Date: **March 3, 2016**

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Subject:	**Structural Analysis Report**	
Carrier Designation:	***T-Mobile* Co-Locate**	
	Carrier Site Number:	6FB1007A
	Carrier Site Name:	Tradewinds AT&T Tower
Crown Castle Designation:	**Crown Castle BU Number:**	842800
	Crown Castle Site Name:	FL01
	Crown Castle JDE Job Number:	367384
	Crown Castle Work Order Number:	1201182
	Crown Castle Application Number:	335241 Rev. 0
Engineering Firm Designation:	**GPD Project Number:**	2016777.842800.08
Site Data:	**4470 Northwest 39th Avenue, Pompano Beach, Broward County, FL 33073** **Latitude *26° 17' 7.11"*, Longitude *-80° 10' 22.04"*** **192.3 Foot - Modified Rohn Self Support Tower**	

Dear Angela Harris,

GPD is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 878010, in accordance with application 335241, revision 0.

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

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2014 Florida Building Code, 5th Edition, based on an ultimate 3-second gust wind speed of 170 mph per Section 1620.2, as required by the Exception of Section 1601.1. Exposure Category C and Risk Category II were used in this analysis.

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

Structural analysis prepared by: Eric Schnaus

Respectfully submitted by:

CHRISTOPHER J. SCHEKS LICENSE No. 78737 STATE OF FLORIDA PROFESSIONAL ENGINEER

Christopher J. Scheks, P.E.
Florida #: 78737

3/3/16

TABLE OF CONTENTS

1) INTRODUCTION

2) ANALYSIS CRITERIA
Table 1 - Proposed Antenna and Cable Information
Table 2 - Existing and Reserved Antenna and Cable Information
Table 3 - Design Antenna and Cable Information

3) ANALYSIS PROCEDURE
Table 4 - Documents Provided
3.1) Analysis Method
3.2) Assumptions

4) ANALYSIS RESULTS
Table 5 - Section Capacity (Summary)
Table 6 - Tower Components vs. Capacity
4.1) Recommendations

5) DISCLAIMER OF WARRANTIES

6) APPENDIX A
tnxTower Output

7) APPENDIX B
Base Level Drawing

8) APPENDIX C
Additional Calculations

1) INTRODUCTION

The modified 192'-4" tower is supported on three legs and has ten major sections. It has a triangular cross section made of bolted connections, with a “k-down” frame configuration. The tower is fabricated with pipe legs, pipe main diagonals, and pipe main horizontals from 0'-0" to 192'-4", pipe inner bracing members, pipe redundant diagonals, and pipe redundant horizontals from 0'-0" to 20'-4", and angle inner bracing members, angle redundant diagonals, and angle redundant horizontals from 20'-4" to 192'-4". The structure is galvanized and does not have aviation lighting.

All geometry information has been obtained from a tower mapping, which was completed by FDH, Inc. of Raleigh, North Carolina in July of 2011. The tower’s original design structural code and analysis parameters are unknown. Based on experience with similar towers, the structure appears to be manufactured by Rohn of Peoria, Illinois.

Modifications designed by GPD (job #: 2012771.41, dated 06/27/2012), which consisted of the replacement of all main diagonals from 0'-0" to 20'-4" and 40'-8" to 101'-5", the replacement of all redundant diagonals from 0'-0" to 20'-4", and the installation of concrete collars around the original drilled pier foundations, have been considered in the structural analysis.

2) ANALYSIS CRITERIA

This analysis has been performed in accordance with the 2014 Florida Building Code, 5th Edition, based on an ultimate 3-second gust wind speed of 170 mph per Section 1620.2, as required by the Exception of Section 1601.1. Exposure Category C and Risk Category II were used in this analysis.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
165.0	165.0	3	Andrew	DBXNH-6565B-A2M			
		6	Commscope	HBXX-3319DS-A2M			
		6	Nokia	FRIJ			
		6	Nokia	4Tx RRH-FHFB			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
190.0	200.0	1	Sinclair	SRL-235-2	4	1-5/8	
	197.0	1	Decibel	DB806-XC			
	195.0	1	Andrew	DB806E-XT			
	193.0	1	Telewave	ANT450Y5-WR			
	190.0	2		Sector Mount [SM 701-1]			
170.0	170.0	1		Pipe Mount [PM 601-1]			1
165.0	165.0	6	Andrew	ADFD1820-3333B-XDM			2
		3	Cellmax Tech.	CMA-B/6520/E0-8			
		6	Nokia	FRIG			
		4	Nokia	FXFB			
		1		Sector Mount [SM 402-3]	12 2	1-5/8 1-3/5	
		4	Commscope	CBC1921-DF-DC-6X			
		3	Commscope	TMA-S-DB1921-DD-A			
		2	Raycap	ASU9338TYP01			
144.0	144.0	1		Pipe Mount [PM 601-1]			1
133.0	133.0	1		Side Arm Mount [SO 301-1]			1
100.0	100.0	1		VF 13-30-96	12 6 6	1-5/8 7/8 3/8	3
		3	Ericsson	RRUS 11			
		9	Ericsson	RRUS-32 B30			
		9	Kathrein	800 10865			
		3	Raycap	DC6-48-60-18-8F			

Notes:
1) Empty Mount.
2) Existing equipment to be removed prior to the installation of the proposed equipment listed in Table 1.
3) Reserved equipment.

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
Unavailable						

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Tower Mapping Report	FDH Job #: 11-07013T T1, Dated 07/15/2011	4713032	CCIsites
Foundation Investigation Report	FDH Project #: 1107019EN1, Dated 07/15/2011	4528868	CCIsites
Geotechnical Report	GDE Job #: 11-4188, Dated 08/26/2011	4528867	CCIsites
Modification Drawings / Specifications	GPD Job #: 2012771.41, Dated 06/27/2012	4858925	CCIsites
Modification Inspection	TEP Project #: 64726-70451	5994237	CCIsites

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	192.333 - 182.167	Leg	ROHN 2.5 STD	2	-5.14	76.68	6.7	Pass
T2	182.167 - 162	Leg	ROHN 2.5 STD	28	-17.19	45.53	37.8	Pass
T3	162 - 148.583	Leg	ROHN 3 STD	67	-42.91	70.85	60.6	Pass
T4	148.583 - 141.833	Leg	ROHN 3 STD	94	-67.93	100.28	67.7	Pass
T5	141.833 - 121.625	Leg	ROHN 4 STD	121	-92.07	116.19	79.2	Pass
T6	121.625 - 101.417	Leg	ROHN 5 EH	160	-122.21	201.09	60.8	Pass
T7	101.417 - 81.2083	Leg	ROHN 6 STD	187	-162.18	203.60	79.7	Pass
T8	81.2083 - 61	Leg	ROHN 6 EH	214	-206.57	303.62	68.0	Pass
T9	61 - 40.6667	Leg	ROHN 6 EH	241	-249.24	303.62	82.1	Pass
T10	40.6667 - 20.3333	Leg	ROHN 8 STD	268	-290.46	334.34	86.9	Pass
T11	20.3333 - 0	Leg	ROHN 8 STD	295	-350.49	377.95	92.7	Pass
T1	192.333 - 182.167	Diagonal	ROHN 1.5 STD	8	-2.66	13.28	20.0	Pass
T2	182.167 - 162	Diagonal	ROHN 1.5 STD	33	-8.26	8.87	93.1	Pass
T3	162 - 148.583	Diagonal	ROHN 2 STD	84	-10.37	18.01	57.5	Pass
T4	148.583 - 141.833	Diagonal	ROHN 2 STD	103	-9.73	15.89	61.2	Pass
T5	141.833 - 121.625	Diagonal	ROHN 2 EH	126	-10.11	17.18	58.8	Pass
T6	121.625 - 101.417	Diagonal	ROHN 2.5 STD	165	-12.54	16.21	77.4	Pass
T7	101.417 - 81.2083	Diagonal	ROHN 2.5 EH	192	-17.73	18.01	98.4	Pass
T8	81.2083 - 61	Diagonal	ROHN 3 EH	219	-18.17	31.83	57.1	Pass
T9	61 - 40.6667	Diagonal	ROHN 3 EH	245	-18.73	27.84	67.3	Pass
T10	40.6667 - 20.3333	Diagonal	ROHN 3 STD	272	-19.46	19.17	101.5	Pass
T11	20.3333 - 0	Diagonal	Rohn 2.875" x 0.552"	299	-29.11	30.21	96.4	Pass
T1	192.333 - 182.167	Horizontal	ROHN 1.5 STD	7	-1.66	25.15	6.6 6.7 (b)	Pass
T2	182.167 - 162	Horizontal	ROHN 1.5 STD	31	-4.12	25.15	16.4 16.6 (b)	Pass
T3	162 - 148.583	Horizontal	ROHN 1.5 STD	82	-5.79	25.25	22.9 23.3 (b)	Pass
T5	141.833 - 121.625	Horizontal	ROHN 2 EH	124	-6.94	37.22	18.7 27.9 (b)	Pass
T6	121.625 - 101.417	Horizontal	ROHN 2 EH	163	-7.59	29.65	25.6 30.5 (b)	Pass
T7	101.417 - 81.2083	Horizontal	ROHN 2 STD	190	-11.79	16.54	71.3	Pass
T8	81.2083 - 61	Horizontal	ROHN 2.5 STD	217	-12.92	28.20	45.8	Pass
T9	61 - 40.6667	Horizontal	ROHN 2.5 STD	244	-14.08	21.73	64.8	Pass
T10	40.6667 - 20.3333	Horizontal	ROHN 2.5 STD	271	-15.32	17.50	87.6	Pass
T11	20.3333 - 0	Horizontal	ROHN 2.5 STD	298	-16.18	15.70	103.1	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	192.333 - 182.167	Top Girt	ROHN 1.5 STD	4	-0.57	25.15	2.3	Pass
T4	148.583 - 141.833	Top Girt	ROHN 1.5 STD	97	-5.68	20.99	27.1	Pass
T4	148.583 - 141.833	Redund Horz 1 Bracing	L2x2x1/8	101	-0.95	9.81	9.6	Pass
T11	20.3333 - 0	Redund Horz 1 Bracing	ROHN 1.5 STD	300	-5.37	13.49	39.8	Pass
T4	148.583 - 141.833	Redund Diag 1 Bracing	L2x2x1/8	117	-0.81	7.71	10.5	Pass
T11	20.3333 - 0	Redund Diag 1 Bracing	ROHN 2 STD	320	-4.86	8.94	54.4	Pass
T11	20.3333 - 0	Redund Hip 1 Bracing	ROHN 2 STD	323	-0.04	24.31	0.2	Pass
T11	20.3333 - 0	Redund Hip Diagonal 1 Bracing	ROHN 2 STD	324	-0.05	4.54	1.0	Pass
T1	192.333 - 182.167	Inner Bracing	L2x2x1/8	27	-0.01	7.59	0.1	Pass
T2	182.167 - 162	Inner Bracing	L2x2x1/8	40	-0.01	7.59	0.1	Pass
T3	162 - 148.583	Inner Bracing	L2x2x1/8	93	-0.01	7.59	0.1	Pass
T4	148.583 - 141.833	Inner Bracing	L2x2x1/8	120	-0.10	5.68	1.8	Pass
T5	141.833 - 121.625	Inner Bracing	L2x2x1/8	135	-0.01	3.48	0.2	Pass
T6	121.625 - 101.417	Inner Bracing	L2x2x1/8	174	-0.01	2.49	0.3	Pass
T7	101.417 - 81.2083	Inner Bracing	L2x2x1/8	201	-0.01	1.78	0.5	Pass
T8	81.2083 - 61	Inner Bracing	L3x3x1/4	227	-0.01	8.77	0.2	Pass
T9	61 - 40.6667	Inner Bracing	L3x3x1/4	254	-0.01	6.81	0.2	Pass
T10	40.6667 - 20.3333	Inner Bracing	L3 1/2x3 1/2x1/4	282	-0.01	8.77	0.2	Pass
T11	20.3333 - 0	Inner Bracing	ROHN 2.5 EH	325	-0.01	18.65	0.2	Pass
						Summary	ELC:	Load Case 7
						Leg (T11)	92.7	Pass
						Diagonal (T10)	101.5	Pass
						Horizontal (T11)	103.1	Pass
						Top Girt (T4)	27.1	Pass
						Redund Horz 1 Bracing (T11)	39.8	Pass
						Redund Diag 1 Bracing (T11)	54.4	Pass
						Redund Hip 1 Bracing (T11)	0.2	Pass
						Redund Hip Diagonal 1	1.0	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
						Bracing (T11)		
						Inner Bracing (T4)	1.8	Pass
						Bolt Checks	78.1	Pass
						Rating =	103.1	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	81.1	Pass
1	Base Foundation	0	59.1	Pass
1	Base Foundation Soil Interaction	0	83.9	Pass

Structure Rating (max from all components) =	103.1%

Notes:
1) See additional documentation in “Appendix C - Additional Calculations” for calculations supporting the % capacity consumed.
2) Capacities up to 105% are considered acceptable based on analysis methods used.

4.1) Recommendations

The existing tower and its foundation are sufficient for the proposed loading and do not require modifications.

5) DISCLAIMER OF WARRANTIES

GPD has not performed a site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free, and plumb.

The engineering services rendered by GPD in connection with this Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

This analysis is limited to the designated maximum wind and seismic conditions per the governing tower standards and code. Wind forces resulting in tower vibrations near the structure's resonant frequencies were not considered in this analysis and are outside the scope of this analysis. Lateral loading from any dynamic response was not evaluated under a time-domain based fatigue analysis.

GPD does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the capability of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation in excess of the code specified amount, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

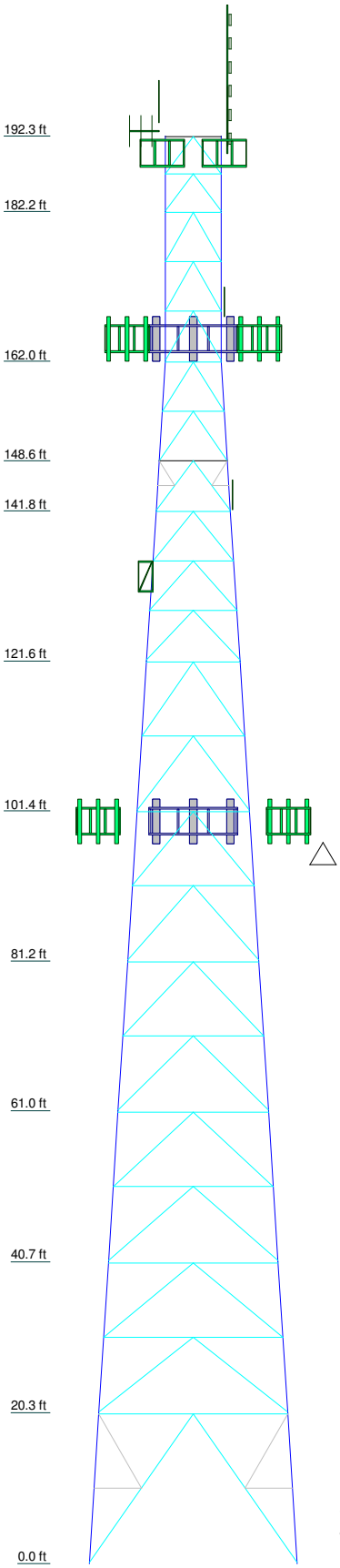
Towers are designed to carry gravity, wind, and ice loads. All members, legs, diagonals, struts, and redundant members provide structural stability to the tower with little redundancy. Absence or removal of a member can trigger catastrophic failure unless a substitute is provided before any removal. Legs carry axial loads and derive their strength from shorter unbraced lengths by the presence of redundant members and their connection to the diagonals with bolts or welds. If the bolts or welds are removed without providing any substitute to the frame, the leg is subjected to a higher unbraced length that immediately reduces its load carrying capacity. If a diagonal is also removed in addition to the connection, the unbraced length of the leg is greatly increased, jeopardizing its load carrying capacity. Failure of one leg can result in a tower collapse because there is no redundancy. Redundant members and diagonals are critical to the stability of the tower.

GPD makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDIX A

TNXTOWER OUTPUT

Section	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	ROHN 8 STD		ROHN 6 EH		ROHN 6 STD	ROHN 5 EH	ROHN 4 STD	ROHN 3 STD	ROHN 2.5 STD		
Leg Grade	A572-50										
Diagonals	Rohn 2.875" x 0.552"	ROHN 3 STD		ROHN 3 EH		ROHN 2.5 STD	ROHN 2 EH	ROHN 2 STD	ROHN 1.5 STD		
Diagonal Grade	44 ksi	A572-50									
Top Girts	N.A.							A	A	N.A.	A
Horizontals	ROHN 2.5 STD				ROHN 2 STD		ROHN 2 EH	N.A.	ROHN 1.5 STD		
Red. Horizontals	ROHN 1.5 STD			N.A.				B	N.A.		
Red. Diagonals	ROHN 2 STD			N.A.				B	N.A.		
Red. Hips	ROHN 2 STD			N.A.							
Inner Bracing	ROHN 2.5 EH	L3 1/2x3 1/2x1/4		L3x3x1/4		L2x2x1/8					
Face Width (ft)	25.427	22.8539		20.2809	17.7236	15.1664	12.6092	10.052	9.19779		7.5
# Panels @ (ft)	1 @ 20			10 @ 10				9 @ 6.66667			2 @ 5
Weight (K)	28.7	5.1	4.4	4.6	4.4	2.8	2.6	2.0	0.5	0.8	1.0	0.5



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Sector Mount [SM 701-1]	190	(2) CBC1921-DF-DC-6X	165
Sector Mount [SM 701-1]	190	TMA-S-DB1921-DD-A	165
SRL-235-2	190	TMA-S-DB1921-DD-A	165
DB806E-XT	190	TMA-S-DB1921-DD-A	165
ANT450Y5-WR	190	ASU9338TYP01	165
DB806-XC	190	ASU9338TYP01	165
HSS4"x4"x1/4" (8' Horizontal)	170	Pipe Mount [PM 601-1]	144
HSS4"x4"x1/4" (8' Horizontal)	170	Side Arm Mount [SO 301-1]	133
Pipe Mount [PM 601-1]	170	VF 13-30-96	100
Sector Mount [SM 402-3]	165	(3) 800 10865 w/ Mount Pipe	100
DBXNH-6565B-A2M w/ Mount Pipe	165	(3) 800 10865 w/ Mount Pipe	100
DBXNH-6565B-A2M w/ Mount Pipe	165	(3) 800 10865 w/ Mount Pipe	100
DBXNH-6565B-A2M w/ Mount Pipe	165	RRUS 11	100
(2) HBXX-3319DS-A2M	165	RRUS 11	100
(2) HBXX-3319DS-A2M	165	RRUS 11	100
(2) HBXX-3319DS-A2M	165	(3) RRUS-32 B30	100
(2) FRIJ	165	(3) RRUS-32 B30	100
(4) FRIJ	165	(3) RRUS-32 B30	100
(2) 4Tx RRH-FHFB	165	DC6-48-60-18-8F	100
(2) 4Tx RRH-FHFB	165	DC6-48-60-18-8F	100
(2) 4Tx RRH-FHFB	165	DC6-48-60-18-8F	100
(2) CBC1921-DF-DC-6X	165		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 1.5 STD	B	L2x2x1/8

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	44 ksi	44 ksi	60 ksi

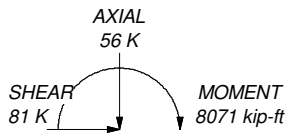
TOWER DESIGN NOTES

1. Tower is located in Broward County, Florida.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 170 mph basic wind in accordance with the TIA-222-G Standard.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 103.1%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 348 K
SHEAR: 47 K

UPLIFT: -313 K
SHEAR: 44 K



TORQUE 51 kip-ft
REACTIONS - 170 mph WIND

GPD
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Akron, Ohio 44311
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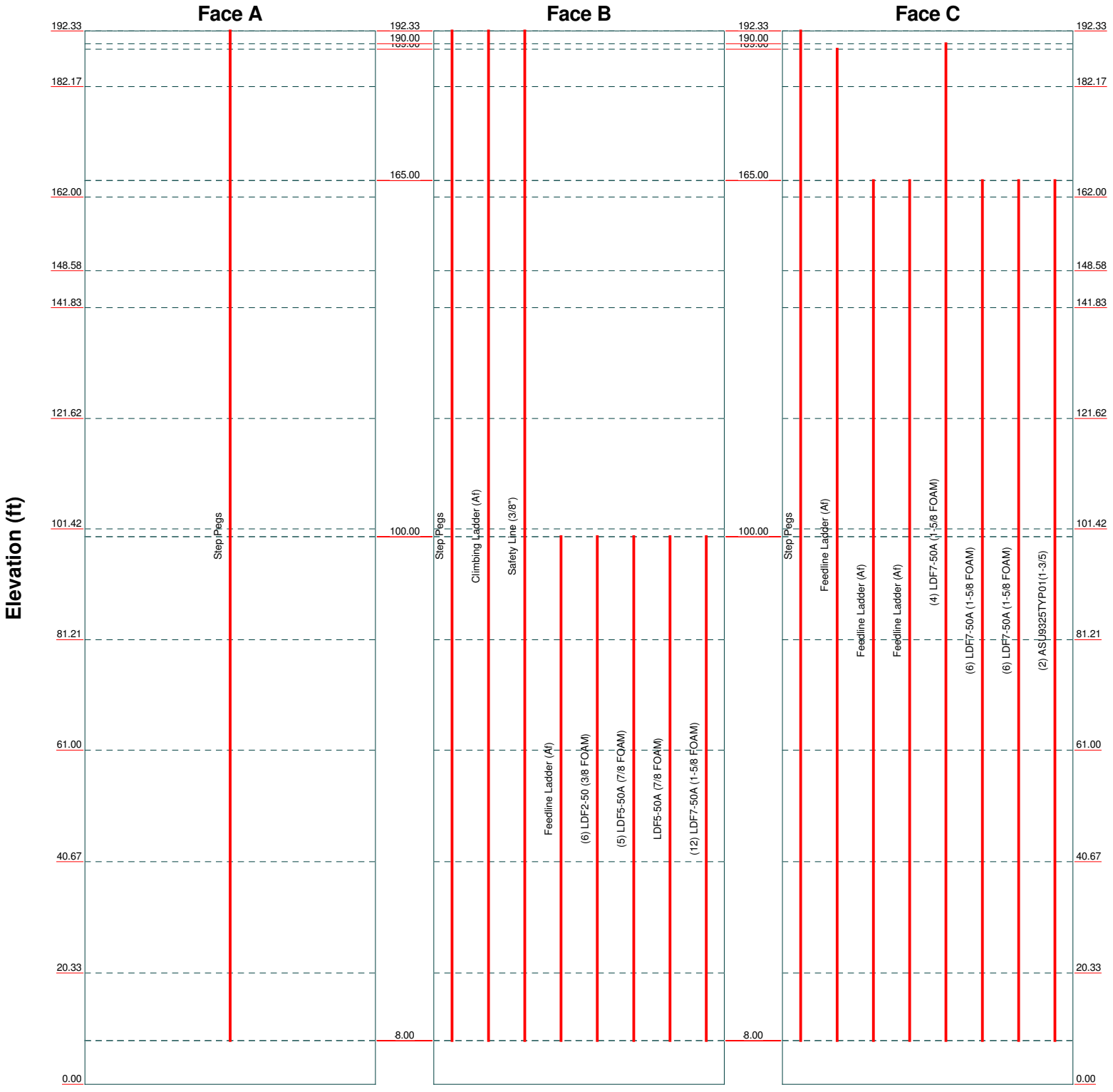
Job:	FL01 (BU #: 842800)		
Project:	2016777.842800.08		
Client: Crown Castle USA, Inc.	Drawn by: ESchnaus	App'd:	
Code: TIA-222-G	Date: 03/03/16	Scale: NTS	
Path: \\AKRN05.gpdco.com\TELECOM\Crown\842800\08\tnx\842800.eri		Dwg No. E-1	

Feed Line Distribution Chart
0' - 192'3-31/32"

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



GPD

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Job: ***FL01 (BU #: 842800)***			
Project: ***2016777.842800.08***			
Client: Crown Castle USA, Inc.	Drawn by: ESchnaus	App'd:	
Code: TIA-222-G	Date: 03/03/16	Scale: NTS	
Path: \\AKRN05.gpdco.com\TELECOM\Crown\842800\08\tnx\842800.eri		Dwg No. E-7	

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 192.33 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 7.50 ft at the top and 28.00 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Broward County, Florida.
ASCE 7-10 Wind Data is used.
Basic wind speed of 170 mph.
Risk Category II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
Deflections calculated using a wind speed of 60 mph.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	√ Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	√ Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	√ Use TIA-222-G Bracing Resist. Exemption
√ Include Bolts In Member Capacity	Autocalc Torque Arm Areas	Use TIA-222-G Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
√ Secondary Horizontal Braces Leg	√ Sort Capacity Reports By Component	Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric		

Tower Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
T1	192.33-182.17			7.50	1	10.17
T2	182.17-162.00			7.50	1	20.17
T3	162.00-148.58			7.50	1	13.42
T4	148.58-141.83			9.20	1	6.75
T5	141.83-121.62			10.05	1	20.21
T6	121.62-101.42			12.61	1	20.21
T7	101.42-81.21			15.17	1	20.21
T8	81.21-61.00			17.72	1	20.21
T9	61.00-40.67			20.28	1	20.33
T10	40.67-20.33			22.85	1	20.33
T11	20.33-0.00			25.43	1	20.33

Tower Section Geometry *(cont'd)*

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
T1	192.33-182.17	5.00	K Brace Down	No	Yes	1.0000	1.0000
T2	182.17-162.00	6.67	K Brace Down	No	Yes	1.0000	1.0000
T3	162.00-148.58	6.67	K Brace Down	No	Yes	1.0000	0.0000
T4	148.58-141.83	6.67	K1 Down	No	Yes	0.0000	1.0000
T5	141.83-121.62	6.67	K Brace Down	No	Yes	1.2500	1.2500
T6	121.62-101.42	10.00	K Brace Down	No	Yes	1.2500	1.2500
T7	101.42-81.21	10.00	K Brace Down	No	Yes	1.2500	1.2500
T8	81.21-61.00	10.00	K Brace Down	No	Yes	1.2500	1.2500
T9	61.00-40.67	10.00	K Brace Down	No	Yes	2.0000	2.0000
T10	40.67-20.33	10.00	K Brace Down	No	Yes	2.0000	2.0000
T11	20.33-0.00	20.00	K1 Down	No	Yes	2.0000	2.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 192.33-182.17	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T2 182.17-162.00	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T3 162.00-148.58	Pipe	ROHN 3 STD	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T4 148.58-141.83	Pipe	ROHN 3 STD	A572-50 (50 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T5 141.83-121.62	Pipe	ROHN 4 STD	A572-50 (50 ksi)	Pipe	ROHN 2 EH	A572-50 (50 ksi)
T6 121.62-101.42	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T7 101.42-81.21	Pipe	ROHN 6 STD	A572-50 (50 ksi)	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)
T8 81.21-61.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Pipe	ROHN 3 EH	A572-50 (50 ksi)
T9 61.00-40.67	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Pipe	ROHN 3 EH	A572-50 (50 ksi)
T10 40.67-20.33	Pipe	ROHN 8 STD	A572-50 (50 ksi)	Pipe	ROHN 3 STD	A572-50 (50 ksi)
T11 20.33-0.00	Pipe	ROHN 8 STD	A572-50 (50 ksi)	Pipe	Rohn 2.875" x 0.552"	44 ksi (44 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 192.33-182.17	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)	Solid Round		A36 (36 ksi)
T4 148.58-141.83	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)	Solid Round		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 192.33-182.17	None	Solid Round		A36 (36 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T2 182.17-162.00	None	Solid Round		A36 (36 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T3 162.00-148.58	None	Solid Round		A36 (36 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T4 148.58-141.83	None	Solid Round		A36 (36 ksi)	Pipe	ROHN 1.5 STD	A572-50 (50 ksi)
T5 141.83-121.62	None	Solid Round		A36 (36 ksi)	Pipe	ROHN 2 EH	A572-50 (50 ksi)
T6 121.62-101.42	None	Solid Round		A36 (36 ksi)	Pipe	ROHN 2 EH	A572-50 (50 ksi)
T7 101.42-81.21	None	Solid Round		A36 (36 ksi)	Pipe	ROHN 2 STD	A572-50 (50 ksi)
T8 81.21-61.00	None	Solid Round		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T9 61.00-40.67	None	Solid Round		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T10 40.67-20.33	None	Solid Round		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)
T11 20.33-0.00	None	Solid Round		A36 (36 ksi)	Pipe	ROHN 2.5 STD	A572-50 (50 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
T1 192.33-182.17	Solid Round		A36 (36 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T2 182.17-162.00	Solid Round		A36 (36 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T3 162.00-148.58	Solid Round		A36 (36 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T4 148.58-141.83	Solid Round		A36 (36 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T5 141.83-121.62	Solid Round		A36 (36 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T6 121.62-101.42	Solid Round		A36 (36 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T7 101.42-81.21	Solid Round		A36 (36 ksi)	Equal Angle	L2x2x1/8	A36 (36 ksi)
T8 81.21-61.00	Solid Round		A36 (36 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T9 61.00-40.67	Solid Round		A36 (36 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T10 40.67-20.33	Solid Round		A36 (36 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)
T11 20.33-0.00	Solid Round		A36 (36 ksi)	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Redundant Bracing Grade		Redundant Type	Redundant Size	K Factor
T4	A36	Horizontal (1)	Equal Angle	L2x2x1/8	1
148.58-141.83	(36 ksi)	Diagonal (1)	Equal Angle	L2x2x1/8	1
T11	A572-50	Horizontal (1)	Pipe	ROHN 1.5 STD	1
20.33-0.00	(50 ksi)	Diagonal (1)	Pipe	ROHN 2 STD	1
		Hip (1)	Pipe	ROHN 2 STD	1
		Hip Diagonal (1)	Pipe	ROHN 2 STD	1

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 192.33-182.17	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T2 182.17-162.00	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T3 162.00-148.58	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T4 148.58-141.83	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T5 141.83-121.62	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T6 121.62-101.42	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T7 101.42-81.21	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T8 81.21-61.00	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T9 61.00-40.67	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T10 40.67-20.33	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000	36.0000
T11 20.33-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	0.0000	0.0000	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 Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	No	1	1	1	1	1	1	1	1
192.33-182.17				1	1	1	1	1	1	1
T2	Yes	No	1	1	1	1	1	1	1	1
182.17-162.00				1	1	1	1	1	1	1
T3	Yes	No	1	1	1	1	1	1	1	1
162.00-148.58				1	1	1	1	1	1	1
T4	Yes	No	1	1	1	1	1	1	1	1
148.58-141.83				1	1	1	1	1	1	1

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T5	Yes	No	1	1	1	1	1	1	1	1
141.83-121.62				1	1	1	1	1	1	1
T6	Yes	No	1	1	1	1	1	1	1	1
121.62-101.42				1	1	1	1	1	1	1
T7	Yes	No	1	1	1	1	1	1	1	1
101.42-81.21				1	1	1	1	1	1	1
T8	Yes	No	1	1	1	1	1	1	1	1
81.21-61.00				1	1	1	1	1	1	1
T9	Yes	No	1	1	1	1	1	1	1	1
61.00-40.67				1	1	1	1	1	1	1
T10	Yes	No	1	1	1	1	1	1	1	1
40.67-20.33				1	1	1	1	1	1	1
T11	No	No	1	1	1	1	1	1	1	1
20.33-0.00				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	U	Diagonal Net Width Deduct in	U	Top Girt Net Width Deduct in	U	Bottom Girt Net Width Deduct in	U	Mid Girt Net Width Deduct in	U	Long Horizontal Net Width Deduct in	U	Short Horizontal Net Width Deduct in	U
T1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
192.33-182.17														
T2	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
182.17-162.00														
T3	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
162.00-148.58														
T4	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
148.58-141.83														
T5	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
141.83-121.62														
T6	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
121.62-101.42														
T7	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
101.42-81.21														
T8 81.21-61.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T9 61.00-40.67	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T10	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
40.67-20.33														
T11 20.33-0.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1

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 192.33-182.17	Flange	0.7500 A325N	4	0.5000 A325N	3	0.6250 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	2	0.0000 A325N	0
T2 182.17-162.00	Flange	0.7500 A325N	4	0.5000 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	2	0.0000 A325N	0
T3 162.00-148.58	Flange	0.8750 A325N	4	0.5000 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	2	0.0000 A325N	0
T4 148.58-141.83	Flange	0.0000 A325N	0	0.5000 A325N	3	0.6250 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	2	0.0000 A325N	0
T5 141.83-121.62	Flange	1.0000 A325N	4	0.5000 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	2	0.0000 A325N	0
T6 121.62-101.42	Flange	1.0000 A325N	6	0.5000 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.6250 A325N	2	0.0000 A325N	0
T7 101.42-81.21	Flange	1.0000 A325N	6	0.6250 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.7500 A325N	2	0.0000 A325N	0
T8 81.21-61.00	Flange	1.0000 A325N	6	0.6250 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.7500 A325N	2	0.0000 A325N	0
T9 61.00-40.67	Flange	1.0000 A325N	8	0.6250 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.7500 A325N	2	0.0000 A325N	0
T10 40.67-20.33	Flange	1.0000 A325N	8	0.6250 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.7500 A325N	2	0.0000 A325N	0
T11 20.33-0.00	Flange	1.0000 A354-BC	0	0.6250 A325N	3	0.0000 A325N	0	0.0000 A325N	0	0.0000 A325N	0	0.7500 A325N	2	0.0000 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
Step Pegs	A	No	Ar (CaAa)	192.33 - 8.00	0.0000	0.5	1	1	0.0000	0.8000		2.72
Step Pegs	B	No	Ar (CaAa)	192.33 - 8.00	0.0000	0.5	1	1	0.0000	0.8000		2.72
Step Pegs	C	No	Ar (CaAa)	192.33 - 8.00	0.0000	0.5	1	1	0.0000	0.8000		2.72
Climbing Ladder (Af)	B	No	Af (CaAa)	192.33 - 8.00	-8.0000	0.45	1	1	0.0000	3.0000		4.81
Safety Line (3/8")	B	No	Ar (CaAa)	192.33 - 8.00	-8.0000	0.45	1	1	0.0000	0.3750		0.22
Feedline Ladder (Af)	B	No	Af (CaAa)	100.00 - 8.00	0.0000	0.45	1	1	0.0000	1.6667		8.40
Feedline Ladder (Af)	C	No	Af (CaAa)	189.00 - 8.00	0.0000	-0.45	1	1	0.0000	2.0833		8.40
Feedline Ladder (Af)	C	No	Af (CaAa)	165.00 - 8.00	0.0000	0.4	1	1	0.0000	1.8750		8.40
Feedline Ladder (Af)	C	No	Af (CaAa)	165.00 - 8.00	-2.0000	0.4	1	1	0.0000	2.0833		8.40
LDF7-50A (1-5/8 FOAM)	C	No	Ar (CaAa)	190.00 - 8.00	0.0000	-0.45	4	4	1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	C	No	Ar (CaAa)	165.00 - 8.00	0.0000	0.45	6	6	1.0000	1.9800		0.82
LDF7-50A (1-5/8 FOAM)	C	No	Ar (CaAa)	165.00 - 8.00	-2.0000	0.45	6	6	1.0000	1.9800		0.82
ASU9325TYP01(1-3/5)	C	No	Ar (CaAa)	165.00 - 8.00	-2.0000	0.4	2	2	1.0000	1.5840		1.61
LDF2-50 (3/8 FOAM)	B	No	Ar (CaAa)	100.00 - 8.00	5.0000	0.45	6	6	0.5000	0.0000		0.08
LDF5-50A (7/8 FOAM)	B	No	Ar (CaAa)	100.00 - 8.00	4.0000	0.45	5	5	1.0000	0.0000		0.33
LDF5-50A (7/8 FOAM)	B	No	Ar (CaAa)	100.00 - 8.00	4.0000	0.45	1	1	1.0000	1.0900		0.33
LDF7-50A (1-5/8 FOAM)	B	No	Ar (CaAa)	100.00 - 8.00	0.0000	0.45	12	6	1.0000	1.9800		0.82

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Sector Mount [SM 701-1]	B	From Leg	0.50 0.00 0.00	0.0000	190.00	No Ice	13.80	3.75	0.28
Sector Mount [SM 701-1]	C	From Leg	0.50 0.00 0.00	0.0000	190.00	No Ice	13.80	3.75	0.28
SRL-235-2	B	From Leg	1.00 0.00 10.00	0.0000	190.00	No Ice	3.75	3.75	0.08
DB806E-XT	B	From Leg	1.00 0.00 5.00	0.0000	190.00	No Ice	1.50	1.50	0.02
ANT450Y5-WR	C	From Leg	1.00 0.00 3.00	0.0000	190.00	No Ice	2.80	0.81	0.01
DB806-XC	C	From Leg	1.00 0.00 7.00	0.0000	190.00	No Ice	1.07	1.07	0.02
HSS4"x4"x1/4" (8' Horizontal)	A	From Face	0.50 0.00 2.00	0.0000	170.00	No Ice	3.20	0.16	0.09
HSS4"x4"x1/4" (8' Horizontal)	A	From Face	0.50 0.00 -2.00	0.0000	170.00	No Ice	3.20	0.16	0.09
Pipe Mount [PM 601-1]	B	From Leg	0.50 0.00 0.00	0.0000	170.00	No Ice	3.00	0.90	0.07
Sector Mount [SM 402-3]	C	None		0.0000	165.00	No Ice	18.91	18.91	0.85
DBXNH-6565B-A2M w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	165.00	No Ice	8.36	6.75	0.07
DBXNH-6565B-A2M w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	165.00	No Ice	8.36	6.75	0.07
DBXNH-6565B-A2M w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	165.00	No Ice	8.36	6.75	0.07
(2) HBXX-3319DS-A2M	A	From Leg	4.00 0.00 0.00	0.0000	165.00	No Ice	10.57	3.01	0.04
(2) HBXX-3319DS-A2M	B	From Leg	4.00 0.00 0.00	0.0000	165.00	No Ice	10.57	3.01	0.04
(2) HBXX-3319DS-A2M	C	From Leg	4.00 0.00 0.00	0.0000	165.00	No Ice	10.57	3.01	0.04
(2) FRIJ	A	From Leg	4.00 0.00 0.00	0.0000	165.00	No Ice	2.42	1.52	0.07
(4) FRIJ	C	From Leg	4.00 0.00 0.00	0.0000	165.00	No Ice	2.42	1.52	0.07
(2) 4Tx RRH-FHFB	A	From Leg	4.00 0.00	0.0000	165.00	No Ice	2.42	1.52	0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) 4Tx RRH-FHFB	B	From Leg	0.00 4.00 0.00 0.00	0.0000	165.00	No Ice	2.42	1.52	0.07
(2) 4Tx RRH-FHFB	C	From Leg	0.00 4.00 0.00 0.00	0.0000	165.00	No Ice	2.42	1.52	0.07
(2) CBC1921-DF-DC-6X	A	From Leg	0.00 4.00 0.00 0.00	0.0000	165.00	No Ice	2.82	0.61	0.06
(2) CBC1921-DF-DC-6X	C	From Leg	0.00 4.00 0.00 0.00	0.0000	165.00	No Ice	2.82	0.61	0.06
TMA-S-DB1921-DD-A	A	From Leg	0.00 4.00 0.00 0.00	0.0000	165.00	No Ice	0.72	0.39	0.02
TMA-S-DB1921-DD-A	B	From Leg	0.00 4.00 0.00 0.00	0.0000	165.00	No Ice	0.72	0.39	0.02
TMA-S-DB1921-DD-A	C	From Leg	0.00 4.00 0.00 0.00	0.0000	165.00	No Ice	0.72	0.39	0.02
ASU9338TYP01	B	From Leg	0.00 4.00 0.00 0.00	0.0000	165.00	No Ice	3.20	1.03	0.02
ASU9338TYP01	C	From Leg	0.00 4.00 0.00 0.00	0.0000	165.00	No Ice	3.20	1.03	0.02
Pipe Mount [PM 601-1]	B	From Leg	0.00 0.50 0.00 0.00	0.0000	144.00	No Ice	3.00	0.90	0.07
Side Arm Mount [SO 301-1]	C	From Leg	0.00 1.00 0.00 0.00	0.0000	133.00	No Ice	1.00	0.90	0.02
VF 13-30-96	C	None		0.0000	100.00	No Ice	34.80	34.80	1.25
(3) 800 10865 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	100.00	No Ice	10.69	6.85	0.09
(3) 800 10865 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	100.00	No Ice	10.69	6.85	0.09
(3) 800 10865 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	100.00	No Ice	10.69	6.85	0.09
RRUS 11	A	From Leg	4.00 0.00 0.00	0.0000	100.00	No Ice	2.78	1.19	0.05
RRUS 11	B	From Leg	4.00 0.00 0.00	0.0000	100.00	No Ice	2.78	1.19	0.05
RRUS 11	C	From Leg	4.00 0.00 0.00	0.0000	100.00	No Ice	2.78	1.19	0.05
(3) RRUS-32 B30	A	From Leg	4.00 0.00 0.00	0.0000	100.00	No Ice	3.31	2.42	0.08
(3) RRUS-32 B30	B	From Leg	4.00	0.0000	100.00	No Ice	3.31	2.42	0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00 0.00						
(3) RRUS-32 B30	C	From Leg	4.00 0.00 0.00	0.0000	100.00	No Ice	3.31	2.42	0.08
DC6-48-60-18-8F	A	From Leg	4.00 0.00 0.00	0.0000	100.00	No Ice	2.20	2.20	0.02
DC6-48-60-18-8F	B	From Leg	4.00 0.00 0.00	0.0000	100.00	No Ice	2.20	2.20	0.02
DC6-48-60-18-8F	C	From Leg	4.00 0.00 0.00	0.0000	100.00	No Ice	2.20	2.20	0.02

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	192.333 - 182.167	2.390	34	0.1132	0.0202
T2	182.167 - 162	2.148	34	0.1127	0.0189
T3	162 - 148.583	1.672	33	0.1059	0.0132
T4	148.583 - 141.833	1.382	33	0.0953	0.0106
T5	141.833 - 121.625	1.251	33	0.0881	0.0095
T6	121.625 - 101.417	0.915	33	0.0690	0.0076
T7	101.417 - 81.2083	0.641	33	0.0579	0.0059
T8	81.2083 - 61	0.415	33	0.0443	0.0046
T9	61 - 40.6667	0.241	33	0.0342	0.0035
T10	40.6667 - 20.3333	0.111	29	0.0233	0.0024
T11	20.3333 - 0	0.022	37	0.0119	0.0010

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.00	Sector Mount [SM 701-1]	34	2.335	0.1132	0.0200	460190
170.00	HSS4"x4"x1/4" (8' Horizontal)	34	1.858	0.1097	0.0155	185067
165.00	Sector Mount [SM 402-3]	34	1.740	0.1075	0.0140	118228
144.00	Pipe Mount [PM 601-1]	33	1.291	0.0905	0.0099	49633
133.00	Side Arm Mount [SO 301-1]	33	1.094	0.0788	0.0085	61448
100.00	VF 13-30-96	33	0.623	0.0571	0.0058	104437

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	192.333 - 182.167	18.695	20	0.8719	0.1618
T2	182.167 - 162	16.826	20	0.8693	0.1519

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T3	162 - 148.583	13.136	20	0.8170	0.1055
T4	148.583 - 141.833	10.863	20	0.7394	0.0851
T5	141.833 - 121.625	9.834	20	0.6843	0.0764
T6	121.625 - 101.417	7.205	8	0.5382	0.0609
T7	101.417 - 81.2083	5.055	8	0.4519	0.0475
T8	81.2083 - 61	3.284	8	0.3459	0.0365
T9	61 - 40.6667	1.919	8	0.2670	0.0281
T10	40.6667 - 20.3333	0.886	8	0.1815	0.0191
T11	20.3333 - 0	0.173	4	0.0925	0.0080

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
190.00	Sector Mount [SM 701-1]	20	18.267	0.8720	0.1602	101149
170.00	HSS4"x4"x1/4" (8' Horizontal)	20	14.581	0.8462	0.1246	26364
165.00	Sector Mount [SM 402-3]	20	13.673	0.8293	0.1121	16402
144.00	Pipe Mount [PM 601-1]	20	10.155	0.7025	0.0791	6453
133.00	Side Arm Mount [SO 301-1]	20	8.611	0.6131	0.0682	7966
100.00	VF 13-30-96	8	4.919	0.4452	0.0466	13615

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	192.333	Leg	A325N	0.7500	4	1.00	29.82	0.033 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	3	0.89	7.95	0.111 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	0.83	12.43	0.067 ✔	1	Bolt Shear
		Top Girt	A325N	0.6250	3	0.19	12.43	0.015 ✔	1	Bolt Shear
T2	182.167	Leg	A325N	0.7500	4	5.89	29.82	0.198 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	3	2.75	7.95	0.346 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	2.06	12.43	0.166 ✔	1	Bolt Shear
T3	162	Leg	A325N	0.8750	4	9.32	40.59	0.230 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	3	3.46	7.95	0.434 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	2.90	12.43	0.233 ✔	1	Bolt Shear
T4	148.583	Diagonal	A325N	0.5000	3	3.24	7.95	0.408 ✔	1	Bolt Shear
		Top Girt	A325N	0.6250	3	1.89	12.43	0.152 ✔	1	Bolt Shear
T5	141.833	Leg	A325N	1.0000	4	23.81	53.01	0.449 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	3	3.37	7.95	0.424 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	3.47	12.43	0.279 ✔	1	Bolt Shear
T6	121.625	Leg	A325N	1.0000	6	21.14	53.01	0.399 ✔	1	Bolt Tension
		Diagonal	A325N	0.5000	3	4.31	7.95	0.541 ✔	1	Bolt Shear
		Horizontal	A325N	0.6250	2	3.79	12.43	0.305 ✔	1	Bolt Shear
T7	101.417	Leg	A325N	1.0000	6	27.97	53.01	0.528 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	5.91	12.43	0.476 ✔	1	Bolt Shear

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Horizontal	A325N	0.7500	2	5.89	17.89	0.329 ✔	1	Bolt Shear
T8	81.2083	Leg	A325N	1.0000	6	34.52	53.01	0.651 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	6.06	12.43	0.487 ✔	1	Bolt Shear
		Horizontal	A325N	0.7500	2	6.46	17.89	0.361 ✔	1	Bolt Shear
T9	61	Leg	A325N	1.0000	8	30.59	53.01	0.577 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	6.24	12.43	0.502 ✔	1	Bolt Shear
		Horizontal	A325N	0.7500	2	7.04	17.89	0.394 ✔	1	Bolt Shear
T10	40.6667	Leg	A325N	1.0000	8	35.16	53.01	0.663 ✔	1	Bolt Tension
		Diagonal	A325N	0.6250	3	6.49	12.43	0.522 ✔	1	Bolt Shear
		Horizontal	A325N	0.7500	2	7.66	17.89	0.428 ✔	1	Bolt Shear
T11	20.3333	Diagonal	A325N	0.6250	3	9.70	12.43	0.781 ✔	1	Bolt Shear
		Horizontal	A325N	0.7500	2	8.09	17.89	0.452 ✔	1	Bolt Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $P_u / \phi P_n$
T1	192.333 - 182.167	ROHN 2.5 STD	10.17	0.08	1.1 K=1.00	1.7040	-5.14	76.68	0.067 [1] ✔
T2	182.167 - 162	ROHN 2.5 STD	20.17	6.67	84.4 K=1.00	1.7040	-17.19	45.53	0.378 [1] ✔
T3	162 - 148.583	ROHN 3 STD	13.45	6.68	68.9 K=1.00	2.2285	-42.91	70.85	0.606 [1] ✔
T4	148.583 - 141.833	ROHN 3 STD	6.77	0.08	0.9 K=1.00	2.2285	-67.93	100.28	0.677 [1] ✔
T5	141.833 - 121.625	ROHN 4 STD	20.26	6.68	53.1 K=1.00	3.1741	-92.07	116.19	0.792 [1] ✔
T6	121.625 - 101.417	ROHN 5 EH	20.26	10.03	65.4 K=1.00	6.1114	-122.21	201.09	0.608 [1] ✔
T7	101.417 - 81.2083	ROHN 6 STD	20.26	10.03	53.6 K=1.00	5.5813	-162.18	203.60	0.797 [1] ✔
T8	81.2083 - 61	ROHN 6 EH	20.26	10.03	54.8 K=1.00	8.4049	-206.57	303.62	0.680 [1] ✔
T9	61 - 40.6667	ROHN 6 EH	20.39	10.03	54.8 K=1.00	8.4049	-249.24	303.62	0.821 [1] ✔
T10	40.6667 - 20.3333	ROHN 8 STD	20.39	10.03	41.0 K=1.00	8.3993	-290.46	334.34	0.869 [1] ✔
T11	20.3333 - 0	ROHN 8 STD	20.39	0.17	0.7 K=1.00	8.3993	-350.49	377.95	0.927 [1] ✔

[1] $P_u / \phi P_n$ controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	192.333 - 182.167	ROHN 1.5 STD	6.25	6.05	116.6 K=1.00	0.7995	-2.66	13.28	0.200 [1] ✔
T2	182.167 - 162	ROHN 1.5 STD	7.65	7.40	142.7 K=1.00	0.7995	-8.26	8.87	0.931 [1] ✔
T3	162 - 148.583	ROHN 2 STD	7.87	7.61	116.1 K=1.00	1.0745	-10.37	18.01	0.575 [1] ✔
T4	148.583 - 141.833	ROHN 2 STD	8.35	8.11	123.6 K=1.00	1.0745	-9.73	15.89	0.612 [1] ✔
T5	141.833 - 121.625	ROHN 2 EH	9.17	8.90	139.4 K=1.00	1.4773	-10.11	17.18	0.588 [1] ✔
T6	121.625 - 101.417	ROHN 2.5 STD	12.55	12.17	154.1 K=1.00	1.7040	-12.54	16.21	0.774 [1] ✔
T7	101.417 - 81.2083	ROHN 2.5 EH	13.36	12.95	168.1 K=1.00	2.2535	-17.73	18.01	0.984 [1] ✔
T8	81.2083 - 61	ROHN 3 EH	14.24	13.85	146.3 K=1.00	3.0159	-18.17	31.83	0.571 [1] ✔
T9	61 - 40.6667	ROHN 3 EH	15.18	14.81	156.4 K=1.00	3.0159	-18.73	27.84	0.673 [1] ✔
T10	40.6667 - 20.3333	ROHN 3 STD	16.17	15.71	162.1 K=1.00	2.2285	-19.46	19.17	1.015 [1] ✔
T11	20.3333 - 0	Rohn 2.875" x 0.552"	24.42	12.21	173.6 K=1.00	4.0285	-29.11	30.21	0.964 [1] ✔

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	192.333 - 182.167	ROHN 1.5 STD	7.50	3.63	70.0 K=1.00	0.7995	-1.66	25.15	0.066 [1] ✔
T2	182.167 - 162	ROHN 1.5 STD	7.50	3.63	70.0 K=1.00	0.7995	-4.12	25.15	0.164 [1] ✔
T3	162 - 148.583	ROHN 1.5 STD	7.51	3.61	69.6 K=1.00	0.7995	-5.79	25.25	0.229 [1] ✔
T5	141.833 - 121.625	ROHN 2 EH	11.75	5.69	89.1 K=1.00	1.4773	-6.94	37.22	0.187 [1] ✔
T6	121.625 - 101.417	ROHN 2 EH	13.89	6.71	105.1 K=1.00	1.4773	-7.59	29.65	0.256 [1] ✔
T7	101.417 - 81.2083	ROHN 2 STD	16.44	7.95	121.1 K=1.00	1.0745	-11.79	16.54	0.713 [1] ✔
T8	81.2083 - 61	ROHN 2.5 STD	19.00	9.23	116.8 K=1.00	1.7040	-12.92	28.20	0.458 [1] ✔
T9	61 - 40.6667	ROHN 2.5 STD	21.57	10.51	133.1 K=1.00	1.7040	-14.08	21.73	0.648 [1] ✔
T10	40.6667 - 20.3333	ROHN 2.5 STD	24.14	11.71	148.3 K=1.00	1.7040	-15.32	17.50	0.876 [1] ✔
T11	20.3333 - 0	ROHN 2.5 STD	25.45	12.36	156.6	1.7040	-16.18	15.70	1.031 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
					K=1.00				✔
		4.8.1 (1.03 CR) - 298							

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	192.333 - 182.167	ROHN 1.5 STD	7.50	3.63	70.0 K=1.00	0.7995	-0.57	25.15	0.023 [1] ✔
T4	148.583 - 141.833	ROHN 1.5 STD	9.20	4.45	85.8 K=1.00	0.7995	-5.68	20.99	0.271 [1] ✔

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	148.583 - 141.833	L2x2x1/8	2.30	2.15	92.5 K=1.42	0.4844	-0.95	9.81	0.096 [1] ✔
T11	20.3333 - 0	ROHN 1.5 STD	6.36	6.00	115.7 K=1.00	0.7995	-5.37	13.49	0.398 [1] ✔

[1] P_u / ϕP_n controls

Redundant Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	148.583 - 141.833	L2x2x1/8	3.94	3.66	115.3 K=1.04	0.4844	-0.81	7.71	0.105 [1] ✔
T11	20.3333 - 0	ROHN 2 STD	11.53	10.81	164.8 K=1.00	1.0745	-4.86	8.94	0.544 [1] ✔

[1] P_u / ϕP_n controls

Redundant Hip (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	20.3333 - 0	ROHN 2 STD	6.36	6.36	97.0 K=1.00	1.0745	-0.04	24.31	0.002 [1] ✔

[1] P_u / ϕP_n controls

Redundant Hip Diagonal (1) Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	20.3333 - 0	ROHN 2 STD	15.17	15.17	231.2 K=1.00	1.0745	-0.05	4.54	0.010 [1] ✔

[1] P_u / ϕP_n controls

Inner Bracing Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	192.333 - 182.167	L2x2x1/8	3.75	3.75	116.6 K=1.03	0.4844	-0.01	7.59	0.001 [1] ✔
T2	182.167 - 162	L2x2x1/8	3.75	3.75	116.6 K=1.03	0.4844	-0.01	7.59	0.001 [1] ✔
T3	162 - 148.583	L2x2x1/8	3.76	3.76	116.7 K=1.03	0.4844	-0.01	7.59	0.001 [1] ✔
T4	148.583 - 141.833	L2x2x1/8	4.60	4.60	138.8 K=1.00	0.4844	-0.10	5.68	0.018 [1] ✔
T5	141.833 - 121.625	L2x2x1/8	5.88	5.88	177.4 K=1.00	0.4844	-0.01	3.48	0.002 [1] ✔
T6	121.625 - 101.417	L2x2x1/8	6.94	6.94	209.6 K=1.00	0.4844	-0.01	2.49	0.003 [1] ✔
T7	101.417 - 81.2083	L2x2x1/8	8.22	8.22	248.2 K=1.00	0.4844	-0.01	1.78	0.005 [1] ✔
T8	81.2083 - 61	L3x3x1/4	9.50	9.50	192.5 K=1.00	1.4375	-0.01	8.77	0.001 [1] ✔
T9	61 - 40.6667	L3x3x1/4	10.78	10.78	218.4 K=1.00	1.4375	-0.01	6.81	0.002 [1] ✔
T10	40.6667 - 20.3333	L3 1/2x3 1/2x1/4	12.07	12.07	208.7 K=1.00	1.6900	-0.01	8.77	0.001 [1] ✔
T11	20.3333 - 0	ROHN 2.5 EH	12.72	12.72	165.2 K=1.00	2.2535	-0.01	18.65	0.001 [1] ✔

[1] P_u / ϕP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	192.333 - 182.167	ROHN 2.5 STD	10.17	0.08	1.1	1.7040	3.98	76.68	0.052 [1] ✔
T2	182.167 - 162	ROHN 2.5 STD	20.17	0.08	1.1	1.7040	23.57	76.68	0.307 [1] ✔
T3	162 - 148.583	ROHN 3 STD	13.45	6.68	68.9	2.2285	37.27	100.28	0.372 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	148.583 - 141.833	ROHN 3 STD	6.77	0.08	0.9	2.2285	61.13	100.28	0.610 [1]
T5	141.833 - 121.625	ROHN 4 STD	20.26	0.10	0.8	3.1741	95.25	142.83	0.667 [1]
T6	121.625 - 101.417	ROHN 5 EH	20.26	0.10	0.7	6.1114	126.85	275.01	0.461 [1]
T7	101.417 - 81.2083	ROHN 6 STD	20.26	0.10	0.6	5.5813	167.82	251.16	0.668 [1]
T8	81.2083 - 61	ROHN 6 EH	20.26	0.10	0.6	8.4049	207.12	378.22	0.548 [1]
T9	61 - 40.6667	ROHN 6 EH	20.39	0.17	0.9	8.4049	244.72	378.22	0.647 [1]
T10	40.6667 - 20.3333	ROHN 8 STD	20.39	0.17	0.7	8.3993	281.25	377.97	0.744 [1]
T11	20.3333 - 0	ROHN 8 STD	20.39	0.17	0.7	8.3993	315.76	377.97	0.835 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	192.333 - 182.167	ROHN 1.5 STD	6.25	6.05	116.6	0.7995	2.61	35.98	0.072 [1]
T2	182.167 - 162	ROHN 1.5 STD	7.65	7.40	142.7	0.7995	8.21	35.98	0.228 [1]
T3	162 - 148.583	ROHN 2 STD	7.87	7.61	116.1	1.0745	10.30	48.35	0.213 [1]
T4	148.583 - 141.833	ROHN 2 STD	8.35	8.11	123.6	1.0745	9.61	48.35	0.199 [1]
T5	141.833 - 121.625	ROHN 2 EH	9.17	8.90	139.4	1.4773	9.96	66.48	0.150 [1]
T6	121.625 - 101.417	ROHN 2.5 STD	12.18	11.80	149.4	1.7040	12.75	76.68	0.166 [1]
T7	101.417 - 81.2083	ROHN 2.5 EH	13.36	12.95	168.1	2.2535	17.50	101.41	0.173 [1]
T8	81.2083 - 61	ROHN 3 EH	14.24	13.85	146.3	3.0159	17.76	135.72	0.131 [1]
T9	61 - 40.6667	ROHN 3 EH	15.18	14.81	156.4	3.0159	18.25	135.72	0.135 [1]
T10	40.6667 - 20.3333	ROHN 3 STD	16.17	15.71	162.1	2.2285	18.98	100.28	0.189 [1]
T11	20.3333 - 0	4.8.1 (1.01 CR) - 273 Rohn 2.875" x 0.552"	24.42	12.21	173.6	4.0285	28.25	159.53	0.177 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	192.333 - 182.167	ROHN 1.5 STD	7.50	3.63	70.0	0.7995	1.67	35.98	0.046 [1] ✔
T2	182.167 - 162	ROHN 1.5 STD	7.50	3.63	70.0	0.7995	4.12	35.98	0.115 [1] ✔
T3	162 - 148.583	ROHN 1.5 STD	7.51	3.61	69.6	0.7995	5.75	35.98	0.160 [1] ✔
T5	141.833 - 121.625	ROHN 2 EH	11.75	5.69	89.1	1.4773	6.94	66.48	0.104 [1] ✔
T6	121.625 - 101.417	ROHN 2 EH	13.89	6.71	105.1	1.4773	7.59	66.48	0.114 [1] ✔
T7	101.417 - 81.2083	ROHN 2 STD	16.44	7.95	121.1	1.0745	11.79	48.35	0.244 [1] ✔
T8	81.2083 - 61	ROHN 2.5 STD	19.00	9.23	116.8	1.7040	12.92	76.68	0.168 [1] ✔
T9	61 - 40.6667	ROHN 2.5 STD	21.57	10.51	133.1	1.7040	14.08	76.68	0.184 [1] ✔
T10	40.6667 - 20.3333	ROHN 2.5 STD	24.14	11.71	148.3	1.7040	15.32	76.68	0.200 [1] ✔
T11	20.3333 - 0	ROHN 2.5 STD	25.45	12.36	156.6	1.7040	16.18	76.68	0.211 [1] ✔

4.8.1 (1.03 CR) - 298

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	192.333 - 182.167	ROHN 1.5 STD	7.50	3.63	70.0	0.7995	0.57	35.98	0.016 [1] ✔
T4	148.583 - 141.833	ROHN 1.5 STD	9.20	4.45	85.8	0.7995	5.67	35.98	0.158 [1] ✔

[1] P_u / ϕP_n controls

Redundant Horizontal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	148.583 - 141.833	L2x2x1/8	2.30	2.15	41.3	0.4844	0.95	15.69	0.060 [1] ✔
T11	20.3333 - 0	ROHN 1.5 STD	6.36	6.00	115.7	0.7995	5.37	35.98	0.149 [1] ✔

[1] P_u / ϕP_n controls

Redundant Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	148.583 - 141.833	L2x2x1/8	3.94	3.66	70.2	0.4844	0.81	15.69	0.052 [1] ✔
T11	20.3333 - 0	ROHN 2 STD	11.53	10.81	164.8	1.0745	4.86	48.35	0.101 [1] ✔

[1] P_u / ϕP_n controls

Redundant Hip (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	20.3333 - 0	ROHN 2 STD	6.36	6.36	97.0	1.0745	0.02	48.35	0.000 [1] ✔

[1] P_u / ϕP_n controls

Redundant Hip Diagonal (1) Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	20.3333 - 0	ROHN 2 STD	15.17	15.17	231.2	1.0745	0.04	48.35	0.001 [1] ✔

[1] P_u / ϕP_n controls

Inner Bracing Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	192.333 - 182.167	L2x2x1/8	3.75	3.75	71.9	0.4844	0.01	15.69	0.001 [1] ✔
T2	182.167 - 162	L2x2x1/8	3.75	3.75	71.9	0.4844	0.01	15.69	0.000 [1] ✔
T3	162 - 148.583	L2x2x1/8	3.76	3.76	72.0	0.4844	0.01	15.69	0.001 [1] ✔
T4	148.583 - 141.833	L2x2x1/8	4.60	4.60	88.1	0.4844	0.10	15.69	0.006 [1] ✔
T5	141.833 - 121.625	L2x2x1/8	5.03	5.03	96.4	0.4844	0.00	15.69	0.000 [1] ✔
T6	121.625 - 101.417	L2x2x1/8	6.31	6.31	120.9	0.4844	0.00	15.69	0.000 [1] ✔
T7	101.417 - 81.2083	L2x2x1/8	7.59	7.59	145.4	0.4844	0.00	15.69	0.000 [1] ✔
T8	81.2083 - 61	L3x3x1/4	8.87	8.87	114.4	1.4375	0.00	46.58	0.000 [1] ✔

[1] P_u / ϕP_n controls

Section Capacity Table

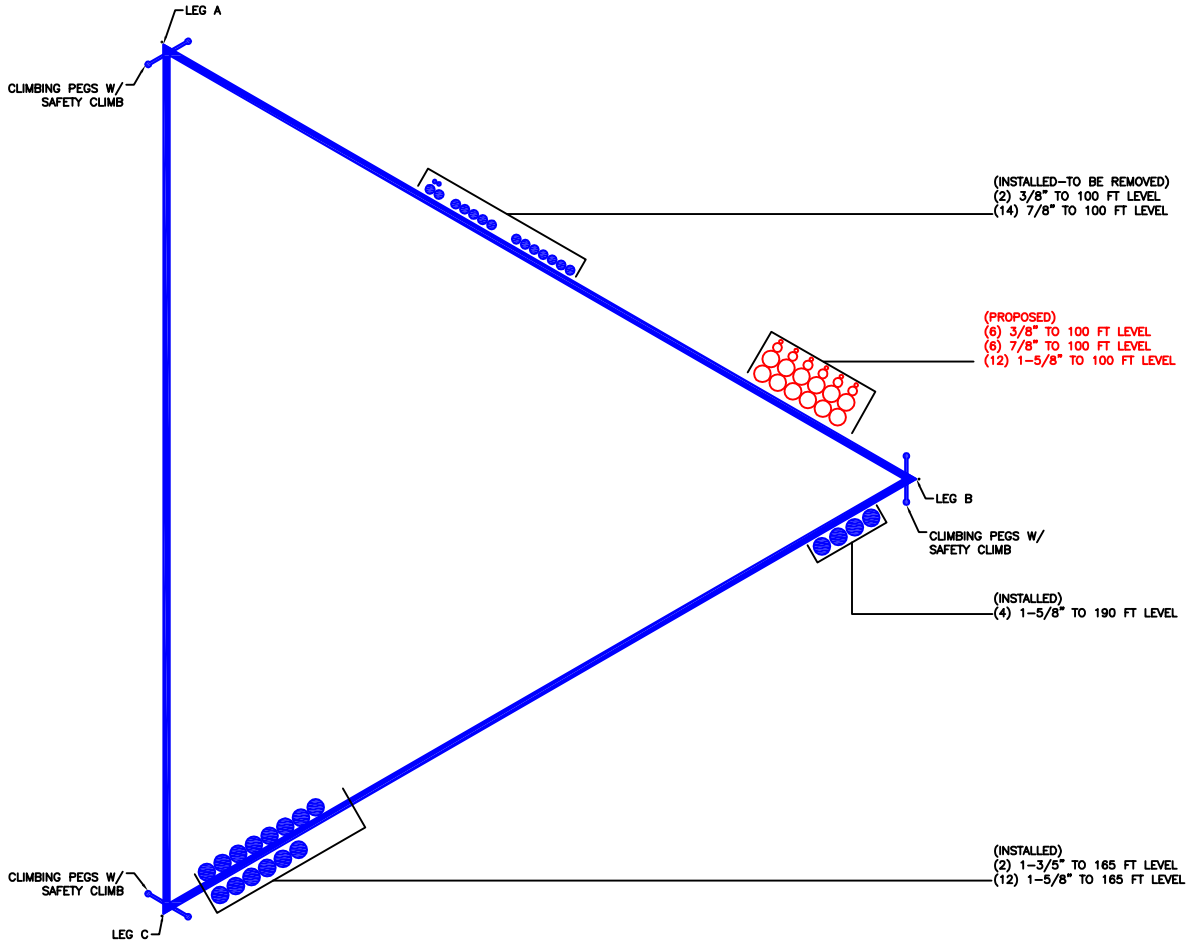
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	192.333 - 182.167	Leg	ROHN 2.5 STD	2	-5.14	76.68	6.7	Pass
T2	182.167 - 162	Leg	ROHN 2.5 STD	28	-17.19	45.53	37.8	Pass
T3	162 - 148.583	Leg	ROHN 3 STD	67	-42.91	70.85	60.6	Pass
T4	148.583 - 141.833	Leg	ROHN 3 STD	94	-67.93	100.28	67.7	Pass
T5	141.833 - 121.625	Leg	ROHN 4 STD	121	-92.07	116.19	79.2	Pass
T6	121.625 - 101.417	Leg	ROHN 5 EH	160	-122.21	201.09	60.8	Pass
T7	101.417 - 81.2083	Leg	ROHN 6 STD	187	-162.18	203.60	79.7	Pass
T8	81.2083 - 61	Leg	ROHN 6 EH	214	-206.57	303.62	68.0	Pass
T9	61 - 40.6667	Leg	ROHN 6 EH	241	-249.24	303.62	82.1	Pass
T10	40.6667 - 20.3333	Leg	ROHN 8 STD	268	-290.46	334.34	86.9	Pass
T11	20.3333 - 0	Leg	ROHN 8 STD	295	-350.49	377.95	92.7	Pass
T1	192.333 - 182.167	Diagonal	ROHN 1.5 STD	8	-2.66	13.28	20.0	Pass
T2	182.167 - 162	Diagonal	ROHN 1.5 STD	33	-8.26	8.87	93.1	Pass
T3	162 - 148.583	Diagonal	ROHN 2 STD	84	-10.37	18.01	57.5	Pass
T4	148.583 - 141.833	Diagonal	ROHN 2 STD	103	-9.73	15.89	61.2	Pass
T5	141.833 - 121.625	Diagonal	ROHN 2 EH	126	-10.11	17.18	58.8	Pass
T6	121.625 - 101.417	Diagonal	ROHN 2.5 STD	165	-12.54	16.21	77.4	Pass
T7	101.417 - 81.2083	Diagonal	ROHN 2.5 EH	192	-17.73	18.01	98.4	Pass
T8	81.2083 - 61	Diagonal	ROHN 3 EH	219	-18.17	31.83	57.1	Pass
T9	61 - 40.6667	Diagonal	ROHN 3 EH	245	-18.73	27.84	67.3	Pass
T10	40.6667 - 20.3333	Diagonal	ROHN 3 STD	272	-19.46	19.17	101.5	Pass
T11	20.3333 - 0	Diagonal	Rohn 2.875" x 0.552"	299	-29.11	30.21	96.4	Pass
T1	192.333 - 182.167	Horizontal	ROHN 1.5 STD	7	-1.66	25.15	6.6 6.7 (b)	Pass
T2	182.167 - 162	Horizontal	ROHN 1.5 STD	31	-4.12	25.15	16.4 16.6 (b)	Pass
T3	162 - 148.583	Horizontal	ROHN 1.5 STD	82	-5.79	25.25	22.9 23.3 (b)	Pass
T5	141.833 - 121.625	Horizontal	ROHN 2 EH	124	-6.94	37.22	18.7 27.9 (b)	Pass
T6	121.625 - 101.417	Horizontal	ROHN 2 EH	163	-7.59	29.65	25.6 30.5 (b)	Pass
T7	101.417 - 81.2083	Horizontal	ROHN 2 STD	190	-11.79	16.54	71.3	Pass
T8	81.2083 - 61	Horizontal	ROHN 2.5 STD	217	-12.92	28.20	45.8	Pass
T9	61 - 40.6667	Horizontal	ROHN 2.5 STD	244	-14.08	21.73	64.8	Pass
T10	40.6667 - 20.3333	Horizontal	ROHN 2.5 STD	271	-15.32	17.50	87.6	Pass
T11	20.3333 - 0	Horizontal	ROHN 2.5 STD	298	-16.18	15.70	103.1	Pass
T1	192.333 - 182.167	Top Girt	ROHN 1.5 STD	4	-0.57	25.15	2.3	Pass
T4	148.583 - 141.833	Top Girt	ROHN 1.5 STD	97	-5.68	20.99	27.1	Pass
T4	148.583 - 141.833	Redund Horz 1 Bracing	L2x2x1/8	101	-0.95	9.81	9.6	Pass
T11	20.3333 - 0	Redund Horz 1	ROHN 1.5 STD	300	-5.37	13.49	39.8	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
		Bracing						
T4	148.583 - 141.833	Redund Diag 1 Bracing	L2x2x1/8	117	-0.81	7.71	10.5	Pass
T11	20.3333 - 0	Redund Diag 1 Bracing	ROHN 2 STD	320	-4.86	8.94	54.4	Pass
T11	20.3333 - 0	Redund Hip 1 Bracing	ROHN 2 STD	323	-0.04	24.31	0.2	Pass
T11	20.3333 - 0	Redund Hip Diagonal 1 Bracing	ROHN 2 STD	324	-0.05	4.54	1.0	Pass
T1	192.333 - 182.167	Inner Bracing	L2x2x1/8	27	-0.01	7.59	0.1	Pass
T2	182.167 - 162	Inner Bracing	L2x2x1/8	40	-0.01	7.59	0.1	Pass
T3	162 - 148.583	Inner Bracing	L2x2x1/8	93	-0.01	7.59	0.1	Pass
T4	148.583 - 141.833	Inner Bracing	L2x2x1/8	120	-0.10	5.68	1.8	Pass
T5	141.833 - 121.625	Inner Bracing	L2x2x1/8	135	-0.01	3.48	0.2	Pass
T6	121.625 - 101.417	Inner Bracing	L2x2x1/8	174	-0.01	2.49	0.3	Pass
T7	101.417 - 81.2083	Inner Bracing	L2x2x1/8	201	-0.01	1.78	0.5	Pass
T8	81.2083 - 61	Inner Bracing	L3x3x1/4	227	-0.01	8.77	0.2	Pass
T9	61 - 40.6667	Inner Bracing	L3x3x1/4	254	-0.01	6.81	0.2	Pass
T10	40.6667 - 20.3333	Inner Bracing	L3 1/2x3 1/2x1/4	282	-0.01	8.77	0.2	Pass
T11	20.3333 - 0	Inner Bracing	ROHN 2.5 EH	325	-0.01	18.65	0.2	Pass

Summary	ELC:	Load Case 7
Leg (T11)	92.7	Pass
Diagonal (T10)	101.5	Pass
Horizontal (T11)	103.1	Pass
Top Girt (T4)	27.1	Pass
Redund Horz 1 Bracing (T11)	39.8	Pass
Redund Diag 1 Bracing (T11)	54.4	Pass
Redund Hip 1 Bracing (T11)	0.2	Pass
Redund Hip Diagonal 1 Bracing (T11)	1.0	Pass
Inner Bracing (T4)	1.8	Pass
Bolt Checks	78.1	Pass
Rating =	103.1	Pass

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 842800 TOWER ID: C_BASELEVEL

CROWN REGION ADDRESS

USA

13/05/14	NEW BUILD PER WORK ORDER # 763498	NJH
13/05/14	UPDATED PER WORK ORDER # 784202	NJH
08/04/15	UPDATED PER WORK ORDER # 1030664 1022998	AH
10/10/2015	UPDATED PER WORK ORDER 1130486	ADE

DRAWN BY: VJL
CHECKED BY: NJH
DRAWING DATE: 12/05/14

SITE NUMBER:
SITE NAME:

SITE NAME

FL01

BUSINESS UNIT NUMBER

842800

SITE ADDRESS

4470 NORTHWEST 39TH AVENUE
POMPANO BEACH, FL 33073
BROWARD COUNTY
USA

SHEET TITLE

BASE LEVEL

SHEET NUMBER

A1-0

BASE LEVEL DRAWING	SCALE: N.T.S.	1

PLOT DATE: 2/29/2016 FILE NAME: 842800_BASELEVEL.dwg

Xref R:\TEMPLATES\TYPICAL BLOCKS FOR TEMPLATES\TITLE BLOCK STD-VER 8.1.dwg

APPENDIX C

ADDITIONAL CALCULATIONS

Anchor Rod Check for Self Supporting Towers

TIA-222-G, Section 4.9.9 Rev. 6.1

Site Data	
BU#:	**842800**
Site Name:	**FL01**
App #:	**335241 Rev. 0**

Anchor Rod Data		
Qty:	**8**	
Diam:	**1**	in
Rod Material:	**A354 Gr. BC (1/4 to 2-1/2 incl.)**	
Strength (Fu):	125	ksi
Yield (Fy):	109	ksi

* Rod Circle:		in
* e:		in
* # of Rods		1 or 2

Mu= Pu x e:		ft-kips

** Only enter rod circle, offset (e) and number of anchor rods at the extreme fiber to consider if eccentric load due to leg reinforcement exist.*

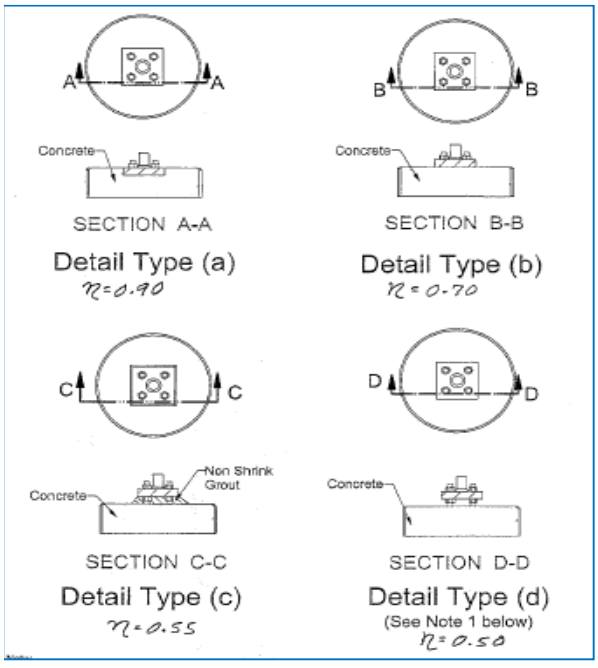


Figure 4-4 of TIA-222-G

Reactions		
Eta Factor, η	**0.55**	Detail Type
Uplift, Pu:	**313**	kips
Shear, Vu:	**44**	kips

l_{ar}:		in
$Mu = 0.65*l_{ar}*V_u$		ft-kips

Anchor Rod Results:

Max Rod (Cu+ Vu/ń):	49.1	Kips
Design Axial, Φ*Fu*Anet:	60.6	Kips
Anchor Rod Stress Ratio:	81.1%	

If Applicable;

Anchor Rod Results with Bending Considered:

When the clear distance from the top of concrete to the bottom of level nut excceeds 1.0 times the diameter of the anchor rod, the following interaction equation shall also be satisfied (see Figure 4-4 of Rev. G):

$$(V_u/\phi R_{nv})^2 + [(P_u/\phi R_{nt}) + (M_u/\phi R_{nm})]^2 <= 1$$

$\phi R_{nv}=\phi*0.45*F_{ub}*A_b=$		kips
$\phi R_{nt}=\phi*F_u*A_{net}=$		kips
$\phi R_{nm}=\phi*F_y*Z=$		ft-kips

Maximum Acceptable Ratio:	**105**	%
Governing Stress Ratio:	**81.1%**	**Pass**

GPD GROUP®
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.

Job FL01 (BU #: 842800); 2016777.842800.08
Sheet No. 1 of 1
Calculated by EWS Date 3/3/16
Checked by IM Date 3/3/16

CAISSON FOUNDATION (W/ COLLAR) CALCULATIONS

tnxTower Reactions

Uplift = 313 kips
Compression = 348 kips

Weight Calculations

$$\text{Caisson Weight} = \left[\left(\frac{\pi}{4}\right)\cdot(4')^2\right]\cdot(2.25')\cdot(0.150\text{ kcf}) + \left[\left(\frac{\pi}{4}\right)\cdot(4')^2\right]\cdot(48.75')\cdot(0.0876\text{ kcf}) = 57.9058\text{ kips}$$

$$\text{Collar Weight} = \left[(12')\cdot(12') - \left(\frac{\pi}{4}\right)\cdot(4')^2\right]\cdot(2.25')\cdot(0.150\text{ kcf}) + \left[(12')\cdot(12') - \left(\frac{\pi}{4}\right)\cdot(4')^2\right]\cdot(5.75')\cdot(0.0876\text{ kcf})$$
$$= 110.5620\text{ kips}$$

Effective Soil Weight Removed; Caisson (from Spreadsheet) = 33.8569 kips

$$\text{Effective Soil Weight Removed; Collar} = \left[(12')\cdot(12') - \left(\frac{\pi}{4}\right)\cdot(4')^2\right]\cdot(2')\cdot(0.105\text{ kcf}) + \left[(12')\cdot(12') - \left(\frac{\pi}{4}\right)\cdot(4')^2\right]\cdot(3')\cdot(0.0426\text{ kcf}) + \left[(12')\cdot(12') - \left(\frac{\pi}{4}\right)\cdot(4')^2\right]\cdot(2.75')\cdot(0.0526\text{ kcf}) = 63.4102\text{ kips}$$

Uplift Check

Caisson Weight Resistance = (0.9) · (57.9058 kips) = 52.1152 kips
Collar Weight Resistance = (0.9) · (110.5620 kips) = 99.5058 kips
Caisson Uplift Skin Friction Resistance (from Spreadsheet) = 148.4214 kips
Collar Uplift Skin Friction Resistance =(0.75) · (48′) · [(3′) · (0.198 ksf) + (2.75′) · (0.520 ksf)] = 72.8640 kips
Total Uplift Resistance = 52.1152 kips + 99.5058 kips + 148.4214 kips + 72.8640 kips = 372.9064 kips

$$\text{Uplift Capacity} = \left(\frac{313\text{ kips}}{372.9064\text{ kips}}\right)\cdot(100\%) = 83.9\%$$

Compression Check

Caisson End Bearing Resistance (from Spreadsheet) = 37.6991 kips

$$\text{Collar End Bearing Resistance} = (0.75)\cdot\left[(12')\cdot(12') - \left(\frac{\pi}{4}\right)\cdot(4')^2\right]\cdot(4\text{ ksf}) = 394.3009\text{ kips}$$

Caisson Compresion Skin Friction Resistance (from Spreadsheet) = 202.5243 kips
Collar Compression Skin Friction Resistance = (0.75) · (48′) · [(3′) · (0.282 ksf) + (2.75′) · (0.748 ksf)] = 104.5080 kips
Total Compression Resistance = 37.6991 kips + 394.3009 kips + 202.5243 kips + 104.5080 kips = 739.0323 kips

$$\text{Compression Capacity} = \left[\frac{348\text{ kips} + (1.2)\cdot(57.9058\text{ kips} - 33.8569\text{ kips}) + (1.2)\cdot(110.5620\text{ kips} - 63.4102\text{ kips})}{739.0323\text{ kips}}\right]\cdot(100\%) = 58.6\%$$

Pile Structural Properties and Geometry

Total number of pile sections = 2

Total length of pile = 51.00 ft

Depth of ground surface below top of pile = 0.25 ft

Pile diameter values used for p-y curve computations are defined using 4 points.

p-y curves are computed using pile diameter values interpolated with depth over the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	120.0000000
2	8.000000	120.0000000
3	8.000000	48.0000000
4	51.000000	48.0000000

Input Structural Properties:

Pile Section No. 1:

Section Type = Rectangular Concrete Pile
Section Length = 8.00000 ft

Pile Section No. 2:

Section Type = Drilled Shaft (Bored Pile)
Section Length = 43.00000 ft
Section Diameter = 48.00000 in

Ground Slope and Pile Batter Angles

Ground Slope Angle = 0.000 degrees
= 0.000 radians

Pile Batter Angle = 0.000 degrees
= 0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 4 layers

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

Distance from top of pile to top of layer = 0.25000 ft
Distance from top of pile to bottom of layer = 5.25000 ft
Effective unit weight at top of layer = 105.00000 pcf
Effective unit weight at bottom of layer = 105.00000 pcf
Friction angle at top of layer = 29.00000 deg.
Friction angle at bottom of layer = 29.00000 deg.
Subgrade k at top of layer = 25.00000 pci
Subgrade k at bottom of layer = 25.00000 pci

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 5.25000 ft
Distance from top of pile to bottom of layer = 20.25000 ft
Effective unit weight at top of layer = 115.00000 pcf
Effective unit weight at bottom of layer = 115.00000 pcf
Friction angle at top of layer = 34.00000 deg.
Friction angle at bottom of layer = 34.00000 deg.
Subgrade k at top of layer = 60.00000 pci
Subgrade k at bottom of layer = 60.00000 pci

Layer 3 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 20.25000 ft
Distance from top of pile to bottom of layer = 30.25000 ft
Effective unit weight at top of layer = 110.00000 pcf
Effective unit weight at bottom of layer = 110.00000 pcf
Friction angle at top of layer = 33.00000 deg.
Friction angle at bottom of layer = 33.00000 deg.
Subgrade k at top of layer = 60.00000 pci
Subgrade k at bottom of layer = 60.00000 pci

Layer 4 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 30.25000 ft
Distance from top of pile to bottom of layer = 51.00000 ft
Effective unit weight at top of layer = 115.00000 pcf
Effective unit weight at bottom of layer = 115.00000 pcf
Friction angle at top of layer = 34.00000 deg.

Friction angle at bottom of layer = 34.00000 deg.
Subgrade k at top of layer = 60.00000 pci
Subgrade k at bottom of layer = 60.00000 pci

(Depth of lowest soil layer extends 0.00 ft below pile tip)

Summary of Soil Properties

Layer Num.	Layer Soil Type (p-y Curve Criteria)	Layer Depth ft	Effective Unit Wt. pcf	Angle of Friction deg.	kpy pci
1	Sand (Reese, et al.)	0.250	105.000	29.000	25.000
		5.250	105.000	29.000	25.000
2	Sand (Reese, et al.)	5.250	115.000	34.000	60.000
		20.250	115.000	34.000	60.000
3	Sand (Reese, et al.)	20.250	110.000	33.000	60.000
		30.250	110.000	33.000	60.000
4	Sand (Reese, et al.)	30.250	115.000	34.000	60.000
		51.000	115.000	34.000	60.000

Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 2

Load No.	Load Type	Condition 1		Condition 2		Axial Thrust Force, lbs	Compute Top y vs. Pile Length
1	1	V =	44000. lbs	M =	0.0000 in-lbs	-313000.	No
2	1	V =	47000. lbs	M =	0.0000 in-lbs	348000.	No

V = perpendicular shear force applied to pile head
M = bending moment applied to pile head
y = lateral deflection relative to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applie to pile head
Axial thrust is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 2

Pile Section No. 1:

Dimensions and Properties of Rectangular Concrete Pile:

Length of Section = 8.00000 ft
Depth of Section = 168.00000 in
Width of Section = 120.00000 in
Number of Reinforcing Bars = 12 bars
Yield Stress of Reinforcing Bars = 60000. psi
Modulus of Elasticity of Reinforcing Bars = 29000000. psi
Compressive Strength of Concrete = 4000.00000 psi
Modulus of Rupture of Concrete = -474.34165 psi
Gross Area of Pile = 20160. sq. in.
Total Area of Reinforcing Steel = 9.48000 sq. in.
Area Ratio of Steel Reinforcement = 0.04702 percent

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As = 69080.570 kips
Tensile Load for Cracking of Concrete = -8412.512 kips
Nominal Axial Tensile Capacity = -568.800 kips

Concrete Properties:

Compressive Strength of Concrete = 4000.00000 psi
Modulus of Elasticity of Concrete = 3604997. psi
Modulus of Rupture of Concrete = -474.34164 psi
Compression Strain at Peak Stress = 0.00189
Tensile Strain at Fracture of Concrete = -0.0001154
Maximum Coarse Aggregate Size = 0.75000 in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 2

Number	Axial Thrust Force kips
1	-313.000
2	348.000

Definitions of Run Messages and Notes:

C = concrete in section has cracked in tension.
Y = stress in reinforcing steel has reached yield stress.
T = ACI 318-08 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than than 0.003. See ACI 318-08, Section 10.3.4.
Z = depth of tensile zone in concrete section is less than 10 percent of section depth.

Bending Stiffness (EI) = Computed Bending Moment / Curvature.
Position of neutral axis is measured from edge of compression side of pile.
Compressive stresses and strains are positive in sign.
Tensile stresses and strains are negative in sign.

Axial Thrust Force = -313.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Max Concrete Stress ksi	Max Steel Stress ksi	Run Msg
0.000000179	35788.	2.004104E+11	63.4730305	0.0000113	-0.0000187	0.0472946	-0.5369504	
0.000000357	71373.	1.998457E+11	73.6959021	0.0000263	-0.0000337	0.1095940	-0.9680210	
0.000000536	106745.	1.992579E+11	77.1031287	0.0000413	-0.0000487	0.1713976	-1.3990978	
0.000000714	141903.	1.986642E+11	78.8065420	0.0000563	-0.0000637	0.2327058	-1.8301788	
0.000000893	176847.	1.980682E+11	79.8284445	0.0000713	-0.0000787	0.2935187	-2.2612635	
0.000001071	211576.	1.974710E+11	80.5095946	0.0000863	-0.0000937	0.3538362	-2.6923519	
0.000001250	246091.	1.968731E+11	80.9960299	0.0001012	-0.0001088	0.4136583	-3.1234439	
0.000001429	246091.	1.722639E+11	-712.9559958	-0.0010185	-0.0012585	0.000000	-36.4619484	C
0.000001607	246091.	1.531235E+11	-624.4049830	-0.0010035	-0.0012735	0.000000	-36.8925822	C
0.000001786	246091.	1.378111E+11	-553.5641727	-0.0009885	-0.0012885	0.000000	-37.3232161	C
0.000001964	246091.	1.252829E+11	-495.6035098	-0.0009735	-0.0013035	0.000000	-37.7538499	C
0.000002143	246091.	1.148426E+11	-447.3029573	-0.0009585	-0.0013185	0.000000	-38.1844838	C
0.000002321	246091.	1.060086E+11	-406.4332591	-0.0009435	-0.0013335	0.000000	-38.6151176	C
0.000002500	246091.	98436531041.	-371.4020892	-0.0009285	-0.0013485	0.000000	-39.0457515	C
0.000002679	246091.	91874095639.	-341.0417420	-0.0009135	-0.0013635	0.000000	-39.4763853	C
0.000002857	246091.	86131964661.	-314.4764381	-0.0008985	-0.0013785	0.000000	-39.9070191	C
0.000003036	246091.	81065378505.	-291.0364641	-0.0008835	-0.0013935	0.000000	-40.3376530	C
0.000003214	246091.	76561746365.	-270.2009317	-0.0008685	-0.0014085	0.000000	-40.7682868	C
0.000003393	246091.	72532180767.	-251.5586132	-0.0008535	-0.0014235	0.000000	-41.1989207	C
0.000003571	246091.	68905571729.	-234.7805266	-0.0008385	-0.0014385	0.000000	-41.6295545	C
0.000003750	246091.	65624354028.	-219.6003529	-0.0008235	-0.0014535	0.000000	-42.0601884	C
0.000003929	246091.	62641428844.	-205.8001951	-0.0008085	-0.0014685	0.000000	-42.4908222	C
0.000004107	246091.	59917888460.	-193.2000510	-0.0007935	-0.0014835	0.000000	-42.9214561	C
0.000004286	246091.	57421309774.	-181.6499189	-0.0007785	-0.0014985	0.000000	-43.3520899	C
0.000004464	246091.	55124457383.	-171.0237973	-0.0007635	-0.0015135	0.000000	-43.7827237	C
0.000004643	246091.	53004285945.	-161.2150698	-0.0007485	-0.0015285	0.000000	-44.2133576	C
0.000004821	246091.	51041164244.	-152.1329146	-0.0007335	-0.0015435	0.000000	-44.6439914	C
0.000005000	246091.	49218265521.	-143.6994848	-0.0007185	-0.0015585	0.000000	-45.0746253	C
0.000005179	246091.	47521083951.	-135.8476709	-0.0007035	-0.0015735	0.000000	-45.5052591	C
0.000005357	246091.	45937047819.	-128.5193112	-0.0006885	-0.0015885	0.000000	-45.9358930	C
0.000005536	246091.	44455207567.	-121.6637489	-0.0006735	-0.0016035	0.000000	-46.3665268	C
0.000005714	246091.	43065982331.	-115.2366593	-0.0006585	-0.0016185	0.000000	-46.7971606	C
0.000005893	246091.	41760952563.	-109.1990902	-0.0006435	-0.0016335	0.000000	-47.2277944	C
0.000006071	246091.	40532689252.	-103.5166723	-0.0006285	-0.0016485	0.000000	-47.6584283	C
0.000006250	246091.	39374612417.	-98.1589639	-0.0006135	-0.0016635	0.000000	-48.0890622	C
0.000006429	246091.	38280873183.	-93.0989061	-0.0005985	-0.0016785	0.000000	-48.5196960	C
0.000006607	246091.	37246254989.	-88.3123648	-0.0005835	-0.0016935	0.000000	-48.9503300	C
0.000006786	246091.	36266090384.	-83.7777468	-0.0005685	-0.0017085	0.000000	-49.3809637	C
0.000006964	246091.	35336190630.	-79.4756733	-0.0005535	-0.0017235	0.000000	-49.8115977	C
0.000007321	246091.	33612474014.	-71.5010981	-0.0005235	-0.0017535	0.000000	-50.6728651	C
0.000007679	246091.	32049103130.	-64.2683437	-0.0004935	-0.0017835	0.000000	-51.5341328	C
0.000008036	246091.	30624698546.	-57.6785009	-0.0004635	-0.0018135	0.000000	-52.3954006	C
0.000008393	246091.	29321519885.	-51.6494958	-0.0004335	-0.0018435	0.000000	-53.2566684	C
0.000008750	246091.	28124723155.	-46.1126544	-0.0004035	-0.0018735	0.000000	-54.1179362	C
0.000009107	246091.	27021792835.	-41.0100750	-0.0003735	-0.0019035	0.000000	-54.9792037	C
0.000009464	246091.	26002102539.	-36.2925959	-0.0003435	-0.0019335	0.000000	-55.8404714	C
0.000009821	246091.	25056571538.	-31.9182063	-0.0003135	-0.0019635	0.000000	-56.7017390	C
0.0000102	246091.	24177393589.	-27.8507913	-0.0002835	-0.0019935	0.000000	-57.5630068	C
0.0000105	246091.	23357820925.	-24.0591333	-0.0002535	-0.0020235	0.000000	-58.4242745	C
0.0000109	246091.	22591990731.	-20.5161087	-0.0002235	-0.0020535	0.000000	-59.2855421	CY
0.0000112	246091.	21874784676.	-17.1980379	-0.0001935	-0.0020835	0.000000	-60.0000000	CY
0.0000116	246091.	21201714378.	-14.0841562	-0.0001635	-0.0021135	0.000000	-60.0000000	CY
0.0000120	246091.	20568827382.	-11.1561778	-0.0001335	-0.0021435	0.000000	-60.0000000	CY
0.0000123	246091.	19972629487.	-8.3979373	-0.0001035	-0.0021735	0.000000	-60.0000000	CY
0.0000127	246091.	19410020205.	-5.7950906	-0.0000735	-0.0022035	0.000000	-60.0000000	CY
0.0000130	246091.	18878238830.	-3.3348657	-0.0000435	-0.0022335	0.000000	-60.0000000	CY
0.0000134	246091.	18374819128.	-1.0058527	-0.0000135	-0.0022635	0.000000	-60.0000000	CY
0.0000137	246091.	17897551098.	0.9281398	0.0000128	-0.0022972	0.0051383	-60.0000000	CY
0.0000141	246091.	17444448539.	1.4391563	0.0000203	-0.0023497	0.0357677	-60.0000000	CY
0.0000145	246091.	17013721415.	1.9264006	0.0000279	-0.0024021	0.0663682	-60.0000000	CY
0.0000148	246091.	16603752224.	2.3916038	0.0000354	-0.0024546	0.0969396	-60.0000000	CY
0.0000152	246091.	16213075701.	2.6992129	0.0000410	-0.0025090	0.1187914	-60.0000000	CY
0.0000155	246091.	15840361317.	2.9401241	0.0000457	-0.0025643	0.1371797	-60.0000000	CY
0.0000159	246091.	15484398141.	3.1707005	0.0000504	-0.0026196	0.1555568	-60.0000000	CY
0.0000162	246091.	15144081699.	3.3916261	0.0000551	-0.0026749	0.1739228	-60.0000000	CY
0.0000166	246091.	14818402522.	3.6035264	0.0000598	-0.0027302	0.1922776	-60.0000000	CY
0.0000170	246091.	14506436153.	3.8069740	0.0000646	-0.0027854	0.2106211	-60.0000000	CY
0.0000173	246091.	14207334377.	4.0024945	0.0000693	-0.0028407	0.2289534	-60.0000000	CY
0.0000177	246091.	13920317521.	4.1905708	0.0000741	-0.0028959	0.2472742	-60.0000000	CY

0.0000180	246091.	13644667669.	4.3191860	0.0000779	-0.0029521	0.2617053	-60.0000000	CY
0.0000184	246091.	13379722666.	4.4402624	0.0000817	-0.0030083	0.2759170	-60.0000000	CY
0.0000187	246091.	13124870806.	4.5569467	0.0000854	-0.0030646	0.2901185	-60.0000000	CY
0.0000191	246091.	12879546118.	4.6694863	0.0000892	-0.0031208	0.3043099	-60.0000000	CY
0.0000195	246091.	12643224170.	4.7781101	0.0000930	-0.0031770	0.3184910	-60.0000000	CY
0.0000198	246091.	12415418330.	4.8830307	0.0000968	-0.0032332	0.3326618	-60.0000000	CY
0.0000202	246091.	12195676412.	4.9844456	0.0001006	-0.0032894	0.3468224	-60.0000000	CY
0.0000205	246091.	11983577692.	5.0825386	0.0001044	-0.0033456	0.3609726	-60.0000000	CY
0.0000209	246091.	11778730210.	5.1774809	0.0001082	-0.0034018	0.3751125	-60.0000000	CY
0.0000212	246091.	11580768358.	5.2694323	0.0001120	-0.0034580	0.3892420	-60.0000000	CY
0.0000227	246091.	10851271138.	5.6101702	0.0001272	-0.0036828	0.4456559	-60.0000000	CY
0.0000241	246091.	10208232849.	5.9054417	0.0001424	-0.0039076	0.5011396	-60.0000000	CY
0.0000255	246091.	9637142899.	6.1123979	0.0001561	-0.0041339	0.5506298	-60.0000000	CY
0.0000270	246091.	9126565792.	6.2173731	0.0001676	-0.0043624	0.5913216	-60.0000000	CY
0.0000284	246091.	8667367513.	6.0763216	0.0001725	-0.0045975	0.6057028	-60.0000000	CY
0.0000298	246091.	8252164279.	5.9489176	0.0001774	-0.0048326	0.6200692	-60.0000000	CY
0.0000312	246091.	7874922483.	5.8168110	0.0001818	-0.0050682	0.6324170	-60.0000000	CY
0.0000327	246091.	7530663577.	5.6741625	0.0001854	-0.0053046	0.6419373	-60.0000000	CY
0.0000341	246091.	7215243113.	5.5435269	0.0001891	-0.0055409	0.6514525	-60.0000000	CY
0.0000355	246091.	6925183088.	5.4234552	0.0001927	-0.0057773	0.6609626	-60.0000000	CY
0.0000370	246091.	6657543162.	5.3127228	0.0001964	-0.0060136	0.6704674	-60.0000000	CY
0.0000384	246091.	6409820626.	5.2102870	0.0002000	-0.0062500	0.6799671	-60.0000000	CY
0.0000398	246091.	6179871904.	5.1152550	0.0002037	-0.0064863	0.6894615	-60.0000000	CY
0.0000412	246091.	5965850366.	5.0268576	0.0002074	-0.0067226	0.6989506	-60.0000000	CY
0.0000427	246091.	5766156630.	4.9444286	0.0002110	-0.0069590	0.7084344	-60.0000000	CY
0.0000441	246091.	5579398521.	4.8673879	0.0002147	-0.0071953	0.7179128	-60.0000000	CY
0.0000455	246091.	5404358567.	4.7952285	0.0002184	-0.0074316	0.7273858	-60.0000000	CY
0.0000470	246091.	5239967432.	4.7275050	0.0002220	-0.0076680	0.7368534	-60.0000000	CY
0.0000484	246091.	5085282046.	4.6638245	0.0002257	-0.0079043	0.7463156	-60.0000000	CY
0.0000498	246091.	4939467507.	4.6038392	0.0002294	-0.0081406	0.7557722	-60.0000000	CY
0.0000512	246091.	4801782002.	4.5472402	0.0002330	-0.0083770	0.7652233	-60.0000000	CY
0.0000527	246091.	4671564185.	4.4937518	0.0002367	-0.0086133	0.7746689	-60.0000000	CY
0.0000541	246091.	4548222556.	4.4431279	0.0002404	-0.0088496	0.7841088	-60.0000000	CY
0.0000555	246091.	4431226478.	4.3951472	0.0002441	-0.0090859	0.7935431	-60.0000000	CY
0.0000570	246091.	4320098541.	4.3496110	0.0002478	-0.0093222	0.8029717	-60.0000000	CY
0.0000584	246091.	4214408057.	4.3063398	0.0002515	-0.0095585	0.8123946	-60.0000000	CY
0.0000598	246091.	4113765476.	4.2651715	0.0002551	-0.0097949	0.8218118	-60.0000000	CY
0.0000612	246091.	4017817594.	4.2259587	0.0002588	-0.0100312	0.8312232	-60.0000000	CY
0.0000627	246091.	3926243403.	4.1823316	0.0002621	-0.0102679	0.8391551	-60.0000000	CY
0.0000641	246091.	3838750514.	4.1271457	0.0002646	-0.0105054	0.8438170	-60.0000000	CY
0.0000655	246091.	3755072029.	4.0743784	0.0002670	-0.0107430	0.8484784	-60.0000000	CY
0.0000670	246091.	3674963826.	4.0238750	0.0002695	-0.0109805	0.8531396	-60.0000000	CY
0.0000684	246091.	3598202179.	3.9754936	0.0002719	-0.0112181	0.8578004	-60.0000000	CY
0.0000698	246091.	3524581674.	3.9291039	0.0002743	-0.0114557	0.8624609	-60.0000000	CY
0.0000712	246091.	3453913370.	3.8845862	0.0002768	-0.0116932	0.8671211	-60.0000000	CY
0.0000727	246091.	3386023181.	3.8418300	0.0002792	-0.0119308	0.8717809	-60.0000000	CY
0.0000741	246091.	3320750445.	3.8007335	0.0002817	-0.0121683	0.8764404	-60.0000000	CY
0.0000755	246091.	3257946654.	3.7612025	0.0002841	-0.0124059	0.8810995	-60.0000000	CY
0.0000770	246091.	3197474326.	3.7231499	0.0002865	-0.0126435	0.8857583	-60.0000000	CY
0.0000784	246091.	3139206001.	3.6864948	0.0002890	-0.0128810	0.8904168	-60.0000000	CY
0.0000870	246091.	2829797607.	3.4920553	0.0003037	-0.0143063	0.9183593	-60.0000000	CY
0.0000955	246091.	2575909224.	3.3328203	0.0003184	-0.0157316	0.9462870	-60.0000000	CY
0.0001041	246091.	2363827504.	3.2000946	0.0003332	-0.0171568	0.9741985	-60.0000000	CY
0.0001127	246091.	2184011782.	3.0878287	0.0003479	-0.0185821	1.0020923	-60.0000000	CY
0.0001212	246091.	2029619197.	2.9916835	0.0003627	-0.0200073	1.0299669	-60.0000000	CY
0.0001298	246091.	1895614078.	2.9084664	0.0003776	-0.0214324	1.0578208	-60.0000000	CY
0.0001384	246091.	1778208303.	2.8357751	0.0003925	-0.0228575	1.0856527	-60.0000000	CY
0.0001470	246091.	1674497490.	2.7717684	0.0004074	-0.0242826	1.1134610	-60.0000000	CY
0.0001555	246091.	1582217491.	2.7150104	0.0004223	-0.0257077	1.1412442	-60.0000000	CY
0.0001641	246091.	1499577187.	2.6643656	0.0004372	-0.0271328	1.1690008	-60.0000000	CY
0.0001727	246091.	1425141091.	2.6189238	0.0004522	-0.0285578	1.1967295	-60.0000000	CY
0.0001812	246091.	1357745256.	2.5779470	0.0004673	-0.0299827	1.2244287	-60.0000000	CY
0.0001898	246091.	1296435969.	2.5408305	0.0004823	-0.0314077	1.2520969	-60.0000000	CY
0.0001984	246091.	1240424334.	2.4914052	0.0004943	-0.0328357	1.2688493	-60.0000000	CY
0.0002070	246091.	1189052144.	2.4230122	0.0005015	-0.0342685	1.2688493	-60.0000000	CY
0.0002155	246091.	1141765894.	2.3600589	0.0005087	-0.0357013	1.2688493	-60.0000000	CY
0.0002241	246091.	1098096761.	2.3019212	0.0005159	-0.0371341	1.2688493	-60.0000000	CY
0.0002327	246091.	1057645000.	2.2480669	0.0005231	-0.0385669	1.2688493	-60.0000000	CY
0.0002413	246091.	1020067679.	2.1980393	0.0005303	-0.0399997	1.2688493	-60.0000000	CY
0.0002498	246091.	985068931.	2.1514447	0.0005375	-0.0414325	1.2688493	-60.0000000	CY
0.0002584	246091.	952392146.	2.1079414	0.0005447	-0.0428653	1.2688493	-60.0000000	CY
0.0002670	246091.	921813669.	2.0672315	0.0005519	-0.0442981	1.2688493	-60.0000000	CY
0.0002755	246091.	893137676.	2.0290545	0.0005591	-0.0457309	1.2688493	-60.0000000	CY
0.0002841	246091.	866191976.	1.9931811	0.0005663	-0.0471637	1.2688493	-60.0000000	CY
0.0002927	246091.	840824548.	1.9594089	0.0005735	-0.0485965	1.2688493	-60.0000000	CY
0.0003013	246091.	816900673.	1.9275585	0.0005807	-0.0500293	1.2688493	-60.0000000	CY
0.0003098	246091.	794300539.	1.8974704	0.0005879	-0.0514621	1.2688493	-60.0000000	CY
0.0003184	246091.	772917238.	1.8690023	0.0005951	-0.0528949	1.2688493	-60.0000000	CY
0.0003270	246091.	752655071.	1.8420268	0.0006023	-0.0543277	1.2688493	-60.0000000	CY
0.0003355	246091.	733428118.	1.8164296	0.0006095	-0.0557605	1.2688493	-60.0000000	CY
0.0003441	246091.	715159022.	1.7921075	0.0006167	-0.0571933	1.2688493	-60.0000000	CY

Warning: 150 values were calculated for moment-curvature.
This usually indicates that the pile is too weak or is under-reinforced, where all reinforcing steel has yielded.

The input data should be examined and the amount of steel reinforcement should be increased if necessary.

Axial Thrust Force = 348.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Max Concrete Stress ksi	Max Steel Stress ksi	Run Msg
0.000000179	35785.	2.003938E+11	106.8227616	0.0000191	-0.0000109	0.0798636	0.5488393	
0.000000357	71370.	1.998372E+11	95.4564392	0.0000341	-0.0000259	0.1420322	0.9799560	
0.000000536	106742.	1.992522E+11	91.6681537	0.0000491	-0.0000409	0.2037050	1.4110802	
0.000000714	141900.	1.986599E+11	89.7742422	0.0000641	-0.0000559	0.2648815	1.8422093	
0.000000893	176843.	1.980647E+11	88.6380595	0.0000791	-0.0000709	0.3255617	2.2733426	
0.000001071	211573.	1.974680E+11	87.8807377	0.0000942	-0.0000858	0.3857456	2.7044801	

0.000001250	246088.	1.968705E+11	87.3399056	0.0001092	-0.0001008	0.4454330	3.1356216	
0.000001429	246088.	1.722617E+11	31.9647318	0.0000457	-0.0001943	0.1863564	-5.6009468	C
0.000001607	246088.	1.531215E+11	30.2793456	0.0000487	-0.0002213	0.1981470	-6.3796162	C
0.000001786	246088.	1.378094E+11	28.8629593	0.0000515	-0.0002485	0.2094173	-7.1618111	C
0.000001964	246088.	1.252812E+11	27.6590415	0.0000543	-0.0002757	0.2203061	-7.9465725	C
0.000002143	246088.	1.148411E+11	26.5970907	0.0000570	-0.0003030	0.2306615	-8.7349808	C
0.000002321	246088.	1.060072E+11	25.6763475	0.0000596	-0.0003304	0.2407911	-9.5248816	C
0.000002500	246088.	98435261514.	24.8558612	0.0000621	-0.0003579	0.2505860	-10.3170501	C
0.000002679	246088.	91872910747.	24.1298512	0.0000646	-0.0003854	0.2602042	-11.1103776	C
0.000002857	246088.	86130853825.	23.4640706	0.0000670	-0.0004130	0.2694528	-11.9062341	C
0.000003036	246088.	81064333012.	22.8768876	0.0000694	-0.0004406	0.2786934	-12.7020669	C
0.000003214	246088.	76560758956.	22.3303423	0.0000718	-0.0004682	0.2875994	-13.5001931	C
0.000003393	246088.	72531245326.	21.8280662	0.0000741	-0.0004959	0.2963111	-14.2996242	C
0.000003571	246088.	68904683060.	21.3762203	0.0000763	-0.0005237	0.3050155	-15.0990343	C
0.000003750	246088.	65623507676.	20.9649141	0.0000786	-0.0005514	0.3136716	-15.8987156	C
0.000003929	246088.	62640620964.	20.5628221	0.0000808	-0.0005792	0.3218674	-16.7016070	C
0.000004107	246088.	59917115704.	20.1958495	0.0000829	-0.0006071	0.3300566	-17.5044801	C
0.000004286	246088.	57420569217.	19.8596063	0.0000851	-0.0006349	0.3382393	-18.3073346	C
0.000004464	246088.	55123746448.	19.5504052	0.0000873	-0.0006627	0.3464154	-19.1101707	C
0.000004643	246088.	53003602354.	19.2601597	0.0000894	-0.0006906	0.3544917	-19.9136571	C
0.000004821	246088.	51040505970.	18.9722336	0.0000915	-0.0007185	0.3621849	-20.7198252	C
0.000005000	246088.	49217630757.	18.7049857	0.0000935	-0.0007465	0.3698723	-21.5259771	C
0.000005179	246088.	47520471076.	18.4562769	0.0000956	-0.0007744	0.3775538	-22.3321127	C
0.000005357	246088.	45936455373.	18.2242534	0.0000976	-0.0008024	0.3852295	-23.1382320	C
0.000005536	246088.	44454634232.	18.0073005	0.0000997	-0.0008303	0.3928993	-23.9443351	C
0.000005714	246088.	43065426913.	17.8040054	0.0001017	-0.0008583	0.4005632	-24.7504219	C
0.000005893	246088.	41760413976.	17.6104482	0.0001038	-0.0008862	0.4081577	-25.5569502	C
0.000006071	246088.	40532166506.	17.4129826	0.0001057	-0.0009143	0.4153715	-26.3661713	C
0.000006250	246088.	39374104606.	17.2268803	0.0001077	-0.0009423	0.4225799	-27.1753779	C
0.000006429	246088.	38280379478.	17.0511945	0.0001096	-0.0009704	0.4297832	-27.9845701	C
0.000006607	246088.	37245774627.	16.8850807	0.0001116	-0.0009984	0.4369811	-28.7937479	C
0.000006786	246088.	36265622663.	16.7277832	0.0001135	-0.0010265	0.4441738	-29.6029112	C
0.000006964	246088.	35335734903.	16.5786238	0.0001155	-0.0010545	0.4513612	-30.4120601	C
0.000007321	246088.	33612040517.	16.3023380	0.0001194	-0.0011106	0.4657202	-32.0303143	C
0.000007679	246088.	32048689795.	16.0520137	0.0001233	-0.0011667	0.4800580	-33.6485105	C
0.000008036	246088.	30624303582.	15.8091036	0.0001270	-0.0012230	0.4938933	-35.2701643	C
0.000008393	246088.	29321141728.	15.5777405	0.0001307	-0.0012793	0.5073978	-36.8940392	C
0.000008750	246088.	28124360433.	15.3654708	0.0001344	-0.0013356	0.5208834	-38.5178618	C
0.000009107	246088.	27021444337.	15.1700486	0.0001382	-0.0013918	0.5343501	-40.1416318	C
0.000009464	246088.	26001767192.	14.9895668	0.0001419	-0.0014481	0.5477978	-41.7653492	C
0.000009821	246088.	25056248385.	14.8223960	0.0001456	-0.0015044	0.5612265	-43.3890140	C
0.0000102	246088.	24177081775.	14.6671352	0.0001493	-0.0015607	0.5746362	-45.0126260	C
0.0000105	246088.	23357519681.	14.5225736	0.0001530	-0.0016170	0.5880268	-46.6361851	C
0.0000109	246088.	22591699364.	14.3876590	0.0001567	-0.0016733	0.6013983	-48.2596913	C
0.0000112	246088.	21874502559.	14.2591457	0.0001604	-0.0017296	0.6146486	-49.8839037	C
0.0000116	246088.	21201440942.	14.1260105	0.0001640	-0.0017860	0.6273066	-51.5123339	C
0.0000120	246088.	20568562107.	14.0009665	0.0001675	-0.0018425	0.6399475	-53.1407146	C
0.0000123	246088.	19972371901.	13.8833105	0.0001711	-0.0018989	0.6525714	-54.7690456	C
0.0000127	246088.	19409769876.	13.7724184	0.0001746	-0.0019554	0.6651781	-56.3973268	C
0.0000130	246088.	18877995359.	13.6677345	0.0001782	-0.0020118	0.6777677	-58.0255582	C
0.0000134	246088.	18374582149.	13.5687623	0.0001817	-0.0020683	0.6903401	-59.6537396	C
0.0000137	246088.	17897320275.	13.4750570	0.0001853	-0.0021247	0.7028953	-60.0000000	CY
0.0000141	246088.	17444223560.	13.3862189	0.0001888	-0.0021812	0.7154333	-60.0000000	CY
0.0000145	246088.	17013501990.	13.3018876	0.0001924	-0.0022376	0.7279541	-60.0000000	CY
0.0000148	246088.	16603538087.	13.2217376	0.0001960	-0.0022940	0.7404576	-60.0000000	CY
0.0000152	246088.	16212866602.	13.1454739	0.0001995	-0.0023505	0.7529439	-60.0000000	CY
0.0000155	246088.	15840157025.	13.0728286	0.0002031	-0.0024069	0.7654128	-60.0000000	CY
0.0000159	246088.	15484198440.	13.0035582	0.0002067	-0.0024633	0.7778643	-60.0000000	CY
0.0000162	246088.	15143886387.	12.9374402	0.0002102	-0.0025198	0.7902985	-60.0000000	CY
0.0000166	246088.	14818211411.	12.8742715	0.0002138	-0.0025762	0.8027153	-60.0000000	CY
0.0000170	246088.	14506249065.	12.8138660	0.0002174	-0.0026326	0.8151147	-60.0000000	CY
0.0000173	246088.	14207151146.	12.7560529	0.0002210	-0.0026890	0.8274966	-60.0000000	CY
0.0000177	246088.	13920137992.	12.7006754	0.0002245	-0.0027455	0.8398611	-60.0000000	CY
0.0000180	246088.	13644491695.	12.6475889	0.0002281	-0.0028019	0.8522080	-60.0000000	CY
0.0000184	246088.	13379550109.	12.5961736	0.0002317	-0.0028583	0.8645038	-60.0000000	CY
0.0000187	246088.	13124701535.	12.5401475	0.0002351	-0.0029149	0.8763139	-60.0000000	CY
0.0000191	246088.	12879380011.	12.4863082	0.0002386	-0.0029714	0.8881084	-60.0000000	CY
0.0000195	246088.	12643061112.	12.4345355	0.0002420	-0.0030280	0.8998871	-60.0000000	CY
0.0000198	246088.	12415258209.	12.3847178	0.0002455	-0.0030845	0.9116501	-60.0000000	CY
0.0000202	246088.	12195519126.	12.3367516	0.0002489	-0.0031411	0.9233973	-60.0000000	CY
0.0000205	246088.	11983423141.	12.2905405	0.0002524	-0.0031976	0.9351288	-60.0000000	CY
0.0000209	246088.	11778578301.	12.2459946	0.0002559	-0.0032541	0.9468445	-60.0000000	CY
0.0000212	246088.	11580619002.	12.2030301	0.0002593	-0.0033107	0.9585443	-60.0000000	CY
0.0000227	246088.	10851131191.	12.0454960	0.0002732	-0.0035368	1.0051849	-60.0000000	CY
0.0000241	246088.	10208101194.	11.9078323	0.0002871	-0.0037629	1.0515705	-60.0000000	CY
0.0000255	246088.	9637018610.	11.7867142	0.0003010	-0.0039890	1.0976994	-60.0000000	CY
0.0000270	246088.	9126448087.	11.6795219	0.0003149	-0.0042151	1.1435702	-60.0000000	CY
0.0000284	246088.	8667255731.	11.5746525	0.0003286	-0.0044414	1.1882211	-60.0000000	CY
0.0000298	246088.	8252057852.	11.3415884	0.0003382	-0.0046718	1.2179578	-60.0000000	CY
0.0000312	246088.	7874820921.	11.1010609	0.0003469	-0.0049031	1.2443722	-60.0000000	CY
0.0000327	246088.	7530566455.	10.8749206	0.0003554	-0.0051346	1.2699000	-60.0000000	CY
0.0000341	246088.	7215150059.	10.6373169	0.0003628	-0.0053672	1.2916910	-60.0000000	CY
0.0000355	246088.	6925093775.	10.4190967	0.0003703	-0.0055997	1.3134292	-60.0000000	CY
0.0000370	246088.	6657457300.	10.2180129	0.0003777	-0.0058323	1.3351143	-60.0000000	CY
0.0000384	246088.	6409737959.	10.0321527	0.0003852	-0.0060648	1.3567458	-60.0000000	CY
0.0000398	246088.	6179792203.	9.8598777	0.0003926	-0.0062974	1.3783233	-60.0000000	CY
0.0000412	246088.	5965773425.	9.6997767	0.0004001	-0.0065299	1.3998465	-60.0000000	CY
0.0000427	246088.	5766082264.	9.5506273	0.0004076	-0.0067624	1.4213149	-60.0000000	CY
0.0000441	246088.	5579326564.	9.4113654	0.0004151	-0.0069949	1.4427281	-60.0000000	CY
0.0000455	246088.	5404288867.	9.2810605	0.0004226	-0.0072274	1.4640857	-60.0000000	CY
0.0000470	246088.	5239899852.	9.1403760	0.0004293	-0.0074607	1.4824617	-60.0000000	CY
0.0000484	246088.	5085216462.	8.9993377	0.0004355	-0.0076945	1.4993657	-60.0000000	CY
0.0000498	246088.	4939403804.	8.8665282	0.0004417	-0.0079283	1.5162363	-60.0000000	CY
0.0000512	246088.	4801720074.	8.7412592	0.0004480	-0.0081620	1.5330730	-60.0000000	CY
0.0000527	246088.	4671503936.	8.6229175	0.0004542	-0.0083958	1.5498757	-60.0000000	CY
0.0000541	246088.	4548163898.	8.5109544	0.0004605	-0.0086295	1.5666442	-60.0000000	CY
0.0000555	246088.	4431169329.	8.4048777	0.0004668	-0.0088632	1.5833782	-60.0000000	CY
0.0000570	246088.	4320042825.	8.3042446	0.0004730	-0.0090970	1.6000776	-60.0000000	CY
0.0000584	246088.	4214353704.	8.2086556	0.0004793	-0.0093307	1.6167420	-60.0000000	CY
0.0000598	246088.	4113712421.	8.1177494	0.0004856	-0.0095644	1.6333712	-60.0000000	CY
0.0000612	246088.	4017765776.	8.0311985	0.0004919	-0.0097981	1.6499651	-60.0000000	CY

0.0000627	246088.	3926192767.	7.9487050	0.0004982	-0.0100318	1.6665234	-60.0000000	CY
0.0000641	246088.	3838701006.	7.8699979	0.0005045	-0.0102655	1.6830458	-60.0000000	CY
0.0000655	246088.	3755023600.	7.7948294	0.0005108	-0.0104992	1.6995322	-60.0000000	CY
0.0000670	246088.	3674916430.	7.7229734	0.0005172	-0.0107328	1.7159822	-60.0000000	CY
0.0000684	246088.	3598155773.	7.6542221	0.0005235	-0.0109665	1.7323958	-60.0000000	CY
0.0000698	246088.	3524536218.	7.5883852	0.0005298	-0.0112002	1.7487725	-60.0000000	CY
0.0000712	246088.	3453868825.	7.5149845	0.0005354	-0.0114346	1.7627846	-60.0000000	CY
0.0000727	246088.	3385979512.	7.4364525	0.0005405	-0.0116695	1.7749102	-60.0000000	CY
0.0000741	246088.	3320707617.	7.3610097	0.0005455	-0.0119045	1.7870172	-60.0000000	CY
0.0000755	246088.	3257904636.	7.2884811	0.0005505	-0.0121395	1.7991056	-60.0000000	CY
0.0000770	246088.	3197433089.	7.2187042	0.0005556	-0.0123744	1.8111751	-60.0000000	CY
0.0000784	246088.	3139165515.	7.1515287	0.0005606	-0.0126094	1.8232258	-60.0000000	CY
0.0000870	246088.	2829761111.	6.7959271	0.0005910	-0.0140190	1.8951268	-60.0000000	CY
0.0000955	246088.	2575876002.	6.5058616	0.0006215	-0.0154285	1.9663195	-60.0000000	CY
0.0001041	246088.	2363797017.	6.2651502	0.0006522	-0.0168378	2.0367793	-60.0000000	CY
0.0001127	246088.	2183983615.	6.0625351	0.0006831	-0.0182469	2.1064818	-60.0000000	CY
0.0001212	246088.	2029593021.	5.8899423	0.0007142	-0.0196558	2.1754023	-60.0000000	CY
0.0001298	246088.	1895589630.	5.6819560	0.0007376	-0.0210724	2.2217491	-60.0000000	CY
0.0001384	246088.	1778185369.	5.4967140	0.0007607	-0.0224893	2.2663332	-60.0000000	CY
0.0001470	246088.	1674475895.	5.3337284	0.0007839	-0.0239061	2.3106141	-60.0000000	CY
0.0001555	246088.	1582197085.	5.1893216	0.0008071	-0.0253229	2.3545822	-60.0000000	CY
0.0001641	246088.	1499557847.	5.0605845	0.0008305	-0.0267395	2.3982281	-60.0000000	CY
0.0001727	246088.	1425122711.	4.9451854	0.0008539	-0.0281561	2.4415423	-60.0000000	CY
0.0001812	246088.	1357727745.	4.8412343	0.0008775	-0.0295725	2.4845151	-60.0000000	CY
0.0001898	246088.	1296419249.	4.7471822	0.0009011	-0.0309889	2.5271369	-60.0000000	CY
0.0001984	246088.	1240408336.	4.6617483	0.0009249	-0.0324051	2.5693980	-60.0000000	CY
0.0002070	246088.	1189036809.	4.5838638	0.0009487	-0.0338213	2.6112885	-60.0000000	CY
0.0002155	246088.	1141751169.	4.5126301	0.0009726	-0.0352374	2.6527986	-60.0000000	CY
0.0002241	246088.	1098082599.	4.4472863	0.0009967	-0.0366533	2.6939183	-60.0000000	CY
0.0002327	246088.	1057631359.	4.3871835	0.0010208	-0.0380692	2.7346376	-60.0000000	CY
0.0002413	246088.	1020054523.	4.3317653	0.0010450	-0.0394850	2.7749463	-60.0000000	CY
0.0002498	246088.	985056227.	4.2805517	0.0010694	-0.0409006	2.8148344	-60.0000000	CY
0.0002584	246088.	952379863.	4.2331264	0.0010938	-0.0423162	2.8542913	-60.0000000	CY
0.0002670	246088.	921801780.	4.1806978	0.0011161	-0.0437339	2.8882812	-60.0000000	CY
0.0002755	246088.	893126158.	4.1077938	0.0011318	-0.0451582	2.9073091	-60.0000000	CY
0.0002841	246088.	866180805.	4.0394441	0.0011476	-0.0465824	2.9262697	-60.0000000	CY
0.0002927	246088.	840813704.	3.9752491	0.0011635	-0.0480065	2.9451609	-60.0000000	CY
0.0003013	246088.	816890137.	3.9148546	0.0011793	-0.0494307	2.9639802	-60.0000000	CY
0.0003098	246088.	794290295.	3.8579458	0.0011953	-0.0508547	2.9827256	-60.0000000	CY
0.0003184	246088.	772907269.	3.8042417	0.0012112	-0.0522788	3.0013947	-60.0000000	CY
0.0003270	246088.	752645364.	3.7534907	0.0012273	-0.0537027	3.0199852	-60.0000000	CY
0.0003355	246088.	733418660.	3.7054671	0.0012433	-0.0551267	3.0384949	-60.0000000	CY
0.0003441	246088.	715149798.	3.6599677	0.0012594	-0.0565506	3.0569215	-60.0000000	CY

Warning: 150 values were calculated for moment-curvature.
This usually indicates that the pile is too weak or is under-reinforced, where all reinforcing steel has yielded.

The input data should be examined and the amount of steel reinforcement should be increased if necessary.

Summary of Results for Nominal (Unfactored) Moment Capacity for Section 1

Moment values interpolated at maximum compressive strain = 0.003
or maximum developed moment if pile fails at smaller strains.

Load No.	Axial Thrust kips	Nominal Mom. Cap. in-kip	Max. Comp. Strain
1	-313.000	246091.328	0.00060948
2	348.000	246088.154	0.00124332

Note note that the values of moment capacity in the table above are not
factored by a strength reduction factor (phi-factor).

In ACI 318-08, the value of the strength reduction factor depends on whether
the transverse reinforcing steel bars are tied hoops (0.65) or spirals (0.70).

The above values should be multiplied by the appropriate strength reduction
factor to compute ultimate moment capacity according to ACI 318-08, Section
9.3.2.2 or the value required by the design standard being followed.

The following table presents factored moment capacities and corresponding
bending stiffnesses computed for common resistance factor values used for
reinforced concrete sections.

Axial Load No.	Resistance Factor for Moment	Nominal Moment Capacity in-kip	Ultimate (Factored) Axial Thrust kips	Ultimate (Factored) Moment Capacity in-kip	Bending Stiffness at Ult. Mom. Cap. kip-in^2
1	0.65	246091.328	-203.450	159959.357	198356215714.530
2	0.65	246088.154	226.200	159957.294	198352297462.834
1	0.70	246091.328	-219.100	172263.926	198146335809.919
2	0.70	246088.154	243.600	172261.705	198142714720.907
1	0.75	246091.328	-234.750	184568.496	197935381252.679
2	0.75	246088.154	261.000	184566.115	197931996457.645

Pile Section No. 2:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section = 43.00000 ft
Shaft Diameter = 48.00000 in
Concrete Cover Thickness = 3.00000 in

Number of Reinforcing Bars = 12 bars
Yield Stress of Reinforcing Bars = 60000. psi
Modulus of Elasticity of Reinforcing Bars = 29000000. psi
Gross Area of Shaft = 1809.55737 sq. in.
Total Area of Reinforcing Steel = 9.48000 sq. in.
Area Ratio of Steel Reinforcement = 0.52 percent
Edge-to-Edge Bar Spacing = 9.61158 in
Maximum Concrete Aggregate Size = 0.75000 in
Ratio of Bar Spacing to Aggregate Size = 12.82
Offset of Center of Rebar Cage from Center of Pile = 0.0000 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As = 5158.997 kips
Tensile Load for Cracking of Concrete = -683.547 kips
Nominal Axial Tensile Capacity = -568.800 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.00000	0.79000	20.50000	0.00000
2	1.00000	0.79000	17.75352	10.25000
3	1.00000	0.79000	10.25000	17.75352
4	1.00000	0.79000	0.00000	20.50000
5	1.00000	0.79000	-10.25000	17.75352
6	1.00000	0.79000	-17.75352	10.25000
7	1.00000	0.79000	-20.50000	0.00000
8	1.00000	0.79000	-17.75352	-10.25000
9	1.00000	0.79000	-10.25000	-17.75352
10	1.00000	0.79000	0.00000	-20.50000
11	1.00000	0.79000	10.25000	-17.75352
12	1.00000	0.79000	17.75352	-10.25000

NOTE: The positions of the above rebars were computed by LPile

Minimum spacing between any two bars not equal to zero = 9.61158 inches between Bars 7 and 8

Spacing to aggregate size ratio = 12.81544

Concrete Properties:

Compressive Strength of Concrete = 3000.00000 psi
Modulus of Elasticity of Concrete = 3122019. psi
Modulus of Rupture of Concrete = -410.79191 psi
Compression Strain at Peak Stress = 0.00163
Tensile Strain at Fracture of Concrete = -0.0001160
Maximum Coarse Aggregate Size = 0.75000 in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 2

Number	Axial Thrust Force kips
1	-313.000
2	348.000

Definitions of Run Messages and Notes:

C = concrete in section has cracked in tension.
Y = stress in reinforcing steel has reached yield stress.
T = ACI 318-08 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than than 0.003. See ACI 318-08, Section 10.3.4.
Z = depth of tensile zone in concrete section is less than 10 percent of section depth.

Bending Stiffness (EI) = Computed Bending Moment / Curvature.
Position of neutral axis is measured from edge of compression side of pile.
Compressive stresses and strains are positive in sign.
Tensile stresses and strains are negative in sign.

Axial Thrust Force = -313.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Max Concrete Stress ksi	Max Steel Stress ksi	Run Msg
0.000000625	613.0613016	980898083.	-49.7468011	-0.0000311	-0.0000611	-0.1136525	-1.7673108	
0.000001250	1226.0694298	980855544.	-12.9140568	-0.0000161	-0.0000761	-0.0600890	-2.1994346	
0.000001875	1839.0036724	980801959.	-0.6545583	-0.000001227	-0.0000912	-0.0061575	-2.6325416	
0.000002500	1839.0036724	735601469.	-431.4037425	-0.0010785	-0.0011985	0.000000	-34.7393713	C
0.000003125	1839.0036724	588481175.	-340.3227007	-0.0010635	-0.0012135	0.000000	-35.1699947	C
0.000003750	1839.0036724	490400979.	-279.6020062	-0.0010485	-0.0012285	0.000000	-35.6006182	C
0.000004375	1839.0036724	420343697.	-236.2300816	-0.0010335	-0.0012435	0.000000	-36.0312416	C
0.000005000	1839.0036724	367800734.	-203.7011381	-0.0010185	-0.0012585	0.000000	-36.4618650	C
0.000005625	1839.0036724	326933986.	-178.4008487	-0.0010035	-0.0012735	0.000000	-36.8924884	C
0.000006250	1839.0036724	294240588.	-158.1606172	-0.0009885	-0.0012885	0.000000	-37.3231118	C
0.000006875	1839.0036724	267491443.	-141.6004278	-0.0009735	-0.0013035	0.000000	-37.7537353	C
0.000007500	1839.0036724	245200490.	-127.8002699	-0.0009585	-0.0013185	0.000000	-38.1843587	C
0.000008125	1839.0036724	226338914.	-116.1232133	-0.0009435	-0.0013335	0.000000	-38.6149821	C
0.000008750	1839.0036724	210171848.	-106.1143076	-0.0009285	-0.0013485	0.000000	-39.0456055	C

0.000009375	1839.0036724	196160392.	-97.4399227	-0.0009135	-0.0013635	0.000000	-39.4762290	C
0.0000100	1839.0036724	183900367.	-89.8498359	-0.0008985	-0.0013785	0.000000	-39.9068524	C
0.0000106	1839.0036724	173082699.	-83.1527005	-0.0008835	-0.0013935	0.000000	-40.3374761	C
0.0000113	1839.0036724	163466993.	-77.1996912	-0.0008685	-0.0014085	0.000000	-40.7680992	C
0.0000119	1839.0036724	154863467.	-71.8733145	-0.0008535	-0.0014235	0.000000	-41.1987228	C
0.0000125	1839.0036724	147120294.	-67.0795754	-0.0008385	-0.0014385	0.000000	-41.6293461	C
0.0000131	1839.0036724	140114566.	-62.7423830	-0.0008235	-0.0014535	0.000000	-42.0599696	C
0.0000138	1839.0036724	133745722.	-58.7994807	-0.0008085	-0.0014685	0.000000	-42.4905929	C
0.0000144	1839.0036724	127930690.	-55.1994396	-0.0007935	-0.0014835	0.000000	-42.9212164	C
0.0000150	1839.0036724	122600245.	-51.8994018	-0.0007785	-0.0014985	0.000000	-43.3518397	C
0.0000156	1839.0036724	117696235.	-48.8633671	-0.0007635	-0.0015135	0.000000	-43.7824632	C
0.0000163	1839.0036724	113169457.	-46.0608735	-0.0007485	-0.0015285	0.000000	-44.2130866	C
0.0000169	1839.0036724	108977995.	-43.4659720	-0.0007335	-0.0015435	0.000000	-44.6437100	C
0.0000175	1839.0036724	105085924.	-41.0564207	-0.0007185	-0.0015585	0.000000	-45.0743335	C
0.0000181	1839.0036724	101462272.	-38.8130452	-0.0007035	-0.0015735	0.000000	-45.5049569	C
0.0000188	1839.0036724	98080196.	-36.7192282	-0.0006885	-0.0015885	0.000000	-45.9355802	C
0.0000194	1839.0036724	94916319.	-34.7604961	-0.0006735	-0.0016035	0.000000	-46.3662036	C
0.0000200	1839.0036724	91950184.	-32.9241848	-0.0006585	-0.0016185	0.000000	-46.7968272	C
0.0000206	1839.0036724	89163814.	-31.1991651	-0.0006435	-0.0016335	0.000000	-47.2274505	C
0.0000213	1839.0036724	86541349.	-29.5756171	-0.0006285	-0.0016485	0.000000	-47.6580739	C
0.0000219	1839.0036724	84068739.	-28.0448433	-0.0006135	-0.0016635	0.000000	-48.0886974	C
0.0000225	1839.0036724	81733497.	-26.5991124	-0.0005985	-0.0016785	0.000000	-48.5193208	C
0.0000231	1839.0036724	79524483.	-25.2315292	-0.0005835	-0.0016935	0.000000	-48.9499443	C
0.0000238	1839.0036724	77431734.	-23.9359241	-0.0005685	-0.0017085	0.000000	-49.3805676	C
0.0000244	1839.0036724	75446305.	-22.7067602	-0.0005535	-0.0017235	0.000000	-49.8111911	C
0.0000256	1839.0036724	71765997.	-20.4283102	-0.0005235	-0.0017535	0.000000	-50.6724379	C
0.0000269	1839.0036724	68428044.	-18.3618089	-0.0004935	-0.0017835	0.000000	-51.5336848	C
0.0000281	1839.0036724	65386797.	-16.4789967	-0.0004635	-0.0018135	0.000000	-52.3949316	C
0.0000294	1839.0036724	62604380.	-14.7564238	-0.0004335	-0.0018435	0.000000	-53.2561785	C
0.0000306	1839.0036724	60049100.	-13.1744691	-0.0004035	-0.0018735	0.000000	-54.1174253	C
0.0000319	1842.5740804	57806246.	-11.7165893	-0.0003735	-0.0019035	0.000000	-54.9786721	C
0.0000331	1914.8138892	57805702.	-10.3687381	-0.0003435	-0.0019335	0.000000	-55.8399190	C
0.0000344	1987.0536980	57805198.	-9.1189125	-0.0003135	-0.0019635	0.000000	-56.7011658	C
0.0000356	2059.2935068	57804730.	-7.9567940	-0.0002835	-0.0019935	0.000000	-57.5624126	C
0.0000369	2131.5333156	57804293.	-6.8734631	-0.0002535	-0.0020235	0.000000	-58.4236595	C
0.0000381	2203.7731244	57803885.	-5.8611703	-0.0002235	-0.0020535	0.000000	-59.2849063	CY
0.0000394	2276.0129332	57803503.	-4.9131501	-0.0001935	-0.0020835	0.000000	-60.0000000	CY
0.0000406	2348.2527420	57803144.	-4.0234696	-0.0001635	-0.0021135	0.000000	-60.0000000	CY
0.0000419	2420.4925508	57802807.	-3.1869044	-0.0001335	-0.0021435	0.000000	-60.0000000	CY
0.0000431	2492.7323596	57802489.	-2.3988356	-0.0001034	-0.0021734	0.000000	-60.0000000	CY
0.0000444	2564.9721684	57802190.	-1.6551652	-0.0000734	-0.0022034	0.000000	-60.0000000	CY
0.0000456	2633.4153329	57718692.	-0.9667626	-0.0000441	-0.0022341	0.000000	-60.0000000	CY
0.0000469	2693.5942800	57463345.	-0.3464645	-0.0000162	-0.0022662	0.000000	-60.0000000	CY
0.0000481	2752.6951182	57198860.	0.2375294	0.0000114	-0.0022986	0.000000	-60.0000000	CY
0.0000494	2819.1057742	57095813.	0.7650456	0.0000378	-0.0023322	0.0944628	-60.0000000	CY
0.0000506	2895.1093190	57187345.	1.2308124	0.0000623	-0.0023677	0.1814068	-60.0000000	CY
0.0000519	2965.0888325	57158339.	1.5992427	0.0000830	-0.0024070	0.2533939	-60.0000000	CY
0.0000531	3017.2711798	56795693.	1.8721966	0.0000995	-0.0024505	0.3100316	-60.0000000	CY
0.0000544	3070.5518663	56469919.	2.1247064	0.0001155	-0.0024945	0.3646016	-60.0000000	CY
0.0000556	3127.5477101	56225577.	2.3444806	0.0001304	-0.0025396	0.4145577	-60.0000000	CY
0.0000569	3185.0551063	56000969.	2.5516652	0.0001451	-0.0025849	0.4634731	-60.0000000	CY
0.0000581	3244.4599408	55818666.	2.7388858	0.0001592	-0.0026308	0.5097720	-60.0000000	CY
0.0000594	3305.3305403	55668725.	2.9098555	0.0001728	-0.0026772	0.5539969	-60.0000000	CY
0.0000606	3366.0789486	55522952.	3.0743747	0.0001864	-0.0027236	0.5979450	-60.0000000	CY
0.0000619	3428.6982190	55413305.	3.2213694	0.0001993	-0.0027707	0.6393024	-60.0000000	CY
0.0000631	3491.9979241	55318779.	3.3586068	0.0002120	-0.0028180	0.6794982	-60.0000000	CY
0.0000644	3555.1877089	55226217.	3.4910265	0.0002247	-0.0028653	0.7194544	-60.0000000	CY
0.0000656	3618.5843978	55140334.	3.6170626	0.0002374	-0.0029126	0.7587846	-60.0000000	CY
0.0000669	3682.2691966	55061969.	3.7266804	0.0002492	-0.0029608	0.7953083	-60.0000000	CY
0.0000681	3736.4219647	54846561.	3.8199497	0.0002602	-0.0030098	0.8289091	-60.0000000	CY
0.0000694	3771.0324848	54357225.	3.8840431	0.0002695	-0.0030605	0.8566955	-60.0000000	CY
0.0000706	3797.1269092	53764629.	3.9347013	0.0002779	-0.0031121	0.8818698	-60.0000000	CY
0.0000719	3823.1969115	53192305.	3.9837750	0.0002863	-0.0031637	0.9069344	-60.0000000	CY
0.0000731	3849.2423387	52639211.	4.0313464	0.0002948	-0.0032152	0.9318891	-60.0000000	CY
0.0000744	3875.2630365	52104377.	4.0774926	0.0003033	-0.0032667	0.9567332	-60.0000000	CY
0.0000794	3980.6293644	50149661.	4.2308132	0.0003358	-0.0034742	1.0506789	-60.0000000	CY
0.0000844	4085.6668503	48422718.	4.3678254	0.0003685	-0.0036815	1.1428679	-60.0000000	CY
0.0000894	4190.3461448	46884992.	4.4915421	0.0004014	-0.0038886	1.2333364	-60.0000000	CY
0.0000944	4295.0413241	45510372.	4.5994607	0.0004341	-0.0040959	1.3208487	-60.0000000	CY
0.0000994	4399.9614047	44276341.	4.6916530	0.0004662	-0.0043038	1.4048432	-60.0000000	CY
0.0001044	4504.4819129	43156713.	4.7765135	0.0004985	-0.0045115	1.4870913	-60.0000000	CY
0.0001094	4585.8715252	41927968.	4.8294651	0.0005282	-0.0047218	1.5604498	-60.0000000	CY
0.0001144	4612.2528713	40325708.	4.8184345	0.0005511	-0.0049389	1.6150962	-60.0000000	CY
0.0001194	4638.3529851	38855313.	4.8085922	0.0005740	-0.0051560	1.6687623	-60.0000000	CY
0.0001244	4664.3785756	37502541.	4.8000174	0.0005970	-0.0053730	1.7215101	-60.0000000	CY
0.0001294	4690.3287731	36253749.	4.7925695	0.0006200	-0.0055900	1.7733326	-60.0000000	CY
0.0001344	4716.2026878	35097322.	4.7861289	0.0006431	-0.0058069	1.8242230	-60.0000000	CY
0.0001394	4741.9994097	34023314.	4.7805931	0.0006663	-0.0060237	1.8741740	-60.0000000	CY
0.0001444	4767.7170639	33023148.	4.7758741	0.0006895	-0.0062405	1.9231784	-60.0000000	CY
0.0001494	4793.3568096	32089418.	4.7718959	0.0007128	-0.0064572	1.9712291	-60.0000000	CY
0.0001544	4818.9164643	31215653.	4.7685925	0.0007362	-0.0066738	2.0183185	-60.0000000	CY
0.0001594	4844.3950315	30396204.	4.7659061	0.0007596	-0.0068904	2.0644387	-60.0000000	CY
0.0001644	4869.7914895	29626108.	4.7637864	0.0007830	-0.0071070	2.1095819	-60.0000000	CY
0.0001694	4895.1047909	28900988.	4.7621889	0.0008066	-0.0073234	2.1537401	-60.0000000	CY
0.0001744	4920.3338614	28216968.	4.7610747	0.0008302	-0.0075398	2.1969051	-60.0000000	CY
0.0001794	4945.4775987	27570607.	4.7604090	0.0008539	-0.0077561	2.2390685	-60.0000000	CY
0.0001844	4970.5348722	26958833.	4.7601612	0.0008777	-0.0079723	2.2802216	-60.0000000	CY
0.0001894	4995.5045211	26378902.	4.7603041	0.0009015	-0.0081885	2.3203558	-60.0000000	CY
0.0001944	5020.3853539	25828349.	4.7608133	0.0009254	-0.0084046	2.3594620	-60.0000000	CY
0.0001994	5045.1761469	25304959.	4.7616672	0.0009494	-0.0086206	2.3975310	-60.0000000	CY
0.0002044	5069.8756430	24806731.	4.7628463	0.0009734	-0.0088366	2.4345535	-60.0000000	CY
0.0002094	5094.4825503	24331857.	4.7643332	0.0009975	-0.0090525	2.4705197	-60.0000000	CY
0.0002144	5118.9955409	23878696.	4.7661124	0.0010217	-0.0092683	2.5054197	-60.0000000	CY
0.0002194	5143.4132492	23445758.	4.7681699	0.0010460	-0.0094840	2.5392436	-60.0000000	CY
0.0002244	5162.8955386	23010119.	4.7641657	0.0010690	-0.0097010	2.5700089	-60.0000000	CY
0.0002294	5181.2004420	22588340.	4.7592153	0.0010916	-0.0099184	2.5993664	-60.0000000	CY
0.0002344	5193.4504792	22158722.	4.7467828	0.0011125	-0.0101375	2.6253490	-60.0000000	CY
0.0002394	5199.7125384	21722037.	4.7273060	0.0011316	-0.0103584	2.6481871	-60.0000000	CY
0.0002444	5205.5920193	21301655.	4.7083198	0.0011506	-0.0105794	2.6702158	-60.0000000	CY
0.0002494	5209.0902864	20888583.	4.6871301	0.0011689	-0.0108011	2.6906610	-60.0000000	CY
0.0002544	5212.5622436	20491645.	4.6669197	0.0011871	-0.0110229	2.7104944	-60.0000000	CY

0.0002594	5216.0076270	20109909.	4.6476329	0.0012055	-0.0112445	2.7297121	-60.0000000	CY
0.0002644	5219.4261696	19742510.	4.6292187	0.0012238	-0.0114662	2.7483101	-60.0000000	CY
0.0002694	5222.8176003	19388650.	4.6116295	0.0012423	-0.0116877	2.7662843	-60.0000000	CY
0.0002744	5226.1816446	19047587.	4.5948214	0.0012607	-0.0119093	2.7836306	-60.0000000	CY
0.0003044	5245.0052138	17232050.	4.4982110	0.0013691	-0.0132409	2.8719703	-60.0000000	CY
0.0003344	5262.4634631	15738208.	4.4179029	0.0014772	-0.0145728	2.9370813	-60.0000000	CY
0.0003644	5278.9855605	14487782.	4.3551004	0.0015869	-0.0159031	2.9797777	-60.0000000	CY
0.0003944	5294.5065322	13425056.	4.3061012	0.0016982	-0.0172318	2.9989889	-60.0000000	CY
0.0004244	5308.8516586	12509812.	4.2685828	0.0018115	-0.0185585	2.9841989	-60.0000000	CY
0.0004544	5322.2394234	11713319.	4.2398121	0.0019265	-0.0198835	2.9986817	-60.0000000	CY
0.0004844	5334.5301180	11013223.	4.2186974	0.0020434	-0.0212066	2.9873039	-60.0000000	CY
0.0005144	5346.0166566	10393228.	4.2031923	0.0021620	-0.0225280	2.9911367	-60.0000000	CY
0.0005444	5356.8013477	9840278.	4.1921902	0.0022821	-0.0238479	2.9999753	60.0000000	CY
0.0005744	5366.6351102	9343434.	4.1857982	0.0024042	-0.0251658	2.9830901	60.0000000	CY
0.0006044	5375.9810870	8895108.	4.1820953	0.0025276	-0.0264824	2.9834437	60.0000000	CY
0.0006344	5384.8275174	8488398.	4.1807900	0.0026522	-0.0277978	2.9975039	60.0000000	CY
0.0006644	5393.0324188	8117452.	4.1820607	0.0027785	-0.0291115	2.9940287	60.0000000	CY
0.0006944	5400.6744994	7777749.	4.1853926	0.0029062	-0.0304238	2.9779567	60.0000000	CY
0.0007244	5407.9973159	7465743.	4.1898607	0.0030350	-0.0317350	2.9700652	60.0000000	CYT
0.0007544	5414.9648836	7178081.	4.1953779	0.0031649	-0.0330451	2.9891765	60.0000000	CYT
0.0007844	5421.5108671	6911886.	4.2017961	0.0032958	-0.0343542	2.9988470	60.0000000	CYT
0.0008144	5427.5444418	6664675.	4.2097299	0.0034283	-0.0356617	2.9925866	60.0000000	CYT
0.0008444	5433.2167333	6434602.	4.2185775	0.0035621	-0.0369679	2.9782621	60.0000000	CYT
0.0008744	5438.6852800	6220083.	4.2277871	0.0036967	-0.0382733	2.9637616	60.0000000	CYT
0.0009044	5443.9380485	6019558.	4.2373853	0.0038322	-0.0395778	2.9598743	60.0000000	CYT

Axial Thrust Force = 348.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Max Concrete Stress ksi	Max Steel Stress ksi	Run Msg
0.000000625	611.1254015	977800642.	106.1183618	0.0000663	0.0000363	0.2381316	1.9190453	
0.000001250	1222.2317838	977785427.	65.1000190	0.0000814	0.0000214	0.2903959	2.3511757	
0.000001875	1833.2639586	977740778.	51.4453784	0.0000965	0.000006460	0.3422785	2.7842925	
0.000002500	2444.1379475	977655179.	44.6315416	0.0001116	-0.000008421	0.3937750	3.2183868	
0.000003125	3053.8795386	977241452.	40.5518992	0.0001267	-0.0000233	0.4448594	3.6532659	
0.000003750	3661.1978457	976319426.	37.8366437	0.0001419	-0.0000381	0.4954949	4.0886350	
0.000004375	4265.4636269	974963115.	35.8996634	0.0001571	-0.0000529	0.5456598	4.5243198	
0.000005000	4866.3838748	973276775.	34.4484397	0.0001722	-0.0000678	0.5953421	4.9602238	
0.000005625	5463.8124727	971344440.	33.3207134	0.0001874	-0.0000826	0.6445347	5.3962914	
0.000006250	6057.6709358	969227350.	32.4192490	0.0002026	-0.0000974	0.6932334	5.8324889	
0.000006875	6647.9133799	966969219.	31.6822287	0.0002178	-0.0001122	0.7414352	6.2687944	
0.000007500	6647.9133799	886388451.	27.7249444	0.0002079	-0.0001521	0.7093629	5.9779754	C
0.000008125	6647.9133799	818204724.	26.8541202	0.0002182	-0.0001718	0.7416723	6.2709519	C
0.000008750	6647.9133799	759761529.	26.0816535	0.0002282	-0.0001918	0.7730311	6.5573195	C
0.000009375	6647.9133799	709110761.	25.3888220	0.0002380	-0.0002120	0.8034825	6.8373360	C
0.0000100	6647.9133799	664791338.	24.7652852	0.0002477	-0.0002323	0.8331839	7.1123327	C
0.0000106	6647.9133799	625685965.	24.1986102	0.0002571	-0.0002529	0.8621397	7.3822466	C
0.0000113	6647.9133799	590925634.	23.6814956	0.0002664	-0.0002736	0.8904364	-7.8556120	C
0.0000119	6647.9133799	559824285.	23.2079646	0.0002756	-0.0002944	0.9181503	-8.4551072	C
0.0000125	6647.9133799	531833070.	22.7722098	0.0002847	-0.0003153	0.9453172	-9.0580739	C
0.0000131	6647.9133799	506507686.	22.3685855	0.0002936	-0.0003364	0.9719342	-9.6646071	C
0.0000138	6647.9133799	483484609.	21.9933831	0.0003024	-0.0003576	0.9980365	-10.2744385	C
0.0000144	6647.9133799	462463539.	21.6446851	0.0003111	-0.0003789	1.0237074	-10.8868219	C
0.0000150	6647.9133799	443194225.	21.3204080	0.0003198	-0.0004002	1.0490066	-11.5012225	C
0.0000156	6647.9133799	425466456.	21.0148406	0.0003284	-0.0004216	1.0738103	-12.1189003	C
0.0000163	6647.9133799	409102362.	20.7287903	0.0003368	-0.0004432	1.0982657	-12.7384576	C
0.0000169	6647.9133799	393950423.	20.4605800	0.0003453	-0.0004647	1.1224007	-13.3596536	C
0.0000175	6685.6140303	382035087.	20.2060604	0.0003536	-0.0004864	1.1461054	-13.9836244	C
0.0000181	6785.2295267	374357491.	19.9677290	0.0003619	-0.0005081	1.1695885	-14.6083124	C
0.0000188	6882.8716630	367086489.	19.7400419	0.0003701	-0.0005299	1.1926415	-15.2358522	C
0.0000194	6979.9146180	360253658.	19.5259664	0.0003783	-0.0005517	1.2154894	-15.8639976	C
0.0000200	7075.6083673	353780418.	19.3218139	0.0003864	-0.0005736	1.2379973	-16.4941479	C
0.0000206	7170.2955829	347650695.	19.1276791	0.0003945	-0.0005955	1.2602265	-17.1257069	C
0.0000213	7264.7189188	341869126.	18.9447785	0.0004026	-0.0006174	1.2823036	-17.7573802	C
0.0000219	7357.2595779	336331866.	18.7672136	0.0004105	-0.0006395	1.3039307	-18.3922988	C
0.0000225	7449.7022999	331097880.	18.5998051	0.0004185	-0.0006615	1.3254388	-19.0270271	C
0.0000231	7541.6145055	326123871.	18.4403734	0.0004264	-0.0006836	1.3467420	-19.6624745	C
0.0000238	7632.1163343	321352267.	18.2855845	0.0004343	-0.0007057	1.3676677	-20.3005036	C
0.0000244	7722.5242011	316821506.	18.1389947	0.0004421	-0.0007279	1.3884772	-20.9383480	C
0.0000256	7901.5014336	308351275.	17.8631714	0.0004577	-0.0007723	1.4294169	-22.2170808	C
0.0000269	8078.5589811	300597543.	17.6093177	0.0004733	-0.0008167	1.4695698	-23.4986879	C
0.0000281	8253.5441517	293459348.	17.3735513	0.0004886	-0.0008614	1.5088767	-24.7839473	C
0.0000294	8427.1478156	286881628.	17.1555785	0.0005039	-0.0009061	1.5475017	-26.0711415	C
0.0000306	8599.3727318	280795844.	16.9528930	0.0005192	-0.0009508	1.5854263	-27.3605619	C
0.0000319	8769.9007816	275134142.	16.7626685	0.0005343	-0.0009957	1.6225767	-28.6531582	C
0.0000331	8940.0931183	269889604.	16.5875189	0.0005495	-0.0010405	1.6592911	-29.9450646	C
0.0000344	9108.2404340	264966994.	16.4203075	0.0005644	-0.0010856	1.6951099	-31.2417562	C
0.0000356	9275.7278140	260371307.	16.2644428	0.0005794	-0.0011306	1.7304108	-32.5388474	C
0.0000369	9442.8899512	256078372.	16.1197833	0.0005944	-0.0011756	1.7652831	-33.8352566	C
0.0000381	9608.5027377	252026301.	15.9811913	0.0006093	-0.0012207	1.7993669	-35.1354455	C
0.0000394	9773.3061506	248210950.	15.8504071	0.0006241	-0.0012659	1.8328843	-36.4367663	C
0.0000406	9937.7947018	244622639.	15.7282468	0.0006390	-0.0013110	1.8659800	-37.7374091	C
0.0000419	10102.	241240981.	15.6139416	0.0006538	-0.0013562	1.8986520	-39.0373695	C
0.0000431	10265.	238019568.	15.5026614	0.0006686	-0.0014014	1.9305058	-40.3418342	C
0.0000444	10427.	234968759.	15.3975939	0.0006833	-0.0014467	1.9618869	-41.6463712	C
0.0000456	10589.	232078375.	15.2987997	0.0006980	-0.0014920	1.9928508	-42.9502255	C
0.0000469	10750.	229335537.	15.2057802	0.0007128	-0.0015372	2.0233955	-44.2533924	C
0.0000481	10911.	226728181.	15.1179996	0.0007276	-0.0015824	2.0535103	-45.5559916	C
0.0000494	11071.	224224718.	15.0313654	0.0007422	-0.0016278	2.0828228	-46.8633136	C
0.0000506	11231.	221838941.	14.9494817	0.0007568	-0.0016732	2.1117220	-48.1699420	C
0.0000519	11390.	219562297.	14.8720085	0.0007715	-0.0017185	2.1402060	-49.4758721	C
0.0000531	11549.	217387039.	14.7986377	0.0007862	-0.0017638	2.1682727	-50.7810986	C
0.0000544	11707.	215306130.	14.7290896	0.0008009	-0.0018091	2.1959201	-52.0856167	C
0.0000556	11866.	213313166.	14.6631097	0.0008156	-0.0018544	2.2231463	-53.3894210	C
0.0000569	12023.	211393192.	14.5985171	0.0008303	-0.0018997	2.2497454	-54.6957208	C
0.0000581	12180.	209545509.	14.5360451	0.0008449	-0.0019451	2.2758123	-56.0031288	C
0.0000594	12336.	207770528.	14.4766263	0.0008595	-0.0019905	2.3014628	-57.3098089	C
0.0000606	12493.	206063712.	14.4200752	0.0008742	-0.0020358	2.3266948	-58.6157552	C

0.0000619	12649.	204420892.	14.3662211	0.0008889	-0.0020811	2.3515062	-59.9209618 C
0.0000631	12804.	202838226.	14.3149073	0.0009036	-0.0021264	2.3758950	-60.0000000 CY
0.0000644	12959.	201312172.	14.2659888	0.0009184	-0.0021716	2.3998589	-60.0000000 CY
0.0000656	13114.	199839456.	14.2193322	0.0009331	-0.0022169	2.4233957	-60.0000000 CY
0.0000669	13269.	198417048.	14.1748137	0.0009479	-0.0022621	2.4465033	-60.0000000 CY
0.0000681	13417.	196942745.	14.1289553	0.0009625	-0.0023075	2.4688253	-60.0000000 CY
0.0000694	13545.	195243611.	14.0787414	0.0009767	-0.0023533	2.4900569	-60.0000000 CY
0.0000706	13667.	193516556.	14.0288702	0.0009908	-0.0023992	2.5107052	-60.0000000 CY
0.0000719	13789.	191846016.	13.9810707	0.0010049	-0.0024451	2.5309619	-60.0000000 CY
0.0000731	13910.	190227794.	13.9352107	0.0010190	-0.0024910	2.5508222	-60.0000000 CY
0.0000744	14016.	188455575.	13.8865414	0.0010328	-0.0025372	2.5698029	-60.0000000 CY
0.0000794	14291.	180039670.	13.6661444	0.0010848	-0.0027252	2.6374801	-60.0000000 CY
0.0000844	14548.	172421023.	13.4625141	0.0011359	-0.0029141	2.6984505	-60.0000000 CY
0.0000894	14803.	165625149.	13.2853014	0.0011874	-0.0031026	2.7541527	-60.0000000 CY
0.0000944	15053.	159504826.	13.1260110	0.0012388	-0.0032912	2.8040963	-60.0000000 CY
0.0000994	15248.	153442954.	12.9633613	0.0012882	-0.0034818	2.8467801	-60.0000000 CY
0.0001044	15356.	147119659.	12.7899115	0.0013349	-0.0036751	2.8822302	-60.0000000 CY
0.0001094	15459.	141336367.	12.6288359	0.0013813	-0.0038687	2.9127843	-60.0000000 CY
0.0001144	15558.	136027759.	12.4797980	0.0014274	-0.0040626	2.9386358	-60.0000000 CY
0.0001194	15656.	131150096.	12.3456696	0.0014738	-0.0042562	2.9600775	-60.0000000 CY
0.0001244	15752.	126647480.	12.2235144	0.0015203	-0.0044497	2.9769758	-60.0000000 CY
0.0001294	15843.	122458047.	12.1055932	0.0015662	-0.0046438	2.9891042	-60.0000000 CY
0.0001344	15933.	118568235.	11.9987161	0.0016123	-0.0048377	2.9967845	-60.0000000 CY
0.0001394	16021.	114945413.	11.9017549	0.0016588	-0.0050312	2.9999244	-60.0000000 CY
0.0001444	16107.	111560250.	11.8138856	0.0017056	-0.0052244	2.9988575	-60.0000000 CY
0.0001494	16190.	108384746.	11.7318788	0.0017524	-0.0054176	2.9976444	-60.0000000 CY
0.0001544	16270.	105394260.	11.6530856	0.0017989	-0.0056111	2.9995564	-60.0000000 CY
0.0001594	16349.	102580367.	11.5813328	0.0018458	-0.0058042	2.9965329	-60.0000000 CY
0.0001644	16418.	99879586.	11.5118241	0.0018923	-0.0059977	2.9996576	-60.0000000 CY
0.0001694	16461.	97189457.	11.4362427	0.0019370	-0.0061930	2.9960732	-60.0000000 CY
0.0001744	16485.	94539033.	11.3568772	0.0019804	-0.0063896	2.9989981	-60.0000000 CY
0.0001794	16508.	92031377.	11.2830713	0.0020239	-0.0065861	2.9993992	-60.0000000 CY
0.0001844	16528.	89641388.	11.2076915	0.0020664	-0.0067836	2.9967351	-60.0000000 CY
0.0001894	16547.	87374581.	11.1369465	0.0021091	-0.0069809	2.9993280	-60.0000000 CY
0.0001944	16565.	85221613.	11.0708898	0.0021519	-0.0071781	2.9989208	60.0000000 CY
0.0001994	16583.	83172975.	11.0094136	0.0021950	-0.0073750	2.9958705	60.0000000 CY
0.0002044	16600.	81222711.	10.9517445	0.0022383	-0.0075717	2.9987797	60.0000000 CY
0.0002094	16617.	79363725.	10.8976245	0.0022817	-0.0077683	2.9999705	60.0000000 CY
0.0002144	16633.	77588363.	10.8471609	0.0023254	-0.0079646	2.9952326	60.0000000 CY
0.0002194	16649.	75892176.	10.7997041	0.0023692	-0.0081608	2.9967068	60.0000000 CY
0.0002244	16663.	74263112.	10.7493352	0.0024119	-0.0083581	2.9990265	60.0000000 CY
0.0002294	16676.	72703904.	10.7017799	0.0024547	-0.0085553	2.9999763	60.0000000 CY
0.0002344	16690.	71209106.	10.6572137	0.0024978	-0.0087522	2.9957469	60.0000000 CY
0.0002394	16703.	69775672.	10.6150913	0.0025410	-0.0089490	2.9946132	60.0000000 CY
0.0002444	16715.	68400049.	10.5751859	0.0025843	-0.0091457	2.9975903	60.0000000 CY
0.0002494	16728.	67078741.	10.5373727	0.0026278	-0.0093422	2.9993922	60.0000000 CY
0.0002544	16740.	65808525.	10.5015369	0.0026713	-0.0095387	3.0000000	60.0000000 CY
0.0002594	16752.	64585454.	10.4679660	0.0027151	-0.0097349	2.9951561	60.0000000 CY
0.0002644	16764.	63408050.	10.4360497	0.0027590	-0.0099310	2.9927910	60.0000000 CY
0.0002694	16775.	62273762.	10.4057002	0.0028030	-0.0101270	2.9961034	60.0000000 CY
0.0002744	16786.	61180220.	10.3768380	0.0028471	-0.0103229	2.9984137	60.0000000 CY
0.0003044	16843.	55337220.	10.2229048	0.0031116	-0.0114984	2.9964729	60.0000000 CYT
0.0003344	16883.	50489809.	10.1154310	0.0033823	-0.0126677	2.9894306	60.0000000 CYT
0.0003644	16912.	46414244.	10.0426605	0.0036593	-0.0138307	2.9970119	60.0000000 CYT
0.0003944	16912.	42883525.	10.0471053	0.0039623	-0.0149677	2.9984206	60.0000000 CYT

Summary of Results for Nominal (Unfactored) Moment Capacity for Section 2

Moment values interpolated at maximum compressive strain = 0.003
or maximum developed moment if pile fails at smaller strains.

Load No.	Axial Thrust kips	Nominal Mom. Cap. in-kip	Max. Comp. Strain
1	-313.000	5406.006	0.00300000
2	348.000	16819.237	0.00300000

Note note that the values of moment capacity in the table above are not
factored by a strength reduction factor (phi-factor).

In ACI 318-08, the value of the strength reduction factor depends on whether
the transverse reinforcing steel bars are tied hoops (0.65) or spirals (0.70).

The above values should be multiplied by the appropriate strength reduction
factor to compute ultimate moment capacity according to ACI 318-08, Section
9.3.2.2 or the value required by the design standard being followed.

The following table presents factored moment capacities and corresponding
bending stiffnesses computed for common resistance factor values used for
reinforced concrete sections.

Axial Load No.	Resistance Factor for Moment	Nominal Moment Capacity in-kip	Ultimate (Factored) Axial Thrust kips	Ultimate (Factored) Moment Capacity in-kip	Bending Stiffness at Ult. Mom. Cap. kip-in^2
1	0.65	5406.006	-203.450	3513.904	55286691.013
2	0.65	16819.237	226.200	10932.503	226395909.108
1	0.70	5406.006	-219.100	3784.204	54058106.159
2	0.70	16819.237	243.600	11773.465	214472617.473
1	0.75	5406.006	-234.750	4054.504	48935068.926
2	0.75	16819.237	261.000	12614.427	204780317.356

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

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

Shear force at pile head = 44000.0 lbs
Applied moment at pile head = 0.0 in-lbs
Axial thrust load on pile head = -313000.0 lbs

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness lb-in^2	Soil Res. p lb/in	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.4872	-0.2572	44000.	-0.003660	0.000	2.004E+14	0.000	0.000	0.000
0.510	0.4648	262269.	43889.	-0.003660	0.000	2.004E+14	-36.2536	477.3600	0.000
1.020	0.4424	523181.	43465.	-0.003660	0.000	2.004E+14	-102.1922	1413.7200	0.000
1.530	0.4200	780264.	42659.	-0.003660	0.000	2.004E+14	-161.2768	2350.0800	0.000
2.040	0.3976	1031308.	41512.	-0.003660	0.000	2.004E+14	-213.5074	3286.4400	0.000
2.550	0.3752	1274354.	40067.	-0.003660	0.000	2.004E+14	-258.8842	4222.8000	0.000
3.060	0.3528	1507704.	38365.	-0.003660	0.000	2.004E+14	-297.4073	5159.1600	0.000
3.570	0.3304	1729916.	36448.	-0.003660	0.000	2.004E+14	-329.0768	6095.5200	0.000
4.080	0.3080	1939802.	34358.	-0.003660	0.000	2.004E+14	-353.8929	7031.8800	0.000
4.590	0.2856	2136433.	32137.	-0.003660	0.000	2.004E+14	-371.8557	7968.2400	0.000
5.100	0.2632	2319136.	29827.	-0.003660	0.000	2.004E+14	-382.9656	8904.6000	0.000
5.610	0.2408	2487496.	26161.	-0.003660	0.000	2.004E+14	-815.0390	20714.	0.000
6.120	0.2184	2625330.	21160.	-0.003659	0.000	2.004E+14	-819.4400	22961.	0.000
6.630	0.1960	2732472.	16182.	-0.003659	0.000	2.004E+14	-807.3954	25208.	0.000
7.140	0.1736	2809373.	11328.	-0.003659	0.000	2.004E+14	-778.9059	27455.	0.000
7.650	0.1512	2857101.	6698.1177	-0.003659	0.000	2.004E+14	-733.9721	29703.	0.000
8.160	0.1288	2877339.	2394.0238	-0.003505	0.000	5.717E+10	-672.5946	31950.	0.000
8.670	0.1083	2872976.	-1516.3486	-0.003197	0.000	5.716E+10	-605.3050	34197.	0.000
9.180	0.0897	2846530.	-5003.1237	-0.002891	0.000	5.713E+10	-534.1640	36444.	0.000
9.690	0.0729	2800662.	-8048.7617	-0.002589	0.000	5.712E+10	-461.1425	38692.	0.000
10.200	0.0580	2738096.	-10647.	-0.002292	0.000	5.727E+10	-388.0961	40939.	0.000
10.710	0.0449	2661555.	-12804.	-0.002005	0.000	5.760E+10	-316.7264	43186.	0.000
11.220	0.0335	2573693.	-14534.	-0.001727	0.000	5.779E+10	-248.5595	45433.	0.000
11.730	0.0237	2477044.	-15861.	-0.001459	0.000	5.780E+10	-185.0137	47681.	0.000
12.240	0.0156	2373967.	-16817.	-0.001203	0.000	5.780E+10	-127.4134	49928.	0.000
12.750	0.009027	2266600.	-17442.	-0.000957	0.000	5.780E+10	-76.9570	52175.	0.000
13.260	0.003904	2156810.	-17784.	-0.000723	0.000	5.780E+10	-34.7203	54423.	0.000
13.770	0.000180	2046156.	-17895.	-0.000500	0.000	5.780E+10	-1.6624	56670.	0.000
14.280	-0.002220	1935856.	-17835.	-0.000308	0.000	7.048E+10	21.3676	58917.	0.000
14.790	-0.003590	1826678.	-17660.	-0.000178	0.000	1.212E+11	35.8784	61164.	0.000
15.300	-0.004396	1719020.	-17411.	-0.000107	0.000	2.158E+11	45.5478	63412.	0.000
15.810	-0.004904	1613162.	-17110.	-7.054E-05	0.000	3.978E+11	52.6084	65659.	0.000
16.320	-0.005259	1509321.	-16771.	-5.205E-05	0.000	7.596E+11	58.3564	67906.	0.000
16.830	-0.005541	1407690.	-16398.	-4.158E-05	0.000	9.808E+11	63.5127	70153.	0.000
17.340	-0.005768	1308454.	-15995.	-3.311E-05	0.000	9.808E+11	68.2396	72401.	0.000
17.850	-0.005946	1211790.	-15564.	-2.524E-05	0.000	9.809E+11	72.5243	74648.	0.000
18.360	-0.006077	1117857.	-15108.	-1.798E-05	0.000	9.809E+11	76.3580	76895.	0.000
18.870	-0.006166	1026797.	-14631.	-1.128E-05	0.000	9.809E+11	79.7361	79142.	0.000
19.380	-0.006215	938735.	-14134.	-5.153E-06	0.000	9.809E+11	82.6579	81390.	0.000
19.890	-0.006229	853781.	-13620.	4.395E-07	0.000	9.809E+11	85.1262	83637.	0.000
20.400	-0.006210	772025.	-13070.	5.511E-06	0.000	9.809E+11	94.5250	93155.	0.000
20.910	-0.006162	693819.	-12487.	1.008E-05	0.000	9.809E+11	96.0497	95403.	0.000
21.420	-0.006087	619219.	-11896.	1.418E-05	0.000	9.809E+11	97.1161	97650.	0.000
21.930	-0.005988	548264.	-11300.	1.782E-05	0.000	9.809E+11	97.7416	99897.	0.000
22.440	-0.005868	480976.	-10701.	2.103E-05	0.000	9.809E+11	97.9451	102144.	0.000
22.950	-0.005730	417362.	-10102.	2.384E-05	0.000	9.809E+11	97.7477	104392.	0.000
23.460	-0.005577	357414.	-9505.9076	2.625E-05	0.000	9.809E+11	97.1712	106639.	0.000
23.970	-0.005409	301110.	-8914.0723	2.831E-05	0.000	9.809E+11	96.2390	108886.	0.000
24.480	-0.005230	248414.	-8328.9575	3.002E-05	0.000	9.809E+11	94.9750	111133.	0.000
24.990	-0.005042	199279.	-7752.5185	3.142E-05	0.000	9.809E+11	93.4038	113381.	0.000
25.500	-0.004846	153644.	-7186.5587	3.252E-05	0.000	9.809E+11	91.5504	115628.	0.000
26.010	-0.004644	111440.	-6632.7281	3.335E-05	0.000	9.809E+11	89.4400	117875.	0.000
26.520	-0.004437	72587.	-6092.5224	3.392E-05	0.000	9.809E+11	87.0978	120122.	0.000
27.030	-0.004228	36997.	-5567.2840	3.426E-05	0.000	9.809E+11	84.5487	122370.	0.000
27.540	-0.004018	4574.7388	-5058.2035	3.439E-05	0.000	9.809E+11	81.8174	124617.	0.000
28.050	-0.003808	-24783.	-4566.3226	3.433E-05	0.000	9.809E+11	78.9280	126864.	0.000
28.560	-0.003598	-51186.	-4092.5371	3.409E-05	0.000	9.809E+11	75.9039	129112.	0.000
29.070	-0.003390	-74745.	-3637.6019	3.370E-05	0.000	9.809E+11	72.7678	131359.	0.000
29.580	-0.003185	-95581.	-3202.1357	3.317E-05	0.000	9.809E+11	69.5415	133606.	0.000
30.090	-0.002984	-113812.	-2786.6268	3.251E-05	0.000	9.809E+11	66.2458	135853.	0.000
30.600	-0.002787	-129564.	-2397.2723	3.175E-05	0.000	9.809E+11	60.9943	133916.	0.000
31.110	-0.002596	-143033.	-2033.9178	3.090E-05	0.000	9.809E+11	57.7490	136163.	0.000
31.620	-0.002409	-154341.	-1690.4775	2.998E-05	0.000	9.809E+11	54.4864	138410.	0.000
32.130	-0.002229	-163610.	-1367.0090	2.899E-05	0.000	9.809E+11	51.2223	140657.	0.000
32.640	-0.002054	-170962.	-1063.4760	2.794E-05	0.000	9.809E+11	47.9715	142905.	0.000
33.150	-0.001887	-176520.	-779.7556	2.686E-05	0.000	9.809E+11	44.7476	145152.	0.000
33.660	-0.001726	-180404.	-515.6460	2.574E-05	0.000	9.809E+11	41.5628	147399.	0.000
34.170	-0.001572	-182733.	-270.8736	2.461E-05	0.000	9.809E+11	38.4282	149647.	0.000
34.680	-0.001424	-183625.	-45.1013	2.347E-05	0.000	9.809E+11	35.3536	151894.	0.000
35.190	-0.001284	-183195.	162.0643	2.232E-05	0.000	9.809E+11	32.3476	154141.	0.000
35.700	-0.001151	-181556.	351.0650	2.119E-05	0.000	9.809E+11	29.4174	156388.	0.000
36.210	-0.001025	-178817.	522.3836	2.006E-05	0.000	9.809E+11	26.5691	158636.	0.000
36.720	-0.000906	-175085.	676.5364	1.896E-05	0.000	9.809E+11	23.8076	160883.	0.000
37.230	-0.000793	-170463.	814.0662	1.788E-05	0.000	9.809E+11	21.1367	163130.	0.000
37.740	-0.000687	-165052.	935.5351	1.683E-05	0.000	9.809E+11	18.5590	165377.	0.000
38.250	-0.000587	-158948.	1041.5176	1.582E-05	0.000	9.809E+11	16.0758	167625.	0.000
38.760	-0.000493	-152243.	1132.5944	1.485E-05	0.000	9.809E+11	13.6878	169872.	0.000
39.270	-0.000405	-145028.	1209.3461	1.392E-05	0.000	9.809E+11	11.3944	172119.	0.000
39.780	-0.000323	-137388.	1272.3473	1.304E-05	0.000	9.809E+11	9.1942	174366.	0.000
40.290	-0.000246	-129405.	1322.1610	1.221E-05	0.000	9.809E+11	7.0848	176614.	0.000
40.800	-0.000173	-121158.	1359.3336	1.143E-05	0.000	9.809E+11	5.0631	178861.	0.000
41.310	-0.000106	-112722.	1384.3900	1.070E-05	0.000	9.809E+11	3.1253	181108.	0.000
41.820	-4.228E-05	-104172.	1397.8294	1.002E-05	0.000	9.809E+11	1.2667	183355.	0.000
42.330	1.707E-05	-95575.	1400.1212	9.400E-06	0.000	9.809E+11	-0.5177	185603.	0.000
42.840	7.277E-05	-86998.	1391.7016	8.830E-06	0.000	9.809E+11	-2.2338	187850.	0.000
43.350	0.000125	-78506.	1372.9705	8.314E-06	0.000	9.809E+11	-3.8875	190097.	0.000
43.860	0.000175	-70161.	1344.2892	7.850E-06	0.000	9.809E+11	-5.4855	192345.	0.000

44.370	0.000221	-62022.	1305.9778	7.438E-06	0.000	9.809E+11	-7.0346	194592.	0.000
44.880	0.000266	-54147.	1258.3142	7.075E-06	0.000	9.809E+11	-8.5418	196839.	0.000
45.390	0.000308	-46593.	1201.5327	6.761E-06	0.000	9.809E+11	-10.0143	199086.	0.000
45.900	0.000348	-39415.	1135.8236	6.493E-06	0.000	9.809E+11	-11.4593	201334.	0.000
46.410	0.000387	-32666.	1061.3331	6.268E-06	0.000	9.809E+11	-12.8840	203581.	0.000
46.920	0.000425	-26400.	978.1644	6.084E-06	0.000	9.809E+11	-14.2954	205828.	0.000
47.430	0.000462	-20670.	886.3781	5.937E-06	0.000	9.809E+11	-15.7002	208075.	0.000
47.940	0.000498	-15528.	785.9948	5.824E-06	0.000	9.809E+11	-17.1048	210323.	0.000
48.450	0.000533	-11027.	676.9972	5.741E-06	0.000	9.809E+11	-18.5153	212570.	0.000
48.960	0.000568	-7219.6404	559.3335	5.684E-06	0.000	9.809E+11	-19.9369	214817.	0.000
49.470	0.000603	-4159.0369	432.9208	5.649E-06	0.000	9.809E+11	-21.3744	217064.	0.000
49.980	0.000637	-1899.0496	297.6500	5.630E-06	0.000	9.809E+11	-22.8317	219312.	0.000
50.490	0.000672	-494.2324	153.3913	5.622E-06	0.000	9.809E+11	-24.3117	221559.	0.000
51.000	0.000706	0.000	0.000	5.621E-06	0.000	9.809E+11	-25.8162	111903.	0.000

* This analysis computed pile response using nonlinear moment-curvature relationships.
  Values of total stress due to combined axial and bending stresses are computed only
  for elastic sections only and do not equal the actual stresses in concrete and steel.
  Stresses in concrete and steel may be interpolated from the output for nonlinear
  bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 1:

```
Pile-head deflection              =      0.4871883 inches
Computed slope at pile head       =     -0.0036600 radians
Maximum bending moment            =       2877339. inch-lbs
Maximum shear force               =         44000. lbs
Depth of maximum bending moment   =      8.1600000 feet below pile head
Depth of maximum shear force      =      0.000000 feet below pile head
Number of iterations              =             12
Number of zero deflection points  =              2
```

Computed Values of Pile Loading and Deflection
for Lateral Loading for Load Case Number 2

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

```
Shear force at pile head                          =      47000.0 lbs
Applied moment at pile head                       =          0.0 in-lbs
Axial thrust load on pile head                    =     348000.0 lbs
```

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness lb-in^2	Soil Res. p lb/in	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	0.1822	0.0539	47000.	-0.000930	0.000	2.004E+14	0.000	0.000	0.000
0.510	0.1765	289621.	46958.	-0.000930	0.000	2.004E+14	-13.7686	477.3600	0.000
1.020	0.1708	578727.	46795.	-0.000930	0.000	2.004E+14	-39.4613	1413.7200	0.000
1.530	0.1651	866354.	46480.	-0.000930	0.000	2.004E+14	-63.4118	2350.0800	0.000
2.040	0.1594	1151607.	46024.	-0.000930	0.000	2.004E+14	-85.6205	3286.4400	0.000
2.550	0.1537	1433652.	45438.	-0.000930	0.000	2.004E+14	-106.0873	4222.8000	0.000
3.060	0.1481	1711724.	44731.	-0.000930	0.000	2.004E+14	-124.8124	5159.1600	0.000
3.570	0.1424	1985121.	43915.	-0.000930	0.000	2.004E+14	-141.7959	6095.5200	0.000
4.080	0.1367	2253207.	43001.	-0.000930	0.000	2.004E+14	-157.0382	7031.8800	0.000
4.590	0.1310	2515411.	41998.	-0.000930	0.000	2.004E+14	-170.5393	7968.2400	0.000
5.100	0.1253	2771227.	40919.	-0.000930	0.000	2.004E+14	-182.2997	8904.6000	0.000
5.610	0.1196	3020216.	39122.	-0.000930	0.000	2.004E+14	-404.8003	20714.	0.000
6.120	0.1139	3254042.	36576.	-0.000930	0.000	2.004E+14	-427.3718	22961.	0.000
6.630	0.1082	3471862.	33904.	-0.000930	0.000	2.004E+14	-445.7674	25208.	0.000
7.140	0.1025	3672985.	31132.	-0.000929	0.000	2.004E+14	-459.9878	27455.	0.000
7.650	0.0968	3856880.	28286.	-0.000929	0.000	2.004E+14	-470.0341	29703.	0.000
8.160	0.0912	4023169.	25392.	-0.000917	0.000	9.755E+11	-475.9071	31950.	0.000
8.670	0.0856	4171580.	22471.	-0.000891	0.000	9.751E+11	-478.4667	34197.	0.000
9.180	0.0803	4302014.	19545.	-0.000864	0.000	9.748E+11	-477.9175	36444.	0.000
9.690	0.0750	4414491.	16631.	-0.000837	0.000	9.745E+11	-474.4678	38692.	0.000
10.200	0.0700	4509137.	13746.	-0.000809	0.000	9.742E+11	-468.3290	40939.	0.000
10.710	0.0651	4586183.	10906.	-0.000780	0.000	9.740E+11	-459.7142	43186.	0.000
11.220	0.0605	4645949.	8125.6572	-0.000751	0.000	9.738E+11	-448.8365	45433.	0.000
11.730	0.0560	4688841.	5418.3377	-0.000722	0.000	9.737E+11	-435.9084	47681.	0.000
12.240	0.0516	4715345.	2795.7688	-0.000692	0.000	9.737E+11	-421.1403	49928.	0.000
12.750	0.0475	4726011.	268.5761	-0.000663	0.000	9.736E+11	-404.7397	52175.	0.000
13.260	0.0435	4721455.	-2153.8723	-0.000633	0.000	9.736E+11	-386.9101	54423.	0.000
13.770	0.0397	4702344.	-4463.4388	-0.000603	0.000	9.737E+11	-367.8502	56670.	0.000
14.280	0.0361	4669393.	-6653.1841	-0.000574	0.000	9.738E+11	-347.7528	58917.	0.000
14.790	0.0327	4623355.	-8717.3294	-0.000545	0.000	9.739E+11	-326.8045	61164.	0.000
15.300	0.0295	4565014.	-10651.	-0.000516	0.000	9.741E+11	-305.1844	63412.	0.000
15.810	0.0264	4495181.	-12451.	-0.000488	0.000	9.743E+11	-283.0640	65659.	0.000
16.320	0.0235	4414687.	-14115.	-0.000460	0.000	9.745E+11	-260.6066	67906.	0.000
16.830	0.0208	4324373.	-15641.	-0.000432	0.000	9.748E+11	-237.9665	70153.	0.000
17.340	0.0182	4225087.	-17027.	-0.000405	0.000	9.750E+11	-215.2891	72401.	0.000
17.850	0.0158	4117682.	-18276.	-0.000379	0.000	9.753E+11	-192.7102	74648.	0.000
18.360	0.0136	4003004.	-19387.	-0.000354	0.000	9.755E+11	-170.3566	76895.	0.000
18.870	0.0115	3881892.	-20362.	-0.000329	0.000	9.758E+11	-148.3448	79142.	0.000
19.380	0.009533	3755172.	-21204.	-0.000305	0.000	9.761E+11	-126.7817	81390.	0.000
19.890	0.007739	3623653.	-21916.	-0.000282	0.000	9.764E+11	-105.7646	83637.	0.000
20.400	0.006084	3488125.	-22523.	-0.000260	0.000	9.765E+11	-92.6090	93155.	0.000
20.910	0.004563	3349081.	-23024.	-0.000238	0.000	9.768E+11	-71.1288	95403.	0.000
21.420	0.003170	3207329.	-23396.	-0.000218	0.000	9.770E+11	-50.5804	97650.	0.000
21.930	0.001900	3063639.	-23646.	-0.000198	0.000	9.772E+11	-31.0162	99897.	0.000
22.440	0.000748	2918747.	-23779.	-0.000179	0.000	9.773E+11	-12.4792	102144.	0.000
22.950	-0.000293	2773348.	-23802.	-0.000161	0.000	9.774E+11	4.9962	104392.	0.000
23.460	-0.001227	2628100.	-23721.	-0.000144	0.000	9.775E+11	21.3840	106639.	0.000
23.970	-0.002061	2483617.	-23543.	-0.000128	0.000	9.776E+11	36.6663	108886.	0.000
24.480	-0.002799	2340475.	-23276.	-0.000113	0.000	9.777E+11	50.8330	111133.	0.000
24.990	-0.003448	2199205.	-22925.	-9.913E-05	0.000	9.777E+11	63.8809	113381.	0.000
25.500	-0.004013	2060299.	-22497.	-8.580E-05	0.000	9.777E+11	75.8134	115628.	0.000

26.010	-0.004498	1924205.	-22000.	-7.333E-05	0.000	9.777E+11	86.6405	117875.	0.000
26.520	-0.004910	1791330.	-21440.	-6.170E-05	0.000	9.777E+11	96.3773	120122.	0.000
27.030	-0.005254	1662041.	-20824.	-5.089E-05	0.000	9.777E+11	105.0446	122370.	0.000
27.540	-0.005533	1536664.	-20158.	-4.088E-05	0.000	9.778E+11	112.6676	124617.	0.000
28.050	-0.005754	1415487.	-19448.	-3.164E-05	0.000	9.778E+11	119.2757	126864.	0.000
28.560	-0.005920	1298758.	-18701.	-2.315E-05	0.000	9.778E+11	124.9021	129112.	0.000
29.070	-0.006037	1186690.	-17922.	-1.537E-05	0.000	9.778E+11	129.5830	131359.	0.000
29.580	-0.006109	1079460.	-17117.	-8.278E-06	0.000	9.778E+11	133.3573	133606.	0.000
30.090	-0.006139	977210.	-16292.	-1.842E-06	0.000	9.778E+11	136.2661	135853.	0.000
30.600	-0.006131	880051.	-15465.	3.970E-06	0.000	9.778E+11	134.1596	133916.	0.000
31.110	-0.006090	787905.	-14640.	9.190E-06	0.000	9.778E+11	135.4954	136163.	0.000
31.620	-0.006019	700823.	-13808.	1.385E-05	0.000	9.778E+11	136.1183	138410.	0.000
32.130	-0.005920	618830.	-12976.	1.798E-05	0.000	9.778E+11	136.0719	140657.	0.000
32.640	-0.005799	541926.	-12145.	2.161E-05	0.000	9.778E+11	135.3999	142905.	0.000
33.150	-0.005656	470085.	-11320.	2.478E-05	0.000	9.778E+11	134.1460	145152.	0.000
33.660	-0.005495	403263.	-10505.	2.751E-05	0.000	9.778E+11	132.3537	147399.	0.000
34.170	-0.005319	341392.	-9701.5391	2.984E-05	0.000	9.778E+11	130.0657	149647.	0.000
34.680	-0.005130	284389.	-8913.9270	3.180E-05	0.000	9.778E+11	127.3238	151894.	0.000
35.190	-0.004930	232151.	-8144.3600	3.342E-05	0.000	9.778E+11	124.1687	154141.	0.000
35.700	-0.004721	184560.	-7395.2476	3.472E-05	0.000	9.778E+11	120.6393	156388.	0.000
36.210	-0.004505	141485.	-6668.7651	3.574E-05	0.000	9.778E+11	116.7733	158636.	0.000
36.720	-0.004284	102782.	-5966.8642	3.651E-05	0.000	9.778E+11	112.6061	160883.	0.000
37.230	-0.004058	68295.	-5291.2851	3.704E-05	0.000	9.778E+11	108.1714	163130.	0.000
37.740	-0.003830	37859.	-4643.5695	3.737E-05	0.000	9.778E+11	103.5004	165377.	0.000
38.250	-0.003601	11298.	-4025.0740	3.753E-05	0.000	9.778E+11	98.6223	167625.	0.000
38.760	-0.003371	-11568.	-3436.9849	3.753E-05	0.000	9.778E+11	93.5637	169872.	0.000
39.270	-0.003141	-30930.	-2880.3332	3.739E-05	0.000	9.778E+11	88.3487	172119.	0.000
39.780	-0.002913	-46983.	-2356.0095	3.715E-05	0.000	9.778E+11	82.9989	174366.	0.000
40.290	-0.002687	-59926.	-1864.7803	3.681E-05	0.000	9.778E+11	77.5335	176614.	0.000
40.800	-0.002463	-69964.	-1407.3033	3.641E-05	0.000	9.778E+11	71.9688	178861.	0.000
41.310	-0.002241	-77306.	-984.1430	3.595E-05	0.000	9.778E+11	66.3189	181108.	0.000
41.820	-0.002023	-82163.	-595.7868	3.545E-05	0.000	9.778E+11	60.5949	183355.	0.000
42.330	-0.001807	-84750.	-242.6599	3.493E-05	0.000	9.778E+11	54.8060	185603.	0.000
42.840	-0.001595	-85282.	74.8595	3.439E-05	0.000	9.778E+11	48.9585	187850.	0.000
43.350	-0.001386	-83980.	356.4262	3.386E-05	0.000	9.778E+11	43.0567	190097.	0.000
43.860	-0.001181	-81064.	601.7139	3.335E-05	0.000	9.778E+11	37.1027	192345.	0.000
44.370	-0.000978	-76757.	810.4028	3.285E-05	0.000	9.778E+11	31.0963	194592.	0.000
44.880	-0.000778	-71285.	982.1669	3.239E-05	0.000	9.778E+11	25.0358	196839.	0.000
45.390	-0.000582	-64873.	1116.6639	3.196E-05	0.000	9.778E+11	18.9175	199086.	0.000
45.900	-0.000387	-57753.	1213.5245	3.158E-05	0.000	9.778E+11	12.7363	201334.	0.000
46.410	-0.000195	-50154.	1272.3451	3.124E-05	0.000	9.778E+11	6.4861	203581.	0.000
46.920	-4.735E-06	-42312.	1292.6797	3.095E-05	0.000	9.778E+11	0.1592	205828.	0.000
47.430	0.000184	-34464.	1274.0354	3.071E-05	0.000	9.778E+11	-6.2522	208075.	0.000
47.940	0.000371	-26849.	1215.8681	3.052E-05	0.000	9.778E+11	-12.7567	210323.	0.000
48.450	0.000557	-19712.	1117.5812	3.038E-05	0.000	9.778E+11	-19.3632	212570.	0.000
48.960	0.000743	-13299.	978.5255	3.027E-05	0.000	9.778E+11	-26.0799	214817.	0.000
49.470	0.000928	-7863.3539	798.0019	3.021E-05	0.000	9.778E+11	-32.9148	217064.	0.000
49.980	0.001113	-3660.2639	575.2659	3.017E-05	0.000	9.778E+11	-39.8747	219312.	0.000
50.490	0.001297	-950.6098	309.5354	3.016E-05	0.000	9.778E+11	-46.9653	221559.	0.000
51.000	0.001482	0.000	0.000	3.015E-05	0.000	9.778E+11	-54.1901	111903.	0.000

* This analysis computed pile response using nonlinear moment-curvature relationships.
  Values of total stress due to combined axial and bending stresses are computed only
  for elastic sections only and do not equal the actual stresses in concrete and steel.
  Stresses in concrete and steel may be interpolated from the output for nonlinear
  bending properties relative to the magnitude of bending moment developed in the pile.

Output Summary for Load Case No. 2:

```
Pile-head deflection             =      0.1822141 inches
Computed slope at pile head      =     -0.0009302 radians
Maximum bending moment           =       4726011. inch-lbs
Maximum shear force              =         47000. lbs
Depth of maximum bending moment  =     12.7500000 feet below pile head
Depth of maximum shear force     =       0.000000 feet below pile head
Number of iterations             =              6
Number of zero deflection points =              2
```

Summary of Pile Response(s)

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, lbs, and Load 2 = Moment, in-lbs
Load Type 2: Load 1 = Shear, lbs, and Load 2 = Slope, radians
Load Type 3: Load 1 = Shear, lbs, and Load 2 = Rotational Stiffness, in-lbs/radian
Load Type 4: Load 1 = Top Deflection, inches, and Load 2 = Moment, in-lbs
Load Type 5: Load 1 = Top Deflection, inches, and Load 2 = Slope, radians

Load Case No.	Load Type No.	Pile-head Condition 1 V(lbs) or y(inches)	Pile-head Condition 2 in-lb, rad., or in-lb/rad.	Axial Loading lbs	Pile-head Deflection inches	Maximum Moment in Pile in-lbs	Maximum Shear in Pile lbs	Pile-head Rotation radians
1	1	V = 44000.	M = 0.000	-313000.	0.48718832	2877339.	44000.	-0.00365996
2	1	V = 47000.	M = 0.000	348000.	0.18221410	4726011.	47000.	-0.00093025

No error or warning messages were generated by this analysis.

The analysis ended normally.

Analysis Results:

Case 1 - Tension

Nominal Moment Capacity, Mn = 5406.006 kip-in = 450.5 k-ft
Factored Moment Capacity, phi*Mn = 0.9*450.5 k-ft = 405.45 k-ft
Maximum Bending Moment = 2877339 in-lbs = 239.8 k-ft
Capacity = 239.8 k-ft/405.45 k-ft = 59.1%

Case 2 - Compression

Nominal Moment Capacity, Mn = 16819.237 kip-in = 1401.6 k-ft
Factored Moment Capacity, phi*Mn = 0.9*1401.6 k-ft = 1261.44 k-ft
Maximum Bending Moment = 4726011 in-lbs = 393.8 k-ft
Capacity = 393.8 k-ft/1261.44 k-ft = 31.2%