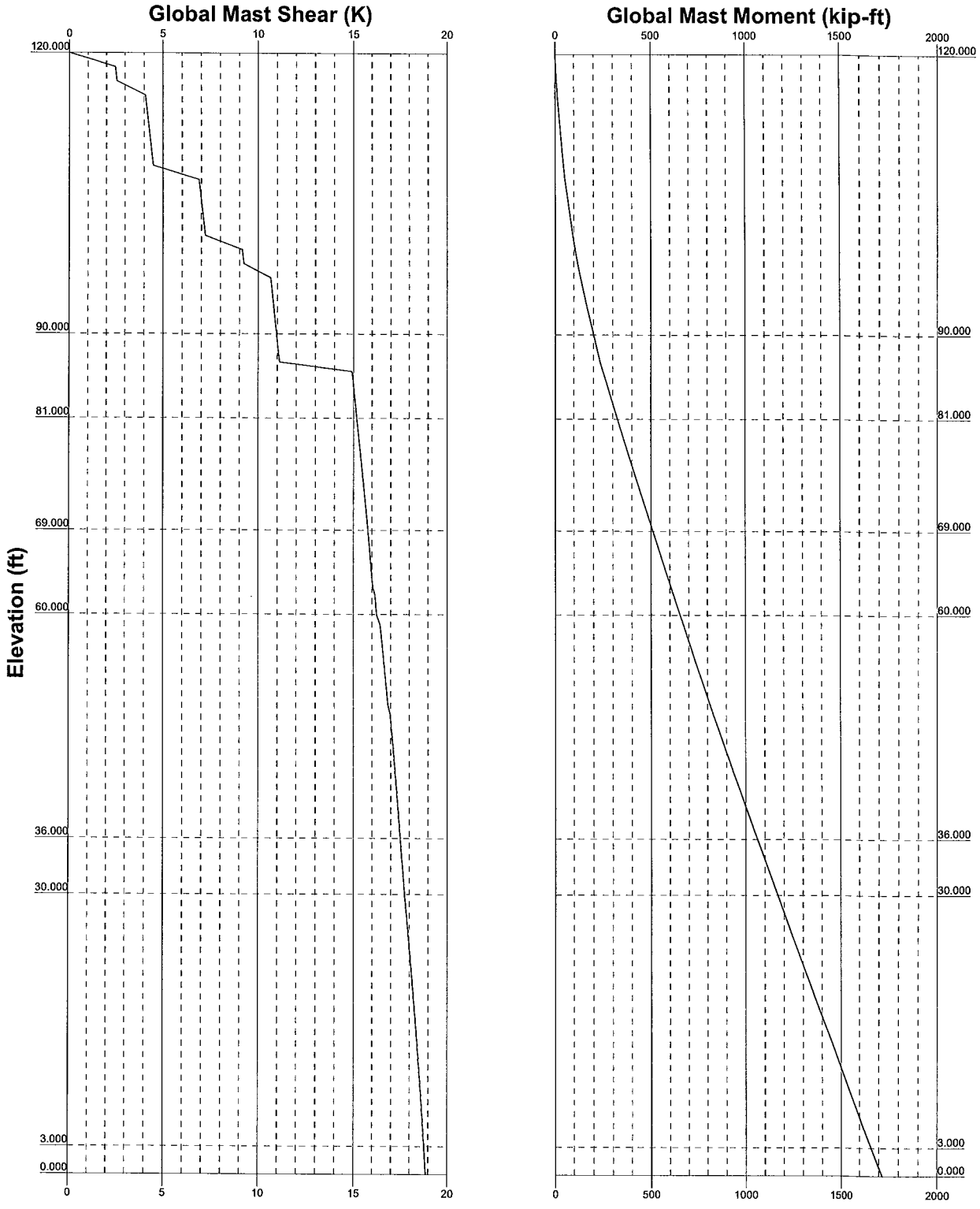
Job: 80145 - Mtn. View Cemetery, CT (BU 876329)		
Project: 120' Rohn Monopole / App ID: 75829 Rev 0		
Client: Crown Castle USA, Inc.	Drawn by: jr	App'd:
Code: TIA/EIA-222-F	Date: 03/24/09	Scale: NTS
Path: S:\B&T Engineering\Projects\Crown Castle\80145_876329_Mtn View Cem\Engineering\USA\80145_Mtn View Cem\C1_Conn Passed		Dwg No. E-1

TIA/EIA-222-F - 80 mph/69 mph 0.5000 in Ice

Vx ---------- Vz

Maximum Values

Mx ---------- Mz



B&T Engineering, Inc.
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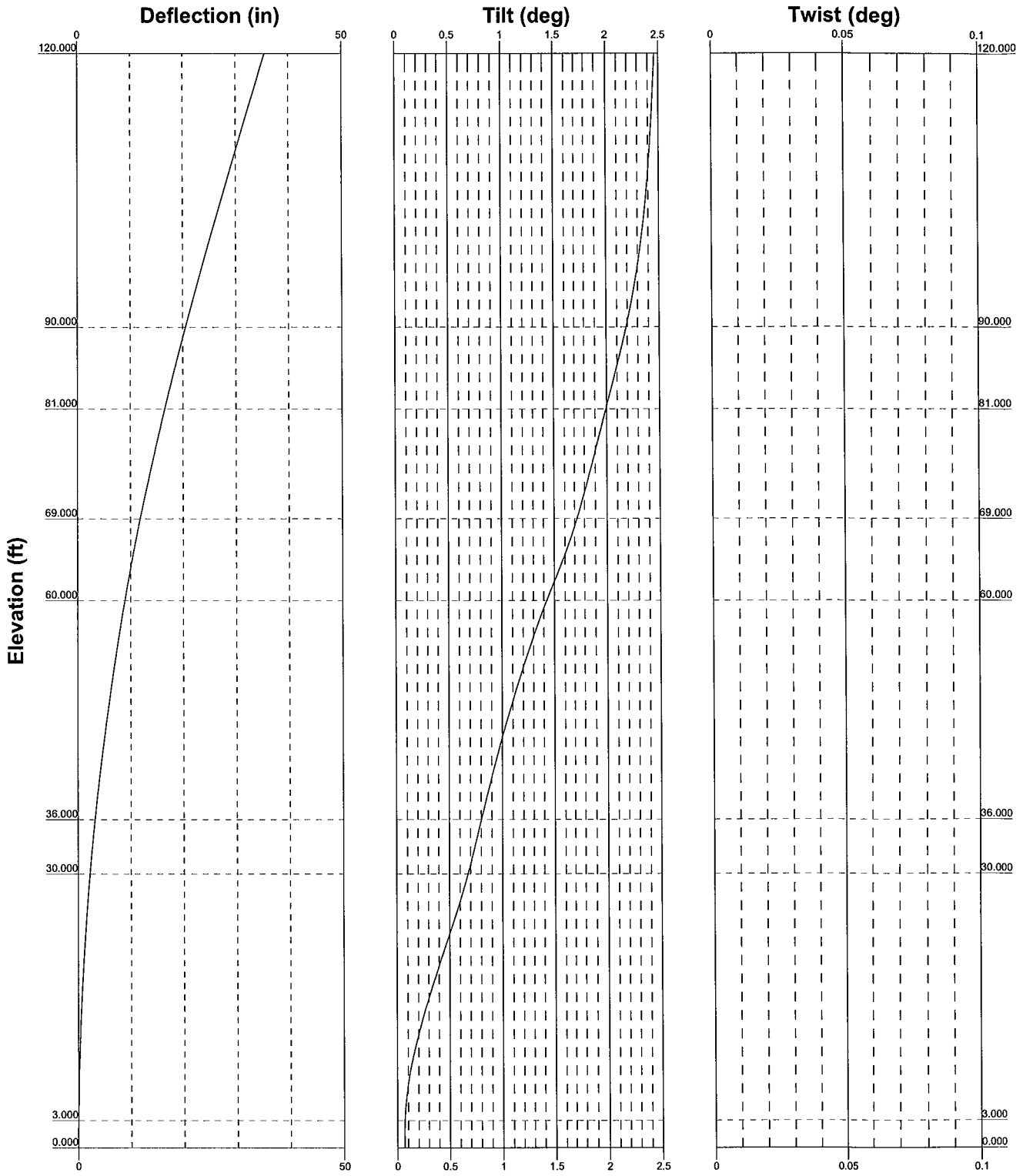
Tulsa, OK 74119
Phone: 918.587.4630
FAX: 918.295.0265

Job: 80145 - Mtn. View Cemetery, CT (BU 876329)			
Project: 120' Rohn Monopole / App ID: 75829 Rev 0			
Client: Crown Castle USA, Inc.	Drawn by: jr	App'd:	
Code: TIA/EIA-222-F	Date: 03/24/09	Scale: NTS	
Path: S:\B&T Engineering\Projects\Crown Castle\80145_876329_Mtn View Cem\Engineering\RISA\80145_Mtn View Cem\CT_Comm Pack\set		Dwg No. E-4	

TIA/EIA-222-F - Service - 60 mph

Maximum Values

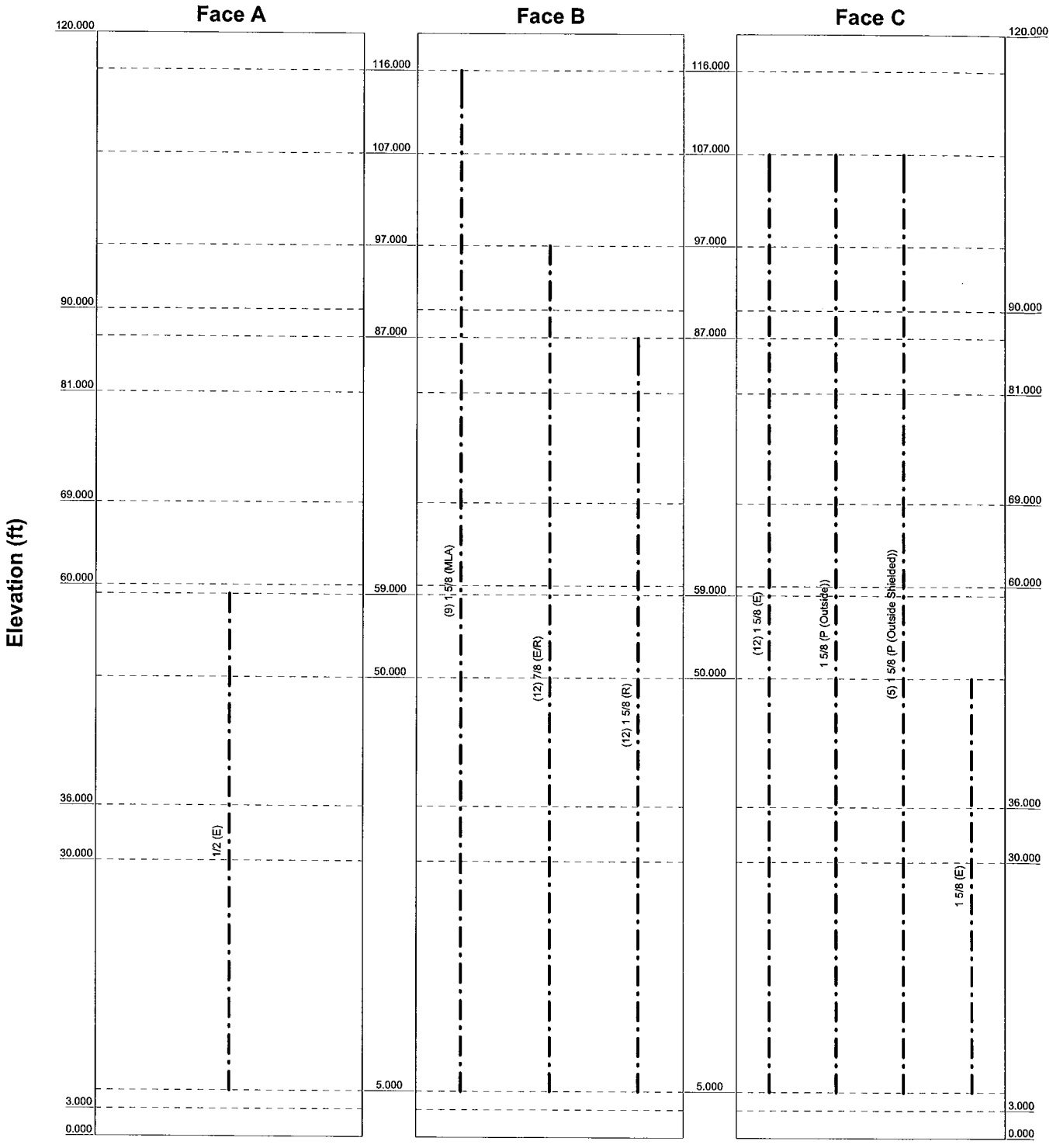


B&T Engineering, Inc.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: 918.587.4630
FAX: 918.295.0265

Job: 80145 - Mtn. View Cemetery, CT (BU 876329)		
Project: 120' Rohn Monopole / App ID: 75829 Rev 0		
Client: Crown Castle USA, Inc.	Drawn by: jr	App'd:
Code: TIA/EIA-222-F	Date: 03/24/09	Scale: NTS
Path:		Dwg No. E-5

Feedline Distribution Chart
0' - 120'

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



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Job: 80145 - Mtn. View Cemetery, CT (BU 876329)			
Project: 120' Rohn Monopole / App ID: 75829 Rev 0			
Client: Crown Castle USA, Inc.	Drawn by: jr	App'd:	
Code: TIA/EIA-222-F	Date: 03/24/09	Scale: NTS	
Path: S:\B&T Engineering\Projects\Crown Castle\80145_876329_Mtn View Cem\Engineering\RSA\80145_Mtn View Cem_CT_Conn Pyramid		Dwg No. E-7	

Tower Input Data

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

Tower is located in Hartford County, Connecticut.
Basic wind speed of 80 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56.000 pcf.
A wind speed of 69 mph is used in combination with ice.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Treat Feedline Bundles As Cylinder
Consider Moments - Horizontals	Assume Legs Pinned	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Diagonals	√ Assume Rigid Index Plate	√ Calculate Redundant Bracing Forces
Use Moment Magnification	√ Use Clear Spans For Wind Area	Ignore Redundant Members in FEA
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	SR Leg Bolts Resist Compression
√ Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	√ All Leg Panels Have Same Allowable
Escalate Ice	√ Bypass Mast Stability Checks	Offset Girt At Foundation
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Consider Feedline Torque
Use Special Wind Profile	√ Project Wind Area of Appurt.	Include Angle Block Shear Check
Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Poles
Leg Bolts Are At Top Of Section	SR Members Have Cut Ends	Include Shear-Torsion Interaction
√ Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Always Use Sub-Critical Flow
√ Use Diamond Inner Bracing (4 Sided)	√ Triangulate Diamond Inner Bracing	Use Top Mounted Sockets
Add IBC .6D+W Combination		

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	120.000-90.000	30.000	P24x1/4	A572-42 (42 ksi)	
L2	90.000-81.000	9.000	P24x3/8	A572-42 (42 ksi)	
L3	81.000-69.000	12.000	P24x3/8+4(PL3x1.25)	A572-42 (42 ksi)	
L4	69.000-60.000	9.000	P24x3/8+4(C8x11.5)	A572-42 (42 ksi)	
L5	60.000-36.000	24.000	P30x3/8+4(C8x11.5)	A572-42 (42 ksi)	
L6	36.000-30.000	6.000	P30x3/8+4(C8x11.	A572-42	

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L7	30.000-3.000	27.000	5)+4(MP3-05) P36x3/8+4(C8x18. 75)	(42 ksi) A572-42 (42 ksi)	
L8	3.000-0.000	3.000	P36x3/8+4(C8x18. 75)+3(FL3x1.25)	A572-42 (42 ksi)	

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 120.000-90.000				1	1	1		
L2 90.000-81.000				1	1	1		
L3 81.000-69.000				1	1	1		
L4 69.000-60.000				1	1	1		
L5 60.000-36.000				1	1	1		
L6 36.000-30.000				1	1	1		
L7 30.000-3.000				1	1	1		
L8 3.000-0.000				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft²/ft	Weight klf
1 5/8 (MLA) *	B	No	Inside Pole	116.000 - 5.000	9	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
1 5/8 (E)	C	No	Inside Pole	107.000 - 5.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
1 5/8 (P (Outside))	C	No	CaAa (Out Of Face)	107.000 - 5.000	1	No Ice	0.198	0.001
						1/2" Ice	0.298	0.003
1 5/8 (P (Outside Shielded)) *	C	No	Inside Pole	107.000 - 5.000	5	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
7/8 (E/R) *	B	No	Inside Pole	97.000 - 5.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
1 5/8 (R) *	B	No	Inside Pole	87.000 - 5.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
1/2 (E) *	A	No	Inside Pole	59.000 - 5.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
1 5/8 (E)	C	No	Inside Pole	50.000 - 5.000	1	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	120.000-90.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.289
		C	0.000	0.000	0.000	3.366	0.318
L2	90.000-81.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.217
		C	0.000	0.000	0.000	1.782	0.168
L3	81.000-69.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.340
		C	0.000	0.000	0.000	2.376	0.225
L4	69.000-60.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.255
		C	0.000	0.000	0.000	1.782	0.168
L5	60.000-36.000	A	0.000	0.000	0.000	0.000	0.006
		B	0.000	0.000	0.000	0.000	0.680
		C	0.000	0.000	0.000	4.752	0.464
L6	36.000-30.000	A	0.000	0.000	0.000	0.000	0.002
		B	0.000	0.000	0.000	0.000	0.170
		C	0.000	0.000	0.000	1.188	0.119
L7	30.000-3.000	A	0.000	0.000	0.000	0.000	0.006
		B	0.000	0.000	0.000	0.000	0.708
		C	0.000	0.000	0.000	4.950	0.494
L8	3.000-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	120.000-90.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.289
		C		0.000	0.000	0.000	5.066	0.344
L2	90.000-81.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.217
		C		0.000	0.000	0.000	2.682	0.182
L3	81.000-69.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.340
		C		0.000	0.000	0.000	3.576	0.243
L4	69.000-60.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.255
		C		0.000	0.000	0.000	2.682	0.182
L5	60.000-36.000	A	0.500	0.000	0.000	0.000	0.000	0.006
		B		0.000	0.000	0.000	0.000	0.680
		C		0.000	0.000	0.000	7.152	0.500
L6	36.000-30.000	A	0.500	0.000	0.000	0.000	0.000	0.002
		B		0.000	0.000	0.000	0.000	0.170
		C		0.000	0.000	0.000	1.788	0.128
L7	30.000-3.000	A	0.500	0.000	0.000	0.000	0.000	0.006
		B		0.000	0.000	0.000	0.000	0.708
		C		0.000	0.000	0.000	7.450	0.532
L8	3.000-0.000	A	0.500	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	120.000-90.000	-0.1380	0.0797	-0.1948	0.1125
L2	90.000-81.000	-0.2340	0.1351	-0.3251	0.1877
L3	81.000-69.000	-0.2340	0.1351	-0.3251	0.1877
L4	69.000-60.000	-0.2340	0.1351	-0.3251	0.1877
L5	60.000-36.000	-0.2383	0.1376	-0.3359	0.1939
L6	36.000-30.000	-0.2383	0.1376	-0.3359	0.1939
L7	30.000-3.000	-0.2244	0.1296	-0.3201	0.1848
L8	3.000-0.000	0.0000	0.0000	0.0000	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Lightning Rod (E)	C	From Leg	0.000 0.000 2.000	0.0000	120.000	No Ice 1/2" Ice	0.500 0.750	0.500 0.750	0.100 0.200
*									
(3) 6'x1'x6" Panel (MLA)	C	From Face	0.000 0.000 0.000	0.0000	120.000	No Ice 1/2" Ice	8.400 8.949	4.700 5.147	0.035 0.082
(3) 6'x1'x6" Panel (MLA)	B	From Face	0.000 0.000 0.000	0.0000	120.000	No Ice 1/2" Ice	8.400 8.949	4.700 5.147	0.035 0.082
(3) 6'x1'x6" Panel (MLA)	A	From Face	0.000 0.000 0.000	0.0000	120.000	No Ice 1/2" Ice	8.400 8.949	4.700 5.147	0.035 0.082
Platform With Rails (E)	C	None		0.0000	116.000	No Ice 1/2" Ice	32.000 42.000	32.000 42.000	2.000 2.500
*									
APX16DWV-16DWV-S-E-ACU (P)	C	From Face	0.000 0.000 0.000	0.0000	107.000	No Ice 1/2" Ice	6.699 7.131	2.003 2.326	0.040 0.071
APX16DWV-16DWV-S-E-ACU (P)	B	From Face	0.000 0.000 0.000	0.0000	107.000	No Ice 1/2" Ice	6.699 7.131	2.003 2.326	0.040 0.071
APX16DWV-16DWV-S-E-ACU (P)	A	From Face	0.000 0.000 0.000	0.0000	107.000	No Ice 1/2" Ice	6.699 7.131	2.003 2.326	0.040 0.071
DR65-18-00DP (E)	C	From Face	0.000 0.000	0.0000	107.000	No Ice 1/2" Ice	10.163 10.849	4.278 5.346	0.025 0.069

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000							
DR65-18-00DP	B	From Face	0.000		0.0000	107.000	No Ice	10.163	4.278	0.025
(E)			0.000				1/2" Ice	10.849	5.346	0.069
			0.000							
DR65-18-00DP	A	From Face	0.000		0.0000	107.000	No Ice	10.163	4.278	0.025
(E)			0.000				1/2" Ice	10.849	5.346	0.069
			0.000							
(3) ONEBASE TWIN DUAL	C	From Face	0.000		0.0000	107.000	No Ice	0.000	0.306	0.011
DUPLEX TMA			0.000				1/2" Ice	0.000	0.392	0.016
(P)			0.000							
(3) ONEBASE TWIN DUAL	B	From Face	0.000		0.0000	107.000	No Ice	0.000	0.306	0.011
DUPLEX TMA			0.000				1/2" Ice	0.000	0.392	0.016
(P)			0.000							
(3) ONEBASE TWIN DUAL	A	From Face	0.000		0.0000	107.000	No Ice	0.000	0.306	0.011
DUPLEX TMA			0.000				1/2" Ice	0.000	0.392	0.016
(P)			0.000							
Low Profile Platform	C	None			0.0000	107.000	No Ice	20.000	20.000	1.500
(E)							1/2" Ice	23.000	23.000	2.000
*										
(2) DUO1417-8686	C	From Face	0.000		0.0000	100.000	No Ice	6.533	4.200	0.020
(E)			0.000				1/2" Ice	6.940	4.574	0.062
			0.000							
(2) DUO1417-8686	B	From Face	0.000		0.0000	100.000	No Ice	6.533	4.200	0.020
(E)			0.000				1/2" Ice	6.940	4.574	0.062
			0.000							
(2) DUO1417-8686	A	From Face	0.000		0.0000	100.000	No Ice	6.533	4.200	0.020
(E)			0.000				1/2" Ice	6.940	4.574	0.062
			0.000							
7770.00	C	From Face	0.000		0.0000	100.000	No Ice	5.882	2.928	0.035
(E)			0.000				1/2" Ice	6.314	3.273	0.068
			0.000							
7770.00	A	From Face	0.000		0.0000	100.000	No Ice	5.882	2.928	0.035
(E)			0.000				1/2" Ice	6.314	3.273	0.068
			0.000							
7770.00	B	From Face	0.000		0.0000	100.000	No Ice	5.882	2.928	0.035
(E)			0.000				1/2" Ice	6.314	3.273	0.068
			0.000							
(2) DB 800/1900 FB	C	From Face	0.000		0.0000	100.000	No Ice	0.000	0.803	0.029
Masthead			0.000				1/2" Ice	0.000	0.936	0.040
(E)			0.000							
(2) DB 800/1900 FB	B	From Face	0.000		0.0000	100.000	No Ice	0.000	0.803	0.029
Masthead			0.000				1/2" Ice	0.000	0.936	0.040
(E)			0.000							
(2) DB 800/1900 FB	A	From Face	0.000		0.0000	100.000	No Ice	0.000	0.803	0.029
Masthead			0.000				1/2" Ice	0.000	0.936	0.040
(E)			0.000							
(2) LGP13519	C	From Face	0.000		0.0000	100.000	No Ice	0.000	0.207	0.005
(R)			0.000				1/2" Ice	0.000	0.280	0.008
			0.000							
(2) LGP13519	B	From Face	0.000		0.0000	100.000	No Ice	0.000	0.207	0.005
(R)			0.000				1/2" Ice	0.000	0.280	0.008
			0.000							
(2) LGP13519	A	From Face	0.000		0.0000	100.000	No Ice	0.000	0.207	0.005
(R)			0.000				1/2" Ice	0.000	0.280	0.008
			0.000							
Platform With Rails	C	None			0.0000	97.000	No Ice	32.000	32.000	2.000
(E)							1/2" Ice	42.000	42.000	2.500

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
*									
(2) LPA-80063/4CFx5	C	From Face	0.000	0.0000	87.000	No Ice	7.011	6.084	0.020
(R)			0.000			1/2" Ice	7.421	6.481	0.073
			0.000						
(2) LPA-80063/4CFx5	B	From Face	0.000	0.0000	87.000	No Ice	7.011	6.084	0.020
(R)			0.000			1/2" Ice	7.421	6.481	0.073
			0.000						
(2) LPA-80063/4CFx5	A	From Face	0.000	0.0000	87.000	No Ice	7.011	6.084	0.020
(R)			0.000			1/2" Ice	7.421	6.481	0.073
			0.000						
(2) LPA-185063/12CFx4	C	From Face	0.000	0.0000	87.000	No Ice	4.972	4.511	0.014
(R)			0.000			1/2" Ice	5.417	4.952	0.046
			0.000						
(2) LPA-185063/12CFx4	B	From Face	0.000	0.0000	87.000	No Ice	4.972	4.511	0.014
(R)			0.000			1/2" Ice	5.417	4.952	0.046
			0.000						
(2) LPA-185063/12CFx4	A	From Face	0.000	0.0000	87.000	No Ice	4.972	4.511	0.014
(R)			0.000			1/2" Ice	5.417	4.952	0.046
			0.000						
(3) T-Frames	C	None		0.0000	87.000	No Ice	32.000	32.000	1.500
(R)						1/2" Ice	42.000	42.000	2.000
*									
DB536	A	From Leg	2.000	0.0000	63.000	No Ice	2.828	2.828	0.015
(E)			0.000			1/2" Ice	3.988	3.988	0.036
			0.000						
Standoff	A	From Leg	1.500	0.0000	59.000	No Ice	4.000	4.000	0.200
(E)			0.000			1/2" Ice	6.000	6.000	0.350
			0.000						
*									
GPS_Reserved	A	From Leg	1.000	0.0000	50.000	No Ice	0.297	0.297	0.001
(E)			0.000			1/2" Ice	0.374	0.374	0.005
			0.000						
Standoff	A	From Leg	0.500	0.0000	50.000	No Ice	2.000	2.000	0.100
(E)			0.000			1/2" Ice	4.000	4.000	0.180
			0.000						

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice

Comb. No.	Description
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice
15	Dead+Wind 0 deg+Ice
16	Dead+Wind 30 deg+Ice
17	Dead+Wind 60 deg+Ice
18	Dead+Wind 90 deg+Ice
19	Dead+Wind 120 deg+Ice
20	Dead+Wind 150 deg+Ice
21	Dead+Wind 180 deg+Ice
22	Dead+Wind 210 deg+Ice
23	Dead+Wind 240 deg+Ice
24	Dead+Wind 270 deg+Ice
25	Dead+Wind 300 deg+Ice
26	Dead+Wind 330 deg+Ice
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	120 - 90	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-12.354	0.211	-0.122
			Max. Mx	11	-8.421	201.145	-0.047
			Max. My	8	-8.421	0.104	-201.097
			Max. Vy	11	-10.960	201.145	-0.047
			Max. Vx	2	-10.960	0.104	200.985
			Max. Torque	26			0.059
L2	90 - 81	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-16.453	0.231	-0.133
			Max. Mx	11	-11.170	324.385	-0.044
			Max. My	8	-11.170	0.113	-324.330
			Max. Vy	11	-15.177	324.385	-0.044
			Max. Vx	2	-15.177	0.113	324.212
			Max. Torque	26			0.070
L3	81 - 69	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-18.963	0.257	-0.148
			Max. Mx	11	-13.576	510.165	-0.040
			Max. My	8	-13.576	0.126	-510.101
			Max. Vy	11	-15.783	510.165	-0.040
			Max. Vx	2	-15.783	0.126	509.978
			Max. Torque	26			0.085
L4	69 - 60	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-20.836	0.277	-0.052
			Max. Mx	11	-15.397	654.131	-0.005
			Max. My	8	-15.397	0.135	-654.014
			Max. Vy	11	-16.245	654.131	-0.005

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-16.245	0.135	653.979
			Max. Torque	17			0.262
L5	60 - 36	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-26.957	0.343	1.198
			Max. Mx	11	-21.074	1061.486	0.702
			Max. My	2	-21.074	0.165	1062.024
			Max. Vy	11	-17.519	1061.486	0.702
			Max. Vx	2	-17.520	0.165	1062.024
			Max. Torque	18			0.837
L6	36 - 30	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-29.066	0.360	1.188
			Max. Mx	11	-23.126	1167.261	0.700
			Max. My	2	-23.126	0.172	1167.789
			Max. Vy	11	-17.754	1167.261	0.700
			Max. Vx	2	-17.755	0.172	1167.789
			Max. Torque	18			0.827
L7	30 - 3	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-36.793	0.443	1.141
			Max. Mx	11	-30.536	1661.438	0.684
			Max. My	2	-30.536	0.206	1661.915
			Max. Vy	11	-18.799	1661.438	0.684
			Max. Vx	2	-18.799	0.206	1661.915
			Max. Torque	18			0.823
L8	3 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-37.625	0.443	1.141
			Max. Mx	11	-31.345	1717.908	0.683
			Max. My	2	-31.345	0.206	1718.385
			Max. Vy	5	18.875	-1717.496	0.683
			Max. Vx	2	-18.875	0.206	1718.385
			Max. Torque	18			0.805

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	37.625	0.000	0.000
	Max. H_x	11	31.352	18.864	0.000
	Max. H_z	2	31.352	-0.000	18.863
	Max. M_x	2	1718.385	-0.000	18.863
	Max. M_z	5	1717.496	-18.864	0.000
	Max. Torsion	18	0.805	-16.127	-0.000
	Min. Vert	2	31.352	-0.000	18.863
	Min. H_x	5	31.352	-18.864	0.000
	Min. H_z	8	31.352	-0.000	-18.864
	Min. M_x	8	-1717.018	-0.000	-18.864
	Min. M_z	11	-1717.908	18.864	0.000
	Min. Torsion	24	-0.805	16.127	-0.000

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	31.352	-0.000	-0.000	-0.659	0.196	0.000
Dead+Wind 0 deg - No Ice	31.352	0.000	-18.863	-1718.385	0.206	-0.126
Dead+Wind 30 deg - No Ice	31.352	9.435	-16.343	-1488.843	-858.984	-0.459
Dead+Wind 60 deg - No Ice	31.352	16.343	-9.435	-859.873	-1487.954	-0.669
Dead+Wind 90 deg - No Ice	31.352	18.864	-0.000	-0.683	-1717.496	-0.700
Dead+Wind 120 deg - No Ice	31.352	16.343	9.435	858.507	-1487.953	-0.543
Dead+Wind 150 deg - No Ice	31.352	9.435	16.343	1487.476	-858.983	-0.241
Dead+Wind 180 deg - No Ice	31.352	0.000	18.864	1717.018	0.206	0.126
Dead+Wind 210 deg - No Ice	31.352	-9.435	16.343	1487.476	859.396	0.459
Dead+Wind 240 deg - No Ice	31.352	-16.343	9.435	858.507	1488.365	0.669
Dead+Wind 270 deg - No Ice	31.352	-18.864	-0.000	-0.683	1717.908	0.700
Dead+Wind 300 deg - No Ice	31.352	-16.343	-9.435	-859.873	1488.366	0.543
Dead+Wind 330 deg - No Ice	31.352	-9.435	-16.343	-1488.843	859.397	0.241
Dead+Ice	37.625	-0.000	-0.000	-1.141	0.443	0.000
Dead+Wind 0 deg+Ice	37.625	0.000	-16.127	-1493.622	0.472	-0.149
Dead+Wind 30 deg+Ice	37.625	8.066	-13.971	-1294.116	-745.995	-0.531
Dead+Wind 60 deg+Ice	37.625	13.971	-8.066	-747.688	-1292.483	-0.772
Dead+Wind 90 deg+Ice	37.625	16.127	0.000	-1.199	-1491.950	-0.805
Dead+Wind 120 deg+Ice	37.625	13.971	8.066	745.267	-1292.443	-0.623
Dead+Wind 150 deg+Ice	37.625	8.066	13.971	1291.716	-745.993	-0.274
Dead+Wind 180 deg+Ice	37.625	0.000	16.127	1491.222	0.472	0.149
Dead+Wind 210 deg+Ice	37.625	-8.066	13.971	1291.715	746.937	0.531
Dead+Wind 240 deg+Ice	37.625	-13.971	8.066	745.267	1293.387	0.772
Dead+Wind 270 deg+Ice	37.625	-16.127	0.000	-1.199	1492.893	0.805
Dead+Wind 300 deg+Ice	37.625	-13.971	-8.066	-747.687	1293.427	0.623
Dead+Wind 330 deg+Ice	37.625	-8.066	-13.971	-1294.115	746.939	0.274
Dead+Wind 0 deg - Service	31.352	0.000	-10.611	-967.514	0.207	-0.071
Dead+Wind 30 deg - Service	31.352	5.307	-9.191	-838.185	-483.325	-0.259
Dead+Wind 60 deg - Service	31.352	9.191	-5.307	-484.217	-837.294	-0.378
Dead+Wind 90 deg - Service	31.352	10.611	0.000	-0.685	-966.623	-0.395
Dead+Wind 120 deg - Service	31.352	9.191	5.307	482.846	-837.293	-0.306
Dead+Wind 150 deg - Service	31.352	5.307	9.191	836.815	-483.325	-0.136
Dead+Wind 180 deg - Service	31.352	0.000	10.611	966.144	0.207	0.071
Dead+Wind 210 deg - Service	31.352	-5.307	9.191	836.815	483.738	0.259
Dead+Wind 240 deg - Service	31.352	-9.191	5.307	482.846	837.707	0.378
Dead+Wind 270 deg - Service	31.352	-10.611	0.000	-0.685	967.036	0.395
Dead+Wind 300 deg - Service	31.352	-9.191	-5.307	-484.216	837.707	0.306
Dead+Wind 330 deg - Service	31.352	-5.307	-9.191	-838.185	483.738	0.136

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
1	0.000	-31.352	0.000	0.000	31.352	0.000	0.000%
2	0.000	-31.352	-18.872	-0.000	31.352	18.863	0.022%
3	9.436	-31.352	-16.343	-9.435	31.352	16.343	0.002%
4	16.343	-31.352	-9.436	-16.343	31.352	9.435	0.002%
5	18.872	-31.352	0.000	-18.864	31.352	0.000	0.022%
6	16.343	-31.352	9.436	-16.343	31.352	-9.435	0.002%
7	9.436	-31.352	16.343	-9.435	31.352	-16.343	0.002%
8	0.000	-31.352	18.872	-0.000	31.352	-18.864	0.022%
9	-9.436	-31.352	16.343	9.435	31.352	-16.343	0.002%
10	-16.343	-31.352	9.436	16.343	31.352	-9.435	0.002%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
11	-18.872	-31.352	0.000	18.864	31.352	0.000	0.022%
12	-16.343	-31.352	-9.436	16.343	31.352	9.435	0.002%
13	-9.436	-31.352	-16.343	9.435	31.352	16.343	0.002%
14	0.000	-37.625	0.000	0.000	37.625	0.000	0.000%
15	0.000	-37.625	-16.134	-0.000	37.625	16.127	0.017%
16	8.067	-37.625	-13.972	-8.066	37.625	13.971	0.004%
17	13.972	-37.625	-8.067	-13.971	37.625	8.066	0.003%
18	16.134	-37.625	0.000	-16.127	37.625	-0.000	0.017%
19	13.972	-37.625	8.067	-13.971	37.625	-8.066	0.004%
20	8.067	-37.625	13.972	-8.066	37.625	-13.971	0.004%
21	0.000	-37.625	16.134	-0.000	37.625	-16.127	0.017%
22	-8.067	-37.625	13.972	8.066	37.625	-13.971	0.004%
23	-13.972	-37.625	8.067	13.971	37.625	-8.066	0.004%
24	-16.134	-37.625	0.000	16.127	37.625	-0.000	0.017%
25	-13.972	-37.625	-8.067	13.971	37.625	8.066	0.003%
26	-8.067	-37.625	-13.972	8.066	37.625	13.971	0.004%
27	0.000	-31.352	-10.615	-0.000	31.352	10.611	0.014%
28	5.308	-31.352	-9.193	-5.307	31.352	9.191	0.007%
29	9.193	-31.352	-5.308	-9.191	31.352	5.307	0.007%
30	10.615	-31.352	0.000	-10.611	31.352	-0.000	0.014%
31	9.193	-31.352	5.308	-9.191	31.352	-5.307	0.006%
32	5.308	-31.352	9.193	-5.307	31.352	-9.191	0.006%
33	0.000	-31.352	10.615	-0.000	31.352	-10.611	0.014%
34	-5.308	-31.352	9.193	5.307	31.352	-9.191	0.006%
35	-9.193	-31.352	5.308	9.191	31.352	-5.307	0.006%
36	-10.615	-31.352	0.000	10.611	31.352	-0.000	0.014%
37	-9.193	-31.352	-5.308	9.191	31.352	5.307	0.007%
38	-5.308	-31.352	-9.193	5.307	31.352	9.191	0.007%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	13	0.00013463	0.00012436
3	Yes	19	0.00000001	0.00011513
4	Yes	19	0.00000001	0.00011794
5	Yes	13	0.00013463	0.00012913
6	Yes	19	0.00000001	0.00011475
7	Yes	19	0.00000001	0.00011661
8	Yes	13	0.00013464	0.00012426
9	Yes	19	0.00000001	0.00011730
10	Yes	19	0.00000001	0.00011452
11	Yes	13	0.00013463	0.00012917
12	Yes	19	0.00000001	0.00011769
13	Yes	19	0.00000001	0.00011579
14	Yes	4	0.00000001	0.00000001
15	Yes	14	0.00013266	0.00009194
16	Yes	18	0.00000001	0.00014513
17	Yes	19	0.00000001	0.00010301
18	Yes	14	0.00013267	0.00009664
19	Yes	18	0.00000001	0.00014433
20	Yes	18	0.00000001	0.00014785
21	Yes	14	0.00013268	0.00009179
22	Yes	18	0.00000001	0.00014936
23	Yes	18	0.00000001	0.00014399

24	Yes	14	0.00013268	0.00009673
25	Yes	19	0.00000001	0.00010274
26	Yes	18	0.00000001	0.00014659
27	Yes	13	0.00013754	0.00008310
28	Yes	15	0.00000001	0.00010577
29	Yes	15	0.00000001	0.00011117
30	Yes	13	0.00013755	0.00008406
31	Yes	15	0.00000001	0.00010510
32	Yes	15	0.00000001	0.00010865
33	Yes	13	0.00013756	0.00008298
34	Yes	15	0.00000001	0.00010995
35	Yes	15	0.00000001	0.00010466
36	Yes	13	0.00013755	0.00008412
37	Yes	15	0.00000001	0.00011067
38	Yes	15	0.00000001	0.00010701

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	120 - 90	35.495	38	2.4639	0.0012
L2	90 - 81	20.512	38	2.1868	0.0012
L3	81 - 69	16.558	38	1.9947	0.0012
L4	69 - 60	11.863	38	1.7218	0.0012
L5	60 - 36	8.886	38	1.4262	0.0012
L6	36 - 30	3.166	38	0.8000	0.0005
L7	30 - 3	2.236	38	0.6782	0.0004
L8	3 - 0	0.022	38	0.0695	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
120.000	Lightning Rod	38	35.495	2.4639	0.0012	17414
116.000	Platform With Rails	38	33.416	2.4464	0.0012	17414
107.000	APX16DWV-16DWV-S-E-ACU	38	28.784	2.3961	0.0012	6697
100.000	(2) DUO1417-8686	38	25.276	2.3342	0.0012	4352
97.000	Platform With Rails	38	23.812	2.2984	0.0012	3784
87.000	(2) LPA-80063/4CFx5	38	19.156	2.1257	0.0012	2890
63.000	DB536	38	9.826	1.5282	0.0012	2096
59.000	Standoff	38	8.583	1.3931	0.0011	2176
50.000	GPS_Reserved	38	6.110	1.1251	0.0009	2147

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	120 - 90	62.984	2	4.3739	0.0024
L2	90 - 81	36.403	2	3.8824	0.0023
L3	81 - 69	29.389	13	3.5414	0.0024

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L4	69 - 60	21.060	13	3.0570	0.0024
L5	60 - 36	15.776	13	2.5321	0.0023
L6	36 - 30	5.623	13	1.4207	0.0011
L7	30 - 3	3.972	13	1.2045	0.0009
L8	3 - 0	0.039	13	0.1235	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
120.000	Lightning Rod	2	62.984	4.3739	0.0024	9896
116.000	Platform With Rails	2	59.296	4.3429	0.0024	9896
107.000	APX16DWV-16DWV-S-E-ACU	2	51.079	4.2537	0.0023	3805
100.000	(2) DUO1417-8686	2	44.856	4.1439	0.0023	2472
97.000	Platform With Rails	2	42.258	4.0804	0.0023	2149
87.000	(2) LPA-80063/4CFx5	2	33.998	3.7739	0.0024	1639
63.000	DB536	13	17.444	2.7131	0.0024	1185
59.000	Standoff	13	15.239	2.4736	0.0023	1229
50.000	GPS_Reserved	13	10.849	1.9997	0.0019	1212

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	120 - 90 (1)	P24x1/4	30.000	0.000	0.0	23.696	18.6532	-8.421	442.003	0.019
L2	90 - 81 (2)	P24x3/8	9.000	0.000	0.0	25.200	27.8325	-11.170	701.380	0.016
L3	81 - 69 (3)	P24x3/8+4(PL3x1.25)	12.000	0.000	0.0	25.200	42.8176	-13.576	1079.000	0.013
L4	69 - 60 (4)	P24x3/8+4(C8x11.5)	9.000	0.000	0.0	25.200	41.3097	-15.397	1041.000	0.015
L5	60 - 36 (5)	P30x3/8+4(C8x11.5)	24.000	0.000	0.0	25.200	48.4141	-21.073	1220.030	0.017
L6	36 - 30 (6)	P30x3/8+4(C8x11.5)+4(MP3 -05)	6.000	0.000	0.0	25.200	83.1639	-23.126	2095.730	0.011
L7	30 - 3 (7)	P36x3/8+4(C8x18.75)	27.000	0.000	0.0	25.200	63.9923	-30.536	1612.610	0.019
L8	3 - 0 (8)	P36x3/8+4(C8x18.75)+3(FL3 x1.25)	3.000	0.000	0.0	25.200	74.9093	-31.345	1887.710	0.017

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	120 - 90 (1)	P24x1/4	201.227	-22.030	23.696	0.930	0.000	0.000	23.696	0.000
L2	90 - 81 (2)	P24x3/8	324.509	-24.059	27.720	0.868	0.000	0.000	27.720	0.000

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L3	81 - 69 (3)	P24x3/8+4(PL3x1.25)	510.358	-25.023	27.720	0.903	0.000	0.000	27.720	0.000
L4	69 - 60 (4)	P24x3/8+4(C8x11.5)	654.357	-33.196	27.720	1.198	0.000	0.000	27.720	0.000
L5	60 - 36 (5)	P30x3/8+4(C8x11.5)	1062.417	-36.356	27.720	1.312	0.000	0.000	27.720	0.000
L6	36 - 30 (6)	P30x3/8+4(C8x11.5)+4(MP 3-05)	1168.233	-23.881	27.720	0.861	0.000	0.000	27.720	0.000
L7	30 - 3 (7)	P36x3/8+4(C8x18.75)	1662.583	-35.766	27.720	1.290	0.000	0.000	27.720	0.000
L8	3 - 0 (8)	P36x3/8+4(C8x18.75)+3(FL 3x1.25)	1719.075	-31.767	27.720	1.146	0.000	0.000	27.720	0.000

Pole Interaction Design Data

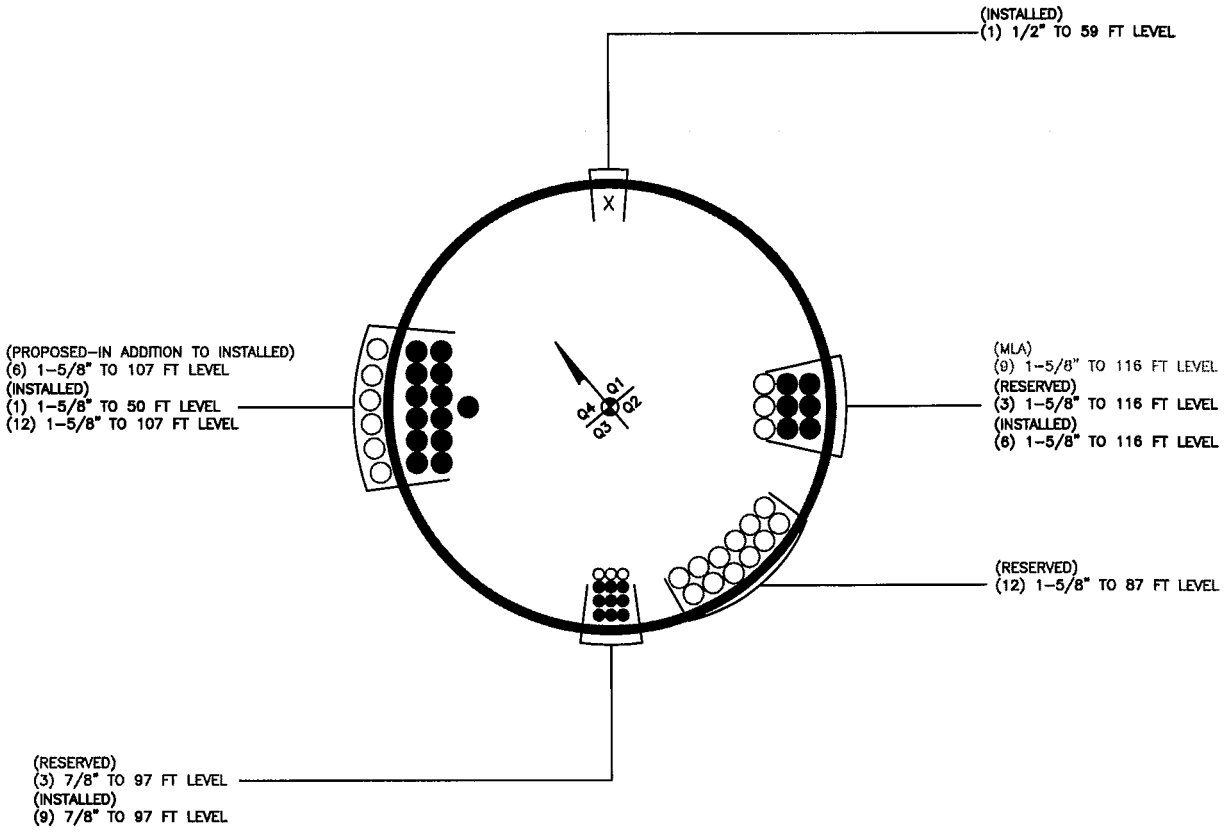
Section No.	Elevation ft	Size	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	120 - 90 (1)	P24x1/4	0.019	0.930	0.000	0.949 ✓	1.333	H1-3 ✓
L2	90 - 81 (2)	P24x3/8	0.016	0.868	0.000	0.884 ✓	1.333	H1-3 ✓
L3	81 - 69 (3)	P24x3/8+4(PL3x1.25)	0.013	0.903	0.000	0.915 ✓	1.333	H1-3 ✓
L4	69 - 60 (4)	P24x3/8+4(C8x11.5)	0.015	1.198	0.000	1.212 ✓	1.333	H1-3 ✓
L5	60 - 36 (5)	P30x3/8+4(C8x11.5)	0.017	1.312	0.000	1.329 ✓	1.333	H1-3 ✓
L6	36 - 30 (6)	P30x3/8+4(C8x11.5)+4(MP 3-05)	0.011	0.861	0.000	0.873 ✓	1.333	H1-3 ✓
L7	30 - 3 (7)	P36x3/8+4(C8x18.75)	0.019	1.290	0.000	1.309 ✓	1.333	H1-3 ✓
L8	3 - 0 (8)	P36x3/8+4(C8x18.75)+3(FL 3x1.25)	0.017	1.146	0.000	1.163 ✓	1.333	H1-3 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	120 - 90	Pole	P24x1/4	1	-8.421	589.190	71.2	Pass
L2	90 - 81	Pole	P24x3/8	2	-11.170	934.940	66.3	Pass
L3	81 - 69	Pole	P24x3/8+4(PL3x1.25)	3	-13.576	1438.307	68.7	Pass
L4	69 - 60	Pole	P24x3/8+4(C8x11.5)	4	-15.397	1387.653	90.9	Pass
L5	60 - 36	Pole	P30x3/8+4(C8x11.5)	5	-21.073	1626.300	99.7	Pass
L6	36 - 30	Pole	P30x3/8+4(C8x11.5)+4(MP3-05)	6	-23.126	2793.608	65.5	Pass
L7	30 - 3	Pole	P36x3/8+4(C8x18.75)	7	-30.536	2149.609	98.2	Pass
L8	3 - 0	Pole	P36x3/8+4(C8x18.75)+3(FL3x1.25)	8	-31.345	2516.317	87.2	Pass
							Summary	
						Pole (L5)	99.7	Pass
						RATING =	**99.7**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 876329 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

PROJECT	80145 MT VIEW CEMETARY - 876329
SUBJECT	BASE ANALYSIS
DATE	3/24/09
PAGE	1 OF 2

B&T Engineering, Inc.
1717 S. Boulder Ave., Ste. 300
Tulsa, OK 74119
(918) 587-4630

LOADS AND GECMETRY: GROUTED BASE PLATE

SEE ATTACHED SKETCH

$M = 1719\ k.ft(12) = 20{,}628.0\ k\cdot in$

BOLT ANALYSIS:

$I_{BG} = 10794\ in^4$

$\bar{y}_{INTERIOR\ BOLTS} = 20.75"$

$S_{BG} = 520.2\ in^3$

$f_t = 39.65\ ksi$ 1½" A325 BOLTS

$F_T = (1\frac{1}{3})(44ksi) = 58.7ksi$ INNER BOLT UNITY % = 67.6 %

$\bar{y}_{OUTER\ BOLTS} = 23.12"$

$S_{BG} = 466.9\ in^3$

$f_t = 44.18\ ksi$ $F_u = 150ksi$

$F_T = 0.3\ (150ksi)(1\frac{1}{3}) = 60ksi$ OUTER BOLT UNITY % = 73.6 %

PLATE ANALYSIS: 2" A36 PLATE

$T_B = (39.65\ ksi)(1.76\ in^2) = 69.78k$

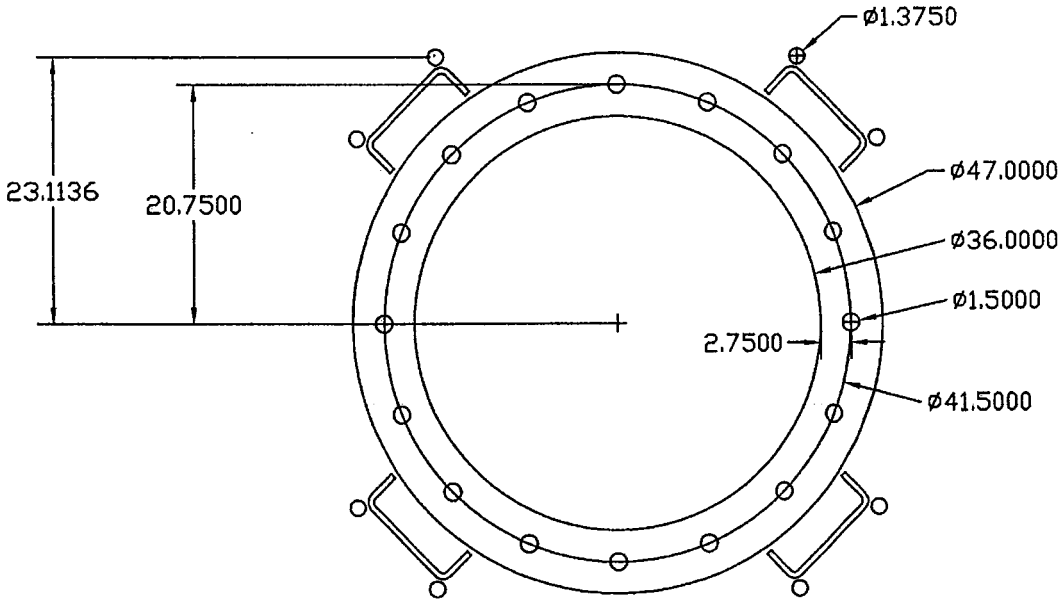
$M = (69.78k)(2.75") = 191.91\ k\cdot in$

$S_{PL} = (7.06")(2")^2/6 = 4.72\ in^3$

$f_b = 40.66\ ksi$

$F_b = (0.75)(1\frac{1}{3})F_y = 36ksi$ NO GOOD

$F_{b(PLASTIC)} = 1.5\ F_y = 54ksi$ PLASTIC PLATE UNITY % = 75.3 %



---------- REGIONS ----------

Area:		40.1535
Perimeter:		109.9557
Bounding box:	X:	-23.8011 -- 23.8011
	Y:	-23.8011 -- 23.8011
Centroid:	X:	0.0000
	Y:	0.0000
Moments of inertia:	X:	10794.0663
	Y:	10794.0663
Product of inertia:	XY:	0.0000
Radii of gyration:	X:	16.3957
	Y:	16.3957

Principal moments and X-Y directions about centroid:
I: 10794.0663 along [1.0000 0.0000]
J: 10794.0663 along [0.0000 1.0000]

BASE PLAN

PROJECT	80145 - MNT VIEW CEMETARY - B76329
SUBJECT	FLANGE @ 30'
DATE 3/24/09	PAGE 1 OF 3

B&T Engineering, Inc.
1717 S. Boulder Ave., Ste. 300
Tulsa, OK 74119
(918) 587-4630

LOADS AND GEOMETRY:

SEE ATTACHED SKETCH

$M = 1167.79\ k\text{-}ft(12) = 14{,}013.48\ k\text{-}in$

BOLT ANALYSIS: (16) 1½" ⌀ A325 BOLTS + (4) BRIDGE STIFFENERS

$I_{BG} = 16738.5\ in^4$

$\bar{Y}_{BG} = 20.75"$

$S_{BG} = 806.6\ in^3$

$M = 14{,}013.48\ k\text{-}in$

$f_t = 17.37\ ksi$

$F_T = (1/3)(44ksi) = 58.7ksi$ BOLT UNITY % = 29.6%

BRIDGE STIFFENER ANALYSIS:

$I_{BS} = 16738.5\ in^4$

$\bar{Y}_{BS} = 22.22"$

$S_{BS} = 753.3\ in^3$

$f_t = f_c = 18.6\ ksi$

$l_u = 7"$ ∴ F_t or $F_c = 0.6\ F_y\ (1/3) = 33.6ksi$ GOOD

$T = (18.6ksi)(7.67in^2) = 142.68\ K$

$P_{WELD} = (31")(2\ WELDS)(5\ 16ths)(0.925k/in/16ths)(1/3) = 382.3k$ GOOD

PROJECT	80145 - MNT VIEW CEMETARY - 876329
SUBJECT	FLANGE @ 30'
DATE	3/24/09
PAGE	2 OF 3

B&T Engineering, Inc.
1717 S. Boulder Ave., Ste. 300
Tulsa, OK 74119
(918) 587-4630

FLANGE PLATE ANALYSIS:

$b_{eff} = 7.86"$

$t = 2"$

$S_{PL} = (2")^2(7.86") / 6 = 5.24 in^3$

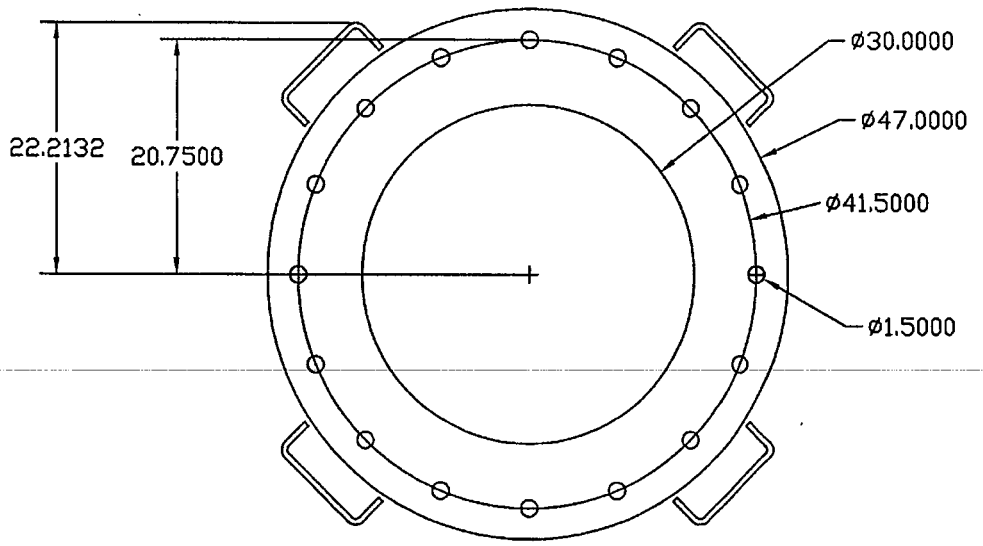
$T_B = (17.37 kips)(1.77 in^2) = 30.75 k$

$M = (30.75k)(5.75") = 176.78 k\cdot in$

$f_b = 33.74 ksi$

$F_b = (1\frac{1}{3})(0.75) F_y = 36 ksi$

PLATE UNITY % = 93.7%



---------- REGIONS ----------

Area:		58.9867
Perimeter:		202.2478
Bounding box:	X:	-22.2132 -- 22.2132
	Y:	-22.2132 -- 22.2132
Centroid:	X:	0.0000
	Y:	0.0000
Moments of inertia:	X:	16738.5359
	Y:	16738.5359
Product of inertia:	XY:	0.0000
Radii of gyration:	X:	16.8454
	Y:	16.8454

Principal moments and X-Y directions about centroid:
I: 16738.5359 along [1.0000 0.0000]
J: 16738.5359 along [0.0000 1.0000]

FLANGE @ 30'

PROJECT 80145 - MNT VIEW CEMETARY - 876329
SUBJECT FLANGE @ 60'
DATE 3/24/09 | PAGE 1 OF 3

B&T Engineering, Inc.
1717 S. Boulder Ave., Ste. 300
Tulsa, OK 74119
(918) 587-4630

LOADS AND GEOMETRY:

SEE ATTACHED SKETCH

$M = 654.13\ k\text{-}ft\ (12) = 7849.56\ k\text{-}in$

BOLT ANALYSIS:

1½" ϕ A325 BOLTS w/ (4) BRIDGE STIFFENERS

$I_{BG} = 11775.5\ in^4$

$\bar{y}_{BOLT} = 17.75"$

$S_{BG} = 663.4\ in^3$

$f_t = 11.83\ ksi$

$F_T = (1\frac{1}{2})(44ksi) = 58.7ksi$ BOLT UNITY % = 20.2%

BRIDGE STIFFENER ANALYSIS: A500 B ; $F_y = 42ksi$

$I_{BS} = 11775.5\ in^4$

$\bar{y}_{BS} = 20.09"$

$S_{BS} = 586.2\ in^3$

$f_t = f_c = 13.39\ ksi$

$l_u = 7"$ ⟹ VERY SHORT FOR AVAILABLE SECTION
∴ GOOD BY INSPECTION

$l_{WELD} = 36" - 1\frac{1}{2}" - 3\frac{1}{2}" = 31"$

$P_{WELD} = (31")(2\ WELDS)(5\ 16ths)(0.928k/in/16)(1\frac{1}{3}) = 382.3k$

$P_{APPLIED} = (7.67in^2)(13.39ksi) = 102.71k << P_{WELD}$

WELD IS GOOD

PROJECT 80145.-MDT. VIEW CEMETARY - 876329
SUBJECT FLANGE @ 60'
DATE 3/24/09 PAGE 2 OF 3

B&T ENGINEERING
B&T Engineering, Inc.
1717 S. Boulder Ave., Ste. 300
Tulsa, OK 74119
(918) 587-4630

FLANGE PLATE ANALYSIS:

b_{eff} (@ POLE) = 6.28"

t_{PL} = 2"

$S_{PL} = (2")^2(6.28")/6 = 4.19 in^3$

$T_B = (11.83 ksi)(1.77 in^2) = 20.94 k$

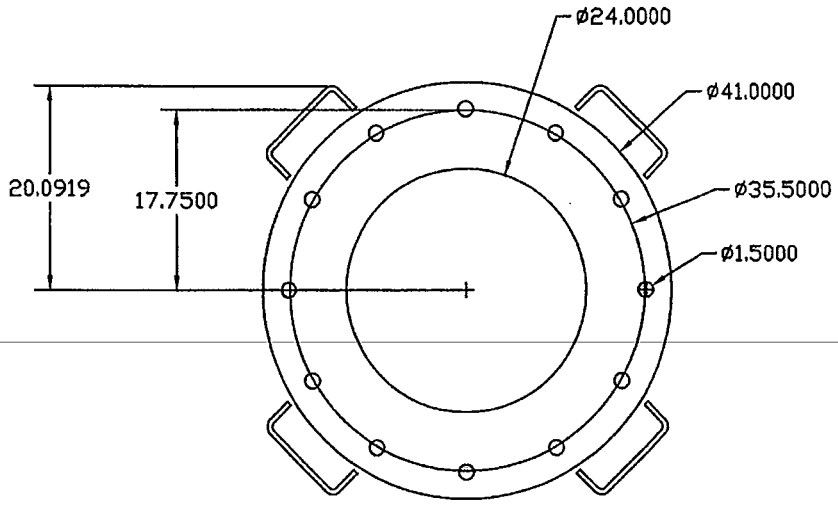
ARM = 5.75"

$M = 120.40 k \cdot in$

$f_b = 28.74 ksi$

$F_b = 36 ksi$

PLATE UNITY % = 79.8%



---------- REGIONS ----------

Area:		51.9181
Perimeter:		183.3982
Bounding box:	X:	-20.0919 -- 20.0919
	Y:	-20.0919 -- 20.0919
Centroid:	X:	0.0000
	Y:	0.0000
Moments of inertia:	X:	11775.5316
	Y:	11775.5316
Product of inertia:	XY:	0.0000
Radii of gyration:	X:	15.0602
	Y:	15.0602

Principal moments and X-Y directions about centroid:
I: 11775.5316 along [0.8507 -0.5257]
J: 11775.5316 along [0.5257 0.8507]

FLANGE @ 60'

PROJECT	**80145 - Mtn. View Cemetery, CT (BU 876329)**		
SUBJECT	**Flange Plate and Flange Bolts_Analysis @90'**		
DATE	**03/24/09**	BY	**CMH**

B&T Engineering, Inc.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Base Plate / Anchor Bolt Check - Circular Plate No Stiffeners

Input:

Tower Reactions:

Moment:	**201 k-ft**
Axial:	**12.4 kips**
Shear:	**11.0 kips**

Allowable Stress Increase

Stress Incr.:	**1.33**

Pole Information:

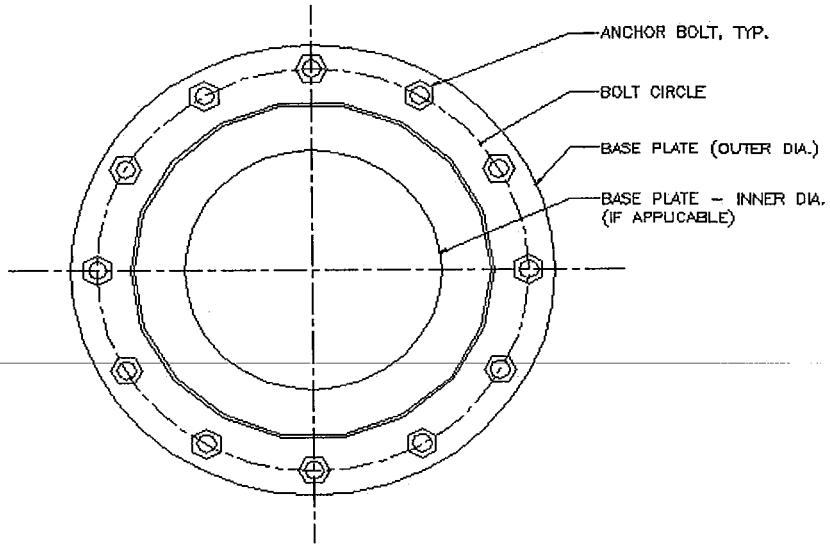
Outer Dia.:	**24.00 in**

Bolt Information:

# of Bolts:	**20**
Bolt diameter:	**1.00 in**
Bolt Grade:	**A325**
Bolt Fy:	**81 ksi**
Bolt Circle dia:	**27.00 in**

Plate Information:

Thickness:	**1.50 in**	
Plate Fy:	**36 ksi**	
Outer Dia.:	**32.00 in**	
Inner Dia.:	**24.00 in**	
Grouted?	**N**	Y/N
Grout Height:	**.00 in**	If Grouted



Anchor Bolt Check:

	Actual	Allowable	Stress Ratio	Result
Tension:	17.3 k	45.9 k	**37.6%**	**PASS**
Compression	18.5 k	50.8 k	**36.4%**	**PASS**

Base Plate Check:

Plate Moment:	27.75 k-in	
Eff. Width at Pole:	3.77 in	
S plate	1.41 in^3	
Actual Stress:	19.63 ksi	
Allowable Stress:	35.91 ksi	Result
Stress Ratio:	**54.7%**	**PASS**

CAISSON Version 8.10 10:25:05 AM Tuesday, March 24, 2009
B&T Engineering

```
*************************************************************************
*                                                                       *
*  PIER FOUNDATIONS ANALYSIS AND DESIGN - (C) 1995,2002 POWER LINE SYSTEMS, INC.*
*                                                                       *
*************************************************************************
```

*** ANALYSIS IDENTIFICATION : 80145 - Mtn View Cemetery, CT (BU 876329)
NOTES : 120' Rohn Monopole- 6.0' Dia, 25.5' Depth (25' Bearing)

*** PIER PROPERTIES CONCRETE STRENGTH (ksi) = 3.00 STEEL STRENGTH (ksi) = 60.00

DIAMETER (ft) = 6.000 DISTANCE FROM TOP OF PIER TO GROUND LEVEL (ft) = 0.50

*** SOIL PROPERTIES

LAYER	TYPE	THICKNESS (ft)	DEPTH AT TOP OF LAYER (ft)	DENSITY (pcf)	CU (psf)	KP	PHI (degrees)
1	S	15.00	0.00	135.0		3.000	30.00
2	S	10.00	15.00	75.0		3.000	30.00

*** DESIGN (FACTORED) LOADS AT TOP OF PIER MOMENT (ft-k) = 2234.7 VERTICAL (k) = 40.3 SHEAR (k) = 24.7
ADDITIONAL SAFETY FACTOR AGAINST SOIL FAILURE = 1.54

***** CALCULATED PIER LENGTH (ft) = 18.500 < 25.5 Ft Existing Pier (OK)**

*** CHECK OF SOILS PROPERTIES AND ULTIMATE RESISTING FORCES ALONG PIER

TYPE	TOP OF LAYER BELOW TOP OF PIER (ft)	THICKNESS (ft)	DENSITY (pcf)	CU (psf)	KP	FORCE (k)	ARM (ft)
S	0.50	12.85	135.0		3.000	602.31	9.07
S	13.35	2.15	135.0		3.000	-217.81	14.45
S	15.50	3.00	75.0		3.000	-346.28	17.03

*** SHEAR AND MOMENTS ALONG PIER

DISTANCE BELOW TOP OF PIER (ft)	WITH THE ADDITIONAL SAFETY FACTOR SHEAR (k)	MOMENT (ft-k)	WITHOUT ADDITIONAL SAFETY FACTOR SHEAR (k)	MOMENT (ft-k)
0.00	38.2	3581.4	24.8	2327.9
1.85	31.6	3649.2	20.5	2371.9
3.70	0.9	3683.0	0.6	2393.9
5.55	-54.7	3637.1	-35.6	2364.0
7.40	-135.3	3465.1	-88.0	2252.3
9.25	-240.8	3121.0	-156.5	2028.6
11.10	-371.3	2558.6	-241.4	1663.1
12.95	-526.8	1731.7	-342.4	1125.6
14.80	-421.0	797.3	-273.7	518.2
16.65	-217.8	203.6	-141.6	132.4
18.50	0.0	-0.0	0.0	-0.0

*** TOTAL REINFORCEMENT PCT = 0.46 **REINFORCEMENT AREA (in^2) = 18.73** **24 in^2 Existing 78.0% (OK)**
*** USABLE AXIAL CAP. (k) = 40.3 USABLE MOMENT CAP. (ft-k) = 2468.9

*** US Standard Re-Bars (Select one of the following):

94	BARS #4	(AREA = 0.20 in^2	DIA = 0.500 in)	AT SPACING (in) =	2.07	
61	BARS #5	(AREA = 0.31 in^2	DIA = 0.625 in)	AT SPACING (in) =	3.19	
43	BARS #6	(AREA = 0.44 in^2	DIA = 0.750 in)	AT SPACING (in) =	4.53	
32	BARS #7	(AREA = 0.60 in^2	DIA = 0.875 in)	AT SPACING (in) =	6.09	
24	BARS #8	(AREA = 0.79 in^2	DIA = 1.000 in)	AT SPACING (in) =	8.12	
19	**BARS #9**	**(AREA = 1.00 in^2**	**DIA = 1.128 in)**	**AT SPACING (in) =**	**10.25**	**24 #9 Bars Provided**
15	BARS #10	(AREA = 1.27 in^2	DIA = 1.270 in)	AT SPACING (in) =	12.99	
13	BARS #11	(AREA = 1.56 in^2	DIA = 1.410 in)	AT SPACING (in) =	14.98	
9	BARS #14	(AREA = 2.25 in^2	DIA = 1.693 in)	AT SPACING (in) =	21.64	

*** WEIGHT OF CAISSON (kips) = 78.461
*** PRESSURE UNDER CAISSON DUE TO INPUT DESIGN AXIAL LOAD (psf) = 1425.3

T-Mobile

T-Mobile USA Inc.
35 Griffin Rd South, Bloomfield, CT 06002-1853
Phone: (860) 692-7100
Fax: (860) 692-7159

Technical Memo

To: Transcend
From: Farid Marbouh - Radio Frequency Engineer
cc: Jason Overbey
Subject: Power Density Report for CT11278A
Date: March 27, 2009

1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the T-Mobile antenna installation on a Self Support Tower at 28 Brewer Street, Bloomfield, CT. This study incorporates the most conservative consideration for determining the practical combined worst case power density levels that would be theoretically encountered from locations surrounding the transmitting location.

2. Discussion:

The following assumptions were used in the calculations:

1) The emissions from T-Mobile transmitters are in the (1935-1944.8), (2140-2145), (2110-2120)MHz frequency Band.
2) The antenna array consists of three sectors, with 2 antennas per sector.
3) The model number for GSM antenna is DR65-18-02DP.
3) The model number for UMTS antenna is APX16DWV-16DWV.
4) GSM antenna center line height is 107 ft.
4) UMTS antenna center line height is 107 ft.
5) The maximum transmit power from any GSM sector is 2154.37 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
5) The maximum transmit power from any UMTS sector is 2525.17 Watts Effective Radiated Power (EiRP) assuming 2 channels per sector.
6) All the antennas are simultaneously transmitting and receiving, 24 hours a day.
7) Power levels emitting from the antennas are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
8) The average ground level of the studied area does not change significantly with respect to the transmitting location

Equations given in "FCC OET Bulletin 65, Edition 97-01" were then used with the above information to perform the calculations.

3. Conclusion:

Based on the above worst case assumptions, the power density calculation from the T-Mobile antenna installation on a Self Support Tower at 28 Brewer Street Bloomfield, CT, is 0.10064 mW/cm^2. This value represents 10.064% of the Maximum Permissible Exposure (MPE) standard of 1 milliwatt per square centimeter (mW/cm^2) set forth in the FCC/ANSI/IEEE C95.1-1991. Furthermore, the proposed antenna location for T-Mobile will not interfere with existing public safety communications, AM or FM radio broadcasts, TV, Police Communications, HAM Radio communications or any other signals in the area.
The combined Power Density from other carriers is 20.15%. The combined Power Density for the site is 30.214% of the M.P.E. standard.

Connecticut Market

T-Mobile

Worst Case Power Density

Site:	**CT11278A**
Site Address:	**28 Brewer Street**
Town:	**Bloomfield**
Tower Height:	**120 ft.**
Tower Style:	**Self Support Tower**

GSM Data		**UMTS Data**	
Base Station TX output	20 W	**Base Station TX output**	40 W
Number of channels	8	**Number of channels**	2
Antenna Model	DR65-18-02DP	**Antenna Model**	APX16DWV-16DWV
Cable Size	1 5/8 in.	**Cable Size**	1 5/8 in.
Cable Length	130 ft.	**Cable Length**	130 ft.
Antenna Height	107.0 ft.	**Antenna Height**	107.0 ft.
Ground Reflection	1.6	**Ground Reflection**	1.6
Frequency	1945.0 MHz	**Frequency**	2.1 GHz
Jumper & Connector loss	4.50 dB	**Jumper & Connector loss**	1.50 dB
Antenna Gain	17.3 dBi	**Antenna Gain**	18.0 dBi
Cable Loss per foot	0.0116 dB	**Cable Loss per foot**	0.0116 dB
Total Cable Loss	1.5080 dB	**Total Cable Loss**	1.5080 dB
Total Attenuation	6.0080 dB	**Total Attenuation**	3.0080 dB
Total EIRP per Channel	54.30 dBm	**Total EIRP per Channel**	61.01 dBm
(In Watts)	269.30 W	**(In Watts)**	1262.58 W
Total EIRP per Sector	63.33 dBm	**Total EIRP per Sector**	64.02 dBm
(In Watts)	2154.37 W	**(In Watts)**	2525.17 W
nsg	11.2920	**nsg**	14.9920
Power Density (S) =	**0.046334 mW/cm^2**	**Power Density (S) =**	**0.054308 mW/cm^2**

T-Mobile Worst Case % MPE = 10.0642%

Equation Used :

$$S = \frac{(1000)(grf)^2 (Power) * 10^{(nsg/10)}}{4\pi (R)^2}$$

Office of Engineering and Technology (OET) Bulletin 65, Edition 97-01, August 1997

Co-Location Total

Carrier	**% of Standard**
Verizon	
Cingular	13.3900 %
Sprint	3.3500 %
AT&T Wireless	
Nextel	
MetroPCS	
Other Antenna Systems	3.4100 %
Total Excluding T-Mobile	**20.1500 %**
T-Mobile	10.0642
Total % MPE for Site	**30.2142%**

THOMAS J. REGAN
Direct Dial: (860) 509-6522
tregan@brownrudnick.com

BROWNRUDNICK
CityPlace I
185 Asylum
Street
Hartford
Connecticut
06103
tel 860.509.6500
fax 860.509.6501

Via Hand Delivery

April 6, 2009

Daniel F. Caruso, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

ORIGINAL

RECEIVED
APR - 6 2009
CONNECTICUT
SITING COUNCIL

RE: T-Mobile USA, Inc - Exempt Modification

Dear Mr. Caruso:

On behalf of T-Mobile USA, Inc., enclosed for filing are an original and five (5) copies of a Notice to Make an Exempt Modification to an Existing Facility for each of the following:

1. Berlin @ 260 Beckley Road;
2. Bloomfield @ 28 Brewer Street;
3. Enfield @ 5 Town Farm Road, a/k/a 85 Post Office Road;
4. Farmington @ 130 Birdseye Road;
5. Hartford @ 305 West Service Road;
6. Rocky Hill @ 949 France Street;
7. South Windsor @ 59 McGuire Road;
8. Suffield @ 848 East Street South;
9. Vernon @ 197 South Street;
10. Wallingford @ 90 North Plains Industrial Road;
11. Wallingford @ 992 Northrop Road; and
12. Windsor @ 440 Hayden Station Road.

I have also enclosed a sixth copy of each Notice which I would like to have date-stamped and returned to the courier delivering this package.

Also enclosed are twelve (12) checks in the amount of $500.00 each to cover the filing fee. If you have any questions, please feel free to contact me.

Very truly yours,

BROWN RUDNICK BERLACK ISRAELS LLP

By: _____
Thomas J. Regan

TJR/bh
Enclosures

cc/encls: via 1st Class Mail:

Adam P. Salina, Mayor
Town of Berlin
240 Kensington Road
Berlin, CT 06037

Sydney T. Schulman, Mayor
Town of Bloomfield
Town Hall
800 Bloomfield Avenue
Bloomfield, CT 06002

Scott R. Kaupin, Mayor
Town of Enfield
Town Hall
820 Enfield Street
Enfield, CT 06082

Michael Clark, Chairman
Town Council
Town of Farmington
One Monteith Drive
Farmington, CT 06032-1053

Eddie A. Perez, Mayor
City of Hartford
Municipal Building
550 Main Street
Hartford, CT 06103-2992

Anthony LaRosa, Mayor
Town of Rocky Hill
Town Hall
761 Old Main Street
Rocky Hill, CT 06067-1519

Cary Prague, Mayor
Town of South Windsor
Town Hall
1540 Sullivan Avenue
South Windsor, CT 06074

Scott Lingenfelter, First Selectman
Town of Suffield
Town Hall
83 Mountain Road
Suffield, CT 06078

Jason L. McCoy, Mayor
Town of Vernon
Memorial Building
14 Park Place
Vernon, CT 06066

William W. Dickinson, Jr., Mayor
Town of Wallingford
Town Hall
45 South Main Street, Room 310
Wallingford, CT 06492

Donald Trinks, Mayor
Town of Windsor
Town Hall
275 Broad Street
PO Box 472
Windsor, CT 06095-0472