STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

December 20, 2011

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

RE: **EM-T-MOBILE-060-111201** – T-Mobile Northeast, LLC notice of intent to modify an existing telecommunications facility located at 2381 Long Hill Road, Guilford, 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 with the following conditions:

- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated December 1, 2011. 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. Thank you for your attention and cooperation.

Very truly yours,

Linda Roberts

Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Joseph S. Mazza, First Selectman, Town of Guilford
Regina Reid, Zoning Enforcement Officer, Town of Guilford
Crown Castle USA, Inc.

EM-T-MOBILE-060-111201

JENNIFER A. HERZ
Direct Dial: (860) 509-6527
jherz@brownrudnick.com

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

Via Hand Delivery

December 1, 2011

Robert Stein, Chairman
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: **Notice of Exempt Modifications / Guilford @ 2381 Long Hill Road**

Dear Chairman Stein:

On behalf of T-Mobile Northeast, LLC ("T-Mobile"), enclosed for filing is an original and 5 copies of T-Mobile's Notice of Exempt Modification for the Facility located 2381 Long Hill Road, Guilford, Connecticut.

I also enclose herewith a check in the amount of $625.00 representing the filing fee.

I would appreciate it if you would date-stamp the enclosed copy of this transmittal letter and return it to the courier delivering this package.

If you have any questions, please feel free to contact me.

Very truly yours,

BROWN RUDNICK LLP

Jennifer A. Herz

JH/bh
Enclosures

cc/encl: First Selectman Joseph Mazza

40288156 v1 - HERZJA - 029431/0001

CONNECTICUT SITING COUNCIL

In re:		
T-Mobile Northeast, LLC's Notice to Make an Exempt Modification to an Existing Facility at 2381 Long Hill Road, Guilford, Connecticut.	:	**EXEMPT MODIFICATION NO. _____**
	:	
	:	December 1, 2011

NOTICE OF EXEMPT MODIFICATION

Pursuant to Conn. Agencies Regs. §§ 16-50j-73 and 16-50j-72(b), T-Mobile Northeast, LLC ("T-Mobile") hereby gives notice to the Connecticut Siting Council ("Council") and the Town of Guilford of T-Mobile's intent to make an exempt modification to the existing monopole tower (the "Tower") located at 2381 Long Hill Road in Guilford, 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.

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(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 site, 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 176-foot monopole tower located at 2381 Long Hill Road in Guilford, Connecticut (latitude N 41° 20' 47.34", longitude W -72° 43' 23.15"). The Tower is owned by Crown Castle. Multiple carriers are currently located on the Tower. Currently, T-Mobile has 3 panel antennas and 6 Tower Mounted Amplifiers ("TMA") with a centerline of 155 feet mounted on the Tower. A site plan with Tower specifications is attached.

T-Mobile plans to remove and replace its 3 existing antennas with 3 new antennas (Model No.APX16DWV) that will support both the GSM and UMTS technology. Additionally, T-Mobile plans to remove and replace its 6 existing TMA with 6 new TMA. The 6 new TMA will include 3 Twin AWS and 3 Twin PCS. The centerline of the new antennas and TMAs will remain at 155 feet.

To confirm the Tower can support these changes, T-Mobile commissioned PSG Engineering to perform a Structural Analysis of the Tower (attached). According to the Structural Analysis Report, dated June 10, 2011, the Tower has "sufficient capacity" for T-Mobile's planned modifications (Structural Analysis Report, page 1).

Within the existing compound T-Mobile plans to locate its proposed UMTS equipment cabinet on the existing 5′ by 18′ (approximately) concrete equipment pad. Hence, no increase in the size of the boundaries of the site is necessary.

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Excluding brief, minor, construction-related noise during the addition of the antennas, TMAs and the installation of the equipment cabinet, the proposed changes to the Tower will not increase noise levels at the site.

The proposed antennas 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 4.49% of the NCRP's standard for maximum permissible exposure. Collectively, the antennas on the Tower will emit 14.14% of the NCRP's standard for maximum permissible exposure. Therefore, the power density levels will be 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 install antennas, TMAs and ground equipment 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 NORTHEAST, LLC

By: _____

Jennifer A. Herz
Brown Rudnick LLP
185 Asylum Street
Hartford, CT 06103-3402
Email - jherz@brownrudnick.com
Phone - 860.509.6527 /Fax - 860.509.6501

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Certificate of Service

This is to certify that on this 1st day of December, 2011, the foregoing Notice of Exempt Modification was sent, via first class mail, to the following:

First Selectman Joseph Mazza
Guilford Town Hall
31 Park Street
Guilford, CT 06437

By: _____
Jennifer A. Herz

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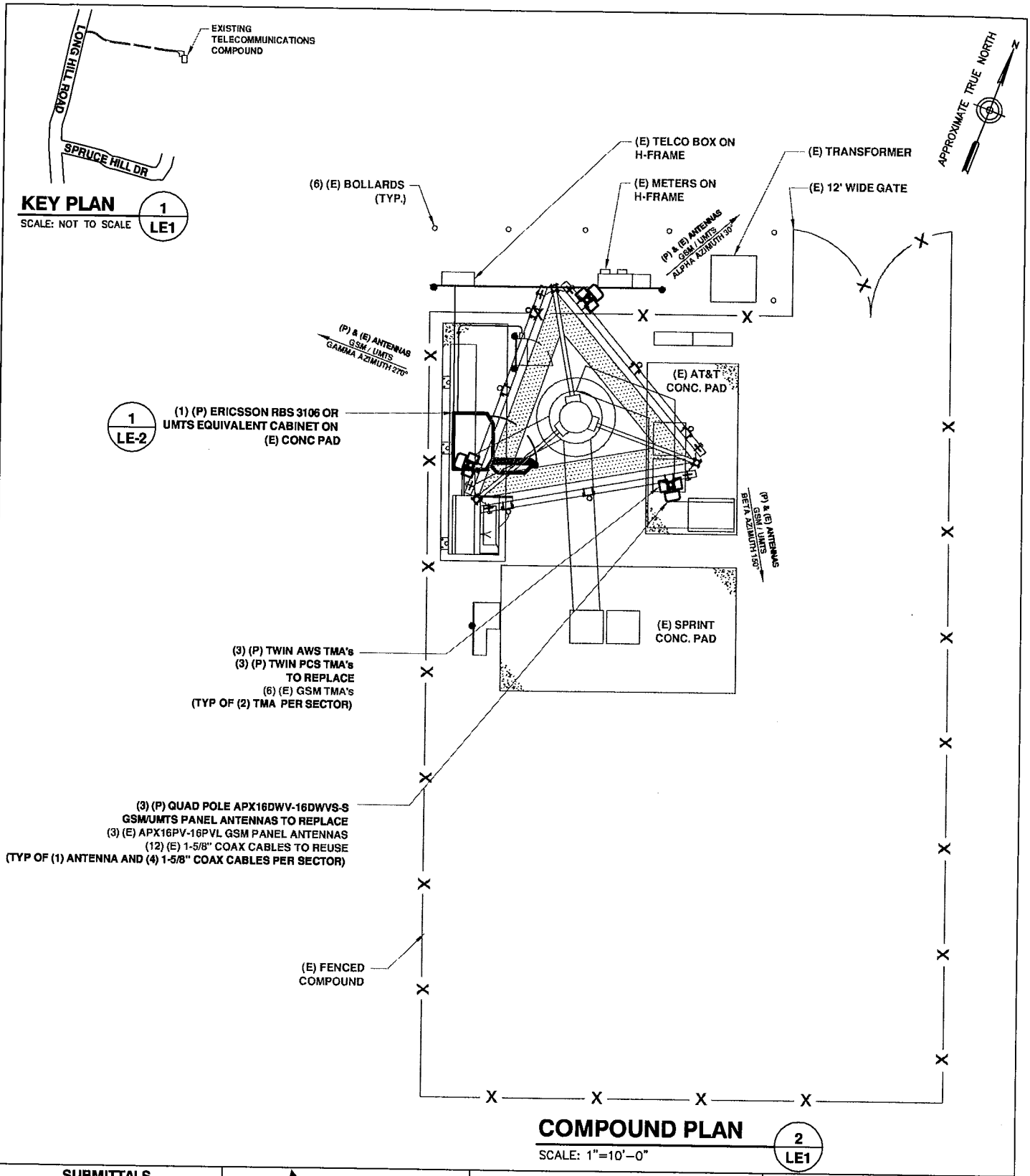
(860) 509-6500



KEY PLAN

SCALE: NOT TO SCALE — 1 / LE1

1 / LE-2

COMPOUND PLAN

SCALE: 1"=10'-0" — 2 / LE1

SUBMITTALS	
LE REV A	06-03-11
LE REV 0	06-06-11
LE REV 1	06-21-11

ATLANTIS GROUP
1340 Centre Street
Suite 203
Newton, MA 02459
Office: 617-965-0789
Fax: 617-213-5056

LEASE EXHIBIT

SITE NUMBER: CT11393B

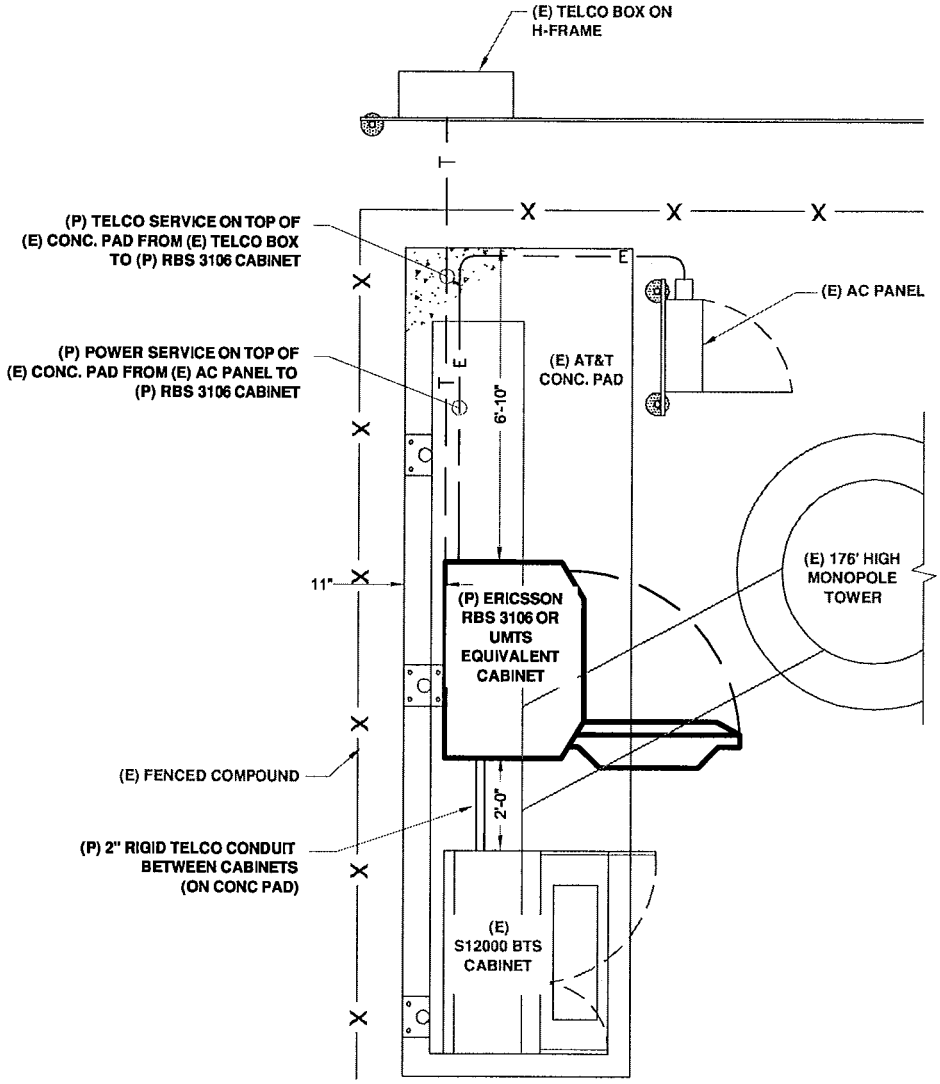
2381 LONG HILL ROAD
GUILFORD, CT 06437

NORTHEAST TOWERS
199 BRICKYARD ROAD
FARMINGTON, CT 06032
OFFICE: (860) 677-1999

FOR

T-MOBILE NORTHEAST, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7159

DRAWN BY: GC | CHECKED BY: SM



EQUIPMENT PLAN

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

1 / LE2

SUBMITTALS	
LE REV A	06-03-11
LE REV 0	06-06-11
LE REV 1	06-21-11

ATLANTIS GROUP
1340 Centre Street
Suite 203
Newton, MA 02459
Office: 617-965-0789
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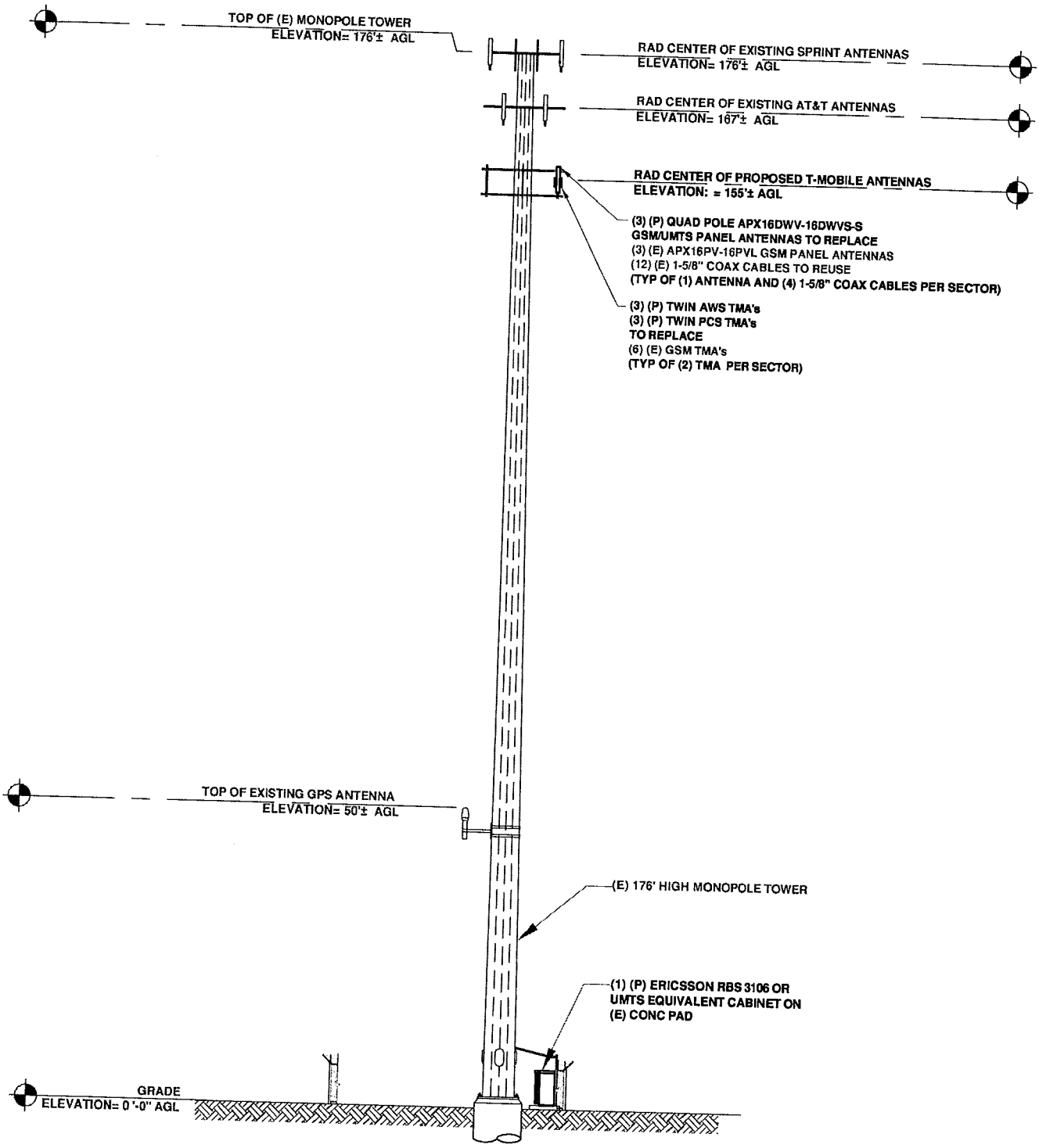
DRAWN BY: GC | CHECKED BY: SM



EAST ELEVATION VIEW

SCALE: 1" = 24'-0"

1
LE3

SUBMITTALS	
LE REV A	06-03-11
LE REV 0	06-06-11
LE REV 1	06-21-11

ATLANTIS GROUP
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Newton, MA 02459
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LEASE EXHIBIT

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FOR

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BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7159

DRAWN BY: GC | CHECKED BY: SM

Date: **June 10, 2011**

Veronica Harris
Crown Castle USA Inc.
1200 McArthur Blvd
Mahwah, NJ 07430

PSG Engineering
1006 Thompson Highway
Richmond, TX 77469
281-239-8490
Fax:281-239-8515
opedraza@psgeng.com

Subject: **Structural Analysis Report**

Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	CT11393B
	Carrier Site Name:	CT393/Global Guilford_MP2
Crown Castle Designation:	**Crown Castle BU Number:**	876381
	Crown Castle Site Name:	WARD
	Crown Castle JDE Job Number:	158793
	Crown Castle Work Order Number:	412918
Engineering Firm Designation:	**PSG Engineering Project Number:**	1101H131-A160176
Site Data:	**2365 Long Hill Rd, GUILFORD, New Haven County, CT**	
	Latitude *41° 20' 47.34"*, Longitude *-72° 43' 23.15"*	
	176 Foot - Monopole Tower	

Dear Veronica Harris,

PSG Engineering 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 417394, in accordance with application 124228, revision 1.

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 2005 Connecticut Supplement & 2009 Amendment to IBC 2003 based upon a wind speed of 85 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 *PSG Engineering* 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:

Oscar Pedraza, P.E.
President

STATE OF CONNECTICUT OSCAR PEDRAZA No. 21292 LICENSED PROFESSIONAL ENGINEER

JUN 13 2011

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 176 ft Monopole tower designed by ENGINEERED ENDEAVORS, INC. in July of 2003. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F.

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 85 mph with no ice, 37.6 mph with 1.25 inch ice thickness and 50 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
155	155	3	rfs celwave	ATMAA1412D-1A20			
		3	rfs celwave	ATMPP1412D-1CWA			
		3	rfs celwave	APX16DWV-16DWV-S-E-A2030			

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
176	178	6	decibel	DB950G40E-M	6	1-5/8	2
		9	sprint mla	SPRINT MLA_ANTENNA	9	1-5/8 MLA	1
	176	1	tower mounts	Platform Mount [LP 403-1]			
167	168	6	allgon	7250.00	12	1-5/8 SLA	2
		6	powerwave technologies	7770.00	12	1-5/8	1
	167	6	powerwave technologies	LGP21401			
		6	powerwave technologies	LGP21901			
		1	tower mounts	Platform Mount [LP 304-1]			
155	155	3	decibel	932QDG65T2EM	12	1-5/8	3
		6	remec	S20057A1			
		1	tower mounts	Platform Mount [LP 301-1]			
50	51	1	lucent	KS24019-L112A	1	1/2	
	50	1	tower mounts	Side Arm Mount [SO 701-1]			

Notes:
1) Controlling load case.
2) Non-controlling load case.
3) Equipment to be removed and replaced by proposed equipment. Feedlines to remain.

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)
177.5	177.5	12	dapa	48000		
167.5	167.5	12	dapa	48000		
157.5	157.5	12	dapa	48000		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Jaworski Geotech, Inc.	1532993	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	EEI	1614617	CCISITES
4-TOWER MANUFACTURER DRAWINGS	EEI	1613550	CCISITES

3.1) Analysis Method

RISATower (version 5.4.2.0), 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 the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.

This analysis may be affected if any assumptions are not valid or have been made in error. PSG Engineering should be notified to determine the 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	176 - 144.25	Pole	TP23.65x16.5x0.1875	1	-6.02	701.52	74.7	Pass
L2	144.25 - 94.58	Pole	TP34.33x22.4868x0.3125	2	-12.26	1698.63	79.1	Pass
L3	94.58 - 46.95	Pole	TP44.32x32.6292x0.375	3	-21.50	2635.37	74.5	Pass
L4	46.95 - 0	Pole	TP54x42.2151x0.375	4	-29.91	3046.34	77.9	Pass
							Summary	
						Pole (L2)	79.1	Pass
						Rating =	79.1	Pass

Table 6 - Tower Component Stresses vs. Capacity - LC1

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
	Anchor Rods		67.6	Pass
	Base Plate		87.8	Pass
	Base Foundation		63.7	Pass
	Base Foundation Soil Interaction		53.3	Pass

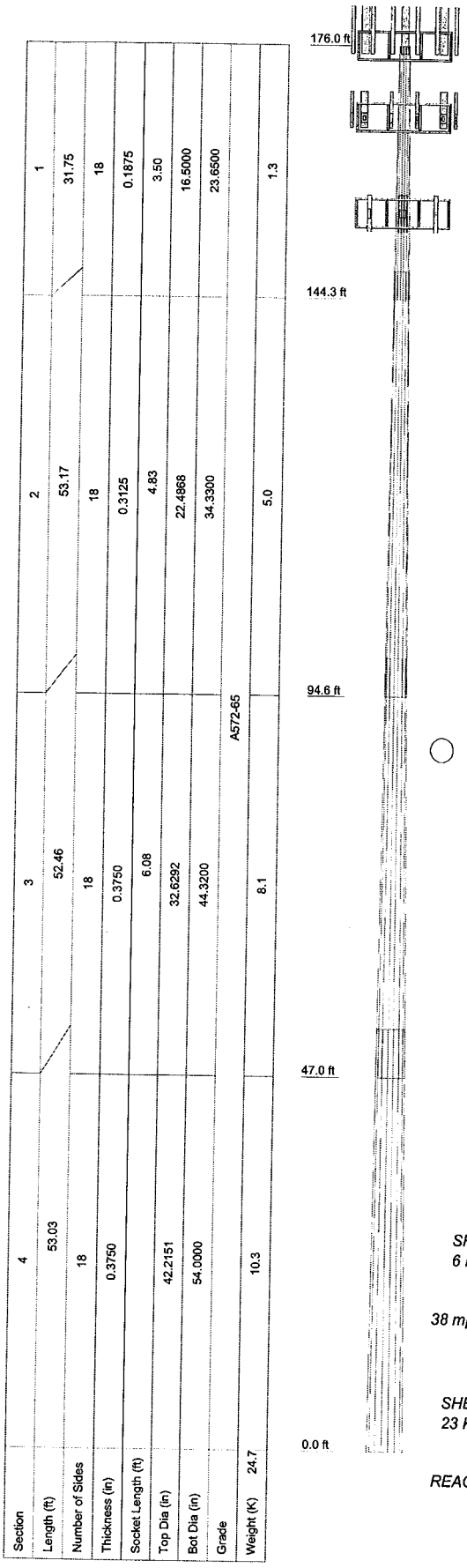
Structure Rating (max from all components) =	87.8%

4.1) Recommendations

No modifications required.

APPENDIX A

RISA TOWER OUTPUT



Section	1	2	3	4
Length (ft)	31.75	53.17	52.46	53.03
Number of Sides	18	18	18	18
Thickness (in)	0.1875	0.3125	0.3750	0.3750
Socket Length (ft)	3.50	4.83	6.08	
Top Dia (in)	16.5000	22.4868	32.6292	42.2151
Bot Dia (in)	23.6500	34.3300	44.3200	54.0000
Grade				
Weight (K)	1.3	5.0	8.1	10.3

Total Weight (K): 24.7

AXIAL 54 K
SHEAR 6 K
MOMENT 793 kip-ft
TORQUE 0 kip-ft
38 mph WIND - 1.2500 in ICE

AXIAL 35 K
SHEAR 23 K
MOMENT 2807 kip-ft
TORQUE 0 kip-ft
REACTIONS - 85 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(3) SPRINT MLA_ANTENNA w/ Mount Pipe (MLA)	176	Platform Mount [LP 304-1] (Installed)	167
(3) SPRINT MLA_ANTENNA w/ Mount Pipe (MLA)	176	APX16DWV-16DWV-S-E-A2030 (Proposed)	155
(3) SPRINT MLA_ANTENNA w/ Mount Pipe (MLA)	176	APX16DWV-16DWV-S-E-A2030 (Proposed)	155
Platform Mount [LP 403-1] (Installed)	176	APX16DWV-16DWV-S-E-A2030 (Proposed)	155
(2) 7770.00 w/ Mount Pipe (Installed)	167	ATMAA1412D-1A20 (Proposed)	155
(2) LGP21401 (Installed)	167	ATMPP1412D-1CWA (Proposed)	155
(2) LGP21901 (Installed)	167	ATMAA1412D-1A20 (Proposed)	155
(2) 7770.00 w/ Mount Pipe (Installed)	167	ATMPP1412D-1CWA (Proposed)	155
(2) LGP21401 (Installed)	167	ATMAA1412D-1A20 (Proposed)	155
(2) LGP21901 (Installed)	167	ATMPP1412D-1CWA (Proposed)	155
(2) 7770.00 w/ Mount Pipe (Installed)	167	Platform Mount [LP 301-1] (Installed)	155
(2) LGP21401 (Installed)	167	KS24019-L112A (Installed)	50
(2) LGP21901 (Installed)	167	Side Arm Mount [SO 701-1] (Installed)	50

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in New Haven County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 1.25 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 79.1%

PSG Engineering
1006 Thompson Highway
Richmond, TX 77469
Phone: 281-239-8490
FAX: 281-239-8515

Job: PSG Engineering Project Number: 1101H131-A16017			
Project: (876381) (WARD)			
Client: Crown Castle USA, Inc.	Drawn by: Eric M. Heumann	App'd:	
Code: TIA/EIA-222-F	Date: 06/13/11	Scale: NTS	
Path: K:\Eric's Stash\1101H131-A160176 (876381-412918 WARD)\876381-412918.eri		Dwg No. E-1	

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 New Haven County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 1.2500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 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		

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	176.00-144.25	31.75	3.50	18	16.5000	23.6500	0.1875	0.7500	A572-65 (65 ksi)
L2	144.25-94.58	53.17	4.83	18	22.4868	34.3300	0.3125	1.2500	A572-65 (65 ksi)
L3	94.58-46.95	52.46	6.08	18	32.6292	44.3200	0.3750	1.5000	A572-65 (65 ksi)
L4	46.95-0.00	53.03		18	42.2151	54.0000	0.3750	1.5000	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	It/Q in^2	w in	w/t
L1	16.7545	9.7080	326.3677	5.7909	8.3820	38.9367	653.1649	4.8549	2.5740	13.728
	24.0148	13.9631	971.1102	8.3292	12.0142	80.8302	1943.4981	6.9829	3.8324	20.439
L2	23.6253	21.9941	1366.2960	7.8719	11.4233	119.6061	2734.3898	10.9992	3.4077	10.905
	34.8596	33.7411	4932.8916	12.0762	17.4396	282.8551	9872.2741	16.8738	5.4921	17.575
L3	34.2255	38.3905	5045.8308	11.4502	16.5756	304.4130	10098.3011	19.1989	5.0827	13.554
	45.0037	52.3055	12761.5682	15.6005	22.5146	566.8140	25539.9285	26.1577	7.1403	19.041
L4	44.2383	49.8001	11014.1869	14.8532	21.4452	513.5957	22042.8666	24.9048	6.7699	18.053
	54.8330	63.8272	23188.7616	19.0369	27.4320	845.3179	46408.0356	31.9196	8.8440	23.584

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 176.00-144.25				1	1	1		
L2 144.25-94.58				1	1	1		
L3 94.58-46.95				1	1	1		
L4 46.95-0.00				1	1	1		

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
*										
*										
*										
*										
*										
*										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
*** LEVEL 176 ***								
LDF7-50A(1-5/8") (MLA)	C	No	Inside Pole	176.00 - 10.00	9	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
*								
*								
*** LEVEL 167 ***								
LDF7-50A(1-5/8") (Installed)	A	No	Inside Pole	167.00 - 10.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
*								
*								
*** LEVEL 155 ***								
LDF7-50A(1-5/8") (Installed)	B	No	Inside Pole	155.00 - 10.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
*								
*								
*** LEVEL 50 ***								
LDF4-50A(1/2") (Installed)	C	No	Inside Pole	50.00 - 10.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
						2" Ice	0.00	0.15
						4" Ice	0.00	0.15

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	176.00-144.25	A	0.000	0.000	0.000	0.000	0.22
		B	0.000	0.000	0.000	0.000	0.11
		C	0.000	0.000	0.000	0.000	0.23
L2	144.25-94.58	A	0.000	0.000	0.000	0.000	0.49
		B	0.000	0.000	0.000	0.000	0.49
		C	0.000	0.000	0.000	0.000	0.37
L3	94.58-46.95	A	0.000	0.000	0.000	0.000	0.47
		B	0.000	0.000	0.000	0.000	0.47
		C	0.000	0.000	0.000	0.000	0.35
L4	46.95-0.00	A	0.000	0.000	0.000	0.000	0.36
		B	0.000	0.000	0.000	0.000	0.36
		C	0.000	0.000	0.000	0.000	0.28

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	176.00-144.25	A	1.510	0.000	0.000	0.000	0.000	0.22
		B		0.000	0.000	0.000	0.000	0.11
		C		0.000	0.000	0.000	0.000	0.23
L2	144.25-94.58	A	1.457	0.000	0.000	0.000	0.000	0.49
		B		0.000	0.000	0.000	0.000	0.49
		C		0.000	0.000	0.000	0.000	0.37
L3	94.58-46.95	A	1.369	0.000	0.000	0.000	0.000	0.47
		B		0.000	0.000	0.000	0.000	0.47
		C		0.000	0.000	0.000	0.000	0.35
L4	46.95-0.00	A	1.250	0.000	0.000	0.000	0.000	0.36
		B		0.000	0.000	0.000	0.000	0.36
		C		0.000	0.000	0.000	0.000	0.28

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	176.00-144.25	0.0000	0.0000	0.0000	0.0000
L2	144.25-94.58	0.0000	0.0000	0.0000	0.0000
L3	94.58-46.95	0.0000	0.0000	0.0000	0.0000
L4	46.95-0.00	0.0000	0.0000	0.0000	0.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
*** LEVEL 176 ***										
(3) SPRINT MLA_ANTENNA w/ Mount Pipe (MLA)	A	From Leg	4.00 0.00 2.00		0.0000	176.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.64 9.29 9.91 11.18 13.83	6.95 8.13 9.02 10.84 14.85	0.07 0.13 0.21 0.39 0.90
(3) SPRINT MLA_ANTENNA w/ Mount Pipe (MLA)	B	From Leg	4.00 0.00 2.00		0.0000	176.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.64 9.29 9.91 11.18 13.83	6.95 8.13 9.02 10.84 14.85	0.07 0.13 0.21 0.39 0.90
(3) SPRINT MLA_ANTENNA w/ Mount Pipe (MLA)	C	From Leg	4.00 0.00 2.00		0.0000	176.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.64 9.29 9.91 11.18 13.83	6.95 8.13 9.02 10.84 14.85	0.07 0.13 0.21 0.39 0.90
Platform Mount [LP 403-1] (Installed)	C	None			0.0000	176.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	18.85 24.30 29.75 40.65 62.45	18.85 24.30 29.75 40.65 62.45	1.50 1.80 2.09 2.69 3.87
*										
*										
*** LEVEL 167 ***										
(2) 7770.00 w/ Mount Pipe (Installed)	A	From Leg	4.00 0.00 1.00		0.0000	167.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.12 6.63 7.13 8.16 10.36	4.25 5.01 5.71 7.16 10.41	0.06 0.10 0.16 0.29 0.66
(2) LGP21401 (Installed)	A	From Leg	4.00 0.00 0.00		0.0000	167.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.29 1.45 1.61 1.97 2.79	0.36 0.48 0.60 0.87 1.52	0.01 0.02 0.03 0.05 0.14
(2) LGP21901 (Installed)	A	From Leg	4.00 0.00		0.0000	167.00	No Ice 1/2" Ice	0.27 0.34	0.18 0.25	0.01 0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	0.43	0.32	0.01
						2" Ice	0.62	0.49	0.02
						4" Ice	1.10	0.94	0.07
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.00	0.0000	167.00	No Ice	6.12	4.25	0.06
(Installed)			0.00			1/2" Ice	6.63	5.01	0.10
			1.00			1" Ice	7.13	5.71	0.16
						2" Ice	8.16	7.16	0.29
						4" Ice	10.36	10.41	0.66
(2) LGP21401	B	From Leg	4.00	0.0000	167.00	No Ice	1.29	0.36	0.01
(Installed)			0.00			1/2" Ice	1.45	0.48	0.02
			0.00			1" Ice	1.61	0.60	0.03
						2" Ice	1.97	0.87	0.05
						4" Ice	2.79	1.52	0.14
(2) LGP21901	B	From Leg	4.00	0.0000	167.00	No Ice	0.27	0.18	0.01
(Installed)			0.00			1/2" Ice	0.34	0.25	0.01
			0.00			1" Ice	0.43	0.32	0.01
						2" Ice	0.62	0.49	0.02
						4" Ice	1.10	0.94	0.07
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.00	0.0000	167.00	No Ice	6.12	4.25	0.06
(Installed)			0.00			1/2" Ice	6.63	5.01	0.10
			1.00			1" Ice	7.13	5.71	0.16
						2" Ice	8.16	7.16	0.29
						4" Ice	10.36	10.41	0.66
(2) LGP21401	C	From Leg	4.00	0.0000	167.00	No Ice	1.29	0.36	0.01
(Installed)			0.00			1/2" Ice	1.45	0.48	0.02
			0.00			1" Ice	1.61	0.60	0.03
						2" Ice	1.97	0.87	0.05
						4" Ice	2.79	1.52	0.14
(2) LGP21901	C	From Leg	4.00	0.0000	167.00	No Ice	0.27	0.18	0.01
(Installed)			0.00			1/2" Ice	0.34	0.25	0.01
			0.00			1" Ice	0.43	0.32	0.01
						2" Ice	0.62	0.49	0.02
						4" Ice	1.10	0.94	0.07
Platform Mount [LP 304-1]	C	None		0.0000	167.00	No Ice	17.46	17.46	1.35
(Installed)						1/2" Ice	22.44	22.44	1.62
						1" Ice	27.42	27.42	1.90
						2" Ice	37.38	37.38	2.45
						4" Ice	57.30	57.30	3.55
*									
*									
*** LEVEL 155 ***									
APX16DWV-16DWV-S-E-A	A	From Leg	4.00	0.0000	155.00	No Ice	7.55	3.57	0.06
2030			0.00			1/2" Ice	8.11	4.41	0.11
(Proposed)			0.00			1" Ice	8.66	5.13	0.17
						2" Ice	9.78	6.61	0.30
						4" Ice	12.14	9.78	0.69
APX16DWV-16DWV-S-E-A	B	From Leg	4.00	0.0000	155.00	No Ice	7.55	3.57	0.06
2030			0.00			1/2" Ice	8.11	4.41	0.11
(Proposed)			0.00			1" Ice	8.66	5.13	0.17
						2" Ice	9.78	6.61	0.30
						4" Ice	12.14	9.78	0.69
APX16DWV-16DWV-S-E-A	C	From Leg	4.00	0.0000	155.00	No Ice	7.55	3.57	0.06
2030			0.00			1/2" Ice	8.11	4.41	0.11
(Proposed)			0.00			1" Ice	8.66	5.13	0.17
						2" Ice	9.78	6.61	0.30
						4" Ice	12.14	9.78	0.69
ATMAA1412D-1A20	A	From Leg	4.00	0.0000	155.00	No Ice	1.17	0.47	0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(Proposed)			0.00			1/2" Ice	1.31	0.57	0.02
			0.00			1" Ice	1.47	0.69	0.03
						2" Ice	1.81	0.95	0.06
						4" Ice	2.58	1.57	0.14
ATMPP1412D-1CWA	A	From Leg	4.00	0.0000	155.00	No Ice	1.17	0.42	0.01
(Proposed)			0.00			1/2" Ice	1.32	0.53	0.02
			0.00			1" Ice	1.48	0.65	0.03
						2" Ice	1.82	0.92	0.05
						4" Ice	2.61	1.57	0.13
ATMAA1412D-1A20	B	From Leg	4.00	0.0000	155.00	No Ice	1.17	0.47	0.01
(Proposed)			0.00			1/2" Ice	1.31	0.57	0.02
			0.00			1" Ice	1.47	0.69	0.03
						2" Ice	1.81	0.95	0.06
						4" Ice	2.58	1.57	0.14
ATMPP1412D-1CWA	B	From Leg	4.00	0.0000	155.00	No Ice	1.17	0.42	0.01
(Proposed)			0.00			1/2" Ice	1.32	0.53	0.02
			0.00			1" Ice	1.48	0.65	0.03
						2" Ice	1.82	0.92	0.05
						4" Ice	2.61	1.57	0.13
ATMAA1412D-1A20	C	From Leg	4.00	0.0000	155.00	No Ice	1.17	0.47	0.01
(Proposed)			0.00			1/2" Ice	1.31	0.57	0.02
			0.00			1" Ice	1.47	0.69	0.03
						2" Ice	1.81	0.95	0.06
						4" Ice	2.58	1.57	0.14
ATMPP1412D-1CWA	C	From Leg	4.00	0.0000	155.00	No Ice	1.17	0.42	0.01
(Proposed)			0.00			1/2" Ice	1.32	0.53	0.02
			0.00			1" Ice	1.48	0.65	0.03
						2" Ice	1.82	0.92	0.05
						4" Ice	2.61	1.57	0.13
Platform Mount [LP 301-1]	C	None		0.0000	155.00	No Ice	30.10	30.10	1.59
(Installed)						1/2" Ice	40.80	40.80	2.03
						1" Ice	51.50	51.50	2.47
						2" Ice	72.90	72.90	3.35
						4" Ice	115.70	115.70	5.11
*									
*									
*** LEVEL 50 ***									
KS24019-L112A	A	From Leg	4.00	0.0000	50.00	No Ice	0.10	0.10	0.01
(Installed)			0.00			1/2" Ice	0.18	0.18	0.01
			1.00			1" Ice	0.26	0.26	0.01
						2" Ice	0.42	0.42	0.01
						4" Ice	0.74	0.74	0.02
Side Arm Mount [SO 701-1]	C	None		0.0000	50.00	No Ice	0.85	1.67	0.07
(Installed)						1/2" Ice	1.14	2.34	0.08
						1" Ice	1.43	3.01	0.09
						2" Ice	2.01	4.35	0.12
						4" Ice	3.17	7.03	0.18

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
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
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	176 - 144.25	Pole	Max Tension	2	0.00	0.00	-0.00
			Max. Compression	14	-15.66	0.00	0.00
			Max. Mx	5	-6.02	-240.13	0.00
			Max. My	2	-6.02	0.00	240.13
			Max. Vy	5	11.94	-240.13	0.00
			Max. Vx	2	-11.94	0.00	240.13
			Max. Torque	6			-0.00
L2	144.25 - 94.58	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-24.37	0.00	0.00
			Max. Mx	5	-12.26	-896.77	0.00
			Max. My	2	-12.26	0.00	896.77
			Max. Vy	5	15.32	-896.77	0.00
			Max. Vx	2	-15.32	0.00	896.77
			Max. Torque	6			-0.00
L3	94.58 - 46.95	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	14	-36.63	0.00	0.00
			Max. Mx	5	-21.50	-1691.04	0.00
			Max. My	2	-21.50	0.00	1691.04
			Max. Vy	5	18.91	-1691.04	0.00
			Max. Vx	2	-18.91	0.00	1691.04
			Max. Torque	5			0.02
L4	46.95 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-53.73	0.00	0.05
			Max. Mx	5	-34.68	-2795.93	0.03
			Max. My	2	-34.68	0.00	2795.96
			Max. Vy	5	22.68	-2795.93	0.03
			Max. Vx	8	22.68	0.00	-2795.90
			Max. Torque	5			0.02

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	14	53.73	0.00	0.00
	Max. H_x	11	34.69	22.65	0.00
	Max. H_z	2	34.69	0.00	22.65
	Max. M_x	2	2795.96	0.00	22.65
	Max. M_z	5	2795.93	-22.65	0.00
	Max. Torsion	5	0.02	-22.65	0.00
	Min. Vert	2	34.69	0.00	22.65
	Min. H_x	5	34.69	-22.65	0.00
	Min. H_z	8	34.69	0.00	-22.65
	Min. M_x	8	-2795.90	0.00	-22.65
	Min. M_z	11	-2795.93	22.65	0.00
	Min. Torsion	11	-0.02	22.65	0.00

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	34.70	0.00	0.00	-0.03	0.00	0.00
Dead+Wind 0 deg - No Ice	34.69	0.00	-22.65	-2795.96	0.00	0.00
Dead+Wind 30 deg - No Ice	34.70	11.36	-19.68	-2430.97	-1403.59	-0.01
Dead+Wind 60 deg - No Ice	34.70	19.68	-11.36	-1403.62	-2430.94	-0.02
Dead+Wind 90 deg - No Ice	34.69	22.65	-0.00	-0.03	-2795.93	-0.02
Dead+Wind 120 deg - No Ice	34.70	19.68	11.36	1403.56	-2430.94	-0.02
Dead+Wind 150 deg - No Ice	34.70	11.36	19.68	2430.91	-1403.59	-0.01
Dead+Wind 180 deg - No Ice	34.69	0.00	22.65	2795.90	0.00	0.00
Dead+Wind 210 deg - No Ice	34.70	-11.36	19.68	2430.91	1403.59	0.01
Dead+Wind 240 deg - No Ice	34.70	-19.68	11.36	1403.56	2430.94	0.02
Dead+Wind 270 deg - No Ice	34.69	-22.65	-0.00	-0.03	2795.93	0.02
Dead+Wind 300 deg - No Ice	34.70	-19.68	-11.36	-1403.62	2430.94	0.02
Dead+Wind 330 deg - No Ice	34.70	-11.36	-19.68	-2430.97	1403.59	0.01
Dead+Ice+Temp	53.73	0.00	-0.00	-0.05	0.00	0.00
Dead+Wind 0 deg+Ice+Temp	53.73	0.00	-5.73	-792.50	0.00	0.00
Dead+Wind 30 deg+Ice+Temp	53.73	2.87	-4.96	-686.34	-396.23	-0.01

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 60 deg+Ice+Temp	53.73	4.96	-2.87	-396.29	-686.28	-0.01
Dead+Wind 90 deg+Ice+Temp	53.73	5.73	0.00	-0.06	-792.45	-0.01
Dead+Wind 120 deg+Ice+Temp	53.73	4.96	2.87	396.18	-686.28	-0.01
Dead+Wind 150 deg+Ice+Temp	53.73	2.87	4.96	686.23	-396.23	-0.01
Dead+Wind 180 deg+Ice+Temp	53.73	0.00	5.73	792.39	0.00	0.00
Dead+Wind 210 deg+Ice+Temp	53.73	-2.87	4.96	686.23	396.23	0.01
Dead+Wind 240 deg+Ice+Temp	53.73	-4.96	2.87	396.18	686.28	0.01
Dead+Wind 270 deg+Ice+Temp	53.73	-5.73	0.00	-0.06	792.45	0.01
Dead+Wind 300 deg+Ice+Temp	53.73	-4.96	-2.87	-396.29	686.28	0.01
Dead+Wind 330 deg+Ice+Temp	53.73	-2.87	-4.96	-686.34	396.23	0.01
Dead+Wind 0 deg - Service	34.70	0.00	-7.84	-970.10	0.00	0.00
Dead+Wind 30 deg - Service	34.70	3.92	-6.79	-840.14	-485.05	-0.00
Dead+Wind 60 deg - Service	34.70	6.79	-3.92	-485.08	-840.11	-0.01
Dead+Wind 90 deg - Service	34.70	7.84	0.00	-0.03	-970.07	-0.01
Dead+Wind 120 deg - Service	34.70	6.79	3.92	485.02	-840.11	-0.01
Dead+Wind 150 deg - Service	34.70	3.92	6.79	840.08	-485.05	-0.00
Dead+Wind 180 deg - Service	34.70	0.00	7.84	970.04	0.00	0.00
Dead+Wind 210 deg - Service	34.70	-3.92	6.79	840.08	485.05	0.00
Dead+Wind 240 deg - Service	34.70	-6.79	3.92	485.02	840.11	0.01
Dead+Wind 270 deg - Service	34.70	-7.84	0.00	-0.03	970.07	0.01
Dead+Wind 300 deg - Service	34.70	-6.79	-3.92	-485.08	840.11	0.01
Dead+Wind 330 deg - Service	34.70	-3.92	-6.79	-840.14	485.05	0.00

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-34.70	0.00	0.00	34.70	0.00	0.000%
2	0.00	-34.70	-22.76	0.00	34.69	22.65	0.277%
3	11.38	-34.70	-19.71	-11.36	34.70	19.68	0.096%
4	19.71	-34.70	-11.38	-19.68	34.70	11.36	0.096%
5	22.76	-34.70	0.00	-22.65	34.69	0.00	0.277%
6	19.71	-34.70	11.38	-19.68	34.70	-11.36	0.096%
7	11.38	-34.70	19.71	-11.36	34.70	-19.68	0.096%
8	0.00	-34.70	22.76	0.00	34.69	-22.65	0.277%
9	-11.38	-34.70	19.71	11.36	34.70	-19.68	0.096%
10	-19.71	-34.70	11.38	19.68	34.70	-11.36	0.096%
11	-22.76	-34.70	0.00	22.65	34.69	0.00	0.277%
12	-19.71	-34.70	-11.38	19.68	34.70	11.36	0.096%
13	-11.38	-34.70	-19.71	11.36	34.70	19.68	0.096%
14	0.00	-53.73	0.00	0.00	53.73	0.00	0.000%
15	0.00	-53.73	-5.77	0.00	53.73	5.73	0.061%
16	2.88	-53.73	-4.99	-2.87	53.73	4.96	0.061%
17	4.99	-53.73	-2.88	-4.96	53.73	2.87	0.061%
18	5.77	-53.73	0.00	-5.73	53.73	-0.00	0.061%
19	4.99	-53.73	2.88	-4.96	53.73	-2.87	0.061%
20	2.88	-53.73	4.99	-2.87	53.73	-4.96	0.061%
21	0.00	-53.73	5.77	0.00	53.73	-5.73	0.061%
22	-2.88	-53.73	4.99	2.87	53.73	-4.96	0.061%
23	-4.99	-53.73	2.88	4.96	53.73	-2.87	0.061%
24	-5.77	-53.73	0.00	5.73	53.73	-0.00	0.061%
25	-4.99	-53.73	-2.88	4.96	53.73	2.87	0.061%
26	-2.88	-53.73	-4.99	2.87	53.73	4.96	0.061%
27	0.00	-34.70	-7.88	0.00	34.70	7.84	0.099%
28	3.94	-34.70	-6.82	-3.92	34.70	6.79	0.098%
29	6.82	-34.70	-3.94	-6.79	34.70	3.92	0.098%
30	7.88	-34.70	0.00	-7.84	34.70	-0.00	0.099%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
31	6.82	-34.70	3.94	-6.79	34.70	-3.92	0.098%
32	3.94	-34.70	6.82	-3.92	34.70	-6.79	0.098%
33	0.00	-34.70	7.88	0.00	34.70	-7.84	0.099%
34	-3.94	-34.70	6.82	3.92	34.70	-6.79	0.098%
35	-6.82	-34.70	3.94	6.79	34.70	-3.92	0.098%
36	-7.88	-34.70	0.00	7.84	34.70	-0.00	0.099%
37	-6.82	-34.70	-3.94	6.79	34.70	3.92	0.098%
38	-3.94	-34.70	-6.82	3.92	34.70	6.79	0.098%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	14	0.00097526	0.00075060
3	Yes	20	0.00033728	0.00097563
4	Yes	20	0.00033728	0.00097572
5	Yes	14	0.00097527	0.00075060
6	Yes	20	0.00033728	0.00097559
7	Yes	20	0.00033728	0.00097567
8	Yes	14	0.00097527	0.00075059
9	Yes	20	0.00033728	0.00097567
10	Yes	20	0.00033728	0.00097559
11	Yes	14	0.00097527	0.00075060
12	Yes	20	0.00033728	0.00097572
13	Yes	20	0.00033728	0.00097563
14	Yes	4	0.00000001	0.00000001
15	Yes	19	0.00097293	0.00009708
16	Yes	19	0.00097180	0.00009061
17	Yes	19	0.00097180	0.00009063
18	Yes	19	0.00097293	0.00009707
19	Yes	19	0.00097181	0.00009061
20	Yes	19	0.00097181	0.00009062
21	Yes	19	0.00097294	0.00009707
22	Yes	19	0.00097181	0.00009062
23	Yes	19	0.00097181	0.00009061
24	Yes	19	0.00097293	0.00009707
25	Yes	19	0.00097180	0.00009063
26	Yes	19	0.00097180	0.00009061
27	Yes	15	0.00085675	0.00028379
28	Yes	15	0.00085480	0.00024403
29	Yes	15	0.00085480	0.00024404
30	Yes	15	0.00085675	0.00028379
31	Yes	15	0.00085480	0.00024402
32	Yes	15	0.00085480	0.00024403
33	Yes	15	0.00085675	0.00028378
34	Yes	15	0.00085480	0.00024403
35	Yes	15	0.00085480	0.00024402
36	Yes	15	0.00085675	0.00028379
37	Yes	15	0.00085480	0.00024404
38	Yes	15	0.00085480	0.00024403

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	176 - 144.25	47.933	27	2.7690	0.0000
L2	147.75 - 94.58	32.548	27	2.3153	0.0000
L3	99.41 - 46.95	13.717	27	1.3694	0.0000
L4	53.03 - 0	3.775	27	0.6671	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
176.00	(3) SPRINT MLA_ANTENNA w/ Mount Pipe	27	47.933	2.7690	0.0000	13614
167.00	(2) 7770.00 w/ Mount Pipe	27	42.841	2.6319	0.0000	7563
155.00	APX16DWV-16DWV-S-E-A2030	27	36.275	2.4403	0.0000	3240
50.00	KS24019-L112A	27	3.386	0.6272	0.0000	3615

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	176 - 144.25	138.010	13	7.9842	0.0000
L2	147.75 - 94.58	93.845	13	6.6803	0.0000
L3	99.41 - 46.95	39.619	13	3.9560	0.0000
L4	53.03 - 0	10.912	13	1.9283	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
176.00	(3) SPRINT MLA_ANTENNA w/ Mount Pipe	13	138.010	7.9842	0.0000	4891
167.00	(2) 7770.00 w/ Mount Pipe	13	123.399	7.5903	0.0000	2716
155.00	APX16DWV-16DWV-S-E-A2030	13	104.551	7.0399	0.0000	1161
50.00	KS24019-L112A	13	9.789	1.8132	0.0000	1253

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	176 - 144.25 (1)	TP23.65x16.5x0.1875	31.75	0.00	0.0	39.000	13.4940	-6.02	526.27	0.011
L2	144.25 - 94.58 (2)	TP34.33x22.4868x0.3125	53.17	0.00	0.0	39.000	32.6740	-12.26	1274.29	0.010
L3	94.58 - 46.95 (3)	TP44.32x32.6292x0.375	52.46	0.00	0.0	39.000	50.6928	-21.50	1977.02	0.011
L4	46.95 - 0 (4)	TP54x42.2151x0.375	53.03	0.00	0.0	39.000	58.5982	-29.91	2285.33	0.013

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	176 - 144.25 (1)	TP23.65x16.5x0.1875	241.01	38.321	39.000	0.983	0.00	0.000	39.000	0.000
L2	144.25 - 94.58 (2)	TP34.33x22.4868x0.3125	900.47	40.750	39.000	1.045	0.00	0.000	39.000	0.000
L3	94.58 - 46.95 (3)	TP44.32x32.6292x0.375	1698.12	38.285	39.000	0.982	0.00	0.000	39.000	0.000
L4	46.95 - 0 (4)	TP54x42.2151x0.375	2371.40	39.965	39.000	1.025	0.00	0.000	39.000	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	176 - 144.25 (1)	TP23.65x16.5x0.1875	12.20	0.904	26.000	0.070	0.00	0.000	26.000	0.000
L2	144.25 - 94.58 (2)	TP34.33x22.4868x0.3125	15.48	0.474	26.000	0.036	0.00	0.000	26.000	0.000
L3	94.58 - 46.95 (3)	TP44.32x32.6292x0.375	19.02	0.375	26.000	0.029	0.00	0.000	26.000	0.000
L4	46.95 - 0 (4)	TP54x42.2151x0.375	21.56	0.368	26.000	0.028	0.01	0.000	26.000	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	176 - 144.25 (1)	0.011	0.983	0.000	0.070	0.000	0.995 ✓	1.333	H1-3+VT ✓
L2	144.25 - 94.58 (2)	0.010	1.045	0.000	0.036	0.000	1.055 ✓	1.333	H1-3+VT ✓
L3	94.58 - 46.95 (3)	0.011	0.982	0.000	0.029	0.000	0.993 ✓	1.333	H1-3+VT ✓

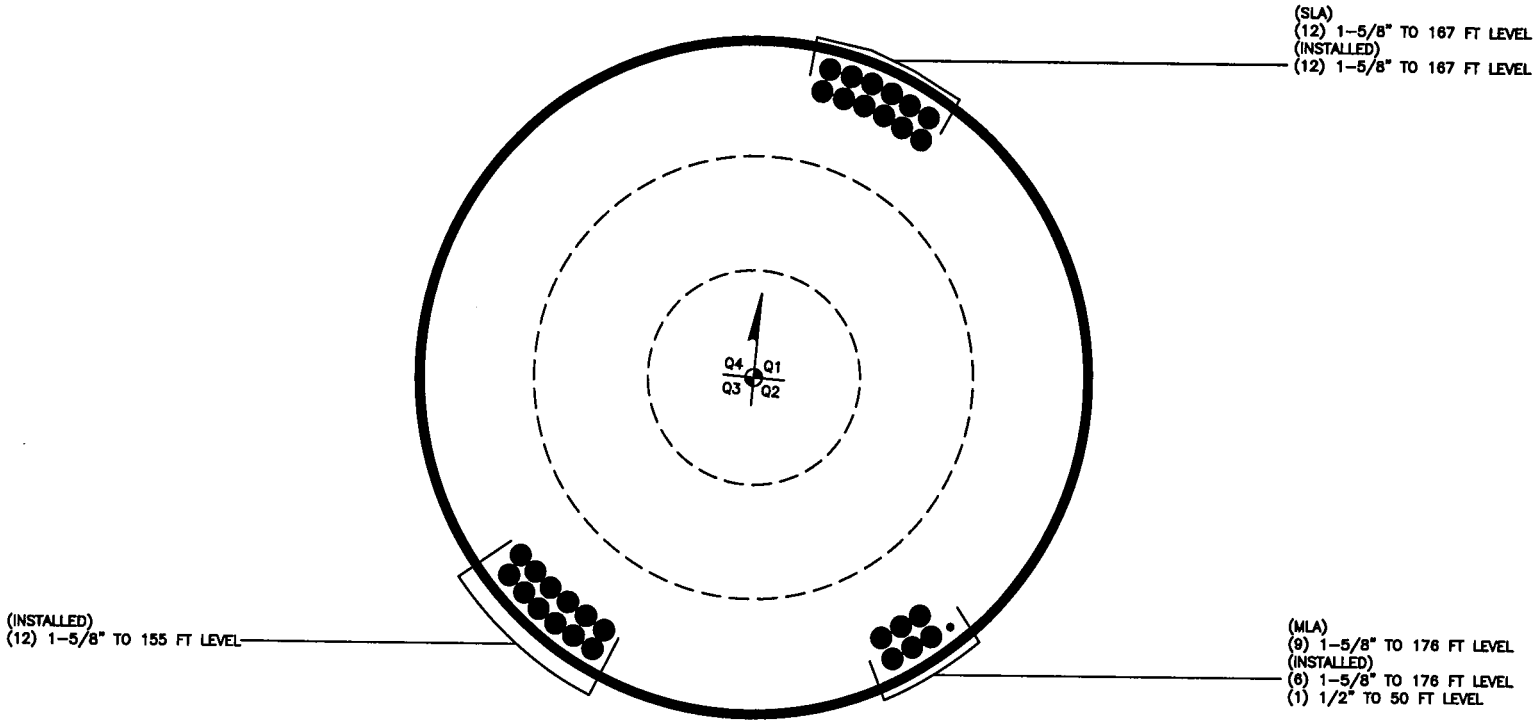
Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L4	46.95 - 0 (4)	0.013	1.025	0.000	0.028	0.000	1.038 ✓	1.333	H1-3+VT ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	176 - 144.25	Pole	TP23.65x16.5x0.1875	1	-6.02	701.52	74.7	Pass
L2	144.25 - 94.58	Pole	TP34.33x22.4868x0.3125	2	-12.26	1698.63	79.1	Pass
L3	94.58 - 46.95	Pole	TP44.32x32.6292x0.375	3	-21.50	2635.37	74.5	Pass
L4	46.95 - 0	Pole	TP54x42.2151x0.375	4	-29.91	3046.34	77.9	Pass
							Summary	
						Pole (L2)	79.1	Pass
						RATING =	**79.1**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(SLA)
(12) 1-5/8" TO 167 FT LEVEL
(INSTALLED)
(12) 1-5/8" TO 167 FT LEVEL
Q4
Q1
Q3
Q2
(INSTALLED)
(12) 1-5/8" TO 155 FT LEVEL
(MLA)
(9) 1-5/8" TO 176 FT LEVEL
(INSTALLED)
(6) 1-5/8" TO 176 FT LEVEL
(1) 1/2" TO 50 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

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

TIA Rev F

Site Data

BU#: *876381-412918*
Site Name: *WARD*
App #: *124228*

Pole Manufacturer:	*Other*

Reactions		
Moment:	2809	ft-kips
Axial:	32	kips
Shear:	23	kips

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

Anchor Rod Data		
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	63	in

Plate Data		
Diam:	69	in
Thick:	2	in
Grade:	60	ksi
Single-Rod B-eff:	10.71	in

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:	Both	
Groove Depth:	0.25	in **
Groove Angle:	45	degrees
Fillet H. Weld:	0.3125	in
Fillet V. Weld:	0.3125	in
Width:	5	in
Height:	18	in
Thick:	0.75	in
Notch:	0.5	in
Grade:	50	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	54	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Anchor Rod Results

Maximum Rod Tension:	131.8 Kips	Rigid
Allowable Tension:	195.0 Kips	Service, ASD
Anchor Rod Stress Ratio:	67.6% Pass	Fty*ASIF

Base Plate Results

	Flexural Check	
Base Plate Stress:	52.6 ksi	Rigid
Allowable Plate Stress:	60.0 ksi	Service ASD
Base Plate Stress Ratio:	87.8% Pass	0.75*Fy*ASIF
		Y.L. Length: 32.45

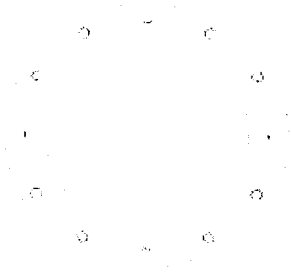
n/a

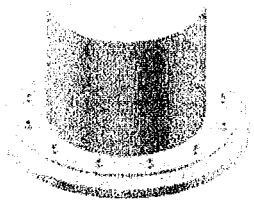
Stiffener Results

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

Pole Results

Pole Punching Shear Check: n/a





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

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

PROJECT INFORMATION

Project Number: 876381

TAKEN FROM RISATOWER

Design Vertical Load (kips)	54.0
Design Shear Load (kips)	23.0
Design Moment Load (kip-ft.)	2809.0
TIA/EIA 222 Revision	F

TAKEN FROM FOUNDATION DESIGN

Overall Pier Length (ft.)	30.0
Pier Diameter (ft.)	7.0
Vertical Rebar Size	11.0
Number of Vertical Rebar	24.0
Rebar Cover (in.)	3.0
F'c (ksi)	4.0
Fy (ksi)	60.0

FOR CAISSON INPUT

Soil Design Vertical Load (kips)	54.0
Soil Design Shear Load (kips)	23.0
Soil Design Moment Load (kip-ft.)	2809.0
Structural Design Vertical Load (kips)	48.6
Structural Design Shear Load (kips)	29.9
Structural Design Moment Load (kip-ft.)	3651.7

TAKEN FROM CAISSON

Required Pier Length from Soil Check (ft.)	16.0
Maximum Moment in Pier from Steel Check (kip-ft)	3735.9
Distance Below Top of Pier where Maximum Moment Occurs (ft.)	3.4

FOR DT COLUMN INPUT

Gross Diameter (in.)	84.0
Area of Steel (in²)	35.6
X distance (in.)	3.7
F'c (ksi)	4.0
Fy (ksi)	60.0
Phi Factor	0.9
Ultimate Concrete Strain	0.003
Factored Total Vertical Load (kips)	66.3

TAKEN FROM DT COLUMN

Interaction Diagram High Load (kips)	75.0
Interaction Diagram Low Load (kips)	25.0
Interaction Diagram High Moment (k-ft)	5886.0
Interaction Diagram Low Moment (k-ft)	5757.0
Factored Moment Capacity (k-ft)	5863.5

FINAL RESULTS

Structural Capacity (%)	**63.7**
Soil Capacity (%)	**53.3**

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**********************************************************************
*                                                                    *
*  PIER FOUNDATIONS ANALYSIS AND DESIGN - (C) 1995,2002 POWER LINE SYSTEMS, INC.*
*                                                                    *
**********************************************************************
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*** ANALYSIS IDENTIFICATION : 876381
NOTES :

*** PIER PROPERTIES CONCRETE STRENGTH (ksi) = 4.00 STEEL STRENGTH (ksi) = 60.00

DIAMETER (ft) = 7.000 DISTANCE FROM TOP OF PIER TO GROUND LEVEL (ft) = 1.00

*** SOIL PROPERTIES

LAYER	TYPE	THICKNESS (ft)	DEPTH AT TOP OF LAYER (ft)	DENSITY (pcf)	CU (psf)	KP	PHI (degrees)
1	S	40.00	0.00	130.0	3.690	35.00	

*** DESIGN (FACTORED) LOADS AT TOP OF PIER MOMENT (ft-k) = 2809.0 VERTICAL (k) = 54.0 SHEAR (k) = 23.0

ADDITIONAL SAFETY FACTOR AGAINST SOIL FAILURE = 1.00

*** CALCULATED PIER LENGTH (ft) = 16.000

*** 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	1.00	10.72	130.0		3.690	578.35	8.14
S	11.72	4.28	130.0		3.690	-554.94	13.98

*** SHEAR AND MOMENTS ALONG PIER

DISTANCE BELOW TOP OF PIER (ft)	WITH THE ADDITIONAL SAFETY FACTOR SHEAR (k)	WITH THE ADDITIONAL SAFETY FACTOR MOMENT (ft-k)	WITHOUT ADDITIONAL SAFETY FACTOR SHEAR (k)	WITHOUT ADDITIONAL SAFETY FACTOR MOMENT (ft-k)
0.00	23.4	3046.3	23.4	3046.3
1.60	21.6	3083.4	21.6	3083.4
3.20	-1.0	3103.3	-1.0	3103.3
4.80	-49.3	3066.5	-49.3	3066.5
6.40	-123.5	2931.8	-123.5	2931.8
8.00	-223.4	2657.7	-223.4	2657.7
9.60	-349.1	2203.2	-349.1	2203.2
11.20	-500.6	1526.8	-500.6	1526.8
12.80	-432.0	718.6	-432.0	718.6

228.9	186.5	14.40	-228.9	186.5
0.0	-0.0	16.00	0.0	-0.0

*** TOTAL REINFORCEMENT PCT = 0.42 REINFORCEMENT AREA (in^2) = 23.28
*** USABLE AXIAL CAP. (k) = 54.0 USABLE MOMENT CAP. (ft-k) = 3735.5

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

117	BARS #4	(AREA = 0.20 in^2	DIA = 0.500 in) AT SPACING (in) =		1.99
76	BARS #5	(AREA = 0.31 in^2	DIA = 0.625 in) AT SPACING (in) =		3.06
53	BARS #6	(AREA = 0.44 in^2	DIA = 0.750 in) AT SPACING (in) =		4.39
39	BARS #7	(AREA = 0.60 in^2	DIA = 0.875 in) AT SPACING (in) =		5.96
30	BARS #8	(AREA = 0.79 in^2	DIA = 1.000 in) AT SPACING (in) =		7.75
24	BARS #9	(AREA = 1.00 in^2	DIA = 1.128 in) AT SPACING (in) =		9.69
19	BARS #10	(AREA = 1.27 in^2	DIA = 1.270 in) AT SPACING (in) =		12.24
15	BARS #11	(AREA = 1.56 in^2	DIA = 1.410 in) AT SPACING (in) =		15.50
11	BARS #14	(AREA = 2.25 in^2	DIA = 1.693 in) AT SPACING (in) =		21.13

*** WEIGHT OF CAISSON (kips) = 92.363
*** PRESSURE UNDER CAISSON DUE TO INPUT DESIGN AXIAL LOAD (psf) = 1403.2

```
**************************************************************************
*                                                                        *
*  PIER FOUNDATIONS ANALYSIS AND DESIGN - (C) 1995,2002 POWER LINE SYSTEMS, INC.*
*                                                                        *
**************************************************************************
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*** ANALYSIS IDENTIFICATION : 876381
NOTES :

*** PIER PROPERTIES CONCRETE STRENGTH (ksi) = 4.00 STEEL STRENGTH (ksi) = 60.00

DIAMETER (ft) = 7.000 DISTANCE FROM TOP OF PIER TO GROUND LEVEL (ft) = 1.00

*** SOIL PROPERTIES

LAYER	TYPE	THICKNESS (ft)	DEPTH AT TOP OF LAYER (ft)	DENSITY (pcf)	CU (psf)	KP	PHI (degrees)
1	S	40.00	0.00	130.0	3.690		35.00

*** DESIGN (FACTORED) LOADS AT TOP OF PIER MOMENT (ft-k) = 3651.7 VERTICAL (k) = 48.6 SHEAR (k) = 29.9

ADDITIONAL SAFETY FACTOR AGAINST SOIL FAILURE = 1.00

*** CALCULATED PIER LENGTH (ft) = 17.000

*** 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	1.00	11.44	130.0		3.690	659.71	8.63
S	12.44	4.56	130.0		3.690	-629.72	14.85

*** 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	30.0	3657.2		30.0	3657.2
1.70	27.5	3707.6		27.5	3707.6
3.40	1.0	3735.9		1.0	3735.9
5.10	-54.7	3694.4		-54.7	3694.4
6.80	-139.4	3533.5		-139.4	3533.5
8.50	-253.3	3203.8		-253.3	3203.8
10.20	-396.3	2655.7		-396.3	2655.7
11.90	-568.4	1839.8		-568.4	1839.8
13.60	-489.8	865.6		-489.8	865.6

		15.30	-259.4	224.7	-
259.4	224.7				
		17.00	-0.0	-0.0	-
0.0	-0.0				

*** TOTAL REINFORCEMENT PCT = 0.44 REINFORCEMENT AREA (in^2) = 24.38
*** USABLE AXIAL CAP. (k) = 48.6 USABLE MOMENT CAP. (ft-k) = 3876.9

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

122	BARS #4	(AREA = 0.20 in^2	DIA = 0.500 in)	AT SPACING (in) =	1.91
79	BARS #5	(AREA = 0.31 in^2	DIA = 0.625 in)	AT SPACING (in) =	2.94
56	BARS #6	(AREA = 0.44 in^2	DIA = 0.750 in)	AT SPACING (in) =	4.15
41	BARS #7	(AREA = 0.60 in^2	DIA = 0.875 in)	AT SPACING (in) =	5.67
31	BARS #8	(AREA = 0.79 in^2	DIA = 1.000 in)	AT SPACING (in) =	7.50
25	BARS #9	(AREA = 1.00 in^2	DIA = 1.128 in)	AT SPACING (in) =	9.30
20	BARS #10	(AREA = 1.27 in^2	DIA = 1.270 in)	AT SPACING (in) =	11.62
16	BARS #11	(AREA = 1.56 in^2	DIA = 1.410 in)	AT SPACING (in) =	14.53
11	BARS #14	(AREA = 2.25 in^2	DIA = 1.693 in)	AT SPACING (in) =	21.13

*** WEIGHT OF CAISSON (kips) = 98.136
*** PRESSURE UNDER CAISSON DUE TO INPUT DESIGN AXIAL LOAD (psf) = 1262.8

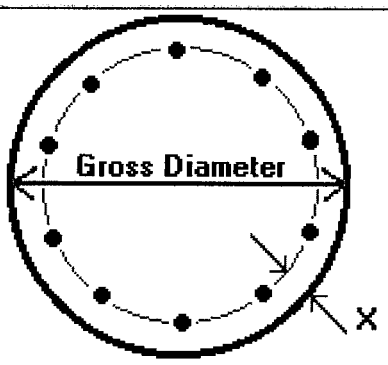
DT Column 2.1 - Circular Column Analysis

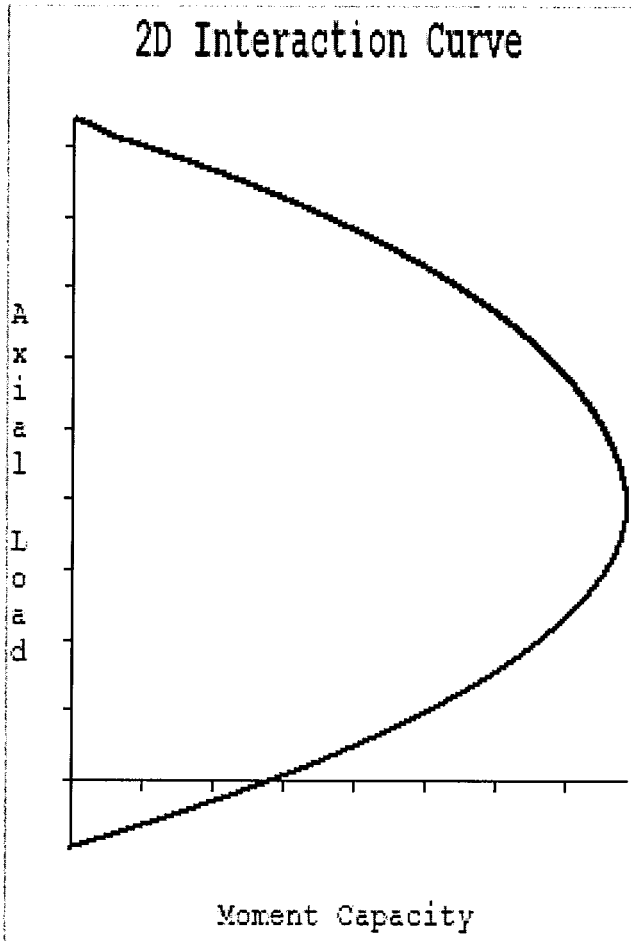
Units

(•) English ( ) Metric

Column Description

Gross diameter	84.00	in
Area of Steel	35.60	in^2
X distance	3.70	in
F'c	4.00	ksi
Fy	60.00	ksi
Phi Factor	.90	
Ult Concrete Strain	.003	





650.	7304.
625.	7245.
600.	7185.
575.	7126.
550.	7066.
525.	7006.
500.	6945.
475.	6885.
450.	6824.
425.	6764.
400.	6703.
375.	6642.
350.	6580.
325.	6518.
300.	6455.
275.	6393.
250.	6330.
225.	6267.
200.	6204.
175.	6141.
150.	6077.
125.	6014.
100.	5950.
75.	5886.
50.	5822.
25.	5757.
0.	5691.
-25.	5626.
-50.	5560.

ANALYZE PRINT HELP ABOUT

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: Northeast Tower Inc
From: Amir Uzzaman - Radio Frequency Engineer
cc: Jason Overbey
Subject: Power Density Report for CT11393B
Date: June 28, 2011

1. Introduction:

This report is the result of an Electromagnetic Field Intensities (EMF - Power Densities) study for the T-Mobile antenna installation on a Monopole at 2381 Long Hill Road, Guilford, 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), (1980.2-1984.8), (2140-2145), (2110-2120)MHz frequency Band.
2) The antenna array consists of three sectors, with 1 antenna per sector.
3) The model number for GSM antenna is APX16DWV-16DWV.
3) The model number for UMTS antenna is APX16DWV-16DWV.
4) GSM antenna center line height is 155 ft.
4) UMTS antenna center line height is 155 ft.
5) The maximum transmit power from any GSM sector is 2274.68 Watts Effective Radiated Power (EiRP) assuming 8 channels per sector.
5) The maximum transmit power from any UMTS sector is 2269.29 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 Monopole at 2381 Long Hill Road, Guilford, CT, is 0.0449 mW/cm^2. This value represents 4.49% 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 9.64616%. The combined Power Density for the site is 14.137% of the M.P.E. standard.

Connecticut Market

T-Mobile

Worst Case Power Density

Site:	CT11393B
Site Address:	2381 Long Hill Road
Town:	Guilford
Tower Height:	176 ft.
Tower Style:	Monopole

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	APX16DWV-16DWV	Antenna Model	APX16DWV-16DWV
Cable Size	1 5/8 in.	Cable Size	1 5/8 in.
Cable Length	170 ft.	Cable Length	170 ft.
Antenna Height	155.0 ft.	Antenna Height	155.0 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	18.0 dBi	Antenna Gain	18.0 dBi
Cable Loss per foot	0.0116 dB	Cable Loss per foot	0.0116 dB
Total Cable Loss	1.9720 dB	Total Cable Loss	1.9720 dB
Total Attenuation	6.4720 dB	Total Attenuation	3.4720 dB
Total EIRP per Channel	54.54 dBm	Total EIRP per Channel	60.55 dBm
(In Watts)	284.33 W	(In Watts)	1134.64 W
Total EIRP per Sector	63.57 dBm	Total EIRP per Sector	63.56 dBm
(In Watts)	2274.68 W	(In Watts)	2269.29 W
nsg	11.5280	nsg	14.5280
Power Density (S) =	0.022479 mW/cm^2	Power Density (S) =	0.022425 mW/cm^2

T-Mobile Worst Case % MPE = 4.4904%

Equation Used :

$$S = \frac{EIRP}{4\pi R^2}$$

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

Co-Location Total

Carrier	% of Standard
Sprint	4.8443 %
AT&T UMTS	1.0988 %
AT&T GSM	1.1010 %
AT&T UMTS	2.6020 %
Total Excluding T-Mobile	**9.6462 %**
T-Mobile	4.4904
Total % MPE for Site	**14.1365%**

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

December 6, 2011

The Honorable Joseph S. Mazza
First Selectman
Town of Guilford
Town Hall
31 Park Street
Guilford, CT 06437

RE: **EM-T-MOBILE-060-111201** - Omnipoint Communications, as subsidiary of T-Mobile USA, Inc., notice of intent to modify an existing telecommunications facility located at 2381 Long Hill Road, Guilford, Connecticut.

Dear First Selectman Mazza:

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 December 20, 2011.

Thank you for your cooperation and consideration.

Very truly yours,

Linda Roberts
Executive Director

LR/jbw

Enclosure: Notice of Intent

c: Regina Reid, Zoning Enforcement Officer, Town of Guilford