STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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

May 2, 2006

Steven Levine
Real Estate Consultant
New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, CT 06067-3900

RE: **EM-CING-141-060418** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 97 Mountain Hill Road, Thompson, Connecticut.

Dear Mr. Levine:

At a public meeting held on April 27, 2006, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notice dated April 18, 2006, including the placement of all necessary equipment and shelters within the tower compound. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

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

Thank you for your attention and cooperation.

Very truly yours,

Pamela B. Katz, P.E.
Chairman

PBK/laf

c: The Honorable A. David Babbitt, First Selectman, Town of Thompson
John E. Mahon, Jr., Zoning Enforcement Officer, Town of Thompson
Brian Benito, Bureau of Police Support – Telecommunications
Christine Farrell, T-Mobile, Inc.

G:\EM\CINGULAR\Thompson\dc042706.DOC

CSC
CONNECTICUT SITING COUNCIL

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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

April 19, 2006

The Honorable A. David Babbitt
First Selectman
Town of Thompson
Town Office Building
815 Riverside Drive
P. O. Box 899
North Grosvenordale, CT 06255

RE: **EM-CING-141-060418** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 97 Mountain Hill Road, Thompson, Connecticut.

Dear Mr. Babbitt:

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

The Council will consider this item at the next meeting scheduled for Thursday, April 27, 2006 at 1:30 p.m. in Hearing Room One, Ten Franklin Square, New Britain, Connecticut.

If you have any questions or comments regarding this proposal, please call me or inform the council by April 26, 2006.

Thank you for your cooperation and consideration.

Very truly yours,

S. Derek Phelps
Executive Director

SDP/ap

Enclosure: Notice of Intent

c: John E. Mahon, Jr., Zoning Enforcement Officer, Town of Thompson

G:\EM\CINGULAR\MIDDLTWN\Giuliano.DOC

CSC
CONNECTICUT SITING COUNCIL

ORIGINAL

New Cingular Wireless PCS, LLC
500 Enterprise Drive Rocky Hill,
Connecticut 06067-3900
Phone: (860) 513-7636
Fax: (860) 513-7190

April 18, 2006

EM-CING-141-060418

Ms. Pam Katz, Chairman, and
Members of the Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: Notice of Exempt Modification – Existing State Police Telecommunications Tower Facility at Mountain Hill Road, Thompson, Connecticut

Dear Chairman Katz and Members of the Council:

New Cingular Wireless PCS, LLC ("Cingular") intends to install telecommunications antennas and associated equipment at an existing multicarrier telecommunications tower at 97 Mountain Hill Road in Thompson, Connecticut. Cingular operates under licenses issued by the Federal Communications Commission ("FCC") to provide cellular and PCS mobile telephone service in Windham County, which includes the area to be served by Cingular's proposed installation.

Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter is being sent to the 1st Selectman of Thompson.

Existing Facility

The Thompson facility is located off Mountain Hill Road, which lies about 2.5 miles northwest of I-395, Exit 99. Site coordinates (NAD83) are N41° 59' 11" and W71° 54' 52".

The facility is owned and operated by the Connecticut State Police, 1111 Country Club Road, Middletown, Connecticut.

The Thompson facility was initially approved the Council in Docket 157. At the present time the tower is utilized by only by the CT State Police.

The facility consists of a 180 foot self-supporting lattice tower within a fenced compound.

Proposed Modifications.

As shown on the attached drawings and as further described below, Cingular proposes to install up to 12 Powerwave 7770 dual band panel antennas or their equivalent, approximately 55 inches in height, with antenna centerlines at 150 feet above ground level. Cingular also proposes to place an 11' 6" x 20' equipment shelter inside the footprint of the existing fence at the base of the tower.

Attached to this Notice are a site location map, a site plan, tower profile, and a structural analysis report that shows the tower is structurally capable of supporting the proposed Cingular telecommunications equipment.

Statutory Considerations

The changes to the Thompson tower facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2) because they will not result in any substantial adverse environmental effect.

1. The height of the overall structure will be unaffected.

2. The proposed changes will not affect the property boundaries. All new construction will take place within the existing fence.

3. The proposed additions will not increase the noise level at the existing facility by six decibels or more.

4. Operation of the additional antennas will not increase the total radio frequency electromagnetic radiation power density, measured at the tower base, to or above the standard adopted by the State of Connecticut and the FCC. The "worst-case" exposure calculation in accordance with FCC OET Bulletin No. 65 (1997) for a point of interest at the base of the tower in relation to the operation of the proposed antenna array is as follows:

Company	Centerline Height (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density† (mW/cm^2)	Standard Limits (mW/cm^2)	Percent of Limit
Cingular	150	880-894	6	296	0.0284	0.5867	4.84
Cingular	150	1930-1935 1965-1970	3	427	0.0205	1.0000	2.05
Existing RF Emissions per Council Records *							6.15
TOTAL							**13.0%**

* Power density value from Council records.

† Please note that the standard power density equation provided by the Council in its memo of January 22, 2001 incorporates a ground reflection factor of 2.56 (i.e., the square of 1.6) as described in FCC OET Bulletin No. 65.

As the table demonstrates, the cumulative "worst-case" exposure would be approximately 13 % of the ANSI/IEEE standard, as calculated for mixed frequency sites. Total power density levels resulting from Cingular's use of the tower facility would thus be within applicable standards.

For the foregoing reasons, Cingular respectfully submits that proposed changes at the Thompson site constitute an exempt modification under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call Tim Burks at (860) 989-0001 or Christopher Fisher, Esq. at (914) 761-1300 with questions concerning this notice. Thank you for your consideration in this matter.

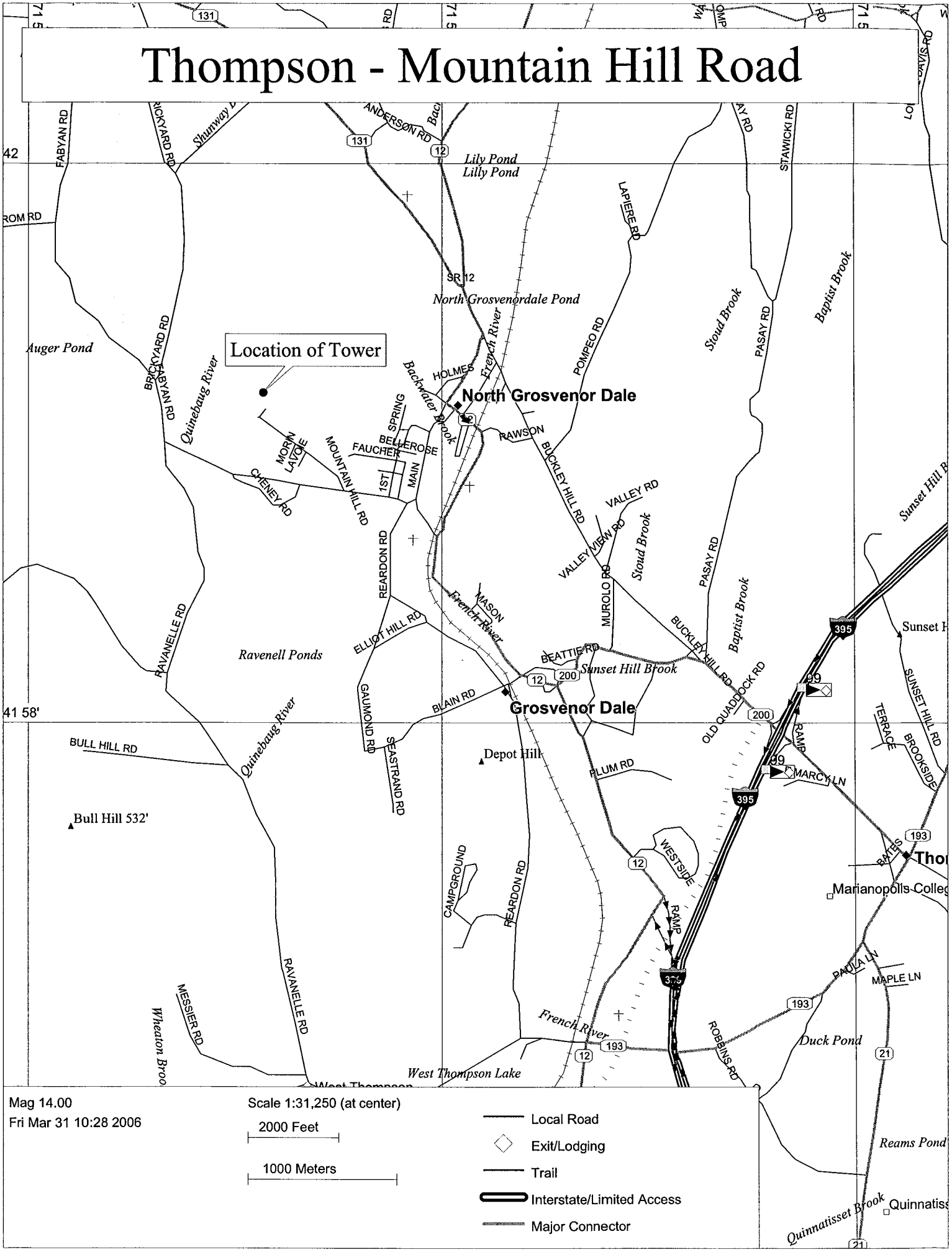
Respectfully yours,

Steven Levine
Real Estate Consultant

Enclosures

cc: Honorable A. David Babbitt, 1st Selectman, Town of Thompson
Michele G. Briggs, Manager of Real Estate
Christopher B. Fisher, Esq.

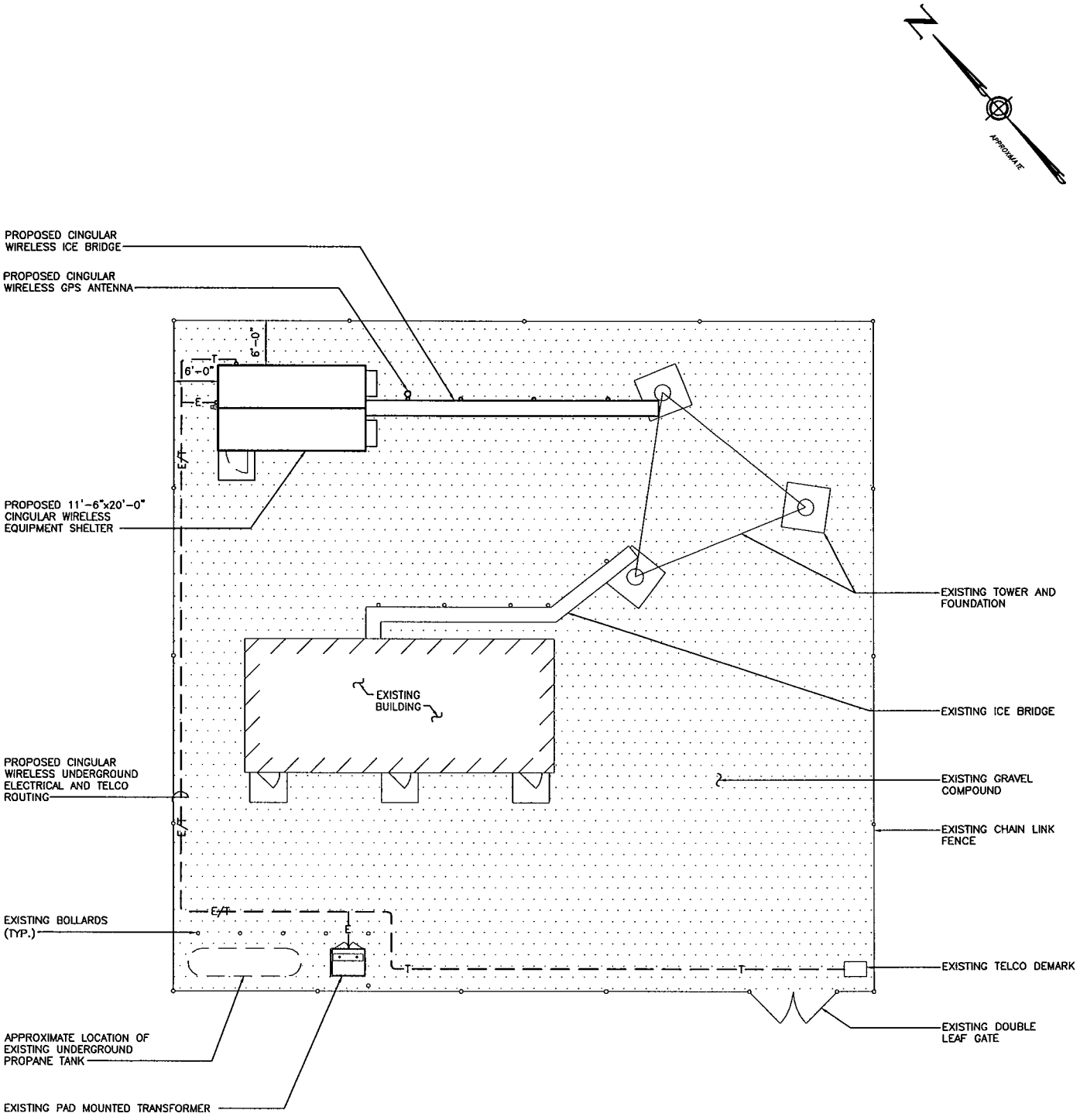
Thompson - Mountain Hill Road



Mag 14.00
Fri Mar 31 10:28 2006

Scale 1:31,250 (at center)
2000 Feet
1000 Meters

- Local Road
- Exit/Lodging
- Trail
- Interstate/Limited Access
- Major Connector



1 / L-1 COMPOUND PLAN
SCALE: 1" = 20'-0"

0 5 10 20 40

ANTENNA ORIENTATION KEY

PROJECT NO. 36921849
Designed by:
Drawn by: WRB
Checked by:
Approved by:

URS CORPORATION AES
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT
1-(860)-529-8882

cingular WIRELESS
WIRELESS COMMUNICATIONS FACILITY

THOMPSON
SITE ADDRESS: 97 MOUNTAIN HILL ROAD
THOMPSON, CONNECTICUT 06277

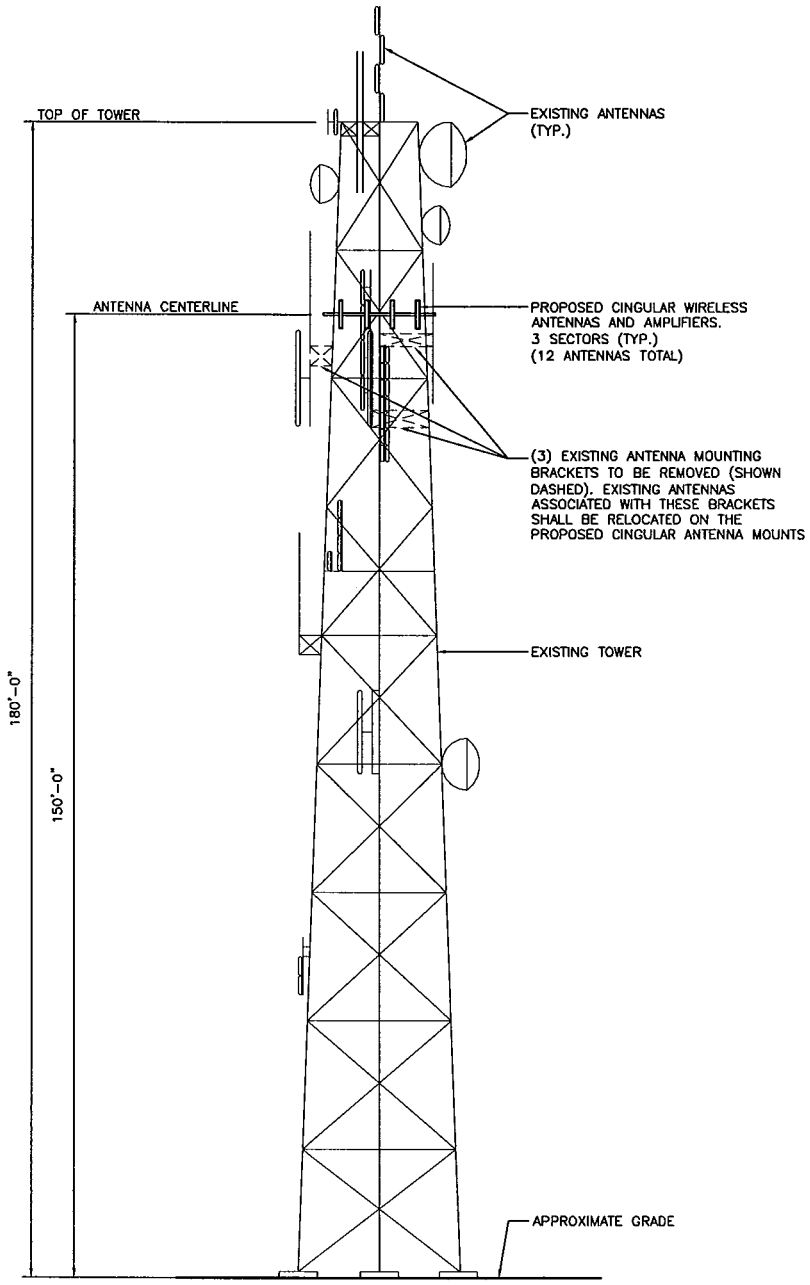
REV.	DATE:	DESCRIPTION
2	03/29/06	REVISED
1	03/23/06	REVISED

Scale: AS NOTED | Date: 03-16-06
Job No. CW1 085 | File No.

Dwg. No. L-1

Dwg. 1 of 2

NOTE:
EXISTING ANTENNAS SHOWN ARE PER ANTENNA INVENTORY BY C.T.S. DATED: 05/08/03 AND TO BE CONFIRMED.



1 / L-2 TOWER ELEVATION
SCALE: 1"=30'-0"

0 7.5 15 30 60

PROJECT NO.	36921849
Designed by:	
Drawn by:	WRB
Checked by:	
Approved by:	

URS CORPORATION AES
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT
1-(860)-529-8882

cingular WIRELESS
WIRELESS COMMUNICATIONS FACILITY

THOMPSON
SITE ADDRESS: 97 MOUNTAIN HILL ROAD
THOMPSON, CONNECTICUT 06277

REV.	DATE:	DESCRIPTION
2	03/29/06	REVISED
1	03/23/06	REVISED

Scale: AS NOTED | Date: 03-16-06
Job No. CW1 085 | File No.

Dwg. No. L-2

Dwg. 2 of 2

DETAILED STRUCTURAL ANALYSIS AND EVALUATION OF 180' SELF SUPPORTING LATTICE TOWER FOR NEW ANTENNA ARRANGEMENT

Connecticut State Police
97 Mountain Hill Road
Thompson, Connecticut

prepared for

cingular WIRELESS

Cingular Wireless
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06067

prepared by

URS

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

36921849.00002
CW1-085

April 18, 2006

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis of the 180' lattice tower located at 97 Mountain Hill Road in Thompson, Connecticut. The analysis was conducted in accordance with the TIA/EIA-222-F standard for wind velocity of 90 mph and 90 mph concurrent with ½" 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 of this report. The proposed Cingular modification is listed below:

Proposed Antenna and Mount	Carrier	Antenna Center Elevation
Install (12) Powerwave 7770.00 antennas and (12) Powerwave TMA's on (3) Valmont 13' Lightweight T-Arms (Valmont P/N 800942) with (12) 1 5/8" coax cables stacked 6 on 6.	**Cingular (Proposed)**	**@ 150'**

The results of the analysis indicate that the existing tower structure is in compliance with the proposed loading conditions. **The tower and its foundation are considered structurally adequate under the TIA/EIA-222-F wind load specified above and the existing and proposed antenna loadings.** The tower sway is 0.57 degrees, and the tower twist is 0.08 degrees. These are within the Connecticut State Police specification of 0.75 degrees for twist and sway.

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, member sizes and foundation taken from original construction documents prepared by Stainless, Inc. project number 358815 dated October 31, 1995.
3) Antenna inventory as specified in section 2 and 6 of this report.
4) Coax cable orientation as specified in section 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 tower members and connections. 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 AES

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

RAS/jek

cc: AA, DR, IA, CF/Book – URS

2. INTRODUCTION

The subject tower is located at 97 Mountain Hill Road in Thompson, Connecticut. The structure is a self-supporting three-legged 180' steel tapered lattice tower manufactured by Stainless Incorporated.

The existing structure supports several communication antennas. The inventory is summarized below:

Antenna Type	Carrier	Mount	Centerline Elevation	Cable
(1) OGT9-840 antenna	CSP (existing)	4' Standoff Mount	191'-9"	(1) 1 5/8" coax cable
(1) DB-264-C antenna	(existing)	6' Standoff Mount	191'-9"	(1) 7/8" coax cable
(1) OGT9-840 antenna	CSP (existing)	6' Standoff Mount	188'-6"	(1) 1 5/8" coax cable
(1) 10 FT Dish	CSP (existing)	Leg Mount	181'	(1) WE65 coax cable
(1) DB-225 antenna	(existing)	Leg Mount	180'	(1) 1/2" coax cable
(3) 6 FT Dishes	CSP (future)	Leg Mount	180'	---
(2) 6 FT Dishes	CSP (existing)	(2) Leg Mounts	170'-6"	(2) WE65 coax cables
(1) OGT9-840 antenna	CSP (existing)	6' Standoff Mount	169'	(1) 1 5/8" coax cable
(1) OGT9-840 antenna	CSP (existing)	4' Standoff Mount	164'-6"	(1) 1 5/8" coax cable
(1) 2" x 20' Omni	(existing)	4' Standoff Mount	159'	(1) 7/8" coax cable
(1) PD-220	(existing)	6' Standoff Mount	152'-6"	(1) 7/8" coax cable
(12) Powerwave 7770.00 antennas and (12) TMA's	**Cingular (proposed)**	**(3) 13' Lightweight T-Arms (Valmont P/N 800942)**	**150'**	**(12) 1 5/8" coax cables (Stacked 6 on 6)**
(1) Dipole antenna	(existing)	18" Standoff Mount	148'-9"	(1) 1/2" coax cable
(1) DB-212 antenna	(existing)	4' Standoff Mount	141'-6"	(1) 5/16" coax cable
(1) DB-212 antenna	(existing)	4' Standoff Mount	140'-4"	(1) 7/8" coax cable
(1) DB-420 antenna	(existing)	6' Standoff Mount	130'-6"	(1) 5/16" coax cable
(1) DB-411-B antenna	(existing)	Flush Mount	107'	(1) 7/8" coax cable
(1) Folded Dipole	(existing)	Flush Mount	102'-10"	(1) 7/8" coax cable
(1) DB-212 antenna	(existing)	3' Standoff Mount	91'-6"	(1) 7/8" coax cable
(1) 8 FT Dish	CSP (existing)	Leg Mount	82'	(1) WE65 coax cable
(1) DB-803M-XT antenna	(existing)	3' Standoff Mount	52'-1"	(1) 1/2" coax cable
(1) PD-440 antenna	(existing)	3' Standoff Mount	44'-6"	(1) 7/8" coax cable

This structural analysis of the communications tower was performed by URS Corporation, AES for Cingular. The purpose of this analysis was to investigate the structural integrity of the existing tower with its existing and proposed antenna loads. The analysis was conducted to evaluate twist (rotation), sway (deflection), and stress on the tower.

3. ANALYSIS METHODOLOGY AND LOADING CONDITIONS

The structural analysis was done in accordance with 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 ERI Tower 3.0. Two load conditions were evaluated as shown below which were compared to allowable stresses according to AISC and TIA/EIA.

Load Condition 1 = 90 mph Wind Load + Tower Dead Load
Load Condition 2 = 90 mph Wind Load (with ice) + Ice Load + Tower Dead Load

The TIA/EIA standard permits one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For 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

The stresses on the tower structure were evaluated to compare with the allowable stress in accordance with AISC. The results of the analysis indicate that the existing tower structure is in compliance with the proposed loading conditions. The anchor bolts and foundation were found to be within allowable limits. Additionally, the tower sway is 0.57 degrees, and the tower twist is 0.08 degrees. These are within the Connecticut State Police specification of 0.75 degrees for twist and sway.

5. CONCLUSIONS

The results of the analysis indicate that the existing tower structure is in compliance with the proposed loading conditions. **The tower and its foundation are considered structurally adequate under the TIA/EIA-222-F wind load specified above and the existing and proposed antenna loadings.** The tower sway is 0.57 degrees, and the tower twist is 0.08 degrees. These are within the Connecticut State Police specification of 0.75 degrees for twist and sway.

Limitations/Assumptions:

This report is based on the following:

A. Tower is properly installed and maintained.

B. All members and their geometry are as specified in the original Project File and are in good condition.

C. All required members are in place.

D. All bolts are in place and are properly tightened.

E. Tower is in plumb condition.

F. All member protective coatings are in good condition.

G. All tower members were properly designed, detailed, fabricated, installed, and have been properly maintained since erection.

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.

New Cingular Wireless PCS, LLC
500 Enterprise Drive
Rocky Hill, Connecticut 06067-3900
Phone: (860) 513-7636
Fax: (860) 513-7190

April 18, 2006

Honorable A. David Babbitt
1st Selectman, Town of Thompson
Town Office Building, 815 Riverside Drive
North Grosvenor Dale, Connecticut 06255

Re: Notice of Exempt Modification – Existing State Police Telecommunications Tower Facility at Mountain Hill Road, Thompson, Connecticut

Dear Mr. Babbitt:

New Cingular Wireless PCS, LLC ("Cingular") intends to install telecommunications antennas and associated equipment at an existing multicarrier telecommunications tower at 97 Mountain Hill Road in Thompson, Connecticut.

The facility is owned and operated by the Connecticut State Police, 1111 Country Club Road, Middletown, Connecticut.

A Notice of Exempt Modification has been filed with the Connecticut Siting Council as required by Regulations of Connecticut State Agencies ("R.C.S.A.") Section 16-50j-73. Please accept this letter as notification to the Town of Thompson under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The attached letter fully sets forth the Cingular proposal. However, if you have any questions or require any further information on the plans for the site or the Siting Council's procedures, please contact the undersigned or Mr. Derek Phelps, Executive Director of the Connecticut Siting Council, at (860) 827-2935.

Sincerely,

Steven Levine
Real Estate Consultant

Enclosure

DETAILED STRUCTURAL ANALYSIS AND EVALUATION OF 180' SELF SUPPORTING LATTICE TOWER FOR NEW ANTENNA ARRANGEMENT

Connecticut State Police
97 Mountain Hill Road
Thompson, Connecticut

EM-CING-141-060418

prepared for

cingular WIRELESS

Cingular Wireless
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06067

prepared by

URS

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

36921849.00002
CW1-085

April 18, 2006

TABLE OF CONTENTS

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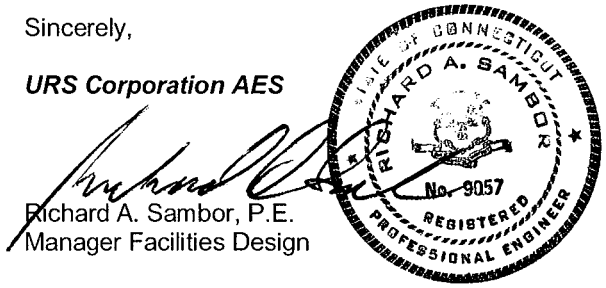
If you should have any questions, please call.

Sincerely,

URS Corporation AES



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

RAS/jek

cc: AA, DR, IA, CF/Book – URS

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(1) 10 FT Dish	CSP (existing)	Leg Mount	181'	(1) WE65 coax cable
(1) DB-225 antenna	(existing)	Leg Mount	180'	(1) 1/2" coax cable
(3) 6 FT Dishes	CSP (future)	Leg Mount	180'	---
(2) 6 FT Dishes	CSP (existing)	(2) Leg Mounts	170'-6"	(2) WE65 coax cables
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This structural analysis of the communications tower was performed by URS Corporation, AES for Cingular. The purpose of this analysis was to investigate the structural integrity of the existing tower with its existing and proposed antenna loads. The analysis was conducted to evaluate twist (rotation), sway (deflection), and stress on the tower.

3. ANALYSIS METHODOLOGY AND LOADING CONDITIONS

The structural analysis was done in accordance with 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 ERI Tower 3.0. Two load conditions were evaluated as shown below which were compared to allowable stresses according to AISC and TIA/EIA.

Load Condition 1 = 90 mph Wind Load + Tower Dead Load
Load Condition 2 = 90 mph Wind Load (with ice) + Ice Load + Tower Dead Load

The TIA/EIA standard permits one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For 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

The stresses on the tower structure were evaluated to compare with the allowable stress in accordance with AISC. The results of the analysis indicate that the existing tower structure is in compliance with the proposed loading conditions. The anchor bolts and foundation were found to be within allowable limits. Additionally, the tower sway is 0.57 degrees, and the tower twist is 0.08 degrees. These are within the Connecticut State Police specification of 0.75 degrees for twist and sway.

5. CONCLUSIONS

The results of the analysis indicate that the existing tower structure is in compliance with the proposed loading conditions. **The tower and its foundation are considered structurally adequate under the TIA/EIA-222-F wind load specified above and the existing and proposed antenna loadings.** The tower sway is 0.57 degrees, and the tower twist is 0.08 degrees. These are within the Connecticut State Police specification of 0.75 degrees for twist and sway.

Limitations/Assumptions:

This report is based on the following:

A. Tower is properly installed and maintained.

B. All members and their geometry are as specified in the original Project File and are in good condition.

C. All required members are in place.

D. All bolts are in place and are properly tightened.

E. Tower is in plumb condition.

F. All member protective coatings are in good condition.

G. All tower members were properly designed, detailed, fabricated, installed, and have been properly maintained since erection.

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.

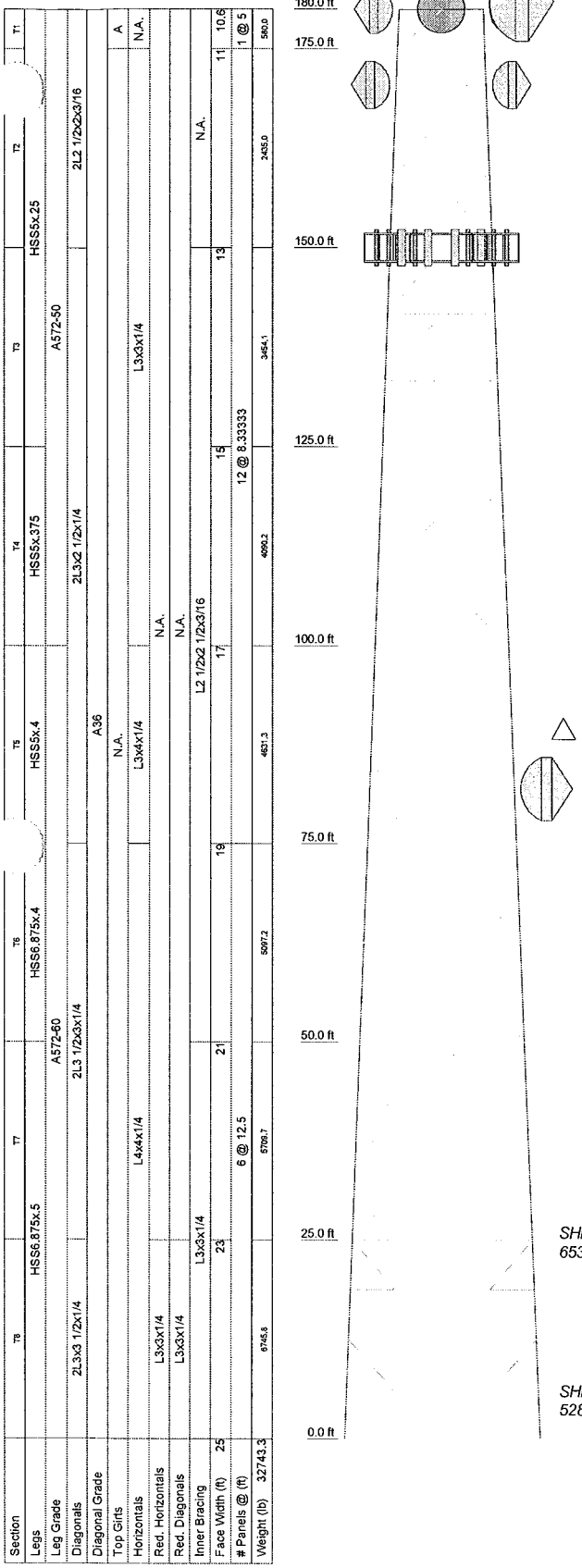
Ongoing and Periodic Inspection and Maintenance:

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

ERI TOWER INPUT / OUTPUT SUMMARY



APPURTENANCES

TYPE	ELEVATION	TYPE	ELEVATION
OGT9-840	191.75	Valmont 13' Lightweight T-Frame (Cingular)	150
DB264-C	191.75	Valmont 13' Lightweight T-Frame (Cingular)	150
OGT9-840	188.5	(4) LPG21401 TMA (Cingular)	150
10 FT DISH (CSP)	181	(4) LPG21401 TMA (Cingular)	150
6' Standoff	180	Valmont 13' Lightweight T-Frame (Cingular)	150
DB225	180	4' Standoff x 15'	149 - 134
12'x4" Pipe Mount	180	4' Standoff	148.33
6' Standoff	180	DB212	147.5 - 135.5
6 FT DISH (CSP future)	180	DB212	147.17 - 133.5
6 FT DISH (CSP future)	180	6' Standoff	144 - 139
6 FT DISH (CSP future)	180	DB420	140 - 121
4' Standoff x 10'	175.33	1.5' Standoff	139 - 137
OGT9-840	174.5 - 163.5	DB411-B	107
6'x4" Pipe Mount	172.5	5'0"x3" Pipe Mount	104.92 - 99.92
6'x4" Pipe Mount	172.5	Folded Dipole	102.83
6 FT DISH (CSP)	170.5	3.25' Standoff x 15'	99 - 84
6 FT DISH (CSP)	170.5	DB212	96.5 - 86.5
OGT9-840	170 - 159	8 FT DISH (CSP)	82
20' x 2" Dia Omni	169 - 149	4'x4" Pipe Mount	82
PD220	163 - 142	DB803M-XT	53.5 - 50.67
Dipole	160 - 137.5	3' Standoff	50 - 47
(4) 7770.00 (Cingular)	150	PD440-2	50 - 39
(4) 7770.00 (Cingular)	150		
(4) 7770.00 (Cingular)	150		
(4) LPG21401 TMA (Cingular)	150		

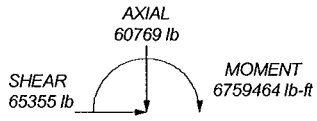
SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	L3x3x1/4		

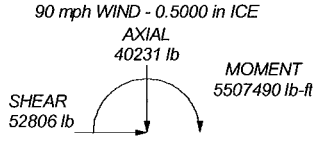
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A572-60	60 ksi	75 ksi
A36	36 ksi	58 ksi			

MAX PIER FORCES:
DOWN: 332462 lb
UPLIFT: -266129 lb
SHEAR: 37502 lb



TORQUE 64611 lb-ft
90 mph WIND - 0.5000 in ICE



TORQUE 31905 lb-ft
REACTIONS - 90 mph WIND

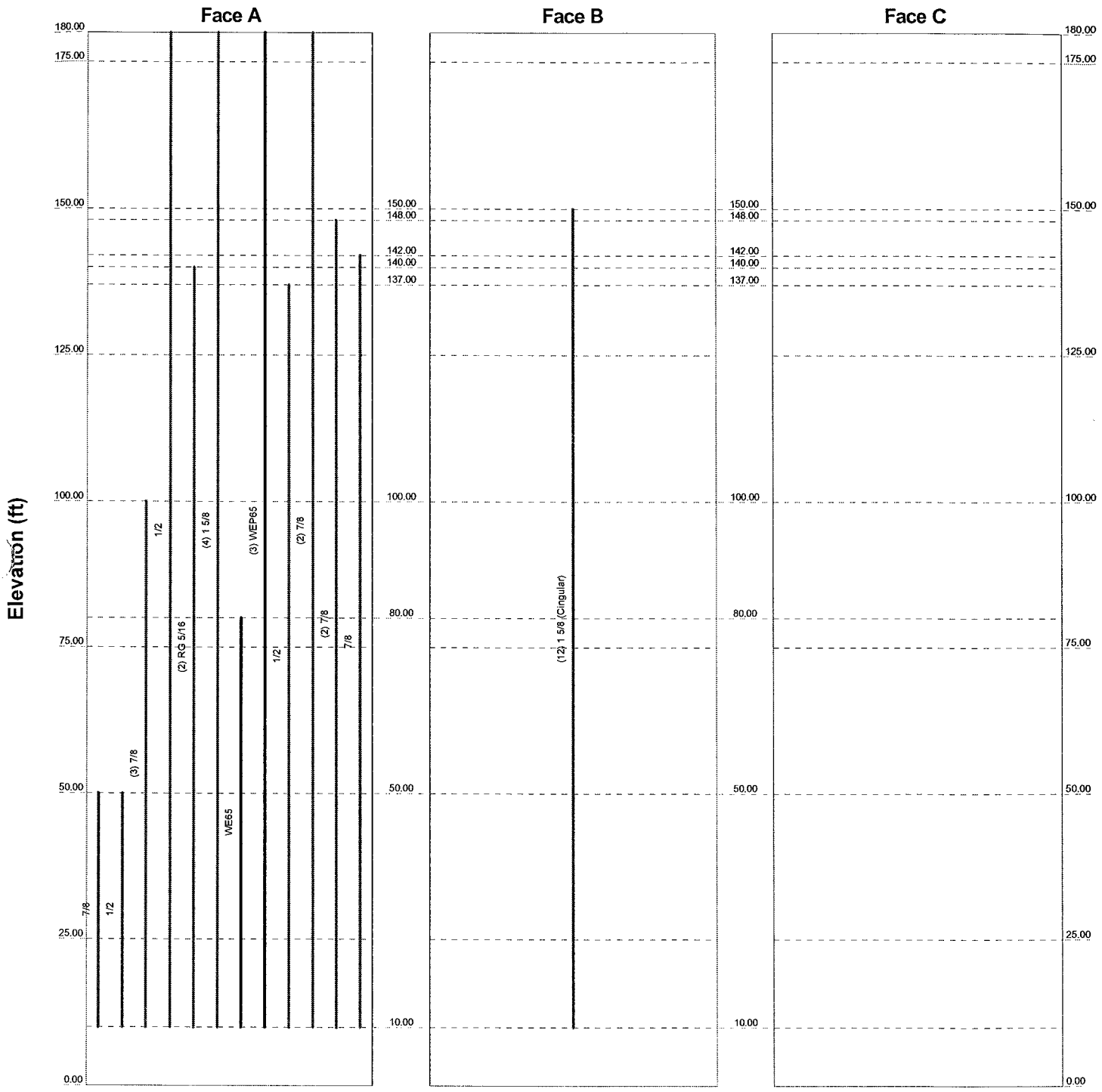
URS Corporation
500 Enterprise Drive, Suite 3B
Rocky Hill, CT 06067
Phone: (860) 529-8882
FAX: (860) 529-3991

Job:	***180' Stainless, Inc. Self Supportting Lattice***		
Project:	***97 Mountain Hill Road, Thompson, CT--CSP***		
Client: Cingular Wireless	Drawn by: JEK	App'd:	
Code: TIA/EIA-222-F	Date: 04/18/06	Scale: NTS	
Path: P:\08\ERI Files\180' ThompsonCingExist.eri		Dwg No. E-1	

ERI TOWER FEEDLINE DISTRIBUTION CHART

Feedline Distribution Chart
0' - 180'

Round Flat App In Face App Out Face Truss Leg

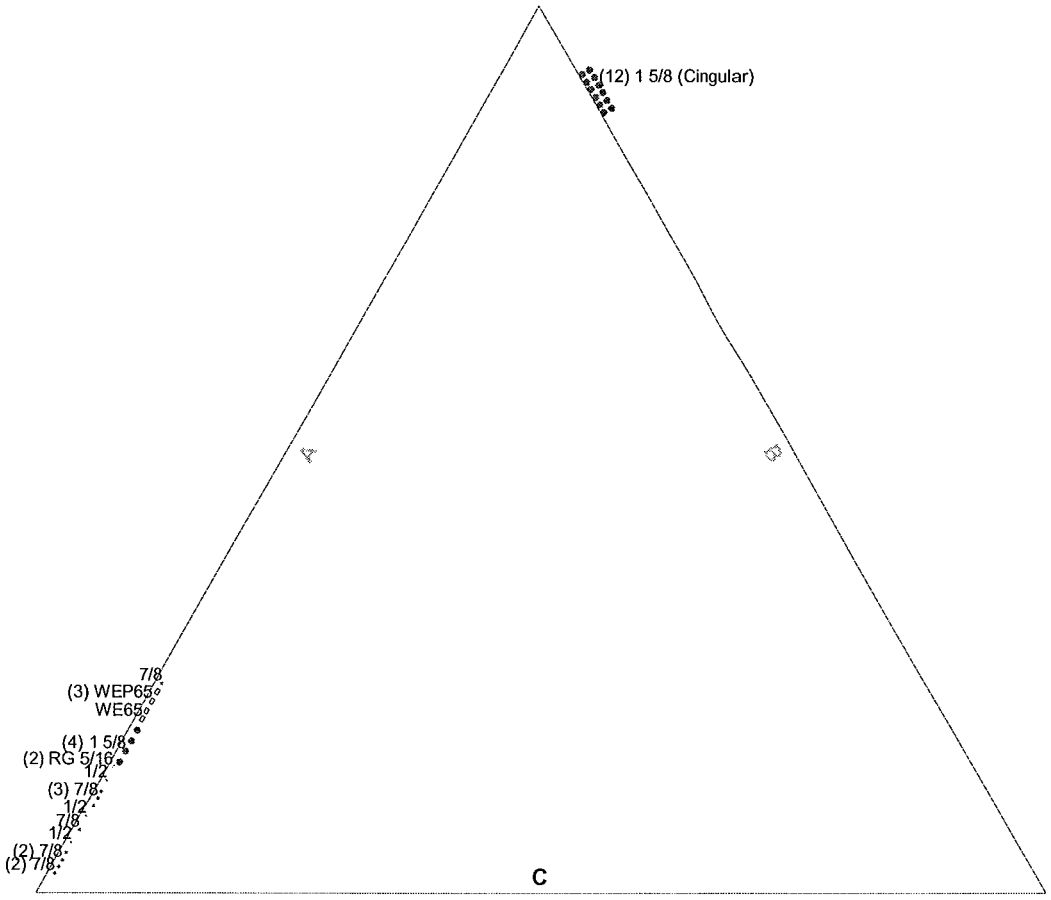


URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Job: ***180' Stainless, Inc. Self Supportting Lattice***		
	Project: ***97 Mountain Hill Road, Thompson, CT--CSP***		
	Client: Cingular Wireless	Drawn by: JEK	App'd:
	Code: TIA/EIA-222-F	Date: 04/18/06	Scale: NTS
	Path: P:\08\ERI Files\180' ThompsonCingExist.eri		Dwg No. E-7

ERI TOWER FEEDLINE PLAN

Feedline Plan

..... Round _____ Flat ..... App In Face App Out Face



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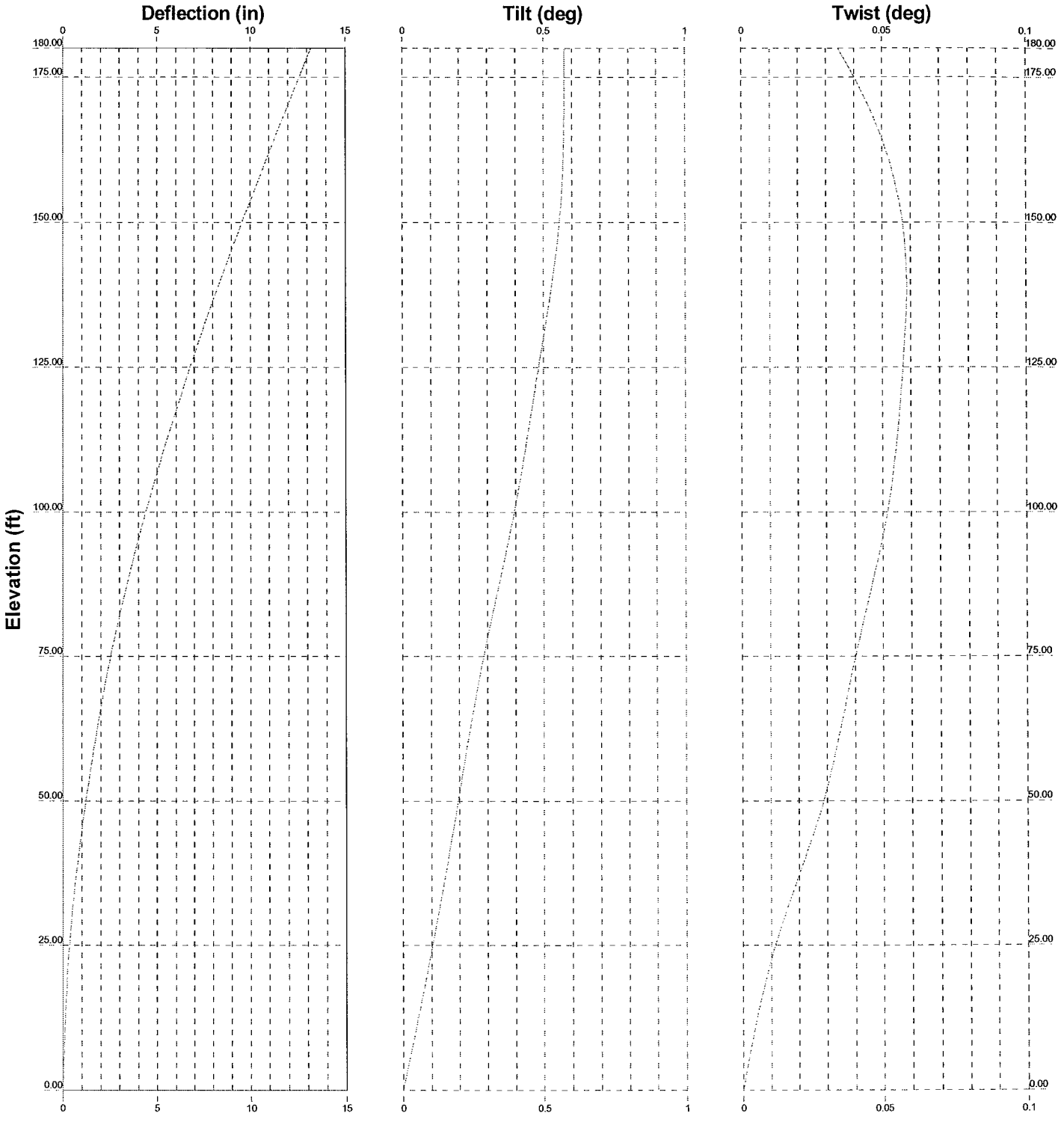
Code: TIA/EIA-222-F	Date: 04/18/06	Scale: NTS	
Path: P:\08\ERI Files\180' ThompsonCingExist.eri		Dwg No. E-7	

ERI TOWER DEFLECTION, TILT, AND TWIST

TIA/EIA-222-F - 90 mph/90 mph 0.5000 in Ice Dead+Wind 0 deg+Ice+Temp



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Project: *97 Mountain Hill Road, Thompson, CT--CSP*			
Client: Cingular Wireless	Drawn by: JEK	App'd:	
Code: TIA/EIA-222-F	Date: 04/18/06	Scale: NTS	
Path: P:\08\ERI Files\180' ThompsonCingExist.eri		Dwg No. E-5	

ERI TOWER DETAILED OUTPUT

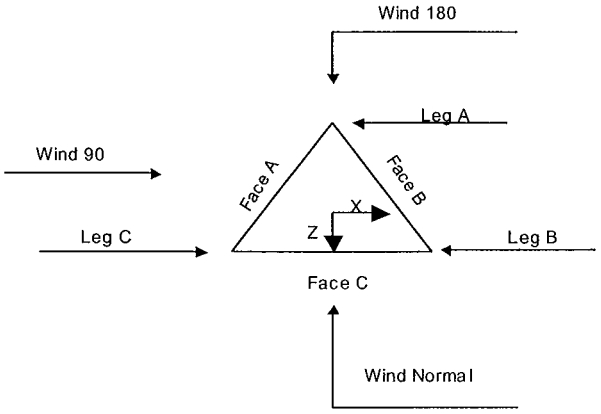
Tower Input Data

The main tower is a 3x free standing tower with an overall height of 180.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 10.60 ft at the top and 25.00 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Basic wind speed of 90 mph is used in combination with ice.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 90 mph in combination with ice.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Options

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



Triangular Tower

Tower Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
T1	180.00-175.00			10.60	1	5.00
T2	175.00-150.00			11.00	1	25.00
T3	150.00-125.00			13.00	1	25.00
T4	125.00-100.00			15.00	1	25.00
T5	100.00-75.00			17.00	1	25.00
T6	75.00-50.00			19.00	1	25.00
T7	50.00-25.00			21.00	1	25.00
T8	25.00-0.00			23.00	1	25.00

Tower Section Geometry *(cont'd)*

Tower Section	*Tower Elevation*	*Diagonal Spacing*	*Bracing Type*	*Has K Brace End Panels*	*Has Horizontals*	*Top Girt Offset*	*Bottom Girt Offset*
	ft	*ft*				*in*	*in*
T1	180.00-175.00	5.00	K Brace Down	No	Yes	0.0000	0.0000
T2	175.00-150.00	8.33	K Brace Down	No	Yes	0.0000	0.0000
T3	150.00-125.00	8.33	K Brace Down	No	Yes	0.0000	0.0000
T4	125.00-100.00	8.33	K Brace Down	No	Yes	0.0000	0.0000
T5	100.00-75.00	8.33	K Brace Down	No	Yes	0.0000	0.0000
T6	75.00-50.00	12.50	K Brace Down	No	Yes	0.0000	0.0000
T7	50.00-25.00	12.50	K Brace Down	No	Yes	0.0000	0.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T8	25.00-0.00	12.50	K1 Down	No	Yes	0.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 180.00-175.00	Pipe	HSS5x.25	A572-50 (50 ksi)	Double Angle	2L2 1/2x2x3/16	A36 (36 ksi)
T2 175.00-150.00	Pipe	HSS5x.25	A572-50 (50 ksi)	Double Angle	2L2 1/2x2x3/16	A36 (36 ksi)
T3 150.00-125.00	Pipe	HSS5x.25	A572-50 (50 ksi)	Double Angle	2L3x2 1/2x1/4	A36 (36 ksi)
T4 125.00-100.00	Pipe	HSS5x.375	A572-50 (50 ksi)	Double Angle	2L3x2 1/2x1/4	A36 (36 ksi)
T5 100.00-75.00	Pipe	HSS5x.4	A572-60 (60 ksi)	Double Angle	2L3x2 1/2x1/4	A36 (36 ksi)
T6 75.00-50.00	Pipe	HSS6.875x.4	A572-60 (60 ksi)	Double Angle	2L3 1/2x3x1/4	A36 (36 ksi)
T7 50.00-25.00	Pipe	HSS6.875x.5	A572-60 (60 ksi)	Double Angle	2L3 1/2x3x1/4	A36 (36 ksi)
T8 25.00-0.00	Pipe	HSS6.875x.5	A572-60 (60 ksi)	Double Angle	2L3x3 1/2x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 180.00-175.00	None	Single Angle		A36 (36 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T2 175.00-150.00	None	Equal Angle		A36 (36 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T3 150.00-125.00	None	Equal Angle		A36 (36 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T4 125.00-100.00	None	Equal Angle		A36 (36 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T5 100.00-75.00	None	Single Angle		A36 (36 ksi)	Single Angle	L3x4x1/4	A36 (36 ksi)
T6 75.00-50.00	None	Equal Angle		A36 (36 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)
T7 50.00-25.00	None	Equal Angle		A36 (36 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)
T8 25.00-0.00	None	Equal Angle		A36 (36 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T3 150.00-125.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T4 125.00-100.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T5 100.00-75.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T6 75.00-50.00	Solid Round		A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x3/16	A36 (36 ksi)
T7 50.00-25.00	Solid Round		A572-50 (50 ksi)	Single Angle	L3x3x1/4	A36 (36 ksi)
T8 25.00-0.00	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T8 25.00-0.00	A36 (36 ksi)	Horizontal (1)	Equal Angle	L3x3x1/4	1
		Diagonal (1)	Equal Angle	L3x3x1/4	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft²	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
T1 180.00-175.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T2 175.00-150.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T3 150.00-125.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T4 125.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T5 100.00-75.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T6 75.00-50.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T7 50.00-25.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000
T8 25.00-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X	X Brace Diags Y	Single Diags X	Single Diags Y	Girts X	Girts Y	Horiz. X	Horiz. Y	Sec. Horiz. X	Sec. Horiz. Y	Inner Brace X	Inner Brace Y
T1 180.00-175.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T2 175.00-150.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T3 150.00-125.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T4 125.00-100.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T5 100.00-75.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T6 75.00-50.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T7 50.00-25.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1
T8 25.00-0.00	Yes	No	1	1	1	1	1	1	1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Net Width Deduct in	Leg U	Diagonal Net Width Deduct in	Diagonal U	Top Girt Net Width Deduct in	Top Girt U	Bottom Girt Net Width Deduct in	Bottom Girt U	Mid Girt Net Width Deduct in	Mid Girt U	Long Horizontal Net Width Deduct in	Long Horizontal U	Short Horizontal Net Width Deduct in	Short Horizontal U
T1 180.00-175.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 175.00-150.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 150.00-125.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 125.00-100.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 100.00-75.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 75.00-50.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 50.00-25.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 25.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 180.00-175.00	Flange	0.7500 A325X	0	1.0000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325X	2	0.6250 A325N	0
T2 175.00-150.00	Flange	0.7500 A325X	6	1.0000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325X	2	0.6250 A325N	0
T3 150.00-125.00	Flange	0.7500 A325X	6	1.0000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325X	2	0.6250 A325N	0
T4 125.00-100.00	Flange	0.7500 A325X	6	1.0000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325X	2	0.6250 A325N	0
T5 100.00-75.00	Flange	0.7500 A325X	6	1.0000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325X	2	0.6250 A325N	0
T6 75.00-50.00	Flange	1.0000 A325X	8	1.0000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325X	2	0.6250 A325N	0
T7 50.00-25.00	Flange	1.0000 A325X	8	1.0000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325X	2	0.6250 A325N	0
T8 25.00-0.00	Flange	1.0000 A325X	8	1.0000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325X	2	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
7/8	A	Yes	Ar (CfAe)	50.00 - 10.00	-1.5000	-0.425	1	1	1.5000	1.1100		0.54
1/2	A	Yes	Ar (CfAe)	50.00 - 10.00	-1.5000	-0.41	1	1	0.5800	0.5800		0.25
7/8	A	Yes	Ar (CfAe)	100.00 - 10.00	-1.5000	-0.39	3	3	1.1100	1.1100		0.54
1/2	A	Yes	Ar (CfAe)	180.00 - 10.00	-1.5000	-0.37	1	1	0.5800	0.5800		0.25
RG 5/16	A	Yes	Ar (CfAe)	140.00 - 10.00	-1.5000	-0.355	2	2	0.3200	0.3200		0.09
1 5/8	A	Yes	Ar (CfAe)	180.00 - 10.00	-1.5000	-0.33	4	4	1.5000 1.9800	1.9800		1.04
WE65	A	Yes	Af (CfAe)	80.00 - 10.00	-1.5000	-0.3	1	1	1.5836	1.5836	5.1284	0.53
WEP65	A	Yes	Af (CfAe)	180.00 - 10.00	-1.5000	-0.28	3	3	1.5836	1.5836	5.1284	0.53
1 5/8 (Cingular)	B	Yes	Ar (CfAe)	150.00 - 10.00	0.0000	-0.4	12	6	0.5000	1.9800		1.04
1/2	A	Yes	Ar (CfAe)	137.00 - 10.00	-1.5000	-0.44	1	1	0.5800	0.5800		0.25
7/8	A	Yes	Ar (CfAe)	180.00 - 10.00	-1.5000	-0.455	2	2	1.1100	1.1100		0.54
7/8	A	Yes	Ar (CfAe)	148.00 - 10.00	-1.5000	-0.47	2	2	1.1100	1.1100		0.54
7/8	A	Yes	Ar (CfAe)	142.00 - 10.00	-1.5000	-0.26	1	1	1.1100	1.1100		0.54

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	180.00-175.00	A	4.467	1.979	0.000	0.000	35.40
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T2	175.00-150.00	A	22.333	9.897	0.000	0.000	177.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
T3	150.00-125.00	A	29.541	9.897	0.000	0.000	216.72

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
		B	24.750	0.000	0.000	0.000	312.00
		C	0.000	0.000	0.000	0.000	0.00
T4	125.00-100.00	A	31.813	9.897	0.000	0.000	228.25
		B	24.750	0.000	0.000	0.000	312.00
		C	0.000	0.000	0.000	0.000	0.00
T5	100.00-75.00	A	38.750	10.557	0.000	0.000	271.40
		B	24.750	0.000	0.000	0.000	312.00
		C	0.000	0.000	0.000	0.000	0.00
T6	75.00-50.00	A	38.750	13.196	0.000	0.000	282.00
		B	24.750	0.000	0.000	0.000	312.00
		C	0.000	0.000	0.000	0.000	0.00
T7	50.00-25.00	A	42.271	13.196	0.000	0.000	301.75
		B	24.750	0.000	0.000	0.000	312.00
		C	0.000	0.000	0.000	0.000	0.00
T8	25.00-0.00	A	25.363	7.918	0.000	0.000	181.05
		B	14.850	0.000	0.000	0.000	187.20
		C	0.000	0.000	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight lb
T1	180.00-175.00	A	0.500	7.383	2.813	0.000	0.000	99.31
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T2	175.00-150.00	A	0.500	36.917	14.064	0.000	0.000	496.55
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
T3	150.00-125.00	A	0.500	51.224	14.864	0.000	0.000	618.12
		B		6.208	25.833	0.000	0.000	750.67
		C		0.000	0.000	0.000	0.000	0.00
T4	125.00-100.00	A	0.500	56.146	15.397	0.000	0.000	658.01
		B		6.208	25.833	0.000	0.000	750.67
		C		0.000	0.000	0.000	0.000	0.00
T5	100.00-75.00	A	0.500	69.333	16.335	0.000	0.000	781.75
		B		6.208	25.833	0.000	0.000	750.67
		C		0.000	0.000	0.000	0.000	0.00
T6	75.00-50.00	A	0.500	69.333	20.085	0.000	0.000	819.66
		B		6.208	25.833	0.000	0.000	750.67
		C		0.000	0.000	0.000	0.000	0.00
T7	50.00-25.00	A	0.500	77.021	20.085	0.000	0.000	880.49
		B		6.208	25.833	0.000	0.000	750.67
		C		0.000	0.000	0.000	0.000	0.00
T8	25.00-0.00	A	0.500	46.212	12.051	0.000	0.000	528.29
		B		3.725	15.500	0.000	0.000	450.40
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Shielding

Section	Elevation ft	Face	A_R ft^2	A_R Ice ft^2	A_F ft^2	A_F Ice ft^2
T1	180.00-175.00	A	0.000	0.000	0.685	1.405

Section	Elevation	Face	A_R	A_R Ice	A_F	A_F Ice
	ft		ft^2	ft^2	ft^2	ft^2
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T2	175.00-150.00	A	0.000	0.000	2.323	4.774
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T3	150.00-125.00	A	0.000	0.000	2.999	6.336
		B	0.000	0.000	1.882	2.978
		C	0.000	0.000	0.000	0.000
T4	125.00-100.00	A	0.000	0.000	3.040	6.559
		B	0.000	0.000	1.804	2.854
		C	0.000	0.000	0.000	0.000
T5	100.00-75.00	A	0.000	0.000	3.479	7.580
		B	0.000	0.000	1.746	2.763
		C	0.000	0.000	0.000	0.000
T6	75.00-50.00	A	0.000	0.000	3.297	6.908
		B	0.000	0.000	1.571	2.401
		C	0.000	0.000	0.000	0.000
T7	50.00-25.00	A	0.000	0.000	3.414	7.256
		B	0.000	0.000	1.523	2.328
		C	0.000	0.000	0.000	0.000
T8	25.00-0.00	A	0.000	0.000	3.499	7.613
		B	0.000	0.000	1.561	2.442
		C	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	180.00-175.00	-8.6121	3.2917	-10.3878	4.0829
T2	175.00-150.00	-11.1857	4.2354	-13.5481	5.2737
T3	150.00-125.00	-11.4973	-4.5452	-14.8364	-0.9360
T4	125.00-100.00	-13.4170	-4.6473	-17.3109	-0.5589
T5	100.00-75.00	-17.1341	-3.5980	-22.1952	1.2113
T6	75.00-50.00	-18.1583	-3.3388	-24.1710	1.5225
T7	50.00-25.00	-20.8435	-2.8075	-28.0884	2.8285
T8	25.00-0.00	-12.5070	-1.6863	-17.1577	1.7923

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
(4) 7770.00	A	From Face	3.00	30.0000	150.00	No Ice	5.88	2.93	35.00
(Cingular)			0.00			1/2" Ice	6.31	3.27	67.63
			0.00						
(4) LPG21401 TMA	A	From Face	3.00	30.0000	150.00	No Ice	0.95	0.37	17.50
(Cingular)			0.00			1/2" Ice	1.09	0.48	23.31

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00						
(4) 7770.00	B	From Face	3.00	30.0000	150.00	No Ice	5.88	2.93	35.00
(Cingular)			0.00			1/2" Ice	6.31	3.27	67.63
			0.00						
(4) LPG21401 TMA	B	From Face	3.00	30.0000	150.00	No Ice	0.95	0.37	17.50
(Cingular)			0.00			1/2" Ice	1.09	0.48	23.31
			0.00						
(4) 7770.00	C	From Face	3.00	30.0000	150.00	No Ice	5.88	2.93	35.00
(Cingular)			0.00			1/2" Ice	6.31	3.27	67.63
			0.00						
(4) LPG21401 TMA	C	From Face	3.00	30.0000	150.00	No Ice	0.95	0.37	17.50
(Cingular)			0.00			1/2" Ice	1.09	0.48	23.31
			0.00						
Valmont 13' Lightweight T-Frame	A	From Leg	0.50	30.0000	150.00	No Ice	10.60	10.60	255.00
(Cingular)			0.00			1/2" Ice	16.80	16.80	359.00
			0.00						
Valmont 13' Lightweight T-Frame	B	From Leg	0.50	30.0000	150.00	No Ice	10.60	10.60	255.00
(Cingular)			0.00			1/2" Ice	16.80	16.80	359.00
			0.00						
Valmont 13' Lightweight T-Frame	C	From Leg	0.50	30.0000	150.00	No Ice	10.60	10.60	255.00
(Cingular)			0.00			1/2" Ice	16.80	16.80	359.00
			0.00						
3' Standoff	C	From Leg	1.50	0.0000	50.00 - 47.00	No Ice	3.00	3.00	60.00
			0.00			1/2" Ice	3.60	3.60	85.00
			0.00						
PD440-2	C	From Leg	3.00	0.0000	50.00 - 39.00	No Ice	1.38	1.38	19.00
			0.00			1/2" Ice	2.48	2.48	24.70
			0.00						
DB803M-XT	C	From Leg	3.00	0.0000	53.50 - 50.67	No Ice	0.50	0.50	4.30
			0.00			1/2" Ice	0.68	0.68	8.98
			0.00						
4'x4" Pipe Mount	B	From Leg	0.50	0.0000	82.00	No Ice	0.00	1.32	44.00
			0.00			1/2" Ice	0.00	1.58	56.99
			0.00						
3.25' Standoff x 15'	C	From Leg	1.50	0.0000	99.00 - 84.00	No Ice	4.30	4.30	80.00
			0.00			1/2" Ice	6.45	6.45	120.00
			0.00						
DB212	C	From Leg	3.25	0.0000	96.50 - 86.50	No Ice	4.40	4.40	31.00
			0.00			1/2" Ice	8.42	8.42	70.21
			0.00						
5'0"x3" Pipe Mount	C	From Face	0.50	0.0000	104.92 - 99.92	No Ice	0.00	1.36	30.00
			0.00			1/2" Ice	0.00	1.67	41.10
			0.00						
Folded Dipole	C	From Face	1.00	0.0000	102.83	No Ice	0.23	0.23	3.00
			0.00			1/2" Ice	0.41	0.41	3.90
			0.00						
DB411-B	C	From Face	1.00	0.0000	107.00	No Ice	1.50	1.50	25.00
			0.00			1/2" Ice	2.70	2.70	32.50
			0.00						
6' Standoff	A	From Leg	3.00	0.0000	144.00 - 139.00	No Ice	3.90	3.90	75.00
			0.00			1/2" Ice	5.60	5.60	120.00
			0.00						
DB420	A	From Leg	6.00	0.0000	140.00 - 121.00	No Ice	3.33	3.33	34.00
			0.00			1/2" Ice	5.99	5.99	44.20
			0.00						
PD220	A	From Leg	6.00	0.0000	163.00 - 142.00	No Ice	3.08	3.08	23.00
			0.00			1/2" Ice	5.30	5.30	48.68

ERITower	Job: 180' Stainless, Inc. Self Supportting Lattice	Page: 10 of 37
URS Corporation 500 Enterprise Drive, Suite 3B Rocky Hill, CT 06067 Phone: (860) 529-8882 FAX: (860) 529-3991	Project: 97 Mountain Hill Road, Thompson, CT--CSP	Date: 09:28:24 04/18/06
	Client: Cingular Wireless	Designed by: JEK

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00						
1.5' Standoff	B	From Leg	0.75	0.0000	139.00 - 137.00	No Ice	1.00	1.00	30.00
			0.00			1/2" Ice	1.50	1.50	50.00
			0.00						
Dipole	B	From Leg	1.50	0.0000	160.00 - 137.50	No Ice	3.30	3.30	40.00
			0.00			1/2" Ice	5.94	5.94	52.00
			0.00						
4' Standoff	C	From Leg	2.00	0.0000	148.33	No Ice	3.10	3.10	60.00
			0.00			1/2" Ice	3.62	3.62	85.00
			0.00						
DB212	C	From Leg	4.00	0.0000	147.17 - 133.50	No Ice	4.40	4.40	31.00
			0.00			1/2" Ice	8.42	8.42	70.21
			0.00						
20' x 2" Dia Omni	C	From Leg	4.00	0.0000	169.00 - 149.00	No Ice	4.00	4.00	20.00
			0.00			1/2" Ice	6.03	6.03	50.77
			0.00						
6'x4" Pipe Mount	B	From Leg	0.50	0.0000	172.50	No Ice	0.00	2.09	54.72
			0.00			1/2" Ice	0.00	2.46	71.85
			0.00						
6'x4" Pipe Mount	C	From Leg	0.50	0.0000	172.50	No Ice	0.00	2.09	54.72
			0.00			1/2" Ice	0.00	2.46	71.85
			0.00						
6' Standoff	C	From Leg	3.00	0.0000	180.00	No Ice	3.90	3.90	75.00
			0.00			1/2" Ice	5.60	5.60	120.00
			0.00						
OGT9-840	C	From Leg	6.00	0.0000	174.50 - 163.50	No Ice	2.27	2.27	18.50
			0.00			1/2" Ice	3.44	3.44	36.09
			0.00						
OGT9-840	C	From Leg	6.00	0.0000	188.50	No Ice	2.27	2.27	18.50
			0.00			1/2" Ice	3.44	3.44	36.09
			0.00						
4' Standoff x 10'	A	From Leg	2.00	0.0000	175.33	No Ice	4.50	4.50	75.00
			0.00			1/2" Ice	6.30	6.30	120.00
			0.00						
OGT9-840	A	From Leg	4.00	0.0000	191.75	No Ice	2.27	2.27	18.50
			0.00			1/2" Ice	3.44	3.44	36.09
			0.00						
OGT9-840	A	From Leg	4.00	0.0000	170.00 - 159.00	No Ice	2.27	2.27	18.50
			0.00			1/2" Ice	3.44	3.44	36.09
			0.00						
DB225	C	From Leg	0.00	0.0000	180.00	No Ice	3.21	3.21	74.00
			0.00			1/2" Ice	5.78	5.78	96.20
			0.00						
12'x4" Pipe Mount	B	From Leg	0.50	0.0000	180.00	No Ice	0.00	4.16	110.00
			0.00			1/2" Ice	0.00	4.91	142.00
			0.00						
6' Standoff	A	From Leg	3.00	0.0000	180.00	No Ice	3.90	3.90	75.00
			0.00			1/2" Ice	5.60	5.60	120.00
			0.00						
DB264-C	A	From Leg	6.00	0.0000	191.75	No Ice	3.16	3.16	36.00
			0.00			1/2" Ice	5.69	5.69	46.80
			0.00						
4' Standoff x 15'	A	From Leg	2.00	0.0000	149.00 - 134.00	No Ice	4.50	4.50	100.00
			0.00			1/2" Ice	6.00	6.00	135.00
			0.00						
DB212	A	From Leg	4.00	0.0000	147.50 - 135.50	No Ice	4.40	4.40	31.00
			0.00			1/2" Ice	8.42	8.42	70.21

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft	C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00					

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
10 FT DISH (CSP)	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	51.0000		181.00	10.00	No Ice 1/2" Ice	78.54 79.81	317.00 726.71
6 FT DISH (CSP)	C	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	27.0000		170.50	6.00	No Ice 1/2" Ice	28.27 29.05	143.00 292.13
6 FT DISH (CSP)	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	51.0000		170.50	6.00	No Ice 1/2" Ice	28.27 29.05	143.00 292.13
8 FT DISH (CSP)	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	51.0000		82.00	8.00	No Ice 1/2" Ice	50.30 51.29	251.00 514.30
6 FT DISH (CSP future)	A	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		180.00	6.00	No Ice 1/2" Ice	28.27 29.05	143.00 292.13
6 FT DISH (CSP future)	B	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		180.00	6.00	No Ice 1/2" Ice	28.27 29.05	143.00 292.13
6 FT DISH (CSP future)	C	Paraboloid w/Radome	From Leg	1.00 0.00 0.00	0.0000		180.00	6.00	No Ice 1/2" Ice	28.27 29.05	143.00 292.13

Tower Pressures - No Ice

$G_H = 1.121$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg %	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
T1 180.00-175.00	177.50	1.617	34	56.085	A	6.820	8.638	4.171	26.98	0.000	0.000
					B	5.526	4.171		43.01		
					C	5.526	4.171		43.01		
T2 175.00-150.00	162.50	1.577	33	310.425	A	28.537	43.189	20.856	29.08	0.000	0.000
					B	20.963	20.856		49.87		
					C	20.963	20.856		49.87		
T3 150.00-125.00	137.50	1.503	31	360.425	A	32.848	50.396	20.856	25.05	0.000	0.000
					B	24.068	45.606		29.93		

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
					C	25.950	20.856		44.56		
T4 125.00-100.00	112.50	1.42	29	410.425	A	35.355	52.668	20.856	23.69	0.000	0.000
					B	26.693	45.606		28.85		
					C	28.497	20.856		42.26		
T5 100.00-75.00	87.50	1.321	27	460.425	A	38.180	59.606	20.856	21.33	0.000	0.000
					B	29.355	45.606		27.82		
					C	31.102	20.856		40.14		
T6 75.00-50.00	62.50	1.2	25	514.334	A	40.906	67.426	28.676	26.47	0.000	0.000
					B	29.436	53.426		34.61		
					C	31.007	28.676		48.05		
T7 50.00-25.00	37.50	1.037	22	564.334	A	42.858	70.947	28.676	25.20	0.000	0.000
					B	31.552	53.426		33.75		
					C	33.076	28.676		46.44		
T8 25.00-0.00	12.50	1	21	614.334	A	50.370	54.039	28.676	27.47	0.000	0.000
					B	44.390	43.526		32.62		
					C	45.951	28.676		38.43		

Tower Pressure - With Ice

$G_H = 1.121$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 180.00-175.00	177.50	1.617	34	0.5000	56.502	A	8.294	12.389	5.005	24.20	0.000	0.000
						B	6.886	5.005		42.09		
						C	6.886	5.005		42.09		
T2 175.00-150.00	162.50	1.577	33	0.5000	312.510	A	35.468	61.943	25.027	25.69	0.000	0.000
						B	26.178	25.027		48.88		
						C	26.178	25.027		48.88		
T3 150.00-125.00	137.50	1.503	31	0.5000	362.510	A	40.244	76.251	25.027	21.48	0.000	0.000
						B	54.572	31.235		29.17		
						C	31.717	25.027		44.10		
T4 125.00-100.00	112.50	1.42	29	0.5000	412.510	A	43.669	81.172	25.027	20.05	0.000	0.000
						B	57.809	31.235		28.11		
						C	34.830	25.027		41.81		
T5 100.00-75.00	87.50	1.321	27	0.5000	462.510	A	46.769	94.360	25.027	17.73	0.000	0.000
						B	61.083	31.235		27.11		
						C	38.013	25.027		39.70		
T6 75.00-50.00	62.50	1.2	25	0.5000	516.419	A	49.788	102.181	32.847	21.61	0.000	0.000
						B	60.044	39.056		33.15		
						C	36.611	32.847		47.29		
T7 50.00-25.00	37.50	1.037	22	0.5000	566.419	A	51.873	109.868	32.847	20.31	0.000	0.000
						B	62.549	39.056		32.33		
						C	39.044	32.847		45.69		
T8 25.00-0.00	12.50	1	21	0.5000	616.419	A	59.751	79.060	32.847	23.66	0.000	0.000
						B	68.371	36.572		31.30		
						C	55.313	32.847		37.26		

Tower Pressure - Service

$G_H = 1.121$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1 180.00-175.00	177.50	1.617	34	56.085	A	6.820	8.638	4.171	26.98	0.000	0.000
					B	5.526	4.171		43.01		
					C	5.526	4.171		43.01		
T2 175.00-150.00	162.50	1.577	33	310.425	A	28.537	43.189	20.856	29.08	0.000	0.000
					B	20.963	20.856		49.87		
					C	20.963	20.856		49.87		
T3 150.00-125.00	137.50	1.503	31	360.425	A	32.848	50.396	20.856	25.05	0.000	0.000
					B	24.068	45.606		29.93		
					C	25.950	20.856		44.56		
T4 125.00-100.00	112.50	1.42	29	410.425	A	35.355	52.668	20.856	23.69	0.000	0.000
					B	26.693	45.606		28.85		
					C	28.497	20.856		42.26		
T5 100.00-75.00	87.50	1.321	27	460.425	A	38.180	59.606	20.856	21.33	0.000	0.000
					B	29.355	45.606		27.82		
					C	31.102	20.856		40.14		
T6 75.00-50.00	62.50	1.2	25	514.334	A	40.906	67.426	28.676	26.47	0.000	0.000
					B	29.436	53.426		34.61		
					C	31.007	28.676		48.05		
T7 50.00-25.00	37.50	1.037	22	564.334	A	42.858	70.947	28.676	25.20	0.000	0.000
					B	31.552	53.426		33.75		
					C	33.076	28.676		46.44		
T8 25.00-0.00	12.50	1	21	614.334	A	50.370	54.039	28.676	27.47	0.000	0.000
					B	44.390	43.526		32.62		
					C	45.951	28.676		38.43		

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 180.00-175.00	35.40	579.99	A	0.276	2.363	0.609	1	1	12.078	1072.75	214.55	A
			B	0.173	2.689	0.585	1	1	7.967			
			C	0.173	2.689	0.585	1	1	7.967			
T2 175.00-150.00	177.00	2435.03	A	0.231	2.496	0.597	1	1	54.331	4969.38	198.78	A
			B	0.135	2.829	0.579	1	1	33.044			
			C	0.135	2.829	0.579	1	1	33.044			
T3 150.00-125.00	528.72	3454.06	A	0.231	2.496	0.597	1	1	62.945	5489.62	219.58	A
			B	0.193	2.618	0.589	1	1	50.932			
			C	0.13	2.847	0.579	1	1	38.017			
T4 125.00-100.00	540.25	4090.15	A	0.214	2.548	0.593	1	1	66.611	5601.11	224.04	A
			B	0.176	2.678	0.586	1	1	53.410			
			C	0.12	2.884	0.577	1	1	40.539			
T5 100.00-75.00	583.40	4631.26	A	0.212	2.555	0.593	1	1	73.526	5769.52	230.78	A
			B	0.163	2.725	0.584	1	1	55.967			
			C	0.113	2.913	0.576	1	1	43.125			
T6 75.00-50.00	594.00	5097.21	A	0.211	2.561	0.593	1	1	80.865	5776.66	231.07	A
			B	0.161	2.731	0.583	1	1	60.596			
			C	0.116	2.9	0.577	1	1	47.549			
T7 50.00-25.00	613.75	5709.75	A	0.202	2.59	0.591	1	1	84.769	5293.67	211.75	A
			B	0.151	2.769	0.582	1	1	62.623			
			C	0.109	2.926	0.576	1	1	49.596			
T8 25.00-0.00	368.25	6745.83	A	0.17	2.699	0.585	1	1	81.968	5142.73	205.71	A
			B	0.143	2.797	0.58	1	1	69.654			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
Sum Weight:	3440.77	32743.28	C	0.121	2.879	0.578	1	1 OTM	62.512 3511556.67 lb-ft	39115.45		

Tower Forces - No Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 180.00-175.00	35.40	579.99	A	0.276	2.363	0.609	0.825	1	10.885	966.74	193.35	A
			B	0.173	2.689	0.585	0.825	1	7.000			
			C	0.173	2.689	0.585	0.825	1	7.000			
T2 175.00-150.00	177.00	2435.03	A	0.231	2.496	0.597	0.825	1	49.337	4512.61	180.50	A
			B	0.135	2.829	0.579	0.825	1	29.375			
			C	0.135	2.829	0.579	0.825	1	29.375			
T3 150.00-125.00	528.72	3454.06	A	0.231	2.496	0.597	0.825	1	57.197	4988.29	199.53	A
			B	0.193	2.618	0.589	0.825	1	46.720			
			C	0.13	2.847	0.579	0.825	1	33.476			
T4 125.00-100.00	540.25	4090.15	A	0.214	2.548	0.593	0.825	1	60.424	5080.86	203.23	A
			B	0.176	2.678	0.586	0.825	1	48.739			
			C	0.12	2.884	0.577	0.825	1	35.552			
T5 100.00-75.00	583.40	4631.26	A	0.212	2.555	0.593	0.825	1	66.845	5245.23	209.81	A
			B	0.163	2.725	0.584	0.825	1	50.830			
			C	0.113	2.913	0.576	0.825	1	37.682			
T6 75.00-50.00	594.00	5097.21	A	0.211	2.561	0.593	0.825	1	73.706	5265.28	210.61	A
			B	0.161	2.731	0.583	0.825	1	55.445			
			C	0.116	2.9	0.577	0.825	1	42.123			
T7 50.00-25.00	613.75	5709.75	A	0.202	2.59	0.591	0.825	1	77.269	4825.31	193.01	A
			B	0.151	2.769	0.582	0.825	1	57.102			
			C	0.109	2.926	0.576	0.825	1	43.808			
T8 25.00-0.00	368.25	6745.83	A	0.17	2.699	0.585	0.825	1	73.153	4589.69	183.59	A
			B	0.143	2.797	0.58	0.825	1	61.886			
			C	0.121	2.879	0.578	0.825	1	54.471			
Sum Weight:	3440.77	32743.28						OTM	3188738.97 lb-ft	35474.00		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 180.00-175.00	35.40	579.99	A	0.276	2.363	0.609	0.8	1	10.714	951.60	190.32	A
			B	0.173	2.689	0.585	0.8	1	6.862			
			C	0.173	2.689	0.585	0.8	1	6.862			
T2 175.00-150.00	177.00	2435.03	A	0.231	2.496	0.597	0.8	1	48.623	4447.35	177.89	A
			B	0.135	2.829	0.579	0.8	1	28.851			
			C	0.135	2.829	0.579	0.8	1	28.851			
T3 150.00-125.00	528.72	3454.06	A	0.231	2.496	0.597	0.8	1	56.376	4916.67	196.67	A
			B	0.193	2.618	0.589	0.8	1	46.119			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	0.13	2.847	0.579	0.8	1	32.827			
T4 125.00-100.00	540.25	4090.15	A	0.214	2.548	0.593	0.8	1	59.540	5006.53	200.26	A
			B	0.176	2.678	0.586	0.8	1	48.072			
			C	0.12	2.884	0.577	0.8	1	34.839			
T5 100.00-75.00	583.40	4631.26	A	0.212	2.555	0.593	0.8	1	65.890	5170.34	206.81	A
			B	0.163	2.725	0.584	0.8	1	50.096			
			C	0.113	2.913	0.576	0.8	1	36.905			
T6 75.00-50.00	594.00	5097.21	A	0.211	2.561	0.593	0.8	1	72.683	5192.22	207.69	A
			B	0.161	2.731	0.583	0.8	1	54.709			
			C	0.116	2.9	0.577	0.8	1	41.348			
T7 50.00-25.00	613.75	5709.75	A	0.202	2.59	0.591	0.8	1	76.198	4758.40	190.34	A
			B	0.151	2.769	0.582	0.8	1	56.313			
			C	0.109	2.926	0.576	0.8	1	42.981			
T8 25.00-0.00	368.25	6745.83	A	0.17	2.699	0.585	0.8	1	71.894	4510.69	180.43	A
			B	0.143	2.797	0.58	0.8	1	60.776			
			C	0.121	2.879	0.578	0.8	1	53.322			
Sum Weight:	3440.77	32743.28						OTM	3142622.16 lb-ft	34953.80		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 180.00-175.00	35.40	579.99	A	0.276	2.363	0.609	0.85	1	11.055	981.89	196.38	A
			B	0.173	2.689	0.585	0.85	1	7.138			
			C	0.173	2.689	0.585	0.85	1	7.138			
T2 175.00-150.00	177.00	2435.03	A	0.231	2.496	0.597	0.85	1	50.050	4577.86	183.11	A
			B	0.135	2.829	0.579	0.85	1	29.899			
			C	0.135	2.829	0.579	0.85	1	29.899			
T3 150.00-125.00	528.72	3454.06	A	0.231	2.496	0.597	0.85	1	58.018	5059.91	202.40	A
			B	0.193	2.618	0.589	0.85	1	47.322			
			C	0.13	2.847	0.579	0.85	1	34.125			
T4 125.00-100.00	540.25	4090.15	A	0.214	2.548	0.593	0.85	1	61.308	5155.18	206.21	A
			B	0.176	2.678	0.586	0.85	1	49.406			
			C	0.12	2.884	0.577	0.85	1	36.264			
T5 100.00-75.00	583.40	4631.26	A	0.212	2.555	0.593	0.85	1	67.799	5320.13	212.81	A
			B	0.163	2.725	0.584	0.85	1	51.564			
			C	0.113	2.913	0.576	0.85	1	38.460			
T6 75.00-50.00	594.00	5097.21	A	0.211	2.561	0.593	0.85	1	74.729	5338.33	213.53	A
			B	0.161	2.731	0.583	0.85	1	56.181			
			C	0.116	2.9	0.577	0.85	1	42.898			
T7 50.00-25.00	613.75	5709.75	A	0.202	2.59	0.591	0.85	1	78.341	4892.22	195.69	A
			B	0.151	2.769	0.582	0.85	1	57.890			
			C	0.109	2.926	0.576	0.85	1	44.635			
T8 25.00-0.00	368.25	6745.83	A	0.17	2.699	0.585	0.85	1	74.412	4668.70	186.75	A
			B	0.143	2.797	0.58	0.85	1	62.996			
			C	0.121	2.879	0.578	0.85	1	55.620			
Sum Weight:	3440.77	32743.28						OTM	3234855.79 lb-ft	35994.21		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 180.00-175.00	99.31	849.97	A	0.366	2.135	0.638	1	1	16.202	1300.29	260.06	A
			B	0.21	2.561	0.593	1	1	9.853			
			C	0.21	2.561	0.593	1	1	9.853			
T2 175.00-150.00	496.55	3529.78	A	0.312	2.265	0.62	1	1	73.845	6131.19	245.25	A
			B	0.164	2.721	0.584	1	1	40.786			
			C	0.164	2.721	0.584	1	1	40.786			
T3 150.00-125.00	1368.79	4889.71	A	0.321	2.241	0.623	1	1	87.723	6868.62	274.74	A
			B	0.237	2.478	0.599	1	1	73.268			
			C	0.157	2.748	0.582	1	1	46.295			
T4 125.00-100.00	1408.68	5639.06	A	0.303	2.289	0.617	1	1	93.729	7079.15	283.17	A
			B	0.216	2.544	0.594	1	1	76.355			
			C	0.145	2.79	0.581	1	1	49.364			
T5 100.00-75.00	1532.42	6358.08	A	0.305	2.282	0.617	1	1	105.034	7362.19	294.49	A
			B	0.2	2.597	0.59	1	1	79.522			
			C	0.136	2.823	0.579	1	1	52.516			
T6 75.00-50.00	1570.32	6785.92	A	0.294	2.311	0.614	1	1	112.544	7256.28	290.25	A
			B	0.192	2.623	0.589	1	1	83.039			
			C	0.135	2.829	0.579	1	1	55.637			
T7 50.00-25.00	1631.15	7511.89	A	0.286	2.335	0.612	1	1	119.067	6702.66	268.11	A
			B	0.179	2.666	0.586	1	1	85.452			
			C	0.127	2.858	0.578	1	1	58.037			
T8 25.00-0.00	978.69	9146.57	A	0.225	2.514	0.596	1	1	106.860	6244.04	249.76	A
			B	0.17	2.698	0.585	1	1	89.758			
			C	0.143	2.797	0.58	1	1	74.379			
Sum Weight:	9085.93	44710.98						OTM	4395068.60 lb-ft	48944.42		

Tower Forces - With Ice - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 180.00-175.00	99.31	849.97	A	0.366	2.135	0.638	0.825	1	14.750	1183.81	236.76	A
			B	0.21	2.561	0.593	0.825	1	8.647			
			C	0.21	2.561	0.593	0.825	1	8.647			
T2 175.00-150.00	496.55	3529.78	A	0.312	2.265	0.62	0.825	1	67.638	5615.84	224.63	A
			B	0.164	2.721	0.584	0.825	1	36.205			
			C	0.164	2.721	0.584	0.825	1	36.205			
T3 150.00-125.00	1368.79	4889.71	A	0.321	2.241	0.623	0.825	1	80.681	6317.18	252.69	A
			B	0.237	2.478	0.599	0.825	1	63.718			
			C	0.157	2.748	0.582	0.825	1	40.744			
T4 125.00-100.00	1408.68	5639.06	A	0.303	2.289	0.617	0.825	1	86.087	6501.97	260.08	A
			B	0.216	2.544	0.594	0.825	1	66.239			
			C	0.145	2.79	0.581	0.825	1	43.269			
T5 100.00-75.00	1532.42	6358.08	A	0.305	2.282	0.617	0.825	1	96.850	6788.51	271.54	A
			B	0.2	2.597	0.59	0.825	1	68.832			
			C	0.136	2.823	0.579	0.825	1	45.863			
T6 75.00-50.00	1570.32	6785.92	A	0.294	2.311	0.614	0.825	1	103.831	6694.52	267.78	A
			B	0.192	2.623	0.589	0.825	1	72.531			
			C	0.135	2.829	0.579	0.825	1	49.230			
T7 50.00-25.00	1631.15	7511.89	A	0.286	2.335	0.612	0.825	1	109.989	6191.64	247.67	A
			B	0.179	2.666	0.586	0.825	1	74.506			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	0.127	2.858	0.578	0.825	1	51.204			
T8 25.00-0.00	978.69	9146.57	A	0.225	2.514	0.596	0.825	1	96.404	5633.04	225.32	A
			B	0.17	2.698	0.585	0.825	1	77.793			
			C	0.143	2.797	0.58	0.825	1	64.699			
Sum Weight:	9085.93	44710.98						OTM	4037784.7 1 lb-ft	44926.51		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 180.00-175.00	99.31	849.97	A	0.366	2.135	0.638	0.8	1	14.543	1167.17	233.43	A
			B	0.21	2.561	0.593	0.8	1	8.475			
			C	0.21	2.561	0.593	0.8	1	8.475			
T2 175.00-150.00	496.55	3529.78	A	0.312	2.265	0.62	0.8	1	66.752	5542.22	221.69	A
			B	0.164	2.721	0.584	0.8	1	35.550			
			C	0.164	2.721	0.584	0.8	1	35.550			
T3 150.00-125.00	1368.79	4889.71	A	0.321	2.241	0.623	0.8	1	79.675	6238.40	249.54	A
			B	0.237	2.478	0.599	0.8	1	62.354			
			C	0.157	2.748	0.582	0.8	1	39.951			
T4 125.00-100.00	1408.68	5639.06	A	0.303	2.289	0.617	0.8	1	84.995	6419.51	256.78	A
			B	0.216	2.544	0.594	0.8	1	64.793			
			C	0.145	2.79	0.581	0.8	1	42.398			
T5 100.00-75.00	1532.42	6358.08	A	0.305	2.282	0.617	0.8	1	95.681	6706.56	268.26	A
			B	0.2	2.597	0.59	0.8	1	67.305			
			C	0.136	2.823	0.579	0.8	1	44.913			
T6 75.00-50.00	1570.32	6785.92	A	0.294	2.311	0.614	0.8	1	102.587	6614.26	264.57	A
			B	0.192	2.623	0.589	0.8	1	71.030			
			C	0.135	2.829	0.579	0.8	1	48.315			
T7 50.00-25.00	1631.15	7511.89	A	0.286	2.335	0.612	0.8	1	108.692	6118.64	244.75	A
			B	0.179	2.666	0.586	0.8	1	72.942			
			C	0.127	2.858	0.578	0.8	1	50.228			
T8 25.00-0.00	978.69	9146.57	A	0.225	2.514	0.596	0.8	1	94.910	5545.76	221.83	A
			B	0.17	2.698	0.585	0.8	1	76.084			
			C	0.143	2.797	0.58	0.8	1	63.316			
Sum Weight:	9085.93	44710.98						OTM	3986744.1 6 lb-ft	44352.52		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 180.00-175.00	99.31	849.97	A	0.366	2.135	0.638	0.85	1	14.958	1200.45	240.09	A
			B	0.21	2.561	0.593	0.85	1	8.820			
			C	0.21	2.561	0.593	0.85	1	8.820			
T2 175.00-150.00	496.55	3529.78	A	0.312	2.265	0.62	0.85	1	68.525	5689.46	227.58	A
			B	0.164	2.721	0.584	0.85	1	36.859			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	0.164	2.721	0.584	0.85	1	36.859			
T3 150.00-125.00	1368.79	4889.71	A	0.321	2.241	0.623	0.85	1	81.687	6395.95	255.84	A
			B	0.237	2.478	0.599	0.85	1	65.083			
			C	0.157	2.748	0.582	0.85	1	41.537			
T4 125.00-100.00	1408.68	5639.06	A	0.303	2.289	0.617	0.85	1	87.178	6584.42	263.38	A
			B	0.216	2.544	0.594	0.85	1	67.684			
			C	0.145	2.79	0.581	0.85	1	44.140			
T5 100.00-75.00	1532.42	6358.08	A	0.305	2.282	0.617	0.85	1	98.019	6870.47	274.82	A
			B	0.2	2.597	0.59	0.85	1	70.360			
			C	0.136	2.823	0.579	0.85	1	46.814			
T6 75.00-50.00	1570.32	6785.92	A	0.294	2.311	0.614	0.85	1	105.076	6774.77	270.99	A
			B	0.192	2.623	0.589	0.85	1	74.032			
			C	0.135	2.829	0.579	0.85	1	50.146			
T7 50.00-25.00	1631.15	7511.89	A	0.286	2.335	0.612	0.85	1	111.286	6264.65	250.59	A
			B	0.179	2.666	0.586	0.85	1	76.070			
			C	0.127	2.858	0.578	0.85	1	52.180			
T8 25.00-0.00	978.69	9146.57	A	0.225	2.514	0.596	0.85	1	97.898	5720.33	228.81	A
			B	0.17	2.698	0.585	0.85	1	79.502			
			C	0.143	2.797	0.58	0.85	1	66.082			
Sum Weight:	9085.93	44710.98						OTM	4088825.27 lb-ft	45500.50		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 180.00-175.00	35.40	579.99	A	0.276	2.363	0.609	1	1	12.078	1072.75	214.55	A
			B	0.173	2.689	0.585	1	1	7.967			
			C	0.173	2.689	0.585	1	1	7.967			
T2 175.00-150.00	177.00	2435.03	A	0.231	2.496	0.597	1	1	54.331	4969.38	198.78	A
			B	0.135	2.829	0.579	1	1	33.044			
			C	0.135	2.829	0.579	1	1	33.044			
T3 150.00-125.00	528.72	3454.06	A	0.231	2.496	0.597	1	1	62.945	5489.62	219.58	A
			B	0.193	2.618	0.589	1	1	50.932			
			C	0.13	2.847	0.579	1	1	38.017			
T4 125.00-100.00	540.25	4090.15	A	0.214	2.548	0.593	1	1	66.611	5601.11	224.04	A
			B	0.176	2.678	0.586	1	1	53.410			
			C	0.12	2.884	0.577	1	1	40.539			
T5 100.00-75.00	583.40	4631.26	A	0.212	2.555	0.593	1	1	73.526	5769.52	230.78	A
			B	0.163	2.725	0.584	1	1	55.967			
			C	0.113	2.913	0.576	1	1	43.125			
T6 75.00-50.00	594.00	5097.21	A	0.211	2.561	0.593	1	1	80.865	5776.66	231.07	A
			B	0.161	2.731	0.583	1	1	60.596			
			C	0.116	2.9	0.577	1	1	47.549			
T7 50.00-25.00	613.75	5709.75	A	0.202	2.59	0.591	1	1	84.769	5293.67	211.75	A
			B	0.151	2.769	0.582	1	1	62.623			
			C	0.109	2.926	0.576	1	1	49.596			
T8 25.00-0.00	368.25	6745.83	A	0.17	2.699	0.585	1	1	81.968	5142.73	205.71	A
			B	0.143	2.797	0.58	1	1	69.654			
			C	0.121	2.879	0.578	1	1	62.512			
Sum Weight:	3440.77	32743.28						OTM	3511556.67 lb-ft	39115.45		

Tower Forces - Service - Wind 45 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 180.00-175.00	35.40	579.99	A	0.276	2.363	0.609	0.825	1	10.885	966.74	193.35	A
			B	0.173	2.689	0.585	0.825	1	7.000			
			C	0.173	2.689	0.585	0.825	1	7.000			
T2 175.00-150.00	177.00	2435.03	A	0.231	2.496	0.597	0.825	1	49.337	4512.61	180.50	A
			B	0.135	2.829	0.579	0.825	1	29.375			
			C	0.135	2.829	0.579	0.825	1	29.375			
T3 150.00-125.00	528.72	3454.06	A	0.231	2.496	0.597	0.825	1	57.197	4988.29	199.53	A
			B	0.193	2.618	0.589	0.825	1	46.720			
			C	0.13	2.847	0.579	0.825	1	33.476			
T4 125.00-100.00	540.25	4090.15	A	0.214	2.548	0.593	0.825	1	60.424	5080.86	203.23	A
			B	0.176	2.678	0.586	0.825	1	48.739			
			C	0.12	2.884	0.577	0.825	1	35.552			
T5 100.00-75.00	583.40	4631.26	A	0.212	2.555	0.593	0.825	1	66.845	5245.23	209.81	A
			B	0.163	2.725	0.584	0.825	1	50.830			
			C	0.113	2.913	0.576	0.825	1	37.682			
T6 75.00-50.00	594.00	5097.21	A	0.211	2.561	0.593	0.825	1	73.706	5265.28	210.61	A
			B	0.161	2.731	0.583	0.825	1	55.445			
			C	0.116	2.9	0.577	0.825	1	42.123			
T7 50.00-25.00	613.75	5709.75	A	0.202	2.59	0.591	0.825	1	77.269	4825.31	193.01	A
			B	0.151	2.769	0.582	0.825	1	57.102			
			C	0.109	2.926	0.576	0.825	1	43.808			
T8 25.00-0.00	368.25	6745.83	A	0.17	2.699	0.585	0.825	1	73.153	4589.69	183.59	A
			B	0.143	2.797	0.58	0.825	1	61.886			
			C	0.121	2.879	0.578	0.825	1	54.471			
Sum Weight:	3440.77	32743.28						OTM	3188738.97 lb-ft	35474.00		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 180.00-175.00	35.40	579.99	A	0.276	2.363	0.609	0.8	1	10.714	951.60	190.32	A
			B	0.173	2.689	0.585	0.8	1	6.862			
			C	0.173	2.689	0.585	0.8	1	6.862			
T2 175.00-150.00	177.00	2435.03	A	0.231	2.496	0.597	0.8	1	48.623	4447.35	177.89	A
			B	0.135	2.829	0.579	0.8	1	28.851			
			C	0.135	2.829	0.579	0.8	1	28.851			
T3 150.00-125.00	528.72	3454.06	A	0.231	2.496	0.597	0.8	1	56.376	4916.67	196.67	A
			B	0.193	2.618	0.589	0.8	1	46.119			
			C	0.13	2.847	0.579	0.8	1	32.827			
T4 125.00-100.00	540.25	4090.15	A	0.214	2.548	0.593	0.8	1	59.540	5006.53	200.26	A
			B	0.176	2.678	0.586	0.8	1	48.072			
			C	0.12	2.884	0.577	0.8	1	34.839			
T5 100.00-75.00	583.40	4631.26	A	0.212	2.555	0.593	0.8	1	65.890	5170.34	206.81	A
			B	0.163	2.725	0.584	0.8	1	50.096			
			C	0.113	2.913	0.576	0.8	1	36.905			
T6 75.00-50.00	594.00	5097.21	A	0.211	2.561	0.593	0.8	1	72.683	5192.22	207.69	A
			B	0.161	2.731	0.583	0.8	1	54.709			

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
			C	0.116	2.9	0.577	0.8	1	41.348			
T7 50.00-25.00	613.75	5709.75	A	0.202	2.59	0.591	0.8	1	76.198	4758.40	190.34	A
			B	0.151	2.769	0.582	0.8	1	56.313			
			C	0.109	2.926	0.576	0.8	1	42.981			
T8 25.00-0.00	368.25	6745.83	A	0.17	2.699	0.585	0.8	1	71.894	4510.69	180.43	A
			B	0.143	2.797	0.58	0.8	1	60.776			
			C	0.121	2.879	0.578	0.8	1	53.322			
Sum Weight:	3440.77	32743.28						OTM	3142622.16 lb-ft	34953.80		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	Face	e	C_F	R_R	D_F	D_R	A_E ft²	F lb	w plf	Ctrl. Face
T1 180.00-175.00	35.40	579.99	A	0.276	2.363	0.609	0.85	1	11.055	981.89	196.38	A
			B	0.173	2.689	0.585	0.85	1	7.138			
			C	0.173	2.689	0.585	0.85	1	7.138			
T2 175.00-150.00	177.00	2435.03	A	0.231	2.496	0.597	0.85	1	50.050	4577.86	183.11	A
			B	0.135	2.829	0.579	0.85	1	29.899			
			C	0.135	2.829	0.579	0.85	1	29.899			
T3 150.00-125.00	528.72	3454.06	A	0.231	2.496	0.597	0.85	1	58.018	5059.91	202.40	A
			B	0.193	2.618	0.589	0.85	1	47.322			
			C	0.13	2.847	0.579	0.85	1	34.125			
T4 125.00-100.00	540.25	4090.15	A	0.214	2.548	0.593	0.85	1	61.308	5155.18	206.21	A
			B	0.176	2.678	0.586	0.85	1	49.406			
			C	0.12	2.884	0.577	0.85	1	36.264			
T5 100.00-75.00	583.40	4631.26	A	0.212	2.555	0.593	0.85	1	67.799	5320.13	212.81	A
			B	0.163	2.725	0.584	0.85	1	51.564			
			C	0.113	2.913	0.576	0.85	1	38.460			
T6 75.00-50.00	594.00	5097.21	A	0.211	2.561	0.593	0.85	1	74.729	5338.33	213.53	A
			B	0.161	2.731	0.583	0.85	1	56.181			
			C	0.116	2.9	0.577	0.85	1	42.898			
T7 50.00-25.00	613.75	5709.75	A	0.202	2.59	0.591	0.85	1	78.341	4892.22	195.69	A
			B	0.151	2.769	0.582	0.85	1	57.890			
			C	0.109	2.926	0.576	0.85	1	44.635			
T8 25.00-0.00	368.25	6745.83	A	0.17	2.699	0.585	0.85	1	74.412	4668.70	186.75	A
			B	0.143	2.797	0.58	0.85	1	62.996			
			C	0.121	2.879	0.578	0.85	1	55.620			
Sum Weight:	3440.77	32743.28						OTM	3234855.79 lb-ft	35994.21		

Force Totals

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x lb-ft	Sum of Overturning Moments, M_z lb-ft	Sum of Torques lb-ft
Leg Weight	11604.26					
Bracing Weight	21139.02					

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x lb-ft	Sum of Overturning Moments, M_z lb-ft	Sum of Torques lb-ft
Total Member Self-Weight	32743.28			-8109.32	9446.34	
Total Weight	40230.79			-8109.32	9446.34	
Wind 0 deg - No Ice		217.11	-52805.98	-5652530.44	-26952.03	-25717.33
Wind 30 deg - No Ice		24530.69	-43134.73	-4675352.39	-2624502.34	-18469.08
Wind 45 deg - No Ice		33782.66	-34699.43	-3762814.06	-3599879.08	-15140.14
Wind 60 deg - No Ice		40237.69	-24187.08	-2624760.59	-4267321.53	-10508.17
Wind 90 deg - No Ice		47180.57	-513.09	-82856.47	-4978404.70	7612.92
Wind 120 deg - No Ice		43818.50	25364.73	2659366.94	-4591483.98	24137.41
Wind 135 deg - No Ice		33531.25	33665.40	3589341.51	-3568900.67	26183.98
Wind 150 deg - No Ice		24339.34	41785.95	4448388.33	-2600624.28	29479.97
Wind 180 deg - No Ice		-114.88	47152.61	5029885.95	25191.58	28385.68
Wind 210 deg - No Ice		-23754.84	41267.00	4367968.18	2527528.56	31988.55
Wind 225 deg - No Ice		-33025.01	32991.24	3484725.88	3507464.86	29530.53
Wind 240 deg - No Ice		-43609.52	24884.02	2585478.94	4574953.78	25131.55
Wind 270 deg - No Ice		-47445.01	-596.51	-94277.89	5033924.23	1388.17
Wind 300 deg - No Ice		-40969.87	-24165.31	-2617116.07	4391680.92	-16485.00
Wind 315 deg - No Ice		-34067.08	-34628.98	-3746629.84	3655479.55	-19777.26
Wind 330 deg - No Ice		-24439.83	-42940.61	-4641537.38	2622973.38	-21399.58
Member Ice	11967.69					
Total Weight Ice	60769.44			-17762.22	28319.61	
Wind 0 deg - Ice		236.44	-65354.46	-6950915.22	-11202.87	-62176.58
Wind 30 deg - Ice		30640.36	-53732.72	-5777152.32	-3234367.97	-43707.83
Wind 45 deg - Ice		42367.23	-43315.96	-4660945.11	-4463937.10	-32764.08
Wind 60 deg - Ice		50686.93	-30255.91	-3260630.60	-5322799.74	-19469.82
Wind 90 deg - Ice		59341.52	-535.78	-95945.40	-6208187.01	17542.99
Wind 120 deg - Ice		54628.58	31608.46	3289478.31	-5679427.03	51975.24
Wind 135 deg - Ice		42093.64	42242.39	4462050.15	-4429667.74	57558.21
Wind 150 deg - Ice		30423.02	52342.26	5524324.70	-3206532.03	64662.81
Wind 180 deg - Ice		-129.96	59238.76	6264428.86	46396.36	62737.08
Wind 210 deg - Ice		-29849.41	51826.20	5444405.36	3172920.52	57489.20
Wind 225 deg - Ice		-41595.36	41573.49	4358320.32	4407234.14	47438.16
Wind 240 deg - Ice		-54427.53	31141.67	3217855.32	5701843.12	34236.71
Wind 270 deg - Ice		-59609.49	-593.02	-103163.02	6301878.93	-8361.85
Wind 300 deg - Ice		-51417.06	-30208.20	-3248757.50	5484314.29	-41850.32
Wind 315 deg - Ice		-42635.00	-43222.45	-4640967.51	4554423.84	-51014.89
Wind 330 deg - Ice		-30521.21	-53519.30	-5740192.12	3265935.60	-56411.32
Total Weight	40230.79			-8109.32	9446.34	
Wind 0 deg - Service		217.11	-52805.98	-5641591.65	-37885.22	-25717.33
Wind 30 deg - Service		24530.69	-43134.73	-4664413.61	-2635435.53	-18469.08
Wind 45 deg - Service		33782.66	-34699.43	-3751875.27	-3610812.27	-15140.14
Wind 60 deg - Service		40237.69	-24187.08	-2613821.80	-4278254.72	-10508.17
Wind 90 deg - Service		47180.57	-513.09	-71917.68	-4989337.90	7612.92
Wind 120 deg - Service		43818.50	25364.73	2670305.73	-4602417.17	24137.41
Wind 135 deg - Service		33531.25	33665.40	3600280.30	-3579833.86	26183.98
Wind 150 deg - Service		24339.34	41785.95	4459327.12	-2611557.47	29479.97
Wind 180 deg - Service		-114.88	47152.61	5040824.74	14258.39	28385.68
Wind 210 deg - Service		-23754.84	41267.00	4378906.96	2516595.37	31988.55
Wind 225 deg - Service		-33025.01	32991.24	3495664.67	3496531.67	29530.53
Wind 240 deg - Service		-43609.52	24884.02	2596417.72	4564020.59	25131.55
Wind 270 deg - Service		-47445.01	-596.51	-83339.10	5022991.04	1388.17
Wind 300 deg - Service		-40969.87	-24165.31	-2606177.28	4380747.73	-16485.00
Wind 315 deg - Service		-34067.08	-34628.98	-3735691.05	3644546.36	-19777.26
Wind 330 deg - Service		-24439.83	-42940.61	-4630598.60	2612040.19	-21399.58

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
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
T1	180 - 175	Leg	Max Tension	4	172.71	-468.10	1.54
			Max. Compression	25	-1968.33	419.21	-131.08
			Max. Mx	21	116.23	-501.34	9.92

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. My	25	-477.29	-136.88	-706.40
			Max. Vy	19	1916.64	0.00	0.00
			Max. Vx	20	-2464.81	0.00	0.00
		Diagonal	Max Tension	34	3257.69	0.00	0.00
			Max. Compression	34	-3426.84	0.00	0.00
			Max. Mx	18	-63.75	43.42	0.00
			Max. My	18	-75.12	0.00	-1.36
			Max. Vy	18	-23.36	0.00	0.00
			Max. Vx	18	0.73	0.00	0.00
		Top Girt	Max Tension	34	2390.79	0.00	0.00
			Max. Compression	19	-2966.74	0.00	0.00
			Max. Mx	21	-2051.42	29.69	6.28
			Max. My	19	1798.56	24.58	6.39
			Max. Vy	21	-25.78	29.69	6.28
			Max. Vx	19	1.67	0.00	0.00
T2	175 - 150	Leg	Max Tension	27	14914.91	-119.38	-94.03
			Max. Compression	19	-21527.67	323.68	99.12
			Max. Mx	21	1772.81	841.15	70.37
			Max. My	20	-1291.49	-9.73	1153.64
			Max. Vy	21	421.12	-551.17	70.37
			Max. Vx	25	575.87	-152.41	-720.57
		Diagonal	Max Tension	34	6668.52	0.00	0.00
			Max. Compression	34	-6858.29	0.00	0.00
			Max. Mx	18	-44.77	72.97	0.00
			Max. My	18	-61.00	0.00	-2.74
			Max. Vy	18	-27.61	0.00	0.00
			Max. Vx	18	-1.04	0.00	0.00
		Horizontal	Max Tension	34	4181.42	0.00	0.00
			Max. Compression	19	-4107.19	0.00	0.00
			Max. Mx	27	-475.10	56.28	9.76
			Max. My	32	-682.69	56.07	9.77
			Max. Vy	27	32.60	56.28	9.76
			Max. Vx	19	-2.13	0.00	0.00
T3	150 - 125	Leg	Max Tension	32	45846.75	-187.77	9.26
			Max. Compression	19	-61494.21	197.00	76.10
			Max. Mx	27	21470.08	-401.86	-117.18
			Max. My	31	-4444.07	-15.71	-538.74
			Max. Vy	22	-1618.72	-312.18	52.45
			Max. Vx	26	-1651.96	-10.99	-365.94
		Diagonal	Max Tension	20	11030.37	0.00	0.00
			Max. Compression	20	-11365.44	0.00	0.00
			Max. Mx	18	-123.04	131.56	0.00
			Max. My	18	-106.05	0.00	-4.54
			Max. Vy	18	-46.93	0.00	0.00
			Max. Vx	18	1.62	0.00	0.00
		Horizontal	Max Tension	20	7536.27	55.18	-0.98
			Max. Compression	20	-7368.50	55.19	-0.98
			Max. Mx	32	-119.21	85.97	16.88
			Max. My	19	1087.74	22.45	-21.71
			Max. Vy	32	39.28	85.97	16.88
			Max. Vx	19	3.91	22.44	-21.71
		Inner Bracing	Max Tension	20	125.77	0.00	0.00
			Max. Compression	20	-132.36	0.00	0.00
			Max. Mx	18	-3.29	-34.64	0.00
			Max. Vy	18	19.33	0.00	0.00
T4	125 - 100	Leg	Max Tension	32	84586.76	-284.49	38.62
			Max. Compression	19	-108227.77	337.55	100.42
			Max. Mx	19	-108227.77	337.55	100.42
			Max. My	34	-6212.07	-7.33	430.26
			Max. Vy	24	102.24	289.22	-44.58
			Max. Vx	34	148.80	-6.63	348.52

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
		Diagonal	Max Tension	20	12401.21	0.00	0.00
			Max. Compression	20	-12789.76	0.00	0.00
			Max. Mx	18	-145.19	158.31	0.00
			Max. My	18	-126.35	0.00	-5.12
			Max. Vy	18	-53.19	0.00	0.00
			Max. Vx	18	1.72	0.00	0.00
		Horizontal	Max Tension	20	9063.15	68.12	-1.33
			Max. Compression	20	-8843.54	68.13	-1.33
			Max. Mx	32	29.97	97.49	16.87
			Max. My	19	137.13	34.66	-21.30
			Max. Vy	32	-43.03	97.49	16.87
			Max. Vx	19	-3.43	29.54	-20.78
		Inner Bracing	Max Tension	20	151.48	0.00	0.00
			Max. Compression	20	-158.70	0.00	0.00
			Max. Mx	18	-3.59	-44.98	0.00
			Max. Vy	18	22.03	0.00	0.00
T5	100 - 75	Leg	Max Tension	32	124688.30	-472.82	26.53
			Max. Compression	19	-157039.56	673.82	11.55
			Max. Mx	19	-157039.56	673.82	11.55
			Max. My	34	-8786.66	-20.57	728.96
			Max. Vy	19	433.19	510.22	-66.59
			Max. Vx	20	-768.06	-28.41	-589.16
		Diagonal	Max Tension	20	14002.27	0.00	0.00
			Max. Compression	20	-14472.67	0.00	0.00
			Max. Mx	18	-183.66	187.83	0.00
			Max. My	18	-165.77	0.00	-5.77
			Max. Vy	18	-59.45	0.00	0.00
			Max. Vx	18	1.83	0.00	0.00
		Horizontal	Max Tension	20	10788.39	97.69	-1.81
			Max. Compression	20	-10528.43	97.70	-1.81
			Max. Mx	32	198.75	130.79	35.67
			Max. My	19	255.72	60.36	-43.28
			Max. Vy	32	54.84	130.79	35.67
			Max. Vx	19	5.66	60.36	-43.28
		Inner Bracing	Max Tension	20	180.73	0.00	0.00
			Max. Compression	20	-188.96	0.00	0.00
			Max. Mx	18	-4.09	-56.67	0.00
			Max. Vy	18	24.73	0.00	0.00
T6	75 - 50	Leg	Max Tension	32	159662.86	-843.96	107.07
			Max. Compression	19	-200769.49	627.48	224.04
			Max. Mx	19	-174656.00	889.67	253.64
			Max. My	34	-11199.46	-41.50	1016.46
			Max. Vy	22	150.33	-852.74	127.67
			Max. Vx	19	-246.78	-480.36	986.55
		Diagonal	Max Tension	20	18500.98	0.00	0.00
			Max. Compression	20	-19055.16	0.00	0.00
			Max. Mx	18	-215.05	317.15	0.00
			Max. My	18	-156.67	0.00	-11.39
			Max. Vy	18	77.70	0.00	0.00
			Max. Vx	18	2.79	0.00	0.00
		Horizontal	Max Tension	20	12140.64	138.32	-2.77
			Max. Compression	20	-11884.89	138.33	-2.77
			Max. Mx	32	306.96	222.77	33.28
			Max. My	19	-31.68	43.30	-42.45
			Max. Vy	32	72.73	222.77	33.28
			Max. Vx	19	-5.49	34.47	-41.60
		Inner Bracing	Max Tension	20	202.46	0.00	0.00
			Max. Compression	20	-213.72	0.00	0.00
			Max. Mx	18	-5.60	-67.44	0.00
			Max. Vy	18	26.98	0.00	0.00
T7	50 - 25	Leg	Max Tension	32	202622.09	-1319.12	114.82

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force lb	Major Axis Moment lb-ft	Minor Axis Moment lb-ft
			Max. Compression	19	-253681.95	-1449.81	239.19
			Max. Mx	19	-253089.11	1486.08	213.41
			Max. My	34	-14219.74	-191.42	1946.30
			Max. Vy	19	334.49	1486.08	213.41
			Max. Vx	26	-294.68	-39.15	-994.87
		Diagonal	Max Tension	20	19677.24	0.00	0.00
			Max. Compression	20	-20324.13	0.00	0.00
			Max. Mx	18	-270.11	361.40	0.00
			Max. My	18	-192.49	0.00	-12.33
			Max. Vy	18	-85.10	0.00	0.00
			Max. Vx	18	2.90	0.00	0.00
		Horizontal	Max Tension	20	13650.35	163.45	-3.36
			Max. Compression	20	-13296.94	163.47	-3.36
			Max. Mx	32	752.61	240.03	32.23
			Max. My	19	1933.56	65.16	-43.15
			Max. Vy	32	77.32	240.03	32.23
			Max. Vx	19	5.33	65.16	-43.15
		Inner Bracing	Max Tension	20	227.08	0.00	0.00
			Max. Compression	20	-239.72	0.00	0.00
			Max. Mx	18	-6.25	-115.18	0.00
			Max. Vy	18	41.88	0.00	0.00
T8	25 - 0	Leg	Max Tension	32	243729.50	4836.25	172.90
			Max. Compression	19	-305672.70	0.00	0.00
			Max. Mx	19	-278468.36	6086.21	-263.14
			Max. My	34	-15987.98	359.00	3572.65
			Max. Vy	19	1760.42	6086.21	-263.14
			Max. Vx	34	-949.62	359.00	3572.65
		Diagonal	Max Tension	20	20653.87	-162.96	19.16
			Max. Compression	20	-21461.68	0.00	0.00
			Max. Mx	20	8986.76	-214.17	-19.16
			Max. My	32	-2906.54	-7.57	-19.16
			Max. Vy	20	71.08	-214.17	-19.16
			Max. Vx	19	3.70	0.00	0.00
		Horizontal	Max Tension	20	14562.84	143.19	-2.98
			Max. Compression	20	-14274.16	143.21	-2.98
			Max. Mx	32	-1517.16	253.42	31.85
			Max. My	19	1928.39	92.55	-43.23
			Max. Vy	32	-80.06	253.42	31.85
			Max. Vx	19	5.10	92.49	-43.23
		Redund Horz 1 Bracing	Max Tension	19	4590.70	0.00	0.00
			Max. Compression	19	-4715.32	0.00	0.00
			Max. Mx	18	304.73	-34.26	0.00
			Max. My	18	303.20	0.00	0.79
			Max. Vy	18	22.84	0.00	0.00
			Max. Vx	18	-0.53	0.00	0.00
		Redund Diag 1 Bracing	Max Tension	19	3414.00	0.00	0.00
			Max. Compression	19	-3323.93	0.00	0.00
			Max. Mx	18	300.97	-46.48	0.00
			Max. My	18	299.89	0.00	-1.59
			Max. Vy	18	21.89	0.00	0.00
			Max. Vx	18	0.75	0.00	0.00
		Inner Bracing	Max Tension	20	242.42	0.00	0.00
			Max. Compression	20	-257.24	0.00	0.00
			Max. Mx	18	-7.38	-137.07	0.00
			Max. Vy	18	-45.69	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Leg C	Max. Vert	30	313799.63	30711.55	-18637.87
	Max. H_x	30	313799.63	30711.55	-18637.87
	Max. H_z	20	-235418.08	-22173.24	18008.31
	Min. Vert	22	-259944.73	-26842.53	16072.13
	Min. H_x	22	-259944.73	-26842.53	16072.13
	Min. H_z	28	265786.57	23542.68	-19096.13
Leg B	Max. Vert	24	314559.83	-31887.78	-17029.76
	Max. H_x	32	-266128.60	27886.76	15024.30
	Max. H_z	33	-261257.59	26582.54	16077.97
	Min. Vert	32	-266128.60	27886.76	15024.30
	Min. H_x	24	314559.83	-31887.78	-17029.76
	Min. H_z	24	314559.83	-31887.78	-17029.76
Leg A	Max. Vert	19	332462.31	-1465.28	37473.65
	Max. H_x	30	-123949.29	7050.34	-15813.04
	Max. H_z	19	332462.31	-1465.28	37473.65
	Min. Vert	27	-261073.36	1442.19	-31403.95
	Min. H_x	23	24687.24	-6408.63	1661.37
	Min. H_z	27	-261073.36	1442.19	-31403.95

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	40230.79	-0.00	-0.00	-8101.05	9431.46	-0.00
Dead+Wind 0 deg - No Ice	40230.79	217.11	-52805.98	-5507424.48	-26966.86	-25599.43
Dead+Wind 30 deg - No Ice	40230.79	24530.69	-43134.73	-4559727.91	-2557764.86	-18339.81
Dead+Wind 45 deg - No Ice	40230.79	33782.66	-34699.43	-3669771.37	-3506856.51	-15028.08
Dead+Wind 60 deg - No Ice	40230.79	40237.69	-24187.08	-2559933.11	-4155060.22	-10421.47
Dead+Wind 90 deg - No Ice	40230.79	47180.57	-513.09	-82850.49	-4844906.86	7659.41
Dead+Wind 120 deg - No Ice	40230.79	43818.50	25364.73	2586821.69	-4465831.83	24136.67
Dead+Wind 135 deg - No Ice	40230.79	33531.25	33665.40	3496311.61	-3475876.41	26157.62
Dead+Wind 150 deg - No Ice	40230.79	24339.34	41785.95	4332776.11	-2533885.73	29429.67
Dead+Wind 180 deg - No Ice	40230.79	-114.88	47152.61	4900253.33	25177.35	28290.56
Dead+Wind 210 deg - No Ice	40230.79	-23754.85	41267.00	4252354.02	2460758.24	31904.64
Dead+Wind 225 deg - No Ice	40230.79	-33025.01	32991.24	3391693.46	3414409.25	29464.72
Dead+Wind 240 deg - No Ice	40230.79	-43609.52	24884.02	2512931.59	4449271.62	25082.22
Dead+Wind 270 deg - No Ice	40230.79	-47445.01	-596.51	-94272.90	4900398.45	1370.03
Dead+Wind 300 deg - No Ice	40230.79	-40969.87	-24165.32	-2552289.78	4279394.24	-16470.46
Dead+Wind 315 deg - No Ice	40230.79	-34067.08	-34628.98	-3653588.32	3562430.05	-19734.03
Dead+Wind 330 deg - No Ice	40230.79	-24439.83	-42940.61	-4525913.25	2556207.54	-21327.63
Dead+Ice+Temp	60769.44	-0.00	-0.00	-17743.19	28285.63	0.00
Dead+Wind 0 deg+Ice+Temp	60769.44	236.44	-65354.46	-6759454.43	-11236.79	-62056.32
Dead+Wind 30 deg+Ice+Temp	60769.44	30640.36	-53732.72	-5623010.22	-3145417.62	-43575.98
Dead+Wind 45 deg+Ice+Temp	60769.44	42367.23	-43315.96	-4536672.50	-4339714.43	-32649.74
Dead+Wind 60 deg+Ice+Temp	60769.44	50686.93	-30255.91	-3173873.77	-5172593.31	-19381.32
Dead+Wind 90 deg+Ice+Temp	60769.44	59341.52	-535.78	-95928.69	-6030244.20	17590.42
Dead+Wind 120 deg+Ice+Temp	60769.44	54628.58	31608.46	3193771.71	-5513658.69	51974.43
Dead+Wind 135 deg+Ice+Temp	60769.44	42093.64	42242.39	4337811.80	-4305443.35	57531.23
Dead+Wind 150 deg+Ice+Temp	60769.44	30423.02	52342.26	5370216.33	-3117580.60	64611.40
Dead+Wind 180 deg+Ice+Temp	60769.44	-129.96	59238.76	6090969.79	46363.03	62639.96
Dead+Wind 210 deg+Ice+Temp	60769.44	-29849.41	51826.20	5290295.01	3083899.09	57403.43
Dead+Wind 225 deg+Ice+Temp	60769.44	-41595.36	41573.49	4234079.41	4282940.19	47370.81
Dead+Wind 240 deg+Ice+Temp	60769.44	-54427.53	31141.67	3122146.60	5536006.58	34186.18

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Dead+Wind 270 deg+Ice+Temp	60769.44	-59609.49	-593.02	-103147.33	6123870.04	-8380.49
Dead+Wind 300 deg+Ice+Temp	60769.44	-51417.06	-30208.20	-3162001.88	5334044.38	-41835.49
Dead+Wind 315 deg+Ice+Temp	60769.44	-42635.00	-43222.45	-4516696.11	4430136.10	-50970.77
Dead+Wind 330 deg+Ice+Temp	60769.44	-30521.21	-53519.30	-5586050.38	3176918.73	-56337.90
Dead+Wind 0 deg - Service	40230.79	217.11	-52805.98	-5507424.48	-26966.86	-25599.43
Dead+Wind 30 deg - Service	40230.79	24530.69	-43134.73	-4559727.91	-2557764.86	-18339.81
Dead+Wind 45 deg - Service	40230.79	33782.66	-34699.43	-3669771.37	-3506856.51	-15028.08
Dead+Wind 60 deg - Service	40230.79	40237.69	-24187.08	-2559933.11	-4155060.22	-10421.47
Dead+Wind 90 deg - Service	40230.79	47180.57	-513.09	-82850.49	-4844906.86	7659.41
Dead+Wind 120 deg - Service	40230.79	43818.50	25364.73	2586821.69	-4465831.83	24136.67
Dead+Wind 135 deg - Service	40230.79	33531.25	33665.40	3496311.61	-3475876.41	26157.62
Dead+Wind 150 deg - Service	40230.79	24339.34	41785.95	4332776.11	-2533885.73	29429.67
Dead+Wind 180 deg - Service	40230.79	-114.88	47152.61	4900253.33	25177.35	28290.56
Dead+Wind 210 deg - Service	40230.79	-23754.85	41267.00	4252354.02	2460758.24	31904.64
Dead+Wind 225 deg - Service	40230.79	-33025.01	32991.24	3391693.46	3414409.25	29464.72
Dead+Wind 240 deg - Service	40230.79	-43609.52	24884.02	2512931.59	4449271.62	25082.22
Dead+Wind 270 deg - Service	40230.79	-47445.01	-596.51	-94272.90	4900398.45	1370.03
Dead+Wind 300 deg - Service	40230.79	-40969.87	-24165.32	-2552289.78	4279394.24	-16470.46
Dead+Wind 315 deg - Service	40230.79	-34067.08	-34628.98	-3653588.32	3562430.05	-19734.03
Dead+Wind 330 deg - Service	40230.79	-24439.83	-42940.61	-4525913.25	2556207.54	-21327.63

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	lb	lb	lb	lb	lb	lb	
1	0.00	-40230.79	0.00	0.00	40230.79	0.00	0.000%
2	217.11	-40230.79	-52805.98	-217.11	40230.79	52805.98	0.000%
3	24530.69	-40230.79	-43134.73	-24530.69	40230.79	43134.73	0.000%
4	33782.65	-40230.79	-34699.43	-33782.66	40230.79	34699.43	0.000%
5	40237.69	-40230.79	-24187.08	-40237.69	40230.79	24187.08	0.000%
6	47180.57	-40230.79	-513.09	-47180.57	40230.79	513.09	0.000%
7	43818.50	-40230.79	25364.73	-43818.50	40230.79	-25364.73	0.000%
8	33531.25	-40230.79	33665.40	-33531.25	40230.79	-33665.40	0.000%
9	24339.34	-40230.79	41785.95	-24339.34	40230.79	-41785.95	0.000%
10	-114.88	-40230.79	47152.61	114.88	40230.79	-47152.61	0.000%
11	-23754.84	-40230.79	41267.00	23754.85	40230.79	-41267.00	0.000%
12	-33025.01	-40230.79	32991.24	33025.01	40230.79	-32991.24	0.000%
13	-43609.52	-40230.79	24884.02	43609.52	40230.79	-24884.02	0.000%
14	-47445.01	-40230.79	-596.51	47445.01	40230.79	596.51	0.000%
15	-40969.87	-40230.79	-24165.31	40969.87	40230.79	24165.32	0.000%
16	-34067.08	-40230.79	-34628.98	34067.08	40230.79	34628.98	0.000%
17	-24439.83	-40230.79	-42940.61	24439.83	40230.79	42940.61	0.000%
18	0.00	-60769.44	0.00	0.00	60769.44	0.00	0.000%
19	236.44	-60769.44	-65354.46	-236.44	60769.44	65354.46	0.000%
20	30640.36	-60769.44	-53732.72	-30640.36	60769.44	53732.72	0.000%
21	42367.23	-60769.44	-43315.96	-42367.23	60769.44	43315.96	0.000%
22	50686.93	-60769.44	-30255.91	-50686.93	60769.44	30255.91	0.000%
23	59341.52	-60769.44	-535.78	-59341.52	60769.44	535.78	0.000%
24	54628.58	-60769.44	31608.46	-54628.58	60769.44	-31608.46	0.000%
25	42093.64	-60769.44	42242.39	-42093.64	60769.44	-42242.39	0.000%
26	30423.02	-60769.44	52342.26	-30423.02	60769.44	-52342.26	0.000%
27	-129.96	-60769.44	59238.76	129.96	60769.44	-59238.76	0.000%
28	-29849.41	-60769.44	51826.20	29849.41	60769.44	-51826.20	0.000%
29	-41595.36	-60769.44	41573.49	41595.36	60769.44	-41573.49	0.000%
30	-54427.53	-60769.44	31141.67	54427.53	60769.44	-31141.67	0.000%
31	-59609.49	-60769.44	-593.02	59609.49	60769.44	593.02	0.000%
32	-51417.06	-60769.44	-30208.20	51417.06	60769.44	30208.20	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
33	-42635.00	-60769.44	-43222.45	42635.00	60769.44	43222.45	0.000%
34	-30521.21	-60769.44	-53519.30	30521.21	60769.44	53519.30	0.000%
35	217.11	-40230.79	-52805.98	-217.11	40230.79	52805.98	0.000%
36	24530.69	-40230.79	-43134.73	-24530.69	40230.79	43134.73	0.000%
37	33782.65	-40230.79	-34699.43	-33782.66	40230.79	34699.43	0.000%
38	40237.69	-40230.79	-24187.08	-40237.69	40230.79	24187.08	0.000%
39	47180.57	-40230.79	-513.09	-47180.57	40230.79	513.09	0.000%
40	43818.50	-40230.79	25364.73	-43818.50	40230.79	-25364.73	0.000%
41	33531.25	-40230.79	33665.40	-33531.25	40230.79	-33665.40	0.000%
42	24339.34	-40230.79	41785.95	-24339.34	40230.79	-41785.95	0.000%
43	-114.88	-40230.79	47152.61	114.88	40230.79	-47152.61	0.000%
44	-23754.84	-40230.79	41267.00	23754.85	40230.79	-41267.00	0.000%
45	-33025.01	-40230.79	32991.24	33025.01	40230.79	-32991.24	0.000%
46	-43609.52	-40230.79	24884.02	43609.52	40230.79	-24884.02	0.000%
47	-47445.01	-40230.79	-596.51	47445.01	40230.79	596.51	0.000%
48	-40969.87	-40230.79	-24165.31	40969.87	40230.79	24165.32	0.000%
49	-34067.08	-40230.79	-34628.98	34067.08	40230.79	34628.98	0.000%
50	-24439.83	-40230.79	-42940.61	24439.83	40230.79	42940.61	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 175	10.907	35	0.4774	0.0491
T2	175 - 150	10.398	35	0.4775	0.0490
T3	150 - 125	7.859	35	0.4598	0.0368
T4	125 - 100	5.545	35	0.3975	0.0329
T5	100 - 75	3.587	35	0.3235	0.0268
T6	75 - 50	2.055	35	0.2354	0.0196
T7	50 - 25	0.974	35	0.1601	0.0143
T8	25 - 0	0.279	35	0.0843	0.0074

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
191.75	OGT9-840	35	10.907	0.4774	0.0491	113968
188.50	OGT9-840	35	10.907	0.4774	0.0491	113968
181.00	10 FT DISH	35	10.907	0.4774	0.0491	113968
180.00	6 FT DISH	35	10.907	0.4774	0.0491	113968
175.33	4' Standoff x 10'	35	10.432	0.4775	0.0490	113968
174.50	OGT9-840	35	10.347	0.4774	0.0490	112693
172.50	6'x4" Pipe Mount	35	10.142	0.4773	0.0488	130892
170.50	6 FT DISH	35	9.937	0.4770	0.0483	209422
170.00	OGT9-840	35	9.886	0.4768	0.0481	252722
169.00	20' x 2" Dia Omni	35	9.783	0.4766	0.0478	432183
164.50	OGT9-840	35	9.322	0.4749	0.0457	124988
164.00	20' x 2" Dia Omni	35	9.271	0.4746	0.0454	111573
163.50	OGT9-840	35	9.220	0.4744	0.0452	100759
163.00	PD220	35	9.168	0.4741	0.0449	91856

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
160.00	Dipole	35	8.863	0.4720	0.0431	60030
159.00	20' x 2" Dia Omni	35	8.761	0.4711	0.0424	53814
157.75	PD220	35	8.634	0.4700	0.0416	47648
154.38	Dipole	35	8.294	0.4662	0.0394	36392
154.00	20' x 2" Dia Omni	35	8.257	0.4658	0.0392	35470
152.50	PD220	35	8.107	0.4637	0.0383	32321
150.00	(4) 7770.00	35	7.859	0.4598	0.0368	28813
149.00	20' x 2" Dia Omni	35	7.761	0.4581	0.0363	27947
148.75	Dipole	35	7.736	0.4577	0.0362	27768
148.33	4' Standoff	35	7.695	0.4569	0.0359	27494
147.50	DB212	35	7.614	0.4553	0.0355	27038
147.25	PD220	35	7.590	0.4548	0.0354	26919
147.17	DB212	35	7.582	0.4547	0.0354	26882
144.00	6' Standoff	35	7.276	0.4481	0.0354	25731
143.13	Dipole	35	7.192	0.4461	0.0354	25448
142.00	PD220	35	7.085	0.4435	0.0354	25093
141.50	6' Standoff	35	7.037	0.4423	0.0354	24938
140.34	DB212	35	6.927	0.4395	0.0353	24585
140.00	DB420	35	6.896	0.4387	0.0353	24486
139.00	6' Standoff	35	6.802	0.4362	0.0352	24193
138.00	1.5' Standoff	35	6.709	0.4336	0.0351	23907
137.50	Dipole	35	6.662	0.4323	0.0351	23767
137.00	1.5' Standoff	35	6.616	0.4310	0.0350	23628
135.50	DB212	35	6.478	0.4270	0.0349	23221
134.00	4' Standoff x 15'	35	6.341	0.4229	0.0346	22828
133.67	DB420	35	6.311	0.4220	0.0346	22743
133.50	DB212	35	6.296	0.4216	0.0346	22700
127.33	DB420	35	5.747	0.4042	0.0334	21241
121.00	DB420	35	5.206	0.3862	0.0320	20173
107.00	DB411-B	35	4.095	0.3457	0.0286	18453
104.92	5'0"x3" Pipe Mount	35	3.941	0.3393	0.0281	18222
102.83	Folded Dipole	35	3.789	0.3327	0.0275	17995
102.42	5'0"x3" Pipe Mount	35	3.759	0.3314	0.0274	17951
99.92	5'0"x3" Pipe Mount	35	3.582	0.3232	0.0267	17681
99.00	3.25' Standoff x 15'	35	3.517	0.3202	0.0265	17580
96.50	DB212	35	3.346	0.3116	0.0258	17306
94.00	3.25' Standoff x 15'	35	3.178	0.3029	0.0250	17036
91.50	DB212	35	3.015	0.2940	0.0243	16774
89.00	3.25' Standoff x 15'	35	2.857	0.2850	0.0235	16520
86.50	DB212	35	2.703	0.2759	0.0228	16273
84.00	3.25' Standoff x 15'	35	2.553	0.2669	0.0221	16034
82.00	8 FT DISH	35	2.437	0.2597	0.0215	15848
53.50	DB803M-XT	35	1.102	0.1702	0.0151	21873
52.09	DB803M-XT	35	1.050	0.1661	0.0148	22368
50.67	DB803M-XT	35	0.998	0.1621	0.0145	22625
50.00	3' Standoff	35	0.974	0.1601	0.0143	22624
48.50	3' Standoff	35	0.921	0.1558	0.0140	22297
47.00	3' Standoff	35	0.869	0.1514	0.0136	21658
44.50	PD440-2	35	0.786	0.1441	0.0130	20369
39.00	PD440-2	35	0.615	0.1278	0.0115	17929

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 175	13.217	19	0.5726	0.0786
T2	175 - 150	12.607	19	0.5726	0.0793
T3	150 - 125	9.564	19	0.5531	0.0728
T4	125 - 100	6.769	19	0.4813	0.0655
T5	100 - 75	4.391	19	0.3933	0.0563
T6	75 - 50	2.521	19	0.2871	0.0430
T7	50 - 25	1.198	19	0.1958	0.0301
T8	25 - 0	0.344	19	0.1033	0.0151

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
191.75	OGT9-840	19	13.217	0.5726	0.0786	98543
188.50	OGT9-840	19	13.217	0.5726	0.0786	98543
181.00	10 FT DISH	19	13.217	0.5726	0.0786	98543
180.00	6 FT DISH	19	13.217	0.5726	0.0786	98543
175.33	4' Standoff x 10'	19	12.647	0.5726	0.0793	98543
174.50	OGT9-840	19	12.546	0.5726	0.0792	97940
172.50	6'x4" Pipe Mount	19	12.301	0.5724	0.0790	117149
170.50	6 FT DISH	19	12.055	0.5721	0.0785	191086
170.00	OGT9-840	19	11.994	0.5720	0.0783	230802
169.00	20' x 2" Dia Omni	19	11.871	0.5717	0.0780	396164
164.50	OGT9-840	19	11.319	0.5699	0.0757	124232
164.00	20' x 2" Dia Omni	19	11.258	0.5696	0.0754	109721
163.50	OGT9-840	19	11.196	0.5693	0.0751	98245
163.00	PD220	19	11.135	0.5690	0.0748	88943
160.00	Dipole	19	10.768	0.5667	0.0735	56719
159.00	20' x 2" Dia Omni	19	10.647	0.5658	0.0734	50608
157.75	PD220	19	10.495	0.5645	0.0733	44600
154.38	Dipole	19	10.087	0.5603	0.0728	33778
154.00	20' x 2" Dia Omni	19	10.041	0.5598	0.0728	32899
152.50	PD220	19	9.862	0.5575	0.0728	29893
150.00	(4) 7770.00	19	9.564	0.5531	0.0728	26493
149.00	20' x 2" Dia Omni	19	9.445	0.5512	0.0727	25616
148.75	Dipole	19	9.416	0.5507	0.0727	25430
148.33	4' Standoff	19	9.366	0.5498	0.0726	25142
147.50	DB212	19	9.269	0.5480	0.0726	24649
147.25	PD220	19	9.240	0.5475	0.0725	24517
147.17	DB212	19	9.230	0.5473	0.0725	24476
144.00	6' Standoff	19	8.861	0.5398	0.0720	23133
143.13	Dipole	19	8.760	0.5375	0.0719	22802
142.00	PD220	19	8.631	0.5345	0.0716	22390
141.50	6' Standoff	19	8.574	0.5332	0.0715	22211
140.34	DB212	19	8.441	0.5299	0.0712	21807
140.00	DB420	19	8.403	0.5290	0.0711	21693
139.00	6' Standoff	19	8.290	0.5261	0.0708	21360
138.00	1.5' Standoff	19	8.177	0.5232	0.0705	21038
137.50	Dipole	19	8.121	0.5217	0.0704	20880
137.00	1.5' Standoff	19	8.065	0.5202	0.0702	20725
135.50	DB212	19	7.898	0.5156	0.0697	20273
134.00	4' Standoff x 15'	19	7.733	0.5108	0.0692	19840
133.67	DB420	19	7.696	0.5098	0.0691	19746
133.50	DB212	19	7.678	0.5093	0.0690	19700
127.33	DB420	19	7.013	0.4891	0.0666	18132
121.00	DB420	19	6.357	0.4680	0.0641	17080

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
107.00	DB411-B	19	5.009	0.4199	0.0593	15513
104.92	5'0"x3" Pipe Mount	19	4.821	0.4123	0.0584	15304
102.83	Folded Dipole	19	4.636	0.4044	0.0575	15099
102.42	5'0"x3" Pipe Mount	19	4.600	0.4028	0.0573	15059
99.92	5'0"x3" Pipe Mount	19	4.384	0.3930	0.0562	14811
99.00	3.25' Standoff x 15'	19	4.305	0.3893	0.0558	14718
96.50	DB212	19	4.096	0.3791	0.0546	14460
94.00	3.25' Standoff x 15'	19	3.892	0.3686	0.0533	14206
91.50	DB212	19	3.693	0.3578	0.0520	13960
89.00	3.25' Standoff x 15'	19	3.500	0.3470	0.0506	13722
86.50	DB212	19	3.312	0.3361	0.0493	13493
84.00	3.25' Standoff x 15'	19	3.130	0.3252	0.0479	13271
82.00	8 FT DISH	19	2.988	0.3165	0.0468	13098
53.50	DB803M-XT	19	1.355	0.2080	0.0320	18025
52.09	DB803M-XT	19	1.291	0.2031	0.0312	18433
50.67	DB803M-XT	19	1.228	0.1981	0.0304	18644
50.00	3' Standoff	19	1.198	0.1958	0.0301	18640
48.50	3' Standoff	19	1.133	0.1905	0.0293	18362
47.00	3' Standoff	19	1.070	0.1852	0.0284	17825
44.50	PD440-2	19	0.967	0.1763	0.0270	16744
39.00	PD440-2	19	0.758	0.1563	0.0237	14707

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	180	Diagonal	A325X	1.0000	1	3257.69	19031.30	0.171 ✓	1.333	Member Bearing
T2	175	Leg	A325X	0.7500	6	397.27	19438.20	0.020 ✓	1.333	Bolt Tension
		Diagonal	A325X	1.0000	1	6668.52	19031.30	0.350 ✓	1.333	Member Bearing
		Horizontal	A325X	0.6250	2	2090.71	9203.88	0.227 ✓	1.333	Bolt Shear
T3	150	Leg	A325X	0.7500	6	3648.27	19438.40	0.188 ✓	1.333	Bolt Tension
		Diagonal	A325X	1.0000	1	11030.40	25375.00	0.435 ✓	1.333	Member Bearing
		Horizontal	A325X	0.6250	2	3768.14	9203.88	0.409 ✓	1.333	Bolt Shear
T4	125	Leg	A325X	0.7500	6	9776.28	19438.60	0.503 ✓	1.333	Bolt Tension
		Diagonal	A325X	1.0000	1	12401.20	25375.00	0.489 ✓	1.333	Member Bearing
		Horizontal	A325X	0.6250	2	4531.58	9203.88	0.492 ✓	1.333	Bolt Shear
T5	100	Leg	A325X	0.7500	6	16291.20	19438.50	0.838 ✓	1.333	Bolt Tension
		Diagonal	A325X	1.0000	1	14002.30	25375.00	0.552 ✓	1.333	Member Bearing
		Horizontal	A325X	0.6250	2	5394.20	9203.88	0.586 ✓	1.333	Bolt Shear
T6	75	Leg	A325X	1.0000	8	17291.30	34557.50	0.500 ✓	1.333	Bolt Tension
		Diagonal	A325X	1.0000	1	18501.00	25375.00	0.729 ✓	1.333	Member Bearing
		Horizontal	A325X	0.6250	2	6070.32	9203.88	0.660 ✓	1.333	Bolt Shear
T7	50	Leg	A325X	1.0000	8	22643.50	34557.50	0.655 ✓	1.333	Bolt Tension
		Diagonal	A325X	1.0000	1	19677.20	25375.00	0.775 ✓	1.333	Member Bearing
		Horizontal	A325X	0.6250	2	6825.18	9203.88	0.742 ✓	1.333	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T8	25	Leg	A325X	1.0000	8	27782.50	34556.50	0.804 ✓	1.333	Bolt Tension
		Diagonal	A325X	1.0000	1	20653.90	25375.00	0.814 ✓	1.333	Member Bearing
		Horizontal	A325X	0.6250	2	7281.42	9203.88	0.791 ✓	1.333	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	180 - 175	HSS5x.25	5.01	5.01	35.6 K=1.00	26.434	3.4894	-1968.33	92239.80	0.021 ✓
T2	175 - 150	HSS5x.25	25.03	8.34	59.3 K=1.00	22.832	3.4894	-21527.70	79670.80	0.270 ✓
T3	150 - 125	HSS5x.25	25.03	8.34	59.3 K=1.00	22.832	3.4894	-61494.20	79670.80	0.772 ✓
T4	125 - 100	HSS5x.375	25.03	8.34	60.7 K=1.00	22.596	5.0994	-108228.00	115229.00	0.939 ✓
T5	100 - 75	HSS5x.4	25.03	8.34	61.3 K=1.00	25.746	5.7805	-157040.00	148828.00	1.055 ✓
T6	75 - 50	HSS6.875x.4	25.03	12.51	65.5 K=1.00	24.741	8.1367	-200770.00	201311.00	0.997 ✓
T7	50 - 25	HSS6.875x.5	25.03	12.51	66.1 K=1.00	24.589	9.3640	-253682.00	230247.00	1.102 ✓
T8	25 - 0	HSS6.875x.5	25.03	6.26	33.0 K=1.00	31.625	9.3640	-305673.00	296135.00	1.032 ✓

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	180 - 175	2L2 1/2x2x3/16	7.43	6.78	111.3 K=1.09	11.499	1.6200	-3426.84	18628.20	0.184 ✓
T2	175 - 150	2L2 1/2x2x3/16	10.57	9.86	149.7 K=1.00	6.662	1.6200	-6858.29	10791.90	0.636 ✓
T3	150 - 125	2L3x2 1/2x1/4	11.21	10.53	133.7 K=1.00	8.357	2.6300	-11365.40	21980.10	0.517 ✓
T4	125 - 100	2L3x2 1/2x1/4	11.91	11.24	142.7 K=1.00	7.332	2.6300	-12789.80	19284.10	0.663 ✓
T5	100 - 75	2L3x2 1/2x1/4	12.64	11.99	152.2 K=1.00	6.446	2.6300	-14472.70	16952.40	0.854 ✓

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T6	75 - 50	2L3 1/2x3x1/4	16.33	15.51	167.6 K=1.00	5.313	3.1300	-19055.20	16631.00	1.146 ✓
T7	50 - 25	2L3 1/2x3x1/4	16.99	16.19	175.0 K=1.00	4.875	3.1300	-20324.10	15258.10	1.332 ✓
T8	25 - 0	2L3x3 1/2x1/4	17.68	16.90	133.4 K=1.00	8.389	3.1300	-21461.70	26257.20	0.817 ✓

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T2	175 - 150	L3x3x1/4	12.33	11.43	136.9 K=0.93	7.970	1.4400	-4107.19	11477.20	0.358 ✓
T3	150 - 125	L3x3x1/4	14.33	6.71	127.7 K=0.94	9.161	1.4400	-7368.50	13191.20	0.559 ✓
T4	125 - 100	L3x3x1/4	16.33	7.71	145.1 K=0.93	7.095	1.4400	-8843.54	10217.00	0.866 ✓
T5	100 - 75	L3x4x1/4	18.33	8.71	150.6 K=0.94	6.586	1.6900	-10528.40	11130.90	0.946 ✓
T6	75 - 50	L4x4x1/4	20.00	9.47	133.6 K=0.93	8.371	1.9400	-11884.90	16240.00	0.732 ✓
T7	50 - 25	L4x4x1/4	22.00	10.47	146.5 K=0.93	6.960	1.9400	-13296.90	13501.70	0.985 ✓
T8	25 - 0	L4x4x1/4	24.00	11.47	159.3 K=0.92	5.886	1.9400	-14274.20	11418.80	1.250 ✓

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	180 - 175	L3x3x1/4	10.60	10.18	127.0 K=0.97	9.257	1.4400	-2966.74	13330.30	0.223 ✓

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T8	25 - 0	L3x3x1/4	6.00	5.71	117.9 K=1.02	10.580	1.4400	-4711.27	15235.80	0.309 ✓

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T8	25 - 0	L3x3x1/4	8.49	8.07	163.6 K=1.00	5.579	1.4400	-3249.40	8034.45	0.404 ✓

Inner Bracing Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T3	150 - 125	L2 1/2x2 1/2x3/16	7.17	7.17	173.7 K=1.00	4.947	0.9020	-132.36	4462.43	0.030 ✓
T4	125 - 100	L2 1/2x2 1/2x3/16	8.17	8.17	198.0 K=1.00	3.810	0.9020	-158.70	3436.50	0.046 ✓
T5	100 - 75	L2 1/2x2 1/2x3/16	9.17	9.17	222.2 K=1.00	3.024	0.9020	-188.96	2727.61	0.069 ✓
T6	75 - 50	L2 1/2x2 1/2x3/16	10.00	10.00	242.4 K=1.00	2.541	0.9020	-213.72	2291.95	0.093 ✓
T7	50 - 25	L3x3x1/4	11.00	11.00	223.0 K=1.00	3.004	1.4400	-239.72	4325.23	0.055 ✓
T8	25 - 0	L3x3x1/4	12.00	12.00	243.2 K=1.00	2.524	1.4400	-257.23	3634.39	0.071 ✓

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	180 - 175	HSS5x.25	5.01	5.01	35.6	30.000	3.4894	172.71	104682.00	0.002 ✓
T2	175 - 150	HSS5x.25	25.03	8.34	59.3	30.000	3.4894	14914.90	104682.00	0.142 ✓
T3	150 - 125	HSS5x.25	25.03	8.34	59.3	30.000	3.4894	45846.80	104682.00	0.438 ✓
T4	125 - 100	HSS5x.375	25.03	8.34	60.7	30.000	5.0994	84586.80	152983.00	0.553 ✓
T5	100 - 75	HSS5x.4	25.03	8.34	61.3	36.000	5.7805	124688.00	208099.00	0.599 ✓
T6	75 - 50	HSS6.875x.4	25.03	12.51	65.5	36.000	8.1367	159663.00	292922.00	0.545 ✓
T7	50 - 25	HSS6.875x.5	25.03	12.51	66.1	36.000	9.3640	202622.00	337104.00	0.601

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T8	25 - 0	HSS6.875x.5	25.03	6.26	33.0	36.000	9.3640	243730.00	337104.00	0.723

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T1	180 - 175	2L2 1/2x2x3/16	7.43	6.78	108.6	29.000	0.8986	3257.69	26059.20	0.125
T2	175 - 150	2L2 1/2x2x3/16	10.57	9.86	155.4	29.000	0.8986	6668.52	26059.20	0.256
T3	150 - 125	2L3x2 1/2x1/4	11.21	10.53	138.4	29.000	1.5506	11030.40	44968.10	0.245
T4	125 - 100	2L3x2 1/2x1/4	11.91	11.24	147.5	29.000	1.5506	12401.20	44968.10	0.276
T5	100 - 75	2L3x2 1/2x1/4	12.64	11.99	157.0	29.000	1.5506	14002.30	44968.10	0.311
T6	75 - 50	2L3 1/2x3x1/4	16.33	15.51	171.7	29.000	1.9256	18501.00	55843.10	0.331
T7	50 - 25	2L3 1/2x3x1/4	16.99	16.19	179.1	29.000	1.9256	19677.20	55843.10	0.352
T8	25 - 0	2L3x3 1/2x1/4	17.68	16.90	136.4	29.000	1.9256	20653.90	55843.10	0.370

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P lb	Allow. P_a lb	Ratio $\frac{P}{P_a}$
T2	175 - 150	L3x3x1/4	12.33	11.43	153.8	29.000	0.9394	4181.42	27241.90	0.153
T3	150 - 125	L3x3x1/4	14.33	6.71	89.8	29.000	0.9394	7536.27	27241.90	0.277
T4	125 - 100	L3x3x1/4	16.33	7.71	102.7	29.000	0.9394	9063.15	27241.90	0.333
T5	100 - 75	L3x4x1/4	18.33	8.71	119.8	29.000	1.1269	10788.40	32679.40	0.330
T6	75 - 50	L4x4x1/4	20.00	9.47	93.3	29.000	1.3144	12140.60	38116.90	0.319
T7	50 - 25	L4x4x1/4	22.00	10.47	102.8	29.000	1.3144	13650.40	38116.90	0.358
T8	25 - 0	L4x4x1/4	24.00	11.47	112.4	29.000	1.3144	14562.80	38116.90	0.382

Top Girt Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	lb	lb	
T1	180 - 175	L3x3x1/4	10.60	10.18	131.4	21.600	1.4400	2390.79	31104.00	0.077 ✓

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	lb	lb	
T8	25 - 0	L3x3x1/4	6.00	5.71	73.7	21.600	1.4400	4590.70	31104.00	0.148 ✓

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	lb	lb	
T8	25 - 0	L3x3x1/4	8.33	7.90	102.0	21.600	1.4400	3414.00	31104.00	0.110 ✓

Inner Bracing Design Data (Tension)

Section No.	Elevation	Size	L	L_u	Kl/r	F_a	A	Actual P	Allow. P_a	Ratio $\frac{P}{P_a}$
	ft		ft	ft		ksi	in^2	lb	lb	
T3	150 - 125	L2 1/2x2 1/2x3/16	7.17	7.17	110.5	21.600	0.9020	125.77	19483.20	0.006 ✓
T4	125 - 100	L2 1/2x2 1/2x3/16	8.17	8.17	126.0	21.600	0.9020	151.48	19483.20	0.008 ✓
T5	100 - 75	L2 1/2x2 1/2x3/16	9.17	9.17	141.4	21.600	0.9020	180.73	19483.20	0.009 ✓
T6	75 - 50	L2 1/2x2 1/2x3/16	10.00	10.00	154.2	21.600	0.9020	202.46	19483.20	0.010 ✓
T7	50 - 25	L3x3x1/4	11.00	11.00	141.9	21.600	1.4400	227.08	31104.00	0.007 ✓
T8	25 - 0	L3x3x1/4	12.00	12.00	154.8	21.600	1.4400	242.43	31104.00	0.008 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	180 - 175	Leg	HSS5x.25	2	-1968.33	122955.64	5.6	Pass
T2	175 - 150	Leg	HSS5x.25	15	-21527.70	106201.17	20.3	Pass
T3	150 - 125	Leg	HSS5x.25	45	-61494.20	106201.17	57.9	Pass
T4	125 - 100	Leg	HSS5x.375	84	-108228.00	153600.25	70.5	Pass
T5	100 - 75	Leg	HSS5x.4	123	-157040.00	198387.72	79.2	Pass
T6	75 - 50	Leg	HSS6.875x.4	162	-200770.00	268347.55	74.8	Pass
T7	50 - 25	Leg	HSS6.875x.5	189	-253682.00	306919.24	82.7	Pass
T8	25 - 0	Leg	HSS6.875x.5	216	-305673.00	394747.94	77.4	Pass
T1	180 - 175	Diagonal	2L2 1/2x2x3/16	10	-3426.84	24831.39	13.8	Pass
T2	175 - 150	Diagonal	2L2 1/2x2x3/16	21	-6858.29	14385.60	47.7	Pass
T3	150 - 125	Diagonal	2L3x2 1/2x1/4	53	-11365.40	29299.47	38.8	Pass
T4	125 - 100	Diagonal	2L3x2 1/2x1/4	92	-12789.80	25705.70	49.8	Pass
T5	100 - 75	Diagonal	2L3x2 1/2x1/4	131	-14472.70	22597.55	64.0	Pass
T6	75 - 50	Diagonal	2L3 1/2x3x1/4	170	-19055.20	22169.12	86.0	Pass
T7	50 - 25	Diagonal	2L3 1/2x3x1/4	197	-20324.10	20339.05	99.9	Pass
T8	25 - 0	Diagonal	2L3x3 1/2x1/4	232	-21461.70	35000.85	61.3	Pass
T2	175 - 150	Horizontal	L3x3x1/4	19	-4107.19	15299.11	26.8	Pass
T3	150 - 125	Horizontal	L3x3x1/4	52	-7368.50	17583.87	41.9	Pass
T4	125 - 100	Horizontal	L3x3x1/4	91	-8843.54	13619.26	64.9	Pass
T5	100 - 75	Horizontal	L3x4x1/4	130	-10528.40	14837.49	71.0	Pass
T6	75 - 50	Horizontal	L4x4x1/4	169	-11884.90	21647.92	54.9	Pass
T7	50 - 25	Horizontal	L4x4x1/4	196	-13296.90	17997.77	73.9	Pass
T8	25 - 0	Horizontal	L4x4x1/4	231	-14274.20	15221.26	93.8	Pass
T1	180 - 175	Top Girt	L3x3x1/4	5	-2966.74	17769.29	16.7	Pass
T8	25 - 0	Redund Horz 1 Bracing	L3x3x1/4	229	-4711.27	20309.32	23.2	Pass
T8	25 - 0	Redund Diag 1 Bracing	L3x3x1/4	234	-3249.40	10709.92	30.3	Pass
T3	150 - 125	Inner Bracing	L2 1/2x2 1/2x3/16	57	-132.36	5948.42	2.2	Pass
T4	125 - 100	Inner Bracing	L2 1/2x2 1/2x3/16	95	-158.70	4580.85	3.5	Pass
T5	100 - 75	Inner Bracing	L2 1/2x2 1/2x3/16	134	-188.96	3635.90	5.2	Pass
T6	75 - 50	Inner Bracing	L2 1/2x2 1/2x3/16	173	-213.72	3055.17	7.0	Pass
T7	50 - 25	Inner Bracing	L3x3x1/4	200	-239.72	5765.53	4.2	Pass
T8	25 - 0	Inner Bracing	L3x3x1/4	239	-257.23	4844.64	5.3	Pass
							Summary	
						Leg (T7)	82.7	Pass
						Diagonal (T7)	99.9	Pass
						Horizontal (T8)	93.8	Pass
						Top Girt (T1)	16.7	Pass
						Redund Horz 1 Bracing (T8)	23.2	Pass
						Redund Diag 1 Bracing (T8)	30.3	Pass
						Inner Bracing (T6)	7.0	Pass
						Bolt Checks	62.9	Pass
						RATING =	**99.9**	**Pass**

ANCHOR BOLT EVALUATION

ANCHOR BOLT ANALYSIS

Input Data

Max Pier Reactions:

Uplift:	Uplift := 267·kips	*user input*	
Shear:	Shear := 38·kips	*user input*	
Compression:	Compression := 333·kips	*user input*	

Anchor Bolt Data:

Use ASTM A615 Grade 75

Number of Anchor Bolts = N	N := 6	*user input*	
Bolt Ultimate Strength:	F_u := 75·ksi	*user input*	
Bolt Yield Strength:	Fy := 60·ksi	*user input*	
Bolt Modulus:	E := 29000·ksi	*user input*	
Thickness of Anchor Bolts	D := 1.75in	*user input*	
Threads per Inch:	n := 5	*user input*	
Coefficient of Friction:	μ := 0.55	*user input*	(for baseplate with grout ASCE 10-97)

Anchor Bolt Area:

Gross Area of Bolt:

$$A_g := \frac{\pi}{4}\cdot D^2 \qquad A_g = 2.405\,in^2$$

Net Area of Bolt:

$$A_n := \frac{\pi}{4}\cdot\left(D - \frac{0.9743\cdot in}{n}\right)^2 \qquad A_n = 1.899\,in^2$$

Check Tensile Forces:

Maximum Tensile Force (Gross Area):

$$AllowableTension := 1.33\cdot(0.33\cdot A_g\cdot F_u) \qquad AllowableTension = 79.2\,kips$$

Note: 1.33 increase allowed per TIA/EIA

Maximum Tensile Force (Net Area):

$$F_{net.area} := 1.33\cdot(0.60\cdot A_n\cdot Fy) \qquad F_{net.area} = 90.9\,kips$$

Note: 1.33 increase allowed per TIA/EIA

Applied Tension:

$$MaxTension := \frac{Uplift}{N} \qquad MaxTension = 44.5\,kips$$

Check Stresses:

$$\frac{MaxTension}{AllowableTension} = 0.56$$

$$Condition1 := if\left(\frac{MaxTension}{AllowableTension} \le 1.00, "OK", "Overstressed"\right)$$

Condition1 = "OK"

Check Anchor Bolt Area:

Based on the ASCE 10-97 Design of Latticed Stell Transmission Structures

Required Area:

$$A_{s1} := \frac{Uplift}{Fy} + \frac{Shear}{\mu \cdot 0.85 \cdot Fy} \qquad A_{s1} = 5.8\,in^2$$

$$A_{s2} := \left| \frac{Shear - (0.3 \cdot Compression)}{\mu \cdot 0.85 \cdot Fy} \right| \qquad A_{s2} = 2.2\,in^2$$

Provided Area:

$$A_{sprovided} := A_n \cdot N \qquad A_{sprovided} = 11.4\,in^2$$

$$Condition2 := if\left(\frac{A_{s1}}{A_{sprovided}} \le 1.00, "OK", "Overstressed"\right) \qquad \frac{A_{s1}}{A_{sprovided}} = 0.51$$

Condition2 = "OK"

$$Condition3 := if\left(\frac{A_{s2}}{A_{sprovided}} \le 1.00, "OK", "Overstressed"\right) \qquad \frac{A_{s2}}{A_{sprovided}} = 0.19$$

Condition3 = "OK"

FOUNDATION EVALUATION

URS

				Page	of
Job	180' Stainless LLC - Thompson, CT	Project No.	CW1-085	Sheet 1	of 3
Description	Foundation with Rock Anchors	Computed by	JEK	Date	04/18/06
		Checked by		Date	

FOUNDATION CHECK

INPUT DATA

Max Pier Reactions:

Uplift: $Uplift := 267 \cdot kips$

Shear: $Shear := 38 \cdot kips$

Compression: $Compression := 333 \cdot kips$

Structure

Footing Width: $B_{ftg} := 6ft$

Footing Length: $L_{ftg} := 6ft$

Footing Thickness: $TH_{ftg} := 2.5ft$

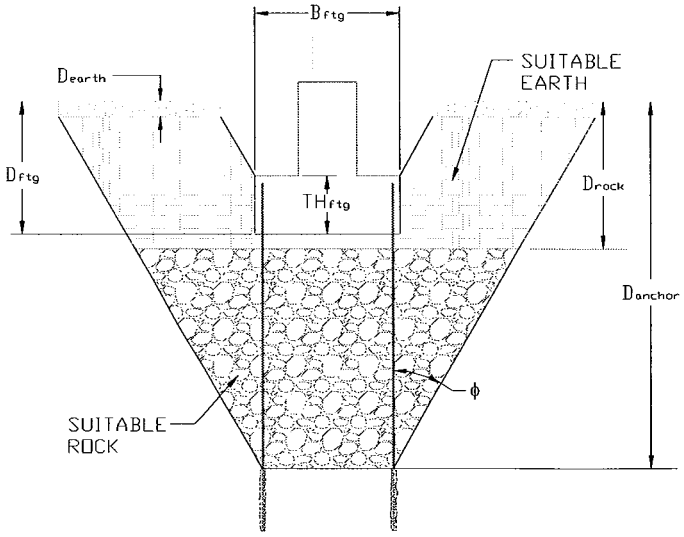
Depths:

Depth to Bottom of Footing (from grade line): $D_{ftg} := 4.75ft$

Depth to Suitable Rock (from grade line): $D_{rock} := 4.75ft$

Depth to Suitable Earth (from grade line): $D_{earth} := 0ft$

Anchor Depth: $D_{anchor} := 19.75ft$



Soil Properties:

Internal Friction Angle: $\phi := 30deg$

Unit Weight of Earth: $\gamma_{earth} := 120 \frac{lb}{ft^3}$

Unit Weight of Rock: $\gamma_{rock} := 165 \frac{lb}{ft^3}$

Allowable Bearing: $Bearing := 9500 \cdot psf$

Anchors:

Number of Anchors (along width): $NW_{anchor} := 2$

Number of Anchors (along length): $NL_{anchor} := 2$

Anchor Spacing* (along width): $SW_{anchor} := 3ft$

Anchor Spacing* (along length): $SL_{anchor} := 3ft$

Hole Diameter: $hole_d := 3in$

Bond Strength: $\sigma_{bond} := 120 \cdot psi$

Force (per anchor): $P_{design} := \frac{Uplift}{NW_{anchor} + NL_{anchor}}$ $P_{design} = 66.75\,kips$

CALCULATE RESISTANCE

Intermediate Dimensions:

Suitable Earth Height: $H := D_{rock} - D_{earth}$ $H = 4.75$ ft

Suitable Rock Height: $Z := D_{anchor} - D_{earth} - D_{rock}$ $Z = 15.00$ ft

Total Anchor Width: $W := (NW_{anchor} - 1) \cdot SW_{anchor}$ $W = 3.00$ ft

Total Anchor Length: $L := (NL_{anchor} - 1) \cdot SL_{anchor}$ $L = 3.00$ ft

Earth Above Footing: $PD := D_{ftg} - D_{earth} - TH_{ftg}$ $PD = 2.25$ ft

Volumes:

Gross Volume:

$GV_1 := W \cdot L \cdot (Z + H)$ $GV_1 = 177.75\ ft^3$

$GV_2 := \left[\frac{1}{2} \cdot (Z + H) \cdot \tan(\phi) \cdot (Z + H)\right] \cdot (W + L) \cdot 2$ $GV_2 = 1351.22\ ft^3$

$GV_3 := \frac{1}{3} \cdot \pi \cdot \left[(Z + H) \cdot \tan(\phi)\right]^2 \cdot (Z + H)$ $GV_3 = 2689.11\ ft^3$

$GV := GV_1 + GV_2 + GV_3$ $GV = 4218.08\ ft^3$

Rock Volume:

$RV_1 := W \cdot L \cdot (H)$ $RV_1 = 42.75\ ft^3$

$RV_2 := \left[\frac{1}{2} \cdot (Z) \cdot \tan(\phi) \cdot (Z)\right] \cdot (W + L) \cdot 2$ $RV_2 = 779.42\ ft^3$

$RV_3 := \frac{1}{3} \cdot \pi \cdot \left[(Z) \cdot \tan(\phi)\right]^2 \cdot (Z)$ $RV_3 = 1178.10\ ft^3$

$RV := RV_1 + RV_2 + RV_3$ $RV = 2000.27\ ft^3$

Volume of Neglect Above Footing:

$NV_1 := B_{ftg} \cdot L_{ftg} \cdot H$ $NV_1 = 171.00\ ft^3$

$NV_2 := \left[\frac{1}{2} \cdot (PD) \cdot \tan(\phi) \cdot (PD)\right] \cdot (B_{ftg} + L_{ftg}) \cdot 2$ $NV_2 = 35.07\ ft^3$

$NV_3 := \frac{1}{3} \cdot \pi \cdot \left[(PD) \cdot \tan(\phi)\right]^2 \cdot (PD)$ $NV_3 = 3.98\ ft^3$

$NV := NV_1 + NV_2 + NV_3$ $NV = 210.05\ ft^3$

Total Suitable Earth Volume: $EV := GV - RV - NV$ $EV = 2007.76\ ft^3$

Resisting Forces:

Resisting Rock Force: $F_{rock} := RV \cdot \gamma_{rock}$ $F_{rock} = 330.04$ kips

Resisting Earth Force: $F_{earth} := EV \cdot \gamma_{earth}$ $F_{earth} = 240.93$ kips

Total Resisting Force: $F_{total} := F_{rock} + F_{earth}$ $F_{total} = 570.98$ kips

Check Uplift:

$$Condition1 := if\left(\frac{F_{total}}{Uplift} \geq 2.00, "OK", "Overstressed"\right) \qquad \frac{F_{total}}{Uplift} = 2.14$$

Condition1 = "OK"

Embedment Length:

$$L_b := \frac{P_{design}}{\pi \cdot hole_d \cdot \sigma_{bond}} \qquad L_b = 4.92 \text{ ft}$$

$$Condition2 := if\left(\frac{Z}{L_b} \geq 2.00, "OK", "Overstressed"\right) \qquad \frac{Z}{L_b} = 3.05$$

Condition2 = "OK"

Check Bearing:

$$MaxBearing := \frac{Compression}{B_{ftg} \cdot L_{ftg}} \qquad MaxBearing = 9250.00 \text{ psf}$$

$$Condition3 := if\left(\frac{MaxBearing}{Bearing} \leq 1.00, "OK", "Overstressed"\right) \qquad \frac{MaxBearing}{Bearing} = 0.97$$

Condition3 = "OK"