

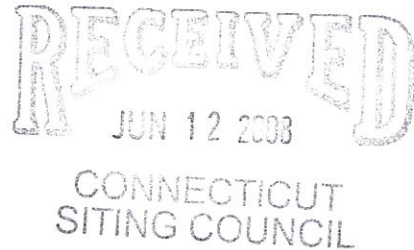
280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

ORIGINAL

June 12, 2008

Via Hand Delivery

S. Derek Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051



Re: **Notice of Exempt Modification – Antenna Swap**
136 Bulls Bridge Road, Kent, Connecticut

Dear Mr. Phelps:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains a wireless telecommunications facility at the above-referenced address. The Council approved Cellco's shared use of this facility on January 25, 2006. Cellco currently maintains six PCS antennas at the 160-foot level on the tower. Alltel Communications ("Alltel") currently maintains twelve (12) antennas at the 170-foot level on the tower.

On May 30, 2008, Cellco acquired Alltel's CT-1 RSA cellular license for Litchfield County, Connecticut. Cellco now intends to remove its six antennas and Alltel's twelve antennas and install six (6) LPA-80080/6CF cellular antennas at the 160-foot level on the tower. The tower is owned by SpectraSite. Attached behind Tab 1 are the specifications for the proposed replacement antennas.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Ruth Epstein, First Selectman of the Town of Kent. Pursuant to a Council directive, a copy of this letter is being sent to South Kent School Corporation, the owner of the property on which the tower is located.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).



Law Offices

BOSTON

HARTFORD

NEW LONDON

STAMFORD

WHITE PLAINS

NEW YORK CITY

SARASOTA

www.rc.com

HART1-1472240-1

ROBINSON & COLE LLP

S. Derek Phelps
June 12, 2008
Page 2

1. The proposed modifications will not result in the increase in the overall height of the existing structure. Cellco's replacement antennas will be located at the 160-foot level of the 180-foot tower.

2. The proposed antenna modifications will not require the extension of the site boundaries. All ground mounted equipment will remain within the limits of the existing site compound.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more.

4. The operation of the replacement antennas will not increase radio frequency (RF) power density levels at the facility to a level at or above the Federal Communications Commission (FCC) adopted safety standard. A cumulative power density table for the facility is included behind Tab 2.

Also attached is a Structural Analysis Report confirming that the tower can support the proposed modifications. (See Tab 3).

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,



Kenneth C. Baldwin

Enclosures

Copy to:

Ruth Epstein, Kent First Selectman
South Kent School Corporation
Sandy M. Carter



LPA-80080/6CF

When ordering replace "___" with connector type.

Mechanical specifications

Length	1800 mm	70.9 in
Width	140 mm	5.5 in
Depth	335 mm	13.2 in
Depth with z-bracket	375 mm	14.8 in
4) Weight	9.5 kg	21.0 lbs
Wind Area		
Fore/Aft	0.25 m ²	2.7 ft ²
Side	0.60 m ²	6.5 ft ²
Rated Wind Velocity (Safety factor 2.0)		
	>295 km/hr	>183 mph
Wind Load @ 100 mph (161 km/hr)		
Fore/Aft	415 N	93.3 lbs
Side	870 N	195.6 lbs

Antenna consisting of aluminum alloy with brass feedlines covered by a UV safe fiberglass radome.

Mounting and Downtilting

Mounting brackets attach to a pipe diameter of Ø50-102 mm (2.0-4.0 in). If the lock-down brace is used, the maximum diameter is Ø88.9 mm (3.5 in)

Mounting Bracket & Downtilt Bracket Kit
#21699999

Electrical specifications

Frequency Range	806-960 MHz
Impedance	50Ω
3) Connector(s)	NE or E-DIN 1 port / center
1) VSWR	≤ 1.4:1
Polarization	Vertical
1) Gain	14 dBd
2) Power Rating	500 W
1) Half Power Angle	
H-Plane	80°
E-Plane	10°
1) Electrical Downtilt	0°
1) Null Fill	10%
Lightning Protection	Direct Ground

1) Typical values.

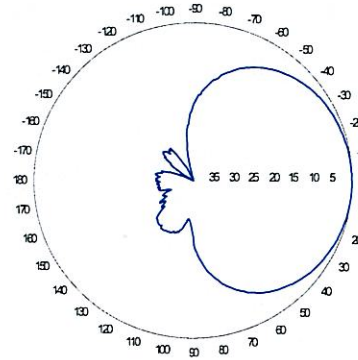
2) Power rating limited by connector only.

3) NE indicates an elongated N connector.
E-DIN indicates an elongated DIN connector.

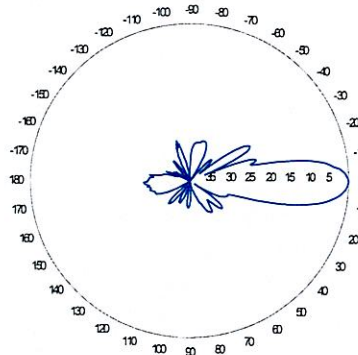
4) The antenna weight listed above does not include the bracket weight.

Improvements to mechanical and/or electrical performance of the antenna may be made without notice.

Radiation pattern¹⁾



Horizontal

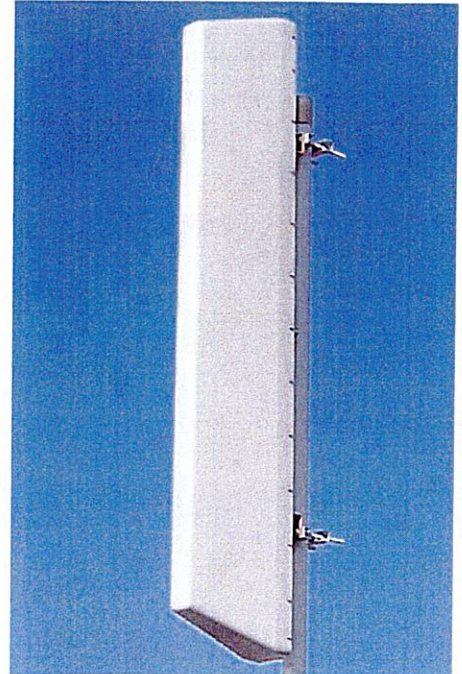


Vertical

Featuring upper side lobe suppression.

Radiation patterns for all antennas are measured with the antenna mounted on a fiberglass pole.

Mounting on a metal pole will typically improve the Front-to-Back ratio.



**Amphenol Antel's
Exclusive 3T (True
Transmission Line
Technology)
Antenna Design:**

- True log-periodic design allows for superior front-to-side characteristics to minimize sector overlap.
- Unique feedline design eliminates the need for conventional solder joints in the signal path.
- A non-collinear system with access to every radiating element for broad bandwidth and superior performance.
- Air as insulation for virtually no internal signal loss.

This Amphenol Antel antenna is under a five-year limited warranty for repair or replacement.

Antenna available with center-fed connector only.

**CF Denotes a Center-Fed
Connector.**

806-960 MHz



Revision Date: 7/5/07

DETAILED STRUCTURAL ANALYSIS AND EVALUATION OF AN EXISTING 180' MONOPOLE AND ITS FOUNDATION FOR NEW ANTENNA ARRANGEMENT

Site I.D: Kent South
Address: 136 Bulls Bridge Road
Kent, CT
Issue No: Revision #1

prepared for



Verizon Wireless
99 East River Drive
East Hartford, Connecticut 06108

prepared by



URS CORPORATION
500 ENTERPRISE DRIVE, SUITE 3B
ROCKY HILL, CT 06067
TEL. 860-529-8882

36931118.00000
VZ4-042

Revision #1 June 4, 2008

TABLE OF CONTENTS

- 1. EXECUTIVE SUMMARY**
- 2. INTRODUCTION**
- 3. ANALYSIS METHODOLOGY AND LOADING CONDITIONS**
- 4. FINDINGS AND EVALUATION**
- 5. CONCLUSIONS AND RECOMMENDATIONS**
- 6. DRAWINGS AND DATA**
 - **RISA TOWER INPUT / OUTPUT SUMMARY**
 - **RISA TOWER DETAILED OUTPUT**
 - **ANCHOR BOLT AND BASE PLATE ANALYSIS**
 - **FOUNDATION ANALYSIS**

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the existing 180' steel tapered monopole structure, located at 136 Bulls Bridge Road, Kent, CT. The analysis was conducted in accordance with the 2005 Connecticut State Building Code and the TIA/EIA-222-F standard for a wind velocity of 80 mph (fastest mile) and 69 mph (fastest mile) concurrent with 0.5" ice. The antenna loading considered in the analysis consists of all existing and proposed antennas, transmission lines, and ancillary items as outlined in the Introduction Section of this report.

The proposed Verizon Wireless modification is as follows:

Proposed Antenna and Mount	Carrier	Antenna Center Elevation
<u>REMOVE:</u>		
<u>Alltel:</u> All existing antennas and (12) 1 5/8" coaxial cables (within monopole)	Alltel (existing to be removed)	@ 171'
<u>Verizon:</u> (6) PCS antennas (2 per sector, outboard)		@ 160'
<u>INSTALL:</u>		
<u>Alpha Sector</u> (2) Antel LPA 80080/6CF_5 antennas		
<u>Beta Sector</u> (2) Antel LPA 80080/6CF_5 antennas	Verizon (Proposed)	@ 160'
<u>Gamma Sector</u> (2) Antel LPA 80080/6CF_5 antennas		
<u>EXISTING TO REMAIN:</u>		
(6) existing PCS antennas (2 per sector, inboard) (12) existing coaxial cables	Verizon (existing to remain)	@ 160'

The results of the analysis indicate that the tower structure has the capacity to support the proposed loading conditions. **The tower and its foundation are considered structurally adequate with the wind load classification specified above and the proposed antenna loading.**

1. EXECUTIVE SUMMARY - *continued*

This analysis is based on:

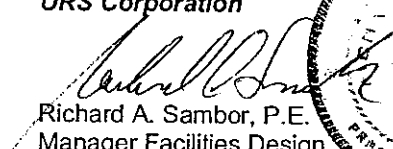
- 1) The tower structure's theoretical capacity, not including any assessment of the condition of the tower.
- 2) Tower geometry and structural member sizes utilized in the preparation of this report obtained from manufacturers original design documents prepared by Engineered Endeavors, Incorporated, (EEI); Job No. 7846-E01, revision no. 2, signed and sealed December 03, 2000.
- 3) Site documentation and visual verification of existing appurtenances conducted from the existing grade by URS during December 2007.
- 4) Antenna and mount configuration as specified within Section 2 and 6 of this report.

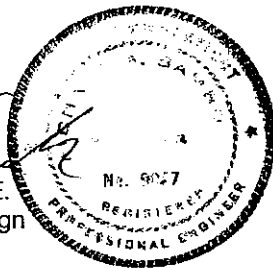
This report is only valid as per the assumptions and data utilized in this report for antenna inventory, mounts and associated cables. The user of this report shall field verify the assumption of the antenna and mount configuration as well as the physical condition of the tower. Notify the engineer in writing immediately if any of the information in this report is found to be other than specified.

If you should have any questions, please call.

Sincerely,

URS Corporation


Richard A. Sambor, P.E.
Manager Facilities Design



RAS/jrm

cc: AA, DR, ICA – URS, CF/Book

2. INTRODUCTION

The subject tower is located at 136 Bulls Bridge Road, Kent, CT. The structure is an existing 180' steel tapered monopole structure, designed and manufactured by Engineered Endeavors, Incorporated, (EEL).

The inventory is summarized in the table below:

Antenna Type	Carrier	Mount	Antenna Centerline Elevation	Cable
(3) ASP-952	AT&T (existing)	Low Profile Platform	184.5'	(3) 1 5/8" coax cables (exterior of monopole)
(6) Powerwave 7770.00 antennas, (6) Powerwave LPG21401 TMA's (6) Powerwave LPG13519 Diplexers	AT&T (existing)	Low Profile Platform (same as above)	180'	(12) 1 5/8" coax cables (within monopole)
(6) Antel LPA-185080/12CF_2 antennas	Verizon (existing)	Low Profile platform	160'	(10) 1 5/8" (interior) + (2) 1 5/8" (exterior) (existing) see note (i) below
(6) Antel LPA-80080/6CF_5 panel antennas	Verizon (proposed)	Low Profile platform (same as above)	160'	Included in the above
(2) Decibel DB809K-XT Omni-whip antennas	CT State Police (existing)	(2) Side Arm mounts	143'	(4) 1 5/8" +(2) 1/4" coax cables (within monopole)
(6) Decibel DB980H90T3E-M antennas – est see note (ii) below	Sprint/Nextel (existing)	Low Profile Platform	125'	(6) 1 5/8" coax cables (within monopole)
(1) Shively 6813 Single Bay FM antenna w/ radome	WMNR (existing)	Pipe Mount off Low Profile Platform	120' est see note (iii) below	(1) 7/8" coax cable (within monopole)
(12) Decibel DB846H90E-SX	Sprint/Nextel (existing)	Low Profile Platform	110'	(12) 1 1/4" coax cables (within monopole)
None	Vacant (existing)	(2) microwave antenna mounts	80'	n/a
(1) GPS antenna	Sprint/Nextel (existing)	GPS mount	63' est see note (iv) below	(1) 1/2" coax cable (exterior of monopole)

Notes:

- I. (12) existing Verizon Wireless coaxial cables to remain.
- II. Sprint/Nextel antenna type estimated based on prior inventory.
- III. FM antenna elevation estimated based on platform height
- IV. Sprint/Nextel GPS antenna elevation estimated.
- V. All Airtel coaxial cables at 171' to be removed.

This structural analysis of the communications tower was performed by URS Corporation (URS) for Verizon Wireless. The purpose of this analysis was to investigate the structural integrity of the existing tower with its existing and proposed antenna loads. This analysis was conducted to evaluate stress on the tower and the effect of forces to the foundation of the tower resulting from existing and proposed antenna arrangement.

3. ANALYSIS METHODOLOGY AND LOADING CONDITIONS

The structural analysis was conducted in accordance with the 2005 Connecticut State Building Code, TIA/EIA-222-F - Structural Standard for Steel Antenna Towers and Antenna Supporting Structures, and the American Institute of Steel Construction (AISC) Manual of Steel Construction - Allowable Stress Design (ASD).

The analysis was conducted using RISA Tower 5.1.1. Two load conditions were evaluated as shown below which were compared to allowable stresses according to AISC and TIA/EIA.

Load Condition 1 = 80 mph (fastest mile) Wind Load (without ice) + Tower Dead Load

Load Condition 2 = 69 mph (fastest mile) Wind Load (with ice) + Ice Load + Tower Dead Load

Please note that wind pressure is a function of velocity squared. Under Load Condition 2, a 25 percent reduction in wind pressure is allowed by code to account for the unlikelihood of the full wind pressure and ice load occurring at the same time. The same results may be achieved by utilizing a lower wind pressure without taking the 25 percent reduction, as shown above.

The TIA/EIA standard permits a one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For the purposes of this analysis, in computing the load capacity the allowable stresses of the tower members were increased by one-third.

4. FINDINGS AND EVALUATION

Combined axial and bending stresses on the monopole structure were evaluated to compare with allowable stresses in accordance with AISC. The calculated stresses under the proposed loading were below the allowable stresses (see tables 1 & 2 below). Detailed analysis and calculations for the proposed load condition are provided in section 6 of this report. Additionally, the anchor bolts, base plate and foundation were all found to be within the allowable limits.

Tower Reactions:

For detailed proposed tower reactions, see drawing no. E-1 in section 6 of this report.

TABLE 1: Proposed Tower Base Reactions vs. Original Design Reactions

Base Reactions	Original Design Reactions	Proposed Reactions
Axial Load (kips)	40.6	46
Shear (kips)	32.74	29
O.T. Moment (ft-kips)	4088.7	3457

TABLE 2: Tower Component Stress vs. Capacity Summary

Component (Section No.)	Controlling Component / Elevation	Stress Ratio (% capacity)	Pass/Fail	Notes:
Pole Shaft (L3)	42.8'-87.4'	79.4%	Pass	
Anchor Bolts	Compression	70%	Pass	
Base Plate	Bending	80%	Pass	

TABLE 3: Foundation Summary

Foundation	Component	Stress (% capacity/FOS)	Pass/Fail	Comments:
Reinf. Concrete Caisson	Moment Capacity	45%/2.2	Pass	

5. CONCLUSIONS AND RECOMMENDATIONS

The results of the analysis indicate that the tower structure has the capacity to support the proposed loading conditions. **The tower and its foundation are considered structurally adequate with the wind load classification specified above and the proposed antenna loading.**

Limitations/Assumptions:

This report is based on the following:

1. Tower inventory as listed in this report.
2. Tower is properly installed and maintained.
3. All members are as specified in the original design documents and are in good condition.
4. All required members are in place.
5. All bolts are in place and are properly tightened.
6. Tower is in plumb condition.
7. All member protective coatings are in good condition.
8. All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
9. Foundations were properly constructed to support original design loads as specified in the original design documents.
10. All coaxial cable is installed within the monopole unless specified otherwise.

URS is not responsible for any modifications completed prior to or hereafter in which URS is not or was not directly involved. Modifications include but are not limited to:

- A. Adding antennas
- B. Removing/replacing antennas
- C. Adding coaxial cables

URS hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact URS. URS disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

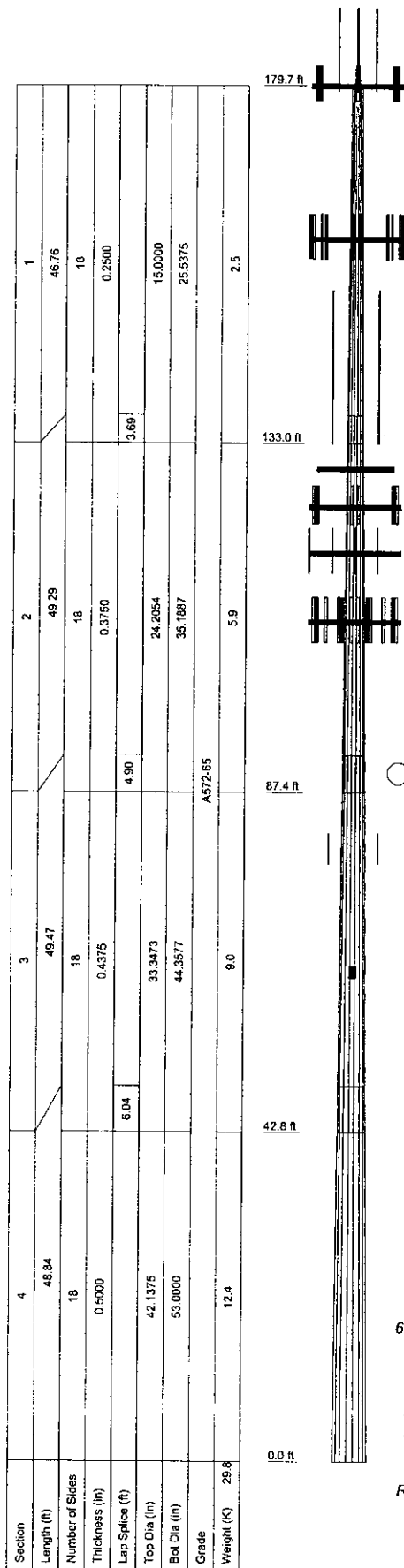
Ongoing and Periodic Inspection and Maintenance:

After the Contractor has successfully completed the installation and the work has been accepted, the owner will be responsible for the ongoing and periodic inspection and maintenance of the tower.

The owner shall refer to TIA/EIA-222-F for recommendations for maintenance and inspection. The frequency of the inspection and maintenance intervals is to be determined by the owner based upon actual site and environmental conditions. It is recommended that a complete and thorough inspection of the entire tower structural system be performed at least yearly and more frequently as conditions warrant. According to TIA/EIA-222-F section 14.1, Note 1: It is recommended that the structure be inspected after severe wind and/or ice storms or other extreme loading conditions.

6. DRAWINGS AND DATA

RISA TOWER INPUT/OUTPUT SUMMARY



DESIGNED APPURTENANCE LOADING

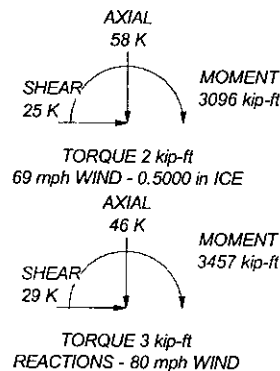
TYPE	ELEVATION	TYPE	ELEVATION
ASP-952 (ATI (Circular))	184.5	LPA-185080/12CF w/ Mount Pipe (Verizon - existing)	160
ASP-952 (ATI (Circular))	184.5	LPA-185080/12CF w/ Mount Pipe (Verizon - existing)	160
ASP-952 (ATI (Circular))	184.5	LPA-185080/12CF w/ Mount Pipe (Verizon - existing)	160
(2) 7770.00 w/ mount pipe (ATI (Circular))	180	EEL Generic Low Profile Platform (Verizon - existing)	160
(2) 7770.00 w/ mount pipe (ATI (Circular))	180	DB809K-XT (CT State Police)	143
(2) 7770.00 w/ mount pipe (ATI (Circular))	180	DB809K-XT (CT State Police)	143
(2) LPG 21401 TMA (ATI (Circular))	180	6' Arm (4" Sq. x 1/4") (CT State Police)	130
(2) LPG 21401 TMA (ATI (Circular))	180	6' Arm (4" Sq. x 1/4") (CT State Police)	130
(2) LPG 21401 TMA (ATI (Circular))	180	Filter/Diplexer (CT State Police)	130
(2) LPG 21401 TMA (ATI (Circular))	180	(2) DB980H90T3E-M w/ Mount Pipe (Sprint/Nextel)	125
(2) LPG 13519 Diplexer (ATI (Circular))	180	(2) DB980H90T3E-M w/ Mount Pipe (Sprint/Nextel)	125
(2) LPG 13519 Diplexer (ATI (Circular))	180	(2) DB980H90T3E-M w/ Mount Pipe (Sprint/Nextel)	125
(2) LPG 13519 Diplexer (ATI (Circular))	180	EEL Generic Low Profile Platform (Sprint/Nextel)	125
EEL Generic Low Profile Platform (ATI (Circular))	180	6813 1-Bay w/radome (WMNR)	120
LPA-80080/6CF w/ Mount Pipe (Verizon - proposed)	160	Misc Mount (WMNR)	119
LPA-80080/6CF w/ Mount Pipe (Verizon - proposed)	160	EEL Generic Low Profile Platform (WMNR)	119
LPA-80080/6CF w/ Mount Pipe (Verizon - proposed)	160	(2) 8x2 1/2" Pipe Mount (WMNR)	119
LPA-80080/6CF w/ Mount Pipe (Verizon - proposed)	160	(2) 8x2 1/2" Pipe Mount (WMNR)	119
LPA-80080/6CF w/ Mount Pipe (Verizon - proposed)	160	(2) 8x2 1/2" Pipe Mount (WMNR)	119
LPA-80080/6CF w/ Mount Pipe (Verizon - proposed)	160	(4) DB846H90E-SY w/ Mount Pipe (Sprint/Nextel)	110
LPA-80080/6CF w/ Mount Pipe (Verizon - proposed)	160	(4) DB846H90E-SY w/ Mount Pipe (Sprint/Nextel)	110
LPA-80080/6CF w/ Mount Pipe (Verizon - proposed)	160	(4) DB846H90E-SY w/ Mount Pipe (Sprint/Nextel)	110
LPA-80080/6CF w/ Mount Pipe (Verizon - proposed)	160	(4) DB846H90E-SY w/ Mount Pipe (Sprint/Nextel)	110
LPA-185080/12CF w/ Mount Pipe (Verizon - existing)	160	EEL Generic Low Profile Platform (Sprint/Nextel)	110
LPA-185080/12CF w/ Mount Pipe (Verizon - existing)	160	Valmont Single Dish Standoff (1) (Vacant)	80
LPA-185080/12CF w/ Mount Pipe (Verizon - existing)	160	Valmont Single Dish Standoff (1) (Vacant)	80
LPA-185080/12CF w/ Mount Pipe (Verizon - existing)	160	GPS (Sprint/Nextel)	63
LPA-185080/12CF w/ Mount Pipe (Verizon - existing)	160	Z GPS Mount (Sprint/Nextel)	63

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

- Tower is located in Litchfield County, Connecticut.
- Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
- Tower is also designed for a 69 mph basic wind with 0.50 in ice.
- Deflections are based upon a 50 mph wind.
- Connections use galvanized A325 bolts, nuts and locking devices.
- Installation per TIA/EIA-222-F and AISC Specifications.
- Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- TOWER RATING: 79.4%



URS Corporation		Job: 180' EEI Monopole	
500 Enterprise Drive, Suite 3B		Project: Kent, CT	
Rocky Hill, CT 06067		Client: Verizon Wireless - Kent South	Drawn by: Staff
Phone: (860) 529-8882		Code: TIA/EIA-222-F	Date: 06/04/08
FAX: (860) 529-3991		Path: P:\08\Rev 1\ERI Files\180' EEI Monopole_Kent.ctb	Scale: NTS
		Dwg No. E-1	

RISA TOWER DETAILED OUTPUT

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	1 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

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 Litchfield County, Connecticut.

Basic wind speed of 80 mph.

Nominal ice thickness of 0.5000 in.

Ice density of 56 pcf.

A wind speed of 69 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 50 mph.

Connections use galvanized A325 bolts, nuts and locking devices..

Installation per TIA/EIA-222-F and AISC Specifications..

Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..

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	Retention 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 Arc 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	179.73-132.97	46.76	3.69	18	15.0000	25.5375	0.2500	1.0000	A572-65 (65 ksi)
L2	132.97-87.37	49.29	4.90	18	24.2054	35.1887	0.3750	1.5000	A572-65 (65 ksi)
L3	87.37-42.79	49.47	6.04	18	33.3473	44.3577	0.4375	1.7500	A572-65 (65 ksi)

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	2 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Section	Elevation	Section Length	Splice Length	Number of Sides	Top Diameter	Bottom Diameter	Wall Thickness	Bend Radius	Pole Grade
	ft	ft	ft		in	in	in	in	
L4	42.79-0.00	48.84		18	42.1375	53.0000	0.5000	2.0000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia.	Area	I	r	C	I/C	J	Iv/Q	w	w/t
	in	in ²	in ⁴	in	in	in ³	in ⁴	in ⁵	in	
L1	15.2314	11.7041	321.7069	5.2363	7.6200	42.2188	643.8372	5.8532	2.2000	8.8
	25.9315	20.0656	1621.0711	8.9771	12.9731	124.9568	3244.2753	10.0347	4.0546	16.218
L2	25.4143	28.3641	2035.0226	8.4598	12.2963	165.4982	4072.7230	14.1848	3.6001	9.6
	35.7315	41.4370	6344.9205	12.3589	17.8759	354.9435	12698.1899	20.7224	5.5332	14.755
L3	34.9687	45.6993	6253.1305	11.6830	16.9404	369.1249	12514.4890	22.8540	5.0991	11.655
	45.0420	60.9887	14863.3039	15.5917	22.5337	659.6030	29746.1653	30.5001	7.0370	16.084
L4	44.1527	66.0787	14473.2968	14.7813	21.4058	676.1379	28965.6380	33.0456	6.5362	13.072
	53.8176	83.3175	29012.9766	18.6375	26.9240	1077.5879	58064.1291	41.6667	8.4480	16.896

Tower Elevation	Gusset Area	Gusset Thickness	Gusset Grade	Adjust. Factor	Adjust. Factor	Weight Mult.	Double Angle	Double Angle
	(per face)			A _f	A _r		Stitch Bolt	Stitch Bolt
	ft ²	in					Spacing	Spacing
							Diagonals	Horizontal
							in	in
L1 179.73-132.97				1	1	1		
L2 132.97-87.37				1	1	1		
L3 87.37-42.79				1	1	1		
L4 42.79-0.00				1	1	1		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number		C _A A _t	Weight
				ft			ft ² /ft	plf
1 5/8 (AT&T (Cingular))	C	No	Inside Pole	179.73 - 10.00	12	No Ice	0.00	1.04
1 5/8 (AT&T (Cingular))	C	No	CaAa (Out Of Face)	179.73 - 10.00	2	1/2" Ice	0.00	1.04
1 5/8 (AT&T (Cingular))	C	No	CaAa (Out Of Face)	179.73 - 10.00	1	No Ice	0.00	1.04
1 5/8 (AT&T (Cingular))	C	No	Inside Pole	130.00 - 5.00	4	1/2" Ice	0.20	1.04
1 5/8 (CT State Police - existing)	C	No	Inside Pole	130.00 - 5.00	2	No Ice	0.30	2.55
1 5/8 (CT State Police - existing)	C	No	Inside Pole	130.00 - 5.00	4	No Ice	0.00	1.04
1 5/8 (CT State Police - existing)	C	No	Inside Pole	130.00 - 5.00	2	1/2" Ice	0.00	1.04
1 5/8 (Sprint/Nextel)	C	No	Inside Pole	125.00 - 5.00	6	No Ice	0.00	0.06
1/2 (Sprint/Nextel)	A	No	CaAa (Out Of Face)	63.00 - 5.00	2	No Ice	0.00	0.06
7/8 (WMNR)	C	No	Inside Pole	119.00 - 5.00	1	No Ice	0.06	0.25
1 1/4	C	No	Inside Pole	110.00 - 10.00	1	1/2" Ice	0.16	0.91
						No Ice	0.00	0.54
						1/2" Ice	0.00	0.54
						No Ice	0.00	0.66

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180° EEI Monopole	Page	3 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		$C_A A_A$ ft ² /ft	Weight plf
(Sprint/Nextel) 1 5/8	B	No	Inside Pole	160.00 - 5.00	10	1/2" Ice	0.00	0.66
(Verizon - existing) 1 5/8	B	No	CaAa (Out Of Face)	160.00 - 5.00	1	No Ice	0.00	1.04
(Verizon - existing) 1 5/8	B	No	CaAa (Out Of Face)	160.00 - 5.00	1	1/2" Ice	0.00	1.04
(Verizon - existing) 1 5/8	B	No	CaAa (Out Of Face)	160.00 - 5.00	1	No Ice	0.20	2.55
(Verizon - existing) 1 5/8	B	No	CaAa (Out Of Face)	160.00 - 5.00	1	1/2" Ice	0.30	1.04
(Verizon - existing) 1 5/8	B	No	CaAa (Out Of Face)	160.00 - 5.00	1	No Ice	0.20	2.55
(Verizon - existing) 1 5/8	B	No	CaAa (Out Of Face)	160.00 - 5.00	1	1/2" Ice	0.30	2.55

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
L1	179.73-132.97	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	5.353	0.34
		C	0.000	0.000	0.000	9.259	0.73
L2	132.97-87.37	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	9.029	0.57
		C	0.000	0.000	0.000	9.029	1.33
L3	87.37-42.79	A	0.000	0.000	0.000	1.172	0.01
		B	0.000	0.000	0.000	8.825	0.56
		C	0.000	0.000	0.000	8.825	1.54
L4	42.79-0.00	A	0.000	0.000	0.000	2.192	0.01
		B	0.000	0.000	0.000	7.483	0.47
		C	0.000	0.000	0.000	6.493	1.19

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	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight K
L1	179.73-132.97	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	8.056	0.42
		C		0.000	0.000	0.000	13.935	0.94
L2	132.97-87.37	A	0.500	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	13.589	0.71
		C		0.000	0.000	0.000	13.589	1.53
L3	87.37-42.79	A	0.500	0.000	0.000	0.000	3.193	0.02
		B		0.000	0.000	0.000	13.283	0.69
		C		0.000	0.000	0.000	13.283	1.74
L4	42.79-0.00	A	0.500	0.000	0.000	0.000	5.971	0.03
		B		0.000	0.000	0.000	11.262	0.59
		C		0.000	0.000	0.000	9.772	1.34

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	179.73-132.97	-0.0778	0.2057	-0.1045	0.2763
L2	132.97-87.37	0.0000	0.2565	0.0000	0.3518

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	4 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Section	Elevation	CP _X	CP _Z	CP _X Ice	CP _Z Ice
	ft	in	in	in	in
L3	87.37-42.79	0.0000	0.2258	0.0000	0.2703
L4	42.79-0.00	0.0292	0.1507	0.0409	0.1321

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
ASP-952 (AT&T (Cingular))	A	From Face	2.20 0.00 0.00	0.0000	184.50	No Ice 1/2" Ice	3.02 4.16	0.02 0.04
ASP-952 (AT&T (Cingular))	B	From Face	2.20 0.00 0.00	0.0000	184.50	No Ice 1/2" Ice	3.02 4.16	0.02 0.04
ASP-952 (AT&T (Cingular))	C	From Face	2.20 0.00 0.00	0.0000	184.50	No Ice 1/2" Ice	3.02 4.16	0.02 0.04
(2) 7770.00 w/ mount pipe (AT&T (Cingular))	A	From Face	2.20 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	5.99 6.45	0.06 0.11
(2) 7770.00 w/ mount pipe (AT&T (Cingular))	B	From Face	2.20 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	5.99 6.45	0.06 0.11
(2) 7770.00 w/ mount pipe (AT&T (Cingular))	C	From Face	2.20 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	5.99 6.45	0.06 0.11
(2) LPG 21401 TMA (AT&T (Cingular))	A	From Face	2.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	0.95 1.09	0.02 0.02
(2) LPG 21401 TMA (AT&T (Cingular))	B	From Face	2.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	0.95 1.09	0.02 0.02
(2) LPG 21401 TMA (AT&T (Cingular))	C	From Face	2.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	0.95 1.09	0.02 0.02
(2) LPG 13519 Diplexer (AT&T (Cingular))	A	From Face	2.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	0.27 0.34	0.01 0.01
(2) LPG 13519 Diplexer (AT&T (Cingular))	B	From Face	2.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	0.27 0.34	0.01 0.01
(2) LPG 13519 Diplexer (AT&T (Cingular))	C	From Face	2.00 0.00 0.00	0.0000	180.00	No Ice 1/2" Ice	0.27 0.34	0.01 0.01
EEI Generic Low Profile Platform (AT&T (Cingular))	A	None		0.0000	180.00	No Ice 1/2" Ice	20.00 25.00	1.50 2.25
DB809K-XT (CT State Police)	B	Stand-Off Left	6.00 0.00 0.00	0.0000	143.00	No Ice 1/2" Ice	3.05 4.30	0.03 0.05
DB809K-XT (CT State Police)	A	Stand-Off Right	6.00 0.00	0.0000	143.00	No Ice 1/2" Ice	3.05 4.30	0.03 0.05

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	5 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
			0.00						
6' Arm (4" Sq. x 1/4") (CT State Police)	B	Stand-Off Left	3.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	4.00 5.00	4.00 5.00	0.08 0.16
6' Arm (4" Sq. x 1/4") (CT State Police)	A	Stand-Off Right	3.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	4.00 5.00	4.00 5.00	0.08 0.16
Filter/Diplexer (CT State Police)	A	Stand-Off Left	3.00 0.00 0.00	0.0000	130.00	No Ice 1/2" Ice	3.15 3.39	1.05 1.21	0.02 0.04
(2) DB980H90T3E-M w/Mount Pipe (Sprint/Nextel)	A	From Face	2.30 0.00 0.00	0.0000	125.00	No Ice 1/2" Ice	4.27 4.86	3.86 4.95	0.03 0.07
(2) DB980H90T3E-M w/Mount Pipe (Sprint/Nextel)	B	From Face	2.30 0.00 0.00	0.0000	125.00	No Ice 1/2" Ice	4.27 4.86	3.86 4.95	0.03 0.07
(2) DB980H90T3E-M w/Mount Pipe (Sprint/Nextel)	C	From Face	2.30 0.00 0.00	0.0000	125.00	No Ice 1/2" Ice	4.27 4.86	3.86 4.95	0.03 0.07
EEI Generic Low Profile Platform (Sprint/Nextel)	A	None		0.0000	125.00	No Ice 1/2" Ice	20.00 25.00	20.00 25.00	1.50 2.25
EEI Generic Low Profile Platform (WMNR)	A	None		0.0000	119.00	No Ice 1/2" Ice	20.00 25.00	20.00 25.00	1.50 2.25
(2) 8"x2 1/2" Pipe Mount (WMNR)	A	From Face	2.20 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice	2.30 3.13	2.30 3.13	0.04 0.06
(2) 8"x2 1/2" Pipe Mount (WMNR)	B	From Face	2.20 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice	2.30 3.13	2.30 3.13	0.04 0.06
(2) 8"x2 1/2" Pipe Mount (WMNR)	C	From Face	2.20 0.00 0.00	0.0000	119.00	No Ice 1/2" Ice	2.30 3.13	2.30 3.13	0.04 0.06
6813 1-Bay w/radome (WMNR)	C	From Face	6.00 6.00 0.00	0.0000	120.00	No Ice 1/2" Ice	4.90 6.00	4.90 6.00	0.10 0.20
Misc Mount (WMNR)	C	From Face	3.50 6.00 0.00	0.0000	119.00	No Ice 1/2" Ice	5.20 7.00	5.20 7.00	0.14 0.19
(4) DB846H90E-SY w/Mount Pipe (Sprint/Nextel)	A	From Face	2.10 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	5.32 5.87	7.73 8.92	0.04 0.10
(4) DB846H90E-SY w/Mount Pipe (Sprint/Nextel)	B	From Face	2.10 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	5.32 5.87	7.73 8.92	0.04 0.10
(4) DB846H90E-SY w/Mount Pipe (Sprint/Nextel)	C	From Face	2.10 0.00 0.00	0.0000	110.00	No Ice 1/2" Ice	5.32 5.87	7.73 8.92	0.04 0.10
EEI Generic Low Profile Platform (Sprint/Nextel)	A	None		0.0000	110.00	No Ice 1/2" Ice	22.50 28.20	22.50 28.20	1.50 2.25
Valmont Single Dish Standoff (1) (Vacant)	A	From Face	2.20 0.00 0.00	0.0000	80.00	No Ice 1/2" Ice	2.64 3.69	2.64 3.69	0.04 0.05
Valmont Single Dish Standoff (1)	B	From Face	2.20 0.00	0.0000	80.00	No Ice 1/2" Ice	2.64 3.69	2.64 3.69	0.04 0.05

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	6 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{A/A} Front ft ²	C _{A/A} Side ft ²	Weight K
(Vacant)			0.00						
LPA-80080/6CF w/ Mount Pipe	A	From Face	2.20 6.00	0.0000	160.00	No Ice 1/2" Ice	4.35 4.79	10.51 11.56	0.04 0.10
(Verizon - proposed)			0.00						
LPA-80080/6CF w/ Mount Pipe	A	From Face	2.20 -6.00	0.0000	160.00	No Ice 1/2" Ice	4.35 4.79	10.51 11.56	0.04 0.10
(Verizon - proposed)			0.00						
LPA-80080/6CF w/ Mount Pipe	B	From Face	2.20 6.00	0.0000	160.00	No Ice 1/2" Ice	4.35 4.79	10.51 11.56	0.04 0.10
(Verizon - proposed)			0.00						
LPA-80080/6CF w/ Mount Pipe	B	From Face	2.20 -6.00	0.0000	160.00	No Ice 1/2" Ice	4.35 4.79	10.51 11.56	0.04 0.10
(Verizon - proposed)			0.00						
LPA-80080/6CF w/ Mount Pipe	C	From Face	2.20 6.00	0.0000	160.00	No Ice 1/2" Ice	4.35 4.79	10.51 11.56	0.04 0.10
(Verizon - proposed)			0.00						
LPA-80080/6CF w/ Mount Pipe	C	From Face	2.20 -6.00	0.0000	160.00	No Ice 1/2" Ice	4.35 4.79	10.51 11.56	0.04 0.10
(Verizon - proposed)			0.00						
LPA-185080/12CF w/ Mount Pipe	A	From Face	2.20 4.00	0.0000	160.00	No Ice 1/2" Ice	3.55 3.99	5.99 6.94	0.03 0.07
(Verizon - existing)			0.00						
LPA-185080/12CF w/ Mount Pipe	A	From Face	2.20 -4.00	0.0000	160.00	No Ice 1/2" Ice	3.55 3.99	5.99 6.94	0.03 0.07
(Verizon - existing)			0.00						
LPA-185080/12CF w/ Mount Pipe	B	From Face	2.20 4.00	0.0000	160.00	No Ice 1/2" Ice	3.55 3.99	5.99 6.94	0.03 0.07
(Verizon - existing)			0.00						
LPA-185080/12CF w/ Mount Pipe	B	From Face	2.20 -4.00	0.0000	160.00	No Ice 1/2" Ice	3.55 3.99	5.99 6.94	0.03 0.07
(Verizon - existing)			0.00						
LPA-185080/12CF w/ Mount Pipe	C	From Face	2.20 4.00	0.0000	160.00	No Ice 1/2" Ice	3.55 3.99	5.99 6.94	0.03 0.07
(Verizon - existing)			0.00						
LPA-185080/12CF w/ Mount Pipe	C	From Face	2.20 -4.00	0.0000	160.00	No Ice 1/2" Ice	3.55 3.99	5.99 6.94	0.03 0.07
(Verizon - existing)			0.00						
EEI Generic Low Profile Platform	A	None		0.0000	160.00	No Ice 1/2" Ice	20.00 25.00	20.00 25.00	1.50 2.25
(Verizon - existing)									
GPS	C	None		0.0000	63.00	No Ice 1/2" Ice	1.00 1.50	1.00 1.50	0.01 0.01
(Sprint/Nextel)									
2' GPS Mount	C	None		0.0000	63.00	No Ice 1/2" Ice	0.78 1.10	0.68 1.10	0.03 0.03
(Sprint/Nextel)									

Tower Pressures - No Ice

$$G_H = 1.690$$

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	7 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	ft ²		ft ²	ft ²	ft ²			
L1 179.73- 132.97	154.57	1.555	25	78.986	A	0.000	78.986	78.986	100.00	0.000	0.000
					B	0.000	78.986		100.00	0.000	5.353
					C	0.000	78.986		100.00	0.000	9.259
L2 132.97- 87.37	109.22	1.408	23	114.416	A	0.000	114.416	114.416	100.00	0.000	0.000
					B	0.000	114.416		100.00	0.000	9.029
					C	0.000	114.416		100.00	0.000	9.029
L3 87.37-42.79	64.69	1.212	20	146.339	A	0.000	146.339	146.339	100.00	0.000	1.172
					B	0.000	146.339		100.00	0.000	8.825
					C	0.000	146.339		100.00	0.000	8.825
L4 42.79-0.00	20.69	1	16	172.029	A	0.000	172.029	172.029	100.00	0.000	2.192
					B	0.000	172.029		100.00	0.000	7.483
					C	0.000	172.029		100.00	0.000	6.493

Tower Pressure - With Ice

$$G_H = 1.690$$

Section Elevation	z	K _Z	q _z	t _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	in	ft ²		ft ²	ft ²	ft ²			
L1 179.73- 132.97	154.57	1.555	19	0.5000	82.883	A	0.000	82.883	82.883	100.00	0.000	0.000
						B	0.000	82.883		100.00	0.000	8.056
						C	0.000	82.883		100.00	0.000	13.935
L2 132.97-87.37	109.22	1.408	17	0.5000	118.216	A	0.000	118.216	118.216	100.00	0.000	0.000
						B	0.000	118.216		100.00	0.000	13.589
						C	0.000	118.216		100.00	0.000	13.589
L3 87.37-42.79	64.69	1.212	15	0.5000	150.053	A	0.000	150.053	150.053	100.00	0.000	3.193
						B	0.000	150.053		100.00	0.000	13.283
						C	0.000	150.053		100.00	0.000	13.283
L4 42.79-0.00	20.69	1	12	0.5000	175.595	A	0.000	175.595	175.595	100.00	0.000	5.971
						B	0.000	175.595		100.00	0.000	11.262
						C	0.000	175.595		100.00	0.000	9.772

Tower Pressure - Service

$$G_H = 1.690$$

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face ft ²	C _A A _A Out Face ft ²
ft	ft		psf	ft ²		ft ²	ft ²	ft ²			
L1 179.73- 132.97	154.57	1.555	10	78.986	A	0.000	78.986	78.986	100.00	0.000	0.000
					B	0.000	78.986		100.00	0.000	5.353
					C	0.000	78.986		100.00	0.000	9.259
L2 132.97- 87.37	109.22	1.408	9	114.416	A	0.000	114.416	114.416	100.00	0.000	0.000
					B	0.000	114.416		100.00	0.000	9.029
					C	0.000	114.416		100.00	0.000	9.029
L3 87.37-42.79	64.69	1.212	8	146.339	A	0.000	146.339	146.339	100.00	0.000	1.172
					B	0.000	146.339		100.00	0.000	8.825
					C	0.000	146.339		100.00	0.000	8.825
L4 42.79-0.00	20.69	1	6	172.029	A	0.000	172.029	172.029	100.00	0.000	2.192

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	8 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Section Elevation	z	K _z	q _z	A _G	F _{a c e}	A _F	A _R	A _{leg}	Leg %	C _{A A} In Face ft ²	C _{A A} Out Face ft ²
ft	ft		psf	ft ²		ft ²	ft ²	ft ²			
					B	0.000	172.029		100.00	0.000	7.483
					C	0.000	172.029		100.00	0.000	6.493

Tower Forces - No Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F _{a c e}	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 179.73- 132.97	1.07	2.53	A	1	0.65	1	1	1	78.986	2.84	60.64	C
			B	1	0.65	1	1	1	78.986			
			C	1	0.65	1	1	1	78.986			
L2 132.97- 87.37	1.89	5.85	A	1	0.65	1	1	1	114.416	3.60	78.85	C
			B	1	0.65	1	1	1	114.416			
			C	1	0.65	1	1	1	114.416			
L3 87.37- 42.79	2.10	8.98	A	1	0.65	1	1	1	146.339	3.80	85.32	C
			B	1	0.65	1	1	1	146.339			
			C	1	0.65	1	1	1	146.339			
L4 42.79-0.00	1.67	12.41	A	1	0.65	1	1	1	172.029	3.54	82.81	C
			B	1	0.65	1	1	1	172.029			
			C	1	0.65	1	1	1	172.029			
Sum Weight:	6.73	29.78						OTM	1150.41 kip-ft	13.78		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation	Add Weight	Self Weight	F _{a c e}	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 179.73- 132.97	1.07	2.53	A	1	0.65	1	1	1	78.986	2.84	60.64	C
			B	1	0.65	1	1	1	78.986			
			C	1	0.65	1	1	1	78.986			
L2 132.97- 87.37	1.89	5.85	A	1	0.65	1	1	1	114.416	3.60	78.85	C
			B	1	0.65	1	1	1	114.416			
			C	1	0.65	1	1	1	114.416			
L3 87.37- 42.79	2.10	8.98	A	1	0.65	1	1	1	146.339	3.80	85.32	C
			B	1	0.65	1	1	1	146.339			
			C	1	0.65	1	1	1	146.339			
L4 42.79-0.00	1.67	12.41	A	1	0.65	1	1	1	172.029	3.54	82.81	C
			B	1	0.65	1	1	1	172.029			
			C	1	0.65	1	1	1	172.029			
Sum Weight:	6.73	29.78						OTM	1150.41 kip-ft	13.78		

Tower Forces - No Ice - Wind 60 To Face

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	9 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 179.73- 132.97	1.07	2.53	A	1	0.65	1	1	1	78.986	2.84	60.64	C
			B	1	0.65	1	1	1	78.986			
			C	1	0.65	1	1	1	78.986			
L2 132.97- 87.37	1.89	5.85	A	1	0.65	1	1	1	114.416	3.60	78.85	C
			B	1	0.65	1	1	1	114.416			
			C	1	0.65	1	1	1	114.416			
L3 87.37- 42.79	2.10	8.98	A	1	0.65	1	1	1	146.339	3.80	85.32	C
			B	1	0.65	1	1	1	146.339			
			C	1	0.65	1	1	1	146.339			
L4 42.79-0.00	1.67	12.41	A	1	0.65	1	1	1	172.029	3.54	82.81	C
			B	1	0.65	1	1	1	172.029			
			C	1	0.65	1	1	1	172.029			
Sum Weight:	6.73	29.78						OTM	1150.41 kip-ft	13.78		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 179.73- 132.97	1.07	2.53	A	1	0.65	1	1	1	78.986	2.84	60.64	C
			B	1	0.65	1	1	1	78.986			
			C	1	0.65	1	1	1	78.986			
L2 132.97- 87.37	1.89	5.85	A	1	0.65	1	1	1	114.416	3.60	78.85	C
			B	1	0.65	1	1	1	114.416			
			C	1	0.65	1	1	1	114.416			
L3 87.37- 42.79	2.10	8.98	A	1	0.65	1	1	1	146.339	3.80	85.32	C
			B	1	0.65	1	1	1	146.339			
			C	1	0.65	1	1	1	146.339			
L4 42.79-0.00	1.67	12.41	A	1	0.65	1	1	1	172.029	3.54	82.81	C
			B	1	0.65	1	1	1	172.029			
			C	1	0.65	1	1	1	172.029			
Sum Weight:	6.73	29.78						OTM	1150.41 kip-ft	13.78		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 179.73- 132.97	1.36	3.13	A	1	0.65	1	1	1	82.883	2.45	52.32	C
			B	1	0.65	1	1	1	82.883			
			C	1	0.65	1	1	1	82.883			
L2 132.97- 87.37	2.24	6.72	A	1	0.65	1	1	1	118.216	3.03	66.55	C
			B	1	0.65	1	1	1	118.216			
			C	1	0.65	1	1	1	118.216			
L3 87.37- 42.79	2.45	10.08	A	1	0.65	1	1	1	150.053	3.19	71.49	C
			B	1	0.65	1	1	1	150.053			
			C	1	0.65	1	1	1	150.053			

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	10 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L4 42.79-0.00	1.96	13.70	A	1	0.65	1	1	1	175.595	2.93	68.49	C
			B	1	0.65	1	1	1	175.595			
			C	1	0.65	1	1	1	175.595			
Sum Weight:	8.01	33.62						OTM	976.42 kip-ft	11.60		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 179.73-132.97	1.36	3.13	A	1	0.65	1	1	1	82.883	2.45	52.32	C
			B	1	0.65	1	1	1	82.883			
			C	1	0.65	1	1	1	82.883			
L2 132.97-87.37	2.24	6.72	A	1	0.65	1	1	1	118.216	3.03	66.55	C
			B	1	0.65	1	1	1	118.216			
			C	1	0.65	1	1	1	118.216			
L3 87.37-42.79	2.45	10.08	A	1	0.65	1	1	1	150.053	3.19	71.49	C
			B	1	0.65	1	1	1	150.053			
			C	1	0.65	1	1	1	150.053			
L4 42.79-0.00	1.96	13.70	A	1	0.65	1	1	1	175.595	2.93	68.49	C
			B	1	0.65	1	1	1	175.595			
			C	1	0.65	1	1	1	175.595			
Sum Weight:	8.01	33.62						OTM	976.42 kip-ft	11.60		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 179.73-132.97	1.36	3.13	A	1	0.65	1	1	1	82.883	2.45	52.32	C
			B	1	0.65	1	1	1	82.883			
			C	1	0.65	1	1	1	82.883			
L2 132.97-87.37	2.24	6.72	A	1	0.65	1	1	1	118.216	3.03	66.55	C
			B	1	0.65	1	1	1	118.216			
			C	1	0.65	1	1	1	118.216			
L3 87.37-42.79	2.45	10.08	A	1	0.65	1	1	1	150.053	3.19	71.49	C
			B	1	0.65	1	1	1	150.053			
			C	1	0.65	1	1	1	150.053			
L4 42.79-0.00	1.96	13.70	A	1	0.65	1	1	1	175.595	2.93	68.49	C
			B	1	0.65	1	1	1	175.595			
			C	1	0.65	1	1	1	175.595			
Sum Weight:	8.01	33.62						OTM	976.42 kip-ft	11.60		

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	11 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Tower Forces - With Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 179.73-132.97	1.36	3.13	A	1	0.65	1	1	1	82.883	2.45	52.32	C
			B	1	0.65	1	1	1	82.883			
			C	1	0.65	1	1	1	82.883			
L2 132.97-87.37	2.24	6.72	A	1	0.65	1	1	1	118.216	3.03	66.55	C
			B	1	0.65	1	1	1	118.216			
			C	1	0.65	1	1	1	118.216			
L3 87.37-42.79	2.45	10.08	A	1	0.65	1	1	1	150.053	3.19	71.49	C
			B	1	0.65	1	1	1	150.053			
			C	1	0.65	1	1	1	150.053			
L4 42.79-0.00	1.96	13.70	A	1	0.65	1	1	1	175.595	2.93	68.49	C
			B	1	0.65	1	1	1	175.595			
			C	1	0.65	1	1	1	175.595			
Sum Weight:	8.01	33.62						OTM	976.42 kip-ft	11.60		

Tower Forces - Service - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 179.73-132.97	1.07	2.53	A	1	0.65	1	1	1	78.986	1.11	23.69	C
			B	1	0.65	1	1	1	78.986			
			C	1	0.65	1	1	1	78.986			
L2 132.97-87.37	1.89	5.85	A	1	0.65	1	1	1	114.416	1.40	30.80	C
			B	1	0.65	1	1	1	114.416			
			C	1	0.65	1	1	1	114.416			
L3 87.37-42.79	2.10	8.98	A	1	0.65	1	1	1	146.339	1.49	33.33	C
			B	1	0.65	1	1	1	146.339			
			C	1	0.65	1	1	1	146.339			
L4 42.79-0.00	1.67	12.41	A	1	0.65	1	1	1	172.029	1.38	32.35	C
			B	1	0.65	1	1	1	172.029			
			C	1	0.65	1	1	1	172.029			
Sum Weight:	6.73	29.78						OTM	449.38 kip-ft	5.38		

Tower Forces - Service - Wind 45 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 179.73-132.97	1.07	2.53	A	1	0.65	1	1	1	78.986	1.11	23.69	C
			B	1	0.65	1	1	1	78.986			
			C	1	0.65	1	1	1	78.986			
L2 132.97-87.37	1.89	5.85	A	1	0.65	1	1	1	114.416	1.40	30.80	C
			B	1	0.65	1	1	1	114.416			
			C	1	0.65	1	1	1	114.416			

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	12 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L3 87.37-42.79	2.10	8.98	A	1	0.65	1	1	1	146.339	1.49	33.33	C
			B	1	0.65	1	1	1	146.339			
			C	1	0.65	1	1	1	146.339			
L4 42.79-0.00	1.67	12.41	A	1	0.65	1	1	1	172.029	1.38	32.35	C
			B	1	0.65	1	1	1	172.029			
			C	1	0.65	1	1	1	172.029			
Sum Weight:	6.73	29.78						OTM	449.38 kip-ft	5.38		

Tower Forces - Service - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 179.73-132.97	1.07	2.53	A	1	0.65	1	1	1	78.986	1.11	23.69	C
			B	1	0.65	1	1	1	78.986			
			C	1	0.65	1	1	1	78.986			
L2 132.97-87.37	1.89	5.85	A	1	0.65	1	1	1	114.416	1.40	30.80	C
			B	1	0.65	1	1	1	114.416			
			C	1	0.65	1	1	1	114.416			
L3 87.37-42.79	2.10	8.98	A	1	0.65	1	1	1	146.339	1.49	33.33	C
			B	1	0.65	1	1	1	146.339			
			C	1	0.65	1	1	1	146.339			
L4 42.79-0.00	1.67	12.41	A	1	0.65	1	1	1	172.029	1.38	32.35	C
			B	1	0.65	1	1	1	172.029			
			C	1	0.65	1	1	1	172.029			
Sum Weight:	6.73	29.78						OTM	449.38 kip-ft	5.38		

Tower Forces - Service - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	R _R	D _F	D _R	A _E	F	w	Ctrl. Face
ft	K	K							ft ²	K	plf	
L1 179.73-132.97	1.07	2.53	A	1	0.65	1	1	1	78.986	1.11	23.69	C
			B	1	0.65	1	1	1	78.986			
			C	1	0.65	1	1	1	78.986			
L2 132.97-87.37	1.89	5.85	A	1	0.65	1	1	1	114.416	1.40	30.80	C
			B	1	0.65	1	1	1	114.416			
			C	1	0.65	1	1	1	114.416			
L3 87.37-42.79	2.10	8.98	A	1	0.65	1	1	1	146.339	1.49	33.33	C
			B	1	0.65	1	1	1	146.339			
			C	1	0.65	1	1	1	146.339			
L4 42.79-0.00	1.67	12.41	A	1	0.65	1	1	1	172.029	1.38	32.35	C
			B	1	0.65	1	1	1	172.029			
			C	1	0.65	1	1	1	172.029			
Sum Weight:	6.73	29.78						OTM	449.38 kip-ft	5.38		

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	13 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Force Totals

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Leg Weight	29.78					
Bracing Weight	0.00					
Total Member Self-Weight	29.78					
Total Weight	46.50			0.91	1.72	
Wind 0 deg - No Ice		0.04	-29.19	-3306.16	-3.12	-2.58
Wind 30 deg - No Ice		14.61	-25.30	-2865.51	-1653.21	-2.43
Wind 45 deg - No Ice		20.64	-20.67	-2340.96	-2336.20	-2.11
Wind 60 deg - No Ice		25.26	-14.63	-1656.82	-2859.86	-1.64
Wind 90 deg - No Ice		29.15	-0.04	-3.93	-3299.75	-0.41
Wind 120 deg - No Ice		25.22	14.56	1650.25	-2855.02	0.94
Wind 135 deg - No Ice		20.58	20.61	2335.93	-2329.35	1.54
Wind 150 deg - No Ice		14.54	25.26	2862.49	-1644.82	2.03
Wind 180 deg - No Ice		-0.04	29.19	3307.97	6.56	2.58
Wind 210 deg - No Ice		-14.61	25.30	2867.33	1656.65	2.43
Wind 225 deg - No Ice		-20.64	20.67	2342.78	2339.63	2.11
Wind 240 deg - No Ice		-25.26	14.63	1658.63	2863.30	1.64
Wind 270 deg - No Ice		-29.15	0.04	5.75	3303.19	0.41
Wind 300 deg - No Ice		-25.22	-14.56	-1648.43	2858.45	-0.94
Wind 315 deg - No Ice		-20.58	-20.61	-2334.11	2332.79	-1.54
Wind 330 deg - No Ice		-14.54	-25.26	-2860.67	1648.26	-2.03
Member Ice	3.85					
Total Weight Ice	57.82			1.74	2.91	
Wind 0 deg - Ice		0.03	-25.43	-2904.22	-0.86	-2.47
Wind 30 deg - Ice		12.72	-22.03	-2516.78	-1451.16	-2.41
Wind 45 deg - Ice		17.98	-18.00	-2055.75	-2051.51	-2.14
Wind 60 deg - Ice		22.00	-12.74	-1454.50	-2511.85	-1.71
Wind 90 deg - Ice		25.39	-0.03	-2.02	-2898.71	-0.55
Wind 120 deg - Ice		21.98	12.69	1451.46	-2508.08	0.76
Wind 135 deg - Ice		17.93	17.96	2053.91	-2046.18	1.36
Wind 150 deg - Ice		12.67	22.00	2516.50	-1444.64	1.87
Wind 180 deg - Ice		-0.03	25.43	2907.71	6.67	2.47
Wind 210 deg - Ice		-12.72	22.03	2520.27	1456.98	2.41
Wind 225 deg - Ice		-17.98	18.00	2059.23	2057.32	2.14
Wind 240 deg - Ice		-22.00	12.74	1457.99	2517.66	1.71
Wind 270 deg - Ice		-25.39	0.03	5.51	2904.52	0.55
Wind 300 deg - Ice		-21.98	-12.69	-1447.98	2513.89	-0.76
Wind 315 deg - Ice		-17.93	-17.96	-2050.42	2051.99	-1.36
Wind 330 deg - Ice		-12.67	-22.00	-2513.01	1450.45	-1.87
Total Weight	46.50			0.91	1.72	
Wind 0 deg - Service		0.01	-11.40	-1291.49	-0.39	-1.01
Wind 30 deg - Service		5.71	-9.88	-1119.37	-644.96	-0.95
Wind 45 deg - Service		8.06	-8.07	-914.46	-911.75	-0.82
Wind 60 deg - Service		9.87	-5.71	-647.22	-1116.30	-0.64
Wind 90 deg - Service		11.39	-0.01	-1.56	-1288.14	-0.16
Wind 120 deg - Service		9.85	5.69	644.60	-1114.41	0.37
Wind 135 deg - Service		8.04	8.05	912.45	-909.07	0.60
Wind 150 deg - Service		5.68	9.87	1118.13	-641.68	0.79
Wind 180 deg - Service		-0.01	11.40	1292.15	3.39	1.01
Wind 210 deg - Service		-5.71	9.88	1120.03	647.96	0.95
Wind 225 deg - Service		-8.06	8.07	915.12	914.75	0.82
Wind 240 deg - Service		-9.87	5.71	647.88	1119.30	0.64
Wind 270 deg - Service		-11.39	0.01	2.22	1291.14	0.16
Wind 300 deg - Service		-9.85	-5.69	-643.94	1117.41	-0.37
Wind 315 deg - Service		-8.04	-8.05	-911.79	912.07	-0.60

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	14 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Load Case	Vertical Forces	Sum of Forces X K	Sum of Forces Z K	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 330 deg - Service		-5.68	-9.87	-1117.47	644.68	-0.79

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 45 deg - No Ice
5	Dead+Wind 60 deg - No Ice
6	Dead+Wind 90 deg - No Ice
7	Dead+Wind 120 deg - No Ice
8	Dead+Wind 135 deg - No Ice
9	Dead+Wind 150 deg - No Ice
10	Dead+Wind 180 deg - No Ice
11	Dead+Wind 210 deg - No Ice
12	Dead+Wind 225 deg - No Ice
13	Dead+Wind 240 deg - No Ice
14	Dead+Wind 270 deg - No Ice
15	Dead+Wind 300 deg - No Ice
16	Dead+Wind 315 deg - No Ice
17	Dead+Wind 330 deg - No Ice
18	Dead+Ice+Temp
19	Dead+Wind 0 deg+Ice+Temp
20	Dead+Wind 30 deg+Ice+Temp
21	Dead+Wind 45 deg+Ice+Temp
22	Dead+Wind 60 deg+Ice+Temp
23	Dead+Wind 90 deg+Ice+Temp
24	Dead+Wind 120 deg+Ice+Temp
25	Dead+Wind 135 deg+Ice+Temp
26	Dead+Wind 150 deg+Ice+Temp
27	Dead+Wind 180 deg+Ice+Temp
28	Dead+Wind 210 deg+Ice+Temp
29	Dead+Wind 225 deg+Ice+Temp
30	Dead+Wind 240 deg+Ice+Temp
31	Dead+Wind 270 deg+Ice+Temp
32	Dead+Wind 300 deg+Ice+Temp
33	Dead+Wind 315 deg+Ice+Temp
34	Dead+Wind 330 deg+Ice+Temp
35	Dead+Wind 0 deg - Service
36	Dead+Wind 30 deg - Service
37	Dead+Wind 45 deg - Service
38	Dead+Wind 60 deg - Service
39	Dead+Wind 90 deg - Service
40	Dead+Wind 120 deg - Service
41	Dead+Wind 135 deg - Service
42	Dead+Wind 150 deg - Service
43	Dead+Wind 180 deg - Service
44	Dead+Wind 210 deg - Service
45	Dead+Wind 225 deg - Service
46	Dead+Wind 240 deg - Service
47	Dead+Wind 270 deg - Service
48	Dead+Wind 300 deg - Service
49	Dead+Wind 315 deg - Service

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	15 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Comb. No.	Description
50	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	179.73 - 132.967	Pole	Max Tension	14	0.00	-0.00	-0.00
			Max. Compression	18	-10.71	0.20	0.44
			Max. Mx	14	-6.31	297.14	0.14
			Max. My	2	-6.31	0.11	297.37
			Max. Vy	14	-10.48	297.14	0.14
			Max. Vx	10	10.48	0.16	-296.81
			Max. Torque	31			-1.62
L2	132.967 - 87.3654	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	18	-28.45	2.83	-1.17
			Max. Mx	14	-18.94	1045.62	-2.22
			Max. My	10	-18.93	3.11	-1046.40
			Max. Vy	14	-22.39	1045.62	-2.22
			Max. Vx	10	22.43	3.11	-1046.40
			Max. Torque	31			-2.60
L3	87.3654 - 42.7924	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	18	-40.43	3.00	-1.39
			Max. Mx	14	-30.11	2099.55	-3.97
			Max. My	10	-30.11	4.95	-2102.23
			Max. Vy	14	-26.00	2099.55	-3.97
			Max. Vx	10	26.05	4.95	-2102.23
			Max. Torque	2			2.57
L4	42.7924 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	18	-57.82	3.11	-1.82
			Max. Mx	14	-46.48	3448.81	-6.02
			Max. My	10	-46.48	6.87	-3453.77
			Max. Vy	14	-29.18	3448.81	-6.02
			Max. Vx	10	29.22	6.87	-3453.77
			Max. Torque	2			2.56

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	57.82	0.03	-25.43
	Max. H _x	14	46.50	29.15	-0.04
	Max. H _z	2	46.50	-0.04	29.19
	Max. M _x	2	3451.86	-0.04	29.19
	Max. M _z	6	3445.14	-29.15	0.04
	Max. Torsion	2	2.55	-0.04	29.19
	Min. Vert	1	46.50	0.00	0.00
	Min. H _x	6	46.50	-29.15	0.04
	Min. H _z	10	46.50	0.04	-29.19
	Min. M _x	10	-3453.77	0.04	-29.19
	Min. M _z	14	-3448.81	29.15	-0.04

RISATower

URS Corporation
 500 Enterprise Drive, Suite 3B
 Rocky Hill, CT 06067
 Phone: (860) 529-8882
 FAX: (860) 529-3991

Job	180' EEI Monopole	Page	16 of 21
Project	Kent, CT	Date	08:12:48 06/04/08
Client	Verizon Wireless - Kent South	Designed by	Staff

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. Torsion	10	-2.55	0.04	-29.19

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _y K	Overturning Moment, M _x kip-ft	Overturning Moment, M _y kip-ft	Torque kip-ft
Dead Only	46.50	0.00	0.00	0.92	1.77	-0.00
Dead+Wind 0 deg - No Ice	46.50	0.04	-29.19	-3451.86	-3.23	-2.55
Dead+Wind 30 deg - No Ice	46.50	14.61	-25.30	-2991.78	-1726.04	-2.40
Dead+Wind 45 deg - No Ice	46.50	20.64	-20.67	-2444.11	-2439.13	-2.07
Dead+Wind 60 deg - No Ice	46.50	25.26	-14.63	-1729.81	-2985.87	-1.60
Dead+Wind 90 deg - No Ice	46.50	29.15	-0.04	-4.08	-3445.14	-0.38
Dead+Wind 120 deg - No Ice	46.50	25.22	14.56	1723.01	-2980.83	0.94
Dead+Wind 135 deg - No Ice	46.50	20.58	20.61	2438.91	-2432.00	1.53
Dead+Wind 150 deg - No Ice	46.50	14.54	25.26	2988.67	-1717.29	2.01
Dead+Wind 180 deg - No Ice	46.50	-0.04	29.19	3453.77	6.87	2.55
Dead+Wind 210 deg - No Ice	46.50	-14.61	25.30	2993.71	1729.68	2.40
Dead+Wind 225 deg - No Ice	46.50	-20.64	20.67	2446.05	2442.78	2.07
Dead+Wind 240 deg - No Ice	46.50	-25.26	14.63	1731.75	2989.53	1.60
Dead+Wind 270 deg - No Ice	46.50	-29.15	0.04	6.02	3448.81	0.38
Dead+Wind 300 deg - No Ice	46.50	-25.22	-14.56	-1721.09	2984.51	-0.94
Dead+Wind 315 deg - No Ice	46.50	-20.58	-20.61	-2437.00	2435.67	-1.53
Dead+Wind 330 deg - No Ice	46.50	-14.54	-25.26	-2986.76	1720.96	-2.02
Dead+Ice+Temp	57.82	-0.00	0.00	1.82	3.11	-0.00
Dead+Wind 0 deg+Ice+Temp	57.82	0.03	-25.43	-3088.92	-0.81	-2.44
Dead+Wind 30 deg+Ice+Temp	57.82	12.72	-22.03	-2676.82	-1543.36	-2.37
Dead+Wind 45 deg+Ice+Temp	57.82	17.98	-18.00	-2186.46	-2181.89	-2.09
Dead+Wind 60 deg+Ice+Temp	57.82	22.00	-12.74	-1546.97	-2671.51	-1.67
Dead+Wind 90 deg+Ice+Temp	57.82	25.39	-0.03	-2.11	-3082.97	-0.52
Dead+Wind 120 deg+Ice+Temp	57.82	21.98	12.69	1543.82	-2667.51	0.77
Dead+Wind 135 deg+Ice+Temp	57.82	17.93	17.96	2184.58	-2176.23	1.36
Dead+Wind 150 deg+Ice+Temp	57.82	12.67	22.00	2676.58	-1536.43	1.85
Dead+Wind 180 deg+Ice+Temp	57.82	-0.03	25.43	3092.66	7.19	2.44
Dead+Wind 210 deg+Ice+Temp	57.82	-12.72	22.03	2680.58	1549.74	2.37
Dead+Wind 225 deg+Ice+Temp	57.82	-17.98	18.00	2190.23	2188.27	2.09
Dead+Wind 240 deg+Ice+Temp	57.82	-22.00	12.74	1550.75	2677.90	1.67
Dead+Wind 270 deg+Ice+Temp	57.82	-25.39	0.03	5.89	3089.39	0.52
Dead+Wind 300 deg+Ice+Temp	57.82	-21.98	-12.69	-1540.07	2673.94	-0.77
Dead+Wind 315 deg+Ice+Temp	57.82	-17.93	-17.96	-2180.83	2182.65	-1.36
Dead+Wind 330 deg+Ice+Temp	57.82	-12.67	-22.00	-2672.85	1542.84	-1.85
Dead+Wind 0 deg - Service	46.50	0.01	-11.40	-1349.72	-0.13	-1.01
Dead+Wind 30 deg - Service	46.50	5.71	-9.88	-1169.76	-674.07	-0.95
Dead+Wind 45 deg - Service	46.50	8.06	-8.07	-955.52	-953.02	-0.82
Dead+Wind 60 deg - Service	46.50	9.87	-5.71	-676.09	-1166.90	-0.63
Dead+Wind 90 deg - Service	46.50	11.39	-0.01	-1.01	-1346.55	-0.15
Dead+Wind 120 deg - Service	46.50	9.85	5.69	674.60	-1164.92	0.37
Dead+Wind 135 deg - Service	46.50	8.04	8.05	954.65	-950.22	0.60
Dead+Wind 150 deg - Service	46.50	5.68	9.87	1169.71	-670.64	0.79
Dead+Wind 180 deg - Service	46.50	-0.01	11.40	1351.64	3.83	1.00
Dead+Wind 210 deg - Service	46.50	-5.71	9.88	1171.68	677.77	0.95
Dead+Wind 225 deg - Service	46.50	-8.06	8.07	957.44	956.72	0.82
Dead+Wind 240 deg - Service	46.50	-9.87	5.71	678.02	1170.60	0.63
Dead+Wind 270 deg - Service	46.50	-11.39	0.01	2.94	1350.25	0.15
Dead+Wind 300 deg - Service	46.50	-9.85	-5.69	-672.67	1168.62	-0.37
Dead+Wind 315 deg - Service	46.50	-8.04	-8.05	-952.73	953.93	-0.60
Dead+Wind 330 deg - Service	46.50	-5.68	-9.87	-1167.79	674.35	-0.79

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	17 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-46.50	0.00	0.00	46.50	0.00	0.000%
2	0.04	-46.50	-29.19	-0.04	46.50	29.19	0.000%
3	14.61	-46.50	-25.30	-14.61	46.50	25.30	0.000%
4	20.64	-46.50	-20.67	-20.64	46.50	20.67	0.000%
5	25.26	-46.50	-14.63	-25.26	46.50	14.63	0.000%
6	29.15	-46.50	-0.04	-29.15	46.50	0.04	0.000%
7	25.22	-46.50	14.56	-25.22	46.50	-14.56	0.000%
8	20.58	-46.50	20.61	-20.58	46.50	-20.61	0.000%
9	14.54	-46.50	25.26	-14.54	46.50	-25.26	0.000%
10	-0.04	-46.50	29.19	0.04	46.50	-29.19	0.000%
11	-14.61	-46.50	25.30	14.61	46.50	-25.30	0.000%
12	-20.64	-46.50	20.67	20.64	46.50	-20.67	0.000%
13	-25.26	-46.50	14.63	25.26	46.50	-14.63	0.000%
14	-29.15	-46.50	0.04	29.15	46.50	-0.04	0.000%
15	-25.22	-46.50	-14.56	25.22	46.50	14.56	0.000%
16	-20.58	-46.50	-20.61	20.58	46.50	20.61	0.000%
17	-14.54	-46.50	-25.26	14.54	46.50	25.26	0.000%
18	0.00	-57.82	0.00	0.00	57.82	-0.00	0.000%
19	0.03	-57.82	-25.43	-0.03	57.82	25.43	0.000%
20	12.72	-57.82	-22.03	-12.72	57.82	22.03	0.000%
21	17.98	-57.82	-18.00	-17.98	57.82	18.00	0.000%
22	22.00	-57.82	-12.74	-22.00	57.82	12.74	0.000%
23	25.39	-57.82	-0.03	-25.39	57.82	0.03	0.000%
24	21.98	-57.82	12.69	-21.98	57.82	-12.69	0.000%
25	17.93	-57.82	17.96	-17.93	57.82	-17.96	0.000%
26	12.67	-57.82	22.00	-12.67	57.82	-22.00	0.000%
27	-0.03	-57.82	25.43	0.03	57.82	-25.43	0.000%
28	-12.72	-57.82	22.03	12.72	57.82	-22.03	0.000%
29	-17.98	-57.82	18.00	17.98	57.82	-18.00	0.000%
30	-22.00	-57.82	12.74	22.00	57.82	-12.74	0.000%
31	-25.39	-57.82	0.03	25.39	57.82	-0.03	0.000%
32	-21.98	-57.82	-12.69	21.98	57.82	12.69	0.000%
33	-17.93	-57.82	-17.96	17.93	57.82	17.96	0.000%
34	-12.67	-57.82	-22.00	12.67	57.82	22.00	0.000%
35	0.01	-46.50	-11.40	-0.01	46.50	11.40	0.000%
36	5.71	-46.50	-9.88	-5.71	46.50	9.88	0.000%
37	8.06	-46.50	-8.07	-8.06	46.50	8.07	0.000%
38	9.87	-46.50	-5.71	-9.87	46.50	5.71	0.000%
39	11.39	-46.50	-0.01	-11.39	46.50	0.01	0.000%
40	9.85	-46.50	5.69	-9.85	46.50	-5.69	0.000%
41	8.04	-46.50	8.05	-8.04	46.50	-8.05	0.000%
42	5.68	-46.50	9.87	-5.68	46.50	-9.87	0.000%
43	-0.01	-46.50	11.40	0.01	46.50	-11.40	0.000%
44	-5.71	-46.50	9.88	5.71	46.50	-9.88	0.000%
45	-8.06	-46.50	8.07	8.06	46.50	-8.07	0.000%
46	-9.87	-46.50	5.71	9.87	46.50	-5.71	0.000%
47	-11.39	-46.50	0.01	11.39	46.50	-0.01	0.000%
48	-9.85	-46.50	-5.69	9.85	46.50	5.69	0.000%
49	-8.04	-46.50	-8.05	8.04	46.50	8.05	0.000%
50	-5.68	-46.50	-9.87	5.68	46.50	9.87	0.000%

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page 18 of 21
	Project	Kent, CT	Date 08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by Staff

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00007141
3	Yes	6	0.00000001	0.00005645
4	Yes	6	0.00000001	0.00006385
5	Yes	6	0.00000001	0.00006036
6	Yes	4	0.00000001	0.00082739
7	Yes	6	0.00000001	0.00005899
8	Yes	6	0.00000001	0.00006356
9	Yes	6	0.00000001	0.00005677
10	Yes	5	0.00000001	0.00007965
11	Yes	6	0.00000001	0.00006128
12	Yes	6	0.00000001	0.00006410
13	Yes	6	0.00000001	0.00005724
14	Yes	4	0.00000001	0.00076526
15	Yes	6	0.00000001	0.00005788
16	Yes	6	0.00000001	0.00006366
17	Yes	6	0.00000001	0.00006022
18	Yes	4	0.00000001	0.00001770
19	Yes	5	0.00000001	0.00054098
20	Yes	6	0.00000001	0.00020012
21	Yes	6	0.00000001	0.00023160
22	Yes	6	0.00000001	0.00021090
23	Yes	5	0.00000001	0.00051828
24	Yes	6	0.00000001	0.00020662
25	Yes	6	0.00000001	0.00023074
26	Yes	6	0.00000001	0.00020124
27	Yes	5	0.00000001	0.00054602
28	Yes	6	0.00000001	0.00021436
29	Yes	6	0.00000001	0.00023349
30	Yes	6	0.00000001	0.00020317
31	Yes	5	0.00000001	0.00051841
32	Yes	6	0.00000001	0.00020477
33	Yes	6	0.00000001	0.00023154
34	Yes	6	0.00000001	0.00021051
35	Yes	4	0.00000001	0.00032784
36	Yes	5	0.00000001	0.00010228
37	Yes	5	0.00000001	0.00012651
38	Yes	5	0.00000001	0.00011577
39	Yes	4	0.00000001	0.00019143
40	Yes	5	0.00000001	0.00011113
41	Yes	5	0.00000001	0.00012547
42	Yes	5	0.00000001	0.00010353
43	Yes	4	0.00000001	0.00033899
44	Yes	5	0.00000001	0.00012009
45	Yes	5	0.00000001	0.00012840
46	Yes	5	0.00000001	0.00010562
47	Yes	4	0.00000001	0.00018848
48	Yes	5	0.00000001	0.00010764
49	Yes	5	0.00000001	0.00012638
50	Yes	5	0.00000001	0.00011617

Maximum Tower Deflections - Service Wind

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	19 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	179.73 - 132.967	53.658	45	2.8038	0.0060
L2	136.66 - 87.3654	30.346	45	2.2131	0.0054
L3	92.2638 - 42.7924	13.186	45	1.4231	0.0024
L4	48.8367 - 0	3.527	44	0.6726	0.0008

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
184.50	ASP-952	45	53.658	2.8038	0.0060	23400
180.00	(2) 7770.00 w/ mount pipe	45	53.658	2.8038	0.0060	23400
160.00	LPA-80080/6CF w/ Mount Pipe	45	42.484	2.5461	0.0060	5929
143.00	DB809K-XT	45	33.460	2.3083	0.0057	3183
130.00	6' Arm (4" Sq. x 1/4")	45	27.262	2.1082	0.0051	2804
125.00	(2) DB980H90T3E-M w/Mount Pipe	45	25.071	2.0262	0.0047	2876
120.00	6813 1-Bay w/radome	45	22.985	1.9414	0.0044	2952
119.00	EEI Generic Low Profile Platform	45	22.580	1.9241	0.0043	2967
110.00	(4) DB846H90E-SY w/Mount Pipe	45	19.115	1.7638	0.0036	3114
80.00	Valmont Single Dish Standoff (1)	44	9.746	1.1741	0.0018	3293
63.00	GPS	44	5.889	0.8587	0.0011	3098

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	179.73 - 132.967	136.503	11	7.1424	0.0151
L2	136.66 - 87.3654	77.301	11	5.6393	0.0138
L3	92.2638 - 42.7924	33.638	11	3.6299	0.0062
L4	48.8367 - 0	9.006	11	1.7171	0.0021

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
184.50	ASP-952	11	136.503	7.1424	0.0152	9412
180.00	(2) 7770.00 w/ mount pipe	11	136.503	7.1424	0.0152	9412
160.00	LPA-80080/6CF w/ Mount Pipe	11	108.133	6.4920	0.0152	2382
143.00	DB809K-XT	11	85.213	5.8851	0.0144	1275
130.00	6' Arm (4" Sq. x 1/4")	11	69.460	5.3671	0.0129	1120
125.00	(2) DB980H90T3E-M w/Mount Pipe	11	63.890	5.1539	0.0120	1147
120.00	6813 1-Bay w/radome	11	58.583	4.9341	0.0111	1176
119.00	EEI Generic Low Profile Platform	11	57.553	4.8894	0.0109	1182
110.00	(4) DB846H90E-SY w/Mount Pipe	11	48.735	4.4776	0.0091	1238
80.00	Valmont Single Dish Standoff (1)	11	24.868	3.0348	0.0046	1301

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	20 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
63.00	GPS	11	15.031	2.2595	0.0030	1219

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L _u	Kl/r	F _a	A	Actual P	Allow. P _a	Ratio P
	ft		ft	ft		ksi	in ²	K	K	P _a
L1	179.73 - 132.967 (1)	TP25.5375x15x0.25	46.76	0.00	0.0	39.000	19.4054	-6.31	756.81	0.008
L2	132.967 - 87.3654 (2)	TP35.1887x24.2054x0.375	49.29	0.00	0.0	39.000	40.1379	-18.93	1565.38	0.012
L3	87.3654 - 42.7924 (3)	TP44.3577x33.3473x0.4375	49.47	0.00	0.0	39.000	59.1207	-30.11	2305.71	0.013
L4	42.7924 - 0 (4)	TP53x42.1375x0.5	48.84	0.00	0.0	39.000	82.5225	-45.76	3218.38	0.014

Pole Bending Design Data

Section No.	Elevation	Size	Actual M _x	Actual f _{bx}	Allow. F _{bx}	Ratio f _{bx}	Actual M _y	Actual f _{by}	Allow. F _{by}	Ratio f _{by}
	ft		kip-ft	ksi	ksi	F _{bx}	kip-ft	ksi	ksi	F _{by}
L1	179.73 - 132.967 (1)	TP25.5375x15x0.25	297.37	30.544	39.000	0.783	0.00	0.000	39.000	0.000
L2	132.967 - 87.3654 (2)	TP35.1887x24.2054x0.375	1047.99	37.774	39.000	0.969	0.00	0.000	39.000	0.000
L3	87.3654 - 42.7924 (3)	TP44.3577x33.3473x0.4375	2104.85	40.764	39.000	1.045	0.00	0.000	39.000	0.000
L4	42.7924 - 0 (4)	TP53x42.1375x0.5	3391.83	38.506	39.000	0.987	0.00	0.000	39.000	0.000

Pole Shear Design Data

Section No.	Elevation	Size	Actual V	Actual f _v	Allow. F _v	Ratio f _v	Actual T	Actual f _{vt}	Allow. F _{vt}	Ratio f _{vt}
	ft		K	ksi	ksi	F _v	kip-ft	ksi	ksi	F _{vt}
L1	179.73 - 132.967 (1)	TP25.5375x15x0.25	10.48	0.540	26.000	0.042	0.02	0.001	26.000	0.000
L2	132.967 - 87.3654 (2)	TP35.1887x24.2054x0.375	22.45	0.559	26.000	0.043	2.31	0.040	26.000	0.002
L3	87.3654 - 42.7924 (3)	TP44.3577x33.3473x0.4375	26.07	0.441	26.000	0.034	2.44	0.023	26.000	0.001
L4	42.7924 - 0 (4)	TP53x42.1375x0.5	29.24	0.354	26.000	0.027	2.40	0.013	26.000	0.001

RISATower URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job	180' EEI Monopole	Page	21 of 21
	Project	Kent, CT	Date	08:12:48 06/04/08
	Client	Verizon Wireless - Kent South	Designed by	Staff

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P	Ratio f_{bx}	Ratio f_{by}	Ratio f_x	Ratio f_{yt}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		P_a	F_{bx}	F_{by}	F_x	F_{yt}			
L1	179.73 - 132.967 (1)	0.008	0.783	0.000	0.042	0.000	0.792 ✓	1.333	H1-3+VT ✓
L2	132.967 - 87.3654 (2)	0.012	0.969	0.000	0.043	0.002	0.981 ✓	1.333	H1-3+VT ✓
L3	87.3654 - 42.7924 (3)	0.013	1.045	0.000	0.034	0.001	1.059 ✓	1.333	H1-3+VT ✓
L4	42.7924 - 0 (4)	0.014	0.987	0.000	0.027	0.001	1.002 ✓	1.333	H1-3+VT ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF \cdot P_{allow}$ K	% Capacity	Pass Fail
L1	179.73 - 132.967	Pole	TP25.5375x15x0.25	1	-6.31	1008.83	59.4	Pass
L2	132.967 - 87.3654	Pole	TP35.1887x24.2054x0.375	2	-18.93	2086.65	73.6	Pass
L3	87.3654 - 42.7924	Pole	TP44.3577x33.3473x0.4375	3	-30.11	3073.51	79.4	Pass
L4	42.7924 - 0	Pole	TP53x42.1375x0.5	4	-45.76	4290.10	75.2	Pass
							Summary	
							Pole (L3)	79.4 Pass
							RATING =	79.4 Pass

ANCHOR BOLT AND BASE PLATE ANALYSIS

ANCHOR BOLT AND BASE PLATE ANALYSIS

Input Data

Tower Reactions:

Overturning Moment:	OM := 3457·ft·kips	user input
Shear Force:	Shear := 29·kips	user input
Axial Force:	Axial := 46·kips	user input

Anchor Bolt Data:

Use ASTM A615 Grade 75	user input	
Number of Anchor Bolts = N	$N_w := 20$	user input
Diameter of Bolt Circle:	$D_{bc} := 62\text{in}$	user input
Bolt "Column" Distance:	$L_w := 3.0\text{in}$	user input
Bolt Ultimate Strength:	$F_u := 100\text{-ksi}$	user input
Bolt Yield Strength:	$F_y := 75\text{-ksi}$	user input
Bolt Modulus:	$E := 29000\text{-ksi}$	user input
Anchor Bolt Diameter	$D := 2.25\text{in}$	user input
Threads per Inch:	$n := 4.5$	user input

Base Plate Data:

Use ASTM A572 Grade 60		user input
Plate Yield Strength:	$F_{y_{bp}} := 60\text{-ksi}$	user input
Base Plate Thickness:	$\text{PlateThickness} := 2.25\text{-in}$	user input
Base Plate Diameter:	$D_{bp} := 68.0\text{-in}$	user input
Outer Pole Diameter:	$D_{pole} := 53.0\text{in}$	user input

Geometric Layout Data:

Distance from the center of gravity of the group to bolt in question = d(i)

Radius of Bolt Circle: $R_{bc} := \frac{D_{bc}}{2}$

Distance to Bolts: $i := 1..N$

$$d_i := \begin{cases} \theta \leftarrow 2 \cdot \pi \cdot \left(\frac{i}{N} \right) \\ d \leftarrow R_{bc} \cdot \sin(\theta) \end{cases}$$

$d_1 = 9.58 \cdot \text{in}$ $d_7 = 25.08 \cdot \text{in}$

$d_2 = 18.22 \cdot \text{in}$ $d_8 = 18.22 \cdot \text{in}$

$d_3 = 25.08 \cdot \text{in}$ $d_9 = 9.58 \cdot \text{in}$

$d_4 = 29.48 \cdot \text{in}$ $d_{10} = 0.00 \cdot \text{in}$

$d_5 = 31.00 \cdot \text{in}$ $d_{11} = -9.58 \cdot \text{in}$

$d_6 = 29.48 \cdot \text{in}$ etc.

Critical Distances For Bending in Plate:

Outer Pole Radius: $R_{pole} := \frac{D_{pole}}{2}$ $R_{pole} = 26.50 \cdot \text{in}$

Moment Arms of Bolts about Neutral Axis: $MA_i := \text{if}(d_i \geq R_{pole}, d_i - R_{pole}, 0 \text{in})$

$MA_1 = 0.00 \cdot \text{in}$ $MA_7 = 0.00 \cdot \text{in}$

$MA_2 = 0.00 \cdot \text{in}$ $MA_8 = 0.00 \cdot \text{in}$

$MA_3 = 0.00 \cdot \text{in}$ $MA_9 = 0.00 \cdot \text{in}$

$MA_4 = 2.98 \cdot \text{in}$ $MA_{10} = 0.00 \cdot \text{in}$

$MA_5 = 4.50 \cdot \text{in}$ $MA_{11} = 0.00 \cdot \text{in}$

$MA_6 = 2.98 \cdot \text{in}$ etc.

Effective Width of Baseplate for Bending: $\text{EffectiveWidth} := .8 \cdot 2 \cdot \sqrt{\left(\frac{D_{bp}}{2} \right)^2 - \left(\frac{D_{pole}}{2} \right)^2}$ $\text{EffectiveWidth} = 34.08 \cdot \text{in}$

Anchor Bolt Analysis:Polar Moment of Inertia I_p :

$$I_p := \sum_i (d_i)^2 \quad I_p = 9.610 \times 10^3 \cdot \text{in}^2$$

Gross Area of Bolt:

$$A_g := \frac{\pi}{4} \cdot D^2 \quad A_g = 3.976 \cdot \text{in}^2$$

Net Area of Bolt:

$$A_n := \frac{\pi}{4} \cdot \left(D - \frac{0.9743 \cdot \text{in}}{n} \right)^2 \quad A_n = 3.248 \cdot \text{in}^2$$

Net Diameter:

$$D_n := \frac{2 \cdot \sqrt{A_n}}{\sqrt{\pi}} \quad D_n = 2.03 \cdot \text{in}$$

Radius of Gyration of Bolt:

$$r := \frac{D_n}{4} \quad r = 0.51 \cdot \text{in}$$

Section Modulus of Bolt:

$$S_x := \frac{\pi \cdot D_n^3}{32} \quad S_x = 0.826 \cdot \text{in}^3$$

Anchor Bolt Bending Stress:

Maximum Applied Bending:

$$M_x := \left(\frac{\text{Shear}}{N} \right) \cdot l \quad M_x = 0.362 \cdot \text{ft} \cdot \text{kips}$$

$$f_{bx} := \frac{M_x}{S_x} \quad f_{bx} = 5.3 \cdot \text{ksi}$$

Allowable Bending

$$F_{bx} := 1.333 \cdot 0.60 \cdot F_y \quad F_{bx} = 60.0 \cdot \text{ksi}$$

Note: 1.333 increase allowed per TIA/EIA

Job 180' EEI Monopole - Kent, CT - Rev 1

Project No. VZ4-042

Page of
Sheet 4 of 6

Description Anchor Bolt and Base Plate Analysis

Computed by Staff

Date 06/04/08

Checked by

Date

Check Tensile Forces:

Maximum Tensile Force (Gross Area):

$$\text{AllowableTension} := 1.333 \cdot (0.33 \cdot A_g \cdot F_u)$$

$$\text{AllowableTension} = 174.9 \text{ kips}$$

Note: 1.333 increase allowed per TIA/EIA

Maximum Tensile Force (Net Area):

$$F_{\text{net.area}} := 1.333 \cdot (0.60 \cdot A_n \cdot F_y)$$

$$F_{\text{net.area}} = 194.8 \text{ kips}$$

Note: 1.333 increase allowed per TIA/EIA

Applied Tension:

$$\text{MaxTension} := \frac{\text{OM} \cdot R_{bc}}{I_p} - \frac{\text{Axial}}{N}$$

$$\text{MaxTension} = 131.5 \text{ kips}$$

Check Stresses:

Note: Bolts supplied are "upset bolts." Use net area for checking per AISC.

$$\frac{\text{MaxTension}}{F_{\text{net.area}}} = 0.68$$

$$\text{Condition} := \text{if} \left(\frac{\text{MaxTension}}{F_{\text{net.area}}} \leq 1.00, \text{"OK"}, \text{"Overstressed"} \right)$$

Condition = "OK"

Job 180' EEI Monopole - Kent, CT - Rev 1

Project No. VZ4-042

Page of
Sheet 5 of 6

Description Anchor Bolt and Base Plate Analysis

Computed by Staff

Date 06/04/08

Checked by

Date

Check Compression & Combined Stresses (if required):

Check to see if a complete combined stress analysis is required:

Per ASCE Manual 72: "If the clearance between the base plate and concrete does not exceed two times the bolt diameter a bending stress analysis of the bolts is NOT normally required."

Set the clear space between the plate and bolt to zero and remove bending stresses if a combined stress analysis is not required:

$$l_w := \begin{cases} 1 & \text{if } l > 2 \cdot D_n \\ 0.00 \text{ in} & \text{otherwise} \end{cases} \quad l = 0.00 \text{ in}$$

$$f_{bx} := \begin{cases} f_{bx} & \text{if } l > 2 \cdot D_n \\ 0.0 \text{ ksi} & \text{otherwise} \end{cases} \quad f_{bx} = 0.0 \text{ ksi}$$

Allowable Compressive Force:

$$K_w := 0.65$$

$$C_c := \sqrt{\frac{2 \cdot \pi^2 \cdot E}{F_y}} \quad C_c = 87.36$$

$$F_a := \begin{cases} \frac{\left[1 - \left(\frac{K \cdot l}{r}\right)^2\right] \cdot F_y}{2 \cdot C_c^2} & \text{if } \frac{K \cdot l}{r} \leq C_c \\ \frac{\frac{5}{3} + \frac{3 \cdot \left(\frac{K \cdot l}{r}\right)}{8 \cdot C_c} - \frac{\left(\frac{K \cdot l}{r}\right)^3}{8 \cdot C_c^3}}{23 \cdot \left(\frac{K \cdot l}{r}\right)^2} \cdot \frac{12 \cdot \pi^2 \cdot E}{23 \cdot \left(\frac{K \cdot l}{r}\right)^2} & \text{if } \frac{K \cdot l}{r} > C_c \end{cases} \quad F_a = 45.0 \text{ ksi}$$

$$F_{aw} := 1.333 \cdot F_a \quad \text{Note: 1.333 increase allowed per TIA/EIA} \quad F_a = 60.0 \text{ ksi}$$

Applied Compressive Force:

$$\text{MaxCompression} := \frac{OM \cdot R_{bc}}{I_p} + \frac{\text{Axial}}{N} \quad \text{MaxCompression} = 136.1 \text{ kips}$$

$$f_a := \frac{\text{MaxCompression}}{A_n} \quad f_a = 41.9 \text{ ksi}$$

Check Combined Stresses:

$$\frac{f_a}{F_a} + \frac{f_{bx}}{F_{bx}} = 0.70$$

$$\text{Condition} := \left(\frac{f_a}{F_a} + \frac{f_{bx}}{F_{bx}} \leq 1.00, \text{"OK"}, \text{"Overstressed"} \right)$$

Condition = "OK"

Base Plate Analysis:

Force from Bolt(s):

$$C_i := \frac{OM \cdot d_i}{I_p} + \frac{Axial}{N}$$

$$C_1 = 43.7 \text{ kips}$$

$$C_7 = 110.6 \text{ kips}$$

$$C_2 = 81.0 \text{ kips}$$

$$C_8 = 81.0 \text{ kips}$$

$$C_3 = 110.6 \text{ kips}$$

$$C_9 = 43.7 \text{ kips}$$

$$C_4 = 129.6 \text{ kips}$$

$$C_{10} = 2.3 \text{ kips}$$

$$C_5 = 136.1 \text{ kips}$$

$$C_{11} = -39.1 \text{ kips}$$

$$C_6 = 129.6 \text{ kips}$$

etc.

Bending Stress in Plate:

$$f_{bp} := \sum_i \frac{6 \cdot C_i \cdot MA_i}{\text{EffectiveWidth} \cdot \text{PlateThickness}^2}$$

$$f_{bp} = 48.2 \text{ ksi}$$

Check Stresses:

$$\frac{f_{bp}}{1.333 \cdot 0.75 F_{y_{bp}}} = 0.80$$

$$\text{Condition} := \text{if} \left(\frac{f_{bp}}{1.333 \cdot 0.75 F_{y_{bp}}} < 1.00, \text{"OK"}, \text{"Overstressed"} \right)$$

Condition = "OK"

FOUNDATION ANALYSIS

Check Foundation Depth

TIA/EIA-222-F 7.2.5

Shear Force: $S := 29.0k$ *USER INPUT*

Overturning Moment: $M := 3457ft \cdot k$ *USER INPUT*

Foundation Diameter: $d := 7.0ft$ *USER INPUT*

Overall Length of Caisson: $L_c := 22.0ft$ *USER INPUT*

Depth From Top of Caisson to Grade: $L_{pag} := 1.0ft$ *USER INPUT*

Depth of Caisson Below Ground Level: $LD := L_c - L_{pag}$ $LD = 21.0 ft$ *USER INPUT*

Depth Required:

$$LD1 := 2.0ft + \left(\frac{S \cdot ft^2}{3k \cdot d} \right) + 2ft \cdot \left(\frac{M \cdot ft}{3 \cdot k \cdot d} + \frac{S \cdot ft}{2k} + \frac{S^2 \cdot ft^3}{18k^2 \cdot d^2} \right)^{.5} \quad LD1 = 30.2 ft$$

DepthCheck := if(LD1 ≤ LD, "OK", "NO GOOD") DepthCheck = "NO GOOD"

Note: Result not applicable. Actual soil is better than normal soil as defined in TIA/EIA 222 F. Refer to L-Pile analysis.

Moment Capacity:

Bending Moment: $M_u := 3754ft \cdot k$ *USER INPUT--FROM LPILE*

Moment Capacity: $M_n := 10792ft \cdot k$ *USER INPUT--FROM LPILE*

Factor of Safety: $FS := \frac{M_n}{M_u}$ $FS = 2.9$

Factor of Safety Required $FS_{reqd} := 1.3$ FOSCheck := if($FS \geq FS_{reqd}$, "OK", "NO GOOD") FOSCheck = "OK"

Factor of Safety Ratio: $FS_{ratio} := \left(\frac{FS_{reqd}}{FS} \right) = 0.45$

Job 180' EEI Monopole - Kent, CT - Rev 1

Project No. VZ4-042

Page of

Description Caisson Foundation Evaluation

Computed by Staff

Sheet 2 of 2

Checked by

Date 06/04/08

Date

Axial Capacity:

Applied Axial Load: $A1 := 46.0k$ *USER INPUT*

Concrete Weight: $A2 := .150 \frac{k}{ft^3} \cdot LD \cdot \theta \frac{d^2}{4}$ $A2 = 121.2 \cdot k$

Total Axial Load: $AT := A1 + A2$ $AT = 167.2 \cdot k$

Number of Rebar: $n := 42$ *USER INPUT*

Area of Rebar: $Ar := 1.560in^2$ *USER INPUT* #11

Rebar Yield Strength: $fy := 60ksi$ *USER INPUT*

Area of Concrete: $Ag := \theta \cdot \frac{d^2}{4}$

Concrete Comp Strength: $fc := 3ksi$ *USER INPUT*

Axial Capacity: $Po := n \cdot Ar \cdot fy + (Ag - n \cdot Ar) \cdot 0.85 \cdot fc$ $Po = 17895.6 \cdot k$

AxialCheck := if($AT \leq Po$, "OK", "NO GOOD") AxialCheck = "OK"

Pile Analysis.lpo

LPILE Plus for Windows, Version 4

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

(c) Copyright ENSOFT, Inc., 1985-2000
All Rights Reserved

This program is licensed to:

J Mead

URS

Name of input data file: P:\08\Rev_1\L-Pile\Pile Analysis.lpd
Name of output file: P:\08\Rev_1\L-Pile\Pile Analysis.lpo
Name of plot output file: P:\08\Rev_1\L-Pile\Pile Analysis.lpp
Name of runtime file: P:\08\Rev_1\L-Pile\Pile Analysis.lpr

Time and Date of Analysis

Date: June 4, 2008 Time: 8:26:30

Problem Title

180' EEI Monopole Structure w/ Caisson

Program Options

Units Used in Computations - US Customary Units, inches, pounds

Basic Program Options:

Analysis Type 3:

- Computations of Ultimate Bending Moment Capacity and Pile Response

Pile Analysis.Ipo

Using Nonlinear EI

Computation Options:

- Only internally-generated p-y curves used in analysis
- Analysis does not use p-y multipliers (individual pile or shaft action only)
- Analysis assumes no shear resistance at pile tip
- Analysis for fixed-length pile or shaft only
- No computation of foundation stiffness matrix elements
- Analysis assumes no soil movements acting on pile
- No additional p-y curves to be computed at user-specified depths

Solution Control Parameters:

- Number of pile increments = 100
- Deflection tolerance for closure = 1.0000E-05 in
- Maximum number of iterations allowed = 100
- Maximum allowable deflection = 1.0000E+02 in

Printing Options:

- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (spacing of output points) = 1

Pile Structural Properties and Geometry

Pile Length = 264.00 in
Depth of ground surface below top of pile = 12.00 in
Slope angle of ground surface = .00 deg.

Structural properties of pile defined using 2 points

Point	Depth X in	Pile Diameter in	Moment of Inertia in**4	Pile Area Sq.in	Modulus of Elasticity lbs/Sq.in
1	.000	84.000	2.4439E+07	5.5420E+03	3.0000E+06
2	264.000	84.000	2.4439E+07	5.5420E+03	3.0000E+06

Please note that because this analysis makes computations of ultimate moment capacity and pile response using nonlinear bending stiffness that the above values of moment of inertia and modulus of are not used for any computations other than total stress due to combined axial loading and bending.

Soil and Rock Layering Information

Pile Analysis.lpo

The soil profile is modelled using 2 layers

Layer 1 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 12.000 in

Distance from top of pile to bottom of layer = 138.000 in

p-y subgrade modulus k for top of soil layer = 10.000 lbs/in**3

p-y subgrade modulus k for bottom of layer = 10.000 lbs/in**3

Layer 2 is soft rock (vuggy limestone)

Distance from top of pile to top of layer = 138.000 in

Distance from top of pile to bottom of layer = 264.000 in

(Depth of lowest layer extends .00 in below pile tip)

Effective Unit Weight of Soil vs. Depth

Distribution of effective unit weight of soil with depth
is defined using 4 points

Point No.	Depth X in	Eff. Unit Weight lbs/in**3
1	12.00	.04300
2	138.00	.04300
3	138.00	.07800
4	264.00	.07800

Shear Strength of Soils

Distribution of shear strength parameters with depth
defined using 4 points

Point No.	Depth X in	Cohesion c lbs/in**2	Angle of Friction Deg.	E50/k_rm %	RQD
1	12.000	.00000	32.00	-----	-----
2	138.000	.00000	32.00	-----	-----
3	138.000	750.00000	.00	-----	-----
4	264.000	750.00000	.00	-----	-----

Pile Analysis.Ipo

Notes:

- (1) Cohesion = uniaxial compressive strength for rock materials.
- (2) E50 is reported for clay strata.
- (3) k_{rm} is reported for rock strata.
- (4) RQD is input and reported only for rock materials.
- (5) Internal default values for E50 will be generated when input value is 0.

Static loading criteria was used for computation of p-y curves

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 1

Load Case Number 1

Pile-head boundary conditions are Shear and Moment (BC Type 1)

Shear force at pile head = 29000.000 lbs

Bending moment at pile head = 41484000.000 in-lbs

Axial load at pile head = 46000.000 lbs

(Non-zero moment for this load indicates pile-head is free to rotate under the applied pile-head load)

Computations of Ultimate Moment Capacity and Nonlinear Bending Stiffness

Pile Description:

The pile shape is a circular solid pile.

Outside Diameter = 84.000 In

Material Properties:

Compressive Strength of Concrete = 3. Kip/In**2

Yield stress for rebar = 60. Kip/In**2

Modulus of elasticity of steel = 29000. Kip/In**2

Number of reinforcing bars = 42

Area of single rebar = 1.56000 In**2

Number of rows of reinforcing bars = 21

Cover Thickness = 4.000 In

Pile Analysis.lpo

Ultimate squash load capacity = 17895.64 Kip

Distribution and Area of Steel Reinforcement

Row Number	Area of Reinforcement In**2	Distance to Centroidal Axis In
1	3.120000	37.8937
2	3.120000	37.0473
3	3.120000	35.3732
4	3.120000	32.9090
5	3.120000	29.7096
6	3.120000	25.8466
7	3.120000	21.4062
8	3.120000	16.4876
9	3.120000	11.2007
10	3.120000	5.6636
11	3.120000	.0000
12	3.120000	-5.6636
13	3.120000	-11.2007
14	3.120000	-16.4876
15	3.120000	-21.4062
16	3.120000	-25.8466
17	3.120000	-29.7096
18	3.120000	-32.9090
19	3.120000	-35.3732
20	3.120000	-37.0473
21	3.120000	-37.8937

Axial Thrust Force = 46.000 Kip

Bending Moment in-lbs	Bending Stiffness lb-in2	Bending Curvature rad/in	Maximum Strain in/in	Neutral Axis Position inches
9.021E+06	9.021E+12	.00000100	.00004456	44.560
1.370E+07	2.741E+12	.00000500	.00012431	24.861
2.386E+07	2.651E+12	.00000900	.00021845	24.272
3.393E+07	2.610E+12	.00001300	.00031347	24.113
4.390E+07	2.582E+12	.00001700	.00040942	24.083
5.377E+07	2.561E+12	.00002100	.00050634	24.112
6.355E+07	2.542E+12	.00002500	.00060430	24.172
7.321E+07	2.525E+12	.00002900	.00070333	24.253
8.277E+07	2.508E+12	.00003300	.00080354	24.350
9.221E+07	2.492E+12	.00003700	.00090497	24.459
9.915E+07	2.418E+12	.00004100	.00099861	24.356
1.038E+08	2.307E+12	.00004500	.00108405	24.090
1.075E+08	2.193E+12	.00004900	.00116621	23.800

Pile Analysis.lpo				
1.104E+08	2.083E+12	.00005300	.00124677	23.524
1.218E+08	1.468E+12	.00008300	.00178437	21.498
1.264E+08	1.119E+12	.00011300	.00228050	20.181
1.289E+08	9.015E+11	.00014300	.00276612	19.344
1.301E+08	7.518E+11	.00017300	.00326145	18.852
1.304E+08	6.422E+11	.00020300	.00375592	18.502
1.305E+08	5.603E+11	.00023300	.00426603	18.309

Ultimate moment capacity at concrete strain of 0.003 = 1.295E+08 In-lb

Computed Values of Load Distribution and Deflection
for Lateral Loading for Load Case Number 1

Pile-head boundary conditions are Shear and Moment (BC Type 1)

Specified shear force at pile head = 29000.000 lbs

Specified bending moment at pile head = 41484000.000 in-lbs

Specified axial load at pile head = 46000.000 lbs

(Non-zero moment for this load does not indicate free-head conditions)

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Stress lbs/in**2	Total Flx. Rig. EI lbs-in**2	Soil Res p lbs/in	Soil Res
0.000	.356704	4.15E+07	29000.0	-.003456	79.5928	2.59E+12	0.000	
2.640	.347635	4.16E+07	29000.0	-.003414	79.7251	2.59E+12	0.000	
5.280	.338678	4.16E+07	29000.0	-.003372	79.8574	2.59E+12	0.000	
7.920	.329833	4.17E+07	29000.0	-.003329	79.9897	2.59E+12	0.000	
10.560	.321100	4.18E+07	29000.0	-.003287	80.1219	2.59E+12	0.000	
13.200	.312480	4.19E+07	28995.1	-.003244	80.2542	2.59E+12	-3.750	
15.840	.303973	4.19E+07	28974.7	-.003201	80.3864	2.59E+12	-11.673	
18.480	.295578	4.20E+07	28934.0	-.003158	80.5184	2.59E+12	-19.153	
21.120	.287297	4.21E+07	28874.1	-.003115	80.6503	2.59E+12	-26.201	
23.760	.279129	4.22E+07	28796.2	-.003072	80.7818	2.59E+12	-32.826	
26.400	.271075	4.23E+07	28701.4	-.003029	80.9128	2.59E+12	-39.035	
29.040	.263135	4.23E+07	28590.7	-.002986	81.0435	2.59E+12	-44.838	
31.680	.255308	4.24E+07	28465.1	-.002943	81.1735	2.59E+12	-50.245	
34.320	.247596	4.25E+07	28325.9	-.002900	81.3030	2.59E+12	-55.263	
36.960	.239999	4.26E+07	28173.8	-.002856	81.4318	2.59E+12	-59.904	
39.600	.232516	4.26E+07	28010.1	-.002813	81.5598	2.59E+12	-64.174	
42.240	.225148	4.27E+07	27835.5	-.002769	81.6871	2.59E+12	-68.085	
44.880	.217895	4.28E+07	27651.0	-.002725	81.8135	2.59E+12	-71.644	
47.520	.210757	4.28E+07	27457.7	-.002682	81.9391	2.59E+12	-74.861	
50.160	.203735	4.29E+07	27256.2	-.002638	82.0638	2.58E+12	-77.745	
52.800	.196829	4.30E+07	27047.6	-.002594	82.1876	2.58E+12	-80.306	

Pile Analysis.lpo

55.440	.190038	4.31E+07	26832.6	-.002550	82.3103	2.58E+12	-82.553
58.080	.183364	4.31E+07	26612.1	-.002506	82.4321	2.58E+12	-84.494
60.720	.176806	4.32E+07	26386.9	-.002462	82.5529	2.58E+12	-86.140
63.360	.170365	4.33E+07	26157.7	-.002418	82.6726	2.58E+12	-87.499
66.000	.164040	4.33E+07	25925.2	-.002374	82.7912	2.58E+12	-88.582
68.640	.157832	4.34E+07	25690.3	-.002329	82.9088	2.58E+12	-89.396
71.280	.151742	4.35E+07	25453.6	-.002285	83.0253	2.58E+12	-89.952
73.920	.145768	4.35E+07	25215.7	-.002240	83.1407	2.58E+12	-90.260
76.560	.139913	4.36E+07	24977.3	-.002196	83.2550	2.58E+12	-90.328
79.200	.134174	4.37E+07	24739.1	-.002151	83.3683	2.58E+12	-90.165
81.840	.128554	4.37E+07	24501.5	-.002107	83.4804	2.58E+12	-89.782
84.480	.123052	4.38E+07	24265.3	-.002062	83.5915	2.58E+12	-89.188
87.120	.117668	4.39E+07	24030.9	-.002017	83.7015	2.58E+12	-88.392
89.760	.112402	4.39E+07	23798.8	-.001972	83.8104	2.58E+12	-87.404
92.400	.107255	4.40E+07	23569.6	-.001927	83.9182	2.58E+12	-86.233
95.040	.102227	4.41E+07	23343.8	-.001882	84.0251	2.58E+12	-84.889
97.680	.097317	4.41E+07	23121.6	-.001837	84.1308	2.58E+12	-83.382
100.320	.092527	4.42E+07	22903.7	-.001792	84.2356	2.58E+12	-81.720
102.960	.087856	4.42E+07	22690.3	-.001747	84.3394	2.58E+12	-79.914
105.600	.083305	4.43E+07	22481.9	-.001701	84.4422	2.58E+12	-77.973
108.240	.078873	4.44E+07	22278.8	-.001656	84.5441	2.58E+12	-75.907
110.880	.074561	4.44E+07	22081.3	-.001611	84.6451	2.58E+12	-73.726
113.520	.070369	4.45E+07	21889.7	-.001565	84.7452	2.58E+12	-71.439
116.160	.066297	4.45E+07	21704.2	-.001520	84.8444	2.58E+12	-69.055
118.800	.062345	4.46E+07	21525.2	-.001474	84.9427	2.58E+12	-66.585
121.440	.058514	4.47E+07	21352.8	-.001428	85.0403	2.58E+12	-64.038
124.080	.054803	4.47E+07	21187.2	-.001383	85.1371	2.58E+12	-61.423
126.720	.051213	4.48E+07	21028.5	-.001337	85.2331	2.58E+12	-58.752
129.360	.047744	4.48E+07	20877.0	-.001291	85.3285	2.58E+12	-56.033
132.000	.044396	4.49E+07	20732.7	-.001245	85.4231	2.58E+12	-53.276
134.640	.041170	4.49E+07	20595.8	-.001199	85.5171	2.58E+12	-50.490
137.280	.038064	4.50E+07	20466.2	-.001153	85.6105	2.58E+12	-47.687
139.920	.035081	4.50E+07	-12934.3	-.001107	85.7033	2.58E+12-25255.714	
142.560	.032218	4.49E+07	-78168.1	-.001061	85.4936	2.58E+12-24163.782	
145.200	.029478	4.46E+07	-139247.1	-.001015	84.9945	2.58E+12-22108.181	
147.840	.026857	4.42E+07	-195018.6	-9.70E-04	84.2305	2.58E+12-20142.972	
150.480	.024356	4.36E+07	-245720.0	-9.25E-04	83.2253	2.58E+12-18267.220	
153.120	.021973	4.29E+07	-291586.0	-8.81E-04	82.0012	2.59E+12-16479.692	
155.760	.019705	4.21E+07	-332847.3	-8.38E-04	80.5798	2.59E+12-14778.881	
158.400	.017551	4.11E+07	-369730.6	-7.95E-04	78.9813	2.59E+12-13163.039	
161.040	.015507	4.01E+07	-402457.7	-7.54E-04	77.2252	2.59E+12-11630.206	
163.680	.013571	3.90E+07	-431244.8	-7.13E-04	75.3297	2.60E+12-10178.231	
166.320	.011740	3.78E+07	-456302.4	-6.74E-04	73.3124	2.60E+12-8804.798	
168.960	.010010	3.66E+07	-477834.6	-6.37E-04	71.1896	2.60E+12-7507.450	
171.600	.008378	3.53E+07	-496038.8	-6.00E-04	68.9768	2.61E+12-6283.606	
174.240	.006841	3.40E+07	-511105.5	-5.65E-04	66.6888	2.61E+12-5130.583	
176.880	.005394	3.26E+07	-523218.1	-5.32E-04	64.3393	2.62E+12-4045.615	
179.520	.004034	3.12E+07	-532552.4	-4.99E-04	61.9413	2.62E+12-3025.825	
182.160	.002758	2.98E+07	-539276.6	-4.69E-04	59.5071	2.63E+12-2068.288	
184.800	.001560	2.84E+07	-543551.2	-4.39E-04	57.0481	2.63E+12-1170.046	

Pile Analysis.lpo

187.440	4.38E-04	2.69E+07	-545528.8	-4.12E-04	54.5751	2.64E+12	-328.126
190.080	-6.14E-04	2.55E+07	-545354.2	-3.86E-04	52.0982	2.64E+12	460.449
192.720	-.001598	2.40E+07	-543164.1	-3.61E-04	49.6268	2.65E+12	1198.648
195.360	-.002519	2.26E+07	-539087.9	-3.38E-04	47.1697	2.66E+12	1889.419
198.000	-.003381	2.12E+07	-533246.6	-3.16E-04	44.7352	2.67E+12	2535.779
200.640	-.004188	1.98E+07	-525753.7	-2.96E-04	42.3311	2.69E+12	3140.705
203.280	-.004943	1.84E+07	-516714.6	-2.77E-04	39.9647	2.70E+12	3707.108
205.920	-.005650	1.71E+07	-506227.2	-2.60E-04	37.6426	2.71E+12	4237.829
208.560	-.006314	1.58E+07	-494382.3	-2.44E-04	35.3713	2.72E+12	4735.629
211.200	-.006938	1.45E+07	-481263.0	-2.29E-04	33.1567	2.73E+12	5203.189
213.840	-.007524	1.32E+07	-466945.9	-2.17E-04	31.0044	3.40E+12	5643.096
216.480	-.008084	1.20E+07	-451494.3	-2.09E-04	28.9197	5.03E+12	6062.714
219.120	-.008626	1.08E+07	-434951.3	-2.03E-04	26.9076	6.60E+12	6469.863
221.760	-.009158	9.70E+06	-417344.7	-2.00E-04	24.9731	8.11E+12	6868.437
224.400	-.009681	8.62E+06	-398694.2	-1.97E-04	23.1208	9.02E+12	7260.758
227.040	-.010197	7.60E+06	-379014.5	-1.95E-04	21.3554	9.02E+12	7648.081
229.680	-.010708	6.62E+06	-358318.1	-1.92E-04	19.6817	9.02E+12	8031.002
232.320	-.011213	5.70E+06	-336615.9	-1.91E-04	18.1041	9.02E+12	8410.085
234.960	-.011714	4.85E+06	-313917.2	-1.89E-04	16.6273	9.02E+12	8785.863
237.600	-.012212	4.05E+06	-290230.2	-1.88E-04	15.2557	9.02E+12	9158.832
240.240	-.012706	3.31E+06	-265561.7	-1.87E-04	13.9938	9.02E+12	9529.457
242.880	-.013198	2.65E+06	-239917.2	-1.86E-04	12.8461	9.02E+12	9898.162
245.520	-.013687	2.05E+06	-213301.4	-1.85E-04	11.8169	9.02E+12	10265.333
248.160	-.014175	1.52E+06	-185717.9	-1.85E-04	10.9107	9.02E+12	10631.320
250.800	-.014662	1.07E+06	-157169.2	-1.84E-04	10.1318	9.02E+12	10996.425
253.440	-.015148	689157.6	-127657.5	-1.84E-04	9.4846	9.02E+12	11360.914
256.080	-.015633	391754.6	-97184.1	-1.84E-04	8.9735	9.02E+12	11725.003
258.720	-.016118	176070.1	-65749.8	-1.84E-04	8.6028	9.02E+12	12088.865
261.360	-.016603	44640.1	-33355.1	-1.84E-04	8.3770	9.02E+12	12452.625
264.000	-.017088	0.0	0.0	-1.84E-04	8.3003	9.02E+12	12816.359

Please note that because this analysis makes computations of ultimate moment capacity and pile response using nonlinear bending stiffness that the above values of total stress due to combined axial stress and bending may not be representative of actual conditions.

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 1:

Pile-head deflection	=	.3567 in
Computed slope at pile head	=	-3.4564E-03
Maximum bending moment	=	45039583.849 lbs-in
Maximum shear force	=	-545528.821 lbs
Depth of maximum bending moment	=	139.920 in
Depth of maximum shear force	=	187.440 in

Pile Analysis.lpo
 Number of iterations = 5
 Number of zero deflection points = 1

Summary of Pile-head Response

Definition of symbols for pile-head boundary conditions:

y = pile-head displacement, in
 M = pile-head moment, lbs-in
 V = pile-head shear force, lbs
 S = pile-head slope, radians
 R = rotational stiffness of pile-head, in-lbs/rad

BC Type	Boundary Condition 1	Boundary Condition 2	Boundary Condition lbs	Axial Load in	Pile Head Deflection in-lbs	Maximum Moment lbs	Maximum Shear
1	V= 29000.000	M= 4.15E+07	46000.0000	.3567	4.504E+07	-5.455E+05	

The analysis ended normally.

