

Lpile Analyses Calculations Forward Abutment - Tangent Shaft Wall

**Bridge No. FRA-23-1075C
S. 4th Street (U.S. 23) over I-70/71**

Structure File No. 2502620

Columbus, Ohio

Submitted: 7/11/2022



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Job FRA-23-1075 DRILLED SHAFT DESIGN
 Sheet No. 1 of
 Calculated by MLS Date
 Checked by RHC Date

FORWARD ABUTMENT DRILLED SHAFT DESIGN

BORING: B-034-O-08

GROUND EL. 751.5, BORING DEPTH: 135.5'

BEDROCK ENCOUNTERED AT 115.0'

* REDUCE END BEARING

(EL. 636.5)

RESISTANCE IN TABLE 9

GROUNDWATER AT 28.5' (EL. 723.0)

BY 30%

$\eta = 0.9 \Rightarrow$ C/C SHAFT SPACING $= 2\phi$'s

$\phi_b = 0.45$ FOR EQUIV STRIP FOOTING

$B_a = 0.64 (SID)^{0.34}$

PILE GROUP
REDUCTION
FACTOR

C/C SHAFT
SPACING

SHAFT DIA.

LOAD FACTORS

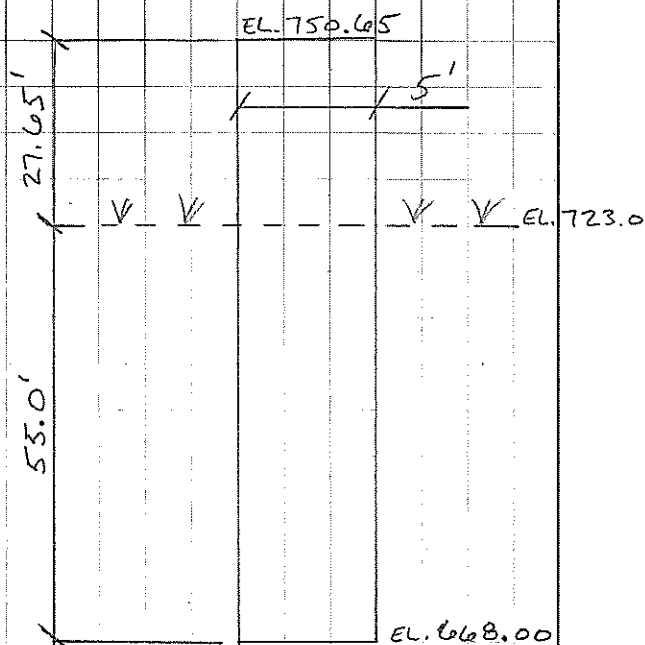
$D_w = 1.50$

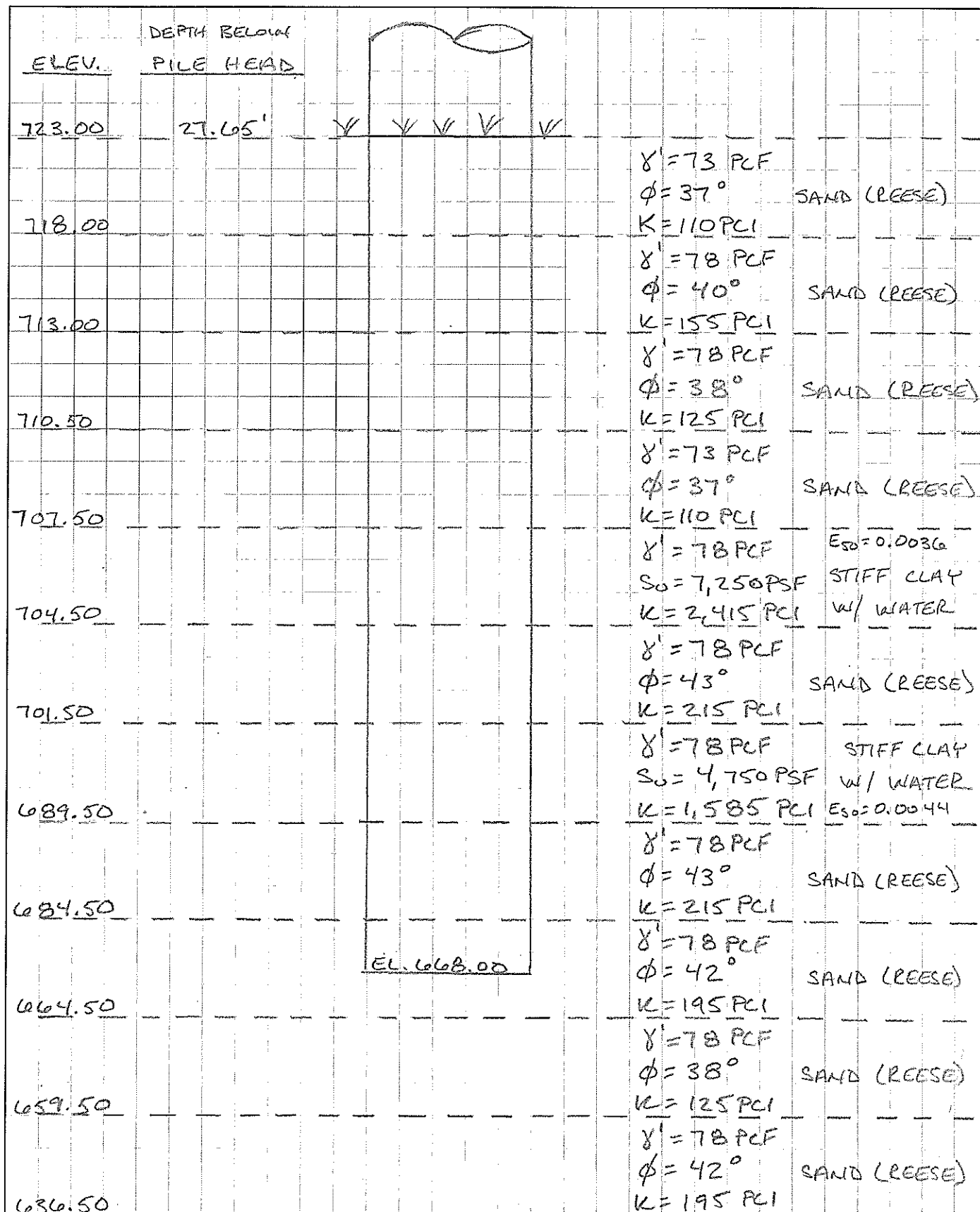
$D_c = 1.25$

TU LOAD FACTORS

SERVICE 1 - 1.20

STRENGTH 1 - 0.50







Job FRA-23-1075 DRILLED SHAFT DESIGN
 Sheet No. 3 of _____
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 Checked by RHC Date _____

LATERAL SOIL PRESSURE

$$\text{DEPTH} = 27.65' \Rightarrow \text{SHAFT } \phi \text{ } \times \text{WEIGHTED AVERAGE } K_a \text{ } \times \text{CANTILEVER DEPTH} = (5\text{FT})(130.7\text{ PCF})(0.333)(27.65\text{ FT}) = 6,017.07\text{ PLF} = \underline{501.42\text{ LB/IN}}$$

DEAD LOADS

$$D_W = 12.8\text{ KIPS (MERLIN DASH)} (1,000\text{ LBS/KIP}) = 12,800\text{ LBS} \quad D_W \text{ FACTOR } (1.50) = 19,200\text{ LBS}$$

$$D_C = 26.8\text{ KIPS} + 49.3\text{ KIPS (DC FACTOR)} (1,000\text{ LB/KIP}) = 76,100\text{ LBS} (1.25) = 95,125\text{ LBS}$$

WEIGHTED DEAD LOAD FACTOR FOR L-PILE

$$\frac{19,200\text{ LBS} + 95,125\text{ LBS}}{12,800\text{ LBS} + 76,100\text{ LBS}} = \underline{1.286}$$

DEAD LOAD FOR L-PILE

$$\text{UNFACTORED DEAD LOADS} \quad \text{GIRDER SPACING} \quad \text{SHAFT } \phi \quad (12,800\text{ LBS} + 76,100\text{ LBS}) / 10\text{ FT} = 8,890\text{ LBS/FT} \quad (5\text{ FT}) = \underline{44,450\text{ LBS}}$$

VERTICAL LIVE LOAD FOR L-PILE

$$R_{LL} \text{ (W/O IMPACT) FOR ONE LANE} = 91.34\text{ KIPS} \quad \text{BEARING DESIGN} \quad \text{DISTRIBUTION FACTOR} \quad / 0.952 = 95.95\text{ KIPS}$$

$$= (95.95\text{ KIPS}) (4\text{ LANES}) \quad \text{MULTIPLE PRESENCE FACTOR} \quad (0.65) = 249.47\text{ K} / 7\text{ GIRDERS} = 35.6$$

$$= (35.6\text{ K}) \quad \text{GIRDER SPACING} \quad \text{SHAFT } \phi \quad / 10\text{ FT} = 3.56\text{ K} \quad (5\text{ FT}) = 17.8\text{ K} = \underline{17,800\text{ LBS}}$$

HORIZONTAL SHEAR FORCE FROM BEARINGS

$$H_{60} = 5,562.44\text{ LBS/PAD} \quad \text{GIRDER SPACING} \quad \text{SHAFT } \phi \quad / 10\text{ FT} = 556.244\text{ LBS/FT} \quad (5\text{ FT}) = \underline{2,781.22\text{ LBS}}$$



Job FRA-23-1075 DRILLED SHAFT DESIGN
Sheet No. 4 of _____
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LIVE LOAD SURCHARGE

SHAFT ϕ

$$(5\text{ FT})(2.40\text{ PSF})(0.333) = 400\text{ LBS/FT} = \underline{33.3\text{ LBS/IN}}$$

P-REDUCTION FACTOR

C/C SPA:

SHAFT
 ϕ

$$B_a = 0.64 (S/D)^{0.34} = 0.64 (5.0625' / 5\text{ FT})^{0.34} = \underline{0.6427}$$

L-PILE DEFLECTIONS

ALLOWABLE DEFLECTION

CANTILEVERED
LENGTH

$$(0.01)(27.65\text{ FT})(12\text{ IN/FT}) = \underline{3.318\text{ IN}}$$

DEFLECTIONS FROM L-PILE

SOIL ONLY = 2.43 IN < 3.318 IN \therefore OK
SERVICE = 3.468 IN > 3.318 IN \therefore N.G.
STRENGTH = N/A

\therefore EMBED W30X173

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LPIle for Windows, Version 2019-11.001

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

Path to file locations:
\\tsclient\ (VMFR) Forward Abutment\

Name of input data file:
Forward Abutment with Embedded W30x173 Flange Rebar Only.lp11

Name of output report file:
Forward Abutment with Embedded W30x173 Flange Rebar Only.lp11

Name of plot output file:
Forward Abutment with Embedded W30x173 Flange Rebar Only.lp11

Name of runtime message file:
Forward Abutment with Embedded W30x173 Flange Rebar Only.lp11

Date and Time of Analysis

Date: May 20, 2019

Time: 12:58:52

Problem Title

Project Name: FRA-23-1075 - FOURTH STREET BRIDGE

Job Number: 2015370

Client: ODOT District 6

Engineer: MLS

Description: Forward Abutment DRILLED SHAFT DESIGN

Program Options and Settings

Computational Options:
- Use Load and Resistance Factors (LRFD) in computations
Engineering Units Used for Data Input and Computations:
- US Customary System Units (pounds, feet, inches)

Analysis Control Options:

- Maximum number of iterations allowed	=	500
- Deflection tolerance for convergence	=	1.0000E-05 in
- Maximum allowable deflection	=	100.0000 in
- Number of pile increments	=	100

Loading Type and Number of Cycles of Loading:

- Static loading specified
- Analysis uses p-y modification factors for p-y curves
- Analysis uses layering correction (Method of Georgiadis)
- No distributed lateral loads are entered
- Loading by lateral soil movements acting on pile not selected
- Input of shear resistance at the pile tip not selected
- Input of moment resistance at the pile tip not selected
- Computation of pile-head foundation stiffness matrix not selected
- Push-over analysis of pile not selected
- Buckling analysis of pile not selected

Output Options:

- Output files use decimal points to denote decimal symbols.
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (nodal spacing of output points) = 1
- No p-y curves to be computed and reported for user-specified depths
- Print using wide report formats

Pile Structural Properties and Geometry

Number of pile sections defined	=	1
Total length of pile	=	69.650 ft
Depth of ground surface below top of pile	=	27.6500 ft

Pile diameters used for p-y curve computations are defined using 2 points.

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

Point No.	Depth Below Pile Head feet	Pile Diameter inches
1	0.000	60.0000
2	69.650	60.0000

Input Structural Properties for Pile Sections:

Pile Section No. 1:

Section 1 is a round drilled shaft, bored pile, or CIDH pile	
Length of section	= 69.650000 ft
Shaft Diameter	= 60.000000 in
Shear capacity of section	= 0.0000 lbs

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 9 layers

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

Distance from top of pile to top of layer	=	27.650000	ft
Distance from top of pile to bottom of layer	=	32.650000	ft
Effective unit weight at top of layer	=	73.000000	pcf
Effective unit weight at bottom of layer	=	73.000000	pcf
Friction angle at top of layer	=	37.000000	deg.
Friction angle at bottom of layer	=	37.000000	deg.
Subgrade k at top of layer	=	110.000000	pci
Subgrade k at bottom of layer	=	110.000000	pci

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

Distance from top of pile to top of layer	=	32.650000	ft
Distance from top of pile to bottom of layer	=	37.650000	ft
Effective unit weight at top of layer	=	78.000000	pcf
Effective unit weight at bottom of layer	=	78.000000	pcf
Friction angle at top of layer	=	40.000000	deg.
Friction angle at bottom of layer	=	40.000000	deg.
Subgrade k at top of layer	=	155.000000	pci
Subgrade k at bottom of layer	=	155.000000	pci

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

Distance from top of pile to top of layer	=	37.650000	ft
Distance from top of pile to bottom of layer	=	40.150000	ft
Effective unit weight at top of layer	=	78.000000	pcf
Effective unit weight at bottom of layer	=	78.000000	pcf
Friction angle at top of layer	=	38.000000	deg.
Friction angle at bottom of layer	=	38.000000	deg.
Subgrade k at top of layer	=	125.000000	pci
Subgrade k at bottom of layer	=	125.000000	pci

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

Distance from top of pile to top of layer	=	40.150000	ft
Distance from top of pile to bottom of layer	=	43.150000	ft
Effective unit weight at top of layer	=	73.000000	pcf
Effective unit weight at bottom of layer	=	73.000000	pcf
Friction angle at top of layer	=	37.000000	deg.
Friction angle at bottom of layer	=	37.000000	deg.
Subgrade k at top of layer	=	110.000000	pci
Subgrade k at bottom of layer	=	110.000000	pci

Layer 5 is stiff clay with water-induced erosion

Distance from top of pile to top of layer	=	43.150000	ft
Distance from top of pile to bottom of layer	=	46.150000	ft
Effective unit weight at top of layer	=	78.000000	pcf
Effective unit weight at bottom of layer	=	78.000000	pcf
Undrained cohesion at top of layer	=	7250.	psf
Undrained cohesion at bottom of layer	=	7250.	psf
Epsilon-50 at top of layer	=	0.003600	
Epsilon-50 at bottom of layer	=	0.003600	
Subgrade k at top of layer	=	2415.	pci
Subgrade k at bottom of layer	=	2415.	pci

Layer 6 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	46.150000	ft
Distance from top of pile to bottom of layer	=	49.150000	ft
Effective unit weight at top of layer	=	78.000000	pcf
Effective unit weight at bottom of layer	=	78.000000	pcf
Friction angle at top of layer	=	43.000000	deg.
Friction angle at bottom of layer	=	43.000000	deg.
Subgrade k at top of layer	=	215.000000	pci
Subgrade k at bottom of layer	=	215.000000	pci

Layer 7 is stiff clay with water-induced erosion

Distance from top of pile to top of layer	=	49.150000	ft
Distance from top of pile to bottom of layer	=	61.150000	ft
Effective unit weight at top of layer	=	78.000000	pcf
Effective unit weight at bottom of layer	=	78.000000	pcf
Undrained cohesion at top of layer	=	4750.	psf
Undrained cohesion at bottom of layer	=	4750.	psf
Epsilon-50 at top of layer	=	0.004400	
Epsilon-50 at bottom of layer	=	0.004400	
Subgrade k at top of layer	=	1585.	pci
Subgrade k at bottom of layer	=	1585.	pci

Layer 8 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	61.150000	ft
Distance from top of pile to bottom of layer	=	66.150000	ft
Effective unit weight at top of layer	=	78.000000	pcf
Effective unit weight at bottom of layer	=	78.000000	pcf
Friction angle at top of layer	=	43.000000	deg.
Friction angle at bottom of layer	=	43.000000	deg.
Subgrade k at top of layer	=	215.000000	pci
Subgrade k at bottom of layer	=	215.000000	pci

Layer 9 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	66.150000	ft
Distance from top of pile to bottom of layer	=	86.150000	ft
Effective unit weight at top of layer	=	78.000000	pcf
Effective unit weight at bottom of layer	=	78.000000	pcf
Friction angle at top of layer	=	42.000000	deg.
Friction angle at bottom of layer	=	42.000000	deg.
Subgrade k at top of layer	=	195.000000	pci
Subgrade k at bottom of layer	=	195.000000	pci

(Depth of the lowest soil layer extends 16.500 ft below the pile tip)

Summary of Input Soil Properties

Layer Layer Num.	Soil Type Name (p-y Curve Type)	Layer Depth ft	Effective Unit Wt. pcf	Undrained Cohesion psf	Angle of Friction deg.	E50 or krm	kpy pci
1	Sand	27.6500	73.0000	--	37.0000	--	110.0000
	(Reese, et al.)	32.6500	73.0000	--	37.0000	--	110.0000
2	Sand	32.6500	78.0000	--	40.0000	--	155.0000
	(Reese, et al.)	37.6500	78.0000	--	40.0000	--	155.0000
3	Sand	37.6500	78.0000	--	38.0000	--	125.0000
	(Reese, et al.)	40.1500	78.0000	--	38.0000	--	125.0000
4	Sand	40.1500	73.0000	--	37.0000	--	110.0000
	(Reese, et al.)	43.1500	73.0000	--	37.0000	--	110.0000
5	Stiff Clay	43.1500	78.0000	7250.	--	0.00360	2415.
	with Free Water	46.1500	78.0000	7250.	--	0.00360	2415.
6	Sand	46.1500	78.0000	--	43.0000	--	215.0000
	(Reese, et al.)	49.1500	78.0000	--	43.0000	--	215.0000
7	Stiff Clay	49.1500	78.0000	4750.	--	0.00440	1585.
	with Free Water	61.1500	78.0000	4750.	--	0.00440	1585.
8	Sand	61.1500	78.0000	--	43.0000	--	215.0000
	(Reese, et al.)	66.1500	78.0000	--	43.0000	--	215.0000
9	Sand	66.1500	78.0000	--	42.0000	--	195.0000
	(Reese, et al.)	86.1500	78.0000	--	42.0000	--	195.0000

p-y Modification Factors for Group Action

Distribution of p-y modifiers with depth defined using 2 points

Point No.	Depth X ft	p-mult	y-mult
1	27.650	0.6427	1.0000
2	82.650	0.6427	1.0000

Static Loading Type

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

Unfactored Loading Groups for LRFD Analysis

Number of Loading Groups = 4

Load Group	Load Type	Horiz. Force lbs	Moment in-lbs	Axial Force lbs	Number of Dist. Lds.
1	Horiz. Soil (Hs)	0.00	0.00	0.00	2
2	Live Load (LL)	0.00	0.00	17800.00	2
3	Dead Load (DL)	0.00	0.00	44450.00	0
4	Temperature (Tm)	2781.22	0.00	0.00	0

Number of Distributed Loading Points Input for Load Group 1 = 2

Point	Depth in	Distributed Load lb/inch
1	0.00	0.00
2	331.80	501.42

Number of Distributed Loading Points Input for Load Group 2 = 2

Point	Depth in	Distributed Load lb/inch
1	0.00	33.30
2	331.80	33.30

Totals of Unfactored Loads by Load Type for LRFD Analyses:

Number of Defined Unfactored Load Cases = 4

This table presents the sum of unfactored pile-head loads for each load type.

Load Type	Horiz. Force lbs	Moment in-lbs	Axial Force lbs	Number of Loads
Dead Loads (DL)	0.00	0.00	44450.00	1
Live Loads (LL)	0.00	0.00	17800.00	1
Earthquake (EQ)	0.00	0.00	0.00	0
Impact Load (IM)	0.00	0.00	0.00	0
Wind Loads (W)	0.00	0.00	0.00	0
Water Loads (HW)	0.00	0.00	0.00	0
Ice Loads (Ice)	0.00	0.00	0.00	0
Horiz. Soil (Hs)	0.00	0.00	0.00	1
Live Roof (Lr)	0.00	0.00	0.00	0
Rain Loads (Rn)	0.00	0.00	0.00	0
Snow Loads (Sn)	0.00	0.00	0.00	0
Temperature (Tm)	2781.22	0.00	0.00	1
Special (Sp)	0.00	0.00	0.00	0

Load and Resistance Factors by Load Combinations for LRFD Analyses

Number of Factored Load Combinations = 3

Summary of Load and Resistance Factors:

No.	DL	LL	EQ	IM	Wind	Watr	Ice	Soil	Roof	Rain	Snow	Temp	Spec	M Rf	V Rf	Name
1	--	--	--	--	--	--	--	1.00	--	--	--	--	--	1.00	1.00	Soil Only
2	1.00	1.00	--	--	--	--	--	1.00	--	--	--	1.20	--	1.00	1.00	Service 1
3	1.29	1.75	--	--	--	--	--	1.50	--	--	--	0.50	--	0.90	0.90	Strength 1

Computed Factored Loads for LRFD Analyses

Factored Load Combination No. 1

Load Combination Name = Soil Only

Structural Resistance Factor for Flexure = 1.000
Structural Resistance Factor for Shear = 1.000

Factored Load = + 1.00*Hs

Factored Horizontal Force = 0.00 lbs
Factored Vertical Force = 0.00 lbs
Factored Moment = 0.00 in-lbs

Factored Load Combination No. 2

Load Combination Name = Service 1

Structural Resistance Factor for Flexure = 1.000
Structural Resistance Factor for Shear = 1.000

Factored Load = 1.00*DL + 1.00*LL + 1.00*Hs + 1.20*Tm

Factored Horizontal Force = 3337.46 lbs
Factored Vertical Force = 62250.00 lbs
Factored Moment = 0.00 in-lbs

Factored Load Combination No. 3

Load Combination Name = Strength 1

Structural Resistance Factor for Flexure = 0.900
Structural Resistance Factor for Shear = 0.900

Factored Load = 1.29*DL + 1.75*LL + 1.50*Hs + 0.50*Tm

Factored Horizontal Force = 1390.61 lbs
Factored Vertical Force = 88490.50 lbs
Factored Moment = 0.00 in-lbs

Totals of Factored Loads by Load Combination:

Load Combination Number	Factored Horiz. Force lbs	Factored Moment in-lbs	Factored Vert. Force lbs	Load Combination Name
1	0.00	0.00	0.00	Soil Only

2	3337.46	0.00	62250.00	Service 1
3	1390.61	0.00	88490.50	Strength 1

Sorted Values of Axial Thrust Forces Sorted for LRFD Computations:

Number of Unique Axial Thrust Values = 3

Number	Factored Axial Thrust
1	0.000
2	62250.000
3	98322.778

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from LRFD load combinations

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section	=	69.650000 ft
Shaft Diameter	=	60.000000 in
Number of Reinforcing Bars	=	55 bars
Yield Stress of Reinforcing Bars	=	60000. psi
Modulus of Elasticity of Reinforcing Bars	=	29000000. psi
Gross Area of Shaft	=	2827. sq. in.
Total Area of Reinforcing Steel	=	60.860000 sq. in.
Area Ratio of Steel Reinforcement	=	2.15 percent
Offset of Center of Rebar Cage from Center of Pile	=	0.0000 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = $0.85 F_c A_c + F_y A_s$	=	13057.950 kips
Tensile Load for Cracking of Concrete	=	-1354.266 kips
Nominal Axial Tensile Capacity	=	-3651.600 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.128000	1.000000	22.686000	0.000000
2	1.128000	1.000000	22.155614	4.876819
3	1.128000	1.000000	20.589256	9.525604
4	1.128000	1.000000	18.060167	13.728982
5	1.128000	1.000000	14.686605	17.290408
6	1.128000	1.000000	10.626314	20.043354
7	1.128000	1.000000	6.069148	21.859095
8	1.128000	1.000000	1.228195	22.652729
9	1.128000	1.000000	-3.670186	22.387146
10	1.128000	1.000000	-8.396954	21.074766
11	1.128000	1.000000	-12.731090	18.776953
12	1.128000	1.000000	-16.469934	15.601150
13	1.128000	1.000000	-19.438662	11.695855
14	1.128000	1.000000	-21.498460	7.243675
15	1.128000	1.000000	-22.553014	2.452788
16	1.128000	1.000000	-22.553014	-2.452788
17	1.128000	1.000000	-21.498460	-7.243675
18	1.128000	1.000000	-19.438662	-11.695855
19	1.128000	1.000000	-16.469934	-15.601150
20	1.128000	1.000000	-12.731090	-18.776953
21	1.128000	1.000000	-8.396954	-21.074766

22	1.128000	1.000000	-3.670186	-22.387146
23	1.128000	1.000000	1.228195	-22.652729
24	1.128000	1.000000	6.069148	-21.859095
25	1.128000	1.000000	10.626314	-20.043354
26	1.128000	1.000000	14.686605	-17.290408
27	1.128000	1.000000	18.060167	-13.728982
28	1.128000	1.000000	20.589256	-9.525604
29	1.128000	1.000000	22.155614	-4.876819
30	0.375000	0.110000	-7.305000	14.687500
31	1.410000	1.560000	-6.087500	14.687500
32	1.410000	1.560000	-4.870000	14.687500
33	1.410000	1.560000	-3.652500	14.687500
34	1.410000	1.560000	-2.435000	14.687500
35	1.410000	1.560000	-1.217500	14.687500
36	0.375000	0.110000	0.000000	14.687500
37	1.410000	1.560000	1.217500	14.687500
38	1.410000	1.560000	2.435000	14.687500
39	1.410000	1.560000	3.652500	14.687500
40	1.410000	1.560000	4.870000	14.687500
41	1.410000	1.560000	6.087500	14.687500
42	0.375000	0.110000	7.305000	14.687500
43	0.375000	0.110000	-7.305000	-14.687500
44	1.410000	1.560000	-6.087500	-14.687500
45	1.410000	1.560000	-4.870000	-14.687500
46	1.410000	1.560000	-3.652500	-14.687500
47	1.410000	1.560000	-2.435000	-14.687500
48	1.410000	1.560000	-1.217500	-14.687500
49	0.375000	0.110000	0.000000	-14.687500
50	1.410000	1.560000	1.217500	-14.687500
51	1.410000	1.560000	2.435000	-14.687500
52	1.410000	1.560000	3.652500	-14.687500
53	1.410000	1.560000	4.870000	-14.687500
54	1.410000	1.560000	6.087500	-14.687500
55	0.375000	0.110000	7.305000	-14.687500

NOTE: The positions of the above rebars were input by the user

Minimum spacing between any two bars not equal to zero = 0.325 inches
between bars 30 and 31.

Ratio of bar spacing to maximum aggregate size = .43

Concrete Properties:

Compressive Strength of Concrete	=	4000. psi
Modulus of Elasticity of Concrete	=	3604997. psi
Modulus of Rupture of Concrete	=	-474.341649 psi
Compression Strain at Peak Stress	=	0.001886
Tensile Strain at Fracture of Concrete	=	-0.0001154
Maximum Coarse Aggregate Size	=	0.750000 in

Number of Axial Thrust Force Values Determined from LRFD Pile-head Loadings = 3

Number	Axial Thrust Force kips
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1	0.000
2	62.250
3	98.323

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 criteria for tension-controlled section met, tensile strain in reinforcement exceeds 0.005 while simultaneously compressive strain in concrete more than 0.003. See ACI 318, 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 = 0.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in ²	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Max Conc Stress ksi	Max Steel Stress ksi	Run Msg
4.16667E-07	1270.	3047110320.	29.9973205	0.00001250	-0.00001250	0.0523076	-0.2791574	
8.33333E-07	2534.	3041152813.	29.9973128	0.00002500	-0.00002500	0.1042710	-0.5583149	
0.00000125	3794.	3035195307.	29.9973051	0.00003750	-0.00003750	0.1558900	-0.8374727	
0.00000167	5049.	3029237801.	29.9972974	0.00005000	-0.00005000	0.2071648	-1.1166306	
0.00000208	6299.	3023280294.	29.9972896	0.00006249	-0.00006251	0.2580953	-1.3957887	
0.00000250	7543.	3017322788.	29.9972818	0.00007499	-0.00007501	0.3086815	-1.6749471	
0.00000292	8783.	3011365282.	29.9972739	0.00008749	-0.00008751	0.3589234	-1.9541056	
0.00000333	10018.	3005407775.	29.9972661	0.00009999	-0.00010000	0.4088210	-2.2332643	
0.00000375	11248.	2999450269.	29.9972581	0.0001125	-0.0001125	0.4583743	-2.5124232	
0.00000417	11248.	2699505242.	17.8666903	0.00007444	-0.0001756	0.3044077	-4.2573582	C
0.00000458	11248.	2454095675.	17.8720863	0.00008191	-0.0001931	0.3342864	-4.6823768	C
0.00000500	11248.	2249587702.	17.8774935	0.000008939	-0.0002106	0.3640622	-5.1072634	C
0.00000542	11248.	2076542494.	17.8829120	0.00009687	-0.0002281	0.3937349	-5.5320176	C
0.00000583	11248.	1928218030.	17.8883417	0.0001043	-0.0002457	0.4233045	-5.9566388	C
0.00000625	11248.	1799670161.	17.8937828	0.0001118	-0.0002632	0.4527707	-6.3811269	C
0.00000667	11248.	1687190776.	17.8992353	0.0001193	-0.0002807	0.4821333	-6.8054812	C
0.00000708	11248.	1587944260.	17.9046991	0.0001268	-0.0002982	0.5113923	-7.2297014	C
0.00000750	11248.	1499725135.	17.9101745	0.0001343	-0.0003157	0.5405473	-7.6537870	C
0.00000792	11248.	1420792233.	17.9156614	0.0001418	-0.0003332	0.5695983	-8.0777377	C
0.00000833	11248.	1349752621.	17.9211599	0.0001493	-0.0003507	0.5985450	-8.5015530	C
0.00000875	11248.	1285478687.	17.9266700	0.0001569	-0.0003681	0.6273874	-8.9252325	C
0.00000917	11248.	1227047837.	17.9321918	0.0001644	-0.0003856	0.6561251	-9.3487757	C
0.00000958	11248.	1173697931.	17.9377253	0.0001719	-0.0004031	0.6847581	-9.7721822	C
0.00001000	11248.	1124793851.	17.9432706	0.0001794	-0.0004206	0.7132862	-10.1954515	C
0.00001042	11248.	1079802097.	17.9488278	0.0001870	-0.0004380	0.7417091	-10.6185833	C
0.00001083	11248.	1038271247.	17.9543968	0.0001945	-0.0004555	0.7700268	-11.0415770	C
0.00001125	11248.	999816756.	17.9599777	0.0002020	-0.0004730	0.7982390	-11.4644323	C
0.00001167	11248.	964109015.	17.9655707	0.0002096	-0.0004904	0.8263455	-11.8871486	C
0.00001208	11248.	930863877.	17.9711756	0.0002172	-0.0005078	0.8543462	-12.3097255	C
0.00001250	11248.	899835081.	17.9767927	0.0002247	-0.0005253	0.8822409	-12.7321626	C
0.00001292	11508.	890948014.	17.9824219	0.0002323	-0.0005427	0.9100294	-13.1544594	C
0.00001333	11875.	890632472.	17.9880634	0.0002398	-0.0005602	0.9377115	-13.5766155	C
0.00001375	12242.	890316337.	17.9937170	0.0002474	-0.0005776	0.9652870	-13.9986303	C
0.00001417	12608.	889999607.	17.9993830	0.0002550	-0.0005950	0.9927558	-14.4205035	C
0.00001458	12975.	889682279.	18.0050613	0.0002626	-0.0006124	1.0201176	-14.8422345	C
0.00001500	13340.	889364351.	18.0107521	0.0002702	-0.0006298	1.0473723	-15.2638228	C
0.00001542	13706.	889045820.	18.0164553	0.0002778	-0.0006472	1.0745197	-15.6852681	C
0.00001583	14072.	888726685.	18.0221711	0.0002854	-0.0006646	1.1015596	-16.1065698	C
0.00001625	14437.	888406942.	18.0278994	0.0002930	-0.0006820	1.1284918	-16.5277274	C
0.00001708	15166.	887765607.	18.0393941	0.0003082	-0.0007168	1.1820324	-17.3696087	C
0.00001792	15894.	887121826.	18.0509397	0.0003234	-0.0007516	1.2351399	-18.2109077	C
0.00001875	16621.	886475564.	18.0625369	0.0003387	-0.0007863	1.2878127	-19.0516208	C
0.00001958	17347.	885826799.	18.0741859	0.0003540	-0.0008210	1.3400494	-19.8917438	C
0.00002042	18072.	885175510.	18.0858874	0.0003693	-0.0008557	1.3918482	-20.7312727	C
0.00002125	18796.	884521676.	18.0976418	0.0003846	-0.0008904	1.4432077	-21.5702035	C
0.00002208	19519.	883865275.	18.1094496	0.0003999	-0.0009251	1.4941262	-22.4085319	C
0.00002292	20240.	883206285.	18.1213113	0.0004153	-0.0009597	1.5446020	-23.2462539	C
0.00002375	20960.	882544684.	18.1332273	0.0004307	-0.0009943	1.5946336	-24.0833650	C
0.00002458	21680.	881880448.	18.1451983	0.0004461	-0.0010289	1.6442192	-24.9198611	C
0.00002542	22398.	881213555.	18.1572246	0.0004615	-0.0010635	1.6933571	-25.7557378	C
0.00002625	23114.	880543981.	18.1693069	0.0004769	-0.0010981	1.7420458	-26.5909906	C
0.00002708	23830.	879871703.	18.1814456	0.0004924	-0.0011326	1.7902833	-27.4256151	C
0.00002792	24544.	879196696.	18.1936413	0.0005079	-0.0011671	1.8380681	-28.2596067	C
0.00002875	25257.	878518937.	18.2058946	0.0005234	-0.0012016	1.8853983	-29.0929609	C
0.00002958	25969.	877838400.	18.2182060	0.0005390	-0.0012360	1.9322722	-29.9256731	C
0.00003042	26680.	877155061.	18.2305760	0.0005545	-0.0012705	1.9786880	-30.7577384	C
0.00003125	27390.	876468895.	18.2430053	0.0005701	-0.0013049	2.0246439	-31.5891522	C
0.00003208	28098.	875779874.	18.2544943	0.0005857	-0.0013393	2.0701380	-32.4199096	C
0.00003292	28805.	875087974.	18.2680438	0.0006013	-0.0013737	2.1151684	-33.2500057	C
0.00003375	29511.	874393168.	18.2806542	0.0006170	-0.0014080	2.1597334	-34.0794355	C
0.00003458	30215.	873695476.	18.2933263	0.0006326	-0.0014424	2.2038311	-34.9081931	C
0.00003542	30919.	872995222.	18.3058703	0.0006483	-0.0014767	2.2474405	-35.7364706	C
0.00003625	31621.	872292544.	18.3182643	0.0006640	-0.0015110	2.2905568	-36.5642995	C
0.00003708	32321.	871586952.	18.3307179	0.0006798	-0.0015452	2.3331988	-37.3914654	C
0.00003792	33021.	870878419.	18.3432316	0.0006955	-0.0015795	2.3753644	-38.2179631	C
0.00003875	33719.	870166919.	18.3558061	0.0007113	-0.0016137	2.4170518	-39.0437878	C
0.00003958	34416.	869452423.	18.3684419	0.0007271	-0.0016479	2.4582589	-39.8689343	C
0.00004042	35111.	868734904.	18.3811397	0.0007429	-0.0016821	2.4989838	-40.6933974	C
0.00004125	35806.	868014334.	18.3939001	0.0007587	-0.0017163	2.5392245	-41.5171719	C
0.00004208	36498.	867290683.	18.4067237	0.0007746	-0.0017504	2.5789789	-42.3402525	C

0.00004292	37190.	866563924.	18.4196112	0.0007905	-0.0017845	2.6182450	-43.1626337	C
0.00004375	37880.	865834025.	18.4325633	0.0008064	-0.0018186	2.6570207	-43.9843102	C
0.00004458	38569.	865100957.	18.4455805	0.0008224	-0.0018526	2.6953038	-44.8052764	C
0.00004542	39257.	864364689.	18.4586637	0.0008383	-0.0018867	2.7330923	-45.6255266	C
0.00004625	39943.	863625191.	18.4718134	0.0008543	-0.0019207	2.7703840	-46.4450552	C
0.00004708	40627.	862882431.	18.4850303	0.0008703	-0.0019547	2.8071767	-47.2638563	C
0.00004792	41311.	862136378.	18.4983153	0.0008864	-0.0019886	2.8434683	-48.0819242	C
0.00004875	41993.	861386997.	18.5116689	0.0009024	-0.0020226	2.8792564	-48.8992529	C
0.00004958	42673.	860634257.	18.5250920	0.0009185	-0.0020565	2.9145388	-49.7158363	C
0.00005292	45381.	857589027.	18.5794937	0.0009832	-0.0021918	3.0505657	-52.9745935	C
0.00005625	48065.	854487268.	18.6350681	0.0010482	-0.0023268	3.1783135	-56.2209200	C
0.00005958	50725.	851326600.	18.6918683	0.0011137	-0.0024613	3.2976235	-59.4543841	C
0.00006292	53234.	846098596.	18.7346850	0.0011787	-0.0025963	3.4067609	-60.0000000	CY
0.00006625	55462.	837155863.	18.7493819	0.0012421	-0.0027329	3.5043363	-60.0000000	CY
0.00006958	57535.	826844922.	18.7526630	0.0013049	-0.0028701	3.5922079	-60.0000000	CY
0.00007292	59504.	816061050.	18.7512301	0.0013673	-0.0030077	3.6711214	-60.0000000	CY
0.00007625	61387.	805071573.	18.7470091	0.0014295	-0.0031455	3.7413177	-60.0000000	CY
0.00007958	63069.	792490440.	18.7248731	0.0014902	-0.0032848	3.8017269	-60.0000000	CY
0.00008292	63824.	769733388.	18.5900021	0.0015414	-0.0034336	3.8463229	-60.0000000	CY
0.00008625	64324.	745785873.	18.4365573	0.0015902	-0.0035848	3.8834414	-60.0000000	CY
0.00008958	64790.	723236325.	18.2930749	0.0016388	-0.0037362	3.9153567	-60.0000000	CY
0.00009292	65201.	701712738.	18.1504214	0.0016865	-0.0038885	3.9417279	-60.0000000	CY
0.00009625	65591.	681460656.	18.0178694	0.0017342	-0.0040408	3.9631995	-60.0000000	CY
0.00009958	65933.	662092701.	17.8906375	0.0017816	-0.0041934	3.9796515	-60.0000000	CY
0.0001029	66261.	643834040.	17.7725900	0.0018291	-0.0043459	3.9912841	-60.0000000	CY
0.0001063	66567.	626511347.	17.6599561	0.0018764	-0.0044986	3.9980380	-60.0000000	CY
0.0001096	66833.	609884049.	17.5480864	0.0019230	-0.0046520	3.9987986	-60.0000000	CY
0.0001129	67086.	594119087.	17.4439426	0.0019697	-0.0048053	3.9996283	-60.0000000	CY
0.0001163	67332.	579202209.	17.3478938	0.0020167	-0.0049583	3.9978281	-60.0000000	CY
0.0001196	67550.	564881081.	17.2555552	0.0020635	-0.0051115	3.9999947	-60.0000000	CY
0.0001229	67741.	551116214.	17.1670090	0.0021101	-0.0052649	3.9986786	-60.0000000	CY
0.0001263	67925.	538019380.	17.0835640	0.0021568	-0.0054182	3.9983057	-60.0000000	CY
0.0001296	68099.	525526576.	17.0025571	0.0022032	-0.0055718	3.9987833	-60.0000000	CY
0.0001329	68262.	513569254.	16.9256142	0.0022497	-0.0057253	3.9985734	-60.0000000	CY
0.0001363	68407.	502069412.	16.8520418	0.0022961	-0.0058789	3.9982187	-60.0000000	CY
0.0001396	68537.	491011484.	16.7810440	0.0023424	-0.0060326	3.9999768	-60.0000000	CY
0.0001429	68663.	480438652.	16.7150392	0.0023889	-0.0061861	3.9966254	-60.0000000	CY
0.0001462	68786.	470329182.	16.6531965	0.0024355	-0.0063395	3.9994987	-60.0000000	CY
0.0001496	68905.	460648852.	16.5953979	0.0024824	-0.0064926	3.9960029	-60.0000000	CY
0.0001529	69013.	451314350.	16.5398609	0.0025292	-0.0066458	3.9977057	-60.0000000	CY
0.0001562	69114.	442331589.	16.4858573	0.0025759	-0.0067991	3.9997957	-60.0000000	CY
0.0001596	69199.	433622927.	16.4304440	0.0026220	-0.0069530	3.9944728	-60.0000000	CY
0.0001629	69280.	425250401.	16.3781312	0.0026683	-0.0071067	3.9973145	-60.0000000	CY
0.0001662	69360.	417204234.	16.3286758	0.0027146	-0.0072604	3.9995724	-60.0000000	CY
0.0001696	69438.	409461834.	16.2821138	0.0027612	-0.0074138	3.9968556	-60.0000000	CY
0.0001729	69513.	402003781.	16.2383942	0.0028079	-0.0075671	3.9953942	-60.0000000	CY
0.0001762	69587.	394820428.	16.1969703	0.0028547	-0.0077203	3.9985284	-60.0000000	CY
0.0001796	69653.	387857041.	16.1561778	0.0029014	-0.0078736	3.9999185	-60.0000000	CY
0.0001829	69715.	381128856.	16.1176138	0.0029482	-0.0080268	3.9939539	-60.0000000	CY
0.0002029	70009.	345014840.	15.9141130	0.0032292	-0.0089458	3.9963272	-60.0000000	CYT
0.0002229	70240.	315095662.	15.7491752	0.0035108	-0.0098642	3.9974750	-60.0000000	CYT
0.0002429	70389.	289765445.	15.6129307	0.0037926	-0.0107824	3.9957818	60.0000000	CYT
0.0002629	70389.	267723065.	15.6378979	0.0041115	-0.0116635	3.9956531	60.0000000	CYT

Axial Thrust Force = 62.250 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 Conc Stress ksi	Max Steel Stress ksi	Run Msg
4.16667E-07	1269.	3045555757.	41.0941682	0.00001712	-0.00000788	0.0717648	0.4131795	
8.33333E-07	2534.	3040345990.	35.5588616	0.00002963	-0.00002037	0.1236452	0.6925892	
0.00000125	3793.	3034651644.	33.7140031	0.00004214	-0.00003286	0.1751820	0.9720076	
0.00000167	5048.	3028827268.	32.7916422	0.00005465	-0.00004535	0.2263743	1.2514294	
0.00000208	6298.	3022949992.	32.2382620	0.00006716	-0.00005784	0.2772220	1.5308533	
0.00000250	7543.	3017046086.	31.8693673	0.00007967	-0.00007033	0.3277252	1.8102791	
0.00000292	8782.	3011126899.	31.6058908	0.00009218	-0.00008282	0.3778836	2.0897066	
0.00000333	10017.	3005198155.	31.4083004	0.0001047	-0.00009531	0.4276973	2.3691357	
0.00000375	11247.	2999263021.	31.2546334	0.0001172	-0.0001078	0.4771664	2.6485664	
0.00000417	11247.	2699336719.	20.8858887	0.00008702	-0.0001630	0.3555134	-3.8925384	C
0.00000458	11247.	2453942471.	20.6367033	0.00009458	-0.0001804	0.3855519	-4.3149132	C
0.00000500	11247.	2249447266.	20.4256253	0.0001021	-0.0001979	0.4153973	-4.7377843	C
0.00000542	11247.	2076412860.	20.2478027	0.0001097	-0.0002153	0.4451360	-5.1605327	C
0.00000583	11247.	1928097656.	20.0960009	0.0001172	-0.0002328	0.4747651	-5.5831765	C
0.00000625	11247.	1799557812.	19.9615012	0.0001248	-0.0002502	0.5041975	-6.0063529	C
0.00000667	11247.	1687085449.	19.8444644	0.0001323	-0.0002677	0.5335235	-6.4294035	C
0.00000708	11247.	1587845129.	19.7418107	0.0001398	-0.0002852	0.5627432	-6.8523280	C
0.00000750	11247.	1499631510.	19.6511445	0.0001474	-0.0003026	0.5918562	-7.2751260	C

0.00000792	11247.	1420703536.	19.5705748	0.0001549	-0.0003201	0.6208625	-7.6977972 C
0.00000833	11247.	1349668359.	19.4985469	0.0001625	-0.0003375	0.6497605	-8.1203512 C
0.00000875	11247.	1285398437.	19.4320094	0.0001700	-0.0003550	0.6784881	-8.5432526 C
0.00000917	11247.	1226971236.	19.3720123	0.0001776	-0.0003724	0.7071094	-8.9660234 C
0.00000958	11247.	1173624660.	19.3177038	0.0001851	-0.0003899	0.7356241	-9.3886631 C
0.00001000	11247.	1124723633.	19.2683743	0.0001927	-0.0004073	0.7640321	-9.8111714 C
0.00001042	11247.	1079734687.	19.2234276	0.0002002	-0.0004248	0.7923332	-10.2335479 C
0.00001083	11247.	1038206430.	19.1823593	0.0002078	-0.0004422	0.8205272	-10.6557921 C
0.00001125	11247.	999754340.	19.1447397	0.0002154	-0.0004596	0.8486140	-11.0779037 C
0.00001167	11247.	964048828.	19.1102004	0.0002230	-0.0004770	0.8765935	-11.4998821 C
0.00001208	11510.	952583210.	19.0784242	0.0002305	-0.0004945	0.9044653	-11.9217272 C
0.00001250	11877.	950181177.	19.0491356	0.0002381	-0.0005119	0.9322293	-12.3434383 C
0.00001292	12244.	947912938.	19.0220952	0.0002457	-0.0005293	0.9598854	-12.7650151 C
0.00001333	12610.	945765894.	18.9970933	0.0002533	-0.0005467	0.9874334	-13.1864572 C
0.00001375	12976.	943728972.	18.9739455	0.0002609	-0.0005641	1.0148731	-13.6077642 C
0.00001417	13342.	941792405.	18.9524894	0.0002685	-0.0005815	1.0422043	-14.0289356 C
0.00001458	13708.	939947536.	18.9325809	0.0002761	-0.0005989	1.0694268	-14.4499710 C
0.00001500	14073.	938186625.	18.9140920	0.0002837	-0.0006163	1.0965404	-14.8708703 C
0.00001542	14438.	936502686.	18.8968143	0.0002913	-0.0006337	1.1235398	-15.2916742 C
0.00001583	14802.	934888539.	18.8803457	0.0002989	-0.0006511	1.1504074	-15.7125249 C
0.00001625	15167.	933340085.	18.8650217	0.0003066	-0.0006684	1.1771662	-16.1332338 C
0.00001708	15895.	930420746.	18.8374764	0.0003218	-0.0007032	1.2303572	-16.9742252 C
0.00001792	16621.	927710268.	18.8135929	0.0003371	-0.0007379	1.2831111	-17.8146456 C
0.00001875	17347.	925180491.	18.7928900	0.0003524	-0.0007726	1.3354264	-18.6544910 C
0.00001958	18072.	922808013.	18.7749684	0.0003677	-0.0008073	1.3873015	-19.4937575 C
0.00002042	18795.	920573203.	18.7594942	0.0003830	-0.0008420	1.4387348	-20.3324416 C
0.00002125	19517.	918459648.	18.7461857	0.0003984	-0.0008766	1.4897248	-21.1705384 C
0.00002208	20238.	916453262.	18.7348040	0.0004137	-0.0009113	1.5402700	-22.0080446 C
0.00002292	20958.	914542057.	18.7251450	0.0004291	-0.0009459	1.5903685	-22.8449559 C
0.00002375	21677.	912715722.	18.7170333	0.0004445	-0.0009805	1.6400189	-23.6812685 C
0.00002458	22395.	910965342.	18.7103173	0.0004600	-0.0010150	1.6892195	-24.5169780 C
0.00002542	23111.	909283168.	18.7048654	0.0004754	-0.0010496	1.7379685	-25.3520805 C
0.00002625	23826.	907662432.	18.7005629	0.0004909	-0.0010841	1.7862644	-26.1865715 C
0.00002708	24540.	906097196.	18.6973090	0.0005064	-0.0011186	1.8341053	-27.0204469 C
0.00002792	25253.	904582226.	18.6950152	0.0005219	-0.0011531	1.8814897	-27.8537022 C
0.00002875	25964.	903112895.	18.6936034	0.0005374	-0.0011876	1.9284157	-28.6863331 C
0.00002958	26675.	901685092.	18.6930042	0.0005530	-0.0012220	1.9748816	-29.5183351 C
0.00003042	27384.	900295155.	18.6931559	0.0005686	-0.0012564	2.0208856	-30.3497037 C
0.00003125	28092.	898939808.	18.6940035	0.0005842	-0.0012908	2.0664259	-31.1804343 C
0.00003208	28799.	897616114.	18.6954977	0.0005998	-0.0013252	2.1115007	-32.0105223 C
0.00003292	29504.	896321430.	18.6975944	0.0006155	-0.0013595	2.1561082	-32.8399629 C
0.00003375	30208.	895053371.	18.7002538	0.0006311	-0.0013939	2.2002465	-33.6687515 C
0.00003458	30911.	893809780.	18.7034401	0.0006468	-0.0014282	2.2439138	-34.4968832 C
0.00003542	31613.	892588698.	18.7071207	0.0006625	-0.0014625	2.2871082	-35.3243531 C
0.00003625	32313.	891388346.	18.7112664	0.0006783	-0.0014967	2.3298277	-36.1511562 C
0.00003708	33012.	890207101.	18.7158503	0.0006940	-0.0015310	2.3720704	-36.9772877 C
0.00003792	33710.	889043478.	18.7208484	0.0007098	-0.0015652	2.4138343	-37.8027422 C
0.00003875	34406.	887896121.	18.7262383	0.0007256	-0.0015994	2.4551176	-38.6275148 C
0.00003958	35101.	886763782.	18.7320000	0.0007415	-0.0016335	2.4959181	-39.4516002 C
0.00004042	35795.	885645314.	18.7381149	0.0007573	-0.0016677	2.5362339	-40.2749930 C
0.00004125	36487.	884539662.	18.7445662	0.0007732	-0.0017018	2.5760629	-41.0976880 C
0.00004208	37178.	883445848.	18.7513382	0.0007891	-0.0017359	2.6154031	-41.9196796 C
0.00004292	37868.	882362970.	18.7584169	0.0008050	-0.0017700	2.6542523	-42.7409624 C
0.00004375	38556.	881290191.	18.7657889	0.0008210	-0.0018040	2.6926084	-43.5615307 C
0.00004458	39243.	880226735.	18.7734424	0.0008370	-0.0018380	2.7304693	-44.3813789 C
0.00004542	39929.	879171878.	18.7813662	0.0008530	-0.0018720	2.7678329	-45.2005012 C
0.00004625	40613.	878124948.	18.7895500	0.0008690	-0.0019060	2.8046969	-46.0188918 C
0.00004708	41296.	877085316.	18.7979843	0.0008851	-0.0019399	2.8410591	-46.8365446 C
0.00004792	41978.	876052394.	18.8066605	0.0009012	-0.0019738	2.8769172	-47.6534539 C
0.00004875	42657.	875025633.	18.8155704	0.0009173	-0.0020077	2.9122691	-48.4696133 C
0.00004958	43336.	874004516.	18.8247065	0.0009334	-0.0020416	2.9471124	-49.2850168 C
0.00005292	46036.	869967261.	18.8633826	0.0009982	-0.0021768	3.0813525	-52.5389423 C
0.00005625	48712.	865986684.	18.9050346	0.0010634	-0.0023116	3.2072447	-55.7805371 C
0.00005958	51364.	862045601.	18.9482280	0.0011290	-0.0024460	3.3245078	-59.0114159 C
0.00006292	53905.	856775238.	18.9840276	0.0011944	-0.0025806	3.4321074	-60.0000000 CY
0.00006625	56150.	847540687.	18.9914780	0.0012582	-0.0027168	3.5279924	-60.0000000 CY
0.00006958	58233.	836877658.	18.9880330	0.0013213	-0.0028537	3.6140848	-60.0000000 CY
0.00007292	60204.	825658677.	18.9798211	0.0013839	-0.0029911	3.6910794	-60.0000000 CY
0.00007625	62088.	814266582.	18.9696030	0.0014464	-0.0031286	3.7592998	-60.0000000 CY
0.00007958	63824.	801978652.	18.9494212	0.0015081	-0.0032669	3.8182420	-60.0000000 CY
0.00008292	64773.	781176699.	18.8355474	0.0015618	-0.0034132	3.8627821	-60.0000000 CY
0.00008625	65278.	756851460.	18.6755504	0.0016108	-0.0035642	3.8978873	-60.0000000 CY
0.00008958	65754.	733995044.	18.5269254	0.0016597	-0.0037153	3.9277880	-60.0000000 CY
0.00009292	66170.	712145339.	18.3844836	0.0017082	-0.0038668	3.9523291	-60.0000000 CY
0.00009625	66567.	691602213.	18.2505033	0.0017566	-0.0040184	3.9717446	-60.0000000 CY
0.00009958	66915.	671945738.	18.1184566	0.0018043	-0.0041707	3.9859356	-60.0000000 CY
0.0001029	67238.	653327085.	17.9946450	0.0018519	-0.0043231	3.9952213	-60.0000000 CY
0.0001063	67550.	635764284.	17.8799513	0.0018997	-0.0044753	3.9996193	-60.0000000 CY
0.0001096	67824.	618929839.	17.7699971	0.0019473	-0.0046277	3.9984106	-60.0000000 CY

0.0001129	68077.	602891990.	17.6647853	0.0019946	-0.0047804	3.9978828	-60.0000000	CY
0.0001163	68318.	587683609.	17.5642142	0.0020418	-0.0049332	3.9996024	-60.0000000	CY
0.0001196	68540.	573157440.	17.4691151	0.0020890	-0.0050860	3.9973685	-60.0000000	CY
0.0001229	68735.	559201044.	17.3775806	0.0021360	-0.0052390	3.9999206	-60.0000000	CY
0.0001263	68915.	545857896.	17.2913010	0.0021830	-0.0053920	3.9978117	-60.0000000	CY
0.0001296	69090.	533169135.	17.2110678	0.0022303	-0.0055447	3.9999612	-60.0000000	CY
0.0001329	69260.	521076019.	17.1367684	0.0022778	-0.0056972	3.9975024	-60.0000000	CY
0.0001363	69406.	509399249.	17.0621103	0.0023247	-0.0058503	3.9998594	-60.0000000	CY
0.0001396	69536.	498167392.	16.9887419	0.0023713	-0.0060037	3.9960466	-60.0000000	CY
0.0001429	69658.	487405153.	16.9192726	0.0024180	-0.0061570	3.9992632	-60.0000000	CY
0.0001462	69778.	477113124.	16.8542293	0.0024649	-0.0063101	3.9974024	-60.0000000	CY
0.0001496	69894.	467254979.	16.7935518	0.0025120	-0.0064630	3.9974784	-60.0000000	CY
0.0001529	70006.	457804537.	16.7362537	0.0025593	-0.0066157	3.9997422	-60.0000000	CY
0.0001562	70104.	448664594.	16.6804572	0.0026063	-0.0067687	3.9946934	-60.0000000	CY
0.0001596	70195.	439865572.	16.6273249	0.0026534	-0.0069216	3.9975480	-60.0000000	CY
0.0001629	70277.	431367964.	16.5756336	0.0027004	-0.0070746	3.9996865	-60.0000000	CY
0.0001662	70356.	423196370.	16.5270487	0.0027476	-0.0072274	3.9957750	-60.0000000	CY
0.0001696	70432.	415325736.	16.4800174	0.0027947	-0.0073803	3.9961973	-60.0000000	CY
0.0001729	70505.	407742295.	16.4335852	0.0028416	-0.0075334	3.9989709	-60.0000000	CY
0.0001762	70577.	400438086.	16.3895764	0.0028887	-0.0076863	3.9999944	-60.0000000	CY
0.0001796	70645.	393384657.	16.3481292	0.0029359	-0.0078391	3.9924786	-60.0000000	CY
0.0001829	70705.	386543059.	16.3072155	0.0029829	-0.0079921	3.9965015	-60.0000000	CY
0.0002029	70995.	349872611.	16.0924727	0.0032654	-0.0089096	3.9995059	-60.0000000	CYT
0.0002229	71227.	319522664.	15.9284524	0.0035507	-0.0098243	3.9999380	-60.0000000	CYT
0.0002429	71372.	293811800.	15.7879471	0.0038352	-0.0107398	3.9996052	60.0000000	CYT

Axial Thrust Force = 98.323 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 Conc Stress ksi	Max Steel Stress ksi	Run Msg
4.16667E-07	1268.	3043110456.	47.5289368	0.00001980	-0.00000520	0.0830255	0.4909330	
8.33333E-07	2532.	3038987345.	38.7827993	0.00003232	-0.00001768	0.1348540	0.7705010	
0.00000125	3792.	3033724689.	35.8682673	0.00004484	-0.00003016	0.1863417	1.0500997	
0.00000167	5047.	3028124226.	34.4112020	0.00005735	-0.00004265	0.2374855	1.3297081	
0.00000208	6297.	3022383158.	33.5370511	0.00006987	-0.00005513	0.2882848	1.6093218	
0.00000250	7541.	3016570662.	32.9543376	0.00008239	-0.00006761	0.3387394	1.8889395	
0.00000292	8781.	3010717015.	32.5381525	0.00009490	-0.00008010	0.3888492	2.1685604	
0.00000333	10016.	3004837512.	32.2260441	0.0001074	-0.00009258	0.4386141	2.4481843	
0.00000375	11246.	2998940740.	31.9833195	0.0001199	-0.0001051	0.4880341	2.7278110	
0.00000417	11246.	2699046666.	22.4669225	0.00009361	-0.0001564	0.3821334	-3.7014969	C
0.00000458	11246.	2453678788.	22.0932665	0.0001013	-0.0001737	0.4124164	-4.1213116	C
0.00000500	11246.	2249205555.	21.7795517	0.0001089	-0.0001911	0.4425253	-4.5414650	C
0.00000542	11246.	2076189743.	21.5104627	0.0001165	-0.0002085	0.4724289	-4.9621898	C
0.00000583	11246.	1927890476.	21.2799962	0.0001241	-0.0002259	0.5022105	-5.3828840	C
0.00000625	11246.	1799364444.	21.0759051	0.0001317	-0.0002433	0.5317584	-5.8043672	C
0.00000667	11246.	1686904167.	20.8979622	0.0001393	-0.0002607	0.5611976	-6.2257273	C
0.00000708	11246.	1587674510.	20.7415547	0.0001469	-0.0002781	0.5905280	-6.6469639	C
0.00000750	11246.	1499470370.	20.6003972	0.0001545	-0.0002955	0.6196706	-7.0686636	C
0.00000792	11246.	1420550877.	20.4736114	0.0001621	-0.0003129	0.6486731	-7.4904750	C
0.00000833	11246.	1349523333.	20.3600254	0.0001697	-0.0003303	0.6775674	-7.9121605	C
0.00000875	11246.	1285260317.	20.2577547	0.0001773	-0.0003477	0.7063535	-8.3337197	C
0.00000917	11246.	1226839394.	20.1652579	0.0001848	-0.0003652	0.7350309	-8.7551523	C
0.00000958	11246.	1173498551.	20.0807235	0.0001924	-0.0003826	0.7635801	-9.1766072	C
0.00001000	11246.	1124602778.	20.0019655	0.0002000	-0.0004000	0.7919557	-9.5984300	C
0.00001042	11246.	1079618667.	19.9299381	0.0002076	-0.0004174	0.8202233	-10.0201228	C
0.00001083	11246.	1038094872.	19.8638659	0.0002152	-0.0004348	0.8483827	-10.4416854	C
0.00001125	11246.	999646913.	19.8030884	0.0002228	-0.0004522	0.8764338	-10.8631174	C
0.00001167	11569.	991595923.	19.7470395	0.0002304	-0.0004696	0.9043764	-11.2844183	C
0.00001208	11935.	987763580.	19.6952311	0.0002380	-0.0004870	0.9322102	-11.7055877	C
0.00001250	12302.	984164607.	19.6472403	0.0002456	-0.0005044	0.9599351	-12.1266254	C
0.00001292	12668.	980776363.	19.6026987	0.0002532	-0.0005218	0.9875510	-12.5475307	C
0.00001333	13034.	977579037.	19.5612840	0.0002608	-0.0005392	1.0150576	-12.9683035	C
0.00001375	13400.	974555218.	19.5227129	0.0002684	-0.0005566	1.0424548	-13.3889432	C
0.00001417	13766.	971687210.	19.4863372	0.0002761	-0.0005739	1.0697219	-13.8096131	C
0.00001458	14131.	968960234.	19.4517215	0.0002837	-0.0005913	1.0968460	-14.2304178	C
0.00001500	14495.	966366186.	19.4193444	0.0002913	-0.0006087	1.1238609	-14.6510851	C
0.00001542	14860.	963894238.	19.3890255	0.0002989	-0.0006261	1.1507666	-15.0716148	C
0.00001583	15224.	961534701.	19.3606032	0.0003065	-0.0006435	1.1775627	-15.4920063	C
0.00001625	15588.	959278881.	19.3339325	0.0003142	-0.0006608	1.2042493	-15.9122593	C
0.00001708	16315.	955047851.	19.2853370	0.0003295	-0.0006955	1.2572926	-16.7523476	C
0.00001792	17041.	951147168.	19.2423394	0.0003448	-0.0007302	1.3098951	-17.5918761	C
0.00001875	17766.	947532446.	19.2041998	0.0003601	-0.0007649	1.3620551	-18.4308413	C
0.00001958	18490.	944166852.	19.1703046	0.0003754	-0.0007996	1.4137712	-19.2692395	C
0.00002042	19212.	941019559.	19.1401403	0.0003908	-0.0008342	1.4650418	-20.1070669	C
0.00002125	19934.	938064576.	19.1132740	0.0004062	-0.0008688	1.5158652	-20.9443198	C
0.00002208	20654.	935279830.	19.0893384	0.0004216	-0.0009034	1.5662400	-21.7809944	C

0.00002292	21373.	932646456.	19.0680196	0.0004370	-0.0009380	1.6161645	-22.6170869	C
0.00002375	22091.	930148234.	19.0490477	0.0004524	-0.0009726	1.6656371	-23.4525934	C
0.00002458	22808.	927771139.	19.0321895	0.0004679	-0.0010071	1.7146561	-24.2875098	C
0.00002542	23523.	925502983.	19.0172427	0.0004834	-0.0010416	1.7632200	-25.1218323	C
0.00002625	24237.	923333079.	19.0040304	0.0004989	-0.0010761	1.8113269	-25.9555574	C
0.00002708	24951.	921252188.	18.9923978	0.0005144	-0.0011106	1.8589754	-26.7886797	C
0.00002792	25662.	919252030.	18.9822086	0.0005299	-0.0011451	1.9061636	-27.6211957	C
0.00002875	26373.	917325333.	18.9733421	0.0005455	-0.0011795	1.9528899	-28.4531012	C
0.00002958	27083.	915465638.	18.9656917	0.0005611	-0.0012139	1.9991525	-29.2843921	C
0.00003042	27791.	913667194.	18.9591623	0.0005767	-0.0012483	2.0449496	-30.1150641	C
0.00003125	28498.	911924860.	18.9536689	0.0005923	-0.0012827	2.0902795	-30.9451126	C
0.00003208	29203.	910234025.	18.9491356	0.0006080	-0.0013170	2.1351404	-31.7745334	C
0.00003292	29908.	908590544.	18.9454941	0.0006236	-0.0013514	2.1795305	-32.6033220	C
0.00003375	30611.	906990677.	18.9426831	0.0006393	-0.0013857	2.2234480	-33.4314739	C
0.00003458	31313.	905431043.	18.9406470	0.0006550	-0.0014200	2.2668909	-34.2589844	C
0.00003542	32013.	903908576.	18.9393357	0.0006708	-0.0014542	2.3098576	-35.0858488	C
0.00003625	32713.	902420489.	18.9387037	0.0006865	-0.0014885	2.3523459	-35.9120626	C
0.00003708	33411.	900964244.	18.9387096	0.0007023	-0.0015227	2.3943542	-36.7376209	C
0.00003792	34107.	899537522.	18.9393157	0.0007181	-0.0015569	2.4358804	-37.5625190	C
0.00003875	34803.	898138201.	18.9404878	0.0007339	-0.0015911	2.4769225	-38.3867517	C
0.00003958	35497.	896764337.	18.9421943	0.0007498	-0.0016252	2.5174787	-39.2103144	C
0.00004042	36190.	895414140.	18.9444066	0.0007657	-0.0016593	2.5575469	-40.0332017	C
0.00004125	36881.	894085966.	18.9470981	0.0007816	-0.0016934	2.5971251	-40.8554088	C
0.00004208	37571.	892778296.	18.9502448	0.0007975	-0.0017275	2.6362113	-41.6769304	C
0.00004292	38260.	891489728.	18.9538242	0.0008134	-0.0017616	2.6748035	-42.4977613	C
0.00004375	38947.	890218962.	18.9578159	0.0008294	-0.0017956	2.7128995	-43.3178961	C
0.00004458	39633.	888964795.	18.9622010	0.0008454	-0.0018296	2.7504972	-44.1373294	C
0.00004542	40318.	887726109.	18.9669618	0.0008614	-0.0018636	2.7875945	-44.9560559	C
0.00004625	41001.	886501862.	18.9720823	0.0008775	-0.0018975	2.8241893	-45.7740698	C
0.00004708	41682.	885291085.	18.9775474	0.0008935	-0.0019315	2.8602794	-46.5913658	C
0.00004792	42363.	884092875.	18.9833433	0.0009096	-0.0019654	2.8958625	-47.4079379	C
0.00004875	43042.	882906385.	18.9894571	0.0009257	-0.0019993	2.9309365	-48.2237804	C
0.00004958	43719.	881730824.	18.9958768	0.0009419	-0.0020331	2.9654991	-49.0388876	C
0.00005292	46414.	877123734.	19.0244048	0.0010067	-0.0021683	3.0985893	-52.2918403	C
0.00005625	49086.	872639555.	19.0570671	0.0010720	-0.0023030	3.2233092	-55.5325341	C
0.00005958	51733.	868245852.	19.0934129	0.0011376	-0.0024374	3.3395006	-58.7605485	C
0.00006292	54287.	862839388.	19.1251269	0.0012033	-0.0025717	3.4462054	-60.0000000	CY
0.00006625	56544.	853496590.	19.1290761	0.0012673	-0.0027077	3.5411800	-60.0000000	CY
0.00006958	58636.	842667824.	19.1220715	0.0013306	-0.0028444	3.6262737	-60.0000000	CY
0.00007292	60608.	831196757.	19.1098517	0.0013934	-0.0029816	3.7021534	-60.0000000	CY
0.00007625	62492.	819567082.	19.0959755	0.0014561	-0.0031189	3.7692204	-60.0000000	CY
0.00007958	64259.	807442289.	19.0763825	0.0015182	-0.0032568	3.8272619	-60.0000000	CY
0.00008292	65318.	787749531.	18.9755431	0.0015734	-0.0034016	3.8717490	-60.0000000	CY
0.00008625	65830.	763249506.	18.8152673	0.0016228	-0.0035522	3.9058899	-60.0000000	CY
0.00008958	66308.	740184176.	18.6631139	0.0016719	-0.0037031	3.9345729	-60.0000000	CY
0.00009292	66726.	718132112.	18.5172973	0.0017206	-0.0038544	3.9578717	-60.0000000	CY
0.00009625	67127.	697420048.	18.3825169	0.0017693	-0.0040057	3.9760923	-60.0000000	CY
0.00009958	67482.	677641226.	18.2518245	0.0018176	-0.0041574	3.9890774	-60.0000000	CY
0.0001029	67803.	658814028.	18.1246588	0.0018653	-0.0043097	3.9969815	-60.0000000	CY
0.0001063	68117.	641101271.	18.0075947	0.0019133	-0.0044617	3.9999737	-60.0000000	CY
0.0001096	68393.	624115450.	17.8953582	0.0019610	-0.0046140	3.9993598	-60.0000000	CY
0.0001129	68644.	607914376.	17.7893268	0.0020087	-0.0047663	3.9975235	-60.0000000	CY
0.0001163	68888.	592584317.	17.6910436	0.0020566	-0.0049184	3.9999814	-60.0000000	CY
0.0001196	69112.	577939840.	17.5943614	0.0021040	-0.0050710	3.9987456	-60.0000000	CY
0.0001229	69309.	563870491.	17.5011935	0.0021512	-0.0052238	3.9978704	-60.0000000	CY
0.0001263	69486.	550384068.	17.4125977	0.0021983	-0.0053767	3.9990672	-60.0000000	CY
0.0001296	69659.	537558747.	17.3302239	0.0022457	-0.0055293	3.9970020	-60.0000000	CY
0.0001329	69826.	525338325.	17.2538053	0.0022933	-0.0056817	3.9988790	-60.0000000	CY
0.0001363	69977.	513590198.	17.1802068	0.0023408	-0.0058342	3.9984614	-60.0000000	CY
0.0001396	70112.	502297318.	17.1101134	0.0023883	-0.0059867	3.9979828	-60.0000000	CY
0.0001429	70234.	491430600.	17.0392453	0.0024352	-0.0061398	3.9999197	-60.0000000	CY
0.0001462	70350.	481028628.	16.9725374	0.0024822	-0.0062928	3.9956558	-60.0000000	CY
0.0001496	70465.	471072490.	16.9099503	0.0025294	-0.0064456	3.9989916	-60.0000000	CY
0.0001529	70576.	461535097.	16.8511269	0.0025768	-0.0065982	3.9992406	-60.0000000	CY
0.0001562	70675.	452319320.	16.7943961	0.0026241	-0.0067509	3.9960837	-60.0000000	CY
0.0001596	70769.	443459220.	16.7403101	0.0026715	-0.0069035	3.9990758	-60.0000000	CY
0.0001629	70849.	434879984.	16.6870133	0.0027186	-0.0070564	3.9995464	-60.0000000	CY
0.0001662	70926.	426624471.	16.6371103	0.0027659	-0.0072091	3.9948052	-60.0000000	CY
0.0001696	71002.	418685154.	16.5898548	0.0028134	-0.0073616	3.9982430	-60.0000000	CY
0.0001729	71076.	411043607.	16.5451048	0.0028609	-0.0075141	3.9998647	-60.0000000	CY
0.0001762	71148.	403677407.	16.5030531	0.0029087	-0.0076663	3.9944295	-60.0000000	CY
0.0001796	71216.	396563318.	16.4605906	0.0029560	-0.0078190	3.9957343	-60.0000000	CY
0.0001829	71277.	389671905.	16.4187975	0.0030033	-0.0079717	3.9985932	-60.0000000	CYT
0.0002029	71565.	352680047.	16.1975034	0.0032867	-0.0088883	3.9998910	-60.0000000	CYT
0.0002229	71793.	322061320.	16.0280803	0.0035729	-0.0098021	3.9953660	-60.0000000	CYT
0.0002429	71939.	296148387.	15.8913514	0.0038603	-0.0107147	3.9980003	60.0000000	CYT

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	0.000	69769.107	0.00300000
2	62.250	70722.746	0.00300000
3	98.323	71273.237	0.00300000

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

In ACI 318, 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, 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.	Resist. Factor for Moment	Nominal Moment Cap in-kips	Ult. (Fac) Ax. Thrust kips	Ult. (Fac) Moment Cap in-kips	Bend. Stiff. at Ult Mom kip-in^2
1	0.65	69769.	0.0000	45350.	857623704.
2	0.65	70723.	40.462500	45970.	870065934.
3	0.65	71273.	63.909806	46328.	877272203.
1	0.75	69769.	0.0000	52327.	847988378.
2	0.75	70723.	43.575000	53042.	858565377.
3	0.75	71273.	68.825944	53455.	864600725.
1	0.90	69769.	0.0000	62792.	794560725.
2	0.90	70723.	46.687500	63650.	803207674.
3	0.90	71273.	73.742083	64146.	808217931.

Layering Correction Equivalent Depths of Soil & Rock Layers

Layer No.	Top of Layer Below Pile Head ft	Equivalent Top Depth Below Grnd Surf ft	Same Layer Type As Layer Above	Layer is Rock or is Below Rock Layer	F0 Integral for Layer lbs	F1 Integral for Layer lbs
1	27.6500	0.00	N.A.	No	0.00	64397.
2	32.6500	4.5733	Yes	No	64397.	258044.
3	37.6500	10.1759	Yes	No	322440.	183078.
4	40.1500	13.1122	Yes	No	505519.	252193.
5	43.1500	214.1130	No	No	757712.	104891.
6	46.1500	13.6837	No	No	862604.	424000.
7	49.1500	93.5552	No	No	1286603.	274887.
8	61.1500	18.2576	No	No	1561491.	1066406.
9	66.1500	24.0676	Yes	No	2627896.	N.A.

Notes: The F0 integral of Layer n+1 equals the sum of the F0 and F1 integrals for Layer n. Layering correction equivalent depths are computed only for soil types with both shallow-depth and deep-depth expressions for peak lateral load transfer. These soil types are soft and stiff clays, non-liquefied sands, and cemented c-phi soil.

Distributed Lateral Loads for LRFD:

Sums of Distributed Lateral Load Per Unit Length due to Live Loads

Depth in	Distributed Load lb/in
0.00	33.30
8.36	33.30
16.72	33.30
25.07	33.30
33.43	33.30
41.79	33.30
50.15	33.30
58.51	33.30
66.86	33.30
75.22	33.30
83.58	33.30
91.94	33.30
100.30	33.30
108.65	33.30
117.01	33.30
125.37	33.30
133.73	33.30
142.09	33.30
150.44	33.30
158.80	33.30
167.16	33.30
175.52	33.30
183.88	33.30
192.23	33.30
200.59	33.30
208.95	33.30
217.31	33.30
225.67	33.30
234.02	33.30
242.38	33.30
250.74	33.30
259.10	33.30
267.46	33.30
275.81	33.30
284.17	33.30
292.53	33.30
300.89	33.30
309.25	33.30
317.60	33.30
325.96	33.30
334.32	6.61

Distributed Lateral Loads for LRFD:

Sums of Distributed Lateral Load Per Unit Length due to Horizontal Soil Pressures

Depth in	Distributed Load lb/in
0.00	3.16
8.36	12.63
16.72	25.26
25.07	37.89
33.43	50.52
41.79	63.15
50.15	75.78
58.51	88.41
66.86	101.05
75.22	113.68
83.58	126.31
91.94	138.94
100.30	151.57
108.65	164.20
117.01	176.83
125.37	189.46
133.73	202.09
142.09	214.72
150.44	227.35
158.80	239.98
167.16	252.61

175.52	265.24
183.88	277.88
192.23	290.51
200.59	303.14
208.95	315.77
217.31	328.40
225.67	341.03
234.02	353.66
242.38	366.29
250.74	378.92
259.10	391.55
267.46	404.18
275.81	416.81
284.17	429.44
292.53	442.07
300.89	454.71
309.25	467.34
317.60	479.97
325.96	492.60
334.32	99.28

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

Load Case No. 1: Soil Only

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	1.5931	2.23E-04	0.00	-0.00360	0.00	3.05E+12	0.00	0.00	3.1577
0.6965	1.5630	110.2918	65.9796	-0.00360	0.00	3.05E+12	0.00	0.00	12.6307
1.3930	1.5329	1103.	224.3308	-0.00360	0.00	3.05E+12	0.00	0.00	25.2614
2.0895	1.5028	3860.	488.2494	-0.00360	0.00	3.05E+12	0.00	0.00	37.8921
2.7860	1.4727	9264.	857.7355	-0.00360	0.00	3.05E+12	0.00	0.00	50.5228
3.4825	1.4426	18198.	1333.	-0.00360	0.00	3.05E+12	0.00	0.00	63.1535
4.1790	1.4126	31543.	1913.	-0.00360	0.00	3.05E+12	0.00	0.00	75.7842
4.8755	1.3825	50183.	2600.	-0.00360	0.00	3.05E+12	0.00	0.00	88.4149
5.5720	1.3524	74998.	3391.	-0.00360	0.00	3.05E+12	0.00	0.00	101.0457
6.2685	1.3223	106873.	4289.	-0.00360	0.00	3.05E+12	0.00	0.00	113.6764
6.9650	1.2922	146688.	5292.	-0.00360	0.00	3.05E+12	0.00	0.00	126.3071
7.6615	1.2622	195326.	6400.	-0.00360	0.00	3.05E+12	0.00	0.00	138.9378
8.3580	1.2321	253671.	7614.	-0.00360	0.00	3.05E+12	0.00	0.00	151.5685
9.0545	1.2020	322603.	8934.	-0.00360	0.00	3.05E+12	0.00	0.00	164.1992
9.7510	1.1720	403005.	10359.	-0.00360	0.00	3.05E+12	0.00	0.00	176.8299
10.4475	1.1419	495761.	11890.	-0.00359	0.00	3.05E+12	0.00	0.00	189.4606
11.1440	1.1119	601751.	13526.	-0.00359	0.00	3.05E+12	0.00	0.00	202.0913
11.8405	1.0818	721858.	15268.	-0.00359	0.00	3.05E+12	0.00	0.00	214.7220
12.5370	1.0518	856966.	17115.	-0.00359	0.00	3.05E+12	0.00	0.00	227.3527
13.2335	1.0219	1007955.	19068.	-0.00359	0.00	3.05E+12	0.00	0.00	239.9834
13.9300	0.9919	1175708.	21127.	-0.00358	0.00	3.05E+12	0.00	0.00	252.6141
14.6265	0.9620	1361108.	23291.	-0.00358	0.00	3.05E+12	0.00	0.00	265.2448
15.3230	0.9320	1565038.	25561.	-0.00358	0.00	3.04E+12	0.00	0.00	277.8755
16.0195	0.9022	1788378.	27936.	-0.00357	0.00	3.04E+12	0.00	0.00	290.5062
16.7160	0.8723	2032012.	30417.	-0.00357	0.00	3.04E+12	0.00	0.00	303.1370
17.4125	0.8426	2296822.	33003.	-0.00356	0.00	3.04E+12	0.00	0.00	315.7677
18.1090	0.8128	2583691.	35695.	-0.00355	0.00	3.04E+12	0.00	0.00	328.3984
18.8055	0.7832	2893500.	38493.	-0.00355	0.00	3.04E+12	0.00	0.00	341.0291
19.5020	0.7536	3227132.	41396.	-0.00354	0.00	3.04E+12	0.00	0.00	353.6598
20.1985	0.7240	3585469.	44404.	-0.00353	0.00	3.04E+12	0.00	0.00	366.2905
20.8950	0.6946	3969394.	47519.	-0.00352	0.00	3.03E+12	0.00	0.00	378.9212
21.5915	0.6652	4379789.	50738.	-0.00351	0.00	3.03E+12	0.00	0.00	391.5519
22.2880	0.6360	4817537.	54064.	-0.00349	0.00	3.03E+12	0.00	0.00	404.1826
22.9845	0.6068	5283518.	57495.	-0.00348	0.00	3.03E+12	0.00	0.00	416.8133
23.6810	0.5778	5778617.	61031.	-0.00346	0.00	3.03E+12	0.00	0.00	429.4440
24.3775	0.5489	6303716.	64673.	-0.00345	0.00	3.02E+12	0.00	0.00	442.0747
25.0740	0.5202	6859696.	68421.	-0.00343	0.00	3.02E+12	0.00	0.00	454.7054
25.7705	0.4916	7447439.	72274.	-0.00341	0.00	3.02E+12	0.00	0.00	467.3361
26.4670	0.4632	8067830.	76233.	-0.00339	0.00	3.01E+12	0.00	0.00	479.9668
27.1635	0.4349	8721748.	80297.	-0.00336	0.00	3.01E+12	0.00	0.00	492.5975

27.8600	0.4069	9410078.	82658.	-0.00334	0.00	3.01E+12	-26.9517	553.5779	99.2793
28.5565	0.3791	1.01E+07	82448.	-0.00331	0.00	3.00E+12	-122.5414	2702.	0.00
29.2530	0.3515	1.08E+07	80999.	-0.00328	0.00	3.00E+12	-224.3420	5334.	0.00
29.9495	0.3242	1.15E+07	78690.	-0.00321	0.00	8.93E+11	-328.0473	8456.	0.00
30.6460	0.2978	1.21E+07	75510.	-0.00310	0.00	8.90E+11	-432.8198	12147.	0.00
31.3425	0.2723	1.27E+07	71463.	-0.00299	0.00	8.90E+11	-535.6069	16438.	0.00
32.0390	0.2479	1.33E+07	66582.	-0.00287	0.00	8.89E+11	-632.4489	21327.	0.00
32.7355	0.2244	1.38E+07	60569.	-0.00274	0.00	8.89E+11	-806.3501	30029.	0.00
33.4320	0.2021	1.43E+07	53354.	-0.00261	0.00	8.89E+11	-920.1403	38055.	0.00
34.1285	0.1809	1.47E+07	45236.	-0.00247	0.00	8.88E+11	-1022.	47247.	0.00
34.8250	0.1608	1.51E+07	36333.	-0.00233	0.00	8.88E+11	-1108.	57595.	0.00
35.5215	0.1419	1.53E+07	26793.	-0.00219	0.00	8.88E+11	-1175.	69165.	0.00
36.2180	0.1243	1.55E+07	16735.	-0.00204	0.00	8.87E+11	-1232.	82872.	0.00
36.9145	0.1078	1.56E+07	6596.	-0.00189	0.00	8.87E+11	-1194.	92565.	0.00
37.6110	0.09261	1.56E+07	-3003.	-0.00175	0.00	8.87E+11	-1103.	99524.	0.00
38.3075	0.07862	1.56E+07	-10987.	-0.00160	0.00	8.87E+11	-807.7803	85873.	0.00
39.0040	0.06586	1.54E+07	-17375.	-0.00145	0.00	8.88E+11	-720.8826	91485.	0.00
39.7005	0.05431	1.53E+07	-23025.	-0.00131	0.00	8.88E+11	-630.9664	97097.	0.00
40.3970	0.04397	1.51E+07	-27649.	-0.00117	0.00	8.88E+11	-475.4749	90384.	0.00
41.0935	0.03481	1.48E+07	-31295.	-0.00103	0.00	8.88E+11	-396.9851	95323.	0.00
41.7900	0.02681	1.45E+07	-34298.	-8.88E-04	0.00	8.88E+11	-321.6438	100261.	0.00
42.4865	0.01996	1.42E+07	-36692.	-7.53E-04	0.00	8.89E+11	-251.2392	105200.	0.00
43.1830	0.01423	1.39E+07	-49195.	-6.21E-04	0.00	8.89E+11	-2741.	1609940.	0.00
43.8795	0.00959	1.34E+07	-70049.	-4.92E-04	0.00	8.89E+11	-2250.	1961112.	0.00
44.5760	0.00600	1.27E+07	-86890.	-3.69E-04	0.00	8.90E+11	-1780.	2478549.	0.00
45.2725	0.00342	1.20E+07	-99017.	-2.53E-04	0.00	8.91E+11	-1122.	2743321.	0.00
45.9690	0.00177	1.11E+07	-106232.	-1.82E-04	0.00	3.00E+12	-604.4479	2851746.	0.00
46.6655	3.83E-04	1.02E+07	-108808.	-1.52E-04	0.00	3.00E+12	-12.0871	263535.	0.00
47.3620	-7.68E-04	9275054.	-108754.	-1.25E-04	0.00	3.01E+12	25.1044	273188.	0.00
48.0585	-0.00170	8366965.	-108408.	-1.00E-04	0.00	3.01E+12	57.6681	282840.	0.00
48.7550	-0.00245	7462904.	-107809.	-7.85E-05	0.00	3.02E+12	85.6055	292493.	0.00
49.4515	-0.00302	6564824.	-104327.	-5.90E-05	0.00	3.02E+12	747.7057	2072404.	0.00
50.1480	-0.00343	5718975.	-97868.	-4.21E-05	0.00	3.03E+12	797.7951	1942289.	0.00
50.8445	-0.00372	4928857.	-91064.	-2.74E-05	0.00	3.03E+12	830.3078	1866234.	0.00
51.5410	-0.00389	4196742.	-84045.	-1.48E-05	0.00	3.03E+12	849.2794	1824545.	0.00
52.2375	-0.00397	3523954.	-76913.	-4.15E-06	0.00	3.04E+12	857.4490	1807161.	0.00
52.9340	-0.00396	2911064.	-69749.	-4.71E-06	0.00	3.04E+12	856.8139	1808501.	0.00
53.6305	-0.00389	2358027.	-62621.	-1.19E-05	0.00	3.04E+12	848.9021	1825356.	0.00
54.3270	-0.00376	1864292.	-55584.	-1.77E-05	0.00	3.04E+12	834.9245	1855915.	0.00
55.0235	-0.00359	1428881.	-48686.	-2.23E-05	0.00	3.05E+12	815.8611	1899280.	0.00
55.7200	-0.00339	1050464.	-41964.	-2.57E-05	0.00	3.05E+12	792.5175	1955223.	0.00
56.4165	-0.00316	727408.	-35453.	-2.81E-05	0.00	3.05E+12	765.5546	2024087.	0.00
57.1130	-0.00292	457831.	-29180.	-2.97E-05	0.00	3.05E+12	735.5079	2106774.	0.00
57.8095	-0.00266	239634.	-23169.	-3.07E-05	0.00	3.05E+12	702.7974	2204830.	0.00
58.5060	-0.00240	70532.	-17442.	-3.11E-05	0.00	3.05E+12	667.7258	2320636.	0.00
59.2025	-0.00214	-51925.	-12017.	-3.11E-05	0.00	3.05E+12	630.4694	2457770.	0.00
59.8990	-0.00188	-130341.	-6912.	-3.09E-05	0.00	3.05E+12	591.0552	2621665.	0.00
60.5955	-0.00163	-167467.	-2146.	-3.05E-05	0.00	3.05E+12	549.3222	2820838.	0.00
61.2920	-0.00137	-166220.	469.6866	-3.00E-05	0.00	3.05E+12	76.6893	466243.	0.00
61.9885	-0.00113	-159616.	1058.	-2.96E-05	0.00	3.05E+12	64.0963	475896.	0.00
62.6850	-8.80E-04	-148534.	1540.	-2.92E-05	0.00	3.05E+12	51.1407	485548.	0.00
63.3815	-6.38E-04	-133880.	1911.	-2.88E-05	0.00	3.05E+12	37.8201	495201.	0.00
64.0780	-3.99E-04	-116584.	2170.	-2.84E-05	0.00	3.05E+12	24.1259	504854.	0.00
64.7745	-1.63E-04	-97602.	2313.	-2.81E-05	0.00	3.05E+12	10.0443	514507.	0.00
65.4710	7.08E-05	-77919.	2336.	-2.79E-05	0.00	3.05E+12	-4.4426	524159.	0.00
66.1675	3.03E-04	-58546.	2245.	-2.77E-05	0.00	3.05E+12	-17.5553	484155.	0.00
66.8640	5.34E-04	-40400.	2040.	-2.76E-05	0.00	3.05E+12	-31.4887	492910.	0.00
67.5605	7.64E-04	-24453.	1716.	-2.75E-05	0.00	3.05E+12	-45.8502	501665.	0.00
68.2570	9.93E-04	-11709.	1271.	-2.74E-05	0.00	3.05E+12	-60.6591	510420.	0.00
68.9535	0.00122	-3202.	700.4512	-2.74E-05	0.00	3.05E+12	-75.9320	519175.	0.00
69.6500	0.00145	0.00	0.00	-2.74E-05	0.00	3.05E+12	-91.6802	263965.	0.00

* 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	=	1.59308083 inches
Computed slope at pile head	=	-0.00359971 radians
Maximum bending moment	=	15625021. inch-lbs
Maximum shear force	=	-108808. lbs
Depth of maximum bending moment	=	37.61100000 feet below pile head
Depth of maximum shear force	=	46.66550000 feet below pile head
Number of iterations	=	71

Number of zero deflection points = 2

Distributed Lateral Loads for LRFD:

Sums of Distributed Lateral Load Per Unit Length due to Live Loads

Depth in	Distributed Load lb/in
0.00	33.30
8.36	33.30
16.72	33.30
25.07	33.30
33.43	33.30
41.79	33.30
50.15	33.30
58.51	33.30
66.86	33.30
75.22	33.30
83.58	33.30
91.94	33.30
100.30	33.30
108.65	33.30
117.01	33.30
125.37	33.30
133.73	33.30
142.09	33.30
150.44	33.30
158.80	33.30
167.16	33.30
175.52	33.30
183.88	33.30
192.23	33.30
200.59	33.30
208.95	33.30
217.31	33.30
225.67	33.30
234.02	33.30
242.38	33.30
250.74	33.30
259.10	33.30
267.46	33.30
275.81	33.30
284.17	33.30
292.53	33.30
300.89	33.30
309.25	33.30
317.60	33.30
325.96	33.30
334.32	6.61

Distributed Lateral Loads for LRFD:

Sums of Distributed Lateral Load Per Unit Length due to Horizontal Soil Pressures

Depth in	Distributed Load lb/in
0.00	3.16
8.36	12.63
16.72	25.26
25.07	37.89
33.43	50.52
41.79	63.15
50.15	75.78
58.51	88.41
66.86	101.05
75.22	113.68
83.58	126.31
91.94	138.94

100.30	151.57
108.65	164.20
117.01	176.83
125.37	189.46
133.73	202.09
142.09	214.72
150.44	227.35
158.80	239.98
167.16	252.61
175.52	265.24
183.88	277.88
192.23	290.51
200.59	303.14
208.95	315.77
217.31	328.40
225.67	341.03
234.02	353.66
242.38	366.29
250.74	378.92
259.10	391.55
267.46	404.18
275.81	416.81
284.17	429.44
292.53	442.07
300.89	454.71
309.25	467.34
317.60	479.97
325.96	492.60
334.32	99.28

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

Load Case No. 2: Service 1

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	2.2167	-2.32E-04	3337.	-0.00507	0.00	3.05E+12	0.00	0.00	36.4577
0.6965	2.1744	31806.	3682.	-0.00507	0.00	3.05E+12	0.00	0.00	45.9307
1.3930	2.1320	66820.	4118.	-0.00507	0.00	3.05E+12	0.00	0.00	58.5614
2.0895	2.0896	105925.	4661.	-0.00507	0.00	3.05E+12	0.00	0.00	71.1921
2.7860	2.0472	150003.	5308.	-0.00507	0.00	3.05E+12	0.00	0.00	83.8228
3.4825	2.0049	199937.	6062.	-0.00507	0.00	3.05E+12	0.00	0.00	96.4535
4.1790	1.9625	256608.	6921.	-0.00507	0.00	3.05E+12	0.00	0.00	109.0842
4.8755	1.9202	320898.	7885.	-0.00507	0.00	3.05E+12	0.00	0.00	121.7149
5.5720	1.8778	393691.	8955.	-0.00507	0.00	3.05E+12	0.00	0.00	134.3457
6.2685	1.8355	475869.	10131.	-0.00507	0.00	3.05E+12	0.00	0.00	146.9764
6.9650	1.7931	568312.	11412.	-0.00506	0.00	3.05E+12	0.00	0.00	159.6071
7.6615	1.7508	671905.	12799.	-0.00506	0.00	3.05E+12	0.00	0.00	172.2378
8.3580	1.7085	787528.	14291.	-0.00506	0.00	3.05E+12	0.00	0.00	184.8685
9.0545	1.6662	916065.	15889.	-0.00506	0.00	3.05E+12	0.00	0.00	197.4992
9.7510	1.6240	1058396.	17593.	-0.00505	0.00	3.05E+12	0.00	0.00	210.1299
10.4475	1.5817	1215405.	19402.	-0.00505	0.00	3.05E+12	0.00	0.00	222.7606
11.1440	1.5395	1387974.	21316.	-0.00505	0.00	3.04E+12	0.00	0.00	235.3913
11.8405	1.4974	1576984.	23337.	-0.00504	0.00	3.04E+12	0.00	0.00	248.0220
12.5370	1.4552	1783318.	25462.	-0.00504	0.00	3.04E+12	0.00	0.00	260.6527
13.2335	1.4131	2007857.	27694.	-0.00503	0.00	3.04E+12	0.00	0.00	273.2834
13.9300	1.3711	2251484.	30031.	-0.00503	0.00	3.04E+12	0.00	0.00	285.9141
14.6265	1.3291	2515081.	32473.	-0.00502	0.00	3.04E+12	0.00	0.00	298.5448
15.3230	1.2871	2799529.	35021.	-0.00501	0.00	3.04E+12	0.00	0.00	311.1755
16.0195	1.2452	3105711.	37675.	-0.00501	0.00	3.04E+12	0.00	0.00	323.8062
16.7160	1.2034	3434508.	40434.	-0.00500	0.00	3.04E+12	0.00	0.00	336.4370
17.4125	1.1617	3786802.	43299.	-0.00499	0.00	3.03E+12	0.00	0.00	349.0677
18.1090	1.1200	4163476.	46269.	-0.00498	0.00	3.03E+12	0.00	0.00	361.6984
18.8055	1.0785	4565410.	49345.	-0.00496	0.00	3.03E+12	0.00	0.00	374.3291
19.5020	1.0371	4993487.	52526.	-0.00495	0.00	3.03E+12	0.00	0.00	386.9598
20.1985	0.9957	5448589.	55813.	-0.00494	0.00	3.03E+12	0.00	0.00	399.5905
20.8950	0.9545	5931596.	59206.	-0.00492	0.00	3.02E+12	0.00	0.00	412.2212

21.5915	0.9135	6443391.	62704.	-0.00490	0.00	3.02E+12	0.00	0.00	424.8519
22.2880	0.8726	6984856.	66307.	-0.00489	0.00	3.02E+12	0.00	0.00	437.4826
22.9845	0.8318	7556871.	70017.	-0.00487	0.00	3.02E+12	0.00	0.00	450.1133
23.6810	0.7912	8160319.	73832.	-0.00484	0.00	3.01E+12	0.00	0.00	462.7440
24.3775	0.7508	8796080.	77752.	-0.00482	0.00	3.01E+12	0.00	0.00	475.3747
25.0740	0.7107	9465036.	81778.	-0.00479	0.00	3.01E+12	0.00	0.00	488.0054
25.7705	0.6707	1.02E+07	85909.	-0.00477	0.00	3.00E+12	0.00	0.00	500.6361
26.4670	0.6310	1.09E+07	90147.	-0.00474	0.00	3.00E+12	0.00	0.00	513.2668
27.1635	0.5915	1.17E+07	94489.	-0.00467	0.00	9.51E+11	0.00	0.00	525.8975
27.8600	0.5529	1.25E+07	97008.	-0.00457	0.00	9.46E+11	-29.1860	441.2222	105.8891
28.5565	0.5152	1.33E+07	96772.	-0.00445	0.00	9.42E+11	-132.9773	2157.	0.00
29.2530	0.4785	1.41E+07	95197.	-0.00433	0.00	9.38E+11	-244.0960	4264.	0.00
29.9495	0.4428	1.49E+07	92680.	-0.00420	0.00	9.34E+11	-358.1553	6760.	0.00
30.6460	0.4083	1.57E+07	89203.	-0.00406	0.00	9.31E+11	-473.7176	9698.	0.00
31.3425	0.3749	1.64E+07	84769.	-0.00392	0.00	9.29E+11	-587.5008	13098.	0.00
32.0390	0.3428	1.71E+07	79407.	-0.00377	0.00	9.26E+11	-695.4153	16957.	0.00
32.7355	0.3119	1.77E+07	72789.	-0.00361	0.00	9.24E+11	-888.3452	23804.	0.00
33.4320	0.2824	1.83E+07	64828.	-0.00345	0.00	9.22E+11	-1017.	30084.	0.00
34.1285	0.2543	1.88E+07	55846.	-0.00328	0.00	9.21E+11	-1133.	37232.	0.00
34.8250	0.2276	1.92E+07	45965.	-0.00311	0.00	9.19E+11	-1232.	45232.	0.00
35.5215	0.2024	1.96E+07	35342.	-0.00293	0.00	9.18E+11	-1310.	54117.	0.00
36.2180	0.1786	1.98E+07	24098.	-0.00275	0.00	9.18E+11	-1380.	64583.	0.00
36.9145	0.1564	2.00E+07	12356.	-0.00257	0.00	9.17E+11	-1429.	76384.	0.00
37.6110	0.1357	2.00E+07	304.3447	-0.00239	0.00	9.17E+11	-1454.	89583.	0.00
38.3075	0.1165	2.00E+07	-10777.	-0.00220	0.00	9.17E+11	-1197.	85873.	0.00
39.0040	0.09887	1.99E+07	-20303.	-0.00202	0.00	9.17E+11	-1082.	91485.	0.00
39.7005	0.08273	1.97E+07	-28842.	-0.00184	0.00	9.18E+11	-961.0871	97097.	0.00
40.3970	0.06808	1.94E+07	-35935.	-0.00166	0.00	9.19E+11	-736.2721	90384.	0.00
41.0935	0.05491	1.91E+07	-41629.	-0.00149	0.00	9.20E+11	-626.2939	95323.	0.00
41.7900	0.04319	1.87E+07	-46412.	-0.00132	0.00	9.21E+11	-518.1208	100261.	0.00
42.4865	0.03289	1.83E+07	-50307.	-0.00115	0.00	9.22E+11	-413.9451	105200.	0.00
43.1830	0.02397	1.79E+07	-66902.	-9.86E-04	0.00	9.23E+11	-3557.	1240369.	0.00
43.8795	0.01640	1.72E+07	-94063.	-8.28E-04	0.00	9.26E+11	-2942.	1499484.	0.00
44.5760	0.01013	1.63E+07	-116022.	-6.77E-04	0.00	9.29E+11	-2312.	1908094.	0.00
45.2725	0.00508	1.52E+07	-132530.	-5.36E-04	0.00	9.33E+11	-1638.	2694021.	0.00
45.9690	0.00117	1.41E+07	-141048.	-4.05E-04	0.00	9.38E+11	-400.5347	2851746.	0.00
46.6655	-0.00169	1.29E+07	-142499.	-2.85E-04	0.00	9.44E+11	53.1477	263535.	0.00
47.3620	-0.00359	1.17E+07	-141786.	-1.77E-04	0.00	9.51E+11	117.4220	273188.	0.00
48.0585	-0.00464	1.05E+07	-140639.	-1.11E-04	0.00	3.00E+12	157.0600	282840.	0.00
48.7550	-0.00545	9336880.	-139187.	-8.33E-05	0.00	3.01E+12	190.5661	292493.	0.00
49.4515	-0.00603	8180251.	-133971.	-5.89E-05	0.00	3.01E+12	1058.	1465181.	0.00
50.1480	-0.00643	7097488.	-124988.	-3.78E-05	0.00	3.02E+12	1092.	1419134.	0.00
50.8445	-0.00666	6090991.	-115780.	-1.95E-05	0.00	3.02E+12	1112.	1394039.	0.00
51.5410	-0.00676	5162134.	-106457.	-3.99E-06	0.00	3.03E+12	1119.	1384423.	0.00
52.2375	-0.00673	4311458.	-97111.	9.08E-06	0.00	3.03E+12	1117.	1387114.	0.00
52.9340	-0.00661	3538812.	-87818.	1.99E-05	0.00	3.04E+12	1107.	1400232.	0.00
53.6305	-0.00640	2843466.	-78642.	2.87E-05	0.00	3.04E+12	1089.	1422697.	0.00
54.3270	-0.00613	2224202.	-69637.	3.56E-05	0.00	3.04E+12	1066.	1453976.	0.00
55.0235	-0.00580	1679382.	-60849.	4.10E-05	0.00	3.04E+12	1037.	1493947.	0.00
55.7200	-0.00544	1207015.	-52317.	4.50E-05	0.00	3.05E+12	1004.	1542844.	0.00
56.4165	-0.00505	804807.	-44076.	4.77E-05	0.00	3.05E+12	967.7130	1601249.	0.00
57.1130	-0.00464	470199.	-36154.	4.95E-05	0.00	3.05E+12	927.7946	1670143.	0.00
57.8095	-0.00422	200401.	-28579.	5.04E-05	0.00	3.05E+12	884.9506	1751002.	0.00
58.5060	-0.00380	-7577.	-21373.	5.07E-05	0.00	3.05E+12	839.4165	1845985.	0.00
59.2025	-0.00338	-156917.	-14558.	5.04E-05	0.00	3.05E+12	791.2868	1958267.	0.00
59.8990	-0.00296	-250980.	-8157.	4.99E-05	0.00	3.05E+12	740.4841	2092618.	0.00
60.5955	-0.00254	-293315.	-2192.	4.91E-05	0.00	3.05E+12	686.7067	2256496.	0.00
61.2920	-0.00214	-287680.	1175.	4.83E-05	0.00	3.05E+12	119.1709	466243.	0.00
61.9885	-0.00174	-273719.	2086.	4.76E-05	0.00	3.05E+12	98.8253	475896.	0.00
62.6850	-0.00134	-252854.	2825.	4.68E-05	0.00	3.05E+12	77.9190	485548.	0.00
63.3815	-9.53E-04	-226546.	3386.	4.62E-05	0.00	3.05E+12	56.4454	495201.	0.00
64.0780	-5.69E-04	-196294.	3766.	4.56E-05	0.00	3.05E+12	34.3882	504854.	0.00
64.7745	-1.90E-04	-163640.	3959.	4.51E-05	0.00	3.05E+12	11.7225	514507.	0.00
65.4710	1.85E-04	-130167.	3959.	4.47E-05	0.00	3.05E+12	-11.5829	524159.	0.00
66.1675	5.57E-04	-97503.	3776.	4.44E-05	0.00	3.05E+12	-32.2557	484155.	0.00
66.8640	9.27E-04	-67091.	3413.	4.42E-05	0.00	3.05E+12	-54.6538	492910.	0.00
67.5605	0.00130	-40498.	2860.	4.40E-05	0.00	3.05E+12	-77.7345	501665.	0.00
68.2570	0.00166	-19335.	2111.	4.39E-05	0.00	3.05E+12	-101.5301	510420.	0.00
68.9535	0.00203	-5264.	1159.	4.39E-05	0.00	3.05E+12	-126.0679	519175.	0.00
69.6500	0.00240	0.00	0.00	4.39E-05	0.00	3.05E+12	-151.3669	263965.	0.00

* 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 = 2.21673137 inches
 Computed slope at pile head = -0.00506997 radians
 Maximum bending moment = 20047826. inch-lbs
 Maximum shear force = -142499. lbs
 Depth of maximum bending moment = 37.61100000 feet below pile head
 Depth of maximum shear force = 46.66550000 feet below pile head
 Number of iterations = 35
 Number of zero deflection points = 2

Distributed Lateral Loads for LRFD:

Sums of Distributed Lateral Load Per Unit Length due to Live Loads

Depth in	Distributed Load lb/in
0.00	33.30
8.36	33.30
16.72	33.30
25.07	33.30
33.43	33.30
41.79	33.30
50.15	33.30
58.51	33.30
66.86	33.30
75.22	33.30
83.58	33.30
91.94	33.30
100.30	33.30
108.65	33.30
117.01	33.30
125.37	33.30
133.73	33.30
142.09	33.30
150.44	33.30
158.80	33.30
167.16	33.30
175.52	33.30
183.88	33.30
192.23	33.30
200.59	33.30
208.95	33.30
217.31	33.30
225.67	33.30
234.02	33.30
242.38	33.30
250.74	33.30
259.10	33.30
267.46	33.30
275.81	33.30
284.17	33.30
292.53	33.30
300.89	33.30
309.25	33.30
317.60	33.30
325.96	33.30
334.32	6.61

Distributed Lateral Loads for LRFD:

Sums of Distributed Lateral Load Per Unit Length due to Horizontal Soil Pressures

Depth in	Distributed Load lb/in
0.00	3.16
8.36	12.63
16.72	25.26

25.07	37.89
33.43	50.52
41.79	63.15
50.15	75.78
58.51	88.41
66.86	101.05
75.22	113.68
83.58	126.31
91.94	138.94
100.30	151.57
108.65	164.20
117.01	176.83
125.37	189.46
133.73	202.09
142.09	214.72
150.44	227.35
158.80	239.98
167.16	252.61
175.52	265.24
183.88	277.88
192.23	290.51
200.59	303.14
208.95	315.77
217.31	328.40
225.67	341.03
234.02	353.66
242.38	366.29
250.74	378.92
259.10	391.55
267.46	404.18
275.81	416.81
284.17	429.44
292.53	442.07
300.89	454.71
309.25	467.34
317.60	479.97
325.96	492.60
334.32	99.28

Computed Values of Pile Loading and Deflection
for Lateral Loading for LRFD Load Case Number 3

Load Case No. 3: Strength 1

Depth X feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness in-lb^2	Soil Res. p lb/inch	Soil Spr. Es*h lb/inch	Distrib. Lat. Load lb/inch
0.00	3.7983	0.00143	1391.	-0.00861	0.00	3.04E+12	0.00	0.00	63.0115
0.6965	3.7263	20194.	1977.	-0.00861	0.00	3.04E+12	0.00	0.00	77.2211
1.3930	3.6543	45782.	2701.	-0.00861	0.00	3.04E+12	0.00	0.00	96.1671
2.0895	3.5823	78088.	3584.	-0.00861	0.00	3.04E+12	0.00	0.00	115.1132
2.7860	3.5103	118435.	4625.	-0.00861	0.00	3.04E+12	0.00	0.00	134.0592
3.4825	3.4383	168147.	5825.	-0.00861	0.00	3.04E+12	0.00	0.00	153.0053
4.1790	3.3663	228547.	7183.	-0.00861	0.00	3.04E+12	0.00	0.00	171.9514
4.8755	3.2944	300958.	8699.	-0.00861	0.00	3.04E+12	0.00	0.00	190.8974
5.5720	3.2224	386704.	10374.	-0.00861	0.00	3.04E+12	0.00	0.00	209.8435
6.2685	3.1504	487108.	12207.	-0.00861	0.00	3.04E+12	0.00	0.00	228.7895
6.9650	3.0785	603493.	14199.	-0.00861	0.00	3.04E+12	0.00	0.00	247.7356
7.6615	3.0066	737183.	16348.	-0.00861	0.00	3.04E+12	0.00	0.00	266.6817
8.3580	2.9347	889501.	18656.	-0.00860	0.00	3.04E+12	0.00	0.00	285.6277
9.0545	2.8628	1061770.	21123.	-0.00860	0.00	3.04E+12	0.00	0.00	304.5738
9.7510	2.7909	1255313.	23748.	-0.00860	0.00	3.04E+12	0.00	0.00	323.5198
10.4475	2.7191	1471453.	26531.	-0.00859	0.00	3.04E+12	0.00	0.00	342.4659
11.1440	2.6472	1711514.	29472.	-0.00859	0.00	3.04E+12	0.00	0.00	361.4120
11.8405	2.5755	1976818.	32572.	-0.00858	0.00	3.04E+12	0.00	0.00	380.3580
12.5370	2.5038	2268689.	35830.	-0.00858	0.00	3.04E+12	0.00	0.00	399.3041
13.2335	2.4321	2588449.	39247.	-0.00857	0.00	3.04E+12	0.00	0.00	418.2501
13.9300	2.3605	2937420.	42822.	-0.00856	0.00	3.04E+12	0.00	0.00	437.1962
14.6265	2.2889	3316927.	46555.	-0.00856	0.00	3.04E+12	0.00	0.00	456.1422

15.3230	2.2175	3728291.	50447.	-0.00855	0.00	3.03E+12	0.00	0.00	475.0883
16.0195	2.1461	4172836.	54497.	-0.00853	0.00	3.03E+12	0.00	0.00	494.0344
16.7160	2.0748	4651883.	58705.	-0.00852	0.00	3.03E+12	0.00	0.00	512.9804
17.4125	2.0036	5166756.	63072.	-0.00851	0.00	3.03E+12	0.00	0.00	531.9265
18.1090	1.9326	5718777.	67597.	-0.00849	0.00	3.02E+12	0.00	0.00	550.8725
18.8055	1.8616	6309267.	72280.	-0.00848	0.00	3.02E+12	0.00	0.00	569.8186
19.5020	1.7908	6939550.	77122.	-0.00846	0.00	3.02E+12	0.00	0.00	588.7647
20.1985	1.7202	7610948.	82122.	-0.00844	0.00	3.02E+12	0.00	0.00	607.7107
20.8950	1.6498	8324783.	87280.	-0.00842	0.00	3.01E+12	0.00	0.00	626.6568
21.5915	1.5795	9082376.	92597.	-0.00839	0.00	3.01E+12	0.00	0.00	645.6028
22.2880	1.5095	9885050.	98072.	-0.00837	0.00	3.01E+12	0.00	0.00	664.5489
22.9845	1.4397	1.07E+07	103706.	-0.00834	0.00	3.00E+12	0.00	0.00	683.4950
23.6810	1.3701	1.16E+07	109498.	-0.00827	0.00	9.81E+11	0.00	0.00	702.4410
24.3775	1.3014	1.26E+07	115448.	-0.00817	0.00	9.72E+11	0.00	0.00	721.3871
25.0740	1.2336	1.36E+07	121556.	-0.00806	0.00	9.64E+11	0.00	0.00	740.3331
25.7705	1.1667	1.46E+07	127823.	-0.00793	0.00	9.57E+11	0.00	0.00	759.2792
26.4670	1.1009	1.57E+07	134248.	-0.00780	0.00	9.51E+11	0.00	0.00	778.2253
27.1635	1.0363	1.69E+07	140832.	-0.00766	0.00	9.45E+11	0.00	0.00	797.1713
27.8600	0.9729	1.81E+07	144693.	-0.00750	0.00	9.40E+11	-33.8032	290.3869	160.4861
28.5565	0.9109	1.93E+07	144575.	-0.00734	0.00	9.35E+11	-154.7915	1420.	0.00
29.2530	0.8503	2.05E+07	142734.	-0.00716	0.00	9.30E+11	-285.7157	2808.	0.00
29.9495	0.7913	2.17E+07	139778.	-0.00697	0.00	9.26E+11	-421.7920	4455.	0.00
30.6460	0.7339	2.29E+07	135674.	-0.00677	0.00	9.23E+11	-560.2869	6381.	0.00
31.3425	0.6782	2.40E+07	130418.	-0.00655	0.00	9.19E+11	-697.4223	8595.	0.00
32.0390	0.6243	2.51E+07	124039.	-0.00633	0.00	9.17E+11	-828.8795	11097.	0.00
32.7355	0.5724	2.61E+07	116137.	-0.00610	0.00	9.14E+11	-1062.	15509.	0.00
33.4320	0.5224	2.70E+07	106597.	-0.00585	0.00	9.12E+11	-1221.	19530.	0.00
34.1285	0.4745	2.79E+07	95785.	-0.00560	0.00	9.10E+11	-1367.	24071.	0.00
34.8250	0.4288	2.86E+07	83832.	-0.00534	0.00	9.08E+11	-1494.	29114.	0.00
35.5215	0.3852	2.93E+07	70912.	-0.00508	0.00	9.06E+11	-1598.	34670.	0.00
36.2180	0.3439	2.98E+07	57154.	-0.00480	0.00	9.05E+11	-1694.	41173.	0.00
36.9145	0.3049	3.02E+07	42687.	-0.00453	0.00	9.04E+11	-1767.	48441.	0.00
37.6110	0.2683	3.05E+07	27723.	-0.00424	0.00	9.04E+11	-1813.	56490.	0.00
38.3075	0.2340	3.07E+07	13248.	-0.00396	0.00	9.03E+11	-1650.	58951.	0.00
39.0040	0.2021	3.08E+07	-516.7729	-0.00368	0.00	9.03E+11	-1643.	67977.	0.00
39.7005	0.1725	3.07E+07	-14122.	-0.00339	0.00	9.03E+11	-1612.	78103.	0.00
40.3970	0.1454	3.05E+07	-26937.	-0.00311	0.00	9.04E+11	-1454.	83620.	0.00
41.0935	0.1205	3.02E+07	-38714.	-0.00283	0.00	9.04E+11	-1364.	94576.	0.00
41.7900	0.09806	2.99E+07	-49330.	-0.00255	0.00	9.05E+11	-1176.	100261.	0.00
42.4865	0.07789	2.94E+07	-58343.	-0.00228	0.00	9.06E+11	-980.4293	105200.	0.00
43.1830	0.05999	2.89E+07	-85958.	-0.00201	0.00	9.07E+11	-5628.	784017.	0.00
43.8795	0.04432	2.80E+07	-129688.	-0.00175	0.00	9.09E+11	-4837.	912200.	0.00
44.5760	0.03079	2.67E+07	-166749.	-0.00150	0.00	9.12E+11	-4032.	1094356.	0.00
45.2725	0.01931	2.52E+07	-196942.	-0.00126	0.00	9.16E+11	-3193.	1381783.	0.00
45.9690	0.00976	2.34E+07	-219770.	-0.00104	0.00	9.21E+11	-2270.	1943972.	0.00
46.6655	0.00198	2.15E+07	-229516.	-8.33E-04	0.00	9.27E+11	-62.4683	263535.	0.00
47.3620	-0.00417	1.96E+07	-229207.	-6.48E-04	0.00	9.33E+11	136.3872	273188.	0.00
48.0585	-0.00886	1.77E+07	-227384.	-4.82E-04	0.00	9.41E+11	299.7848	282840.	0.00
48.7550	-0.01223	1.58E+07	-224343.	-3.34E-04	0.00	9.50E+11	428.0230	292493.	0.00
49.4515	-0.01444	1.40E+07	-215716.	-2.04E-04	0.00	9.61E+11	1636.	947031.	0.00
50.1480	-0.01564	1.22E+07	-201763.	-9.07E-05	0.00	9.75E+11	1703.	910099.	0.00
50.8445	-0.01596	1.06E+07	-187460.	-2.37E-05	0.00	3.00E+12	1720.	900905.	0.00
51.5410	-0.01603	9074960.	-173068.	3.68E-06	0.00	3.01E+12	1724.	898807.	0.00
52.2375	-0.01590	7688664.	-158689.	2.69E-05	0.00	3.02E+12	1717.	902647.	0.00
52.9340	-0.01558	6422272.	-144412.	4.65E-05	0.00	3.02E+12	1700.	911702.	0.00
53.6305	-0.01512	5274597.	-130313.	6.26E-05	0.00	3.03E+12	1674.	925547.	0.00
54.3270	-0.01453	4243863.	-116457.	7.58E-05	0.00	3.03E+12	1642.	943970.	0.00
55.0235	-0.01385	3327791.	-102900.	8.62E-05	0.00	3.04E+12	1603.	966934.	0.00
55.7200	-0.01309	2523660.	-89692.	9.43E-05	0.00	3.04E+12	1558.	994556.	0.00
56.4165	-0.01228	1828362.	-76876.	1.00E-04	0.00	3.04E+12	1509.	1027108.	0.00
57.1130	-0.01142	1238448.	-64491.	1.04E-04	0.00	3.04E+12	1455.	1065033.	0.00
57.8095	-0.01053	750168.	-52572.	1.07E-04	0.00	3.04E+12	1397.	1108989.	0.00
58.5060	-0.00963	359494.	-41150.	1.09E-04	0.00	3.04E+12	1336.	1159915.	0.00
59.2025	-0.00871	62141.	-30256.	1.09E-04	0.00	3.04E+12	1271.	1219146.	0.00
59.8990	-0.00780	-146424.	-19919.	1.09E-04	0.00	3.04E+12	1202.	1288606.	0.00
60.5955	-0.00689	-270987.	-10171.	1.09E-04	0.00	3.04E+12	1130.	1371141.	0.00
61.2920	-0.00598	-316603.	-4053.	1.08E-04	0.00	3.04E+12	333.8288	466243.	0.00
61.9885	-0.00509	-338899.	-1448.	1.07E-04	0.00	3.04E+12	289.6533	475896.	0.00
62.6850	-0.00420	-340960.	781.8859	1.06E-04	0.00	3.04E+12	243.8572	485548.	0.00
63.3815	-0.00332	-325986.	2622.	1.05E-04	0.00	3.04E+12	196.4703	495201.	0.00
64.0780	-0.00244	-297286.	4059.	1.04E-04	0.00	3.04E+12	147.4989	504854.	0.00
64.7745	-0.00157	-258282.	5081.	1.03E-04	0.00	3.04E+12	96.9283	514507.	0.00
65.4710	-7.13E-04	-212506.	5673.	1.03E-04	0.00	3.04E+12	44.7262	524159.	0.00
66.1675	1.43E-04	-163606.	5825.	1.02E-04	0.00	3.04E+12	-8.3025	484155.	0.00
66.8640	9.96E-04	-115285.	5545.	1.02E-04	0.00	3.04E+12	-58.7435	492910.	0.00
67.5605	0.00185	-71068.	4836.	1.02E-04	0.00	3.04E+12	-110.8123	501665.	0.00
68.2570	0.00269	-34591.	3686.	1.01E-04	0.00	3.04E+12	-164.5623	510420.	0.00
68.9535	0.00354	-9610.	2078.	1.01E-04	0.00	3.04E+12	-220.0406	519175.	0.00
69.6500	0.00439	0.00	0.00	1.01E-04	0.00	3.04E+12	-277.2808	263965.	0.00

* 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. 3:

Pile-head deflection = 3.79825160 inches
 Computed slope at pile head = -0.00861305 radians
 Maximum bending moment = 30751120. inch-lbs
 Maximum shear force = -229516. lbs
 Depth of maximum bending moment = 39.00400000 feet below pile head
 Depth of maximum shear force = 46.66550000 feet below pile head
 Number of iterations = 39
 Number of zero deflection points = 2

Summary of Pile Responses for LRFD Analyses

Load Case No.	Pile-head Shear lbs	Pile-head Moment in-lbs	Axial Loading lbs	Pile-head Deflection inches	Maximum Moment in Pile in-lbs	Maximum Shear in Pile lbs	Pile-Head Rotation radians
1	0.000000	0.000000	0.000000	1.59308083	15625021.	-108808.	-0.00359971
2	3337.	0.000000	62250.	2.21673137	20047826.	-142499.	-0.00506997
3	1391.	0.000000	88490.	3.79825160	30751120.	-229516.	-0.00861305

Maximum pile-head deflection = 3.7982516025 inches
 Maximum pile-head rotation = -0.0086130523 radians = -0.493492 deg.

LRFD Performance by Load Case Combination

Load Case No.	Section No.	Resistance Factor	Factored Moment of Section in-lbs	Maximum Moment Developed in Section in-lbs	Fact. Mom. Developed in Section	Pass/Fail for LRFD	Maximum Shear Developed in Section lbs	Pile-top Deflection Developed inches	Pile-top Rotation Developed Radians	Name
1	1	1.00	69769107.	15625021.	0.223953	Pass	-108808.	1.593081	-0.003600	Soil Only
2	1	1.00	70722746.	20047826.	0.283471	Pass	-142499.	2.216731	-0.005070	Service 1
3	1	0.90	64145914.	30751120.	0.479393	Pass	-229516.	3.798252	-0.008613	Strength 1

All LRFD load combinations have passed for all pile sections.

The load case and pile section with the greatest level of developed moment capacity:

LRFD Load Case No. = 3
 Pile Section No. = 1

The analysis ended normally.