Lpile Analyses Calculations
Retaining Wall 4W16 - Tangent Shaft Wall

Columbus, Ohio

Submitted: 7/11/2022

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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
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Path to file locations:
\2015\2015370\FRA\96053\structures\wall_4W16\design\Checked Lpile runs\

Name of input data file:
Wall 4W16 Tangent Shaft Design - West Qtr.lp11

Name of output report file:
Wall 4W16 Tangent Shaft Design - West Qtr.lp11

Name of plot output file:
Wall 4W16 Tangent Shaft Design - West Qtr.lp11

Name of runtime message file:
Wall 4W16 Tangent Shaft Design - West Qtr.lp11



--------------------------------------------------------------------------------
                            Date and Time of Analysis
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               Date:  July 12, 2019               Time:   8:52:02



--------------------------------------------------------------------------------
                                  Problem Title
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FRA-70-14.05 - Wall 4W16 West 1/4 of wall

Job Number:

Client:

Engineer: TJW

Description: Tangent Shaft Design




--------------------------------------------------------------------------------
                          Program Options and Settings
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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 = 72.000 ft
Depth of ground surface below top of pile = 36.7500 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	72.000	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 = 72.000000 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 8 layers

Layer 1 is stiff clay without free water

Distance from top of pile to top of layer	=	36.750000 ft
Distance from top of pile to bottom of layer	=	39.050000 ft
Effective unit weight at top of layer	=	130.000000 pcf
Effective unit weight at bottom of layer	=	130.000000 pcf
Undrained cohesion at top of layer	=	4500. psf
Undrained cohesion at bottom of layer	=	4500. psf
Epsilon-50 at top of layer	=	0.004500
Epsilon-50 at bottom of layer	=	0.004500

Layer 2 is stiff clay without free water

Distance from top of pile to top of layer	=	39.050000 ft
Distance from top of pile to bottom of layer	=	42.050000 ft
Effective unit weight at top of layer	=	130.000000 pcf
Effective unit weight at bottom of layer	=	130.000000 pcf
Undrained cohesion at top of layer	=	5250. psf
Undrained cohesion at bottom of layer	=	5250. psf
Epsilon-50 at top of layer	=	0.004300
Epsilon-50 at bottom of layer	=	0.004300

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

Distance from top of pile to top of layer	=	42.050000 ft
Distance from top of pile to bottom of layer	=	46.550000 ft
Effective unit weight at top of layer	=	140.000000 pcf
Effective unit weight at bottom of layer	=	140.000000 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	=	395.000000 pci
Subgrade k at bottom of layer	=	395.000000 pci

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

Distance from top of pile to top of layer	=	46.550000 ft
Distance from top of pile to bottom of layer	=	47.050000 ft
Effective unit weight at top of layer	=	135.000000 pcf
Effective unit weight at bottom of layer	=	135.000000 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

Layer 5 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	47.050000 ft
Distance from top of pile to bottom of layer	=	54.550000 ft
Effective unit weight at top of layer	=	72.600000 pcf
Effective unit weight at bottom of layer	=	72.600000 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

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

Distance from top of pile to top of layer	=	54.550000 ft
Distance from top of pile to bottom of layer	=	93.050000 ft
Effective unit weight at top of layer	=	77.600000 pcf
Effective unit weight at bottom of layer	=	77.600000 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 7 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	93.050000 ft
Distance from top of pile to bottom of layer	=	98.050000 ft

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   Effective unit weight at top of layer              =    77.600000 pcf
   Effective unit weight at bottom of layer           =    77.600000 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 8 is sand, p-y criteria by Reese et al., 1974

   Distance from top of pile to top of layer          =    98.050000 ft
   Distance from top of pile to bottom of layer       =   134.550000 ft
   Effective unit weight at top of layer              =    77.600000 pcf
   Effective unit weight at bottom of layer           =    77.600000 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 62.550 ft below the pile tip)


**** Warning - Possible Input Data Error ****

Values entered for effective unit weights of soil were outside the limits of
20 pcf to 140 pcf.

The maximum input value, in layer   3, for effective unit weight = 140.00 pcf

This data may be erroneous. Please check your data.



--------------------------------------------------------------------------------
                        Summary of Input Soil Properties
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Layer         Soil Type          Layer      Effective    Undrained    Angle of        E50
Layer           Name             Depth       Unit Wt.    Cohesion     Friction        or           kpy
 Num.     (p-y Curve Type)        ft           pcf         psf          deg.         krm          pci
-----   ------------------   ----------   ----------   ----------   ----------   ----------   ----------
  1        Stiff Clay           36.7500     130.0000       4500.        --         0.00450       --
         w/o Free Water         39.0500     130.0000       4500.        --         0.00450       --
  2        Stiff Clay           39.0500     130.0000       5250.        --         0.00430       --
         w/o Free Water         42.0500     130.0000       5250.        --         0.00430       --
  3           Sand              42.0500     140.0000       --          43.0000       --         395.0000
         (Reese, et al.)        46.5500     140.0000       --          43.0000       --         395.0000
  4           Sand              46.5500     135.0000       --          42.0000       --         195.0000
         (Reese, et al.)        47.0500     135.0000       --          42.0000       --         195.0000
  5           Sand              47.0500      72.6000       --          42.0000       --         195.0000
         (Reese, et al.)        54.5500      72.6000       --          42.0000       --         195.0000
  6           Sand              54.5500      77.6000       --          40.0000       --         155.0000
         (Reese, et al.)        93.0500      77.6000       --          40.0000       --         155.0000
  7           Sand              93.0500      77.6000       --          38.0000       --         125.0000
         (Reese, et al.)        98.0500      77.6000       --          38.0000       --         125.0000
  8           Sand              98.0500      77.6000       --          42.0000       --         195.0000
         (Reese, et al.)       134.5500      77.6000       --          42.0000       --         195.0000


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                    p-y Modification Factors for Group Action
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Distribution of p-y modifiers with depth defined using 2 points

Point      Depth X         p-mult         y-mult
 No.          ft
-----     ----------     ----------     ----------
  1          36.850         0.6400         1.0000
  2          95.000         0.6400         1.0000



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

Unfactored Loading Groups for LRFD Analysis

Number of Loading Groups = 1

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

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

Point	Depth in	Distributed Load lb/inch
1	0.00	0.00
2	441.00	689.10

Totals of Unfactored Loads by Load Type for LRFD Analyses:

Number of Defined Unfactored Load Cases = 1

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	0.00	0
Live Loads (LL)	0.00	0.00	0.00	0
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)	0.00	0.00	0.00	0
Special (Sp)	0.00	0.00	0.00	0

Load and Resistance Factors by Load Combinations for LRFD Analyses

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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	1.00	Soil Only
2	1.00	1.00	--	--	--	--	--	1.00	--	--	--	--	--	1.00	1.00	Service 1
3	1.00	1.75	--	--	--	--	--	1.50	--	--	--	--	--	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*DL + 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

Factored Horizontal Force = 0.00 lbs
Factored Vertical Force = 0.00 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 = 1.00*DL + 1.75*LL + 1.50*Hs

Factored Horizontal Force = 0.00 lbs
Factored Vertical Force = 0.00 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	0.00	0.00	0.00	Service 1
3	0.00	0.00	0.00	Strength 1

Sorted Values of Axial Thrust Forces Sorted for LRFD Computations:

Number of Unique Axial Thrust Values = 1

Number	Factored Axial Thrust
1	0.000

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

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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	=	72.000000 ft
Shaft Diameter	=	60.000000 in
Concrete Cover Thickness (to edge of long. rebar)	=	6.500000 in
Number of Reinforcing Bars	=	40 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	=	62.400000 sq. in.
Area Ratio of Steel Reinforcement	=	2.21 percent
Edge-to-Edge Bar Spacing	=	2.166950 in
Maximum Concrete Aggregate Size	=	0.375000 in
Ratio of Bar Spacing to Aggregate Size	=	5.78
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	=	13145.114 kips
Tensile Load for Cracking of Concrete	=	-1358.778 kips
Nominal Axial Tensile Capacity	=	-3744.000 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.410000	1.560000	22.795000	0.00000
2	1.410000	1.560000	22.514356	3.565924
3	1.410000	1.560000	21.679333	7.044042
4	1.410000	1.560000	20.310494	10.348713
5	1.410000	1.560000	18.441542	13.398565
6	1.410000	1.560000	16.118499	16.118499
7	1.410000	1.560000	13.398565	18.441542
8	1.410000	1.560000	10.348713	20.310494
9	1.410000	1.560000	7.044042	21.679333
10	1.410000	1.560000	3.565924	22.514356
11	1.410000	1.560000	0.00000	22.795000
12	1.410000	1.560000	-3.565924	22.514356
13	1.410000	1.560000	-7.044042	21.679333
14	1.410000	1.560000	-10.348713	20.310494
15	1.410000	1.560000	-13.398565	18.441542
16	1.410000	1.560000	-16.118499	16.118499
17	1.410000	1.560000	-18.441542	13.398565
18	1.410000	1.560000	-20.310494	10.348713
19	1.410000	1.560000	-21.679333	7.044042
20	1.410000	1.560000	-22.514356	3.565924
21	1.410000	1.560000	-22.795000	0.00000
22	1.410000	1.560000	-22.514356	-3.565924
23	1.410000	1.560000	-21.679333	-7.044042
24	1.410000	1.560000	-20.310494	-10.348713
25	1.410000	1.560000	-18.441542	-13.398565
26	1.410000	1.560000	-16.118499	-16.118499
27	1.410000	1.560000	-13.398565	-18.441542
28	1.410000	1.560000	-10.348713	-20.310494
29	1.410000	1.560000	-7.044042	-21.679333
30	1.410000	1.560000	-3.565924	-22.514356
31	1.410000	1.560000	0.00000	-22.795000
32	1.410000	1.560000	3.565924	-22.514356
33	1.410000	1.560000	7.044042	-21.679333
34	1.410000	1.560000	10.348713	-20.310494
35	1.410000	1.560000	13.398565	-18.441542
36	1.410000	1.560000	16.118499	-16.118499
37	1.410000	1.560000	18.441542	-13.398565
38	1.410000	1.560000	20.310494	-10.348713
39	1.410000	1.560000	21.679333	-7.044042

40	1.410000	1.560000	22.514356	-3.565924

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

Minimum spacing between any two bars not equal to zero = 2.167 inches
between bars 34 and 35.

Ratio of bar spacing to maximum aggregate size = 5.78

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	=	0.375000 in

Number of Axial Thrust Force Values Determined from LRFD Pile-head Loadings = 1

Number	Axial Thrust Force kips
1	0.000

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 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-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	1289.	3094082389.	29.9999621	0.00001250	-0.00001250	0.0523123	-0.2863755	
8.33333E-07	2573.	3088157371.	29.9999620	0.00002500	-0.00002500	0.1042802	-0.5727509	
0.00000125	3853.	3082232354.	29.9999618	0.00003750	-0.00003750	0.1559039	-0.8591264	
0.00000167	5127.	3076307336.	29.9999617	0.00005000	-0.00005000	0.2071831	-1.1455018	
0.00000208	6397.	3070382318.	29.9999616	0.00006250	-0.00006250	0.2581181	-1.4318773	
0.00000250	7661.	3064457300.	29.9999615	0.00007500	-0.00007500	0.3087088	-1.7182528	
0.00000292	8921.	3058532283.	29.9999614	0.00008750	-0.00008750	0.3589551	-2.0046282	
0.00000333	10175.	3052607265.	29.9999613	0.00010000	-0.0001000	0.4088571	-2.2910037	
0.00000375	11425.	3046682247.	29.9999612	0.0001125	-0.0001125	0.4584147	-2.5773792	
0.00000417	11425.	2742014022.	18.0220442	0.00007509	-0.0001749	0.3070461	-4.3110863	C
0.00000458	11425.	2492740020.	18.0274708	0.00008263	-0.0001924	0.3371773	-4.7414737	C
0.00000500	11425.	2285011685.	18.0329087	0.00009016	-0.0002098	0.3672037	-5.1717282	C
0.00000542	11425.	2109241556.	18.0383579	0.00009771	-0.0002273	0.3971249	-5.6018496	C
0.00000583	11425.	1958581445.	18.0438184	0.0001053	-0.0002447	0.4269409	-6.0318374	C
0.00000625	11425.	1828009348.	18.0492904	0.0001128	-0.0002622	0.4566514	-6.4616911	C
0.00000667	11425.	1713758764.	18.0547738	0.0001204	-0.0002796	0.4862564	-6.8914104	C
0.00000708	11425.	1612949425.	18.0602687	0.0001279	-0.0002971	0.5157555	-7.3209948	C
0.00000750	11425.	1523341124.	18.0657751	0.0001355	-0.0003145	0.5451487	-7.7504439	C
0.00000792	11425.	1443165275.	18.0712931	0.0001431	-0.0003319	0.5744357	-8.1797573	C
0.00000833	11425.	1371007011.	18.0768228	0.0001506	-0.0003494	0.6036165	-8.6089345	C
0.00000875	11425.	1305720963.	18.0823642	0.0001582	-0.0003668	0.6326907	-9.0379751	C
0.00000917	11425.	1246370010.	18.0879174	0.0001658	-0.0003842	0.6616583	-9.4668786	C
0.00000958	11425.	1192180010.	18.0934823	0.0001734	-0.0004016	0.6905190	-9.8956447	C
0.00001000	11425.	1142505843.	18.0990591	0.0001810	-0.0004190	0.7192727	-10.3242728	C
0.00001042	11425.	1096805609.	18.1046478	0.0001886	-0.0004364	0.7479192	-10.7527626	C
0.00001083	11425.	1054620778.	18.1102485	0.0001962	-0.0004538	0.7764583	-11.1811136	C

0.00001125	11425.	1015560749.	18.1158611	0.0002038	-0.0004712	0.8048898	-11.6093253 C
0.00001167	11425.	979290722.	18.1214858	0.0002114	-0.0004886	0.8332136	-12.0373973 C
0.00001208	11498.	951545496.	18.1271227	0.0002190	-0.0005060	0.8614294	-12.4653291 C
0.00001250	11890.	951221784.	18.1327716	0.0002267	-0.0005233	0.8895371	-12.8931203 C
0.00001292	12282.	950897469.	18.1384329	0.0002343	-0.0005407	0.9175365	-13.3207703 C
0.00001333	12674.	950572548.	18.1441063	0.0002419	-0.0005581	0.9454274	-13.7482789 C
0.00001375	13066.	950247020.	18.1497921	0.0002496	-0.0005754	0.9732096	-14.1756454 C
0.00001417	13457.	949920881.	18.1554903	0.0002572	-0.0005928	1.0008829	-14.6028694 C
0.00001458	13848.	949594129.	18.1612010	0.0002649	-0.0006101	1.0284472	-15.0299504 C
0.00001500	14239.	949266762.	18.1669241	0.0002725	-0.0006275	1.0559022	-15.4568880 C
0.00001542	14629.	948938777.	18.1726597	0.0002802	-0.0006448	1.0832477	-15.8836817 C
0.00001583	15020.	948610172.	18.1784080	0.0002878	-0.0006622	1.1104836	-16.3103310 C
0.00001625	15410.	948280943.	18.1841689	0.0002955	-0.0006795	1.1376097	-16.7368354 C
0.00001708	16189.	947620592.	18.1957289	0.0003108	-0.0007142	1.1915316	-17.5894078 C
0.00001792	16966.	946957731.	18.2073403	0.0003262	-0.0007488	1.2450117	-18.4413946 C
0.00001875	17743.	946292325.	18.2190034	0.0003416	-0.0007834	1.2980487	-19.2927921 C
0.00001958	18518.	945624353.	18.2307188	0.0003570	-0.0008180	1.3506407	-20.1435961 C
0.00002042	19293.	944953794.	18.2424869	0.0003725	-0.0008525	1.4027863	-20.9938028 C
0.00002125	20066.	944280624.	18.2543083	0.0003879	-0.0008871	1.4544838	-21.8434078 C
0.00002208	20838.	943604822.	18.2661833	0.0004034	-0.0009216	1.5057315	-22.6924071 C
0.00002292	21609.	942926364.	18.2781125	0.0004189	-0.0009561	1.5565279	-23.5407963 C
0.00002375	22378.	942245229.	18.2900965	0.0004344	-0.0009906	1.6068711	-24.3885714 C
0.00002458	23147.	941561528.	18.3020703	0.0004499	-0.0010251	1.6567544	-25.2357740 C
0.00002542	23914.	940875575.	18.3137940	0.0004655	-0.0010595	1.7061559	-26.0825830 C
0.00002625	24680.	940186993.	18.3255706	0.0004810	-0.0010940	1.7550976	-26.9287848 C
0.00002708	25445.	939495729.	18.3374006	0.0004966	-0.0011284	1.8035778	-27.7743754 C
0.00002792	26208.	938801758.	18.3492845	0.0005123	-0.0011627	1.8515948	-28.6193506 C
0.00002875	26971.	938105058.	18.3612227	0.0005279	-0.0011971	1.8991467	-29.4637061 C
0.00002958	27732.	937405604.	18.3732159	0.0005435	-0.0012315	1.9462319	-30.3074375 C
0.00003042	28491.	936703373.	18.3852644	0.0005592	-0.0012658	1.9928486	-31.1505403 C
0.00003125	29250.	935998341.	18.3973689	0.0005749	-0.0013001	2.0389949	-31.9930101 C
0.00003208	30007.	935290482.	18.4095298	0.0005906	-0.0013344	2.0846691	-32.8348424 C
0.00003292	30763.	934579772.	18.4217478	0.0006064	-0.0013686	2.1298693	-33.6760324 C
0.00003375	31518.	933866185.	18.4340233	0.0006221	-0.0014029	2.1745937	-34.5165755 C
0.00003458	32271.	933149695.	18.4463569	0.0006379	-0.0014371	2.2188405	-35.3564671 C
0.00003542	33024.	932430276.	18.4587493	0.0006537	-0.0014713	2.2626076	-36.1957022 C
0.00003625	33774.	931707952.	18.4712009	0.0006696	-0.0015054	2.3058933	-37.0342750 C
0.00003708	34524.	930982596.	18.4837123	0.0006854	-0.0015396	2.3486955	-37.8721826 C
0.00003792	35272.	930254231.	18.4962842	0.0007013	-0.0015737	2.3910123	-38.7094190 C
0.00003875	36019.	929522828.	18.5089172	0.0007172	-0.0016078	2.4328417	-39.5459792 C
0.00003958	36765.	928788360.	18.5216118	0.0007331	-0.0016419	2.4741818	-40.3818580 C
0.00004042	37509.	928050797.	18.5343687	0.0007491	-0.0016759	2.5150305	-41.2170503 C
0.00004125	38252.	927310111.	18.5471885	0.0007651	-0.0017099	2.5553858	-42.0515507 C
0.00004208	38993.	926566273.	18.5600718	0.0007811	-0.0017439	2.5952455	-42.8853539 C
0.00004292	39733.	925819251.	18.5730194	0.0007971	-0.0017779	2.6346077	-43.7184545 C
0.00004375	40472.	925069018.	18.5860318	0.0008131	-0.0018119	2.6734701	-44.5508471 C
0.00004458	41209.	924315540.	18.5991097	0.0008292	-0.0018458	2.7118307	-45.3825260 C
0.00004542	41945.	923558788.	18.6122538	0.0008453	-0.0018797	2.7496873	-46.2134856 C
0.00004625	42679.	922798729.	18.6254648	0.0008614	-0.0019136	2.7870377	-47.0437202 C
0.00004708	43412.	922035331.	18.6387434	0.0008776	-0.0019474	2.8238797	-47.8732239 C
0.00004792	44144.	921268562.	18.6520904	0.0008937	-0.0019813	2.8602110	-48.7019909 C
0.00004875	44874.	920498388.	18.6655063	0.0009099	-0.0020151	2.8960294	-49.5300153 C
0.00004958	45603.	919724776.	18.6789921	0.0009262	-0.0020488	2.9313326	-50.3572908 C
0.00005292	48503.	916595247.	18.7336479	0.0009913	-0.0021837	3.0673461	-53.6587810 C
0.00005625	51379.	913407859.	18.7894822	0.0010569	-0.0023181	3.1949249	-56.9477820 C
0.00005958	54230.	910154009.	18.8465039	0.0011229	-0.0024521	3.3139028	-60.0000000 CY
0.00006292	56795.	902699255.	18.8737629	0.0011875	-0.0025875	3.4209669	-60.0000000 CY
0.00006625	58753.	886833295.	18.8361371	0.0012479	-0.0027271	3.5128800	-60.0000000 CY
0.00006958	60376.	867673574.	18.7694582	0.0013060	-0.0028690	3.5937890	-60.0000000 CY
0.00007292	61750.	846854790.	18.6849211	0.0013624	-0.0030126	3.6652152	-60.0000000 CY
0.00007625	62987.	826055620.	18.5963623	0.0014180	-0.0031570	3.7287803	-60.0000000 CY
0.00007958	64040.	804691152.	18.4976901	0.0014721	-0.0033029	3.7842874	-60.0000000 CY
0.00008292	65036.	784358779.	18.4044058	0.0015260	-0.0034490	3.8332637	-60.0000000 CY
0.00008625	65866.	763664487.	18.3015462	0.0015785	-0.0035965	3.8748584	-60.0000000 CY
0.00008958	66653.	744037585.	18.2012027	0.0016305	-0.0037445	3.9102029	-60.0000000 CY
0.00009292	67399.	725374457.	18.1064013	0.0016824	-0.0038926	3.9396153	-60.0000000 CY
0.00009625	68017.	706675045.	18.0044441	0.0017329	-0.0040421	3.9626720	-60.0000000 CY
0.00009958	68592.	688787291.	17.9069203	0.0017832	-0.0041918	3.9801390	-60.0000000 CY
0.0001029	69158.	671984230.	17.8182226	0.0018338	-0.0043412	3.9921891	-60.0000000 CY
0.0001063	69695.	655950025.	17.7342692	0.0018843	-0.0044907	3.9987096	-60.0000000 CY
0.0001096	70148.	640131071.	17.6444856	0.0019335	-0.0046415	3.9970351	-60.0000000 CY
0.0001129	70546.	624764950.	17.5537784	0.0019821	-0.0047929	3.9999624	-60.0000000 CY
0.0001163	70931.	610163147.	17.4697720	0.0020309	-0.0049441	3.9990027	-60.0000000 CY
0.0001196	71310.	596320550.	17.3926384	0.0020799	-0.0050951	3.9962797	-60.0000000 CY
0.0001229	71680.	583162358.	17.3216544	0.0021291	-0.0052459	3.9997377	-60.0000000 CY
0.0001263	72018.	570439139.	17.2522288	0.0021781	-0.0053969	3.9972950	-60.0000000 CY
0.0001296	72310.	558017446.	17.1815228	0.0022264	-0.0055486	3.9998941	-60.0000000 CY
0.0001329	72560.	545909493.	17.1103971	0.0022743	-0.0057007	3.9971172	-60.0000000 CY
0.0001363	72799.	534307420.	17.0399990	0.0023217	-0.0058533	3.9997734	-60.0000000 CY

0.0001396	73033.	523224105.	16.9740205	0.0023693	-0.0060057	3.9957679	-60.0000000	CY
0.0001429	73264.	512632407.	16.9125122	0.0024171	-0.0061579	3.9992066	-60.0000000	CY
0.0001462	73491.	502500838.	16.8550981	0.0024651	-0.0063099	3.9973626	-60.0000000	CY
0.0001496	73712.	492780106.	16.8013689	0.0025132	-0.0064618	3.9976013	-60.0000000	CY
0.0001529	73927.	483449418.	16.7504631	0.0025614	-0.0066136	3.9998109	-60.0000000	CY
0.0001562	74106.	474279062.	16.6966626	0.0026089	-0.0067661	3.9938996	-60.0000000	CY
0.0001596	74273.	465416543.	16.6443087	0.0026562	-0.0069188	3.9978243	-60.0000000	CY
0.0001629	74413.	456755132.	16.5901427	0.0027028	-0.0070722	3.9997690	-60.0000000	CY
0.0001662	74550.	448421106.	16.5389866	0.0027496	-0.0072254	3.9951527	-60.0000000	CY
0.0001696	74683.	440390624.	16.4898055	0.0027964	-0.0073786	3.9964112	-60.0000000	CY
0.0001729	74812.	432650134.	16.4405594	0.0028428	-0.0075322	3.9990513	-60.0000000	CY
0.0001762	74941.	425195492.	16.3937880	0.0028894	-0.0076856	3.9999975	-60.0000000	CY
0.0001796	75066.	418003379.	16.3498389	0.0029362	-0.0078388	3.9925350	-60.0000000	CY
0.0001829	75191.	411067630.	16.3080271	0.0029830	-0.0079920	3.9965201	-60.0000000	CY
0.0002029	75856.	373828537.	16.0842954	0.0032638	-0.0089112	3.9994246	-60.0000000	CYT
0.0002229	76285.	342212030.	15.8707643	0.0035379	-0.0098371	3.9995373	60.0000000	CYT
0.0002429	76641.	315503826.	15.6932648	0.0038122	-0.0107628	3.9980413	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	75231.358	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	75231.	0.0000	48900.	916155027.
1	0.75	75231.	0.0000	56424.	903778483.
1	0.90	75231.	0.0000	67708.	716030891.

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	36.7500	0.00	N.A.	No	0.00	162967.
2	39.0500	1.9873	Yes	No	162967.	270453.
3	42.0500	7.6485	No	No	433420.	741721.
4	46.5500	12.4819	Yes	No	1175140.	98185.
5	47.0500	12.9811	Yes	No	1273326.	1693147.
6	54.5500	23.4394	Yes	No	2966473.	8431296.
7	93.0500	56.3000	No	No	1.14E+07	0.00
8	98.0500	61.3000	No	No	0.00	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 Horizontal Soil Pressures

Depth in	Distributed Load lb/in
0.00	3.38
8.64	13.50
17.28	27.00
25.92	40.50
34.56	54.00
43.20	67.50
51.84	81.00
60.48	94.51
69.12	108.01
77.76	121.51
86.40	135.01
95.04	148.51
103.68	162.01
112.32	175.51
120.96	189.01
129.60	202.51
138.24	216.01
146.88	229.51
155.52	243.01
164.16	256.51
172.80	270.01
181.44	283.52
190.08	297.02
198.72	310.52
207.36	324.02
216.00	337.52
224.64	351.02
233.28	364.52
241.92	378.02
250.56	391.52
259.20	405.02
267.84	418.52
276.48	432.02
285.12	445.52
293.76	459.02
302.40	472.53
311.04	486.03
319.68	499.53
328.32	513.03
336.96	526.53
345.60	540.03
354.24	553.53
362.88	567.03
371.52	580.53
380.16	594.03
388.80	607.53
397.44	621.03
406.08	634.53
414.72	648.04
423.36	661.54
432.00	675.04
440.64	371.28

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	3.7174	-8.84E-04	-1.07E-06	-0.00747	0.00	3.09E+12	0.00	0.00	3.3752
0.7200	3.6529	125.9778	72.9040	-0.00747	0.00	3.09E+12	0.00	0.00	13.5007
1.4400	3.5884	1260.	247.8735	-0.00747	0.00	3.09E+12	0.00	0.00	27.0015
2.1600	3.5238	4409.	539.4894	-0.00747	0.00	3.09E+12	0.00	0.00	40.5022
2.8800	3.4593	10582.	947.7516	-0.00747	0.00	3.09E+12	0.00	0.00	54.0029
3.6000	3.3948	20786.	1473.	-0.00747	0.00	3.09E+12	0.00	0.00	67.5037
4.3200	3.3302	36030.	2114.	-0.00747	0.00	3.09E+12	0.00	0.00	81.0044
5.0400	3.2657	57320.	2872.	-0.00747	0.00	3.09E+12	0.00	0.00	94.5051
5.7600	3.2011	85665.	3747.	-0.00747	0.00	3.09E+12	0.00	0.00	108.0059
6.4800	3.1366	122073.	4739.	-0.00747	0.00	3.09E+12	0.00	0.00	121.5066
7.2000	3.0721	167551.	5847.	-0.00747	0.00	3.09E+12	0.00	0.00	135.0073
7.9200	3.0076	223107.	7072.	-0.00747	0.00	3.09E+12	0.00	0.00	148.5081
8.6400	2.9430	289750.	8413.	-0.00747	0.00	3.09E+12	0.00	0.00	162.0088
9.3600	2.8785	368486.	9871.	-0.00747	0.00	3.09E+12	0.00	0.00	175.5096
10.0800	2.8140	460324.	11446.	-0.00747	0.00	3.09E+12	0.00	0.00	189.0103
10.8000	2.7495	566271.	13137.	-0.00746	0.00	3.09E+12	0.00	0.00	202.5110
11.5200	2.6850	687336.	14945.	-0.00746	0.00	3.09E+12	0.00	0.00	216.0118
12.2400	2.6206	824526.	16870.	-0.00746	0.00	3.09E+12	0.00	0.00	229.5125
12.9600	2.5561	978849.	18911.	-0.00746	0.00	3.09E+12	0.00	0.00	243.0132
13.6800	2.4917	1151313.	21069.	-0.00745	0.00	3.09E+12	0.00	0.00	256.5140
14.4000	2.4273	1342926.	23344.	-0.00745	0.00	3.09E+12	0.00	0.00	270.0147
15.1200	2.3630	1554695.	25735.	-0.00745	0.00	3.09E+12	0.00	0.00	283.5154
15.8400	2.2986	1787629.	28243.	-0.00744	0.00	3.09E+12	0.00	0.00	297.0162
16.5600	2.2344	2042734.	30868.	-0.00744	0.00	3.09E+12	0.00	0.00	310.5169
17.2800	2.1701	2321020.	33609.	-0.00743	0.00	3.09E+12	0.00	0.00	324.0176
18.0000	2.1060	2623493.	36467.	-0.00742	0.00	3.09E+12	0.00	0.00	337.5184
18.7200	2.0419	2951162.	39441.	-0.00742	0.00	3.09E+12	0.00	0.00	351.0191
19.4400	1.9778	3305034.	42532.	-0.00741	0.00	3.08E+12	0.00	0.00	364.5198
20.1600	1.9139	3686118.	45740.	-0.00740	0.00	3.08E+12	0.00	0.00	378.0206
20.8800	1.8500	4095421.	49064.	-0.00739	0.00	3.08E+12	0.00	0.00	391.5213
21.6000	1.7862	4533950.	52505.	-0.00737	0.00	3.08E+12	0.00	0.00	405.0220
22.3200	1.7226	5002715.	56063.	-0.00736	0.00	3.08E+12	0.00	0.00	418.5228
23.0400	1.6590	5502721.	59738.	-0.00735	0.00	3.07E+12	0.00	0.00	432.0235
23.7600	1.5956	6034979.	63529.	-0.00733	0.00	3.07E+12	0.00	0.00	445.5242
24.4800	1.5324	6600494.	67436.	-0.00731	0.00	3.07E+12	0.00	0.00	459.0250
25.2000	1.4693	7200276.	71460.	-0.00729	0.00	3.07E+12	0.00	0.00	472.5257
25.9200	1.4063	7835331.	75601.	-0.00727	0.00	3.06E+12	0.00	0.00	486.0264
26.6400	1.3436	8506668.	79859.	-0.00725	0.00	3.06E+12	0.00	0.00	499.5272
27.3600	1.2811	9215295.	84233.	-0.00722	0.00	3.06E+12	0.00	0.00	513.0279
28.0800	1.2188	9962219.	88724.	-0.00720	0.00	3.05E+12	0.00	0.00	526.5287
28.8000	1.1567	1.07E+07	93332.	-0.00717	0.00	3.05E+12	0.00	0.00	540.0294
29.5200	1.0949	1.16E+07	98056.	-0.00710	0.00	9.51E+11	0.00	0.00	553.5301
30.2400	1.0340	1.24E+07	102897.	-0.00699	0.00	9.51E+11	0.00	0.00	567.0309
30.9600	0.9741	1.34E+07	107854.	-0.00687	0.00	9.50E+11	0.00	0.00	580.5316
31.6800	0.9153	1.43E+07	112928.	-0.00675	0.00	9.49E+11	0.00	0.00	594.0323
32.4000	0.8575	1.53E+07	118119.	-0.00661	0.00	9.48E+11	0.00	0.00	607.5331
33.1200	0.8010	1.63E+07	123426.	-0.00647	0.00	9.47E+11	0.00	0.00	621.0338
33.8400	0.7458	1.74E+07	128850.	-0.00631	0.00	9.47E+11	0.00	0.00	634.5345
34.5600	0.6919	1.86E+07	134391.	-0.00615	0.00	9.46E+11	0.00	0.00	648.0353
35.2800	0.6395	1.98E+07	140049.	-0.00597	0.00	9.45E+11	0.00	0.00	661.5360
36.0000	0.5887	2.10E+07	145823.	-0.00579	0.00	9.43E+11	0.00	0.00	675.0367
36.7200	0.5395	2.23E+07	150343.	-0.00559	0.00	9.42E+11	0.00	0.00	371.2819
37.4400	0.4921	2.36E+07	144548.	-0.00538	0.00	9.41E+11	-1713.	30069.	0.00
38.1600	0.4465	2.48E+07	129712.	-0.00516	0.00	9.40E+11	-1722.	33312.	0.00
38.8800	0.4030	2.58E+07	114814.	-0.00492	0.00	9.39E+11	-1727.	37028.	0.00
39.6000	0.3615	2.68E+07	98676.	-0.00468	0.00	9.38E+11	-2009.	48015.	0.00
40.3200	0.3221	2.75E+07	81340.	-0.00443	0.00	9.38E+11	-2004.	53773.	0.00
41.0400	0.2849	2.82E+07	64062.	-0.00418	0.00	9.37E+11	-1995.	60512.	0.00
41.7600	0.2499	2.86E+07	46887.	-0.00391	0.00	9.37E+11	-1980.	68470.	0.00
42.4800	0.2172	2.90E+07	24619.	-0.00365	0.00	9.36E+11	-3174.	126240.	0.00
43.2000	0.1869	2.91E+07	-3380.	-0.00338	0.00	9.36E+11	-3307.	152909.	0.00
43.9200	0.1588	2.89E+07	-32247.	-0.00311	0.00	9.36E+11	-3375.	183566.	0.00
44.6400	0.1331	2.85E+07	-60588.	-0.00285	0.00	9.37E+11	-3186.	206799.	0.00
45.3600	0.1096	2.79E+07	-86721.	-0.00259	0.00	9.37E+11	-2864.	225671.	0.00
46.0800	0.08839	2.70E+07	-109900.	-0.00233	0.00	9.38E+11	-2502.	244542.	0.00
46.8000	0.06930	2.60E+07	-125214.	-0.00209	0.00	9.39E+11	-1043.	130040.	0.00
47.5200	0.05227	2.49E+07	-133362.	-0.00186	0.00	9.40E+11	-843.0708	139356.	0.00
48.2400	0.03721	2.37E+07	-139770.	-0.00163	0.00	9.41E+11	-640.3614	148672.	0.00
48.9600	0.02404	2.24E+07	-144435.	-0.00142	0.00	9.42E+11	-439.5132	157988.	0.00
49.6800	0.01264	2.12E+07	-147391.	-0.00122	0.00	9.43E+11	-244.6674	167305.	0.00
50.4000	0.00291	1.99E+07	-148705.	-0.00103	0.00	9.44E+11	-59.4859	176621.	0.00
51.1200	-0.00524	1.86E+07	-148475.	-8.59E-04	0.00	9.46E+11	112.8360	185937.	0.00

51.8400	-0.01193	1.73E+07	-146823.	-6.95E-04	0.00	9.47E+11	269.5510	195253.	0.00
52.5600	-0.01725	1.61E+07	-143894.	-5.42E-04	0.00	9.48E+11	408.3360	204570.	0.00
53.2800	-0.02130	1.48E+07	-139852.	-4.02E-04	0.00	9.49E+11	527.2642	213886.	0.00
54.0000	-0.02418	1.36E+07	-134876.	-2.72E-04	0.00	9.50E+11	624.7742	223202.	0.00
54.7200	-0.02600	1.25E+07	-129774.	-1.53E-04	0.00	9.51E+11	556.1214	184822.	0.00
55.4400	-0.02683	1.14E+07	-124793.	-8.00E-05	0.00	3.05E+12	596.8862	192228.	0.00
56.1600	-0.02738	1.04E+07	-119482.	-4.92E-05	0.00	3.05E+12	632.6178	199633.	0.00
56.8800	-0.02768	9341582.	-113884.	-2.13E-05	0.00	3.06E+12	663.2272	207038.	0.00
57.6000	-0.02775	8382382.	-108043.	3.74E-06	0.00	3.06E+12	688.6848	214443.	0.00
58.3200	-0.02761	7474592.	-102005.	2.61E-05	0.00	3.07E+12	709.0129	221849.	0.00
59.0400	-0.02730	6619730.	-95814.	4.60E-05	0.00	3.07E+12	724.2804	229254.	0.00
59.7600	-0.02682	5818934.	-89511.	6.35E-05	0.00	3.07E+12	734.5950	236659.	0.00
60.4800	-0.02620	5072977.	-83141.	7.88E-05	0.00	3.08E+12	740.0977	244064.	0.00
61.2000	-0.02546	4382267.	-76742.	9.20E-05	0.00	3.08E+12	740.9569	251470.	0.00
61.9200	-0.02461	3746869.	-70356.	1.03E-04	0.00	3.08E+12	737.3610	258875.	0.00
62.6400	-0.02367	3166515.	-64019.	1.13E-04	0.00	3.08E+12	729.5147	266280.	0.00
63.3600	-0.02265	2640619.	-57767.	1.21E-04	0.00	3.09E+12	717.6315	273685.	0.00
64.0800	-0.02158	2168293.	-51635.	1.28E-04	0.00	3.09E+12	701.9304	281091.	0.00
64.8000	-0.02044	1748367.	-45654.	1.33E-04	0.00	3.09E+12	682.6294	288496.	0.00
65.5200	-0.01927	1379399.	-39854.	1.38E-04	0.00	3.09E+12	659.9422	295901.	0.00
66.2400	-0.01806	1059695.	-34264.	1.41E-04	0.00	3.09E+12	634.0737	303306.	0.00
66.9600	-0.01683	787324.	-28910.	1.44E-04	0.00	3.09E+12	605.2163	310712.	0.00
67.6800	-0.01558	560133.	-23818.	1.46E-04	0.00	3.09E+12	573.5460	318117.	0.00
68.4000	-0.01431	375756.	-19010.	1.47E-04	0.00	3.09E+12	539.2205	325522.	0.00
69.1200	-0.01304	231632.	-14511.	1.48E-04	0.00	3.09E+12	502.3765	332927.	0.00
69.8400	-0.01176	125010.	-10340.	1.48E-04	0.00	3.09E+12	463.1277	340333.	0.00
70.5600	-0.01047	52961.	-6518.	1.49E-04	0.00	3.09E+12	421.5631	347738.	0.00
71.2800	-0.00919	12381.	-3065.	1.49E-04	0.00	3.09E+12	377.7466	355143.	0.00
72.0000	-0.00791	0.00	0.00	1.49E-04	0.00	3.09E+12	331.7159	181274.	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             =     3.71744940 inches
Computed slope at pile head      =    -0.00746971 radians
Maximum bending moment           =      29071124. inch-lbs
Maximum shear force              =        150343. lbs
Depth of maximum bending moment  =    43.20000000 feet below pile head
Depth of maximum shear force     =    36.72000000 feet below pile head
Number of iterations             =             94
Number of zero deflection points =              1
```

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	3.38
8.64	13.50
17.28	27.00
25.92	40.50
34.56	54.00
43.20	67.50
51.84	81.00
60.48	94.51
69.12	108.01
77.76	121.51
86.40	135.01
95.04	148.51
103.68	162.01
112.32	175.51
120.96	189.01
129.60	202.51
138.24	216.01
146.88	229.51
155.52	243.01

164.16	256.51
172.80	270.01
181.44	283.52
190.08	297.02
198.72	310.52
207.36	324.02
216.00	337.52
224.64	351.02
233.28	364.52
241.92	378.02
250.56	391.52
259.20	405.02
267.84	418.52
276.48	432.02
285.12	445.52
293.76	459.02
302.40	472.53
311.04	486.03
319.68	499.53
328.32	513.03
336.96	526.53
345.60	540.03
354.24	553.53
362.88	567.03
371.52	580.53
380.16	594.03
388.80	607.53
397.44	621.03
406.08	634.53
414.72	648.04
423.36	661.54
432.00	675.04
440.64	371.28

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	3.7174	-8.84E-04	-1.07E-06	-0.00747	0.00	3.09E+12	0.00	0.00	3.3752
0.7200	3.6529	125.9778	72.9040	-0.00747	0.00	3.09E+12	0.00	0.00	13.5007
1.4400	3.5884	1260.	247.8735	-0.00747	0.00	3.09E+12	0.00	0.00	27.0015
2.1600	3.5238	4409.	539.4894	-0.00747	0.00	3.09E+12	0.00	0.00	40.5022
2.8800	3.4593	10582.	947.7516	-0.00747	0.00	3.09E+12	0.00	0.00	54.0029
3.6000	3.3948	20786.	1473.	-0.00747	0.00	3.09E+12	0.00	0.00	67.5037
4.3200	3.3302	36030.	2114.	-0.00747	0.00	3.09E+12	0.00	0.00	81.0044
5.0400	3.2657	57320.	2872.	-0.00747	0.00	3.09E+12	0.00	0.00	94.5051
5.7600	3.2011	85665.	3747.	-0.00747	0.00	3.09E+12	0.00	0.00	108.0059
6.4800	3.1366	122073.	4739.	-0.00747	0.00	3.09E+12	0.00	0.00	121.5066
7.2000	3.0721	167551.	5847.	-0.00747	0.00	3.09E+12	0.00	0.00	135.0073
7.9200	3.0076	223107.	7072.	-0.00747	0.00	3.09E+12	0.00	0.00	148.5081
8.6400	2.9430	289750.	8413.	-0.00747	0.00	3.09E+12	0.00	0.00	162.0088
9.3600	2.8785	368486.	9871.	-0.00747	0.00	3.09E+12	0.00	0.00	175.5096
10.0800	2.8140	460324.	11446.	-0.00747	0.00	3.09E+12	0.00	0.00	189.0103
10.8000	2.7495	566271.	13137.	-0.00746	0.00	3.09E+12	0.00	0.00	202.5110
11.5200	2.6850	687336.	14945.	-0.00746	0.00	3.09E+12	0.00	0.00	216.0118
12.2400	2.6206	824526.	16870.	-0.00746	0.00	3.09E+12	0.00	0.00	229.5125
12.9600	2.5561	978849.	18911.	-0.00746	0.00	3.09E+12	0.00	0.00	243.0132
13.6800	2.4917	1151313.	21069.	-0.00745	0.00	3.09E+12	0.00	0.00	256.5140
14.4000	2.4273	1342926.	23344.	-0.00745	0.00	3.09E+12	0.00	0.00	270.0147
15.1200	2.3630	1554695.	25735.	-0.00745	0.00	3.09E+12	0.00	0.00	283.5154
15.8400	2.2986	1787629.	28243.	-0.00744	0.00	3.09E+12	0.00	0.00	297.0162
16.5600	2.2344	2042734.	30868.	-0.00744	0.00	3.09E+12	0.00	0.00	310.5169
17.2800	2.1701	2321020.	33609.	-0.00743	0.00	3.09E+12	0.00	0.00	324.0176
18.0000	2.1060	2623493.	36467.	-0.00742	0.00	3.09E+12	0.00	0.00	337.5184
18.7200	2.0419	2951162.	39441.	-0.00742	0.00	3.09E+12	0.00	0.00	351.0191

19.4400	1.9778	3305034.	42532.	-0.00741	0.00	3.08E+12	0.00	0.00	364.5198
20.1600	1.9139	3686118.	45740.	-0.00740	0.00	3.08E+12	0.00	0.00	378.0206
20.8800	1.8500	4095421.	49064.	-0.00739	0.00	3.08E+12	0.00	0.00	391.5213
21.6000	1.7862	4533950.	52505.	-0.00737	0.00	3.08E+12	0.00	0.00	405.0220
22.3200	1.7226	5002715.	56063.	-0.00736	0.00	3.08E+12	0.00	0.00	418.5228
23.0400	1.6590	5502721.	59738.	-0.00735	0.00	3.07E+12	0.00	0.00	432.0235
23.7600	1.5956	6034979.	63529.	-0.00733	0.00	3.07E+12	0.00	0.00	445.5242
24.4800	1.5324	6600494.	67436.	-0.00731	0.00	3.07E+12	0.00	0.00	459.0250
25.2000	1.4693	7200276.	71460.	-0.00729	0.00	3.07E+12	0.00	0.00	472.5257
25.9200	1.4063	7835331.	75601.	-0.00727	0.00	3.06E+12	0.00	0.00	486.0264
26.6400	1.3436	8506668.	79859.	-0.00725	0.00	3.06E+12	0.00	0.00	499.5272
27.3600	1.2811	9215295.	84233.	-0.00722	0.00	3.06E+12	0.00	0.00	513.0279
28.0800	1.2188	9962219.	88724.	-0.00720	0.00	3.05E+12	0.00	0.00	526.5287
28.8000	1.1567	1.07E+07	93332.	-0.00717	0.00	3.05E+12	0.00	0.00	540.0294
29.5200	1.0949	1.16E+07	98056.	-0.00710	0.00	9.51E+11	0.00	0.00	553.5301
30.2400	1.0340	1.24E+07	102897.	-0.00699	0.00	9.51E+11	0.00	0.00	567.0309
30.9600	0.9741	1.34E+07	107854.	-0.00687	0.00	9.50E+11	0.00	0.00	580.5316
31.6800	0.9153	1.43E+07	112928.	-0.00675	0.00	9.49E+11	0.00	0.00	594.0323
32.4000	0.8575	1.53E+07	118119.	-0.00661	0.00	9.48E+11	0.00	0.00	607.5331
33.1200	0.8010	1.63E+07	123426.	-0.00647	0.00	9.47E+11	0.00	0.00	621.0338
33.8400	0.7458	1.74E+07	128850.	-0.00631	0.00	9.47E+11	0.00	0.00	634.5345
34.5600	0.6919	1.86E+07	134391.	-0.00615	0.00	9.46E+11	0.00	0.00	648.0353
35.2800	0.6395	1.98E+07	140049.	-0.00597	0.00	9.45E+11	0.00	0.00	661.5360
36.0000	0.5887	2.10E+07	145823.	-0.00579	0.00	9.43E+11	0.00	0.00	675.0367
36.7200	0.5395	2.23E+07	150343.	-0.00559	0.00	9.42E+11	0.00	0.00	371.2819
37.4400	0.4921	2.36E+07	144548.	-0.00538	0.00	9.41E+11	-1713.	30069.	0.00
38.1600	0.4465	2.48E+07	129712.	-0.00516	0.00	9.40E+11	-1722.	33312.	0.00
38.8800	0.4030	2.58E+07	114814.	-0.00492	0.00	9.39E+11	-1727.	37028.	0.00
39.6000	0.3615	2.68E+07	98676.	-0.00468	0.00	9.38E+11	-2009.	48015.	0.00
40.3200	0.3221	2.75E+07	81340.	-0.00443	0.00	9.38E+11	-2004.	53773.	0.00
41.0400	0.2849	2.82E+07	64062.	-0.00418	0.00	9.37E+11	-1995.	60512.	0.00
41.7600	0.2499	2.86E+07	46887.	-0.00391	0.00	9.37E+11	-1980.	68470.	0.00
42.4800	0.2172	2.90E+07	24619.	-0.00365	0.00	9.36E+11	-3174.	126240.	0.00
43.2000	0.1869	2.91E+07	-3380.	-0.00338	0.00	9.36E+11	-3307.	152909.	0.00
43.9200	0.1588	2.89E+07	-32247.	-0.00311	0.00	9.36E+11	-3375.	183566.	0.00
44.6400	0.1331	2.85E+07	-60588.	-0.00285	0.00	9.37E+11	-3186.	206799.	0.00
45.3600	0.1096	2.79E+07	-86721.	-0.00259	0.00	9.37E+11	-2864.	225671.	0.00
46.0800	0.08839	2.70E+07	-109900.	-0.00233	0.00	9.38E+11	-2502.	244542.	0.00
46.8000	0.06930	2.60E+07	-125214.	-0.00209	0.00	9.39E+11	-1043.	130040.	0.00
47.5200	0.05227	2.49E+07	-133362.	-0.00186	0.00	9.40E+11	-843.0708	139356.	0.00
48.2400	0.03721	2.37E+07	-139770.	-0.00163	0.00	9.41E+11	-640.3614	148672.	0.00
48.9600	0.02404	2.24E+07	-144435.	-0.00142	0.00	9.42E+11	-439.5132	157988.	0.00
49.6800	0.01264	2.12E+07	-147391.	-0.00122	0.00	9.43E+11	-244.6674	167305.	0.00
50.4000	0.00291	1.99E+07	-148705.	-0.00103	0.00	9.44E+11	-59.4859	176621.	0.00
51.1200	-0.00524	1.86E+07	-148475.	-8.59E-04	0.00	9.46E+11	112.8360	185937.	0.00
51.8400	-0.01193	1.73E+07	-146823.	-6.95E-04	0.00	9.47E+11	269.5510	195253.	0.00
52.5600	-0.01725	1.61E+07	-143894.	-5.42E-04	0.00	9.48E+11	408.3360	204570.	0.00
53.2800	-0.02130	1.48E+07	-139852.	-4.02E-04	0.00	9.49E+11	527.2642	213886.	0.00
54.0000	-0.02418	1.36E+07	-134876.	-2.72E-04	0.00	9.50E+11	624.7742	223202.	0.00
54.7200	-0.02600	1.25E+07	-129774.	-1.53E-04	0.00	9.51E+11	556.1214	184822.	0.00
55.4400	-0.02683	1.14E+07	-124793.	-8.00E-05	0.00	3.05E+12	596.8862	192228.	0.00
56.1600	-0.02738	1.04E+07	-119482.	-4.92E-05	0.00	3.05E+12	632.6178	199633.	0.00
56.8800	-0.02768	9341582.	-113884.	-2.13E-05	0.00	3.06E+12	663.2272	207038.	0.00
57.6000	-0.02775	8382382.	-108043.	3.74E-06	0.00	3.06E+12	688.6848	214443.	0.00
58.3200	-0.02761	7474592.	-102005.	2.61E-05	0.00	3.07E+12	709.0129	221849.	0.00
59.0400	-0.02730	6619730.	-95814.	4.60E-05	0.00	3.07E+12	724.2804	229254.	0.00
59.7600	-0.02682	5818934.	-89511.	6.35E-05	0.00	3.07E+12	734.5950	236659.	0.00
60.4800	-0.02620	5072977.	-83141.	7.88E-05	0.00	3.08E+12	740.0977	244064.	0.00
61.2000	-0.02546	4382267.	-76742.	9.20E-05	0.00	3.08E+12	740.9569	251470.	0.00
61.9200	-0.02461	3746869.	-70356.	1.03E-04	0.00	3.08E+12	737.3610	258875.	0.00
62.6400	-0.02367	3166515.	-64019.	1.13E-04	0.00	3.08E+12	729.5147	266280.	0.00
63.3600	-0.02265	2640619.	-57767.	1.21E-04	0.00	3.09E+12	717.6315	273685.	0.00
64.0800	-0.02158	2168293.	-51635.	1.28E-04	0.00	3.09E+12	701.9304	281091.	0.00
64.8000	-0.02044	1748367.	-45654.	1.33E-04	0.00	3.09E+12	682.6294	288496.	0.00
65.5200	-0.01927	1379399.	-39854.	1.38E-04	0.00	3.09E+12	659.9422	295901.	0.00
66.2400	-0.01806	1059695.	-34264.	1.41E-04	0.00	3.09E+12	634.0737	303306.	0.00
66.9600	-0.01683	787324.	-28910.	1.44E-04	0.00	3.09E+12	605.2163	310712.	0.00
67.6800	-0.01558	560133.	-23818.	1.46E-04	0.00	3.09E+12	573.5460	318117.	0.00
68.4000	-0.01431	375756.	-19010.	1.47E-04	0.00	3.09E+12	539.2205	325522.	0.00
69.1200	-0.01304	231632.	-14511.	1.48E-04	0.00	3.09E+12	502.3765	332927.	0.00
69.8400	-0.01176	125010.	-10340.	1.48E-04	0.00	3.09E+12	463.1277	340333.	0.00
70.5600	-0.01047	52961.	-6518.	1.49E-04	0.00	3.09E+12	421.5631	347738.	0.00
71.2800	-0.00919	12381.	-3065.	1.49E-04	0.00	3.09E+12	377.7466	355143.	0.00
72.0000	-0.00791	0.00	0.00	1.49E-04	0.00	3.09E+12	331.7159	181274.	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 inter-

polated 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	=	3.71744940	inches
Computed slope at pile head	=	-0.00746971	radians
Maximum bending moment	=	29071124.	inch-lbs
Maximum shear force	=	150343.	lbs
Depth of maximum bending moment	=	43.20000000	feet below pile head
Depth of maximum shear force	=	36.72000000	feet below pile head
Number of iterations	=	94	
Number of zero deflection points	=	1	

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	3.38
8.64	13.50
17.28	27.00
25.92	40.50
34.56	54.00
43.20	67.50
51.84	81.00
60.48	94.51
69.12	108.01
77.76	121.51
86.40	135.01
95.04	148.51
103.68	162.01
112.32	175.51
120.96	189.01
129.60	202.51
138.24	216.01
146.88	229.51
155.52	243.01
164.16	256.51
172.80	270.01
181.44	283.52
190.08	297.02
198.72	310.52
207.36	324.02
216.00	337.52
224.64	351.02
233.28	364.52
241.92	378.02
250.56	391.52
259.20	405.02
267.84	418.52
276.48	432.02
285.12	445.52
293.76	459.02
302.40	472.53
311.04	486.03
319.68	499.53
328.32	513.03
336.96	526.53
345.60	540.03
354.24	553.53
362.88	567.03
371.52	580.53
380.16	594.03
388.80	607.53
397.44	621.03
406.08	634.53
414.72	648.04
423.36	661.54
432.00	675.04
440.64	371.28

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	6.5390	3.31E-04	-2.13E-06	-0.01297	0.00	3.09E+12	0.00	0.00	5.0628
0.7200	6.4269	188.9684	109.3560	-0.01297	0.00	3.09E+12	0.00	0.00	20.2511
1.4400	6.3148	1890.	371.8102	-0.01297	0.00	3.09E+12	0.00	0.00	40.5022
2.1600	6.2028	6614.	809.2340	-0.01297	0.00	3.09E+12	0.00	0.00	60.7533
2.8800	6.0907	15873.	1422.	-0.01297	0.00	3.09E+12	0.00	0.00	81.0044
3.6000	5.9786	31180.	2209.	-0.01297	0.00	3.09E+12	0.00	0.00	101.2555
4.3200	5.8666	54045.	3171.	-0.01297	0.00	3.09E+12	0.00	0.00	121.5066
5.0400	5.7545	85980.	4309.	-0.01297	0.00	3.09E+12	0.00	0.00	141.7577
5.7600	5.6424	128498.	5621.	-0.01297	0.00	3.09E+12	0.00	0.00	162.0088
6.4800	5.5304	183109.	7108.	-0.01297	0.00	3.09E+12	0.00	0.00	182.2599
7.2000	5.4183	251326.	8770.	-0.01297	0.00	3.09E+12	0.00	0.00	202.5110
7.9200	5.3063	334661.	10608.	-0.01297	0.00	3.09E+12	0.00	0.00	222.7621
8.6400	5.1942	434624.	12620.	-0.01297	0.00	3.09E+12	0.00	0.00	243.0132
9.3600	5.0822	552729.	14807.	-0.01297	0.00	3.09E+12	0.00	0.00	263.2643
10.0800	4.9702	690486.	17169.	-0.01296	0.00	3.09E+12	0.00	0.00	283.5154
10.8000	4.8582	849407.	19706.	-0.01296	0.00	3.09E+12	0.00	0.00	303.7665
11.5200	4.7462	1031004.	22418.	-0.01296	0.00	3.09E+12	0.00	0.00	324.0176
12.2400	4.6342	1236790.	25305.	-0.01296	0.00	3.09E+12	0.00	0.00	344.2687
12.9600	4.5223	1468274.	28367.	-0.01295	0.00	3.09E+12	0.00	0.00	364.5198
13.6800	4.4104	1726970.	31604.	-0.01295	0.00	3.09E+12	0.00	0.00	384.7709
14.4000	4.2985	2014389.	35016.	-0.01294	0.00	3.09E+12	0.00	0.00	405.0220
15.1200	4.1867	2332043.	38603.	-0.01294	0.00	3.09E+12	0.00	0.00	425.2731
15.8400	4.0750	2681443.	42364.	-0.01293	0.00	3.09E+12	0.00	0.00	445.5242
16.5600	3.9633	3064101.	46301.	-0.01292	0.00	3.09E+12	0.00	0.00	465.7753
17.2800	3.8517	3481530.	50413.	-0.01291	0.00	3.08E+12	0.00	0.00	486.0264
18.0000	3.7402	3935240.	54700.	-0.01290	0.00	3.08E+12	0.00	0.00	506.2776
18.7200	3.6287	4426743.	59162.	-0.01289	0.00	3.08E+12	0.00	0.00	526.5287
19.4400	3.5174	4957551.	63798.	-0.01288	0.00	3.08E+12	0.00	0.00	546.7798
20.1600	3.4062	5529177.	68610.	-0.01286	0.00	3.07E+12	0.00	0.00	567.0309
20.8800	3.2952	6143131.	73597.	-0.01285	0.00	3.07E+12	0.00	0.00	587.2820
21.6000	3.1842	6800925.	78758.	-0.01283	0.00	3.07E+12	0.00	0.00	607.5331
22.3200	3.0735	7504072.	84095.	-0.01281	0.00	3.07E+12	0.00	0.00	627.7842
23.0400	2.9629	8254082.	89606.	-0.01279	0.00	3.06E+12	0.00	0.00	648.0353
23.7600	2.8526	9052468.	95293.	-0.01276	0.00	3.06E+12	0.00	0.00	668.2864
24.4800	2.7424	9900741.	101154.	-0.01273	0.00	3.05E+12	0.00	0.00	688.5375
25.2000	2.6325	1.08E+07	107191.	-0.01271	0.00	3.05E+12	0.00	0.00	708.7886
25.9200	2.5229	1.18E+07	113402.	-0.01264	0.00	9.51E+11	0.00	0.00	729.0397
26.6400	2.4141	1.28E+07	119789.	-0.01253	0.00	9.50E+11	0.00	0.00	749.2908
27.3600	2.3064	1.38E+07	126350.	-0.01240	0.00	9.50E+11	0.00	0.00	769.5419
28.0800	2.1998	1.49E+07	133086.	-0.01227	0.00	9.49E+11	0.00	0.00	789.7930
28.8000	2.0943	1.61E+07	139997.	-0.01213	0.00	9.48E+11	0.00	0.00	810.0441
29.5200	1.9902	1.74E+07	147084.	-0.01198	0.00	9.47E+11	0.00	0.00	830.2952
30.2400	1.8874	1.87E+07	154345.	-0.01181	0.00	9.45E+11	0.00	0.00	850.5463
30.9600	1.7860	2.00E+07	161781.	-0.01164	0.00	9.44E+11	0.00	0.00	870.7974
31.6800	1.6863	2.15E+07	169392.	-0.01145	0.00	9.43E+11	0.00	0.00	891.0485
32.4000	1.5882	2.30E+07	177179.	-0.01124	0.00	9.42E+11	0.00	0.00	911.2996
33.1200	1.4920	2.45E+07	185140.	-0.01103	0.00	9.40E+11	0.00	0.00	931.5507
33.8400	1.3977	2.62E+07	193276.	-0.01079	0.00	9.39E+11	0.00	0.00	951.8018
34.5600	1.3055	2.79E+07	201587.	-0.01054	0.00	9.37E+11	0.00	0.00	972.0529
35.2800	1.2155	2.96E+07	210073.	-0.01028	0.00	9.36E+11	0.00	0.00	992.3040
36.0000	1.1278	3.15E+07	218734.	-0.01000	0.00	9.34E+11	0.00	0.00	1013.
36.7200	1.0427	3.34E+07	225514.	-0.00970	0.00	9.32E+11	0.00	0.00	556.9229
37.4400	0.9603	3.54E+07	219176.	-0.00938	0.00	9.30E+11	-2024.	18212.	0.00
38.1600	0.8807	3.72E+07	201617.	-0.00904	0.00	9.28E+11	-2040.	20016.	0.00
38.8800	0.8041	3.89E+07	183936.	-0.00868	0.00	9.27E+11	-2053.	22055.	0.00
39.6000	0.7306	4.04E+07	164722.	-0.00832	0.00	9.25E+11	-2395.	28323.	0.00
40.3200	0.6604	4.17E+07	144013.	-0.00793	0.00	9.24E+11	-2399.	31380.	0.00
41.0400	0.5936	4.29E+07	123296.	-0.00754	0.00	9.23E+11	-2397.	34891.	0.00
41.7600	0.5302	4.38E+07	102616.	-0.00713	0.00	9.22E+11	-2390.	38950.	0.00
42.4800	0.4704	4.46E+07	74834.	-0.00671	0.00	9.21E+11	-4041.	74220.	0.00
43.2000	0.4142	4.51E+07	38982.	-0.00629	0.00	9.20E+11	-4258.	88835.	0.00

43.9200	0.3616	4.53E+07	1564.	-0.00587	0.00	9.20E+11	-4403.	105202.	0.00
44.6400	0.3128	4.52E+07	-36841.	-0.00544	0.00	9.20E+11	-4487.	123938.	0.00
45.3600	0.2676	4.47E+07	-75787.	-0.00502	0.00	9.21E+11	-4529.	146233.	0.00
46.0800	0.2260	4.39E+07	-114770.	-0.00461	0.00	9.22E+11	-4495.	171850.	0.00
46.8000	0.1880	4.27E+07	-146412.	-0.00420	0.00	9.23E+11	-2829.	130040.	0.00
47.5200	0.1534	4.13E+07	-169324.	-0.00381	0.00	9.24E+11	-2474.	139356.	0.00
48.2400	0.1222	3.98E+07	-189096.	-0.00343	0.00	9.26E+11	-2102.	148672.	0.00
48.9600	0.09416	3.81E+07	-205617.	-0.00307	0.00	9.27E+11	-1722.	157988.	0.00
49.6800	0.06920	3.62E+07	-218844.	-0.00272	0.00	9.29E+11	-1340.	167305.	0.00
50.4000	0.04716	3.43E+07	-228797.	-0.00239	0.00	9.31E+11	-963.9621	176621.	0.00
51.1200	0.02785	3.23E+07	-235551.	-0.00208	0.00	9.33E+11	-599.4513	185937.	0.00
51.8400	0.01114	3.02E+07	-239228.	-0.00180	0.00	9.35E+11	-251.6529	195253.	0.00
52.5600	-0.00317	2.81E+07	-239991.	-0.00153	0.00	9.37E+11	75.0991	204570.	0.00
53.2800	-0.01524	2.61E+07	-238037.	-0.00128	0.00	9.39E+11	377.2212	213886.	0.00
54.0000	-0.02523	2.40E+07	-233591.	-0.00105	0.00	9.41E+11	651.8335	223202.	0.00
54.7200	-0.03332	2.20E+07	-227696.	-8.35E-04	0.00	9.43E+11	712.7649	184822.	0.00
55.4400	-0.03966	2.01E+07	-220805.	-6.42E-04	0.00	9.44E+11	882.4572	192228.	0.00
56.1600	-0.04442	1.82E+07	-212559.	-4.67E-04	0.00	9.46E+11	1026.	199633.	0.00
56.8800	-0.04774	1.64E+07	-203183.	-3.09E-04	0.00	9.47E+11	1144.	207038.	0.00
57.6000	-0.04976	1.47E+07	-192906.	-1.67E-04	0.00	9.49E+11	1235.	214443.	0.00
58.3200	-0.05063	1.31E+07	-181954.	-4.11E-05	0.00	9.50E+11	1300.	221849.	0.00
59.0400	-0.05047	1.16E+07	-170552.	7.09E-05	0.00	9.51E+11	1339.	229254.	0.00
59.7600	-0.04941	1.01E+07	-158921.	1.38E-04	0.00	3.05E+12	1353.	236659.	0.00
60.4800	-0.04809	8809841.	-147205.	1.64E-04	0.00	3.06E+12	1359.	244064.	0.00
61.2000	-0.04657	7588695.	-135481.	1.88E-04	0.00	3.06E+12	1355.	251470.	0.00
61.9200	-0.04485	6468721.	-123821.	2.07E-04	0.00	3.07E+12	1344.	258875.	0.00
62.6400	-0.04298	5449068.	-112293.	2.24E-04	0.00	3.07E+12	1325.	266280.	0.00
63.3600	-0.04098	4528302.	-100962.	2.38E-04	0.00	3.08E+12	1298.	273685.	0.00
64.0800	-0.03887	3704438.	-89892.	2.50E-04	0.00	3.08E+12	1264.	281091.	0.00
64.8000	-0.03666	2974966.	-79141.	2.59E-04	0.00	3.09E+12	1224.	288496.	0.00
65.5200	-0.03439	2336885.	-68764.	2.66E-04	0.00	3.09E+12	1178.	295901.	0.00
66.2400	-0.03206	1786727.	-58814.	2.72E-04	0.00	3.09E+12	1125.	303306.	0.00
66.9600	-0.02969	1320583.	-49340.	2.77E-04	0.00	3.09E+12	1068.	310712.	0.00
67.6800	-0.02728	934134.	-40389.	2.80E-04	0.00	3.09E+12	1004.	318117.	0.00
68.4000	-0.02485	622666.	-32005.	2.82E-04	0.00	3.09E+12	936.3406	325522.	0.00
69.1200	-0.02241	381095.	-24229.	2.83E-04	0.00	3.09E+12	863.4967	332927.	0.00
69.8400	-0.01996	203984.	-17103.	2.84E-04	0.00	3.09E+12	786.1025	340333.	0.00
70.5600	-0.01750	85556.	-10664.	2.85E-04	0.00	3.09E+12	704.3063	347738.	0.00
71.2800	-0.01504	19703.	-4951.	2.85E-04	0.00	3.09E+12	618.2131	355143.	0.00
72.0000	-0.01258	0.00	0.00	2.85E-04	0.00	3.09E+12	527.8841	181274.	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             =     6.53898926 inches
Computed slope at pile head      =    -0.01297117 radians
Maximum bending moment           =      45320153. inch-lbs
Maximum shear force              =       -239991. lbs
Depth of maximum bending moment  =    43.92000000 feet below pile head
Depth of maximum shear force     =    52.56000000 feet below pile head
Number of iterations             =             62
Number of zero deflection points =              1
```

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	3.71744940	29071124.	150343.	-0.00746971
2	0.000000	0.000000	0.000000	3.71744940	29071124.	150343.	-0.00746971
3	0.000000	0.000000	0.000000	6.53898926	45320153.	-239991.	-0.01297117

```
Maximum pile-head deflection = 6.5389892583 inches
Maximum pile-head rotation   = -0.0129711671 radians = -0.743193 deg.
```

LRFD Performance by Load Case Combination

Load Case No.	Section No.	Resistance Factor for Moment	Factored Moment Capacity of Section in-lbs	Maximum Moment in Section in-lbs	Fact. Mom. Developed in Section	Pass/Fail for LRFD Moment of Section	Maximum Shear Developed in Section lbs	Pile-top Deflection Developed inches	Pile-top Rotation Developed Radians	Name of Load Case Combination
1	1	1.00	75231358.	29071124.	0.386423	Pass	150343.	3.717449	-0.007470	Soil Only
2	1	1.00	75231358.	29071124.	0.386423	Pass	150343.	3.717449	-0.007470	Service 1
3	1	0.90	67708222.	45320153.	0.669345	Pass	-239991.	6.538989	-0.012971	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.

```
================================================================================

                     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:
\2015\2015370\FRA\96053\structures\wall_4W16\design\Checked Lpile runs\

Name of input data file:
Wall 4W16 Tangent Shaft Design - Middle half.lp11

Name of output report file:
Wall 4W16 Tangent Shaft Design - Middle half.lp11

Name of plot output file:
Wall 4W16 Tangent Shaft Design - Middle half.lp11

Name of runtime message file:
Wall 4W16 Tangent Shaft Design - Middle half.lp11



--------------------------------------------------------------------------------
                            Date and Time of Analysis
--------------------------------------------------------------------------------

               Date:  July 29, 2019              Time:  14:16:27



--------------------------------------------------------------------------------
                                  Problem Title
--------------------------------------------------------------------------------

FRA-70-14.05 - Wall 4W16 Middle Half of wall

Job Number:

Client:

Engineer: TJW

Description: Tangent 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 = 68.000 ft
Depth of ground surface below top of pile = 32.1400 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	68.000	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 = 68.000000 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	=	32.140000 ft
Distance from top of pile to bottom of layer	=	33.640000 ft
Effective unit weight at top of layer	=	125.000000 pcf
Effective unit weight at bottom of layer	=	125.000000 pcf
Friction angle at top of layer	=	39.000000 deg.
Friction angle at bottom of layer	=	39.000000 deg.
Subgrade k at top of layer	=	250.000000 pci
Subgrade k at bottom of layer	=	250.000000 pci

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

Distance from top of pile to top of layer	=	33.640000 ft
Distance from top of pile to bottom of layer	=	38.640000 ft
Effective unit weight at top of layer	=	130.000000 pcf
Effective unit weight at bottom of layer	=	130.000000 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	=	215.000000 pci
Subgrade k at bottom of layer	=	215.000000 pci

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

Distance from top of pile to top of layer	=	38.640000 ft
Distance from top of pile to bottom of layer	=	40.640000 ft
Effective unit weight at top of layer	=	120.000000 pcf
Effective unit weight at bottom of layer	=	120.000000 pcf
Friction angle at top of layer	=	30.000000 deg.
Friction angle at bottom of layer	=	30.000000 deg.
Subgrade k at top of layer	=	30.000000 pci
Subgrade k at bottom of layer	=	30.000000 pci

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

Distance from top of pile to top of layer	=	40.640000 ft
Distance from top of pile to bottom of layer	=	45.140000 ft
Effective unit weight at top of layer	=	57.600000 pcf
Effective unit weight at bottom of layer	=	57.600000 pcf
Friction angle at top of layer	=	30.000000 deg.
Friction angle at bottom of layer	=	30.000000 deg.
Subgrade k at top of layer	=	30.000000 pci
Subgrade k at bottom of layer	=	30.000000 pci

Layer 5 is stiff clay with water-induced erosion

Distance from top of pile to top of layer	=	45.140000 ft
Distance from top of pile to bottom of layer	=	50.140000 ft
Effective unit weight at top of layer	=	77.600000 pcf
Effective unit weight at bottom of layer	=	77.600000 pcf
Undrained cohesion at top of layer	=	5500. psf
Undrained cohesion at bottom of layer	=	5500. psf
Epsilon-50 at top of layer	=	0.004200
Epsilon-50 at bottom of layer	=	0.004200
Subgrade k at top of layer	=	1835. pci
Subgrade k at bottom of layer	=	1835. pci

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

Distance from top of pile to top of layer	=	50.140000 ft
Distance from top of pile to bottom of layer	=	55.140000 ft
Effective unit weight at top of layer	=	77.600000 pcf
Effective unit weight at bottom of layer	=	77.600000 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 7 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 55.140000 ft
Distance from top of pile to bottom of layer = 65.140000 ft
Effective unit weight at top of layer = 77.600000 pcf
Effective unit weight at bottom of layer = 77.600000 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 8 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer = 65.140000 ft
Distance from top of pile to bottom of layer = 75.140000 ft
Effective unit weight at top of layer = 77.600000 pcf
Effective unit weight at bottom of layer = 77.600000 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

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

Distance from top of pile to top of layer = 75.140000 ft
Distance from top of pile to bottom of layer = 77.140000 ft
Effective unit weight at top of layer = 77.600000 pcf
Effective unit weight at bottom of layer = 77.600000 pcf
Friction angle at top of layer = 41.000000 deg.
Friction angle at bottom of layer = 41.000000 deg.
Subgrade k at top of layer = 175.000000 pci
Subgrade k at bottom of layer = 175.000000 pci

(Depth of the lowest soil layer extends 9.140 ft below the pile tip)

Summary of Input Soil Properties

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	32.1400	125.0000	--	39.0000	--	250.0000
	(Reese, et al.)	33.6400	125.0000	--	39.0000	--	250.0000
2	Sand	33.6400	130.0000	--	38.0000	--	215.0000
	(Reese, et al.)	38.6400	130.0000	--	38.0000	--	215.0000
3	Sand	38.6400	120.0000	--	30.0000	--	30.0000
	(Reese, et al.)	40.6400	120.0000	--	30.0000	--	30.0000
4	Sand	40.6400	57.6000	--	30.0000	--	30.0000
	(Reese, et al.)	45.1400	57.6000	--	30.0000	--	30.0000
5	Stiff Clay	45.1400	77.6000	5500.	--	0.00420	1835.
	with Free Water	50.1400	77.6000	5500.	--	0.00420	1835.
6	Sand	50.1400	77.6000	--	40.0000	--	155.0000
	(Reese, et al.)	55.1400	77.6000	--	40.0000	--	155.0000
7	Sand	55.1400	77.6000	--	38.0000	--	125.0000
	(Reese, et al.)	65.1400	77.6000	--	38.0000	--	125.0000
8	Sand	65.1400	77.6000	--	42.0000	--	195.0000
	(Reese, et al.)	75.1400	77.6000	--	42.0000	--	195.0000
9	Sand	75.1400	77.6000	--	41.0000	--	175.0000
	(Reese, et al.)	77.1400	77.6000	--	41.0000	--	175.0000

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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	32.140	0.6400	1.0000
2	95.000	0.6400	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 = 1

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	31613.00	2

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

Point	Depth in	Distributed Load lb/inch
1	0.00	0.00
2	386.00	602.60

Totals of Unfactored Loads by Load Type for LRFD Analyses:

Number of Defined Unfactored Load Cases = 1

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	0.00	0
Live Loads (LL)	0.00	0.00	0.00	0
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	31613.00	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)	0.00	0.00	0.00	0
Special (Sp)	0.00	0.00	0.00	0

Load and Resistance Factors by Load Combinations for LRFD Analyses

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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	1.00	Soil Only
2	1.00	1.00	--	--	--	--	--	1.00	--	--	--	--	--	1.00	1.00	Service 1
3	1.00	1.75	--	--	--	--	--	1.50	--	--	--	--	--	0.90	0.90	Strength 1

```
--------------------------------------------------------------------------------
                  Computed Factored Loads for LRFD Analyses
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Factored Load Combination No. 1
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Load Combination Name = Soil Only



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

Factored Load =  1.00*DL + 1.00*Hs

Factored Horizontal Force =                    0.00 lbs
Factored Vertical Force   =                31613.00 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

Factored Horizontal Force =                    0.00 lbs
Factored Vertical Force   =                31613.00 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 =  1.00*DL + 1.75*LL + 1.50*Hs

Factored Horizontal Force =                    0.00 lbs
Factored Vertical Force   =                47419.50 lbs
Factored Moment           =                    0.00 in-lbs


Totals of Factored Loads by Load Combination:
-----------------------------------------------


      Load             Factored           Factored           Factored
   Combination       Horiz. Force          Moment           Vert. Force     Load Combination Name
     Number              lbs              in-lbs               lbs
----------------   ----------------   ----------------   ----------------
-----------------------------------------------------------------
        1                     0.00               0.00           31613.00   Soil Only


        2                     0.00               0.00           31613.00   Service 1


        3                     0.00               0.00           47419.50   Strength 1



Sorted Values of Axial Thrust Forces Sorted for LRFD Computations:
--------------------------------------------------------------------

Number of Unique Axial Thrust Values = 2
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Number	Factored Axial Thrust
1	31613.000
2	52688.333

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

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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	=	68.000000 ft
Shaft Diameter	=	60.000000 in
Concrete Cover Thickness (to edge of long. rebar)	=	6.500000 in
Number of Reinforcing Bars	=	40 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	=	62.400000 sq. in.
Area Ratio of Steel Reinforcement	=	2.21 percent
Edge-to-Edge Bar Spacing	=	2.166950 in
Maximum Concrete Aggregate Size	=	0.375000 in
Ratio of Bar Spacing to Aggregate Size	=	5.78
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	=	13145.114 kips
Tensile Load for Cracking of Concrete	=	-1358.778 kips
Nominal Axial Tensile Capacity	=	-3744.000 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.410000	1.560000	22.795000	0.00000
2	1.410000	1.560000	22.514356	3.565924
3	1.410000	1.560000	21.679333	7.044042
4	1.410000	1.560000	20.310494	10.348713
5	1.410000	1.560000	18.441542	13.398565
6	1.410000	1.560000	16.118499	16.118499
7	1.410000	1.560000	13.398565	18.441542
8	1.410000	1.560000	10.348713	20.310494
9	1.410000	1.560000	7.044042	21.679333
10	1.410000	1.560000	3.565924	22.514356
11	1.410000	1.560000	0.00000	22.795000
12	1.410000	1.560000	-3.565924	22.514356
13	1.410000	1.560000	-7.044042	21.679333
14	1.410000	1.560000	-10.348713	20.310494
15	1.410000	1.560000	-13.398565	18.441542
16	1.410000	1.560000	-16.118499	16.118499
17	1.410000	1.560000	-18.441542	13.398565
18	1.410000	1.560000	-20.310494	10.348713
19	1.410000	1.560000	-21.679333	7.044042
20	1.410000	1.560000	-22.514356	3.565924
21	1.410000	1.560000	-22.795000	0.00000
22	1.410000	1.560000	-22.514356	-3.565924
23	1.410000	1.560000	-21.679333	-7.044042
24	1.410000	1.560000	-20.310494	-10.348713
25	1.410000	1.560000	-18.441542	-13.398565
26	1.410000	1.560000	-16.118499	-16.118499
27	1.410000	1.560000	-13.398565	-18.441542
28	1.410000	1.560000	-10.348713	-20.310494
29	1.410000	1.560000	-7.044042	-21.679333
30	1.410000	1.560000	-3.565924	-22.514356
31	1.410000	1.560000	0.00000	-22.795000
32	1.410000	1.560000	3.565924	-22.514356

33	1.410000	1.560000	7.044042	-21.679333
34	1.410000	1.560000	10.348713	-20.310494
35	1.410000	1.560000	13.398565	-18.441542
36	1.410000	1.560000	16.118499	-16.118499
37	1.410000	1.560000	18.441542	-13.398565
38	1.410000	1.560000	20.310494	-10.348713
39	1.410000	1.560000	21.679333	-7.044042
40	1.410000	1.560000	22.514356	-3.565924

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

Minimum spacing between any two bars not equal to zero = 2.167 inches
between bars 34 and 35.

Ratio of bar spacing to maximum aggregate size = 5.78

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 = 0.375000 in

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

Number	Axial Thrust Force kips
1	31.613
2	52.688

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 = 31.613 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	1289.	3093570837.	35.6187517	0.00001484	-0.00001016	0.0621702	0.3542683	
8.33333E-07	2573.	3087898630.	32.8161538	0.00002735	-0.00002265	0.1140967	0.6408071	
0.00000125	3853.	3082058802.	31.8820034	0.00003985	-0.00003515	0.1656788	0.9273476	
0.00000167	5127.	3076176477.	31.4149502	0.00005236	-0.00004764	0.2169164	1.2138893	
0.00000208	6396.	3070277094.	31.1347333	0.00006486	-0.00006014	0.2678095	1.5004318	
0.00000250	7661.	3064369171.	30.9479342	0.00007737	-0.00007263	0.3183581	1.7869752	
0.00000292	8920.	3058456367.	30.8145166	0.00008988	-0.00008512	0.3685621	2.0735195	
0.00000333	10175.	3052540507.	30.7144621	0.0001024	-0.00009762	0.4184216	2.3600647	
0.00000375	11425.	3046622610.	30.6366498	0.0001149	-0.0001101	0.4679366	2.6466107	
0.00000417	11425.	2741960349.	19.5771496	0.00008157	-0.0001684	0.3334042	-4.1231777	C
0.00000458	11425.	2492691227.	19.4471749	0.00008913	-0.0001859	0.3635382	-4.5527713	C
0.00000500	11425.	2284966958.	19.3379740	0.00009669	-0.0002033	0.3935300	-4.9824938	C
0.00000542	11425.	2109200269.	19.2463819	0.0001043	-0.0002207	0.4234151	-5.4120892	C
0.00000583	11425.	1958543107.	19.1686276	0.0001118	-0.0002382	0.4531934	-5.8415571	C
0.00000625	11425.	1827973566.	19.1019456	0.0001194	-0.0002556	0.4828648	-6.2708973	C
0.00000667	11425.	1713725218.	19.0442617	0.0001270	-0.0002730	0.5124291	-6.7001094	C
0.00000708	11425.	1612917853.	18.9939900	0.0001345	-0.0002905	0.5418861	-7.1291929	C
0.00000750	11425.	1523311305.	18.9498969	0.0001421	-0.0003079	0.5712355	-7.5581474	C

0.00000792	11425.	1443137026.	18.9110085	0.0001497	-0.0003253	0.6004774	-7.9869726 C
0.00000833	11425.	1370980175.	18.8758578	0.0001573	-0.0003427	0.6295891	-8.4158343 C
0.00000875	11425.	1305695404.	18.8442887	0.0001649	-0.0003601	0.6585836	-8.8446367 C
0.00000917	11425.	1246345613.	18.8160928	0.0001725	-0.0003775	0.6874706	-9.2733053 C
0.00000958	11425.	1192156674.	18.7908318	0.0001801	-0.0003949	0.7162500	-9.7018396 C
0.00001000	11425.	1142483479.	18.7681401	0.0001877	-0.0004123	0.7449216	-10.1302396 C
0.00001042	11425.	1096784140.	18.7477109	0.0001953	-0.0004297	0.7734852	-10.5585042 C
0.00001083	11425.	1054600134.	18.7292844	0.0002029	-0.0004471	0.8019406	-10.9866333 C
0.00001125	11425.	1015540870.	18.7126396	0.0002105	-0.0004645	0.8302878	-11.4146265 C
0.00001167	11475.	983603965.	18.6975866	0.0002181	-0.0004819	0.8585264	-11.8424833 C
0.00001208	11868.	982156678.	18.6839622	0.0002258	-0.0004992	0.8866563	-12.2702034 C
0.00001250	12260.	980783641.	18.6716246	0.0002334	-0.0005166	0.9146773	-12.6977862 C
0.00001292	12652.	979477611.	18.6604505	0.0002410	-0.0005340	0.9425892	-13.1252313 C
0.00001333	13043.	978232247.	18.6503319	0.0002487	-0.0005513	0.9703919	-13.5525384 C
0.00001375	13434.	977041978.	18.6411741	0.0002563	-0.0005687	0.9980852	-13.9797069 C
0.00001417	13825.	975901888.	18.6328932	0.0002640	-0.0005860	1.0256688	-14.4067364 C
0.00001458	14216.	974807623.	18.6254153	0.0002716	-0.0006034	1.0531427	-14.8336265 C
0.00001500	14606.	973755310.	18.6186744	0.0002793	-0.0006207	1.0805065	-15.2603766 C
0.00001542	14996.	972741498.	18.6126119	0.0002869	-0.0006381	1.1077601	-15.6869864 C
0.00001583	15386.	971763097.	18.6071750	0.0002946	-0.0006554	1.1349034	-16.1134555 C
0.00001625	15776.	970817333.	18.6023168	0.0003023	-0.0006727	1.1619361	-16.5397832 C
0.00001708	16554.	969013968.	18.5941704	0.0003177	-0.0007073	1.2156690	-17.3920131 C
0.00001792	17331.	967314205.	18.5878800	0.0003330	-0.0007420	1.2689574	-18.2436723 C
0.00001875	18107.	965703871.	18.5832053	0.0003484	-0.0007766	1.3217996	-19.0947571 C
0.00001958	18882.	964171209.	18.5799465	0.0003639	-0.0008111	1.3741941	-19.9452637 C
0.00002042	19655.	962706382.	18.5779370	0.0003793	-0.0008457	1.4261394	-20.7951881 C
0.00002125	20428.	961301091.	18.5770360	0.0003948	-0.0008802	1.4776337	-21.6445265 C
0.00002208	21199.	959948284.	18.5771242	0.0004102	-0.0009148	1.5286755	-22.4932750 C
0.00002292	21969.	958641934.	18.5780998	0.0004257	-0.0009493	1.5792632	-23.3414294 C
0.00002375	22738.	957376856.	18.5798753	0.0004413	-0.0009837	1.6293951	-24.1889858 C
0.00002458	23505.	956148565.	18.5823750	0.0004568	-0.0010182	1.6790695	-25.0359401 C
0.00002542	24272.	954953159.	18.5855334	0.0004724	-0.0010526	1.7282848	-25.8822880 C
0.00002625	25037.	953787232.	18.5892933	0.0004880	-0.0010870	1.7770392	-26.7280254 C
0.00002708	25801.	952647790.	18.5936046	0.0005036	-0.0011214	1.8253310	-27.5731480 C
0.00002792	26564.	951532196.	18.5984233	0.0005192	-0.0011558	1.8731586	-28.4176515 C
0.00002875	27325.	950438116.	18.6037104	0.0005349	-0.0011901	1.9205201	-29.2615315 C
0.00002958	28085.	949363473.	18.6094316	0.0005505	-0.0012245	1.9674138	-30.1047835 C
0.00003042	28844.	948306419.	18.6155563	0.0005662	-0.0012588	2.0138378	-30.9474032 C
0.00003125	29602.	947265296.	18.6220571	0.0005819	-0.0012931	2.0597905	-31.7893858 C
0.00003208	30358.	946238618.	18.6289099	0.0005977	-0.0013273	2.1052698	-32.6307269 C
0.00003292	31114.	945225046.	18.6360926	0.0006134	-0.0013616	2.1502741	-33.4714218 C
0.00003375	31868.	944223369.	18.6435857	0.0006292	-0.0013958	2.1948015	-34.3114657 C
0.00003458	32620.	943232493.	18.6513715	0.0006450	-0.0014300	2.2388499	-35.1508539 C
0.00003542	33371.	942251420.	18.6594342	0.0006609	-0.0014641	2.2824176	-35.9895815 C
0.00003625	34121.	941279244.	18.6677592	0.0006767	-0.0014983	2.3255026	-36.8276435 C
0.00003708	34870.	940315137.	18.6763335	0.0006926	-0.0015324	2.3681030	-37.6650351 C
0.00003792	35617.	939358340.	18.6851454	0.0007085	-0.0015665	2.4102168	-38.5017511 C
0.00003875	36363.	938408158.	18.6941839	0.0007244	-0.0016006	2.4518419	-39.3377864 C
0.00003958	37108.	937463950.	18.7034393	0.0007403	-0.0016347	2.4929765	-40.1731359 C
0.00004042	37851.	936525126.	18.7129028	0.0007563	-0.0016687	2.5336184	-41.0077942 C
0.00004125	38593.	935591141.	18.7225660	0.0007723	-0.0017027	2.5737655	-41.8417561 C
0.00004208	39334.	934661491.	18.7324217	0.0007883	-0.0017367	2.6134159	-42.6750162 C
0.00004292	40073.	933735707.	18.7424629	0.0008044	-0.0017706	2.6525673	-43.5075689 C
0.00004375	40811.	932813354.	18.7526835	0.0008204	-0.0018046	2.6912177	-44.3394087 C
0.00004458	41547.	931894026.	18.7630778	0.0008365	-0.0018385	2.7293649	-45.1705300 C
0.00004542	42282.	930977345.	18.7736405	0.0008526	-0.0018724	2.7670068	-46.0009271 C
0.00004625	43015.	930063002.	18.7843669	0.0008688	-0.0019062	2.8041411	-46.8305927 C
0.00004708	43748.	929150576.	18.7952526	0.0008849	-0.0019401	2.8407655	-47.6595237 C
0.00004792	44478.	928239798.	18.8062936	0.0009011	-0.0019739	2.8768778	-48.4877128 C
0.00004875	45207.	927330377.	18.8174861	0.0009174	-0.0020076	2.9124757	-49.3151539 C
0.00004958	45935.	926422036.	18.8288268	0.0009336	-0.0020414	2.9475570	-50.1418409 C
0.00005292	48831.	922794461.	18.8756140	0.0009988	-0.0021762	3.0826675	-53.4409222 C
0.00005625	51703.	919168484.	18.9237666	0.0010645	-0.0023105	3.2092329	-56.7287307 C
0.00005958	54551.	915533497.	18.9730868	0.0011305	-0.0024445	3.3270868	-60.0000000 CY
0.00006292	57159.	908491375.	18.9997193	0.0011954	-0.0025796	3.4336840	-60.0000000 CY
0.00006625	59138.	892642856.	18.9611103	0.0012562	-0.0027188	3.5250569	-60.0000000 CY
0.00006958	60778.	873453529.	18.8942277	0.0013147	-0.0028603	3.6054382	-60.0000000 CY
0.00007292	62165.	852548426.	18.8070416	0.0013713	-0.0030037	3.6760519	-60.0000000 CY
0.00007625	63421.	831756290.	18.7170463	0.0014272	-0.0031478	3.7388477	-60.0000000 CY
0.00007958	64474.	810143487.	18.6145492	0.0014814	-0.0032936	3.7933498	-60.0000000 CY
0.00008292	65484.	789751856.	18.5196202	0.0015356	-0.0034394	3.8414332	-60.0000000 CY
0.00008625	66318.	768908600.	18.4142029	0.0015882	-0.0035868	3.8820414	-60.0000000 CY
0.00008958	67106.	749093728.	18.3148516	0.0016407	-0.0037343	3.9165560	-60.0000000 CY
0.00009292	67865.	730387889.	18.2196898	0.0016929	-0.0038821	3.9449760	-60.0000000 CY
0.00009625	68490.	711580215.	18.1159349	0.0017437	-0.0040313	3.9669391	-60.0000000 CY
0.00009958	69061.	693503842.	18.0155491	0.0017940	-0.0041810	3.9832403	-60.0000000 CY
0.0001029	69626.	676523795.	17.9242033	0.0018447	-0.0043303	3.9940995	-60.0000000 CY
0.0001063	70167.	660399034.	17.8389672	0.0018954	-0.0044796	3.9994179	-60.0000000 CY
0.0001096	70632.	644548179.	17.7513575	0.0019453	-0.0046297	3.9982332	-60.0000000 CY

0.0001129	71033.	629076953.	17.6615344	0.0019943	-0.0047807	3.9979979	-60.0000000 CY
0.0001163	71416.	614330371.	17.5753258	0.0020431	-0.0049319	3.9996551	-60.0000000 CY
0.0001196	71792.	600348312.	17.4962114	0.0020923	-0.0050827	3.9977092	-60.0000000 CY
0.0001229	72160.	587066593.	17.4232877	0.0021416	-0.0052334	3.9999913	-60.0000000 CY
0.0001263	72505.	574297462.	17.3537381	0.0021909	-0.0053841	3.9985238	-60.0000000 CY
0.0001296	72805.	561842239.	17.2829884	0.0022396	-0.0055354	3.9989210	-60.0000000 CY
0.0001329	73054.	549623533.	17.2101583	0.0022875	-0.0056875	3.9984292	-60.0000000 CY
0.0001363	73295.	537946014.	17.1414929	0.0023355	-0.0058395	3.9999998	-60.0000000 CY
0.0001396	73529.	526773924.	17.0764391	0.0023836	-0.0059914	3.9975103	-60.0000000 CY
0.0001429	73758.	516088309.	17.0132169	0.0024315	-0.0061435	3.9998334	-60.0000000 CY
0.0001462	73982.	505861700.	16.9544125	0.0024796	-0.0062954	3.9952774	-60.0000000 CY
0.0001496	74202.	496061237.	16.8992301	0.0025278	-0.0064472	3.9988808	-60.0000000 CY
0.0001529	74419.	486661687.	16.8472319	0.0025762	-0.0065988	3.9994273	-60.0000000 CY
0.0001562	74603.	477461231.	16.7936781	0.0026240	-0.0067510	3.9960688	-60.0000000 CY
0.0001596	74778.	468583619.	16.7416802	0.0026717	-0.0069033	3.9990899	-60.0000000 CY
0.0001629	74918.	459854004.	16.6861846	0.0027185	-0.0070565	3.9995887	-60.0000000 CY
0.0001662	75054.	451451042.	16.6339801	0.0027654	-0.0072096	3.9947254	-60.0000000 CY
0.0001696	75186.	443358201.	16.5840414	0.0028124	-0.0073626	3.9981543	-60.0000000 CY
0.0001729	75317.	435569797.	16.5366572	0.0028595	-0.0075155	3.9998262	-60.0000000 CY
0.0001762	75446.	428061129.	16.4914085	0.0029066	-0.0076684	3.9950730	-60.0000000 CY
0.0001796	75571.	420810468.	16.4461338	0.0029535	-0.0078215	3.9953672	-60.0000000 CY
0.0001829	75694.	413818686.	16.4030246	0.0030004	-0.0079746	3.9983544	-60.0000000 CYT
0.0002029	76365.	376334485.	16.1750301	0.0032822	-0.0088928	3.9999800	-60.0000000 CYT
0.0002229	76800.	344525099.	15.9599580	0.0035577	-0.0098173	3.9999998	60.0000000 CYT
0.0002429	77151.	317601205.	15.7848761	0.0038344	-0.0107406	3.9995731	60.0000000 CYT

Axial Thrust Force = 52.688 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	1289.	3092680397.	39.3653254	0.00001640	-0.00000860	0.0687366	0.3995393	
8.33333E-07	2573.	3087439850.	34.6937963	0.00002891	-0.00002109	0.1206348	0.6861834	
0.00000125	3852.	3081750025.	33.1367791	0.00004142	-0.00003358	0.1721890	0.9728332	
0.00000167	5127.	3075943376.	32.3583217	0.00005393	-0.00004607	0.2233987	1.2594856	
0.00000208	6396.	3070089557.	31.8912775	0.00006644	-0.00005856	0.2742637	1.5461397	
0.00000250	7661.	3064212053.	31.5799367	0.00007895	-0.00007105	0.3247842	1.8327954	
0.00000292	8920.	3058320996.	31.3575686	0.00009146	-0.00008354	0.3749599	2.1194527	
0.00000333	10175.	3052421450.	31.1908076	0.0001040	-0.00009603	0.4247910	2.4061114	
0.00000375	11424.	3046516243.	31.0611181	0.0001165	-0.0001085	0.4742775	2.6927715	
0.00000417	11424.	2741864619.	20.5558091	0.00008565	-0.0001644	0.3499435	-4.0049231 C	
0.00000458	11424.	2492604199.	20.3437857	0.00009324	-0.0001818	0.3801373	-4.4335968 C	
0.00000500	11424.	2284887182.	20.1679459	0.0001008	-0.0001992	0.4102227	-4.8621478 C	
0.00000542	11424.	2109126630.	20.0177490	0.0001084	-0.0002166	0.4401520	-5.2909202 C	
0.00000583	11424.	1958474728.	19.8881565	0.0001160	-0.0002340	0.4699362	-5.7198368 C	
0.00000625	11424.	1827909746.	19.7765366	0.0001236	-0.0002514	0.4996125	-6.1486277 C	
0.00000667	11424.	1713665387.	19.6795214	0.0001312	-0.0002688	0.5291806	-6.5772925 C	
0.00000708	11424.	1612861540.	19.5945355	0.0001388	-0.0002862	0.5586406	-7.0058308 C	
0.00000750	11424.	1523258121.	19.5195755	0.0001464	-0.0003036	0.5879921	-7.4342423 C	
0.00000792	11424.	1443086641.	19.4517599	0.0001540	-0.0003210	0.6171948	-7.8628251 C	
0.00000833	11424.	1370932309.	19.3907770	0.0001616	-0.0003384	0.6462737	-8.2913955 C	
0.00000875	11424.	1305649818.	19.3361164	0.0001692	-0.0003558	0.6752445	-8.7198354 C	
0.00000917	11424.	1246302099.	19.2869176	0.0001768	-0.0003732	0.7041070	-9.1481444 C	
0.00000958	11424.	1192115052.	19.2424696	0.0001844	-0.0003906	0.7328611	-9.5763220 C	
0.00001000	11424.	1142443591.	19.2021798	0.0001920	-0.0004080	0.7615065	-10.0043678 C	
0.00001042	11424.	1096745847.	19.1655508	0.0001996	-0.0004254	0.7900430	-10.4322815 C	
0.00001083	11424.	1054563315.	19.1321613	0.0002073	-0.0004427	0.8184706	-10.8600626 C	
0.00001125	11424.	1015505414.	19.1016526	0.0002149	-0.0004601	0.8467890	-11.2877108 C	
0.00001167	11722.	1004720666.	19.0737173	0.0002225	-0.0004775	0.8749981	-11.7152256 C	
0.00001208	12114.	1002527266.	19.0480905	0.0002302	-0.0004948	0.9030976	-12.1426066 C	
0.00001250	12506.	1000457707.	19.0245423	0.0002378	-0.0005122	0.9310874	-12.5698534 C	
0.00001292	12897.	998499947.	19.0028727	0.0002455	-0.0005295	0.9589673	-12.9969656 C	
0.00001333	13289.	996643395.	18.9829067	0.0002531	-0.0005469	0.9867371	-13.4239431 C	
0.00001375	13680.	994878902.	18.9644905	0.0002608	-0.0005642	1.0143967	-13.8507847 C	
0.00001417	14070.	993198236.	18.9474883	0.0002684	-0.0005816	1.0419458	-14.2774905 C	
0.00001458	14461.	991594160.	18.9317801	0.0002761	-0.0005989	1.0693843	-14.7040599 C	
0.00001500	14851.	990060240.	18.9172588	0.0002838	-0.0006162	1.0967120	-15.1304926 C	
0.00001542	15241.	988590737.	18.9038293	0.0002914	-0.0006336	1.1239287	-15.5567881 C	
0.00001583	15630.	987179966.	18.8911491	0.0002991	-0.0006509	1.1510197	-15.9830640 C	
0.00001625	16020.	985823660.	18.8793113	0.0003068	-0.0006682	1.1779935	-16.4092497 C	
0.00001708	16797.	983259217.	18.8582306	0.0003222	-0.0007028	1.2316083	-17.2611932 C	
0.00001792	17574.	980868961.	18.8402133	0.0003376	-0.0007374	1.2847779	-18.1125641 C	
0.00001875	18349.	978629292.	18.8248579	0.0003530	-0.0007720	1.3375008	-18.9633589 C	
0.00001958	19124.	976520734.	18.8118315	0.0003684	-0.0008066	1.3897753	-19.8135726 C	
0.00002042	19897.	974526855.	18.8008554	0.0003839	-0.0008411	1.4415999	-20.6632021 C	
0.00002125	20668.	972633843.	18.7916948	0.0003993	-0.0008757	1.4929730	-21.5122432 C	
0.00002208	21439.	970829966.	18.7841504	0.0004148	-0.0009102	1.5438929	-22.3606921 C	

0.00002292	22209.	969105196.	18.7780520	0.0004303	-0.0009447	1.5943580	-23.2085446 C
0.00002375	22977.	967450911.	18.7732533	0.0004459	-0.0009791	1.6443667	-24.0557968 C
0.00002458	23744.	965859651.	18.7696279	0.0004614	-0.0010136	1.6939172	-24.9024444 C
0.00002542	24510.	964324934.	18.7670661	0.0004770	-0.0010480	1.7430079	-25.7484833 C
0.00002625	25275.	962841097.	18.7654722	0.0004926	-0.0010824	1.7916371	-26.5939092 C
0.00002708	26038.	961403171.	18.7647623	0.0005082	-0.0011168	1.8398030	-27.4387179 C
0.00002792	26800.	960006776.	18.7648627	0.0005239	-0.0011511	1.8875039	-28.2829049 C
0.00002875	27561.	958648038.	18.7657081	0.0005395	-0.0011855	1.9347380	-29.1264658 C
0.00002958	28321.	957323517.	18.7672408	0.0005552	-0.0012198	1.9815036	-29.9693963 C
0.00003042	29079.	956030145.	18.7694094	0.0005709	-0.0012541	2.0277988	-30.8116917 C
0.00003125	29836.	954765181.	18.7721682	0.0005866	-0.0012884	2.0736219	-31.6533475 C
0.00003208	30592.	953526163.	18.7754760	0.0006024	-0.0013226	2.1189710	-32.4943591 C
0.00003292	31347.	952310877.	18.7792963	0.0006182	-0.0013568	2.1638442	-33.3347218 C
0.00003375	32100.	951117325.	18.7835957	0.0006339	-0.0013911	2.2082397	-34.1744307 C
0.00003458	32852.	949943697.	18.7883446	0.0006498	-0.0014252	2.2521555	-35.0134811 C
0.00003542	33603.	948788353.	18.7935160	0.0006656	-0.0014594	2.2955898	-35.8518681 C
0.00003625	34352.	947649798.	18.7990853	0.0006815	-0.0014935	2.3385406	-36.6895867 C
0.00003708	35100.	946526671.	18.8050306	0.0006974	-0.0015276	2.3810060	-37.5266318 C
0.00003792	35847.	945417727.	18.8113316	0.0007133	-0.0015617	2.4229839	-38.3629985 C
0.00003875	36592.	944321825.	18.8179699	0.0007292	-0.0015958	2.4644724	-39.1986816 C
0.00003958	37337.	943237917.	18.8249288	0.0007452	-0.0016298	2.5054694	-40.0336757 C
0.00004042	38079.	942165040.	18.8321931	0.0007611	-0.0016639	2.5459729	-40.8679757 C
0.00004125	38820.	941102304.	18.8397486	0.0007771	-0.0016979	2.5859809	-41.7015761 C
0.00004208	39560.	940048889.	18.8475826	0.0007932	-0.0017318	2.6254912	-42.5344715 C
0.00004292	40299.	939004033.	18.8556833	0.0008092	-0.0017658	2.6645016	-43.3666564 C
0.00004375	41036.	937967033.	18.8640398	0.0008253	-0.0017997	2.7030101	-44.1981251 C
0.00004458	41772.	936937231.	18.8726422	0.0008414	-0.0018336	2.7410145	-45.0288721 C
0.00004542	42506.	935914020.	18.8814813	0.0008575	-0.0018675	2.7785126	-45.8588914 C
0.00004625	43239.	934896829.	18.8905488	0.0008737	-0.0019013	2.8155022	-46.6881773 C
0.00004708	43970.	933885127.	18.8998368	0.0008899	-0.0019351	2.8519810	-47.5167238 C
0.00004792	44700.	932879167.	18.9090408	0.0009061	-0.0019689	2.8879149	-48.3449369 C
0.00004875	45429.	931877768.	18.9184383	0.0009223	-0.0020027	2.9233319	-49.1724339 C
0.00004958	46156.	930880594.	18.9280284	0.0009385	-0.0020365	2.9582303	-49.9991986 C
0.00005292	49050.	926926010.	18.9682103	0.0010037	-0.0021713	3.0925924	-53.2988254 C
0.00005625	51919.	923009594.	19.0110994	0.0010694	-0.0023056	3.2184694	-56.5862689 C
0.00005958	54764.	919113091.	19.0564808	0.0011354	-0.0024396	3.3357027	-59.8611141 C
0.00006292	57392.	912196711.	19.0822046	0.0012006	-0.0025744	3.4419356	-60.0000000 CY
0.00006625	59391.	896470810.	19.0428761	0.0012616	-0.0027134	3.5329404	-60.0000000 CY
0.00006958	61044.	877283863.	18.9747893	0.0013203	-0.0028547	3.6128699	-60.0000000 CY
0.00007292	62441.	856338024.	18.8887320	0.0013773	-0.0029977	3.6832014	-60.0000000 CY
0.00007625	63708.	835509698.	18.7973858	0.0014333	-0.0031417	3.7454440	-60.0000000 CY
0.00007958	64763.	813773065.	18.6927469	0.0014876	-0.0032874	3.7993054	-60.0000000 CY
0.00008292	65776.	793279533.	18.5960428	0.0015419	-0.0034331	3.8467390	-60.0000000 CY
0.00008625	66619.	772399905.	18.4896143	0.0015947	-0.0035803	3.8867310	-60.0000000 CY
0.00008958	67406.	752436156.	18.3880518	0.0016473	-0.0037277	3.9205246	-60.0000000 CY
0.00009292	68169.	733653628.	18.2946085	0.0016999	-0.0038751	3.9483843	-60.0000000 CY
0.00009625	68804.	714845633.	18.1906160	0.0017508	-0.0040242	3.9696526	-60.0000000 CY
0.00009958	69374.	696643517.	18.0883188	0.0018013	-0.0041737	3.9851707	-60.0000000 CY
0.0001029	69937.	679545477.	17.9952049	0.0018520	-0.0043230	3.9952298	-60.0000000 CY
0.0001063	70482.	663360485.	17.9091233	0.0019028	-0.0044722	3.9997368	-60.0000000 CY
0.0001096	70952.	647473453.	17.8211201	0.0019529	-0.0046221	3.9988489	-60.0000000 CY
0.0001129	71356.	631932171.	17.7320871	0.0020022	-0.0047728	3.9967945	-60.0000000 CY
0.0001163	71738.	617104007.	17.6461045	0.0020514	-0.0049236	3.9999031	-60.0000000 CY
0.0001196	72112.	603029173.	17.5656624	0.0021006	-0.0050744	3.9984746	-60.0000000 CY
0.0001229	72479.	589662729.	17.4915187	0.0021500	-0.0052250	3.9982432	-60.0000000 CY
0.0001263	72829.	576865751.	17.4218245	0.0021995	-0.0053755	3.9991411	-60.0000000 CY
0.0001296	73133.	564371719.	17.3508462	0.0022484	-0.0055266	3.9961642	-60.0000000 CY
0.0001329	73383.	552094730.	17.2770594	0.0022964	-0.0056786	3.9990877	-60.0000000 CY
0.0001363	73623.	540350263.	17.2074595	0.0023445	-0.0058305	3.9972973	-60.0000000 CY
0.0001396	73857.	529121282.	17.1425923	0.0023928	-0.0059822	3.9983915	-60.0000000 CY
0.0001429	74086.	518388603.	17.0808190	0.0024411	-0.0061339	3.9999929	-60.0000000 CY
0.0001462	74309.	508098915.	17.0210750	0.0024893	-0.0062857	3.9965914	-60.0000000 CY
0.0001496	74529.	498245300.	16.9649241	0.0025377	-0.0064373	3.9994693	-60.0000000 CY
0.0001529	74744.	488787938.	16.9120927	0.0025861	-0.0065889	3.9963177	-60.0000000 CY
0.0001562	74934.	479579777.	16.8588203	0.0026342	-0.0067408	3.9973057	-60.0000000 CY
0.0001596	75108.	470652693.	16.8058297	0.0026819	-0.0068931	3.9996270	-60.0000000 CY
0.0001629	75253.	461914020.	16.7508807	0.0027290	-0.0070460	3.9962842	-60.0000000 CY
0.0001662	75389.	453466631.	16.6977190	0.0027760	-0.0071990	3.9962311	-60.0000000 CY
0.0001696	75521.	445332039.	16.6468986	0.0028230	-0.0073520	3.9989977	-60.0000000 CY
0.0001729	75651.	437501556.	16.5986103	0.0028702	-0.0075048	3.9999967	-60.0000000 CY
0.0001762	75779.	429951971.	16.5532451	0.0029175	-0.0076575	3.9929595	-60.0000000 CY
0.0001796	75906.	422676237.	16.5101246	0.0029649	-0.0078101	3.9968774	-60.0000000 CY
0.0001829	76029.	415650255.	16.4668734	0.0030121	-0.0079629	3.9992057	-60.0000000 CYT
0.0002029	76703.	378001276.	16.2362034	0.0032946	-0.0088804	3.9974290	-60.0000000 CYT
0.0002229	77142.	346057778.	16.0185977	0.0035708	-0.0098042	3.9960287	60.0000000 CYT
0.0002429	77490.	318997633.	15.8465964	0.0038494	-0.0107256	3.9999773	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	31.613	75693.315	0.00300000
2	52.688	75997.673	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	75693.	20.548450	49201.	922328027.
2	0.65	75998.	34.247417	49398.	926450147.
1	0.75	75693.	22.129100	56770.	909542176.
2	0.75	75998.	36.881833	56998.	913233743.
1	0.90	75693.	23.709750	68124.	722593106.
2	0.90	75998.	39.516250	68398.	726865916.

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	32.1400	0.00	N.A.	No	0.00	9481.
2	33.6400	1.5405	Yes	No	9481.	204940.
3	38.6400	8.4046	Yes	No	214421.	114532.
4	40.6400	10.4751	Yes	No	328953.	293318.
5	45.1400	166.1946	No	No	622272.	132621.
6	50.1400	12.7791	No	No	754893.	687094.
7	55.1400	19.4880	Yes	No	1441986.	2226930.
8	65.1400	26.2152	Yes	No	3668917.	1074698.
9	75.1400	43.0000	No	No	4743614.	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 Horizontal Soil Pressures

Depth in	Distributed Load lb/in

0.00	3.18
8.16	12.74
16.32	25.48
24.48	38.22
32.64	50.96
40.80	63.69
48.96	76.43
57.12	89.17
65.28	101.91
73.44	114.65
81.60	127.39
89.76	140.13
97.92	152.87
106.08	165.61
114.24	178.34
122.40	191.08
130.56	203.82
138.72	216.56
146.88	229.30
155.04	242.04
163.20	254.78
171.36	267.52
179.52	280.26
187.68	292.99
195.84	305.73
204.00	318.47
212.16	331.21
220.32	343.95
228.48	356.69
236.64	369.43
244.80	382.17
252.96	394.91
261.12	407.64
269.28	420.38
277.44	433.12
285.60	445.86
293.76	458.60
301.92	471.34
310.08	484.08
318.24	496.82
326.40	509.56
334.56	522.29
342.72	535.03
350.88	547.77
359.04	560.51
367.20	573.25
375.36	585.99
383.52	480.33

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	3.1448	2.06E-05	1.45E-07	-0.00640	0.00	3.09E+12	0.00	0.00	3.1847
0.6800	3.0926	1757.	64.9684	-0.00640	0.00	3.09E+12	0.00	0.00	12.7389
1.3600	3.0403	4362.	220.8926	-0.00640	0.00	3.09E+12	0.00	0.00	25.4778
2.0400	2.9881	8663.	480.7661	-0.00640	0.00	3.09E+12	0.00	0.00	38.2167
2.7200	2.9359	15509.	844.5892	-0.00640	0.00	3.09E+12	0.00	0.00	50.9556
3.4000	2.8837	25748.	1312.	-0.00640	0.00	3.09E+12	0.00	0.00	63.6945
4.0800	2.8315	40228.	1884.	-0.00640	0.00	3.09E+12	0.00	0.00	76.4334
4.7600	2.7793	59797.	2560.	-0.00640	0.00	3.09E+12	0.00	0.00	89.1723
5.4400	2.7271	85304.	3339.	-0.00640	0.00	3.09E+12	0.00	0.00	101.9112
6.1200	2.6749	117597.	4223.	-0.00640	0.00	3.09E+12	0.00	0.00	114.6501
6.8000	2.6226	157524.	5210.	-0.00640	0.00	3.09E+12	0.00	0.00	127.3890
7.4800	2.5704	205932.	6302.	-0.00640	0.00	3.09E+12	0.00	0.00	140.1279

8.1600	2.5182	263672.	7497.	-0.00640	0.00	3.09E+12	0.00	0.00	152.8668
8.8400	2.4661	331589.	8797.	-0.00640	0.00	3.09E+12	0.00	0.00	165.6057
9.5200	2.4139	410534.	10200.	-0.00639	0.00	3.09E+12	0.00	0.00	178.3446
10.2000	2.3617	501353.	11707.	-0.00639	0.00	3.09E+12	0.00	0.00	191.0835
10.8800	2.3095	604896.	13319.	-0.00639	0.00	3.09E+12	0.00	0.00	203.8224
11.5600	2.2574	722009.	15034.	-0.00639	0.00	3.09E+12	0.00	0.00	216.5613
12.2400	2.2052	853542.	16853.	-0.00639	0.00	3.09E+12	0.00	0.00	229.3002
12.9200	2.1531	1000343.	18776.	-0.00639	0.00	3.09E+12	0.00	0.00	242.0391
13.6000	2.1010	1163259.	20803.	-0.00638	0.00	3.09E+12	0.00	0.00	254.7780
14.2800	2.0489	1343139.	22934.	-0.00638	0.00	3.09E+12	0.00	0.00	267.5169
14.9600	1.9969	1540831.	25169.	-0.00638	0.00	3.09E+12	0.00	0.00	280.2558
15.6400	1.9449	1757183.	27508.	-0.00637	0.00	3.09E+12	0.00	0.00	292.9947
16.3200	1.8929	1993043.	29950.	-0.00637	0.00	3.09E+12	0.00	0.00	305.7336
17.0000	1.8410	2249258.	32497.	-0.00636	0.00	3.09E+12	0.00	0.00	318.4725
17.6800	1.7891	2526678.	35148.	-0.00635	0.00	3.09E+12	0.00	0.00	331.2114
18.3600	1.7373	2826151.	37903.	-0.00635	0.00	3.09E+12	0.00	0.00	343.9503
19.0400	1.6855	3148523.	40761.	-0.00634	0.00	3.08E+12	0.00	0.00	356.6892
19.7200	1.6338	3494644.	43724.	-0.00633	0.00	3.08E+12	0.00	0.00	369.4281
20.4000	1.5822	3865361.	46790.	-0.00632	0.00	3.08E+12	0.00	0.00	382.1670
21.0800	1.5307	4261522.	49961.	-0.00631	0.00	3.08E+12	0.00	0.00	394.9059
21.7600	1.4792	4683975.	53235.	-0.00630	0.00	3.08E+12	0.00	0.00	407.6448
22.4400	1.4279	5133568.	56613.	-0.00629	0.00	3.08E+12	0.00	0.00	420.3838
23.1200	1.3766	5611150.	60096.	-0.00627	0.00	3.07E+12	0.00	0.00	433.1227
23.8000	1.3255	6117567.	63682.	-0.00626	0.00	3.07E+12	0.00	0.00	445.8616
24.4800	1.2745	6653668.	67372.	-0.00624	0.00	3.07E+12	0.00	0.00	458.6005
25.1600	1.2237	7220300.	71166.	-0.00622	0.00	3.07E+12	0.00	0.00	471.3394
25.8400	1.1730	7818312.	75064.	-0.00620	0.00	3.06E+12	0.00	0.00	484.0783
26.5200	1.1225	8448552.	79067.	-0.00618	0.00	3.06E+12	0.00	0.00	496.8172
27.2000	1.0722	9111866.	83173.	-0.00616	0.00	3.06E+12	0.00	0.00	509.5561
27.8800	1.0221	9809103.	87382.	-0.00613	0.00	3.05E+12	0.00	0.00	522.2950
28.5600	0.9721	1.05E+07	91696.	-0.00610	0.00	3.05E+12	0.00	0.00	535.0339
29.2400	0.9225	1.13E+07	96114.	-0.00607	0.00	3.05E+12	0.00	0.00	547.7728
29.9200	0.8730	1.21E+07	100636.	-0.00601	0.00	9.81E+11	0.00	0.00	560.5117
30.6000	0.8244	1.30E+07	105262.	-0.00590	0.00	9.79E+11	0.00	0.00	573.2506
31.2800	0.7767	1.38E+07	109991.	-0.00579	0.00	9.76E+11	0.00	0.00	585.9895
31.9600	0.7299	1.48E+07	114342.	-0.00567	0.00	9.73E+11	0.00	0.00	480.3266
32.6400	0.6841	1.57E+07	115715.	-0.00554	0.00	9.71E+11	-143.9156	1717.	0.00
33.3200	0.6394	1.66E+07	113662.	-0.00541	0.00	9.69E+11	-359.1546	4583.	0.00
34.0000	0.5959	1.76E+07	109860.	-0.00526	0.00	9.67E+11	-572.6417	7842.	0.00
34.6800	0.5535	1.84E+07	104251.	-0.00511	0.00	9.65E+11	-802.1851	11826.	0.00
35.3600	0.5124	1.93E+07	96754.	-0.00495	0.00	9.63E+11	-1035.	16488.	0.00
36.0400	0.4727	2.00E+07	87376.	-0.00479	0.00	9.62E+11	-1263.	21803.	0.00
36.7200	0.4343	2.07E+07	76190.	-0.00461	0.00	9.61E+11	-1479.	27782.	0.00
37.4000	0.3974	2.13E+07	63302.	-0.00443	0.00	9.60E+11	-1680.	34499.	0.00
38.0800	0.3619	2.17E+07	48839.	-0.00425	0.00	9.59E+11	-1865.	42042.	0.00
38.7600	0.3280	2.21E+07	39189.	-0.00407	0.00	9.58E+11	-500.2866	12446.	0.00
39.4400	0.2956	2.24E+07	35120.	-0.00388	0.00	9.58E+11	-497.1665	13724.	0.00
40.1200	0.2647	2.26E+07	31105.	-0.00368	0.00	9.58E+11	-486.7500	15003.	0.00
40.8000	0.2355	2.29E+07	27203.	-0.00349	0.00	9.57E+11	-469.8070	16281.	0.00
41.4800	0.2078	2.31E+07	23462.	-0.00329	0.00	9.57E+11	-447.1146	17560.	0.00
42.1600	0.1817	2.33E+07	19926.	-0.00310	0.00	9.57E+11	-419.4554	18838.	0.00
42.8400	0.1572	2.34E+07	16633.	-0.00290	0.00	9.56E+11	-387.6163	20117.	0.00
43.5200	0.1344	2.35E+07	13614.	-0.00270	0.00	9.56E+11	-352.3867	21395.	0.00
44.2000	0.1132	2.36E+07	10893.	-0.00250	0.00	9.56E+11	-314.5577	22674.	0.00
44.8800	0.09366	2.37E+07	8488.	-0.00229	0.00	9.56E+11	-274.9209	23952.	0.00
45.5600	0.07577	2.38E+07	-10681.	-0.00209	0.00	9.56E+11	-4423.	476372.	0.00
46.2400	0.05953	2.35E+07	-44723.	-0.00189	0.00	9.56E+11	-3921.	537427.	0.00
46.9200	0.04493	2.30E+07	-74617.	-0.00169	0.00	9.57E+11	-3406.	618598.	0.00
47.6000	0.03194	2.23E+07	-100231.	-0.00150	0.00	9.58E+11	-2872.	733721.	0.00
48.2800	0.02050	2.14E+07	-121335.	-0.00131	0.00	9.60E+11	-2301.	915906.	0.00
48.9600	0.01054	2.03E+07	-137452.	-0.00113	0.00	9.61E+11	-1650.	1277233.	0.00
49.6400	0.00199	1.92E+07	-146188.	-9.66E-04	0.00	9.64E+11	-491.4849	2012452.	0.00
50.3200	-0.00523	1.80E+07	-147731.	-8.09E-04	0.00	9.66E+11	113.1752	176594.	0.00
51.0000	-0.01121	1.68E+07	-146243.	-6.63E-04	0.00	9.69E+11	251.7625	183200.	0.00
51.6800	-0.01605	1.56E+07	-143693.	-5.27E-04	0.00	9.71E+11	373.2376	189805.	0.00
52.3600	-0.01981	1.44E+07	-140224.	-4.01E-04	0.00	9.74E+11	476.8360	196410.	0.00
53.0400	-0.02259	1.33E+07	-135986.	-2.85E-04	0.00	9.77E+11	562.0183	203016.	0.00
53.7200	-0.02446	1.22E+07	-131129.	-1.79E-04	0.00	9.81E+11	628.4495	209621.	0.00
54.4000	-0.02551	1.11E+07	-125807.	-1.13E-04	0.00	3.05E+12	675.9799	216226.	0.00
55.0800	-0.02631	1.01E+07	-120117.	-8.48E-05	0.00	3.05E+12	718.5544	222831.	0.00
55.7600	-0.02689	9186460.	-114697.	-5.90E-05	0.00	3.06E+12	609.8452	185030.	0.00
56.4400	-0.02728	8270848.	-109613.	-3.57E-05	0.00	3.06E+12	636.3029	190356.	0.00
57.1200	-0.02748	7397599.	-104328.	-1.49E-05	0.00	3.07E+12	658.9445	195683.	0.00
57.8000	-0.02752	6568222.	-98874.	3.71E-06	0.00	3.07E+12	677.8911	201010.	0.00
58.4800	-0.02742	5783978.	-93279.	2.01E-05	0.00	3.07E+12	693.2882	206337.	0.00
59.1600	-0.02719	5045892.	-87573.	3.45E-05	0.00	3.08E+12	705.3016	211664.	0.00
59.8400	-0.02685	4354767.	-81782.	4.70E-05	0.00	3.08E+12	714.1147	216991.	0.00
60.5200	-0.02642	3711188.	-75931.	5.76E-05	0.00	3.08E+12	719.9235	222318.	0.00
61.2000	-0.02591	3115543.	-70044.	6.67E-05	0.00	3.08E+12	722.9341	227644.	0.00

61.8800	-0.02534	2568033.	-64143.	7.42E-05	0.00	3.09E+12	723.3584	232971.	0.00
62.5600	-0.02470	2068686.	-58249.	8.03E-05	0.00	3.09E+12	721.4113	238298.	0.00
63.2400	-0.02403	1617374.	-52379.	8.52E-05	0.00	3.09E+12	717.3066	243625.	0.00
63.9200	-0.02331	1213822.	-46550.	8.89E-05	0.00	3.09E+12	711.2543	248952.	0.00
64.6000	-0.02257	857630.	-40778.	9.16E-05	0.00	3.09E+12	703.4576	254279.	0.00
65.2800	-0.02182	548277.	-33737.	9.35E-05	0.00	3.09E+12	1022.	382318.	0.00
65.9600	-0.02105	306987.	-25298.	9.46E-05	0.00	3.09E+12	1046.	405613.	0.00
66.6400	-0.02027	135365.	-16756.	9.52E-05	0.00	3.09E+12	1047.	421604.	0.00
67.3200	-0.01949	33487.	-8291.	9.54E-05	0.00	3.09E+12	1027.	429914.	0.00
68.0000	-0.01872	0.00	0.00	9.55E-05	0.00	3.09E+12	1005.	219112.	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	=	3.14476918 inches
Computed slope at pile head	=	-0.00639880 radians
Maximum bending moment	=	23776809. inch-lbs
Maximum shear force	=	-147731. lbs
Depth of maximum bending moment	=	45.56000000 feet below pile head
Depth of maximum shear force	=	50.32000000 feet below pile head
Number of iterations	=	24
Number of zero deflection points	=	1

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	3.18
8.16	12.74
16.32	25.48
24.48	38.22
32.64	50.96
40.80	63.69
48.96	76.43
57.12	89.17
65.28	101.91
73.44	114.65
81.60	127.39
89.76	140.13
97.92	152.87
106.08	165.61
114.24	178.34
122.40	191.08
130.56	203.82
138.72	216.56
146.88	229.30
155.04	242.04
163.20	254.78
171.36	267.52
179.52	280.26
187.68	292.99
195.84	305.73
204.00	318.47
212.16	331.21
220.32	343.95
228.48	356.69
236.64	369.43
244.80	382.17
252.96	394.91
261.12	407.64
269.28	420.38
277.44	433.12
285.60	445.86
293.76	458.60
301.92	471.34

310.08	484.08
318.24	496.82
326.40	509.56
334.56	522.29
342.72	535.03
350.88	547.77
359.04	560.51
367.20	573.25
375.36	585.99
383.52	480.33

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	3.1448	2.06E-05	1.45E-07	-0.00640	0.00	3.09E+12	0.00	0.00	3.1847
0.6800	3.0926	1757.	64.9684	-0.00640	0.00	3.09E+12	0.00	0.00	12.7389
1.3600	3.0403	4362.	220.8926	-0.00640	0.00	3.09E+12	0.00	0.00	25.4778
2.0400	2.9881	8663.	480.7661	-0.00640	0.00	3.09E+12	0.00	0.00	38.2167
2.7200	2.9359	15509.	844.5892	-0.00640	0.00	3.09E+12	0.00	0.00	50.9556
3.4000	2.8837	25748.	1312.	-0.00640	0.00	3.09E+12	0.00	0.00	63.6945
4.0800	2.8315	40228.	1884.	-0.00640	0.00	3.09E+12	0.00	0.00	76.4334
4.7600	2.7793	59797.	2560.	-0.00640	0.00	3.09E+12	0.00	0.00	89.1723
5.4400	2.7271	85304.	3339.	-0.00640	0.00	3.09E+12	0.00	0.00	101.9112
6.1200	2.6749	117597.	4223.	-0.00640	0.00	3.09E+12	0.00	0.00	114.6501
6.8000	2.6226	157524.	5210.	-0.00640	0.00	3.09E+12	0.00	0.00	127.3890
7.4800	2.5704	205932.	6302.	-0.00640	0.00	3.09E+12	0.00	0.00	140.1279
8.1600	2.5182	263672.	7497.	-0.00640	0.00	3.09E+12	0.00	0.00	152.8668
8.8400	2.4661	331589.	8797.	-0.00640	0.00	3.09E+12	0.00	0.00	165.6057
9.5200	2.4139	410534.	10200.	-0.00639	0.00	3.09E+12	0.00	0.00	178.3446
10.2000	2.3617	501353.	11707.	-0.00639	0.00	3.09E+12	0.00	0.00	191.0835
10.8800	2.3095	604896.	13319.	-0.00639	0.00	3.09E+12	0.00	0.00	203.8224
11.5600	2.2574	722009.	15034.	-0.00639	0.00	3.09E+12	0.00	0.00	216.5613
12.2400	2.2052	853542.	16853.	-0.00639	0.00	3.09E+12	0.00	0.00	229.3002
12.9200	2.1531	1000343.	18776.	-0.00639	0.00	3.09E+12	0.00	0.00	242.0391
13.6000	2.1010	1163259.	20803.	-0.00638	0.00	3.09E+12	0.00	0.00	254.7780
14.2800	2.0489	1343139.	22934.	-0.00638	0.00	3.09E+12	0.00	0.00	267.5169
14.9600	1.9969	1540831.	25169.	-0.00638	0.00	3.09E+12	0.00	0.00	280.2558
15.6400	1.9449	1757183.	27508.	-0.00637	0.00	3.09E+12	0.00	0.00	292.9947
16.3200	1.8929	1993043.	29950.	-0.00637	0.00	3.09E+12	0.00	0.00	305.7336
17.0000	1.8410	2249258.	32497.	-0.00636	0.00	3.09E+12	0.00	0.00	318.4725
17.6800	1.7891	2526678.	35148.	-0.00635	0.00	3.09E+12	0.00	0.00	331.2114
18.3600	1.7373	2826151.	37903.	-0.00635	0.00	3.09E+12	0.00	0.00	343.9503
19.0400	1.6855	3148523.	40761.	-0.00634	0.00	3.08E+12	0.00	0.00	356.6892
19.7200	1.6338	3494644.	43724.	-0.00633	0.00	3.08E+12	0.00	0.00	369.4281
20.4000	1.5822	3865361.	46790.	-0.00632	0.00	3.08E+12	0.00	0.00	382.1670
21.0800	1.5307	4261522.	49961.	-0.00631	0.00	3.08E+12	0.00	0.00	394.9059
21.7600	1.4792	4683975.	53235.	-0.00630	0.00	3.08E+12	0.00	0.00	407.6448
22.4400	1.4279	5133568.	56613.	-0.00629	0.00	3.08E+12	0.00	0.00	420.3838
23.1200	1.3766	5611150.	60096.	-0.00627	0.00	3.07E+12	0.00	0.00	433.1227
23.8000	1.3255	6117567.	63682.	-0.00626	0.00	3.07E+12	0.00	0.00	445.8616
24.4800	1.2745	6653668.	67372.	-0.00624	0.00	3.07E+12	0.00	0.00	458.6005
25.1600	1.2237	7220300.	71166.	-0.00622	0.00	3.07E+12	0.00	0.00	471.3394
25.8400	1.1730	7818312.	75064.	-0.00620	0.00	3.06E+12	0.00	0.00	484.0783
26.5200	1.1225	8448552.	79067.	-0.00618	0.00	3.06E+12	0.00	0.00	496.8172
27.2000	1.0722	9111866.	83173.	-0.00616	0.00	3.06E+12	0.00	0.00	509.5561
27.8800	1.0221	9809103.	87382.	-0.00613	0.00	3.05E+12	0.00	0.00	522.2950
28.5600	0.9721	1.05E+07	91696.	-0.00610	0.00	3.05E+12	0.00	0.00	535.0339
29.2400	0.9225	1.13E+07	96114.	-0.00607	0.00	3.05E+12	0.00	0.00	547.7728
29.9200	0.8730	1.21E+07	100636.	-0.00601	0.00	9.81E+11	0.00	0.00	560.5117
30.6000	0.8244	1.30E+07	105262.	-0.00590	0.00	9.79E+11	0.00	0.00	573.2506
31.2800	0.7767	1.38E+07	109991.	-0.00579	0.00	9.76E+11	0.00	0.00	585.9895
31.9600	0.7299	1.48E+07	114342.	-0.00567	0.00	9.73E+11	0.00	0.00	480.3266
32.6400	0.6841	1.57E+07	115715.	-0.00554	0.00	9.71E+11	-143.9156	1717.	0.00
33.3200	0.6394	1.66E+07	113662.	-0.00541	0.00	9.69E+11	-359.1546	4583.	0.00

34.0000	0.5959	1.76E+07	109860.	-0.00526	0.00	9.67E+11	-572.6417	7842.	0.00
34.6800	0.5535	1.84E+07	104251.	-0.00511	0.00	9.65E+11	-802.1851	11826.	0.00
35.3600	0.5124	1.93E+07	96754.	-0.00495	0.00	9.63E+11	-1035.	16488.	0.00
36.0400	0.4727	2.00E+07	87376.	-0.00479	0.00	9.62E+11	-1263.	21803.	0.00
36.7200	0.4343	2.07E+07	76190.	-0.00461	0.00	9.61E+11	-1479.	27782.	0.00
37.4000	0.3974	2.13E+07	63302.	-0.00443	0.00	9.60E+11	-1680.	34499.	0.00
38.0800	0.3619	2.17E+07	48839.	-0.00425	0.00	9.59E+11	-1865.	42042.	0.00
38.7600	0.3280	2.21E+07	39189.	-0.00407	0.00	9.58E+11	-500.2866	12446.	0.00
39.4400	0.2956	2.24E+07	35120.	-0.00388	0.00	9.58E+11	-497.1665	13724.	0.00
40.1200	0.2647	2.26E+07	31105.	-0.00368	0.00	9.58E+11	-486.7500	15003.	0.00
40.8000	0.2355	2.29E+07	27203.	-0.00349	0.00	9.57E+11	-469.8070	16281.	0.00
41.4800	0.2078	2.31E+07	23462.	-0.00329	0.00	9.57E+11	-447.1146	17560.	0.00
42.1600	0.1817	2.33E+07	19926.	-0.00310	0.00	9.57E+11	-419.4554	18838.	0.00
42.8400	0.1572	2.34E+07	16633.	-0.00290	0.00	9.56E+11	-387.6163	20117.	0.00
43.5200	0.1344	2.35E+07	13614.	-0.00270	0.00	9.56E+11	-352.3867	21395.	0.00
44.2000	0.1132	2.36E+07	10893.	-0.00250	0.00	9.56E+11	-314.5577	22674.	0.00
44.8800	0.09366	2.37E+07	8488.	-0.00229	0.00	9.56E+11	-274.9209	23952.	0.00
45.5600	0.07577	2.38E+07	-10681.	-0.00209	0.00	9.56E+11	-4423.	476372.	0.00
46.2400	0.05953	2.35E+07	-44723.	-0.00189	0.00	9.56E+11	-3921.	537427.	0.00
46.9200	0.04493	2.30E+07	-74617.	-0.00169	0.00	9.57E+11	-3406.	618598.	0.00
47.6000	0.03194	2.23E+07	-100231.	-0.00150	0.00	9.58E+11	-2872.	733721.	0.00
48.2800	0.02050	2.14E+07	-121335.	-0.00131	0.00	9.60E+11	-2301.	915906.	0.00
48.9600	0.01054	2.03E+07	-137452.	-0.00113	0.00	9.61E+11	-1650.	1277233.	0.00
49.6400	0.00199	1.92E+07	-146188.	-9.66E-04	0.00	9.64E+11	-491.4849	2012452.	0.00
50.3200	-0.00523	1.80E+07	-147731.	-8.09E-04	0.00	9.66E+11	113.1752	176594.	0.00
51.0000	-0.01121	1.68E+07	-146243.	-6.63E-04	0.00	9.69E+11	251.7625	183200.	0.00
51.6800	-0.01605	1.56E+07	-143693.	-5.27E-04	0.00	9.71E+11	373.2376	189805.	0.00
52.3600	-0.01981	1.44E+07	-140224.	-4.01E-04	0.00	9.74E+11	476.8360	196410.	0.00
53.0400	-0.02259	1.33E+07	-135986.	-2.85E-04	0.00	9.77E+11	562.0183	203016.	0.00
53.7200	-0.02446	1.22E+07	-131129.	-1.79E-04	0.00	9.81E+11	628.4495	209621.	0.00
54.4000	-0.02551	1.11E+07	-125807.	-1.13E-04	0.00	3.05E+12	675.9799	216226.	0.00
55.0800	-0.02631	1.01E+07	-120117.	-8.48E-05	0.00	3.05E+12	718.5544	222831.	0.00
55.7600	-0.02689	9186460.	-114697.	-5.90E-05	0.00	3.06E+12	609.8452	185030.	0.00
56.4400	-0.02728	8270848.	-109613.	-3.57E-05	0.00	3.06E+12	636.3029	190356.	0.00
57.1200	-0.02748	7397599.	-104328.	-1.49E-05	0.00	3.07E+12	658.9445	195683.	0.00
57.8000	-0.02752	6568222.	-98874.	3.71E-06	0.00	3.07E+12	677.8911	201010.	0.00
58.4800	-0.02742	5783978.	-93279.	2.01E-05	0.00	3.07E+12	693.2882	206337.	0.00
59.1600	-0.02719	5045892.	-87573.	3.45E-05	0.00	3.08E+12	705.3016	211664.	0.00
59.8400	-0.02685	4354767.	-81782.	4.70E-05	0.00	3.08E+12	714.1147	216991.	0.00
60.5200	-0.02642	3711188.	-75931.	5.76E-05	0.00	3.08E+12	719.9235	222318.	0.00
61.2000	-0.02591	3115543.	-70044.	6.67E-05	0.00	3.08E+12	722.9341	227644.	0.00
61.8800	-0.02534	2568033.	-64143.	7.42E-05	0.00	3.09E+12	723.3584	232971.	0.00
62.5600	-0.02470	2068686.	-58249.	8.03E-05	0.00	3.09E+12	721.4113	238298.	0.00
63.2400	-0.02403	1617374.	-52379.	8.52E-05	0.00	3.09E+12	717.3066	243625.	0.00
63.9200	-0.02331	1213822.	-46550.	8.89E-05	0.00	3.09E+12	711.2543	248952.	0.00
64.6000	-0.02257	857630.	-40778.	9.16E-05	0.00	3.09E+12	703.4576	254279.	0.00
65.2800	-0.02182	548277.	-33737.	9.35E-05	0.00	3.09E+12	1022.	382318.	0.00
65.9600	-0.02105	306987.	-25298.	9.46E-05	0.00	3.09E+12	1046.	405613.	0.00
66.6400	-0.02027	135365.	-16756.	9.52E-05	0.00	3.09E+12	1047.	421604.	0.00
67.3200	-0.01949	33487.	-8291.	9.54E-05	0.00	3.09E+12	1027.	429914.	0.00
68.0000	-0.01872	0.00	0.00	9.55E-05	0.00	3.09E+12	1005.	219112.	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             =     3.14476918 inches
Computed slope at pile head      =    -0.00639880 radians
Maximum bending moment           =      23776809. inch-lbs
Maximum shear force              =       -147731. lbs
Depth of maximum bending moment  =    45.56000000 feet below pile head
Depth of maximum shear force     =    50.32000000 feet below pile head
Number of iterations             =             24
Number of zero deflection points =              1
```

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	3.18
8.16	12.74
16.32	25.48
24.48	38.22
32.64	50.96
40.80	63.69
48.96	76.43
57.12	89.17
65.28	101.91
73.44	114.65
81.60	127.39
89.76	140.13
97.92	152.87
106.08	165.61
114.24	178.34
122.40	191.08
130.56	203.82
138.72	216.56
146.88	229.30
155.04	242.04
163.20	254.78
171.36	267.52
179.52	280.26
187.68	292.99
195.84	305.73
204.00	318.47
212.16	331.21
220.32	343.95
228.48	356.69
236.64	369.43
244.80	382.17
252.96	394.91
261.12	407.64
269.28	420.38
277.44	433.12
285.60	445.86
293.76	458.60
301.92	471.34
310.08	484.08
318.24	496.82
326.40	509.56
334.56	522.29
342.72	535.03
350.88	547.77
359.04	560.51
367.20	573.25
375.36	585.99
383.52	480.33

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	5.4093	0.00182	2.90E-06	-0.01099	0.00	3.09E+12	0.00	0.00	4.7771
0.6800	5.3196	4412.	97.4525	-0.01099	0.00	3.09E+12	0.00	0.00	19.1084
1.3600	5.2299	10096.	331.3388	-0.01099	0.00	3.09E+12	0.00	0.00	38.2167
2.0400	5.1402	18325.	721.1492	-0.01099	0.00	3.09E+12	0.00	0.00	57.3251
2.7200	5.0506	30370.	1267.	-0.01099	0.00	3.09E+12	0.00	0.00	76.4334
3.4000	4.9609	47505.	1969.	-0.01099	0.00	3.09E+12	0.00	0.00	95.5418
4.0800	4.8712	71002.	2826.	-0.01099	0.00	3.09E+12	0.00	0.00	114.6501
4.7600	4.7815	102133.	3840.	-0.01099	0.00	3.09E+12	0.00	0.00	133.7585
5.4400	4.6918	142170.	5009.	-0.01099	0.00	3.09E+12	0.00	0.00	152.8668

6.1200	4.6022	192385.	6334.	-0.01099	0.00	3.09E+12	0.00	0.00	171.9752
6.8000	4.5125	254052.	7816.	-0.01099	0.00	3.09E+12	0.00	0.00	191.0835
7.4800	4.4228	328442.	9453.	-0.01099	0.00	3.09E+12	0.00	0.00	210.1919
8.1600	4.3332	416827.	11246.	-0.01099	0.00	3.09E+12	0.00	0.00	229.3002
8.8400	4.2435	520479.	13195.	-0.01099	0.00	3.09E+12	0.00	0.00	248.4086
9.5200	4.1539	640672.	15300.	-0.01098	0.00	3.09E+12	0.00	0.00	267.5169
10.2000	4.0643	778677.	17561.	-0.01098	0.00	3.09E+12	0.00	0.00	286.6253
10.8800	3.9747	935766.	19978.	-0.01098	0.00	3.09E+12	0.00	0.00	305.7336
11.5600	3.8851	1113211.	22551.	-0.01098	0.00	3.09E+12	0.00	0.00	324.8420
12.2400	3.7955	1312285.	25279.	-0.01097	0.00	3.09E+12	0.00	0.00	343.9503
12.9200	3.7060	1534260.	28164.	-0.01097	0.00	3.09E+12	0.00	0.00	363.0587
13.6000	3.6165	1780408.	31204.	-0.01097	0.00	3.09E+12	0.00	0.00	382.1670
14.2800	3.5270	2052001.	34401.	-0.01096	0.00	3.09E+12	0.00	0.00	401.2754
14.9600	3.4376	2350311.	37753.	-0.01095	0.00	3.09E+12	0.00	0.00	420.3838
15.6400	3.3482	2676610.	41261.	-0.01095	0.00	3.09E+12	0.00	0.00	439.4921
16.3200	3.2589	3032170.	44926.	-0.01094	0.00	3.08E+12	0.00	0.00	458.6005
17.0000	3.1697	3418264.	48746.	-0.01093	0.00	3.08E+12	0.00	0.00	477.7088
17.6800	3.0805	3836162.	52722.	-0.01092	0.00	3.08E+12	0.00	0.00	496.8172
18.3600	2.9914	4287137.	56854.	-0.01091	0.00	3.08E+12	0.00	0.00	515.9255
19.0400	2.9024	4772461.	61142.	-0.01090	0.00	3.08E+12	0.00	0.00	535.0339
19.7200	2.8135	5293406.	65586.	-0.01089	0.00	3.08E+12	0.00	0.00	554.1422
20.4000	2.7248	5851243.	70185.	-0.01087	0.00	3.07E+12	0.00	0.00	573.2506
21.0800	2.6361	6447245.	74941.	-0.01086	0.00	3.07E+12	0.00	0.00	592.3589
21.7600	2.5476	7082682.	79853.	-0.01084	0.00	3.07E+12	0.00	0.00	611.4673
22.4400	2.4592	7758827.	84920.	-0.01082	0.00	3.06E+12	0.00	0.00	630.5756
23.1200	2.3711	8476951.	90144.	-0.01080	0.00	3.06E+12	0.00	0.00	649.6840
23.8000	2.2831	9238326.	95523.	-0.01077	0.00	3.06E+12	0.00	0.00	668.7923
24.4800	2.1953	1.00E+07	101058.	-0.01075	0.00	3.05E+12	0.00	0.00	687.9007
25.1600	2.1077	1.09E+07	106750.	-0.01072	0.00	3.05E+12	0.00	0.00	707.0090
25.8400	2.0203	1.18E+07	112597.	-0.01066	0.00	9.99E+11	0.00	0.00	726.1174
26.5200	1.9338	1.27E+07	118600.	-0.01056	0.00	9.94E+11	0.00	0.00	745.2257
27.2000	1.8481	1.37E+07	124759.	-0.01045	0.00	9.90E+11	0.00	0.00	764.3341
27.8800	1.7633	1.48E+07	131074.	-0.01033	0.00	9.86E+11	0.00	0.00	783.4424
28.5600	1.6795	1.59E+07	137545.	-0.01020	0.00	9.82E+11	0.00	0.00	802.5508
29.2400	1.5968	1.70E+07	144171.	-0.01006	0.00	9.79E+11	0.00	0.00	821.6592
29.9200	1.5152	1.82E+07	150954.	-0.00992	0.00	9.76E+11	0.00	0.00	840.7675
30.6000	1.4349	1.95E+07	157893.	-0.00976	0.00	9.72E+11	0.00	0.00	859.8759
31.2800	1.3560	2.08E+07	164987.	-0.00959	0.00	9.69E+11	0.00	0.00	878.9842
31.9600	1.2784	2.22E+07	171513.	-0.00941	0.00	9.66E+11	0.00	0.00	720.4899
32.6400	1.2024	2.36E+07	173769.	-0.00921	0.00	9.64E+11	-167.4510	1136.	0.00
33.3200	1.1281	2.51E+07	171376.	-0.00901	0.00	9.61E+11	-419.0927	3032.	0.00
34.0000	1.0554	2.64E+07	166928.	-0.00879	0.00	9.58E+11	-671.1346	5189.	0.00
34.6800	0.9846	2.78E+07	160334.	-0.00856	0.00	9.56E+11	-945.0140	7832.	0.00
35.3600	0.9158	2.91E+07	151487.	-0.00831	0.00	9.54E+11	-1223.	10901.	0.00
36.0400	0.8489	3.03E+07	140387.	-0.00806	0.00	9.52E+11	-1497.	14391.	0.00
36.7200	0.7842	3.14E+07	127100.	-0.00780	0.00	9.50E+11	-1759.	18305.	0.00
37.4000	0.7217	3.23E+07	111737.	-0.00752	0.00	9.49E+11	-2006.	22684.	0.00
38.0800	0.6615	3.32E+07	94432.	-0.00724	0.00	9.48E+11	-2235.	27574.	0.00
38.7600	0.6035	3.39E+07	81557.	-0.00695	0.00	9.47E+11	-920.5388	12446.	0.00
39.4400	0.5480	3.45E+07	74040.	-0.00666	0.00	9.46E+11	-921.6899	13724.	0.00
40.1200	0.4949	3.51E+07	66567.	-0.00636	0.00	9.45E+11	-909.9089	15003.	0.00
40.8000	0.4443	3.56E+07	59238.	-0.00605	0.00	9.44E+11	-886.4236	16281.	0.00
41.4800	0.3961	3.61E+07	52144.	-0.00574	0.00	9.43E+11	-852.4793	17560.	0.00
42.1600	0.3506	3.65E+07	45363.	-0.00543	0.00	9.43E+11	-809.3348	18838.	0.00
42.8400	0.3076	3.68E+07	38968.	-0.00511	0.00	9.42E+11	-758.2600	20117.	0.00
43.5200	0.2672	3.71E+07	33016.	-0.00479	0.00	9.42E+11	-700.5329	21395.	0.00
44.2000	0.2294	3.74E+07	27557.	-0.00447	0.00	9.42E+11	-637.4374	22674.	0.00
44.8800	0.1943	3.76E+07	22629.	-0.00414	0.00	9.41E+11	-570.2608	23952.	0.00
45.5600	0.1618	3.77E+07	-5939.	-0.00382	0.00	9.41E+11	-6432.	324364.	0.00
46.2400	0.1320	3.75E+07	-56001.	-0.00349	0.00	9.42E+11	-5838.	360908.	0.00
46.9200	0.1048	3.68E+07	-101050.	-0.00317	0.00	9.42E+11	-5203.	404955.	0.00
47.6000	0.08029	3.58E+07	-140857.	-0.00285	0.00	9.44E+11	-4553.	462744.	0.00
48.2800	0.05827	3.45E+07	-175261.	-0.00255	0.00	9.46E+11	-3879.	543202.	0.00
48.9600	0.03868	3.30E+07	-203981.	-0.00226	0.00	9.48E+11	-3160.	666746.	0.00
49.6400	0.02140	3.12E+07	-226465.	-0.00198	0.00	9.51E+11	-2351.	896379.	0.00
50.3200	0.00631	2.93E+07	-236612.	-0.00172	0.00	9.54E+11	-136.4672	176594.	0.00
51.0000	-0.00674	2.73E+07	-236552.	-0.00148	0.00	9.57E+11	151.3887	183200.	0.00
51.6800	-0.01789	2.54E+07	-234236.	-0.00126	0.00	9.60E+11	416.1185	189805.	0.00
52.3600	-0.02727	2.35E+07	-229860.	-0.00105	0.00	9.64E+11	656.4745	196410.	0.00
53.0400	-0.03503	2.17E+07	-223625.	-8.60E-04	0.00	9.67E+11	871.5987	203016.	0.00
53.7200	-0.04130	1.99E+07	-215740.	-6.85E-04	0.00	9.71E+11	1061.	209621.	0.00
54.4000	-0.04621	1.81E+07	-206416.	-5.25E-04	0.00	9.76E+11	1224.	216226.	0.00
55.0800	-0.04988	1.65E+07	-195944.	-3.81E-04	0.00	9.80E+11	1342.	219575.	0.00
55.7600	-0.05242	1.49E+07	-186493.	-2.50E-04	0.00	9.85E+11	974.3550	151661.	0.00
56.4400	-0.05396	1.35E+07	-178358.	-1.33E-04	0.00	9.91E+11	1020.	154167.	0.00
57.1200	-0.05460	1.20E+07	-169896.	-2.85E-05	0.00	9.98E+11	1055.	157633.	0.00
57.8000	-0.05443	1.07E+07	-161186.	3.51E-05	0.00	3.05E+12	1080.	161913.	0.00
58.4800	-0.05402	9404587.	-152288.	6.19E-05	0.00	3.06E+12	1101.	166309.	0.00
59.1600	-0.05342	8198548.	-143234.	8.54E-05	0.00	3.06E+12	1118.	170790.	0.00

59.8400	-0.05263	7066944.	-134059.	1.06E-04	0.00	3.07E+12	1131.	175325.	0.00
60.5200	-0.05169	6010628.	-124796.	1.23E-04	0.00	3.07E+12	1140.	179884.	0.00
61.2000	-0.05062	5030182.	-115365.	1.38E-04	0.00	3.08E+12	1172.	188894.	0.00
61.8800	-0.04944	4127757.	-105653.	1.50E-04	0.00	3.08E+12	1209.	199480.	0.00
62.5600	-0.04818	3305810.	-95648.	1.60E-04	0.00	3.08E+12	1244.	210643.	0.00
63.2400	-0.04684	2566665.	-85365.	1.68E-04	0.00	3.09E+12	1277.	222407.	0.00
63.9200	-0.04544	1912518.	-74822.	1.73E-04	0.00	3.09E+12	1308.	234797.	0.00
64.6000	-0.04401	1345432.	-64034.	1.78E-04	0.00	3.09E+12	1337.	247838.	0.00
65.2800	-0.04254	867341.	-52322.	1.81E-04	0.00	3.09E+12	1534.	294267.	0.00
65.9600	-0.04106	491399.	-39655.	1.82E-04	0.00	3.09E+12	1571.	312150.	0.00
66.6400	-0.03956	220038.	-26699.	1.83E-04	0.00	3.09E+12	1605.	330987.	0.00
67.3200	-0.03807	55532.	-13474.	1.84E-04	0.00	3.09E+12	1637.	350833.	0.00
68.0000	-0.03657	0.00	0.00	1.84E-04	0.00	3.09E+12	1666.	185878.	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 = 5.40928351 inches
Computed slope at pile head = -0.01099049 radians
Maximum bending moment = 37734145. inch-lbs
Maximum shear force = -236612. lbs
Depth of maximum bending moment = 45.56000000 feet below pile head
Depth of maximum shear force = 50.32000000 feet below pile head
Number of iterations = 40
Number of zero deflection points = 1

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	31613.	3.14476918	23776809.	-147731.	-0.00639880
2	0.000000	0.000000	31613.	3.14476918	23776809.	-147731.	-0.00639880
3	0.000000	0.000000	47420.	5.40928351	37734145.	-236612.	-0.01099049

Maximum pile-head deflection = 5.4092835111 inches
Maximum pile-head rotation = -0.0109904943 radians = -0.629709 deg.

LRFD Performance by Load Case Combination

Load Case No.	Section No.	Resistance Factor for Moment	Factored Moment Capacity of Section in-lbs	Maximum Moment Developed in Section in-lbs	Fact. Mom. Fraction Developed in Section	Pass/Fail for LRFD Moment	Maximum Shear Developed in Section lbs	Pile-top Deflection Developed inches	Pile-top Rotation Developed Radians	Name of Load Case Combination
1	1	1.00	75693315.	23776809.	0.314120	Pass	-147731.	3.144769	-0.006399	Soil Only
2	1	1.00	75693315.	23776809.	0.314120	Pass	-147731.	3.144769	-0.006399	Service 1
3	1	0.90	68397905.	37734145.	0.551686	Pass	-236612.	5.409284	-0.010990	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.
```

```
================================================================================

                     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:
\2015\2015370\FRA\96053\structures\wall_4W16\design\Checked Lpile runs\

Name of input data file:
Wall 4W16 Tangent Shaft Design - East Qtr.lp11

Name of output report file:
Wall 4W16 Tangent Shaft Design - East Qtr.lp11

Name of plot output file:
Wall 4W16 Tangent Shaft Design - East Qtr.lp11

Name of runtime message file:
Wall 4W16 Tangent Shaft Design - East Qtr.lp11



--------------------------------------------------------------------------------
                            Date and Time of Analysis
--------------------------------------------------------------------------------

               Date:  July 29, 2019               Time:  14:15:56



--------------------------------------------------------------------------------
                                  Problem Title
--------------------------------------------------------------------------------

FRA-70-14.05 - Wall 4W16 East Qtr of wall

Job Number:

Client:

Engineer: TJW

Description: Tangent 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 = 64.000 ft
Depth of ground surface below top of pile = 30.4600 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	64.000	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 = 64.000000 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 7 layers

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

Distance from top of pile to top of layer	=	30.460000 ft
Distance from top of pile to bottom of layer	=	36.560000 ft
Effective unit weight at top of layer	=	140.000000 pcf
Effective unit weight at bottom of layer	=	140.000000 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	=	355.000000 pci
Subgrade k at bottom of layer	=	355.000000 pci

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

Distance from top of pile to top of layer	=	36.560000 ft
Distance from top of pile to bottom of layer	=	37.560000 ft
Effective unit weight at top of layer	=	140.000000 pcf
Effective unit weight at bottom of layer	=	140.000000 pcf
Friction angle at top of layer	=	39.000000 deg.
Friction angle at bottom of layer	=	39.000000 deg.
Subgrade k at top of layer	=	140.000000 pci
Subgrade k at bottom of layer	=	140.000000 pci

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

Distance from top of pile to top of layer	=	37.560000 ft
Distance from top of pile to bottom of layer	=	41.560000 ft
Effective unit weight at top of layer	=	77.600000 pcf
Effective unit weight at bottom of layer	=	77.600000 pcf
Friction angle at top of layer	=	39.000000 deg.
Friction angle at bottom of layer	=	39.000000 deg.
Subgrade k at top of layer	=	140.000000 pci
Subgrade k at bottom of layer	=	140.000000 pci

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

Distance from top of pile to top of layer	=	41.560000 ft
Distance from top of pile to bottom of layer	=	46.560000 ft
Effective unit weight at top of layer	=	77.600000 pcf
Effective unit weight at bottom of layer	=	77.600000 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 5 is stiff clay with water-induced erosion

Distance from top of pile to top of layer	=	46.560000 ft
Distance from top of pile to bottom of layer	=	51.560000 ft
Effective unit weight at top of layer	=	77.600000 pcf
Effective unit weight at bottom of layer	=	77.600000 pcf
Undrained cohesion at top of layer	=	8000. psf
Undrained cohesion at bottom of layer	=	8000. psf
Epsilon-50 at top of layer	=	0.003300
Epsilon-50 at bottom of layer	=	0.003300
Subgrade k at top of layer	=	2665. pci
Subgrade k at bottom of layer	=	2665. pci

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

Distance from top of pile to top of layer	=	51.560000 ft
Distance from top of pile to bottom of layer	=	56.560000 ft
Effective unit weight at top of layer	=	67.600000 pcf
Effective unit weight at bottom of layer	=	67.600000 pcf
Friction angle at top of layer	=	33.000000 deg.
Friction angle at bottom of layer	=	33.000000 deg.
Subgrade k at top of layer	=	60.000000 pci
Subgrade k at bottom of layer	=	60.000000 pci

Layer 7 is sand, p-y criteria by Reese et al., 1974

```
   Distance from top of pile to top of layer          =    56.560000 ft
   Distance from top of pile to bottom of layer       =    74.560000 ft
   Effective unit weight at top of layer              =    77.600000 pcf
   Effective unit weight at bottom of layer           =    77.600000 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 10.560 ft below the pile tip)


**** Warning - Possible Input Data Error ****

Values entered for effective unit weights of soil were outside the limits of
20 pcf to 140 pcf.

The maximum input value, in layer   1, for effective unit weight = 140.00 pcf

This data may be erroneous. Please check your data.
```

Summary of Input Soil Properties

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	30.4600	140.0000	--	42.0000	--	355.0000
	(Reese, et al.)	36.5600	140.0000	--	42.0000	--	355.0000
2	Sand	36.5600	140.0000	--	39.0000	--	140.0000
	(Reese, et al.)	37.5600	140.0000	--	39.0000	--	140.0000
3	Sand	37.5600	77.6000	--	39.0000	--	140.0000
	(Reese, et al.)	41.5600	77.6000	--	39.0000	--	140.0000
4	Sand	41.5600	77.6000	--	43.0000	--	215.0000
	(Reese, et al.)	46.5600	77.6000	--	43.0000	--	215.0000
5	Stiff Clay	46.5600	77.6000	8000.	--	0.00330	2665.
	with Free Water	51.5600	77.6000	8000.	--	0.00330	2665.
6	Sand	51.5600	67.6000	--	33.0000	--	60.0000
	(Reese, et al.)	56.5600	67.6000	--	33.0000	--	60.0000
7	Sand	56.5600	77.6000	--	42.0000	--	195.0000
	(Reese, et al.)	74.5600	77.6000	--	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	30.460	0.6400	1.0000
2	95.000	0.6400	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 = 1

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	31613.00	2

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

Point	Depth in	Distributed Load lb/inch
1	0.00	0.00
2	366.00	571.10

Totals of Unfactored Loads by Load Type for LRFD Analyses

Number of Defined Unfactored Load Cases = 1

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	0.00	0
Live Loads	(LL)	0.00	0.00	0.00	0
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	31613.00	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)	0.00	0.00	0.00	0
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	1.00	Soil Only
2	1.00	1.00	--	--	--	--	--	1.00	--	--	--	--	--	1.00	1.00	Service 1
3	1.00	1.75	--	--	--	--	--	1.50	--	--	--	--	--	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*DL + 1.00*Hs

Factored Horizontal Force = 0.00 lbs
Factored Vertical Force = 31613.00 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

Factored Horizontal Force = 0.00 lbs
Factored Vertical Force = 31613.00 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 = 1.00*DL + 1.75*LL + 1.50*Hs

Factored Horizontal Force = 0.00 lbs
Factored Vertical Force = 47419.50 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	31613.00	Soil Only
2	0.00	0.00	31613.00	Service 1
3	0.00	0.00	47419.50	Strength 1

Sorted Values of Axial Thrust Forces Sorted for LRFD Computations:

Number of Unique Axial Thrust Values = 2

Number	Factored Axial Thrust
1	31613.000
2	52688.333

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness
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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 = 64.000000 ft
Shaft Diameter = 60.000000 in
Concrete Cover Thickness (to edge of long. rebar) = 6.500000 in
Number of Reinforcing Bars = 40 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 = 62.400000 sq. in.
Area Ratio of Steel Reinforcement = 2.21 percent
Edge-to-Edge Bar Spacing = 2.166950 in
Maximum Concrete Aggregate Size = 0.375000 in
Ratio of Bar Spacing to Aggregate Size = 5.78
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 = 13145.114 kips
Tensile Load for Cracking of Concrete = -1358.778 kips
Nominal Axial Tensile Capacity = -3744.000 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.410000	1.560000	22.795000	0.00000
2	1.410000	1.560000	22.514356	3.565924
3	1.410000	1.560000	21.679333	7.044042
4	1.410000	1.560000	20.310494	10.348713
5	1.410000	1.560000	18.441542	13.398565
6	1.410000	1.560000	16.118499	16.118499
7	1.410000	1.560000	13.398565	18.441542
8	1.410000	1.560000	10.348713	20.310494
9	1.410000	1.560000	7.044042	21.679333
10	1.410000	1.560000	3.565924	22.514356
11	1.410000	1.560000	0.00000	22.795000
12	1.410000	1.560000	-3.565924	22.514356
13	1.410000	1.560000	-7.044042	21.679333
14	1.410000	1.560000	-10.348713	20.310494
15	1.410000	1.560000	-13.398565	18.441542
16	1.410000	1.560000	-16.118499	16.118499
17	1.410000	1.560000	-18.441542	13.398565
18	1.410000	1.560000	-20.310494	10.348713
19	1.410000	1.560000	-21.679333	7.044042
20	1.410000	1.560000	-22.514356	3.565924
21	1.410000	1.560000	-22.795000	0.00000
22	1.410000	1.560000	-22.514356	-3.565924
23	1.410000	1.560000	-21.679333	-7.044042
24	1.410000	1.560000	-20.310494	-10.348713
25	1.410000	1.560000	-18.441542	-13.398565
26	1.410000	1.560000	-16.118499	-16.118499
27	1.410000	1.560000	-13.398565	-18.441542
28	1.410000	1.560000	-10.348713	-20.310494
29	1.410000	1.560000	-7.044042	-21.679333
30	1.410000	1.560000	-3.565924	-22.514356
31	1.410000	1.560000	0.00000	-22.795000
32	1.410000	1.560000	3.565924	-22.514356
33	1.410000	1.560000	7.044042	-21.679333
34	1.410000	1.560000	10.348713	-20.310494
35	1.410000	1.560000	13.398565	-18.441542
36	1.410000	1.560000	16.118499	-16.118499
37	1.410000	1.560000	18.441542	-13.398565
38	1.410000	1.560000	20.310494	-10.348713
39	1.410000	1.560000	21.679333	-7.044042
40	1.410000	1.560000	22.514356	-3.565924

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

Minimum spacing between any two bars not equal to zero = 2.167 inches
between bars 34 and 35.

Ratio of bar spacing to maximum aggregate size = 5.78

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	=	0.375000 in

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

Number	Axial Thrust Force kips
1	31.613
2	52.688

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 = 31.613 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	1289.	3093570837.	35.6187517	0.00001484	-0.00001016	0.0621702	0.3542683	
8.33333E-07	2573.	3087898630.	32.8161538	0.00002735	-0.00002265	0.1140967	0.6408071	
0.00000125	3853.	3082058802.	31.8820034	0.00003985	-0.00003515	0.1656788	0.9273476	
0.00000167	5127.	3076176477.	31.4149502	0.00005236	-0.00004764	0.2169164	1.2138893	
0.00000208	6396.	3070277094.	31.1347333	0.00006486	-0.00006014	0.2678095	1.5004318	
0.00000250	7661.	3064369171.	30.9479342	0.00007737	-0.00007263	0.3183581	1.7869752	
0.00000292	8920.	3058456367.	30.8145166	0.00008988	-0.00008512	0.3685621	2.0735195	
0.00000333	10175.	3052540507.	30.7144621	0.0001024	-0.00009762	0.4184216	2.3600647	
0.00000375	11425.	3046622610.	30.6366498	0.0001149	-0.0001101	0.4679366	2.6466107	
0.00000417	11425.	2741960349.	19.5771496	0.00008157	-0.0001684	0.3334042	-4.1231777	C
0.00000458	11425.	2492691227.	19.4471749	0.00008913	-0.0001859	0.3635382	-4.5527713	C
0.00000500	11425.	2284966958.	19.3379740	0.00009669	-0.0002033	0.3935300	-4.9824938	C
0.00000542	11425.	2109200269.	19.2463819	0.0001043	-0.0002207	0.4234151	-5.4120892	C
0.00000583	11425.	1958543107.	19.1686276	0.0001118	-0.0002382	0.4531934	-5.8415571	C
0.00000625	11425.	1827973566.	19.1019456	0.0001194	-0.0002556	0.4828648	-6.2708973	C
0.00000667	11425.	1713725218.	19.0442617	0.0001270	-0.0002730	0.5124291	-6.7001094	C
0.00000708	11425.	1612917853.	18.9939900	0.0001345	-0.0002905	0.5418861	-7.1291929	C
0.00000750	11425.	1523311305.	18.9498969	0.0001421	-0.0003079	0.5712355	-7.5581474	C
0.00000792	11425.	1443137026.	18.9110085	0.0001497	-0.0003253	0.6004774	-7.9869726	C
0.00000833	11425.	1370980175.	18.8758578	0.0001573	-0.0003427	0.6295891	-8.4158343	C
0.00000875	11425.	1305695404.	18.8442887	0.0001649	-0.0003601	0.6585836	-8.8446367	C
0.00000917	11425.	1246345613.	18.8160928	0.0001725	-0.0003775	0.6874706	-9.2733053	C
0.00000958	11425.	1192156674.	18.7908318	0.0001801	-0.0003949	0.7162500	-9.7018396	C
0.00001000	11425.	1142483479.	18.7681401	0.0001877	-0.0004123	0.7449216	-10.1302396	C
0.00001042	11425.	1096784140.	18.7477109	0.0001953	-0.0004297	0.7734852	-10.5585042	C
0.00001083	11425.	1054600134.	18.7292844	0.0002029	-0.0004471	0.8019406	-10.9866333	C
0.00001125	11425.	1015540870.	18.7126396	0.0002105	-0.0004645	0.8302878	-11.4146265	C
0.00001167	11475.	983603965.	18.6975866	0.0002181	-0.0004819	0.8585264	-11.8424833	C
0.00001208	11868.	982156678.	18.6839622	0.0002258	-0.0004992	0.8866563	-12.2702034	C
0.00001250	12260.	980783641.	18.6716246	0.0002334	-0.0005166	0.9146773	-12.6977862	C
0.00001292	12652.	979477611.	18.6604505	0.0002410	-0.0005340	0.9425892	-13.1252313	C
0.00001333	13043.	978232247.	18.6503319	0.0002487	-0.0005513	0.9703919	-13.5525384	C
0.00001375	13434.	977041978.	18.6411741	0.0002563	-0.0005687	0.9980852	-13.9797069	C
0.00001417	13825.	975901888.	18.6328932	0.0002640	-0.0005860	1.0256688	-14.4067364	C
0.00001458	14216.	974807623.	18.6254153	0.0002716	-0.0006034	1.0531427	-14.8336265	C
0.00001500	14606.	973755310.	18.6186744	0.0002793	-0.0006207	1.0805065	-15.2603766	C

0.00001542	14996.	972741498.	18.6126119	0.0002869	-0.0006381	1.1077601	-15.6869864 C
0.00001583	15386.	971763097.	18.6071750	0.0002946	-0.0006554	1.1349034	-16.1134555 C
0.00001625	15776.	970817333.	18.6023168	0.0003023	-0.0006727	1.1619361	-16.5397832 C
0.00001708	16554.	969013968.	18.5941704	0.0003177	-0.0007073	1.2156690	-17.3920131 C
0.00001792	17331.	967314205.	18.5878800	0.0003330	-0.0007420	1.2689574	-18.2436723 C
0.00001875	18107.	965703871.	18.5832053	0.0003484	-0.0007766	1.3217996	-19.0947571 C
0.00001958	18882.	964171209.	18.5799465	0.0003639	-0.0008111	1.3741941	-19.9452637 C
0.00002042	19655.	962706382.	18.5779370	0.0003793	-0.0008457	1.4261394	-20.7951881 C
0.00002125	20428.	961301091.	18.5770360	0.0003948	-0.0008802	1.4776337	-21.6445265 C
0.00002208	21199.	959948284.	18.5771242	0.0004102	-0.0009148	1.5286755	-22.4932750 C
0.00002292	21969.	958641934.	18.5780998	0.0004257	-0.0009493	1.5792632	-23.3414294 C
0.00002375	22738.	957376856.	18.5798753	0.0004413	-0.0009837	1.6293951	-24.1889858 C
0.00002458	23505.	956148565.	18.5823750	0.0004568	-0.0010182	1.6790695	-25.0359401 C
0.00002542	24272.	954953159.	18.5855334	0.0004724	-0.0010526	1.7282848	-25.8822880 C
0.00002625	25037.	953787232.	18.5892933	0.0004880	-0.0010870	1.7770392	-26.7280254 C
0.00002708	25801.	952647790.	18.5936046	0.0005036	-0.0011214	1.8253310	-27.5731480 C
0.00002792	26564.	951532196.	18.5984233	0.0005192	-0.0011558	1.8731586	-28.4176515 C
0.00002875	27325.	950438116.	18.6037104	0.0005349	-0.0011901	1.9205201	-29.2615315 C
0.00002958	28085.	949363473.	18.6094316	0.0005505	-0.0012245	1.9674138	-30.1047835 C
0.00003042	28844.	948306419.	18.6155563	0.0005662	-0.0012588	2.0138378	-30.9474032 C
0.00003125	29602.	947265296.	18.6220571	0.0005819	-0.0012931	2.0597905	-31.7893858 C
0.00003208	30358.	946238618.	18.6289099	0.0005977	-0.0013273	2.1052698	-32.6307269 C
0.00003292	31114.	945225046.	18.6360926	0.0006134	-0.0013616	2.1502741	-33.4714218 C
0.00003375	31868.	944223369.	18.6435857	0.0006292	-0.0013958	2.1948015	-34.3114657 C
0.00003458	32620.	943232493.	18.6513715	0.0006450	-0.0014300	2.2388499	-35.1508539 C
0.00003542	33371.	942251420.	18.6594342	0.0006609	-0.0014641	2.2824176	-35.9895815 C
0.00003625	34121.	941279244.	18.6677592	0.0006767	-0.0014983	2.3255026	-36.8276435 C
0.00003708	34870.	940315137.	18.6763335	0.0006926	-0.0015324	2.3681030	-37.6650351 C
0.00003792	35617.	939358340.	18.6851454	0.0007085	-0.0015665	2.4102168	-38.5017511 C
0.00003875	36363.	938408158.	18.6941839	0.0007244	-0.0016006	2.4518419	-39.3377864 C
0.00003958	37108.	937463950.	18.7034393	0.0007403	-0.0016347	2.4929765	-40.1731359 C
0.00004042	37851.	936525126.	18.7129028	0.0007563	-0.0016687	2.5336184	-41.0077942 C
0.00004125	38593.	935591141.	18.7225660	0.0007723	-0.0017027	2.5737655	-41.8417561 C
0.00004208	39334.	934661491.	18.7324217	0.0007883	-0.0017367	2.6134159	-42.6750162 C
0.00004292	40073.	933735707.	18.7424629	0.0008044	-0.0017706	2.6525673	-43.5075689 C
0.00004375	40811.	932813354.	18.7526835	0.0008204	-0.0018046	2.6912177	-44.3394087 C
0.00004458	41547.	931894026.	18.7630778	0.0008365	-0.0018385	2.7293649	-45.1705300 C
0.00004542	42282.	930977345.	18.7736405	0.0008526	-0.0018724	2.7670068	-46.0009271 C
0.00004625	43015.	930063002.	18.7843669	0.0008688	-0.0019062	2.8041411	-46.8305927 C
0.00004708	43748.	929150576.	18.7952526	0.0008849	-0.0019401	2.8407655	-47.6595237 C
0.00004792	44478.	928239798.	18.8062936	0.0009011	-0.0019739	2.8768778	-48.4877128 C
0.00004875	45207.	927330377.	18.8174861	0.0009174	-0.0020076	2.9124757	-49.3151539 C
0.00004958	45935.	926422036.	18.8288268	0.0009336	-0.0020414	2.9475570	-50.1418409 C
0.00005292	48831.	922794461.	18.8756140	0.0009988	-0.0021762	3.0826675	-53.4409222 C
0.00005625	51703.	919168484.	18.9237666	0.0010645	-0.0023105	3.2092329	-56.7287307 C
0.00005958	54551.	915533497.	18.9730868	0.0011305	-0.0024445	3.3270868	-60.0000000 CY
0.00006292	57159.	908491375.	18.9997193	0.0011954	-0.0025796	3.4336840	-60.0000000 CY
0.00006625	59138.	892642856.	18.9611103	0.0012562	-0.0027188	3.5250569	-60.0000000 CY
0.00006958	60778.	873453529.	18.8942277	0.0013147	-0.0028603	3.6054382	-60.0000000 CY
0.00007292	62165.	852548426.	18.8070416	0.0013713	-0.0030037	3.6760519	-60.0000000 CY
0.00007625	63421.	831756290.	18.7170463	0.0014272	-0.0031478	3.7388477	-60.0000000 CY
0.00007958	64474.	810143487.	18.6145492	0.0014814	-0.0032936	3.7933498	-60.0000000 CY
0.00008292	65484.	789751856.	18.5196202	0.0015356	-0.0034394	3.8414332	-60.0000000 CY
0.00008625	66318.	768908600.	18.4142029	0.0015882	-0.0035868	3.8820414	-60.0000000 CY
0.00008958	67106.	749093728.	18.3148516	0.0016407	-0.0037343	3.9165560	-60.0000000 CY
0.00009292	67865.	730387889.	18.2196898	0.0016929	-0.0038821	3.9449760	-60.0000000 CY
0.00009625	68490.	711580215.	18.1159349	0.0017437	-0.0040313	3.9669391	-60.0000000 CY
0.00009958	69061.	693503842.	18.0155491	0.0017940	-0.0041810	3.9832403	-60.0000000 CY
0.0001029	69626.	676523795.	17.9242033	0.0018447	-0.0043303	3.9940995	-60.0000000 CY
0.0001063	70167.	660399034.	17.8389672	0.0018954	-0.0044796	3.9994179	-60.0000000 CY
0.0001096	70632.	644548179.	17.7513575	0.0019453	-0.0046297	3.9982332	-60.0000000 CY
0.0001129	71033.	629076953.	17.6615344	0.0019943	-0.0047807	3.9979979	-60.0000000 CY
0.0001163	71416.	614330371.	17.5753258	0.0020431	-0.0049319	3.9996551	-60.0000000 CY
0.0001196	71792.	600348312.	17.4962114	0.0020923	-0.0050827	3.9977092	-60.0000000 CY
0.0001229	72160.	587066593.	17.4232877	0.0021416	-0.0052334	3.9999913	-60.0000000 CY
0.0001263	72505.	574297462.	17.3537381	0.0021909	-0.0053841	3.9985238	-60.0000000 CY
0.0001296	72805.	561842239.	17.2829884	0.0022396	-0.0055354	3.9989210	-60.0000000 CY
0.0001329	73054.	549623533.	17.2101583	0.0022875	-0.0056875	3.9984292	-60.0000000 CY
0.0001363	73295.	537946014.	17.1414929	0.0023355	-0.0058395	3.9999998	-60.0000000 CY
0.0001396	73529.	526773924.	17.0764391	0.0023836	-0.0059914	3.9975103	-60.0000000 CY
0.0001429	73758.	516088309.	17.0132169	0.0024315	-0.0061435	3.9998334	-60.0000000 CY
0.0001462	73982.	505861700.	16.9544125	0.0024796	-0.0062954	3.9952774	-60.0000000 CY
0.0001496	74202.	496061237.	16.8992301	0.0025278	-0.0064472	3.9988808	-60.0000000 CY
0.0001529	74419.	486661687.	16.8472319	0.0025762	-0.0065988	3.9994273	-60.0000000 CY
0.0001562	74603.	477461231.	16.7936781	0.0026240	-0.0067510	3.9960688	-60.0000000 CY
0.0001596	74778.	468583619.	16.7416802	0.0026717	-0.0069033	3.9990899	-60.0000000 CY
0.0001629	74918.	459854004.	16.6861846	0.0027185	-0.0070565	3.9995887	-60.0000000 CY
0.0001662	75054.	451451042.	16.6339801	0.0027654	-0.0072096	3.9947254	-60.0000000 CY
0.0001696	75186.	443358201.	16.5840414	0.0028124	-0.0073626	3.9981543	-60.0000000 CY

0.0001729	75317.	435569797.	16.5366572	0.0028595	-0.0075155	3.9998262	-60.0000000	CY
0.0001762	75446.	428061129.	16.4914085	0.0029066	-0.0076684	3.9950730	-60.0000000	CY
0.0001796	75571.	420810468.	16.4461338	0.0029535	-0.0078215	3.9953672	-60.0000000	CY
0.0001829	75694.	413818686.	16.4030246	0.0030004	-0.0079746	3.9983544	-60.0000000	CYT
0.0002029	76365.	376334485.	16.1750301	0.0032822	-0.0088928	3.9999800	-60.0000000	CYT
0.0002229	76800.	344525099.	15.9599580	0.0035577	-0.0098173	3.9999998	60.0000000	CYT
0.0002429	77151.	317601205.	15.7848761	0.0038344	-0.0107406	3.9995731	60.0000000	CYT

Axial Thrust Force = 52.688 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	1289.	3092680397.	39.3653254	0.00001640	-0.00000860	0.0687366	0.3995393	
8.33333E-07	2573.	3087439850.	34.6937963	0.00002891	-0.00002109	0.1206348	0.6861834	
0.00000125	3852.	3081750025.	33.1367791	0.00004142	-0.00003358	0.1721890	0.9728332	
0.00000167	5127.	3075943376.	32.3583217	0.00005393	-0.00004607	0.2233987	1.2594856	
0.00000208	6396.	3070089557.	31.8912775	0.00006644	-0.00005856	0.2742637	1.5461397	
0.00000250	7661.	3064212053.	31.5799367	0.00007895	-0.00007105	0.3247842	1.8327954	
0.00000292	8920.	3058320996.	31.3575686	0.00009146	-0.00008354	0.3749599	2.1194527	
0.00000333	10175.	3052421450.	31.1908076	0.0001040	-0.00009603	0.4247910	2.4061114	
0.00000375	11424.	3046516243.	31.0611181	0.0001165	-0.0001085	0.4742775	2.6927715	
0.00000417	11424.	2741864619.	20.5558091	0.00008565	-0.0001644	0.3499435	-4.0049231	C
0.00000458	11424.	2492604199.	20.3437857	0.00009324	-0.0001818	0.3801373	-4.4335968	C
0.00000500	11424.	2284887182.	20.1679459	0.0001008	-0.0001992	0.4102227	-4.8621478	C
0.00000542	11424.	2109126630.	20.0177490	0.0001084	-0.0002166	0.4401520	-5.2909202	C
0.00000583	11424.	1958474728.	19.8881565	0.0001160	-0.0002340	0.4699362	-5.7198368	C
0.00000625	11424.	1827909746.	19.7765366	0.0001236	-0.0002514	0.4996125	-6.1486277	C
0.00000667	11424.	1713665387.	19.6795214	0.0001312	-0.0002688	0.5291806	-6.5772925	C
0.00000708	11424.	1612861540.	19.5945355	0.0001388	-0.0002862	0.5586406	-7.0058308	C
0.00000750	11424.	1523258121.	19.5195755	0.0001464	-0.0003036	0.5879921	-7.4342423	C
0.00000792	11424.	1443086641.	19.4517599	0.0001540	-0.0003210	0.6171948	-7.8628251	C
0.00000833	11424.	1370932309.	19.3907770	0.0001616	-0.0003384	0.6462737	-8.2913955	C
0.00000875	11424.	1305649818.	19.3361164	0.0001692	-0.0003558	0.6752445	-8.7198354	C
0.00000917	11424.	1246302099.	19.2869176	0.0001768	-0.0003732	0.7041070	-9.1481444	C
0.00000958	11424.	1192115052.	19.2424696	0.0001844	-0.0003906	0.7328611	-9.5763220	C
0.00001000	11424.	1142443591.	19.2021798	0.0001920	-0.0004080	0.7615065	-10.0043678	C
0.00001042	11424.	1096745847.	19.1655508	0.0001996	-0.0004254	0.7900430	-10.4322815	C
0.00001083	11424.	1054563315.	19.1321613	0.0002073	-0.0004427	0.8184706	-10.8600626	C
0.00001125	11424.	1015505414.	19.1016526	0.0002149	-0.0004601	0.8467890	-11.2877108	C
0.00001167	11722.	1004720666.	19.0737173	0.0002225	-0.0004775	0.8749981	-11.7152256	C
0.00001208	12114.	1002527266.	19.0480905	0.0002302	-0.0004948	0.9030976	-12.1426066	C
0.00001250	12506.	1000457707.	19.0245423	0.0002378	-0.0005122	0.9310874	-12.5698534	C
0.00001292	12897.	998499947.	19.0028727	0.0002455	-0.0005295	0.9589673	-12.9969656	C
0.00001333	13289.	996643395.	18.9829067	0.0002531	-0.0005469	0.9867371	-13.4239431	C
0.00001375	13680.	994878902.	18.9644905	0.0002608	-0.0005642	1.0143967	-13.8507847	C
0.00001417	14070.	993198236.	18.9474883	0.0002684	-0.0005816	1.0419458	-14.2774905	C
0.00001458	14461.	991594160.	18.9317801	0.0002761	-0.0005989	1.0693843	-14.7040599	C
0.00001500	14851.	990060240.	18.9172588	0.0002838	-0.0006162	1.0967120	-15.1304926	C
0.00001542	15241.	988590737.	18.9038293	0.0002914	-0.0006336	1.1239287	-15.5567881	C
0.00001583	15630.	987179966.	18.8911491	0.0002991	-0.0006509	1.1510197	-15.9830640	C
0.00001625	16020.	985823660.	18.8793113	0.0003068	-0.0006682	1.1779935	-16.4092497	C
0.00001708	16797.	983259217.	18.8582306	0.0003222	-0.0007028	1.2316083	-17.2611932	C
0.00001792	17574.	980868961.	18.8402133	0.0003376	-0.0007374	1.2847779	-18.1125641	C
0.00001875	18349.	978629292.	18.8248579	0.0003530	-0.0007720	1.3375008	-18.9633589	C
0.00001958	19124.	976520734.	18.8118315	0.0003684	-0.0008066	1.3897753	-19.8135726	C
0.00002042	19897.	974526855.	18.8008554	0.0003839	-0.0008411	1.4415999	-20.6632021	C
0.00002125	20668.	972633843.	18.7916948	0.0003993	-0.0008757	1.4929730	-21.5122432	C
0.00002208	21439.	970829966.	18.7841504	0.0004148	-0.0009102	1.5438929	-22.3606921	C
0.00002292	22209.	969105196.	18.7780520	0.0004303	-0.0009447	1.5943580	-23.2085446	C
0.00002375	22977.	967450911.	18.7732533	0.0004459	-0.0009791	1.6443667	-24.0557968	C
0.00002458	23744.	965859651.	18.7696279	0.0004614	-0.0010136	1.6939172	-24.9024444	C
0.00002542	24510.	964324934.	18.7670661	0.0004770	-0.0010480	1.7430079	-25.7484833	C
0.00002625	25275.	962841097.	18.7654722	0.0004926	-0.0010824	1.7916371	-26.5939092	C
0.00002708	26038.	961403171.	18.7647623	0.0005082	-0.0011168	1.8398030	-27.4387179	C
0.00002792	26800.	960006776.	18.7648627	0.0005239	-0.0011511	1.8875039	-28.2829049	C
0.00002875	27561.	958648038.	18.7657081	0.0005395	-0.0011855	1.9347380	-29.1264658	C
0.00002958	28321.	957323517.	18.7672408	0.0005552	-0.0012198	1.9815036	-29.9693963	C
0.00003042	29079.	956030145.	18.7694094	0.0005709	-0.0012541	2.0277988	-30.8116917	C
0.00003125	29836.	954765181.	18.7721682	0.0005866	-0.0012884	2.0736219	-31.6533475	C
0.00003208	30592.	953526163.	18.7754760	0.0006024	-0.0013226	2.1189710	-32.4943591	C
0.00003292	31347.	952310877.	18.7792963	0.0006182	-0.0013568	2.1638442	-33.3347218	C
0.00003375	32100.	951117325.	18.7835957	0.0006339	-0.0013911	2.2082397	-34.1744307	C
0.00003458	32852.	949943697.	18.7883446	0.0006498	-0.0014252	2.2521555	-35.0134811	C
0.00003542	33603.	948788353.	18.7935160	0.0006656	-0.0014594	2.2955898	-35.8518681	C
0.00003625	34352.	947649798.	18.7990853	0.0006815	-0.0014935	2.3385406	-36.6895867	C
0.00003708	35100.	946526671.	18.8050306	0.0006974	-0.0015276	2.3810060	-37.5266318	C

0.00003792	35847.	945417727.	18.8113316	0.0007133	-0.0015617	2.4229839	-38.3629985 C
0.00003875	36592.	944321825.	18.8179699	0.0007292	-0.0015958	2.4644724	-39.1986816 C
0.00003958	37337.	943237917.	18.8249288	0.0007452	-0.0016298	2.5054694	-40.0336757 C
0.00004042	38079.	942165040.	18.8321931	0.0007611	-0.0016639	2.5459729	-40.8679757 C
0.00004125	38820.	941102304.	18.8397486	0.0007771	-0.0016979	2.5859809	-41.7015761 C
0.00004208	39560.	940048889.	18.8475826	0.0007932	-0.0017318	2.6254912	-42.5344715 C
0.00004292	40299.	939004033.	18.8556833	0.0008092	-0.0017658	2.6645016	-43.3666564 C
0.00004375	41036.	937967033.	18.8640398	0.0008253	-0.0017997	2.7030101	-44.1981251 C
0.00004458	41772.	936937231.	18.8726422	0.0008414	-0.0018336	2.7410145	-45.0288721 C
0.00004542	42506.	935914020.	18.8814813	0.0008575	-0.0018675	2.7785126	-45.8588914 C
0.00004625	43239.	934896829.	18.8905488	0.0008737	-0.0019013	2.8155022	-46.6881773 C
0.00004708	43970.	933885127.	18.8998368	0.0008899	-0.0019351	2.8519810	-47.5167238 C
0.00004792	44700.	932879167.	18.9090408	0.0009061	-0.0019689	2.8879149	-48.3449369 C
0.00004875	45429.	931877768.	18.9184383	0.0009223	-0.0020027	2.9233319	-49.1724339 C
0.00004958	46156.	930880594.	18.9280284	0.0009385	-0.0020365	2.9582303	-49.9991986 C
0.00005292	49050.	926926010.	18.9682103	0.0010037	-0.0021713	3.0925924	-53.2988254 C
0.00005625	51919.	923009594.	19.0110994	0.0010694	-0.0023056	3.2184694	-56.5862689 C
0.00005958	54764.	919113091.	19.0564808	0.0011354	-0.0024396	3.3357027	-59.8611141 C
0.00006292	57392.	912196711.	19.0822046	0.0012006	-0.0025744	3.4419356	-60.0000000 CY
0.00006625	59391.	896470810.	19.0428761	0.0012616	-0.0027134	3.5329404	-60.0000000 CY
0.00006958	61044.	877283863.	18.9747893	0.0013203	-0.0028547	3.6128699	-60.0000000 CY
0.00007292	62441.	856338024.	18.8887320	0.0013773	-0.0029977	3.6832014	-60.0000000 CY
0.00007625	63708.	835509698.	18.7973858	0.0014333	-0.0031417	3.7454440	-60.0000000 CY
0.00007958	64763.	813773065.	18.6927469	0.0014876	-0.0032874	3.7993054	-60.0000000 CY
0.00008292	65776.	793279533.	18.5960428	0.0015419	-0.0034331	3.8467390	-60.0000000 CY
0.00008625	66619.	772399905.	18.4896143	0.0015947	-0.0035803	3.8867310	-60.0000000 CY
0.00008958	67406.	752436156.	18.3880518	0.0016473	-0.0037277	3.9205246	-60.0000000 CY
0.00009292	68169.	733653628.	18.2946085	0.0016999	-0.0038751	3.9483843	-60.0000000 CY
0.00009625	68804.	714845633.	18.1906160	0.0017508	-0.0040242	3.9696526	-60.0000000 CY
0.00009958	69374.	696643517.	18.0883188	0.0018013	-0.0041737	3.9851707	-60.0000000 CY
0.0001029	69937.	679545477.	17.9952049	0.0018520	-0.0043230	3.9952298	-60.0000000 CY
0.0001063	70482.	663360485.	17.9091233	0.0019028	-0.0044722	3.9997368	-60.0000000 CY
0.0001096	70952.	647473453.	17.8211201	0.0019529	-0.0046221	3.9988489	-60.0000000 CY
0.0001129	71356.	631932171.	17.7320871	0.0020022	-0.0047728	3.9967945	-60.0000000 CY
0.0001163	71738.	617104007.	17.6461045	0.0020514	-0.0049236	3.9999031	-60.0000000 CY
0.0001196	72112.	603029173.	17.5656624	0.0021006	-0.0050744	3.9984746	-60.0000000 CY
0.0001229	72479.	589662729.	17.4915187	0.0021500	-0.0052250	3.9982432	-60.0000000 CY
0.0001263	72829.	576865751.	17.4218245	0.0021995	-0.0053755	3.9991411	-60.0000000 CY
0.0001296	73133.	564371719.	17.3508462	0.0022484	-0.0055266	3.9961642	-60.0000000 CY
0.0001329	73383.	552094730.	17.2770594	0.0022964	-0.0056786	3.9990877	-60.0000000 CY
0.0001363	73623.	540350263.	17.2074595	0.0023445	-0.0058305	3.9972973	-60.0000000 CY
0.0001396	73857.	529121282.	17.1425923	0.0023928	-0.0059822	3.9983915	-60.0000000 CY
0.0001429	74086.	518388603.	17.0808190	0.0024411	-0.0061339	3.9999929	-60.0000000 CY
0.0001462	74309.	508098915.	17.0210750	0.0024893	-0.0062857	3.9965914	-60.0000000 CY
0.0001496	74529.	498245300.	16.9649241	0.0025377	-0.0064373	3.9994693	-60.0000000 CY
0.0001529	74744.	488787938.	16.9120927	0.0025861	-0.0065889	3.9963177	-60.0000000 CY
0.0001562	74934.	479579777.	16.8588203	0.0026342	-0.0067408	3.9973057	-60.0000000 CY
0.0001596	75108.	470652693.	16.8058297	0.0026819	-0.0068931	3.9996270	-60.0000000 CY
0.0001629	75253.	461914020.	16.7508807	0.0027290	-0.0070460	3.9962842	-60.0000000 CY
0.0001662	75389.	453466631.	16.6977190	0.0027760	-0.0071990	3.9962311	-60.0000000 CY
0.0001696	75521.	445332039.	16.6468986	0.0028230	-0.0073520	3.9989977	-60.0000000 CY
0.0001729	75651.	437501556.	16.5986103	0.0028702	-0.0075048	3.9999967	-60.0000000 CY
0.0001762	75779.	429951971.	16.5532451	0.0029175	-0.0076575	3.9929595	-60.0000000 CY
0.0001796	75906.	422676237.	16.5101246	0.0029649	-0.0078101	3.9968774	-60.0000000 CY
0.0001829	76029.	415650255.	16.4668734	0.0030121	-0.0079629	3.9992057	-60.0000000 CYT
0.0002029	76703.	378001276.	16.2362034	0.0032946	-0.0088804	3.9974290	-60.0000000 CYT
0.0002229	77142.	346057778.	16.0185977	0.0035708	-0.0098042	3.9960287	60.0000000 CYT
0.0002429	77490.	318997633.	15.8465964	0.0038494	-0.0107256	3.9999773	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	31.613	75693.315	0.00300000
2	52.688	75997.673	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	75693.	20.548450	49201.	922328027.
2	0.65	75998.	34.247417	49398.	926450147.
1	0.75	75693.	22.129100	56770.	909542176.
2	0.75	75998.	36.881833	56998.	913233743.
1	0.90	75693.	23.709750	68124.	722593106.
2	0.90	75998.	39.516250	68398.	726865916.

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	30.4600	0.00	N.A.	No	0.00	265041.
2	36.5600	6.7055	Yes	No	265041.	92130.
3	37.5600	7.7058	Yes	No	357171.	451490.
4	41.5600	10.7286	Yes	No	808661.	901156.
5	46.5600	272.4239	No	No	1709817.	192903.
6	51.5600	25.5009	No	No	1902720.	1004333.
7	56.5600	23.2083	Yes	No	2907053.	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 Horizontal Soil Pressures

Depth in	Distributed Load lb/in
0.00	3.00
7.68	11.98
15.36	23.97
23.04	35.95
30.72	47.93
38.40	59.92
46.08	71.90
53.76	83.89
61.44	95.87
69.12	107.85
76.80	119.84
84.48	131.82
92.16	143.80
99.84	155.79
107.52	167.77
115.20	179.76
122.88	191.74
130.56	203.72
138.24	215.71
145.92	227.69

153.60	239.67
161.28	251.66
168.96	263.64
176.64	275.63
184.32	287.61
192.00	299.59
199.68	311.58
207.36	323.56
215.04	335.54
222.72	347.53
230.40	359.51
238.08	371.50
245.76	383.48
253.44	395.46
261.12	407.45
268.80	419.43
276.48	431.41
284.16	443.40
291.84	455.38
299.52	467.37
307.20	479.35
314.88	491.33
322.56	503.32
330.24	515.30
337.92	527.28
345.60	539.27
353.28	551.25
360.96	563.24
368.64	89.09

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	1.9565	-9.32E-04	1.32E-06	-0.00429	0.00	3.09E+12	0.00	0.00	2.9959
0.6400	1.9236	1130.	57.5219	-0.00429	0.00	3.09E+12	0.00	0.00	11.9837
1.2800	1.8906	2966.	195.5746	-0.00429	0.00	3.09E+12	0.00	0.00	23.9675
1.9200	1.8577	6216.	425.6624	-0.00429	0.00	3.09E+12	0.00	0.00	35.9512
2.5600	1.8248	11587.	747.7852	-0.00429	0.00	3.09E+12	0.00	0.00	47.9350
3.2000	1.7918	19785.	1162.	-0.00429	0.00	3.09E+12	0.00	0.00	59.9187
3.8400	1.7589	31517.	1668.	-0.00429	0.00	3.09E+12	0.00	0.00	71.9024
4.4800	1.7259	47490.	2266.	-0.00429	0.00	3.09E+12	0.00	0.00	83.8862
5.1200	1.6930	68410.	2957.	-0.00429	0.00	3.09E+12	0.00	0.00	95.8699
5.7600	1.6601	94986.	3739.	-0.00429	0.00	3.09E+12	0.00	0.00	107.8536
6.4000	1.6271	127923.	4613.	-0.00429	0.00	3.09E+12	0.00	0.00	119.8374
7.0400	1.5942	167928.	5580.	-0.00429	0.00	3.09E+12	0.00	0.00	131.8211
7.6800	1.5613	215708.	6638.	-0.00429	0.00	3.09E+12	0.00	0.00	143.8049
8.3200	1.5284	271969.	7788.	-0.00429	0.00	3.09E+12	0.00	0.00	155.7886
8.9600	1.4954	337420.	9031.	-0.00429	0.00	3.09E+12	0.00	0.00	167.7723
9.6000	1.4625	412766.	10365.	-0.00428	0.00	3.09E+12	0.00	0.00	179.7561
10.2400	1.4296	498714.	11792.	-0.00428	0.00	3.09E+12	0.00	0.00	191.7398
10.8800	1.3967	595971.	13311.	-0.00428	0.00	3.09E+12	0.00	0.00	203.7235
11.5200	1.3639	705244.	14921.	-0.00428	0.00	3.09E+12	0.00	0.00	215.7073
12.1600	1.3310	827239.	16624.	-0.00428	0.00	3.09E+12	0.00	0.00	227.6910
12.8000	1.2981	962664.	18419.	-0.00428	0.00	3.09E+12	0.00	0.00	239.6748
13.4400	1.2653	1112224.	20305.	-0.00427	0.00	3.09E+12	0.00	0.00	251.6585
14.0800	1.2325	1276627.	22284.	-0.00427	0.00	3.09E+12	0.00	0.00	263.6422
14.7200	1.1997	1456580.	24355.	-0.00427	0.00	3.09E+12	0.00	0.00	275.6260
15.3600	1.1669	1652789.	26518.	-0.00426	0.00	3.09E+12	0.00	0.00	287.6097
16.0000	1.1342	1865961.	28772.	-0.00426	0.00	3.09E+12	0.00	0.00	299.5934
16.6400	1.1015	2096803.	31119.	-0.00425	0.00	3.09E+12	0.00	0.00	311.5772
17.2800	1.0689	2346021.	33558.	-0.00425	0.00	3.09E+12	0.00	0.00	323.5609
17.9200	1.0362	2614321.	36089.	-0.00424	0.00	3.09E+12	0.00	0.00	335.5447
18.5600	1.0037	2902412.	38712.	-0.00424	0.00	3.09E+12	0.00	0.00	347.5284
19.2000	0.9712	3210999.	41427.	-0.00423	0.00	3.08E+12	0.00	0.00	359.5121

19.8400	0.9387	3540788.	44234.	-0.00422	0.00	3.08E+12	0.00	0.00	371.4959
20.4800	0.9064	3892488.	47133.	-0.00421	0.00	3.08E+12	0.00	0.00	383.4796
21.1200	0.8741	4266803.	50125.	-0.00420	0.00	3.08E+12	0.00	0.00	395.4633
21.7600	0.8418	4664442.	53208.	-0.00419	0.00	3.08E+12	0.00	0.00	407.4471
22.4000	0.8097	5086109.	56383.	-0.00418	0.00	3.08E+12	0.00	0.00	419.4308
23.0400	0.7777	5532513.	59650.	-0.00416	0.00	3.07E+12	0.00	0.00	431.4146
23.6800	0.7458	6004359.	63010.	-0.00415	0.00	3.07E+12	0.00	0.00	443.3983
24.3200	0.7139	6502354.	66461.	-0.00413	0.00	3.07E+12	0.00	0.00	455.3820
24.9600	0.6823	7027205.	70004.	-0.00412	0.00	3.07E+12	0.00	0.00	467.3658
25.6000	0.6507	7579618.	73640.	-0.00410	0.00	3.06E+12	0.00	0.00	479.3495
26.2400	0.6193	8160299.	77367.	-0.00408	0.00	3.06E+12	0.00	0.00	491.3332
26.8800	0.5881	8769956.	81186.	-0.00406	0.00	3.06E+12	0.00	0.00	503.3170
27.5200	0.5570	9409294.	85098.	-0.00403	0.00	3.06E+12	0.00	0.00	515.3007
28.1600	0.5261	1.01E+07	89101.	-0.00401	0.00	3.05E+12	0.00	0.00	527.2845
28.8000	0.4954	1.08E+07	93197.	-0.00398	0.00	3.05E+12	0.00	0.00	539.2682
29.4400	0.4649	1.15E+07	97385.	-0.00393	0.00	9.83E+11	0.00	0.00	551.2519
30.0800	0.4351	1.23E+07	101664.	-0.00383	0.00	9.81E+11	0.00	0.00	563.2357
30.7200	0.4060	1.31E+07	103850.	-0.00373	0.00	9.78E+11	-83.0755	1571.	89.0881
31.3600	0.3777	1.39E+07	102694.	-0.00363	0.00	9.76E+11	-307.2239	6246.	0.00
32.0000	0.3503	1.47E+07	99397.	-0.00351	0.00	9.74E+11	-551.2554	12085.	0.00
32.6400	0.3238	1.54E+07	94188.	-0.00340	0.00	9.72E+11	-805.2908	19102.	0.00
33.2800	0.2981	1.61E+07	87007.	-0.00327	0.00	9.70E+11	-1065.	27426.	0.00
33.9200	0.2735	1.67E+07	77828.	-0.00314	0.00	9.69E+11	-1326.	37222.	0.00
34.5600	0.2499	1.73E+07	66681.	-0.00301	0.00	9.67E+11	-1577.	48472.	0.00
35.2000	0.2273	1.78E+07	53664.	-0.00287	0.00	9.66E+11	-1813.	61235.	0.00
35.8400	0.2059	1.81E+07	38903.	-0.00272	0.00	9.66E+11	-2032.	75789.	0.00
36.4800	0.1855	1.84E+07	22543.	-0.00258	0.00	9.65E+11	-2229.	92287.	0.00
37.1200	0.1662	1.85E+07	9412.	-0.00243	0.00	9.65E+11	-1190.	54995.	0.00
37.7600	0.1481	1.85E+07	376.4915	-0.00229	0.00	9.65E+11	-1163.	60280.	0.00
38.4000	0.1311	1.85E+07	-8387.	-0.00214	0.00	9.65E+11	-1120.	65565.	0.00
39.0400	0.1153	1.84E+07	-16770.	-0.00199	0.00	9.65E+11	-1064.	70850.	0.00
39.6800	0.1005	1.82E+07	-24682.	-0.00185	0.00	9.65E+11	-996.7793	76134.	0.00
40.3200	0.08693	1.80E+07	-32048.	-0.00170	0.00	9.66E+11	-921.5782	81419.	0.00
40.9600	0.07441	1.77E+07	-38813.	-0.00156	0.00	9.66E+11	-840.0453	86704.	0.00
41.6000	0.06297	1.74E+07	-46486.	-0.00142	0.00	9.67E+11	-1158.	141269.	0.00
42.2400	0.05259	1.70E+07	-54863.	-0.00128	0.00	9.68E+11	-1023.	149385.	0.00
42.8800	0.04325	1.66E+07	-62197.	-0.00115	0.00	9.69E+11	-887.0576	157501.	0.00
43.5200	0.03492	1.61E+07	-68495.	-0.00102	0.00	9.70E+11	-753.1119	165617.	0.00
44.1600	0.02757	1.55E+07	-73782.	-8.96E-04	0.00	9.71E+11	-623.6523	173733.	0.00
44.8000	0.02116	1.49E+07	-78101.	-7.76E-04	0.00	9.73E+11	-500.9560	181849.	0.00
45.4400	0.01565	1.43E+07	-81511.	-6.61E-04	0.00	9.75E+11	-387.0977	189965.	0.00
46.0800	0.01101	1.37E+07	-84088.	-5.50E-04	0.00	9.76E+11	-283.9491	198081.	0.00
46.7200	0.00720	1.30E+07	-93767.	-4.45E-04	0.00	9.78E+11	-2237.	2387414.	0.00
47.3600	0.00417	1.22E+07	-107890.	-3.46E-04	0.00	9.81E+11	-1441.	2656479.	0.00
48.0000	0.00187	1.14E+07	-116007.	-2.84E-04	0.00	3.05E+12	-672.6775	2757079.	0.00
48.6400	-1.99E-04	1.05E+07	-118306.	-2.57E-04	0.00	3.05E+12	73.9930	2857680.	0.00
49.2800	-0.00207	9551583.	-114961.	-2.32E-04	0.00	3.06E+12	797.0884	2958280.	0.00
49.9200	-0.00376	8692241.	-106157.	-2.09E-04	0.00	3.06E+12	1496.	3058880.	0.00
50.5600	-0.00527	7921115.	-93060.	-1.88E-04	0.00	3.06E+12	1915.	2788588.	0.00
51.2000	-0.00664	7262933.	-77456.	-1.69E-04	0.00	3.07E+12	2149.	2485254.	0.00
51.8400	-0.00787	6731479.	-68907.	-1.51E-04	0.00	3.07E+12	77.4960	75663.	0.00
52.4800	-0.00896	6204592.	-68260.	-1.35E-04	0.00	3.07E+12	90.9454	77928.	0.00
53.1200	-0.00994	5683066.	-67513.	-1.20E-04	0.00	3.07E+12	103.7974	80192.	0.00
53.7600	-0.01081	5167658.	-66668.	-1.07E-04	0.00	3.08E+12	116.0550	82457.	0.00
54.4000	-0.01158	4659093.	-65732.	-9.44E-05	0.00	3.08E+12	127.7318	84722.	0.00
55.0400	-0.01226	4158058.	-64708.	-8.34E-05	0.00	3.08E+12	138.8512	86987.	0.00
55.6800	-0.01286	3665211.	-63601.	-7.36E-05	0.00	3.08E+12	149.4466	89252.	0.00
56.3200	-0.01339	3181176.	-62415.	-6.51E-05	0.00	3.08E+12	159.5605	91517.	0.00
56.9600	-0.01386	2706551.	-59690.	-5.78E-05	0.00	3.09E+12	550.0448	304792.	0.00
57.6000	-0.01428	2264367.	-55349.	-5.16E-05	0.00	3.09E+12	580.3164	312153.	0.00
58.2400	-0.01465	1856410.	-50780.	-4.65E-05	0.00	3.09E+12	609.5901	319514.	0.00
58.8800	-0.01499	1484407.	-45989.	-4.23E-05	0.00	3.09E+12	638.0741	326875.	0.00
59.5200	-0.01530	1150038.	-40982.	-3.91E-05	0.00	3.09E+12	665.9761	334236.	0.00
60.1600	-0.01559	854949.	-35761.	-3.66E-05	0.00	3.09E+12	693.4988	341597.	0.00
60.8000	-0.01586	600765.	-30330.	-3.48E-05	0.00	3.09E+12	720.8350	348958.	0.00
61.4400	-0.01613	389096.	-24689.	-3.35E-05	0.00	3.09E+12	748.1626	356319.	0.00
62.0800	-0.01638	221555.	-18838.	-3.28E-05	0.00	3.09E+12	775.6397	363680.	0.00
62.7200	-0.01663	99764.	-12774.	-3.24E-05	0.00	3.09E+12	803.3994	371041.	0.00
63.3600	-0.01688	25359.	-6496.	-3.22E-05	0.00	3.09E+12	831.5439	378402.	0.00
64.0000	-0.01712	0.00	0.00	-3.22E-05	0.00	3.09E+12	860.1389	192881.	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             =     1.95650307 inches
Computed slope at pile head      =    -0.00428877 radians
Maximum bending moment           =      18511300. inch-lbs
Maximum shear force              =       -118306. lbs
Depth of maximum bending moment  =    37.76000000 feet below pile head
Depth of maximum shear force     =    48.64000000 feet below pile head
Number of iterations             =            155
Number of zero deflection points =              1
```

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	3.00
7.68	11.98
15.36	23.97
23.04	35.95
30.72	47.93
38.40	59.92
46.08	71.90
53.76	83.89
61.44	95.87
69.12	107.85
76.80	119.84
84.48	131.82
92.16	143.80
99.84	155.79
107.52	167.77
115.20	179.76
122.88	191.74
130.56	203.72
138.24	215.71
145.92	227.69
153.60	239.67
161.28	251.66
168.96	263.64
176.64	275.63
184.32	287.61
192.00	299.59
199.68	311.58
207.36	323.56
215.04	335.54
222.72	347.53
230.40	359.51
238.08	371.50
245.76	383.48
253.44	395.46
261.12	407.45
268.80	419.43
276.48	431.41
284.16	443.40
291.84	455.38
299.52	467.37
307.20	479.35
314.88	491.33
322.56	503.32
330.24	515.30
337.92	527.28
345.60	539.27
353.28	551.25
360.96	563.24
368.64	89.09

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	1.9565	-9.32E-04	1.32E-06	-0.00429	0.00	3.09E+12	0.00	0.00	2.9959
0.6400	1.9236	1130.	57.5219	-0.00429	0.00	3.09E+12	0.00	0.00	11.9837
1.2800	1.8906	2966.	195.5746	-0.00429	0.00	3.09E+12	0.00	0.00	23.9675
1.9200	1.8577	6216.	425.6624	-0.00429	0.00	3.09E+12	0.00	0.00	35.9512
2.5600	1.8248	11587.	747.7852	-0.00429	0.00	3.09E+12	0.00	0.00	47.9350
3.2000	1.7918	19785.	1162.	-0.00429	0.00	3.09E+12	0.00	0.00	59.9187
3.8400	1.7589	31517.	1668.	-0.00429	0.00	3.09E+12	0.00	0.00	71.9024
4.4800	1.7259	47490.	2266.	-0.00429	0.00	3.09E+12	0.00	0.00	83.8862
5.1200	1.6930	68410.	2957.	-0.00429	0.00	3.09E+12	0.00	0.00	95.8699
5.7600	1.6601	94986.	3739.	-0.00429	0.00	3.09E+12	0.00	0.00	107.8536
6.4000	1.6271	127923.	4613.	-0.00429	0.00	3.09E+12	0.00	0.00	119.8374
7.0400	1.5942	167928.	5580.	-0.00429	0.00	3.09E+12	0.00	0.00	131.8211
7.6800	1.5613	215708.	6638.	-0.00429	0.00	3.09E+12	0.00	0.00	143.8049
8.3200	1.5284	271969.	7788.	-0.00429	0.00	3.09E+12	0.00	0.00	155.7886
8.9600	1.4954	337420.	9031.	-0.00429	0.00	3.09E+12	0.00	0.00	167.7723
9.6000	1.4625	412766.	10365.	-0.00428	0.00	3.09E+12	0.00	0.00	179.7561
10.2400	1.4296	498714.	11792.	-0.00428	0.00	3.09E+12	0.00	0.00	191.7398
10.8800	1.3967	595971.	13311.	-0.00428	0.00	3.09E+12	0.00	0.00	203.7235
11.5200	1.3639	705244.	14921.	-0.00428	0.00	3.09E+12	0.00	0.00	215.7073
12.1600	1.3310	827239.	16624.	-0.00428	0.00	3.09E+12	0.00	0.00	227.6910
12.8000	1.2981	962664.	18419.	-0.00428	0.00	3.09E+12	0.00	0.00	239.6748
13.4400	1.2653	1112224.	20305.	-0.00427	0.00	3.09E+12	0.00	0.00	251.6585
14.0800	1.2325	1276627.	22284.	-0.00427	0.00	3.09E+12	0.00	0.00	263.6422
14.7200	1.1997	1456580.	24355.	-0.00427	0.00	3.09E+12	0.00	0.00	275.6260
15.3600	1.1669	1652789.	26518.	-0.00426	0.00	3.09E+12	0.00	0.00	287.6097
16.0000	1.1342	1865961.	28772.	-0.00426	0.00	3.09E+12	0.00	0.00	299.5934
16.6400	1.1015	2096803.	31119.	-0.00425	0.00	3.09E+12	0.00	0.00	311.5772
17.2800	1.0689	2346021.	33558.	-0.00425	0.00	3.09E+12	0.00	0.00	323.5609
17.9200	1.0362	2614321.	36089.	-0.00424	0.00	3.09E+12	0.00	0.00	335.5447
18.5600	1.0037	2902412.	38712.	-0.00424	0.00	3.09E+12	0.00	0.00	347.5284
19.2000	0.9712	3210999.	41427.	-0.00423	0.00	3.08E+12	0.00	0.00	359.5121
19.8400	0.9387	3540788.	44234.	-0.00422	0.00	3.08E+12	0.00	0.00	371.4959
20.4800	0.9064	3892488.	47133.	-0.00421	0.00	3.08E+12	0.00	0.00	383.4796
21.1200	0.8741	4266803.	50125.	-0.00420	0.00	3.08E+12	0.00	0.00	395.4633
21.7600	0.8418	4664442.	53208.	-0.00419	0.00	3.08E+12	0.00	0.00	407.4471
22.4000	0.8097	5086109.	56383.	-0.00418	0.00	3.08E+12	0.00	0.00	419.4308
23.0400	0.7777	5532513.	59650.	-0.00416	0.00	3.07E+12	0.00	0.00	431.4146
23.6800	0.7458	6004359.	63010.	-0.00415	0.00	3.07E+12	0.00	0.00	443.3983
24.3200	0.7139	6502354.	66461.	-0.00413	0.00	3.07E+12	0.00	0.00	455.3820
24.9600	0.6823	7027205.	70004.	-0.00412	0.00	3.07E+12	0.00	0.00	467.3658
25.6000	0.6507	7579618.	73640.	-0.00410	0.00	3.06E+12	0.00	0.00	479.3495
26.2400	0.6193	8160299.	77367.	-0.00408	0.00	3.06E+12	0.00	0.00	491.3332
26.8800	0.5881	8769956.	81186.	-0.00406	0.00	3.06E+12	0.00	0.00	503.3170
27.5200	0.5570	9409294.	85098.	-0.00403	0.00	3.06E+12	0.00	0.00	515.3007
28.1600	0.5261	1.01E+07	89101.	-0.00401	0.00	3.05E+12	0.00	0.00	527.2845
28.8000	0.4954	1.08E+07	93197.	-0.00398	0.00	3.05E+12	0.00	0.00	539.2682
29.4400	0.4649	1.15E+07	97385.	-0.00393	0.00	9.83E+11	0.00	0.00	551.2519
30.0800	0.4351	1.23E+07	101664.	-0.00383	0.00	9.81E+11	0.00	0.00	563.2357
30.7200	0.4060	1.31E+07	103850.	-0.00373	0.00	9.78E+11	-83.0755	1571.	89.0881
31.3600	0.3777	1.39E+07	102694.	-0.00363	0.00	9.76E+11	-307.2239	6246.	0.00
32.0000	0.3503	1.47E+07	99397.	-0.00351	0.00	9.74E+11	-551.2554	12085.	0.00
32.6400	0.3238	1.54E+07	94188.	-0.00340	0.00	9.72E+11	-805.2908	19102.	0.00
33.2800	0.2981	1.61E+07	87007.	-0.00327	0.00	9.70E+11	-1065.	27426.	0.00
33.9200	0.2735	1.67E+07	77828.	-0.00314	0.00	9.69E+11	-1326.	37222.	0.00
34.5600	0.2499	1.73E+07	66681.	-0.00301	0.00	9.67E+11	-1577.	48472.	0.00
35.2000	0.2273	1.78E+07	53664.	-0.00287	0.00	9.66E+11	-1813.	61235.	0.00
35.8400	0.2059	1.81E+07	38903.	-0.00272	0.00	9.66E+11	-2032.	75789.	0.00
36.4800	0.1855	1.84E+07	22543.	-0.00258	0.00	9.65E+11	-2229.	92287.	0.00
37.1200	0.1662	1.85E+07	9412.	-0.00243	0.00	9.65E+11	-1190.	54995.	0.00
37.7600	0.1481	1.85E+07	376.4915	-0.00229	0.00	9.65E+11	-1163.	60280.	0.00
38.4000	0.1311	1.85E+07	-8387.	-0.00214	0.00	9.65E+11	-1120.	65565.	0.00
39.0400	0.1153	1.84E+07	-16770.	-0.00199	0.00	9.65E+11	-1064.	70850.	0.00
39.6800	0.1005	1.82E+07	-24682.	-0.00185	0.00	9.65E+11	-996.7793	76134.	0.00
40.3200	0.08693	1.80E+07	-32048.	-0.00170	0.00	9.66E+11	-921.5782	81419.	0.00
40.9600	0.07441	1.77E+07	-38813.	-0.00156	0.00	9.66E+11	-840.0453	86704.	0.00
41.6000	0.06297	1.74E+07	-46486.	-0.00142	0.00	9.67E+11	-1158.	141269.	0.00
42.2400	0.05259	1.70E+07	-54863.	-0.00128	0.00	9.68E+11	-1023.	149385.	0.00
42.8800	0.04325	1.66E+07	-62197.	-0.00115	0.00	9.69E+11	-887.0576	157501.	0.00

43.5200	0.03492	1.61E+07	-68495.	-0.00102	0.00	9.70E+11	-753.1119	165617.	0.00
44.1600	0.02757	1.55E+07	-73782.	-8.96E-04	0.00	9.71E+11	-623.6523	173733.	0.00
44.8000	0.02116	1.49E+07	-78101.	-7.76E-04	0.00	9.73E+11	-500.9560	181849.	0.00
45.4400	0.01565	1.43E+07	-81511.	-6.61E-04	0.00	9.75E+11	-387.0977	189965.	0.00
46.0800	0.01101	1.37E+07	-84088.	-5.50E-04	0.00	9.76E+11	-283.9491	198081.	0.00
46.7200	0.00720	1.30E+07	-93767.	-4.45E-04	0.00	9.78E+11	-2237.	2387414.	0.00
47.3600	0.00417	1.22E+07	-107890.	-3.46E-04	0.00	9.81E+11	-1441.	2656479.	0.00
48.0000	0.00187	1.14E+07	-116007.	-2.84E-04	0.00	3.05E+12	-672.6775	2757079.	0.00
48.6400	-1.99E-04	1.05E+07	-118306.	-2.57E-04	0.00	3.05E+12	73.9930	2857680.	0.00
49.2800	-0.00207	9551583.	-114961.	-2.32E-04	0.00	3.06E+12	797.0884	2958280.	0.00
49.9200	-0.00376	8692241.	-106157.	-2.09E-04	0.00	3.06E+12	1496.	3058880.	0.00
50.5600	-0.00527	7921115.	-93060.	-1.88E-04	0.00	3.06E+12	1915.	2788588.	0.00
51.2000	-0.00664	7262933.	-77456.	-1.69E-04	0.00	3.07E+12	2149.	2485254.	0.00
51.8400	-0.00787	6731479.	-68907.	-1.51E-04	0.00	3.07E+12	77.4960	75663.	0.00
52.4800	-0.00896	6204592.	-68260.	-1.35E-04	0.00	3.07E+12	90.9454	77928.	0.00
53.1200	-0.00994	5683066.	-67513.	-1.20E-04	0.00	3.07E+12	103.7974	80192.	0.00
53.7600	-0.01081	5167658.	-66668.	-1.07E-04	0.00	3.08E+12	116.0550	82457.	0.00
54.4000	-0.01158	4659093.	-65732.	-9.44E-05	0.00	3.08E+12	127.7318	84722.	0.00
55.0400	-0.01226	4158058.	-64708.	-8.34E-05	0.00	3.08E+12	138.8512	86987.	0.00
55.6800	-0.01286	3665211.	-63601.	-7.36E-05	0.00	3.08E+12	149.4466	89252.	0.00
56.3200	-0.01339	3181176.	-62415.	-6.51E-05	0.00	3.08E+12	159.5605	91517.	0.00
56.9600	-0.01386	2706551.	-59690.	-5.78E-05	0.00	3.09E+12	550.0448	304792.	0.00
57.6000	-0.01428	2264367.	-55349.	-5.16E-05	0.00	3.09E+12	580.3164	312153.	0.00
58.2400	-0.01465	1856410.	-50780.	-4.65E-05	0.00	3.09E+12	609.5901	319514.	0.00
58.8800	-0.01499	1484407.	-45989.	-4.23E-05	0.00	3.09E+12	638.0741	326875.	0.00
59.5200	-0.01530	1150038.	-40982.	-3.91E-05	0.00	3.09E+12	665.9761	334236.	0.00
60.1600	-0.01559	854949.	-35761.	-3.66E-05	0.00	3.09E+12	693.4988	341597.	0.00
60.8000	-0.01586	600765.	-30330.	-3.48E-05	0.00	3.09E+12	720.8350	348958.	0.00
61.4400	-0.01613	389096.	-24689.	-3.35E-05	0.00	3.09E+12	748.1626	356319.	0.00
62.0800	-0.01638	221555.	-18838.	-3.28E-05	0.00	3.09E+12	775.6397	363680.	0.00
62.7200	-0.01663	99764.	-12774.	-3.24E-05	0.00	3.09E+12	803.3994	371041.	0.00
63.3600	-0.01688	25359.	-6496.	-3.22E-05	0.00	3.09E+12	831.5439	378402.	0.00
64.0000	-0.01712	0.00	0.00	-3.22E-05	0.00	3.09E+12	860.1389	192881.	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             =     1.95650307 inches
Computed slope at pile head      =    -0.00428877 radians
Maximum bending moment           =      18511300. inch-lbs
Maximum shear force              =       -118306. lbs
Depth of maximum bending moment  =    37.76000000 feet below pile head
Depth of maximum shear force     =    48.64000000 feet below pile head
Number of iterations             =            155
Number of zero deflection points =              1
```

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	3.00
7.68	11.98
15.36	23.97
23.04	35.95
30.72	47.93
38.40	59.92
46.08	71.90
53.76	83.89
61.44	95.87
69.12	107.85
76.80	119.84
84.48	131.82
92.16	143.80
99.84	155.79
107.52	167.77

115.20	179.76
122.88	191.74
130.56	203.72
138.24	215.71
145.92	227.69
153.60	239.67
161.28	251.66
168.96	263.64
176.64	275.63
184.32	287.61
192.00	299.59
199.68	311.58
207.36	323.56
215.04	335.54
222.72	347.53
230.40	359.51
238.08	371.50
245.76	383.48
253.44	395.46
261.12	407.45
268.80	419.43
276.48	431.41
284.16	443.40
291.84	455.38
299.52	467.37
307.20	479.35
314.88	491.33
322.56	503.32
330.24	515.30
337.92	527.28
345.60	539.27
353.28	551.25
360.96	563.24
368.64	89.09

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	3.3961	-2.10E-04	-1.45E-06	-0.00743	0.00	3.09E+12	0.00	0.00	4.4939
0.6400	3.3391	2840.	86.2829	-0.00743	0.00	3.09E+12	0.00	0.00	17.9756
1.2800	3.2820	6740.	293.3619	-0.00743	0.00	3.09E+12	0.00	0.00	35.9512
1.9200	3.2249	12760.	638.4935	-0.00743	0.00	3.09E+12	0.00	0.00	53.9268
2.5600	3.1678	21961.	1122.	-0.00743	0.00	3.09E+12	0.00	0.00	71.9024
3.2000	3.1107	35403.	1743.	-0.00743	0.00	3.09E+12	0.00	0.00	89.8780
3.8400	3.0536	54147.	2502.	-0.00743	0.00	3.09E+12	0.00	0.00	107.8536
4.4800	2.9965	79252.	3400.	-0.00743	0.00	3.09E+12	0.00	0.00	125.8292
5.1200	2.9394	111778.	4435.	-0.00743	0.00	3.09E+12	0.00	0.00	143.8049
5.7600	2.8823	152786.	5608.	-0.00743	0.00	3.09E+12	0.00	0.00	161.7805
6.4000	2.8253	203336.	6920.	-0.00743	0.00	3.09E+12	0.00	0.00	179.7561
7.0400	2.7682	264489.	8369.	-0.00743	0.00	3.09E+12	0.00	0.00	197.7317
7.6800	2.7111	337304.	9957.	-0.00743	0.00	3.09E+12	0.00	0.00	215.7073
8.3200	2.6540	422842.	11683.	-0.00743	0.00	3.09E+12	0.00	0.00	233.6829
8.9600	2.5970	522162.	13546.	-0.00743	0.00	3.09E+12	0.00	0.00	251.6585
9.6000	2.5399	636325.	15548.	-0.00743	0.00	3.09E+12	0.00	0.00	269.6341
10.2400	2.4829	766392.	17688.	-0.00743	0.00	3.09E+12	0.00	0.00	287.6097
10.8800	2.4259	913422.	19966.	-0.00742	0.00	3.09E+12	0.00	0.00	305.5853
11.5200	2.3689	1078475.	22382.	-0.00742	0.00	3.09E+12	0.00	0.00	323.5609
12.1600	2.3119	1262611.	24936.	-0.00742	0.00	3.09E+12	0.00	0.00	341.5365
12.8000	2.2549	1466891.	27628.	-0.00741	0.00	3.09E+12	0.00	0.00	359.5121
13.4400	2.1980	1692375.	30458.	-0.00741	0.00	3.09E+12	0.00	0.00	377.4877
14.0800	2.1411	1940122.	33426.	-0.00741	0.00	3.09E+12	0.00	0.00	395.4633
14.7200	2.0842	2211192.	36532.	-0.00740	0.00	3.09E+12	0.00	0.00	413.4390
15.3600	2.0274	2506647.	39776.	-0.00740	0.00	3.09E+12	0.00	0.00	431.4146
16.0000	1.9707	2827545.	43159.	-0.00739	0.00	3.09E+12	0.00	0.00	449.3902

16.6400	1.9139	3174946.	46679.	-0.00738	0.00	3.08E+12	0.00	0.00	467.3658
17.2800	1.8573	3549911.	50337.	-0.00737	0.00	3.08E+12	0.00	0.00	485.3414
17.9200	1.8007	3953499.	54134.	-0.00736	0.00	3.08E+12	0.00	0.00	503.3170
18.5600	1.7442	4386771.	58068.	-0.00735	0.00	3.08E+12	0.00	0.00	521.2926
19.2000	1.6877	4850786.	62141.	-0.00734	0.00	3.08E+12	0.00	0.00	539.2682
19.8400	1.6314	5346603.	66352.	-0.00733	0.00	3.07E+12	0.00	0.00	557.2438
20.4800	1.5752	5875284.	70700.	-0.00731	0.00	3.07E+12	0.00	0.00	575.2194
21.1200	1.5191	6437886.	75187.	-0.00730	0.00	3.07E+12	0.00	0.00	593.1950
21.7600	1.4631	7035472.	79812.	-0.00728	0.00	3.07E+12	0.00	0.00	611.1706
22.4000	1.4072	7669098.	84575.	-0.00726	0.00	3.06E+12	0.00	0.00	629.1462
23.0400	1.3515	8339827.	89475.	-0.00724	0.00	3.06E+12	0.00	0.00	647.1218
23.6800	1.2959	9048717.	94514.	-0.00722	0.00	3.06E+12	0.00	0.00	665.0974
24.3200	1.2406	9796827.	99691.	-0.00720	0.00	3.05E+12	0.00	0.00	683.0730
24.9600	1.1854	1.06E+07	105006.	-0.00717	0.00	3.05E+12	0.00	0.00	701.0487
25.6000	1.1304	1.14E+07	110459.	-0.00715	0.00	3.05E+12	0.00	0.00	719.0243
26.2400	1.0756	1.23E+07	116051.	-0.00708	0.00	9.96E+11	0.00	0.00	736.9999
26.8800	1.0216	1.32E+07	121780.	-0.00698	0.00	9.92E+11	0.00	0.00	754.9755
27.5200	0.9683	1.42E+07	127647.	-0.00688	0.00	9.88E+11	0.00	0.00	772.9511
28.1600	0.9159	1.52E+07	133652.	-0.00676	0.00	9.85E+11	0.00	0.00	790.9267
28.8000	0.8644	1.62E+07	139796.	-0.00664	0.00	9.81E+11	0.00	0.00	808.9023
29.4400	0.8139	1.73E+07	146077.	-0.00651	0.00	9.78E+11	0.00	0.00	826.8779
30.0800	0.7644	1.85E+07	152496.	-0.00637	0.00	9.75E+11	0.00	0.00	844.8535
30.7200	0.7161	1.97E+07	155884.	-0.00622	0.00	9.72E+11	-96.2968	1033.	133.6321
31.3600	0.6689	2.09E+07	154654.	-0.00606	0.00	9.69E+11	-357.7472	4108.	0.00
32.0000	0.6230	2.20E+07	150803.	-0.00589	0.00	9.67E+11	-645.1130	7953.	0.00
32.6400	0.5784	2.32E+07	144687.	-0.00571	0.00	9.64E+11	-947.5457	12581.	0.00
33.2800	0.5353	2.43E+07	136216.	-0.00552	0.00	9.62E+11	-1258.	18053.	0.00
33.9200	0.4937	2.53E+07	125350.	-0.00532	0.00	9.60E+11	-1572.	24450.	0.00
34.5600	0.4536	2.62E+07	112110.	-0.00512	0.00	9.59E+11	-1876.	31771.	0.00
35.2000	0.4151	2.70E+07	96593.	-0.00490	0.00	9.57E+11	-2164.	40048.	0.00
35.8400	0.3783	2.77E+07	78931.	-0.00468	0.00	9.56E+11	-2435.	49437.	0.00
36.4800	0.3432	2.82E+07	59283.	-0.00446	0.00	9.55E+11	-2682.	60020.	0.00
37.1200	0.3098	2.86E+07	40467.	-0.00423	0.00	9.55E+11	-2218.	54995.	0.00
37.7600	0.2782	2.89E+07	23564.	-0.00400	0.00	9.54E+11	-2183.	60280.	0.00
38.4000	0.2484	2.90E+07	7037.	-0.00377	0.00	9.54E+11	-2120.	65565.	0.00
39.0400	0.2203	2.90E+07	-8911.	-0.00353	0.00	9.54E+11	-2033.	70850.	0.00
39.6800	0.1941	2.88E+07	-24106.	-0.00330	0.00	9.54E+11	-1924.	76134.	0.00
40.3200	0.1697	2.86E+07	-38401.	-0.00307	0.00	9.55E+11	-1799.	81419.	0.00
40.9600	0.1470	2.82E+07	-51679.	-0.00284	0.00	9.55E+11	-1659.	86704.	0.00
41.6000	0.1260	2.78E+07	-66952.	-0.00262	0.00	9.56E+11	-2318.	141269.	0.00
42.2400	0.1068	2.72E+07	-83830.	-0.00239	0.00	9.57E+11	-2077.	149385.	0.00
42.8800	0.08924	2.65E+07	-98834.	-0.00218	0.00	9.58E+11	-1830.	157501.	0.00
43.5200	0.07332	2.57E+07	-111934.	-0.00197	0.00	9.60E+11	-1581.	165617.	0.00
44.1600	0.05898	2.48E+07	-123129.	-0.00177	0.00	9.61E+11	-1334.	173733.	0.00
44.8000	0.04617	2.38E+07	-132450.	-0.00157	0.00	9.63E+11	-1093.	181849.	0.00
45.4400	0.03481	2.28E+07	-139954.	-0.00139	0.00	9.65E+11	-860.9401	189965.	0.00
46.0800	0.02484	2.17E+07	-145720.	-0.00121	0.00	9.67E+11	-640.6233	198081.	0.00
46.7200	0.01619	2.05E+07	-161064.	-0.00104	0.00	9.70E+11	-3355.	1591524.	0.00
47.3600	0.00879	1.92E+07	-183442.	-8.88E-04	0.00	9.73E+11	-2472.	2159786.	0.00
48.0000	0.00256	1.77E+07	-196460.	-7.42E-04	0.00	9.77E+11	-917.4952	2757079.	0.00
48.6400	-0.00261	1.62E+07	-196252.	-6.09E-04	0.00	9.81E+11	971.4945	2857680.	0.00
49.2800	-0.00681	1.47E+07	-184168.	-4.89E-04	0.00	9.86E+11	2175.	2454881.	0.00
49.9200	-0.01012	1.33E+07	-165629.	-3.80E-04	0.00	9.92E+11	2653.	2012999.	0.00
50.5600	-0.01264	1.22E+07	-144057.	-2.82E-04	0.00	9.97E+11	2965.	1801089.	0.00
51.2000	-0.01445	1.11E+07	-120501.	-2.21E-04	0.00	3.05E+12	3169.	1684964.	0.00
51.8400	-0.01603	1.03E+07	-107725.	-1.94E-04	0.00	3.05E+12	157.9495	75663.	0.00
52.4800	-0.01742	9479715.	-106440.	-1.69E-04	0.00	3.06E+12	176.7617	77928.	0.00
53.1200	-0.01863	8667527.	-105014.	-1.46E-04	0.00	3.06E+12	194.4820	80192.	0.00
53.7600	-0.01966	7866802.	-103457.	-1.25E-04	0.00	3.06E+12	211.1189	82457.	0.00
54.4000	-0.02055	7078522.	-101776.	-1.07E-04	0.00	3.07E+12	226.6969	84722.	0.00
55.0400	-0.02130	6303607.	-99979.	-8.98E-05	0.00	3.07E+12	241.2558	86987.	0.00
55.6800	-0.02193	5542917.	-98074.	-7.50E-05	0.00	3.07E+12	254.8501	89252.	0.00
56.3200	-0.02245	4797252.	-96068.	-6.21E-05	0.00	3.08E+12	267.5480	91517.	0.00
56.9600	-0.02288	4067364.	-91553.	-5.10E-05	0.00	3.08E+12	908.1523	304792.	0.00
57.6000	-0.02324	3391038.	-84439.	-4.17E-05	0.00	3.08E+12	944.4345	312153.	0.00
58.2400	-0.02352	2770413.	-77054.	-3.41E-05	0.00	3.09E+12	978.6947	319514.	0.00
58.8800	-0.02376	2207511.	-69413.	-2.79E-05	0.00	3.09E+12	1011.	326875.	0.00
59.5200	-0.02395	1704254.	-61527.	-2.30E-05	0.00	3.09E+12	1042.	334236.	0.00
60.1600	-0.02411	1262480.	-53405.	-1.93E-05	0.00	3.09E+12	1073.	341597.	0.00
60.8000	-0.02425	883965.	-45056.	-1.67E-05	0.00	3.09E+12	1102.	348958.	0.00
61.4400	-0.02437	570439.	-36483.	-1.49E-05	0.00	3.09E+12	1131.	356319.	0.00
62.0800	-0.02448	323599.	-27690.	-1.38E-05	0.00	3.09E+12	1159.	363680.	0.00
62.7200	-0.02458	145128.	-18679.	-1.32E-05	0.00	3.09E+12	1188.	371041.	0.00
63.3600	-0.02468	36702.	-9449.	-1.29E-05	0.00	3.09E+12	1216.	378402.	0.00
64.0000	-0.02478	0.00	0.00	-1.29E-05	0.00	3.09E+12	1245.	192881.	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             =     3.39614205 inches
Computed slope at pile head      =    -0.00743365 radians
Maximum bending moment           =      28969009. inch-lbs
Maximum shear force              =       -196460. lbs
Depth of maximum bending moment  =    38.40000000 feet below pile head
Depth of maximum shear force     =    48.00000000 feet below pile head
Number of iterations             =             21
Number of zero deflection points =              1
```

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	31613.	1.95650307	18511300.	-118306.	-0.00428877
2	0.000000	0.000000	31613.	1.95650307	18511300.	-118306.	-0.00428877
3	0.000000	0.000000	47420.	3.39614205	28969009.	-196460.	-0.00743365

Maximum pile-head deflection = 3.3961420491 inches
Maximum pile-head rotation = -0.0074336502 radians = -0.425917 deg.

LRFD Performance by Load Case Combination

Load Case No.	Section No.	Resistance Factor for Moment	Factored Moment Capacity of Section in-lbs	Maximum Moment in Section in-lbs	Fact. Mom. Developed in Section	Pass/Fail for LRFD	Maximum Moment of Section	Shear Developed in Section lbs	Pile-top Deflection Developed inches	Pile-top Rotation Developed Radians	Name of Load Case Combination
1	1	1.00	75693315.	18511300.	0.244557	Pass	-118306.	1.956503	-0.004289		Soil Only
2	1	1.00	75693315.	18511300.	0.244557	Pass	-118306.	1.956503	-0.004289		Service 1
3	1	0.90	68397905.	28969009.	0.423536	Pass	-196460.	3.396142	-0.007434		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.

```
================================================================================

                     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:
\2015\2015370\FRA\96053\structures\wall_4W16\design\Checked Lpile runs\

Name of input data file:
Wall 4W16 Tangent Shaft Design - 78inch sewer REVISED.lp11

Name of output report file:
Wall 4W16 Tangent Shaft Design - 78inch sewer REVISED.lp11

Name of plot output file:
Wall 4W16 Tangent Shaft Design - 78inch sewer REVISED.lp11

Name of runtime message file:
Wall 4W16 Tangent Shaft Design - 78inch sewer REVISED.lp11



--------------------------------------------------------------------------------
                            Date and Time of Analysis
--------------------------------------------------------------------------------

               Date:  August 21, 2019             Time:  11:37:37



--------------------------------------------------------------------------------
                                  Problem Title
--------------------------------------------------------------------------------

FRA-70-14.05 - Wall 4W16 Shafts at 78" Sewer

Job Number:

Client:

Engineer: TJW

Description: Tangent 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 = 80.000 ft
Depth of ground surface below top of pile = 32.9000 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	80.000	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 = 80.000000 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 8 layers

Layer 1 is stiff clay without free water

Distance from top of pile to top of layer	=	32.900000 ft
Distance from top of pile to bottom of layer	=	35.200000 ft
Effective unit weight at top of layer	=	130.000000 pcf
Effective unit weight at bottom of layer	=	130.000000 pcf
Undrained cohesion at top of layer	=	4500. psf
Undrained cohesion at bottom of layer	=	4500. psf
Epsilon-50 at top of layer	=	0.004500
Epsilon-50 at bottom of layer	=	0.004500

Layer 2 is stiff clay without free water

Distance from top of pile to top of layer	=	35.200000 ft
Distance from top of pile to bottom of layer	=	38.200000 ft
Effective unit weight at top of layer	=	130.000000 pcf
Effective unit weight at bottom of layer	=	130.000000 pcf
Undrained cohesion at top of layer	=	5250. psf
Undrained cohesion at bottom of layer	=	5250. psf
Epsilon-50 at top of layer	=	0.004300
Epsilon-50 at bottom of layer	=	0.004300

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

Distance from top of pile to top of layer	=	38.200000 ft
Distance from top of pile to bottom of layer	=	42.700000 ft
Effective unit weight at top of layer	=	140.000000 pcf
Effective unit weight at bottom of layer	=	140.000000 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	=	395.000000 pci
Subgrade k at bottom of layer	=	395.000000 pci

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

Distance from top of pile to top of layer	=	42.700000 ft
Distance from top of pile to bottom of layer	=	43.200000 ft
Effective unit weight at top of layer	=	135.000000 pcf
Effective unit weight at bottom of layer	=	135.000000 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

Layer 5 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	43.200000 ft
Distance from top of pile to bottom of layer	=	50.700000 ft
Effective unit weight at top of layer	=	72.600000 pcf
Effective unit weight at bottom of layer	=	72.600000 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

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

Distance from top of pile to top of layer	=	50.700000 ft
Distance from top of pile to bottom of layer	=	89.200000 ft
Effective unit weight at top of layer	=	77.600000 pcf
Effective unit weight at bottom of layer	=	77.600000 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 7 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	89.200000 ft
Distance from top of pile to bottom of layer	=	94.200000 ft

```
   Effective unit weight at top of layer              =    77.600000 pcf
   Effective unit weight at bottom of layer           =    77.600000 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 8 is sand, p-y criteria by Reese et al., 1974

   Distance from top of pile to top of layer          =    94.200000 ft
   Distance from top of pile to bottom of layer       =   130.700000 ft
   Effective unit weight at top of layer              =    77.600000 pcf
   Effective unit weight at bottom of layer           =    77.600000 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 50.700 ft below the pile tip)


**** Warning - Possible Input Data Error ****

Values entered for effective unit weights of soil were outside the limits of
20 pcf to 140 pcf.

The maximum input value, in layer   3, for effective unit weight = 140.00 pcf

This data may be erroneous. Please check your data.
```

Summary of Input Soil Properties

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	Stiff Clay w/o Free Water	32.9000 35.2000	130.0000 130.0000	4500. 4500.	-- --	0.00450 0.00450	-- --
2	Stiff Clay w/o Free Water	35.2000 38.2000	130.0000 130.0000	5250. 5250.	-- --	0.00430 0.00430	-- --
3	Sand (Reese, et al.)	38.2000 42.7000	140.0000 140.0000	-- --	43.0000 43.0000	-- --	395.0000 395.0000
4	Sand (Reese, et al.)	42.7000 43.2000	135.0000 135.0000	-- --	42.0000 42.0000	-- --	195.0000 195.0000
5	Sand (Reese, et al.)	43.2000 50.7000	72.6000 72.6000	-- --	42.0000 42.0000	-- --	195.0000 195.0000
6	Sand (Reese, et al.)	50.7000 89.2000	77.6000 77.6000	-- --	40.0000 40.0000	-- --	155.0000 155.0000
7	Sand (Reese, et al.)	89.2000 94.2000	77.6000 77.6000	-- --	38.0000 38.0000	-- --	125.0000 125.0000
8	Sand (Reese, et al.)	94.2000 130.7000	77.6000 77.6000	-- --	42.0000 42.0000	-- --	195.0000 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	32.900	0.6400	1.0000
2	95.000	0.6400	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 = 1

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	4

Number of Distributed Loading Points Input for Load Group 1 = 4

Point	Depth in	Distributed Load lb/inch
1	0.00	0.00
2	200.40	225.00
3	200.40	275.00
4	398.40	1370.00

Totals of Unfactored Loads by Load Type for LRFD Analyses:

Number of Defined Unfactored Load Cases = 1

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	0.00	0
Live Loads (LL)	0.00	0.00	0.00	0
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)	0.00	0.00	0.00	0
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	1.00	Soil Only
2	1.00	--	--	--	--	--	--	1.00	--	--	--	--	--	1.00	1.00	Service 1
3	1.25	--	--	--	--	--	--	1.50	--	--	--	--	--	1.00	1.00	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*DL + 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*Hs

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

Factored Load Combination No. 3

Load Combination Name = Strength 1

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

Factored Load = 1.25*DL + 1.50*Hs

Factored Horizontal Force = 0.00 lbs
Factored Vertical Force = 0.00 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	0.00	0.00	0.00	Service 1
3	0.00	0.00	0.00	Strength 1

Sorted Values of Axial Thrust Forces Sorted for LRFD Computations:

Number of Unique Axial Thrust Values = 1

Number	Factored Axial Thrust
1	0.000

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	=	80.000000 ft
Shaft Diameter	=	60.000000 in
Concrete Cover Thickness (to edge of long. rebar)	=	6.500000 in
Number of Reinforcing Bars	=	40 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	=	62.400000 sq. in.
Area Ratio of Steel Reinforcement	=	2.21 percent
Edge-to-Edge Bar Spacing	=	2.166950 in
Maximum Concrete Aggregate Size	=	0.375000 in
Ratio of Bar Spacing to Aggregate Size	=	5.78
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	=	13145.114 kips
Tensile Load for Cracking of Concrete	=	-1358.778 kips
Nominal Axial Tensile Capacity	=	-3744.000 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.410000	1.560000	22.795000	0.00000
2	1.410000	1.560000	22.514356	3.565924
3	1.410000	1.560000	21.679333	7.044042
4	1.410000	1.560000	20.310494	10.348713
5	1.410000	1.560000	18.441542	13.398565
6	1.410000	1.560000	16.118499	16.118499
7	1.410000	1.560000	13.398565	18.441542
8	1.410000	1.560000	10.348713	20.310494
9	1.410000	1.560000	7.044042	21.679333
10	1.410000	1.560000	3.565924	22.514356
11	1.410000	1.560000	0.00000	22.795000
12	1.410000	1.560000	-3.565924	22.514356
13	1.410000	1.560000	-7.044042	21.679333
14	1.410000	1.560000	-10.348713	20.310494
15	1.410000	1.560000	-13.398565	18.441542
16	1.410000	1.560000	-16.118499	16.118499
17	1.410000	1.560000	-18.441542	13.398565
18	1.410000	1.560000	-20.310494	10.348713
19	1.410000	1.560000	-21.679333	7.044042
20	1.410000	1.560000	-22.514356	3.565924
21	1.410000	1.560000	-22.795000	0.00000
22	1.410000	1.560000	-22.514356	-3.565924
23	1.410000	1.560000	-21.679333	-7.044042
24	1.410000	1.560000	-20.310494	-10.348713
25	1.410000	1.560000	-18.441542	-13.398565
26	1.410000	1.560000	-16.118499	-16.118499
27	1.410000	1.560000	-13.398565	-18.441542
28	1.410000	1.560000	-10.348713	-20.310494
29	1.410000	1.560000	-7.044042	-21.679333
30	1.410000	1.560000	-3.565924	-22.514356
31	1.410000	1.560000	0.00000	-22.795000
32	1.410000	1.560000	3.565924	-22.514356
33	1.410000	1.560000	7.044042	-21.679333
34	1.410000	1.560000	10.348713	-20.310494
35	1.410000	1.560000	13.398565	-18.441542
36	1.410000	1.560000	16.118499	-16.118499
37	1.410000	1.560000	18.441542	-13.398565

38	1.410000	1.560000	20.310494	-10.348713
39	1.410000	1.560000	21.679333	-7.044042
40	1.410000	1.560000	22.514356	-3.565924

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

Minimum spacing between any two bars not equal to zero = 2.167 inches
between bars 34 and 35.

Ratio of bar spacing to maximum aggregate size = 5.78

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	=	0.375000 in

Number of Axial Thrust Force Values Determined from LRFD Pile-head Loadings = 1

Number	Axial Thrust Force kips
1	0.000

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 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-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	1289.	3094082389.	29.9999621	0.00001250	-0.00001250	0.0523123	-0.2863755	
8.33333E-07	2573.	3088157371.	29.9999620	0.00002500	-0.00002500	0.1042802	-0.5727509	
0.00000125	3853.	3082232354.	29.9999618	0.00003750	-0.00003750	0.1559039	-0.8591264	
0.00000167	5127.	3076307336.	29.9999617	0.00005000	-0.00005000	0.2071831	-1.1455018	
0.00000208	6397.	3070382318.	29.9999616	0.00006250	-0.00006250	0.2581181	-1.4318773	
0.00000250	7661.	3064457300.	29.9999615	0.00007500	-0.00007500	0.3087088	-1.7182528	
0.00000292	8921.	3058532283.	29.9999614	0.00008750	-0.00008750	0.3589551	-2.0046282	
0.00000333	10175.	3052607265.	29.9999613	0.00010000	-0.0001000	0.4088571	-2.2910037	
0.00000375	11425.	3046682247.	29.9999612	0.0001125	-0.0001125	0.4584147	-2.5773792	
0.00000417	11425.	2742014022.	18.0220442	0.00007509	-0.0001749	0.3070461	-4.3110863	C
0.00000458	11425.	2492740020.	18.0274708	0.00008263	-0.0001924	0.3371773	-4.7414737	C
0.00000500	11425.	2285011685.	18.0329087	0.00009016	-0.0002098	0.3672037	-5.1717282	C
0.00000542	11425.	2109241556.	18.0383579	0.00009771	-0.0002273	0.3971249	-5.6018496	C
0.00000583	11425.	1958581445.	18.0438184	0.0001053	-0.0002447	0.4269409	-6.0318374	C
0.00000625	11425.	1828009348.	18.0492904	0.0001128	-0.0002622	0.4566514	-6.4616911	C
0.00000667	11425.	1713758764.	18.0547738	0.0001204	-0.0002796	0.4862564	-6.8914104	C
0.00000708	11425.	1612949425.	18.0602687	0.0001279	-0.0002971	0.5157555	-7.3209948	C
0.00000750	11425.	1523341124.	18.0657751	0.0001355	-0.0003145	0.5451487	-7.7504439	C
0.00000792	11425.	1443165275.	18.0712931	0.0001431	-0.0003319	0.5744357	-8.1797573	C
0.00000833	11425.	1371007011.	18.0768228	0.0001506	-0.0003494	0.6036165	-8.6089345	C
0.00000875	11425.	1305720963.	18.0823642	0.0001582	-0.0003668	0.6326907	-9.0379751	C
0.00000917	11425.	1246370010.	18.0879174	0.0001658	-0.0003842	0.6616583	-9.4668786	C
0.00000958	11425.	1192180010.	18.0934823	0.0001734	-0.0004016	0.6905190	-9.8956447	C
0.00001000	11425.	1142505843.	18.0990591	0.0001810	-0.0004190	0.7192727	-10.3242728	C

0.00001042	11425.	1096805609.	18.1046478	0.0001886	-0.0004364	0.7479192	-10.7527626 C
0.00001083	11425.	1054620778.	18.1102485	0.0001962	-0.0004538	0.7764583	-11.1811136 C
0.00001125	11425.	1015560749.	18.1158611	0.0002038	-0.0004712	0.8048898	-11.6093253 C
0.00001167	11425.	979290722.	18.1214858	0.0002114	-0.0004886	0.8332136	-12.0373973 C
0.00001208	11498.	951545496.	18.1271227	0.0002190	-0.0005060	0.8614294	-12.4653291 C
0.00001250	11890.	951221784.	18.1327716	0.0002267	-0.0005233	0.8895371	-12.8931203 C
0.00001292	12282.	950897469.	18.1384329	0.0002343	-0.0005407	0.9175365	-13.3207703 C
0.00001333	12674.	950572548.	18.1441063	0.0002419	-0.0005581	0.9454274	-13.7482789 C
0.00001375	13066.	950247020.	18.1497921	0.0002496	-0.0005754	0.9732096	-14.1756454 C
0.00001417	13457.	949920881.	18.1554903	0.0002572	-0.0005928	1.0008829	-14.6028694 C
0.00001458	13848.	949594129.	18.1612010	0.0002649	-0.0006101	1.0284472	-15.0299504 C
0.00001500	14239.	949266762.	18.1669241	0.0002725	-0.0006275	1.0559022	-15.4568880 C
0.00001542	14629.	948938777.	18.1726597	0.0002802	-0.0006448	1.0832477	-15.8836817 C
0.00001583	15020.	948610172.	18.1784080	0.0002878	-0.0006622	1.1104836	-16.3103310 C
0.00001625	15410.	948280943.	18.1841689	0.0002955	-0.0006795	1.1376097	-16.7368354 C
0.00001708	16189.	947620592.	18.1957289	0.0003108	-0.0007142	1.1915316	-17.5894078 C
0.00001792	16966.	946957731.	18.2073403	0.0003262	-0.0007488	1.2450117	-18.4413946 C
0.00001875	17743.	946292325.	18.2190034	0.0003416	-0.0007834	1.2980487	-19.2927921 C
0.00001958	18518.	945624353.	18.2307188	0.0003570	-0.0008180	1.3506407	-20.1435961 C
0.00002042	19293.	944953794.	18.2424869	0.0003725	-0.0008525	1.4027863	-20.9938028 C
0.00002125	20066.	944280624.	18.2543083	0.0003879	-0.0008871	1.4544838	-21.8434078 C
0.00002208	20838.	943604822.	18.2661833	0.0004034	-0.0009216	1.5057315	-22.6924071 C
0.00002292	21609.	942926364.	18.2781125	0.0004189	-0.0009561	1.5565279	-23.5407963 C
0.00002375	22378.	942245229.	18.2900965	0.0004344	-0.0009906	1.6068711	-24.3885714 C
0.00002458	23147.	941561528.	18.3020703	0.0004499	-0.0010251	1.6567544	-25.2357740 C
0.00002542	23914.	940875575.	18.3137940	0.0004655	-0.0010595	1.7061559	-26.0825830 C
0.00002625	24680.	940186993.	18.3255706	0.0004810	-0.0010940	1.7550976	-26.9287848 C
0.00002708	25445.	939495729.	18.3374006	0.0004966	-0.0011284	1.8035778	-27.7743754 C
0.00002792	26208.	938801758.	18.3492845	0.0005123	-0.0011627	1.8515948	-28.6193506 C
0.00002875	26971.	938105058.	18.3612227	0.0005279	-0.0011971	1.8991467	-29.4637061 C
0.00002958	27732.	937405604.	18.3732159	0.0005435	-0.0012315	1.9462319	-30.3074375 C
0.00003042	28491.	936703373.	18.3852644	0.0005592	-0.0012658	1.9928486	-31.1505403 C
0.00003125	29250.	935998341.	18.3973689	0.0005749	-0.0013001	2.0389949	-31.9930101 C
0.00003208	30007.	935290482.	18.4095298	0.0005906	-0.0013344	2.0846691	-32.8348424 C
0.00003292	30763.	934579772.	18.4217478	0.0006064	-0.0013686	2.1298693	-33.6760324 C
0.00003375	31518.	933866185.	18.4340233	0.0006221	-0.0014029	2.1745937	-34.5165755 C
0.00003458	32271.	933149695.	18.4463569	0.0006379	-0.0014371	2.2188405	-35.3564671 C
0.00003542	33024.	932430276.	18.4587493	0.0006537	-0.0014713	2.2626076	-36.1957022 C
0.00003625	33774.	931707952.	18.4712009	0.0006696	-0.0015054	2.3058933	-37.0342750 C
0.00003708	34524.	930982596.	18.4837123	0.0006854	-0.0015396	2.3486955	-37.8721826 C
0.00003792	35272.	930254231.	18.4962842	0.0007013	-0.0015737	2.3910123	-38.7094190 C
0.00003875	36019.	929522828.	18.5089172	0.0007172	-0.0016078	2.4328417	-39.5459792 C
0.00003958	36765.	928788360.	18.5216118	0.0007331	-0.0016419	2.4741818	-40.3818580 C
0.00004042	37509.	928050797.	18.5343687	0.0007491	-0.0016759	2.5150305	-41.2170503 C
0.00004125	38252.	927310111.	18.5471885	0.0007651	-0.0017099	2.5553858	-42.0515507 C
0.00004208	38993.	926566273.	18.5600718	0.0007811	-0.0017439	2.5952455	-42.8853539 C
0.00004292	39733.	925819251.	18.5730194	0.0007971	-0.0017779	2.6346077	-43.7184545 C
0.00004375	40472.	925069018.	18.5860318	0.0008131	-0.0018119	2.6734701	-44.5508471 C
0.00004458	41209.	924315540.	18.5991097	0.0008292	-0.0018458	2.7118307	-45.3825260 C
0.00004542	41945.	923558788.	18.6122538	0.0008453	-0.0018797	2.7496873	-46.2134856 C
0.00004625	42679.	922798729.	18.6254648	0.0008614	-0.0019136	2.7870377	-47.0437202 C
0.00004708	43412.	922035331.	18.6387434	0.0008776	-0.0019474	2.8238797	-47.8732239 C
0.00004792	44144.	921268562.	18.6520904	0.0008937	-0.0019813	2.8602110	-48.7019909 C
0.00004875	44874.	920498388.	18.6655063	0.0009099	-0.0020151	2.8960294	-49.5300153 C
0.00004958	45603.	919724776.	18.6789921	0.0009262	-0.0020488	2.9313326	-50.3572908 C
0.00005292	48503.	916595247.	18.7336479	0.0009913	-0.0021837	3.0673461	-53.6587810 C
0.00005625	51379.	913407859.	18.7894822	0.0010569	-0.0023181	3.1949249	-56.9477820 C
0.00005958	54230.	910154009.	18.8465039	0.0011229	-0.0024521	3.3139028	-60.0000000 CY
0.00006292	56795.	902699255.	18.8737629	0.0011875	-0.0025875	3.4209669	-60.0000000 CY
0.00006625	58753.	886833295.	18.8361371	0.0012479	-0.0027271	3.5128800	-60.0000000 CY
0.00006958	60376.	867673574.	18.7694582	0.0013060	-0.0028690	3.5937890	-60.0000000 CY
0.00007292	61750.	846854790.	18.6849211	0.0013624	-0.0030126	3.6652152	-60.0000000 CY
0.00007625	62987.	826055620.	18.5963623	0.0014180	-0.0031570	3.7287803	-60.0000000 CY
0.00007958	64040.	804691152.	18.4976901	0.0014721	-0.0033029	3.7842874	-60.0000000 CY
0.00008292	65036.	784358779.	18.4044058	0.0015260	-0.0034490	3.8332637	-60.0000000 CY
0.00008625	65866.	763664487.	18.3015462	0.0015785	-0.0035965	3.8748584	-60.0000000 CY
0.00008958	66653.	744037585.	18.2012027	0.0016305	-0.0037445	3.9102029	-60.0000000 CY
0.00009292	67399.	725374457.	18.1064013	0.0016824	-0.0038926	3.9396153	-60.0000000 CY
0.00009625	68017.	706675045.	18.0044441	0.0017329	-0.0040421	3.9626720	-60.0000000 CY
0.00009958	68592.	688787291.	17.9069203	0.0017832	-0.0041918	3.9801390	-60.0000000 CY
0.0001029	69158.	671984230.	17.8182226	0.0018338	-0.0043412	3.9921891	-60.0000000 CY
0.0001063	69695.	655950025.	17.7342692	0.0018843	-0.0044907	3.9987096	-60.0000000 CY
0.0001096	70148.	640131071.	17.6444856	0.0019335	-0.0046415	3.9970351	-60.0000000 CY
0.0001129	70546.	624764950.	17.5537784	0.0019821	-0.0047929	3.9999624	-60.0000000 CY
0.0001163	70931.	610163147.	17.4697720	0.0020309	-0.0049441	3.9990027	-60.0000000 CY
0.0001196	71310.	596320550.	17.3926384	0.0020799	-0.0050951	3.9962797	-60.0000000 CY
0.0001229	71680.	583162358.	17.3216544	0.0021291	-0.0052459	3.9997377	-60.0000000 CY
0.0001263	72018.	570439139.	17.2522288	0.0021781	-0.0053969	3.9972950	-60.0000000 CY
0.0001296	72310.	558017446.	17.1815228	0.0022264	-0.0055486	3.9998941	-60.0000000 CY

0.0001329	72560.	545909493.	17.1103971	0.0022743	-0.0057007	3.9971172	-60.0000000 CY
0.0001363	72799.	534307420.	17.0399990	0.0023217	-0.0058533	3.9997734	-60.0000000 CY
0.0001396	73033.	523224105.	16.9740205	0.0023693	-0.0060057	3.9957679	-60.0000000 CY
0.0001429	73264.	512632407.	16.9125122	0.0024171	-0.0061579	3.9992066	-60.0000000 CY
0.0001462	73491.	502500838.	16.8550981	0.0024651	-0.0063099	3.9973626	-60.0000000 CY
0.0001496	73712.	492780106.	16.8013689	0.0025132	-0.0064618	3.9976013	-60.0000000 CY
0.0001529	73927.	483449418.	16.7504631	0.0025614	-0.0066136	3.9998109	-60.0000000 CY
0.0001562	74106.	474279062.	16.6966626	0.0026089	-0.0067661	3.9938996	-60.0000000 CY
0.0001596	74273.	465416543.	16.6443087	0.0026562	-0.0069188	3.9978243	-60.0000000 CY
0.0001629	74413.	456755132.	16.5901427	0.0027028	-0.0070722	3.9997690	-60.0000000 CY
0.0001662	74550.	448421106.	16.5389866	0.0027496	-0.0072254	3.9951527	-60.0000000 CY
0.0001696	74683.	440390624.	16.4898055	0.0027964	-0.0073786	3.9964112	-60.0000000 CY
0.0001729	74812.	432650134.	16.4405594	0.0028428	-0.0075322	3.9990513	-60.0000000 CY
0.0001762	74941.	425195492.	16.3937880	0.0028894	-0.0076856	3.9999975	-60.0000000 CY
0.0001796	75066.	418003379.	16.3498389	0.0029362	-0.0078388	3.9925350	-60.0000000 CY
0.0001829	75191.	411067630.	16.3080271	0.0029830	-0.0079920	3.9965201	-60.0000000 CY
0.0002029	75856.	373828537.	16.0842954	0.0032638	-0.0089112	3.9994246	-60.0000000 CYT
0.0002229	76285.	342212030.	15.8707643	0.0035379	-0.0098371	3.9995373	60.0000000 CYT
0.0002429	76641.	315503826.	15.6932648	0.0038122	-0.0107628	3.9980413	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	75231.358	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	75231.	0.0000	48900.	916155027.
1	0.75	75231.	0.0000	56424.	903778483.
1	0.90	75231.	0.0000	67708.	716030891.

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	32.9000	0.00	N.A.	No	0.00	162967.
2	35.2000	1.9873	Yes	No	162967.	270453.
3	38.2000	7.6485	No	No	433420.	741721.
4	42.7000	12.4819	Yes	No	1175140.	98185.
5	43.2000	12.9811	Yes	No	1273326.	1693147.
6	50.7000	23.4394	Yes	No	2966473.	1.91E+07
7	89.2000	56.3000	No	No	2.20E+07	0.00
8	94.2000	61.3000	No	No	0.00	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 Horizontal Soil Pressures

Depth in	Distributed Load lb/in
0.00	2.69
9.60	10.78
19.20	21.56
28.80	32.34
38.40	43.11
48.00	53.89
57.60	64.67
67.20	75.45
76.80	86.23
86.40	97.01
96.00	107.78
105.60	118.56
115.20	129.34
124.80	140.12
134.40	150.90
144.00	161.68
153.60	172.46
163.20	183.23
172.80	194.01
182.40	204.79
192.00	215.57
201.60	265.86
211.20	334.73
220.80	387.82
230.40	440.91
240.00	494.00
249.60	547.09
259.20	600.18
268.80	653.27
278.40	706.36
288.00	759.45
297.60	812.55
307.20	865.64
316.80	918.73
326.40	971.82
336.00	1024.91
345.60	1078.00
355.20	1131.09
364.80	1184.18
374.40	1237.27
384.00	1290.36
393.60	1343.45

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	2.9382	-2.98E-04	7.77E-07	-0.00620	0.00	3.09E+12	0.00	0.00	2.6946

0.8000	2.8787	124.1677	64.6707	-0.00620	0.00	3.09E+12	0.00	0.00	10.7784
1.6000	2.8192	1242.	219.8802	-0.00620	0.00	3.09E+12	0.00	0.00	21.5569
2.4000	2.7596	4346.	478.5629	-0.00620	0.00	3.09E+12	0.00	0.00	32.3353
3.2000	2.7001	10430.	840.7186	-0.00620	0.00	3.09E+12	0.00	0.00	43.1138
4.0000	2.6406	20488.	1306.	-0.00620	0.00	3.09E+12	0.00	0.00	53.8922
4.8000	2.5811	35512.	1875.	-0.00620	0.00	3.09E+12	0.00	0.00	64.6707
5.6000	2.5216	56496.	2548.	-0.00620	0.00	3.09E+12	0.00	0.00	75.4491
6.4000	2.4621	84434.	3324.	-0.00620	0.00	3.09E+12	0.00	0.00	86.2275
7.2000	2.4026	120318.	4204.	-0.00620	0.00	3.09E+12	0.00	0.00	97.0060
8.0000	2.3430	165143.	5187.	-0.00620	0.00	3.09E+12	0.00	0.00	107.7844
8.8000	2.2835	219901.	6273.	-0.00620	0.00	3.09E+12	0.00	0.00	118.5629
9.6000	2.2241	285586.	7463.	-0.00620	0.00	3.09E+12	0.00	0.00	129.3413
10.4000	2.1646	363190.	8756.	-0.00620	0.00	3.09E+12	0.00	0.00	140.1198
11.2000	2.1051	453709.	10153.	-0.00619	0.00	3.09E+12	0.00	0.00	150.8982
12.0000	2.0456	558134.	11654.	-0.00619	0.00	3.09E+12	0.00	0.00	161.6766
12.8000	1.9862	677459.	13257.	-0.00619	0.00	3.09E+12	0.00	0.00	172.4551
13.6000	1.9268	812677.	14965.	-0.00619	0.00	3.09E+12	0.00	0.00	183.2335
14.4000	1.8674	964783.	16776.	-0.00619	0.00	3.09E+12	0.00	0.00	194.0120
15.2000	1.8080	1134768.	18690.	-0.00618	0.00	3.09E+12	0.00	0.00	204.7904
16.0000	1.7486	1323627.	20708.	-0.00618	0.00	3.09E+12	0.00	0.00	215.5689
16.8000	1.6893	1532353.	23018.	-0.00617	0.00	3.09E+12	0.00	0.00	265.8615
17.6000	1.6301	1765581.	25901.	-0.00617	0.00	3.09E+12	0.00	0.00	334.7273
18.4000	1.5709	2029657.	29369.	-0.00616	0.00	3.09E+12	0.00	0.00	387.8182
19.2000	1.5118	2329474.	33347.	-0.00616	0.00	3.09E+12	0.00	0.00	440.9091
20.0000	1.4527	2669926.	37835.	-0.00615	0.00	3.09E+12	0.00	0.00	494.0000
20.8000	1.3937	3055905.	42832.	-0.00614	0.00	3.09E+12	0.00	0.00	547.0909
21.6000	1.3348	3492303.	48339.	-0.00613	0.00	3.08E+12	0.00	0.00	600.1818
22.4000	1.2760	3984014.	54356.	-0.00612	0.00	3.08E+12	0.00	0.00	653.2727
23.2000	1.2173	4535931.	60882.	-0.00611	0.00	3.08E+12	0.00	0.00	706.3636
24.0000	1.1588	5152947.	67918.	-0.00609	0.00	3.08E+12	0.00	0.00	759.4545
24.8000	1.1004	5839953.	75463.	-0.00607	0.00	3.07E+12	0.00	0.00	812.5455
25.6000	1.0422	6601844.	83519.	-0.00605	0.00	3.07E+12	0.00	0.00	865.6364
26.4000	0.9842	7443512.	92084.	-0.00603	0.00	3.07E+12	0.00	0.00	918.7273
27.2000	0.9264	8369850.	101158.	-0.00601	0.00	3.06E+12	0.00	0.00	971.8182
28.0000	0.8688	9385751.	110743.	-0.00598	0.00	3.06E+12	0.00	0.00	1025.
28.8000	0.8116	1.05E+07	120837.	-0.00595	0.00	3.05E+12	0.00	0.00	1078.
29.6000	0.7547	1.17E+07	131440.	-0.00587	0.00	9.51E+11	0.00	0.00	1131.
30.4000	0.6989	1.30E+07	142553.	-0.00575	0.00	9.50E+11	0.00	0.00	1184.
31.2000	0.6443	1.44E+07	154176.	-0.00561	0.00	9.49E+11	0.00	0.00	1237.
32.0000	0.5912	1.60E+07	166309.	-0.00545	0.00	9.48E+11	0.00	0.00	1290.
32.8000	0.5396	1.76E+07	178951.	-0.00528	0.00	9.46E+11	0.00	0.00	1343.
33.6000	0.4897	1.94E+07	177186.	-0.00510	0.00	9.45E+11	-1711.	33545.	0.00
34.4000	0.4418	2.10E+07	160700.	-0.00489	0.00	9.43E+11	-1723.	37450.	0.00
35.2000	0.3958	2.25E+07	143442.	-0.00467	0.00	9.42E+11	-1872.	45404.	0.00
36.0000	0.3521	2.38E+07	124787.	-0.00443	0.00	9.41E+11	-2014.	54918.	0.00
36.8000	0.3107	2.49E+07	105468.	-0.00418	0.00	9.40E+11	-2011.	62116.	0.00
37.6000	0.2718	2.58E+07	86214.	-0.00392	0.00	9.39E+11	-2001.	70667.	0.00
38.4000	0.2354	2.66E+07	61481.	-0.00366	0.00	9.38E+11	-3152.	128556.	0.00
39.2000	0.2016	2.70E+07	30367.	-0.00338	0.00	9.38E+11	-3330.	158607.	0.00
40.0000	0.1704	2.71E+07	-2085.	-0.00311	0.00	9.38E+11	-3430.	193241.	0.00
40.8000	0.1419	2.70E+07	-34878.	-0.00283	0.00	9.38E+11	-3402.	230068.	0.00
41.6000	0.1161	2.65E+07	-65913.	-0.00256	0.00	9.39E+11	-3064.	253366.	0.00
42.4000	0.09286	2.57E+07	-93465.	-0.00229	0.00	9.39E+11	-2676.	276664.	0.00
43.2000	0.07214	2.47E+07	-111652.	-0.00203	0.00	9.40E+11	-1113.	148083.	0.00
44.0000	0.05384	2.35E+07	-121289.	-0.00179	0.00	9.41E+11	-895.0172	159584.	0.00
44.8000	0.03785	2.23E+07	-128823.	-0.00155	0.00	9.42E+11	-674.4952	171086.	0.00
45.6000	0.02404	2.11E+07	-134255.	-0.00133	0.00	9.43E+11	-457.2123	182587.	0.00
46.4000	0.01229	1.98E+07	-137642.	-0.00112	0.00	9.45E+11	-248.4665	194089.	0.00
47.2000	0.00247	1.84E+07	-139089.	-9.29E-04	0.00	9.46E+11	-52.8670	205591.	0.00
48.0000	-0.00556	1.71E+07	-138739.	-7.49E-04	0.00	9.47E+11	125.6454	217092.	0.00
48.8000	-0.01192	1.58E+07	-136774.	-5.83E-04	0.00	9.48E+11	283.7668	228594.	0.00
49.6000	-0.01674	1.45E+07	-133402.	-4.30E-04	0.00	9.49E+11	418.7906	240095.	0.00
50.4000	-0.02017	1.32E+07	-128855.	-2.90E-04	0.00	9.50E+11	528.5619	251597.	0.00
51.2000	-0.02231	1.20E+07	-123985.	-1.63E-04	0.00	9.51E+11	486.0061	209129.	0.00
52.0000	-0.02329	1.08E+07	-119110.	-8.50E-05	0.00	3.05E+12	529.5285	218272.	0.00
52.8000	-0.02394	9707380.	-113846.	-5.27E-05	0.00	3.05E+12	567.1659	227414.	0.00
53.6000	-0.02430	8640593.	-108249.	-2.39E-05	0.00	3.06E+12	598.8293	236556.	0.00
54.4000	-0.02440	7628993.	-102377.	1.59E-06	0.00	3.06E+12	624.5168	245699.	0.00
55.2000	-0.02427	6674949.	-96287.	2.40E-05	0.00	3.07E+12	644.3033	254841.	0.00
56.0000	-0.02394	5780284.	-90034.	4.35E-05	0.00	3.07E+12	658.3302	263983.	0.00
56.8000	-0.02344	4946290.	-83674.	6.02E-05	0.00	3.08E+12	666.7955	273125.	0.00
57.6000	-0.02279	4173748.	-77257.	7.44E-05	0.00	3.08E+12	669.9452	282268.	0.00
58.4000	-0.02201	3462949.	-70835.	8.63E-05	0.00	3.08E+12	668.0627	291410.	0.00
59.2000	-0.02113	2813718.	-64453.	9.61E-05	0.00	3.09E+12	661.4603	300552.	0.00
60.0000	-0.02016	2225448.	-58156.	1.04E-04	0.00	3.09E+12	650.4710	309694.	0.00
60.8000	-0.01913	1697124.	-51984.	1.10E-04	0.00	3.09E+12	635.4398	318837.	0.00
61.6000	-0.01805	1227363.	-45973.	1.15E-04	0.00	3.09E+12	616.7168	327979.	0.00
62.4000	-0.01693	814439.	-40159.	1.18E-04	0.00	3.09E+12	594.6505	337121.	0.00
63.2000	-0.01579	456317.	-34570.	1.20E-04	0.00	3.09E+12	569.5799	346264.	0.00

64.0000	-0.01464	150688.	-29236.	1.21E-04	0.00	3.09E+12	541.8308	355406.	0.00
64.8000	-0.01348	-105005.	-24179.	1.21E-04	0.00	3.09E+12	511.7099	364548.	0.00
65.6000	-0.01232	-313540.	-19421.	1.20E-04	0.00	3.09E+12	479.5010	373690.	0.00
66.4000	-0.01117	-477884.	-14981.	1.19E-04	0.00	3.09E+12	445.4606	382833.	0.00
67.2000	-0.01004	-601174.	-10876.	1.17E-04	0.00	3.09E+12	409.8152	391975.	0.00
68.0000	-0.00892	-686696.	-7119.	1.15E-04	0.00	3.09E+12	372.7591	401117.	0.00
68.8000	-0.00783	-737864.	-3725.	1.13E-04	0.00	3.09E+12	334.4523	410259.	0.00
69.6000	-0.00675	-758209.	-703.1797	1.11E-04	0.00	3.09E+12	295.0196	419402.	0.00
70.4000	-0.00570	-751365.	1935.	1.08E-04	0.00	3.09E+12	254.5511	428544.	0.00
71.2000	-0.00467	-721062.	4179.	1.06E-04	0.00	3.09E+12	213.1018	437686.	0.00
72.0000	-0.00367	-671119.	6022.	1.04E-04	0.00	3.09E+12	170.6939	446829.	0.00
72.8000	-0.00268	-605445.	7452.	1.02E-04	0.00	3.09E+12	127.3178	455971.	0.00
73.6000	-0.00171	-528037.	8461.	1.00E-04	0.00	3.09E+12	82.9360	465113.	0.00
74.4000	-7.59E-04	-442986.	9039.	9.86E-05	0.00	3.09E+12	37.4862	474255.	0.00
75.2000	1.81E-04	-354480.	9176.	9.73E-05	0.00	3.09E+12	-9.1144	483398.	0.00
76.0000	0.00111	-266814.	8858.	9.64E-05	0.00	3.09E+12	-56.9633	492540.	0.00
76.8000	0.00203	-184398.	8075.	9.57E-05	0.00	3.09E+12	-106.1667	501682.	0.00
77.6000	0.00295	-111767.	6813.	9.52E-05	0.00	3.09E+12	-156.8327	510824.	0.00
78.4000	0.00386	-53589.	5057.	9.50E-05	0.00	3.09E+12	-209.0626	519967.	0.00
79.2000	0.00477	-14678.	2791.	9.49E-05	0.00	3.09E+12	-262.9425	529109.	0.00
80.0000	0.00568	0.00	0.00	9.48E-05	0.00	3.09E+12	-318.5329	269126.	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             =     2.93818480 inches
Computed slope at pile head      =    -0.00619960 radians
Maximum bending moment           =      27135524. inch-lbs
Maximum shear force              =        178951. lbs
Depth of maximum bending moment  =    40.00000000 feet below pile head
Depth of maximum shear force     =    32.80000000 feet below pile head
Number of iterations             =             51
Number of zero deflection points =              2
```

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	2.69
9.60	10.78
19.20	21.56
28.80	32.34
38.40	43.11
48.00	53.89
57.60	64.67
67.20	75.45
76.80	86.23
86.40	97.01
96.00	107.78
105.60	118.56
115.20	129.34
124.80	140.12
134.40	150.90
144.00	161.68
153.60	172.46
163.20	183.23
172.80	194.01
182.40	204.79
192.00	215.57
201.60	265.86
211.20	334.73
220.80	387.82
230.40	440.91
240.00	494.00
249.60	547.09

259.20	600.18
268.80	653.27
278.40	706.36
288.00	759.45
297.60	812.55
307.20	865.64
316.80	918.73
326.40	971.82
336.00	1024.91
345.60	1078.00
355.20	1131.09
364.80	1184.18
374.40	1237.27
384.00	1290.36
393.60	1343.45

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	2.9382	-2.98E-04	7.77E-07	-0.00620	0.00	3.09E+12	0.00	0.00	2.6946
0.8000	2.8787	124.1677	64.6707	-0.00620	0.00	3.09E+12	0.00	0.00	10.7784
1.6000	2.8192	1242.	219.8802	-0.00620	0.00	3.09E+12	0.00	0.00	21.5569
2.4000	2.7596	4346.	478.5629	-0.00620	0.00	3.09E+12	0.00	0.00	32.3353
3.2000	2.7001	10430.	840.7186	-0.00620	0.00	3.09E+12	0.00	0.00	43.1138
4.0000	2.6406	20488.	1306.	-0.00620	0.00	3.09E+12	0.00	0.00	53.8922
4.8000	2.5811	35512.	1875.	-0.00620	0.00	3.09E+12	0.00	0.00	64.6707
5.6000	2.5216	56496.	2548.	-0.00620	0.00	3.09E+12	0.00	0.00	75.4491
6.4000	2.4621	84434.	3324.	-0.00620	0.00	3.09E+12	0.00	0.00	86.2275
7.2000	2.4026	120318.	4204.	-0.00620	0.00	3.09E+12	0.00	0.00	97.0060
8.0000	2.3430	165143.	5187.	-0.00620	0.00	3.09E+12	0.00	0.00	107.7844
8.8000	2.2835	219901.	6273.	-0.00620	0.00	3.09E+12	0.00	0.00	118.5629
9.6000	2.2241	285586.	7463.	-0.00620	0.00	3.09E+12	0.00	0.00	129.3413
10.4000	2.1646	363190.	8756.	-0.00620	0.00	3.09E+12	0.00	0.00	140.1198
11.2000	2.1051	453709.	10153.	-0.00619	0.00	3.09E+12	0.00	0.00	150.8982
12.0000	2.0456	558134.	11654.	-0.00619	0.00	3.09E+12	0.00	0.00	161.6766
12.8000	1.9862	677459.	13257.	-0.00619	0.00	3.09E+12	0.00	0.00	172.4551
13.6000	1.9268	812677.	14965.	-0.00619	0.00	3.09E+12	0.00	0.00	183.2335
14.4000	1.8674	964783.	16776.	-0.00619	0.00	3.09E+12	0.00	0.00	194.0120
15.2000	1.8080	1134768.	18690.	-0.00618	0.00	3.09E+12	0.00	0.00	204.7904
16.0000	1.7486	1323627.	20708.	-0.00618	0.00	3.09E+12	0.00	0.00	215.5689
16.8000	1.6893	1532353.	23018.	-0.00617	0.00	3.09E+12	0.00	0.00	265.8615
17.6000	1.6301	1765581.	25901.	-0.00617	0.00	3.09E+12	0.00	0.00	334.7273
18.4000	1.5709	2029657.	29369.	-0.00616	0.00	3.09E+12	0.00	0.00	387.8182
19.2000	1.5118	2329474.	33347.	-0.00616	0.00	3.09E+12	0.00	0.00	440.9091
20.0000	1.4527	2669926.	37835.	-0.00615	0.00	3.09E+12	0.00	0.00	494.0000
20.8000	1.3937	3055905.	42832.	-0.00614	0.00	3.09E+12	0.00	0.00	547.0909
21.6000	1.3348	3492303.	48339.	-0.00613	0.00	3.08E+12	0.00	0.00	600.1818
22.4000	1.2760	3984014.	54356.	-0.00612	0.00	3.08E+12	0.00	0.00	653.2727
23.2000	1.2173	4535931.	60882.	-0.00611	0.00	3.08E+12	0.00	0.00	706.3636
24.0000	1.1588	5152947.	67918.	-0.00609	0.00	3.08E+12	0.00	0.00	759.4545
24.8000	1.1004	5839953.	75463.	-0.00607	0.00	3.07E+12	0.00	0.00	812.5455
25.6000	1.0422	6601844.	83519.	-0.00605	0.00	3.07E+12	0.00	0.00	865.6364
26.4000	0.9842	7443512.	92084.	-0.00603	0.00	3.07E+12	0.00	0.00	918.7273
27.2000	0.9264	8369850.	101158.	-0.00601	0.00	3.06E+12	0.00	0.00	971.8182
28.0000	0.8688	9385751.	110743.	-0.00598	0.00	3.06E+12	0.00	0.00	1025.
28.8000	0.8116	1.05E+07	120837.	-0.00595	0.00	3.05E+12	0.00	0.00	1078.
29.6000	0.7547	1.17E+07	131440.	-0.00587	0.00	9.51E+11	0.00	0.00	1131.
30.4000	0.6989	1.30E+07	142553.	-0.00575	0.00	9.50E+11	0.00	0.00	1184.
31.2000	0.6443	1.44E+07	154176.	-0.00561	0.00	9.49E+11	0.00	0.00	1237.
32.0000	0.5912	1.60E+07	166309.	-0.00545	0.00	9.48E+11	0.00	0.00	1290.
32.8000	0.5396	1.76E+07	178951.	-0.00528	0.00	9.46E+11	0.00	0.00	1343.
33.6000	0.4897	1.94E+07	177186.	-0.00510	0.00	9.45E+11	-1711.	33545.	0.00
34.4000	0.4418	2.10E+07	160700.	-0.00489	0.00	9.43E+11	-1723.	37450.	0.00
35.2000	0.3958	2.25E+07	143442.	-0.00467	0.00	9.42E+11	-1872.	45404.	0.00

36.0000	0.3521	2.38E+07	124787.	-0.00443	0.00	9.41E+11	-2014.	54918.	0.00
36.8000	0.3107	2.49E+07	105468.	-0.00418	0.00	9.40E+11	-2011.	62116.	0.00
37.6000	0.2718	2.58E+07	86214.	-0.00392	0.00	9.39E+11	-2001.	70667.	0.00
38.4000	0.2354	2.66E+07	61481.	-0.00366	0.00	9.38E+11	-3152.	128556.	0.00
39.2000	0.2016	2.70E+07	30367.	-0.00338	0.00	9.38E+11	-3330.	158607.	0.00
40.0000	0.1704	2.71E+07	-2085.	-0.00311	0.00	9.38E+11	-3430.	193241.	0.00
40.8000	0.1419	2.70E+07	-34878.	-0.00283	0.00	9.38E+11	-3402.	230068.	0.00
41.6000	0.1161	2.65E+07	-65913.	-0.00256	0.00	9.39E+11	-3064.	253366.	0.00
42.4000	0.09286	2.57E+07	-93465.	-0.00229	0.00	9.39E+11	-2676.	276664.	0.00
43.2000	0.07214	2.47E+07	-111652.	-0.00203	0.00	9.40E+11	-1113.	148083.	0.00
44.0000	0.05384	2.35E+07	-121289.	-0.00179	0.00	9.41E+11	-895.0172	159584.	0.00
44.8000	0.03785	2.23E+07	-128823.	-0.00155	0.00	9.42E+11	-674.4952	171086.	0.00
45.6000	0.02404	2.11E+07	-134255.	-0.00133	0.00	9.43E+11	-457.2123	182587.	0.00
46.4000	0.01229	1.98E+07	-137642.	-0.00112	0.00	9.45E+11	-248.4665	194089.	0.00
47.2000	0.00247	1.84E+07	-139089.	-9.29E-04	0.00	9.46E+11	-52.8670	205591.	0.00
48.0000	-0.00556	1.71E+07	-138739.	-7.49E-04	0.00	9.47E+11	125.6454	217092.	0.00
48.8000	-0.01192	1.58E+07	-136774.	-5.83E-04	0.00	9.48E+11	283.7668	228594.	0.00
49.6000	-0.01674	1.45E+07	-133402.	-4.30E-04	0.00	9.49E+11	418.7906	240095.	0.00
50.4000	-0.02017	1.32E+07	-128855.	-2.90E-04	0.00	9.50E+11	528.5619	251597.	0.00
51.2000	-0.02231	1.20E+07	-123985.	-1.63E-04	0.00	9.51E+11	486.0061	209129.	0.00
52.0000	-0.02329	1.08E+07	-119110.	-8.50E-05	0.00	3.05E+12	529.5285	218272.	0.00
52.8000	-0.02394	9707380.	-113846.	-5.27E-05	0.00	3.05E+12	567.1659	227414.	0.00
53.6000	-0.02430	8640593.	-108249.	-2.39E-05	0.00	3.06E+12	598.8293	236556.	0.00
54.4000	-0.02440	7628993.	-102377.	1.59E-06	0.00	3.06E+12	624.5168	245699.	0.00
55.2000	-0.02427	6674949.	-96287.	2.40E-05	0.00	3.07E+12	644.3033	254841.	0.00
56.0000	-0.02394	5780284.	-90034.	4.35E-05	0.00	3.07E+12	658.3302	263983.	0.00
56.8000	-0.02344	4946290.	-83674.	6.02E-05	0.00	3.08E+12	666.7955	273125.	0.00
57.6000	-0.02279	4173748.	-77257.	7.44E-05	0.00	3.08E+12	669.9452	282268.	0.00
58.4000	-0.02201	3462949.	-70835.	8.63E-05	0.00	3.08E+12	668.0627	291410.	0.00
59.2000	-0.02113	2813718.	-64453.	9.61E-05	0.00	3.09E+12	661.4603	300552.	0.00
60.0000	-0.02016	2225448.	-58156.	1.04E-04	0.00	3.09E+12	650.4710	309694.	0.00
60.8000	-0.01913	1697124.	-51984.	1.10E-04	0.00	3.09E+12	635.4398	318837.	0.00
61.6000	-0.01805	1227363.	-45973.	1.15E-04	0.00	3.09E+12	616.7168	327979.	0.00
62.4000	-0.01693	814439.	-40159.	1.18E-04	0.00	3.09E+12	594.6505	337121.	0.00
63.2000	-0.01579	456317.	-34570.	1.20E-04	0.00	3.09E+12	569.5799	346264.	0.00
64.0000	-0.01464	150688.	-29236.	1.21E-04	0.00	3.09E+12	541.8308	355406.	0.00
64.8000	-0.01348	-105005.	-24179.	1.21E-04	0.00	3.09E+12	511.7099	364548.	0.00
65.6000	-0.01232	-313540.	-19421.	1.20E-04	0.00	3.09E+12	479.5010	373690.	0.00
66.4000	-0.01117	-477884.	-14981.	1.19E-04	0.00	3.09E+12	445.4606	382833.	0.00
67.2000	-0.01004	-601174.	-10876.	1.17E-04	0.00	3.09E+12	409.8152	391975.	0.00
68.0000	-0.00892	-686696.	-7119.	1.15E-04	0.00	3.09E+12	372.7591	401117.	0.00
68.8000	-0.00783	-737864.	-3725.	1.13E-04	0.00	3.09E+12	334.4523	410259.	0.00
69.6000	-0.00675	-758209.	-703.1797	1.11E-04	0.00	3.09E+12	295.0196	419402.	0.00
70.4000	-0.00570	-751365.	1935.	1.08E-04	0.00	3.09E+12	254.5511	428544.	0.00
71.2000	-0.00467	-721062.	4179.	1.06E-04	0.00	3.09E+12	213.1018	437686.	0.00
72.0000	-0.00367	-671119.	6022.	1.04E-04	0.00	3.09E+12	170.6939	446829.	0.00
72.8000	-0.00268	-605445.	7452.	1.02E-04	0.00	3.09E+12	127.3178	455971.	0.00
73.6000	-0.00171	-528037.	8461.	1.00E-04	0.00	3.09E+12	82.9360	465113.	0.00
74.4000	-7.59E-04	-442986.	9039.	9.86E-05	0.00	3.09E+12	37.4862	474255.	0.00
75.2000	1.81E-04	-354480.	9176.	9.73E-05	0.00	3.09E+12	-9.1144	483398.	0.00
76.0000	0.00111	-266814.	8858.	9.64E-05	0.00	3.09E+12	-56.9633	492540.	0.00
76.8000	0.00203	-184398.	8075.	9.57E-05	0.00	3.09E+12	-106.1667	501682.	0.00
77.6000	0.00295	-111767.	6813.	9.52E-05	0.00	3.09E+12	-156.8327	510824.	0.00
78.4000	0.00386	-53589.	5057.	9.50E-05	0.00	3.09E+12	-209.0626	519967.	0.00
79.2000	0.00477	-14678.	2791.	9.49E-05	0.00	3.09E+12	-262.9425	529109.	0.00
80.0000	0.00568	0.00	0.00	9.48E-05	0.00	3.09E+12	-318.5329	269126.	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             =     2.93818480 inches
Computed slope at pile head      =    -0.00619960 radians
Maximum bending moment           =      27135524. inch-lbs
Maximum shear force              =        178951. lbs
Depth of maximum bending moment  =    40.00000000 feet below pile head
Depth of maximum shear force     =    32.80000000 feet below pile head
Number of iterations             =             51
Number of zero deflection points =              2
```

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	2.69
9.60	10.78
19.20	21.56
28.80	32.34
38.40	43.11
48.00	53.89
57.60	64.67
67.20	75.45
76.80	86.23
86.40	97.01
96.00	107.78
105.60	118.56
115.20	129.34
124.80	140.12
134.40	150.90
144.00	161.68
153.60	172.46
163.20	183.23
172.80	194.01
182.40	204.79
192.00	215.57
201.60	265.86
211.20	334.73
220.80	387.82
230.40	440.91
240.00	494.00
249.60	547.09
259.20	600.18
268.80	653.27
278.40	706.36
288.00	759.45
297.60	812.55
307.20	865.64
316.80	918.73
326.40	971.82
336.00	1024.91
345.60	1078.00
355.20	1131.09
364.80	1184.18
374.40	1237.27
384.00	1290.36
393.60	1343.45

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	5.2847	2.98E-04	1.55E-06	-0.01095	0.00	3.09E+12	0.00	0.00	4.0419
0.8000	5.1796	186.2516	97.0060	-0.01095	0.00	3.09E+12	0.00	0.00	16.1677
1.6000	5.0745	1863.	329.8204	-0.01095	0.00	3.09E+12	0.00	0.00	32.3353
2.4000	4.9694	6519.	717.8443	-0.01095	0.00	3.09E+12	0.00	0.00	48.5030
3.2000	4.8643	15645.	1261.	-0.01095	0.00	3.09E+12	0.00	0.00	64.6707
4.0000	4.7592	30731.	1960.	-0.01095	0.00	3.09E+12	0.00	0.00	80.8383
4.8000	4.6542	53268.	2813.	-0.01095	0.00	3.09E+12	0.00	0.00	97.0060
5.6000	4.5491	84744.	3822.	-0.01095	0.00	3.09E+12	0.00	0.00	113.1737
6.4000	4.4440	126651.	4986.	-0.01095	0.00	3.09E+12	0.00	0.00	129.3413
7.2000	4.3389	180478.	6305.	-0.01095	0.00	3.09E+12	0.00	0.00	145.5090

8.0000	4.2338	247714.	7780.	-0.01095	0.00	3.09E+12	0.00	0.00	161.6766
8.8000	4.1288	329851.	9410.	-0.01094	0.00	3.09E+12	0.00	0.00	177.8443
9.6000	4.0237	428378.	11194.	-0.01094	0.00	3.09E+12	0.00	0.00	194.0120
10.4000	3.9186	544786.	13135.	-0.01094	0.00	3.09E+12	0.00	0.00	210.1796
11.2000	3.8136	680563.	15230.	-0.01094	0.00	3.09E+12	0.00	0.00	226.3473
12.0000	3.7086	837200.	17480.	-0.01094	0.00	3.09E+12	0.00	0.00	242.5150
12.8000	3.6036	1016188.	19886.	-0.01093	0.00	3.09E+12	0.00	0.00	258.6826
13.6000	3.4987	1219016.	22447.	-0.01093	0.00	3.09E+12	0.00	0.00	274.8503
14.4000	3.3937	1447174.	25163.	-0.01093	0.00	3.09E+12	0.00	0.00	291.0180
15.2000	3.2889	1702152.	28035.	-0.01092	0.00	3.09E+12	0.00	0.00	307.1856
16.0000	3.1840	1985441.	31061.	-0.01092	0.00	3.09E+12	0.00	0.00	323.3533
16.8000	3.0793	2298530.	34528.	-0.01091	0.00	3.09E+12	0.00	0.00	398.7922
17.6000	2.9746	2648371.	38852.	-0.01090	0.00	3.09E+12	0.00	0.00	502.0909
18.4000	2.8700	3044485.	44054.	-0.01089	0.00	3.09E+12	0.00	0.00	581.7273
19.2000	2.7654	3494211.	50021.	-0.01088	0.00	3.08E+12	0.00	0.00	661.3636
20.0000	2.6610	4004889.	56752.	-0.01087	0.00	3.08E+12	0.00	0.00	741.0000
20.8000	2.5567	4583857.	64248.	-0.01086	0.00	3.08E+12	0.00	0.00	820.6364
21.6000	2.4525	5238455.	72509.	-0.01084	0.00	3.08E+12	0.00	0.00	900.2727
22.4000	2.3485	5976022.	81533.	-0.01082	0.00	3.07E+12	0.00	0.00	979.9091
23.2000	2.2447	6803897.	91323.	-0.01080	0.00	3.07E+12	0.00	0.00	1060.
24.0000	2.1411	7729420.	101877.	-0.01078	0.00	3.06E+12	0.00	0.00	1139.
24.8000	2.0377	8759930.	113195.	-0.01076	0.00	3.06E+12	0.00	0.00	1219.
25.6000	1.9346	9902767.	125278.	-0.01073	0.00	3.05E+12	0.00	0.00	1298.
26.4000	1.8317	1.12E+07	138125.	-0.01069	0.00	3.05E+12	0.00	0.00	1378.
27.2000	1.7292	1.26E+07	151737.	-0.01061	0.00	9.51E+11	0.00	0.00	1458.
28.0000	1.6280	1.41E+07	166114.	-0.01048	0.00	9.49E+11	0.00	0.00	1537.
28.8000	1.5281	1.57E+07	181255.	-0.01033	0.00	9.48E+11	0.00	0.00	1617.
29.6000	1.4297	1.76E+07	197160.	-0.01016	0.00	9.46E+11	0.00	0.00	1697.
30.4000	1.3330	1.95E+07	213830.	-0.00997	0.00	9.45E+11	0.00	0.00	1776.
31.2000	1.2382	2.17E+07	231265.	-0.00976	0.00	9.43E+11	0.00	0.00	1856.
32.0000	1.1456	2.40E+07	249464.	-0.00953	0.00	9.41E+11	0.00	0.00	1936.
32.8000	1.0553	2.65E+07	268427.	-0.00927	0.00	9.39E+11	0.00	0.00	2015.
33.6000	0.9676	2.91E+07	268362.	-0.00899	0.00	9.36E+11	-2029.	20129.	0.00
34.4000	0.8828	3.16E+07	248789.	-0.00867	0.00	9.34E+11	-2049.	22282.	0.00
35.2000	0.8011	3.39E+07	228236.	-0.00834	0.00	9.32E+11	-2233.	26760.	0.00
36.0000	0.7227	3.60E+07	205945.	-0.00798	0.00	9.30E+11	-2411.	32027.	0.00
36.8000	0.6479	3.79E+07	182775.	-0.00759	0.00	9.28E+11	-2416.	35798.	0.00
37.6000	0.5769	3.95E+07	159587.	-0.00719	0.00	9.26E+11	-2415.	40186.	0.00
38.4000	0.5098	4.09E+07	128758.	-0.00678	0.00	9.25E+11	-4008.	75478.	0.00
39.2000	0.4467	4.20E+07	88955.	-0.00635	0.00	9.24E+11	-4284.	92061.	0.00
40.0000	0.3879	4.26E+07	46918.	-0.00591	0.00	9.23E+11	-4474.	110710.	0.00
40.8000	0.3333	4.29E+07	3433.	-0.00546	0.00	9.23E+11	-4586.	132071.	0.00
41.6000	0.2830	4.27E+07	-40880.	-0.00502	0.00	9.23E+11	-4646.	157577.	0.00
42.4000	0.2370	4.21E+07	-85327.	-0.00458	0.00	9.23E+11	-4614.	186883.	0.00
43.2000	0.1952	4.11E+07	-121926.	-0.00414	0.00	9.24E+11	-3011.	148083.	0.00
44.0000	0.1574	3.97E+07	-148941.	-0.00372	0.00	9.26E+11	-2617.	159584.	0.00
44.8000	0.1237	3.82E+07	-172082.	-0.00332	0.00	9.27E+11	-2204.	171086.	0.00
45.6000	0.09368	3.64E+07	-191214.	-0.00294	0.00	9.29E+11	-1782.	182587.	0.00
46.4000	0.06731	3.45E+07	-206298.	-0.00257	0.00	9.31E+11	-1361.	194089.	0.00
47.2000	0.04436	3.25E+07	-217390.	-0.00222	0.00	9.33E+11	-949.9308	205591.	0.00
48.0000	0.02461	3.03E+07	-224621.	-0.00190	0.00	9.35E+11	-556.5766	217092.	0.00
48.8000	0.00786	2.82E+07	-228191.	-0.00160	0.00	9.37E+11	-187.1460	228594.	0.00
49.6000	-0.00612	2.60E+07	-228354.	-0.00132	0.00	9.39E+11	153.1387	240095.	0.00
50.4000	-0.01756	2.38E+07	-225410.	-0.00107	0.00	9.41E+11	460.1327	251597.	0.00
51.2000	-0.02666	2.16E+07	-220414.	-8.38E-04	0.00	9.43E+11	580.8026	209129.	0.00
52.0000	-0.03365	1.96E+07	-213954.	-6.29E-04	0.00	9.45E+11	765.1084	218272.	0.00
52.8000	-0.03873	1.75E+07	-205877.	-4.40E-04	0.00	9.46E+11	917.5457	227414.	0.00
53.6000	-0.04211	1.56E+07	-196492.	-2.73E-04	0.00	9.48E+11	1038.	236556.	0.00
54.4000	-0.04397	1.38E+07	-186110.	-1.24E-04	0.00	9.50E+11	1125.	245699.	0.00
55.2000	-0.04449	1.20E+07	-175040.	6.16E-06	0.00	9.51E+11	1181.	254841.	0.00
56.0000	-0.04385	1.04E+07	-163583.	8.32E-05	0.00	3.05E+12	1206.	263983.	0.00
56.8000	-0.04289	8884070.	-151938.	1.14E-04	0.00	3.06E+12	1220.	273125.	0.00
57.6000	-0.04167	7481695.	-140200.	1.39E-04	0.00	3.07E+12	1225.	282268.	0.00
58.4000	-0.04022	6192235.	-128458.	1.61E-04	0.00	3.07E+12	1221.	291410.	0.00
59.2000	-0.03859	5015294.	-116799.	1.78E-04	0.00	3.08E+12	1208.	300552.	0.00
60.0000	-0.03680	3949688.	-105302.	1.92E-04	0.00	3.08E+12	1187.	309694.	0.00
60.8000	-0.03490	2993497.	-94040.	2.03E-04	0.00	3.09E+12	1159.	318837.	0.00
61.6000	-0.03291	2144129.	-83079.	2.11E-04	0.00	3.09E+12	1124.	327979.	0.00
62.4000	-0.03085	1398374.	-72482.	2.16E-04	0.00	3.09E+12	1083.	337121.	0.00
63.2000	-0.02875	752467.	-62304.	2.20E-04	0.00	3.09E+12	1037.	346264.	0.00
64.0000	-0.02663	202143.	-52592.	2.21E-04	0.00	3.09E+12	986.0373	355406.	0.00
64.8000	-0.02451	-257308.	-43392.	2.21E-04	0.00	3.09E+12	930.6681	364548.	0.00
65.6000	-0.02239	-630989.	-34742.	2.20E-04	0.00	3.09E+12	871.5478	373690.	0.00
66.4000	-0.02029	-924348.	-26674.	2.17E-04	0.00	3.09E+12	809.1423	382833.	0.00
67.2000	-0.01822	-1143136.	-19220.	2.14E-04	0.00	3.09E+12	743.8621	391975.	0.00
68.0000	-0.01618	-1293370.	-12404.	2.10E-04	0.00	3.09E+12	676.0581	401117.	0.00
68.8000	-0.01418	-1381299.	-6250.	2.06E-04	0.00	3.09E+12	606.0187	410259.	0.00
69.6000	-0.01222	-1413376.	-778.3840	2.02E-04	0.00	3.09E+12	533.9690	419402.	0.00
70.4000	-0.01031	-1396244.	3993.	1.97E-04	0.00	3.09E+12	460.0694	428544.	0.00

71.2000	-0.00843	-1336711.	8047.	1.93E-04	0.00	3.09E+12	384.4167	437686.	0.00
72.0000	-0.00660	-1241750.	11366.	1.89E-04	0.00	3.09E+12	307.0471	446829.	0.00
72.8000	-0.00480	-1118492.	13933.	1.86E-04	0.00	3.09E+12	227.9395	455971.	0.00
73.6000	-0.00303	-974227.	15733.	1.82E-04	0.00	3.09E+12	147.0220	465113.	0.00
74.4000	-0.00130	-816413.	16747.	1.80E-04	0.00	3.09E+12	64.1772	474255.	0.00
75.2000	4.12E-04	-652683.	16956.	1.77E-04	0.00	3.09E+12	-20.7484	483398.	0.00
76.0000	0.00210	-490866.	16338.	1.75E-04	0.00	3.09E+12	-107.9358	492540.	0.00
76.8000	0.00378	-338997.	14871.	1.74E-04	0.00	3.09E+12	-197.5811	501682.	0.00
77.6000	0.00545	-205336.	12532.	1.73E-04	0.00	3.09E+12	-289.8835	510824.	0.00
78.4000	0.00711	-98391.	9292.	1.73E-04	0.00	3.09E+12	-385.0295	519967.	0.00
79.2000	0.00877	-26931.	5125.	1.73E-04	0.00	3.09E+12	-483.1774	529109.	0.00
80.0000	0.01042	0.00	0.00	1.73E-04	0.00	3.09E+12	-584.4381	269126.	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 = 5.28470293 inches
Computed slope at pile head = -0.01094706 radians
Maximum bending moment = 42870874. inch-lbs
Maximum shear force = 268427. lbs
Depth of maximum bending moment = 40.80000000 feet below pile head
Depth of maximum shear force = 32.80000000 feet below pile head
Number of iterations = 29
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	2.93818480	27135524.	178951.	-0.00619960
2	0.000000	0.000000	0.000000	2.93818480	27135524.	178951.	-0.00619960
3	0.000000	0.000000	0.000000	5.28470293	42870874.	268427.	-0.01094706

Maximum pile-head deflection = 5.2847029309 inches
Maximum pile-head rotation = -0.0109470624 radians = -0.627220 deg.

LRFD Performance by Load Case Combination

Load Case No.	Section No.	Resistance Factor for Moment	Factored Moment Capacity of Section in-lbs	Maximum Moment Developed in Section in-lbs	Fact. Mom. Fraction Developed in Section	Pass/Fail for LRFD Moment of Section	Maximum Shear Developed in Section lbs	Pile-top Deflection Developed inches	Pile-top Rotation Developed Radians	Name of Load Case Combination
1	1	1.00	75231358.	27135524.	0.360694	Pass	178951.	2.938185	-0.006200	Soil Only
2	1	1.00	75231358.	27135524.	0.360694	Pass	178951.	2.938185	-0.006200	Service 1
3	1	1.00	75231358.	42870874.	0.569854	Pass	268427.	5.284703	-0.010947	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.

```
================================================================================

                     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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================================================================================

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--------------------------------------------------------------------------------
                            Files Used for Analysis
--------------------------------------------------------------------------------

Path to file locations:
\2015\2015370\FRA\96053\structures\wall_4W16\design\Checked Lpile runs\

Name of input data file:
Wall 4W16 Tangent Shaft Design - 18inch sewer.lp11

Name of output report file:
Wall 4W16 Tangent Shaft Design - 18inch sewer.lp11

Name of plot output file:
Wall 4W16 Tangent Shaft Design - 18inch sewer.lp11

Name of runtime message file:
Wall 4W16 Tangent Shaft Design - 18inch sewer.lp11



--------------------------------------------------------------------------------
                            Date and Time of Analysis
--------------------------------------------------------------------------------

               Date:  August 22, 2019             Time:  11:21:36



--------------------------------------------------------------------------------
                                  Problem Title
--------------------------------------------------------------------------------

FRA-70-14.05 - Wall 4W16 Shafts Supporting Lagging over 18inch Sewer

Job Number:

Client:

Engineer: TJW

Description: Tangent 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 = 72.000 ft
Depth of ground surface below top of pile = 30.0000 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	72.0000
2	72.000	72.0000

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 = 72.000000 ft
   Shaft Diameter = 72.000000 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 8 layers

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

Distance from top of pile to top of layer	=	30.000000 ft
Distance from top of pile to bottom of layer	=	34.500000 ft
Effective unit weight at top of layer	=	130.000000 pcf
Effective unit weight at bottom of layer	=	130.000000 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	=	215.000000 pci
Subgrade k at bottom of layer	=	215.000000 pci

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

Distance from top of pile to top of layer	=	34.500000 ft
Distance from top of pile to bottom of layer	=	36.500000 ft
Effective unit weight at top of layer	=	120.000000 pcf
Effective unit weight at bottom of layer	=	120.000000 pcf
Friction angle at top of layer	=	30.000000 deg.
Friction angle at bottom of layer	=	30.000000 deg.
Subgrade k at top of layer	=	30.000000 pci
Subgrade k at bottom of layer	=	30.000000 pci

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

Distance from top of pile to top of layer	=	36.500000 ft
Distance from top of pile to bottom of layer	=	41.000000 ft
Effective unit weight at top of layer	=	57.600000 pcf
Effective unit weight at bottom of layer	=	57.600000 pcf
Friction angle at top of layer	=	30.000000 deg.
Friction angle at bottom of layer	=	30.000000 deg.
Subgrade k at top of layer	=	30.000000 pci
Subgrade k at bottom of layer	=	30.000000 pci

Layer 4 is stiff clay with water-induced erosion

Distance from top of pile to top of layer	=	41.000000 ft
Distance from top of pile to bottom of layer	=	46.000000 ft
Effective unit weight at top of layer	=	77.600000 pcf
Effective unit weight at bottom of layer	=	77.600000 pcf
Undrained cohesion at top of layer	=	5500. psf
Undrained cohesion at bottom of layer	=	5500. psf
Epsilon-50 at top of layer	=	0.004200
Epsilon-50 at bottom of layer	=	0.004200
Subgrade k at top of layer	=	1835. pci
Subgrade k at bottom of layer	=	1835. pci

Layer 5 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	46.000000 ft
Distance from top of pile to bottom of layer	=	51.000000 ft
Effective unit weight at top of layer	=	77.600000 pcf
Effective unit weight at bottom of layer	=	77.600000 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 6 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	51.000000 ft
Distance from top of pile to bottom of layer	=	61.000000 ft
Effective unit weight at top of layer	=	77.600000 pcf
Effective unit weight at bottom of layer	=	77.600000 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 7 is sand, p-y criteria by Reese et al., 1974

```
   Distance from top of pile to top of layer          =    61.000000 ft
   Distance from top of pile to bottom of layer       =    71.000000 ft
   Effective unit weight at top of layer              =    77.600000 pcf
   Effective unit weight at bottom of layer           =    77.600000 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


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

   Distance from top of pile to top of layer          =    71.000000 ft
   Distance from top of pile to bottom of layer       =    73.000000 ft
   Effective unit weight at top of layer              =    77.600000 pcf
   Effective unit weight at bottom of layer           =    77.600000 pcf
   Friction angle at top of layer                     =    41.000000 deg.
   Friction angle at bottom of layer                  =    41.000000 deg.
   Subgrade k at top of layer                         =   175.000000 pci
   Subgrade k at bottom of layer                      =   175.000000 pci


 (Depth of the lowest soil layer extends 1.000 ft below the pile tip)


--------------------------------------------------------------------------------
                        Summary of Input Soil Properties
--------------------------------------------------------------------------------

Layer         Soil Type          Layer      Effective    Undrained    Angle of        E50
Layer           Name             Depth       Unit Wt.    Cohesion     Friction        or          kpy
 Num.     (p-y Curve Type)        ft           pcf          psf          deg.         krm         pci
-----   -------------------   ----------   ----------   ----------   ----------   ----------   ----------
  1            Sand             30.0000     130.0000       --          38.0000       --         215.0000
         (Reese, et al.)        34.5000     130.0000       --          38.0000       --         215.0000
  2            Sand             34.5000     120.0000       --          30.0000       --          30.0000
         (Reese, et al.)        36.5000     120.0000       --          30.0000       --          30.0000
  3            Sand             36.5000      57.6000       --          30.0000       --          30.0000
         (Reese, et al.)        41.0000      57.6000       --          30.0000       --          30.0000
  4          Stiff Clay         41.0000      77.6000        5500.       --          0.00420        1835.
         with Free Water        46.0000      77.6000        5500.       --          0.00420        1835.
  5            Sand             46.0000      77.6000       --          40.0000       --         155.0000
         (Reese, et al.)        51.0000      77.6000       --          40.0000       --         155.0000
  6            Sand             51.0000      77.6000       --          38.0000       --         125.0000
         (Reese, et al.)        61.0000      77.6000       --          38.0000       --         125.0000
  7            Sand             61.0000      77.6000       --          42.0000       --         195.0000
         (Reese, et al.)        71.0000      77.6000       --          42.0000       --         195.0000
  8            Sand             71.0000      77.6000       --          41.0000       --         175.0000
         (Reese, et al.)        73.0000      77.6000       --          41.0000       --         175.0000


--------------------------------------------------------------------------------
                    p-y Modification Factors for Group Action
--------------------------------------------------------------------------------

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

Point      Depth X         p-mult         y-mult
 No.          ft
-----     ----------     ----------     ----------
  1          30.000         0.6400         1.0000
  2          95.000         0.6400         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 = 1

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

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

Point	Depth in	Distributed Load lb/inch
1	0.00	0.00
2	360.00	1124.00

Totals of Unfactored Loads by Load Type for LRFD Analyses

Number of Defined Unfactored Load Cases = 1

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	0.00	0
Live Loads	(LL)	0.00	0.00	0.00	0
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)	0.00	0.00	0.00	0
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	1.00	Soil Only
2	1.00	1.00	--	--	--	--	--	1.00	--	--	--	--	--	1.00	1.00	Service 1
3	1.00	1.75	--	--	--	--	--	1.50	--	--	--	--	--	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*DL + 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

Factored Horizontal Force = 0.00 lbs
Factored Vertical Force = 0.00 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 = 1.00*DL + 1.75*LL + 1.50*Hs

Factored Horizontal Force = 0.00 lbs
Factored Vertical Force = 0.00 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	0.00	0.00	0.00	Service 1
3	0.00	0.00	0.00	Strength 1

Sorted Values of Axial Thrust Forces Sorted for LRFD Computations:

Number of Unique Axial Thrust Values = 1

Number	Factored Axial Thrust
1	0.000

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	=	72.000000 ft
Shaft Diameter	=	72.000000 in
Concrete Cover Thickness (to edge of long. rebar)	=	6.500000 in
Number of Reinforcing Bars	=	50 bars
Yield Stress of Reinforcing Bars	=	60000. psi
Modulus of Elasticity of Reinforcing Bars	=	29000000. psi
Gross Area of Shaft	=	4072. sq. in.
Total Area of Reinforcing Steel	=	78.000000 sq. in.
Area Ratio of Steel Reinforcement	=	1.92 percent
Edge-to-Edge Bar Spacing	=	2.206106 in
Maximum Concrete Aggregate Size	=	0.375000 in
Ratio of Bar Spacing to Aggregate Size	=	5.88
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	=	18257.914 kips
Tensile Load for Cracking of Concrete	=	-1921.904 kips
Nominal Axial Tensile Capacity	=	-4680.000 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.410000	1.560000	28.795000	0.00000
2	1.410000	1.560000	28.567943	3.608970
3	1.410000	1.560000	27.890352	7.161025
4	1.410000	1.560000	26.772914	10.600146
5	1.410000	1.560000	25.233251	13.872097
6	1.410000	1.560000	23.295644	16.925276
7	1.410000	1.560000	20.990652	19.711534
8	1.410000	1.560000	18.354624	22.186929
9	1.410000	1.560000	15.429133	24.312423
10	1.410000	1.560000	12.260315	26.054495
11	1.410000	1.560000	8.898144	27.385672
12	1.410000	1.560000	5.395645	28.284961
13	1.410000	1.560000	1.808053	28.738180
14	1.410000	1.560000	-1.808053	28.738180
15	1.410000	1.560000	-5.395645	28.284961
16	1.410000	1.560000	-8.898144	27.385672
17	1.410000	1.560000	-12.260315	26.054495
18	1.410000	1.560000	-15.429133	24.312423
19	1.410000	1.560000	-18.354624	22.186929
20	1.410000	1.560000	-20.990652	19.711534
21	1.410000	1.560000	-23.295644	16.925276
22	1.410000	1.560000	-25.233251	13.872097
23	1.410000	1.560000	-26.772914	10.600146
24	1.410000	1.560000	-27.890352	7.161025
25	1.410000	1.560000	-28.567943	3.608970
26	1.410000	1.560000	-28.795000	0.00000
27	1.410000	1.560000	-28.567943	-3.608970
28	1.410000	1.560000	-27.890352	-7.161025
29	1.410000	1.560000	-26.772914	-10.600146
30	1.410000	1.560000	-25.233251	-13.872097
31	1.410000	1.560000	-23.295644	-16.925276
32	1.410000	1.560000	-20.990652	-19.711534
33	1.410000	1.560000	-18.354624	-22.186929
34	1.410000	1.560000	-15.429133	-24.312423
35	1.410000	1.560000	-12.260315	-26.054495
36	1.410000	1.560000	-8.898144	-27.385672
37	1.410000	1.560000	-5.395645	-28.284961
38	1.410000	1.560000	-1.808053	-28.738180
39	1.410000	1.560000	1.808053	-28.738180
40	1.410000	1.560000	5.395645	-28.284961
41	1.410000	1.560000	8.898144	-27.385672
42	1.410000	1.560000	12.260315	-26.054495
43	1.410000	1.560000	15.429133	-24.312423
44	1.410000	1.560000	18.354624	-22.186929
45	1.410000	1.560000	20.990652	-19.711534
46	1.410000	1.560000	23.295644	-16.925276
47	1.410000	1.560000	25.233251	-13.872097

48	1.410000	1.560000	26.772914	-10.600146
49	1.410000	1.560000	27.890352	-7.161025
50	1.410000	1.560000	28.567943	-3.608970

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

Minimum spacing between any two bars not equal to zero = 2.206 inches
between bars 1 and 50.

Ratio of bar spacing to maximum aggregate size = 5.88

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	=	0.375000 in

Number of Axial Thrust Force Values Determined from LRFD Pile-head Loadings = 1

Number	Axial Thrust Force kips
1	0.000

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 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-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	2659.	6381654558.	35.9999686	0.00001500	-0.00001500	0.0627334	-0.3523504	
8.33333E-07	5306.	6366915688.	35.9999685	0.00003000	-0.00003000	0.1249710	-0.7047008	
0.00000125	7940.	6352176819.	35.9999684	0.00004500	-0.00004500	0.1867128	-1.0570511	
0.00000167	10562.	6337437949.	35.9999682	0.00006000	-0.00006000	0.2479588	-1.4094015	
0.00000208	13172.	6322699080.	35.9999681	0.00007500	-0.00007500	0.3087089	-1.7617519	
0.00000250	15770.	6307960210.	35.9999680	0.00009000	-0.00009000	0.3689632	-2.1141023	
0.00000292	18355.	6293221341.	35.9999679	0.0001050	-0.0001050	0.4287216	-2.4664527	
0.00000333	18355.	5506568673.	20.8431920	0.00006948	-0.0001705	0.2843349	-4.2839581	C
0.00000375	18355.	4894727709.	20.8506311	0.00007819	-0.0001918	0.3192533	-4.8186439	C
0.00000417	18355.	4405254938.	20.8580885	0.00008691	-0.0002131	0.3540322	-5.3531476	C
0.00000458	18355.	4004777217.	20.8655644	0.00009563	-0.0002344	0.3886714	-5.8874687	C
0.00000500	18355.	3671045782.	20.8730588	0.0001044	-0.0002556	0.4231707	-6.4216065	C
0.00000542	18355.	3388657645.	20.8805718	0.0001131	-0.0002769	0.4575297	-6.9555602	C
0.00000583	18355.	3146610670.	20.8881036	0.0001218	-0.0002982	0.4917481	-7.4893291	C
0.00000625	18355.	2936836626.	20.8956542	0.0001306	-0.0003194	0.5258258	-8.0229127	C
0.00000667	18355.	2753284337.	20.9032237	0.0001394	-0.0003406	0.5597624	-8.5563101	C
0.00000708	18355.	2591326434.	20.9108122	0.0001481	-0.0003619	0.5935577	-9.0895207	C
0.00000750	18355.	2447363855.	20.9184198	0.0001569	-0.0003831	0.6272113	-9.6225437	C
0.00000792	18355.	2318555231.	20.9260467	0.0001657	-0.0004043	0.6607230	-10.1553784	C
0.00000833	18355.	2202627469.	20.9336928	0.0001744	-0.0004256	0.6940925	-10.6880242	C
0.00000875	18355.	2097740447.	20.9413584	0.0001832	-0.0004468	0.7273196	-11.2204803	C
0.00000917	18355.	2002388608.	20.9490434	0.0001920	-0.0004680	0.7604039	-11.7527460	C
0.00000958	18355.	1915328234.	20.9567481	0.0002008	-0.0004892	0.7933451	-12.2848204	C
0.00001000	18623.	1862328658.	20.9644724	0.0002096	-0.0005104	0.8261430	-12.8167030	C

0.00001042	19392.	1861647406.	20.9722166	0.0002185	-0.0005315	0.8587973	-13.3483929 C
0.00001083	20160.	1860964648.	20.9799807	0.0002273	-0.0005527	0.8913077	-13.8798894 C
0.00001125	20928.	1860280376.	20.9877649	0.0002361	-0.0005739	0.9236738	-14.4111917 C
0.00001167	21695.	1859594583.	20.9955691	0.0002449	-0.0005951	0.9558955	-14.9422991 C
0.00001208	22462.	1858907260.	21.0033936	0.0002538	-0.0006162	0.9879723	-15.4732108 C
0.00001250	23228.	1858218401.	21.0112384	0.0002626	-0.0006374	1.0199041	-16.0039261 C
0.00001292	23993.	1857527999.	21.0191037	0.0002715	-0.0006585	1.0516904	-16.5344441 C
0.00001333	24758.	1856836044.	21.0269895	0.0002804	-0.0006796	1.0833311	-17.0647641 C
0.00001375	25522.	1856142531.	21.0348960	0.0002892	-0.0007008	1.1148257	-17.5948853 C
0.00001417	26286.	1855447450.	21.0428232	0.0002981	-0.0007219	1.1461741	-18.1248068 C
0.00001458	27048.	1854750795.	21.0507714	0.0003070	-0.0007430	1.1773758	-18.6545280 C
0.00001500	27811.	1854052558.	21.0587405	0.0003159	-0.0007641	1.2084306	-19.1840479 C
0.00001542	28573.	1853352730.	21.0667308	0.0003248	-0.0007852	1.2393382	-19.7133658 C
0.00001583	29334.	1852651303.	21.0747423	0.0003337	-0.0008063	1.2700982	-20.2424809 C
0.00001625	30094.	1851948270.	21.0827751	0.0003426	-0.0008274	1.3007104	-20.7713923 C
0.00001708	31613.	1850537301.	21.0989052	0.0003604	-0.0008696	1.3614898	-21.8286011 C
0.00001792	33130.	1849119856.	21.1151221	0.0003783	-0.0009117	1.4216740	-22.8849849 C
0.00001875	34644.	1847695822.	21.1314267	0.0003962	-0.0009538	1.4812604	-23.9405372 C
0.00001958	36156.	1846265130.	21.1478200	0.0004141	-0.0009959	1.5402463	-24.9952510 C
0.00002042	37665.	1844827796.	21.1643029	0.0004321	-0.0010379	1.5986292	-26.0491189 C
0.00002125	39172.	1843383585.	21.1808766	0.0004501	-0.0010799	1.6564062	-27.1021347 C
0.00002208	40676.	1841932506.	21.1975419	0.0004681	-0.0011219	1.7135748	-28.1542908 C
0.00002292	42178.	1840474488.	21.2142999	0.0004862	-0.0011638	1.7701321	-29.2055798 C
0.00002375	43676.	1839009456.	21.2311518	0.0005042	-0.0012058	1.8260754	-30.2559941 C
0.00002458	45173.	1837538133.	21.2478309	0.0005223	-0.0012477	1.8813817	-31.3057172 C
0.00002542	46667.	1836060703.	21.2643081	0.0005405	-0.0012895	1.9360443	-32.3547829 C
0.00002625	48158.	1834576289.	21.2808761	0.0005586	-0.0013314	1.9900823	-33.4029830 C
0.00002708	49646.	1833084816.	21.2975358	0.0005768	-0.0013732	2.0434927	-34.4503103 C
0.00002792	51132.	1831586210.	21.3142884	0.0005950	-0.0014150	2.0962728	-35.4967572 C
0.00002875	52615.	1830080395.	21.3311350	0.0006133	-0.0014567	2.1484195	-36.5423162 C
0.00002958	54095.	1828567294.	21.3480765	0.0006315	-0.0014985	2.1999299	-37.5869793 C
0.00003042	55573.	1827046830.	21.3651141	0.0006499	-0.0015401	2.2508011	-38.6307389 C
0.00003125	57047.	1825518921.	21.3822489	0.0006682	-0.0015818	2.3010300	-39.6735868 C
0.00003208	58519.	1823983488.	21.3994822	0.0006866	-0.0016234	2.3506135	-40.7155150 C
0.00003292	59989.	1822440447.	21.4168150	0.0007050	-0.0016650	2.3995486	-41.7565153 C
0.00003375	61455.	1820889715.	21.4342485	0.0007234	-0.0017066	2.4478321	-42.7965792 C
0.00003458	62919.	1819331205.	21.4517839	0.0007419	-0.0017481	2.4954609	-43.8356983 C
0.00003542	64379.	1817764833.	21.4694226	0.0007604	-0.0017896	2.5424316	-44.8738638 C
0.00003625	65837.	1816190508.	21.4871656	0.0007789	-0.0018311	2.5887411	-45.9110670 C
0.00003708	67292.	1814608140.	21.5050144	0.0007975	-0.0018725	2.6343860	-46.9472990 C
0.00003792	68744.	1813017639.	21.5229702	0.0008161	-0.0019139	2.6793629	-47.9825506 C
0.00003875	70192.	1811418910.	21.5410343	0.0008347	-0.0019553	2.7236684	-49.0168126 C
0.00003958	71638.	1809811859.	21.5592081	0.0008534	-0.0019966	2.7672992	-50.0500755 C
0.00004042	73081.	1808196388.	21.5774930	0.0008721	-0.0020379	2.8102516	-51.0823300 C
0.00004125	74521.	1806572399.	21.5958903	0.0008908	-0.0020792	2.8525221	-52.1135661 C
0.00004208	75958.	1804939791.	21.6144016	0.0009096	-0.0021204	2.8941071	-53.1437740 C
0.00004292	77392.	1803298462.	21.6330282	0.0009284	-0.0021616	2.9350030	-54.1729436 C
0.00004375	78822.	1801648308.	21.6517716	0.0009473	-0.0022027	2.9752061	-55.2010647 C
0.00004458	80250.	1799989222.	21.6706334	0.0009661	-0.0022439	3.0147125	-56.2281268 C
0.00004542	81674.	1798321096.	21.6896150	0.0009851	-0.0022849	3.0535184	-57.2541194 C
0.00004625	83095.	1796643819.	21.7087182	0.0010040	-0.0023260	3.0916200	-58.2790316 C
0.00004708	84513.	1794957279.	21.7279444	0.0010230	-0.0023670	3.1290134	-59.3028524 C
0.00004792	85904.	1792787418.	21.7452714	0.0010420	-0.0024080	3.1655066	-60.0000000 CY
0.00004875	87192.	1788559452.	21.7538410	0.0010605	-0.0024495	3.2004643	-60.0000000 CY
0.00004958	88336.	1781560451.	21.7502810	0.0010785	-0.0024915	3.2335845	-60.0000000 CY
0.00005292	92120.	1740857248.	21.6769633	0.0011471	-0.0026629	3.3536397	-60.0000000 CY
0.00005625	95138.	1691333689.	21.5568150	0.0012126	-0.0028374	3.4586124	-60.0000000 CY
0.00005958	97650.	1638882856.	21.4147906	0.0012760	-0.0030140	3.5513052	-60.0000000 CY
0.00006292	99781.	1585929693.	21.2615127	0.0013377	-0.0031923	3.6331786	-60.0000000 CY
0.00006625	101662.	1534524008.	21.1025311	0.0013980	-0.0033720	3.7052020	-60.0000000 CY
0.00006958	103290.	1484402847.	20.9406308	0.0014571	-0.0035529	3.7680737	-60.0000000 CY
0.00007292	104749.	1436559318.	20.7831061	0.0015154	-0.0037346	3.8227358	-60.0000000 CY
0.00007625	106025.	1390486470.	20.6272355	0.0015728	-0.0039172	3.8693555	-60.0000000 CY
0.00007958	107236.	1347469422.	20.4817521	0.0016300	-0.0041000	3.9087397	-60.0000000 CY
0.00008292	108226.	1305238995.	20.3254287	0.0016853	-0.0042847	3.9401121	-60.0000000 CY
0.00008625	109186.	1265924090.	20.1829289	0.0017408	-0.0044692	3.9649608	-60.0000000 CY
0.00008958	110091.	1228923560.	20.0498402	0.0017961	-0.0046539	3.9831601	-60.0000000 CY
0.00009292	110846.	1192965846.	19.9144647	0.0018504	-0.0048396	3.9945955	-60.0000000 CY
0.00009625	111554.	1158999369.	19.7870183	0.0019045	-0.0050255	3.9996969	-60.0000000 CY
0.00009958	112241.	1127106149.	19.6653236	0.0019583	-0.0052117	3.9985846	-60.0000000 CY
0.0001029	112882.	1096828242.	19.5504850	0.0020121	-0.0053979	3.9960266	-60.0000000 CY
0.0001063	113422.	1067501451.	19.4350132	0.0020650	-0.0055850	3.9998229	-60.0000000 CY
0.0001096	113907.	1039455084.	19.3240793	0.0021176	-0.0057724	3.9977412	-60.0000000 CY
0.0001129	114383.	1012990107.	19.2221193	0.0021705	-0.0059595	3.9999999	-60.0000000 CY
0.0001163	114849.	987951009.	19.1288518	0.0022237	-0.0061463	3.9982732	-60.0000000 CY
0.0001196	115303.	964209860.	19.0401639	0.0022769	-0.0063331	3.9990076	-60.0000000 CY
0.0001229	115683.	941151433.	18.9473505	0.0023289	-0.0065211	3.9978160	-60.0000000 CY
0.0001263	116013.	918912468.	18.8546719	0.0023804	-0.0067096	3.9999619	-60.0000000 CY
0.0001296	116319.	897641995.	18.7667569	0.0024319	-0.0068981	3.9958357	-60.0000000 CY

0.0001329	116622.	877406133.	18.6847190	0.0024835	-0.0070865	3.9993080	-60.0000000 CY
0.0001363	116920.	858125019.	18.6082750	0.0025354	-0.0072746	3.9964081	-60.0000000 CY
0.0001396	117212.	839725307.	18.5372003	0.0025875	-0.0074625	3.9968970	-60.0000000 CY
0.0001429	117501.	822161363.	18.4705795	0.0026398	-0.0076502	3.9996249	-60.0000000 CY
0.0001462	117762.	805209080.	18.4049453	0.0026917	-0.0078383	3.9950769	-60.0000000 CY
0.0001496	117997.	788836661.	18.3389523	0.0027432	-0.0080268	3.9961501	-60.0000000 CY
0.0001529	118197.	772953565.	18.2686473	0.0027936	-0.0082164	3.9990843	-60.0000000 CY
0.0001562	118381.	757637444.	18.1997272	0.0028437	-0.0084063	3.9996280	-60.0000000 CY
0.0001596	118560.	742936235.	18.1351223	0.0028941	-0.0085959	3.9921132	-60.0000000 CY
0.0001629	118738.	728827697.	18.0738202	0.0029445	-0.0087855	3.9964626	-60.0000000 CY
0.0001662	118915.	715276035.	18.0156316	0.0029951	-0.0089749	3.9990982	-60.0000000 CY
0.0001696	119090.	702248266.	17.9603823	0.0030458	-0.0091642	3.9999998	-60.0000000 CYT
0.0001729	119261.	689702984.	17.9084890	0.0030967	-0.0093533	3.9913294	-60.0000000 CYT
0.0001762	119431.	677624289.	17.8590532	0.0031477	-0.0095423	3.9943228	-60.0000000 CYT
0.0001796	119600.	665987549.	17.8119734	0.0031987	-0.0097313	3.9977045	-60.0000000 CYT
0.0001829	119758.	654712988.	17.7653066	0.0032496	-0.0099204	3.9995703	-60.0000000 CYT
0.0002029	120415.	593421378.	17.4896204	0.0035489	-0.0110611	3.9996563	60.0000000 CYT
0.0002229	120859.	542172808.	17.2897680	0.0038542	-0.0121958	3.9983472	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	118931.560	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	118932.	0.0000	77306.	1.8034E+09
1	0.75	118932.	0.0000	89199.	1.7723E+09
1	0.90	118932.	0.0000	107038.	1.3545E+09

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	30.0000	0.00	N.A.	No	0.00	113268.
2	34.5000	5.6722	Yes	No	113268.	98201.
3	36.5000	7.7384	Yes	No	211469.	282509.
4	41.0000	138.0977	No	No	493978.	159145.
5	46.0000	11.1932	No	No	653123.	728871.
6	51.0000	17.6874	Yes	No	1381994.	2019222.
7	61.0000	24.2582	Yes	No	3401216.	4154910.
8	71.0000	35.5849	Yes	No	7556126.	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 Horizontal Soil Pressures

Depth in	Distributed Load lb/in
0.00	6.74
8.64	26.98
17.28	53.95
25.92	80.93
34.56	107.90
43.20	134.88
51.84	161.86
60.48	188.83
69.12	215.81
77.76	242.78
86.40	269.76
95.04	296.74
103.68	323.71
112.32	350.69
120.96	377.66
129.60	404.64
138.24	431.62
146.88	458.59
155.52	485.57
164.16	512.54
172.80	539.52
181.44	566.50
190.08	593.47
198.72	620.45
207.36	647.42
216.00	674.40
224.64	701.38
233.28	728.35
241.92	755.33
250.56	782.30
259.20	809.28
267.84	836.26
276.48	863.23
285.12	890.21
293.76	917.18
302.40	944.16
311.04	971.14
319.68	998.11
328.32	1025.09
336.96	1052.06
345.60	1079.04
354.24	1106.02
362.88	186.96

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	2.9783	2.66E-04	2.20E-06	-0.00624	0.00	6.38E+12	0.00	0.00	6.7440

0.7200	2.9244	251.7201	145.6705	-0.00624	0.00	6.38E+12	0.00	0.00	26.9760
1.4400	2.8705	2517.	495.2793	-0.00624	0.00	6.38E+12	0.00	0.00	53.9520
2.1600	2.8166	8810.	1078.	-0.00624	0.00	6.38E+12	0.00	0.00	80.9280
2.8800	2.7627	21144.	1894.	-0.00624	0.00	6.38E+12	0.00	0.00	107.9040
3.6000	2.7088	41534.	2943.	-0.00624	0.00	6.38E+12	0.00	0.00	134.8800
4.3200	2.6549	71991.	4224.	-0.00624	0.00	6.38E+12	0.00	0.00	161.8560
5.0400	2.6010	114532.	5739.	-0.00624	0.00	6.38E+12	0.00	0.00	188.8320
5.7600	2.5471	171169.	7487.	-0.00624	0.00	6.38E+12	0.00	0.00	215.8080
6.4800	2.4932	243915.	9469.	-0.00624	0.00	6.38E+12	0.00	0.00	242.7840
7.2000	2.4393	334786.	11683.	-0.00624	0.00	6.38E+12	0.00	0.00	269.7600
7.9200	2.3854	445793.	14130.	-0.00624	0.00	6.38E+12	0.00	0.00	296.7360
8.6400	2.3315	578952.	16810.	-0.00624	0.00	6.38E+12	0.00	0.00	323.7120
9.3600	2.2776	736276.	19724.	-0.00624	0.00	6.38E+12	0.00	0.00	350.6880
10.0800	2.2237	919779.	22870.	-0.00623	0.00	6.38E+12	0.00	0.00	377.6640
10.8000	2.1699	1131474.	26250.	-0.00623	0.00	6.38E+12	0.00	0.00	404.6400
11.5200	2.1160	1373376.	29862.	-0.00623	0.00	6.38E+12	0.00	0.00	431.6160
12.2400	2.0622	1647497.	33708.	-0.00623	0.00	6.38E+12	0.00	0.00	458.5920
12.9600	2.0084	1955852.	37787.	-0.00623	0.00	6.38E+12	0.00	0.00	485.5680
13.6800	1.9546	2300455.	42099.	-0.00622	0.00	6.38E+12	0.00	0.00	512.5440
14.4000	1.9008	2683319.	46644.	-0.00622	0.00	6.38E+12	0.00	0.00	539.5200
15.1200	1.8471	3106457.	51422.	-0.00622	0.00	6.38E+12	0.00	0.00	566.4960
15.8400	1.7934	3571885.	56433.	-0.00621	0.00	6.37E+12	0.00	0.00	593.4720
16.5600	1.7397	4081615.	61677.	-0.00621	0.00	6.37E+12	0.00	0.00	620.4480
17.2800	1.6861	4637661.	67154.	-0.00620	0.00	6.37E+12	0.00	0.00	647.4240
18.0000	1.6326	5242037.	72864.	-0.00619	0.00	6.37E+12	0.00	0.00	674.4000
18.7200	1.5791	5896756.	78808.	-0.00619	0.00	6.36E+12	0.00	0.00	701.3760
19.4400	1.5257	6603834.	84984.	-0.00618	0.00	6.36E+12	0.00	0.00	728.3520
20.1600	1.4723	7365282.	91394.	-0.00617	0.00	6.35E+12	0.00	0.00	755.3280
20.8800	1.4191	8183115.	98036.	-0.00616	0.00	6.35E+12	0.00	0.00	782.3040
21.6000	1.3659	9059347.	104912.	-0.00615	0.00	6.34E+12	0.00	0.00	809.2800
22.3200	1.3129	9995991.	112021.	-0.00613	0.00	6.34E+12	0.00	0.00	836.2560
23.0400	1.2599	1.10E+07	119362.	-0.00612	0.00	6.33E+12	0.00	0.00	863.2320
23.7600	1.2071	1.21E+07	126937.	-0.00610	0.00	6.33E+12	0.00	0.00	890.2080
24.4800	1.1544	1.32E+07	134745.	-0.00609	0.00	6.32E+12	0.00	0.00	917.1840
25.2000	1.1019	1.44E+07	142786.	-0.00607	0.00	6.32E+12	0.00	0.00	944.1600
25.9200	1.0496	1.57E+07	151060.	-0.00605	0.00	6.31E+12	0.00	0.00	971.1360
26.6400	0.9974	1.70E+07	159567.	-0.00602	0.00	6.30E+12	0.00	0.00	998.1120
27.3600	0.9455	1.84E+07	168308.	-0.00597	0.00	1.90E+12	0.00	0.00	1025.
28.0800	0.8943	1.99E+07	177281.	-0.00588	0.00	1.86E+12	0.00	0.00	1052.
28.8000	0.8438	2.15E+07	186487.	-0.00579	0.00	1.86E+12	0.00	0.00	1079.
29.5200	0.7943	2.31E+07	195927.	-0.00568	0.00	1.86E+12	0.00	0.00	1106.
30.2400	0.7456	2.49E+07	201180.	-0.00557	0.00	1.86E+12	-76.9026	891.1301	186.9587
30.9600	0.6980	2.66E+07	200258.	-0.00545	0.00	1.86E+12	-323.6235	4006.	0.00
31.6800	0.6514	2.83E+07	196320.	-0.00532	0.00	1.85E+12	-587.8444	7797.	0.00
32.4000	0.6060	3.00E+07	190060.	-0.00519	0.00	1.85E+12	-861.2607	12280.	0.00
33.1200	0.5617	3.16E+07	181428.	-0.00504	0.00	1.85E+12	-1137.	17486.	0.00
33.8400	0.5188	3.31E+07	170405.	-0.00489	0.00	1.85E+12	-1415.	23561.	0.00
34.5600	0.4772	3.46E+07	162127.	-0.00474	0.00	1.85E+12	-501.3478	9077.	0.00
35.2800	0.4370	3.59E+07	157665.	-0.00457	0.00	1.85E+12	-531.5879	10511.	0.00
36.0000	0.3982	3.73E+07	152990.	-0.00440	0.00	1.85E+12	-550.4943	11944.	0.00
36.7200	0.3610	3.86E+07	148197.	-0.00422	0.00	1.84E+12	-558.8758	13377.	0.00
37.4400	0.3253	3.98E+07	143374.	-0.00404	0.00	1.84E+12	-557.5749	14810.	0.00
38.1600	0.2912	4.11E+07	138601.	-0.00385	0.00	1.84E+12	-547.4666	16244.	0.00
38.8800	0.2588	4.22E+07	133948.	-0.00365	0.00	1.84E+12	-529.4573	17677.	0.00
39.6000	0.2281	4.34E+07	129482.	-0.00345	0.00	1.84E+12	-504.4830	19110.	0.00
40.3200	0.1991	4.45E+07	125257.	-0.00324	0.00	1.84E+12	-473.5084	20544.	0.00
41.0400	0.1720	4.55E+07	91672.	-0.00303	0.00	1.84E+12	-7301.	366710.	0.00
41.7600	0.1467	4.61E+07	31005.	-0.00282	0.00	1.84E+12	-6743.	397050.	0.00
42.4800	0.1233	4.61E+07	-24828.	-0.00260	0.00	1.84E+12	-6181.	433104.	0.00
43.2000	0.1018	4.56E+07	-75791.	-0.00239	0.00	1.84E+12	-5616.	476737.	0.00
43.9200	0.08209	4.48E+07	-121839.	-0.00217	0.00	1.84E+12	-5043.	530830.	0.00
44.6400	0.06422	4.35E+07	-162898.	-0.00197	0.00	1.84E+12	-4461.	600148.	0.00
45.3600	0.04812	4.19E+07	-198850.	-0.00177	0.00	1.84E+12	-3861.	693320.	0.00
46.0800	0.03372	4.01E+07	-218320.	-0.00157	0.00	1.84E+12	-645.4632	165384.	0.00
46.8000	0.02094	3.82E+07	-222918.	-0.00139	0.00	1.84E+12	-418.8605	172789.	0.00
47.5200	0.00971	3.62E+07	-225602.	-0.00122	0.00	1.85E+12	-202.5804	180194.	0.00
48.2400	-5.26E-05	3.43E+07	-226473.	-0.00105	0.00	1.85E+12	1.1428	187599.	0.00
48.9600	-0.00843	3.23E+07	-225645.	-8.95E-04	0.00	1.85E+12	190.3591	195005.	0.00
49.6800	-0.01551	3.04E+07	-223253.	-7.48E-04	0.00	1.85E+12	363.3908	202410.	0.00
50.4000	-0.02136	2.85E+07	-219442.	-6.11E-04	0.00	1.85E+12	518.8171	209815.	0.00
51.1200	-0.02607	2.66E+07	-214917.	-4.83E-04	0.00	1.86E+12	528.5955	175178.	0.00
51.8400	-0.02971	2.47E+07	-209943.	-3.63E-04	0.00	1.86E+12	622.8696	181150.	0.00
52.5600	-0.03235	2.30E+07	-204225.	-2.52E-04	0.00	1.86E+12	700.6256	187122.	0.00
53.2800	-0.03407	2.12E+07	-197909.	-1.50E-04	0.00	1.86E+12	761.4273	193094.	0.00
54.0000	-0.03494	1.95E+07	-191142.	-5.52E-05	0.00	1.86E+12	804.9881	199066.	0.00
54.7200	-0.03502	1.79E+07	-184074.	2.44E-06	0.00	6.30E+12	831.1586	205038.	0.00
55.4400	-0.03490	1.64E+07	-176802.	2.59E-05	0.00	6.30E+12	852.2592	211010.	0.00
56.1600	-0.03458	1.49E+07	-169369.	4.73E-05	0.00	6.31E+12	868.3204	216982.	0.00
56.8800	-0.03408	1.34E+07	-161819.	6.67E-05	0.00	6.32E+12	879.4037	222953.	0.00

57.6000	-0.03342	1.21E+07	-154194.	8.41E-05	0.00	6.33E+12	885.5988	228925.	0.00
58.3200	-0.03263	1.08E+07	-146536.	9.96E-05	0.00	6.34E+12	887.0195	234897.	0.00
59.0400	-0.03170	9530328.	-138886.	1.13E-04	0.00	6.34E+12	883.8025	240869.	0.00
59.7600	-0.03067	8363338.	-131284.	1.26E-04	0.00	6.35E+12	876.1030	246841.	0.00
60.4800	-0.02953	7261749.	-123766.	1.36E-04	0.00	6.35E+12	864.0934	252813.	0.00
61.2000	-0.02831	6224664.	-114974.	1.45E-04	0.00	6.36E+12	1171.	357424.	0.00
61.9200	-0.02702	5275006.	-104873.	1.53E-04	0.00	6.37E+12	1167.	373139.	0.00
62.6400	-0.02566	4412451.	-94835.	1.60E-04	0.00	6.37E+12	1157.	389478.	0.00
63.3600	-0.02426	3636252.	-84908.	1.65E-04	0.00	6.37E+12	1141.	406486.	0.00
64.0800	-0.02281	2945240.	-75141.	1.70E-04	0.00	6.38E+12	1120.	424223.	0.00
64.8000	-0.02132	2337820.	-65583.	1.73E-04	0.00	6.38E+12	1093.	442771.	0.00
65.5200	-0.01981	1811971.	-56309.	1.76E-04	0.00	6.38E+12	1054.	459603.	0.00
66.2400	-0.01828	1364792.	-47471.	1.78E-04	0.00	6.38E+12	992.0639	468919.	0.00
66.9600	-0.01673	991671.	-39185.	1.80E-04	0.00	6.38E+12	926.0736	478235.	0.00
67.6800	-0.01517	687680.	-31486.	1.81E-04	0.00	6.38E+12	856.0899	487551.	0.00
68.4000	-0.01360	447596.	-24408.	1.82E-04	0.00	6.38E+12	782.2795	496868.	0.00
69.1200	-0.01203	265910.	-17984.	1.82E-04	0.00	6.38E+12	704.7811	506184.	0.00
69.8400	-0.01045	136834.	-12245.	1.83E-04	0.00	6.38E+12	623.7044	515500.	0.00
70.5600	-0.00888	54318.	-7221.	1.83E-04	0.00	6.38E+12	539.1312	524817.	0.00
71.2800	-0.00730	12048.	-3143.	1.83E-04	0.00	6.38E+12	404.8477	479350.	0.00
72.0000	-0.00572	0.00	0.00	1.83E-04	0.00	6.38E+12	322.7967	243855.	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             =     2.97831771 inches
Computed slope at pile head      =    -0.00623908 radians
Maximum bending moment           =      46069576. inch-lbs
Maximum shear force              =       -226473. lbs
Depth of maximum bending moment  =    42.48000000 feet below pile head
Depth of maximum shear force     =    48.24000000 feet below pile head
Number of iterations             =            385
Number of zero deflection points =              1
```

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	6.74
8.64	26.98
17.28	53.95
25.92	80.93
34.56	107.90
43.20	134.88
51.84	161.86
60.48	188.83
69.12	215.81
77.76	242.78
86.40	269.76
95.04	296.74
103.68	323.71
112.32	350.69
120.96	377.66
129.60	404.64
138.24	431.62
146.88	458.59
155.52	485.57
164.16	512.54
172.80	539.52
181.44	566.50
190.08	593.47
198.72	620.45
207.36	647.42
216.00	674.40
224.64	701.38

233.28	728.35
241.92	755.33
250.56	782.30
259.20	809.28
267.84	836.26
276.48	863.23
285.12	890.21
293.76	917.18
302.40	944.16
311.04	971.14
319.68	998.11
328.32	1025.09
336.96	1052.06
345.60	1079.04
354.24	1106.02
362.88	186.96

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	2.9783	2.66E-04	2.20E-06	-0.00624	0.00	6.38E+12	0.00	0.00	6.7440
0.7200	2.9244	251.7201	145.6705	-0.00624	0.00	6.38E+12	0.00	0.00	26.9760
1.4400	2.8705	2517.	495.2793	-0.00624	0.00	6.38E+12	0.00	0.00	53.9520
2.1600	2.8166	8810.	1078.	-0.00624	0.00	6.38E+12	0.00	0.00	80.9280
2.8800	2.7627	21144.	1894.	-0.00624	0.00	6.38E+12	0.00	0.00	107.9040
3.6000	2.7088	41534.	2943.	-0.00624	0.00	6.38E+12	0.00	0.00	134.8800
4.3200	2.6549	71991.	4224.	-0.00624	0.00	6.38E+12	0.00	0.00	161.8560
5.0400	2.6010	114532.	5739.	-0.00624	0.00	6.38E+12	0.00	0.00	188.8320
5.7600	2.5471	171169.	7487.	-0.00624	0.00	6.38E+12	0.00	0.00	215.8080
6.4800	2.4932	243915.	9469.	-0.00624	0.00	6.38E+12	0.00	0.00	242.7840
7.2000	2.4393	334786.	11683.	-0.00624	0.00	6.38E+12	0.00	0.00	269.7600
7.9200	2.3854	445793.	14130.	-0.00624	0.00	6.38E+12	0.00	0.00	296.7360
8.6400	2.3315	578952.	16810.	-0.00624	0.00	6.38E+12	0.00	0.00	323.7120
9.3600	2.2776	736276.	19724.	-0.00624	0.00	6.38E+12	0.00	0.00	350.6880
10.0800	2.2237	919779.	22870.	-0.00623	0.00	6.38E+12	0.00	0.00	377.6640
10.8000	2.1699	1131474.	26250.	-0.00623	0.00	6.38E+12	0.00	0.00	404.6400
11.5200	2.1160	1373376.	29862.	-0.00623	0.00	6.38E+12	0.00	0.00	431.6160
12.2400	2.0622	1647497.	33708.	-0.00623	0.00	6.38E+12	0.00	0.00	458.5920
12.9600	2.0084	1955852.	37787.	-0.00623	0.00	6.38E+12	0.00	0.00	485.5680
13.6800	1.9546	2300455.	42099.	-0.00622	0.00	6.38E+12	0.00	0.00	512.5440
14.4000	1.9008	2683319.	46644.	-0.00622	0.00	6.38E+12	0.00	0.00	539.5200
15.1200	1.8471	3106457.	51422.	-0.00622	0.00	6.38E+12	0.00	0.00	566.4960
15.8400	1.7934	3571885.	56433.	-0.00621	0.00	6.37E+12	0.00	0.00	593.4720
16.5600	1.7397	4081615.	61677.	-0.00621	0.00	6.37E+12	0.00	0.00	620.4480
17.2800	1.6861	4637661.	67154.	-0.00620	0.00	6.37E+12	0.00	0.00	647.4240
18.0000	1.6326	5242037.	72864.	-0.00619	0.00	6.37E+12	0.00	0.00	674.4000
18.7200	1.5791	5896756.	78808.	-0.00619	0.00	6.36E+12	0.00	0.00	701.3760
19.4400	1.5257	6603834.	84984.	-0.00618	0.00	6.36E+12	0.00	0.00	728.3520
20.1600	1.4723	7365282.	91394.	-0.00617	0.00	6.35E+12	0.00	0.00	755.3280
20.8800	1.4191	8183115.	98036.	-0.00616	0.00	6.35E+12	0.00	0.00	782.3040
21.6000	1.3659	9059347.	104912.	-0.00615	0.00	6.34E+12	0.00	0.00	809.2800
22.3200	1.3129	9995991.	112021.	-0.00613	0.00	6.34E+12	0.00	0.00	836.2560
23.0400	1.2599	1.10E+07	119362.	-0.00612	0.00	6.33E+12	0.00	0.00	863.2320
23.7600	1.2071	1.21E+07	126937.	-0.00610	0.00	6.33E+12	0.00	0.00	890.2080
24.4800	1.1544	1.32E+07	134745.	-0.00609	0.00	6.32E+12	0.00	0.00	917.1840
25.2000	1.1019	1.44E+07	142786.	-0.00607	0.00	6.32E+12	0.00	0.00	944.1600
25.9200	1.0496	1.57E+07	151060.	-0.00605	0.00	6.31E+12	0.00	0.00	971.1360
26.6400	0.9974	1.70E+07	159567.	-0.00602	0.00	6.30E+12	0.00	0.00	998.1120
27.3600	0.9455	1.84E+07	168308.	-0.00597	0.00	1.90E+12	0.00	0.00	1025.
28.0800	0.8943	1.99E+07	177281.	-0.00588	0.00	1.86E+12	0.00	0.00	1052.
28.8000	0.8438	2.15E+07	186487.	-0.00579	0.00	1.86E+12	0.00	0.00	1079.
29.5200	0.7943	2.31E+07	195927.	-0.00568	0.00	1.86E+12	0.00	0.00	1106.
30.2400	0.7456	2.49E+07	201180.	-0.00557	0.00	1.86E+12	-76.9026	891.1301	186.9587
30.9600	0.6980	2.66E+07	200258.	-0.00545	0.00	1.86E+12	-323.6235	4006.	0.00

31.6800	0.6514	2.83E+07	196320.	-0.00532	0.00	1.85E+12	-587.8444	7797.	0.00
32.4000	0.6060	3.00E+07	190060.	-0.00519	0.00	1.85E+12	-861.2607	12280.	0.00
33.1200	0.5617	3.16E+07	181428.	-0.00504	0.00	1.85E+12	-1137.	17486.	0.00
33.8400	0.5188	3.31E+07	170405.	-0.00489	0.00	1.85E+12	-1415.	23561.	0.00
34.5600	0.4772	3.46E+07	162127.	-0.00474	0.00	1.85E+12	-501.3478	9077.	0.00
35.2800	0.4370	3.59E+07	157665.	-0.00457	0.00	1.85E+12	-531.5879	10511.	0.00
36.0000	0.3982	3.73E+07	152990.	-0.00440	0.00	1.85E+12	-550.4943	11944.	0.00
36.7200	0.3610	3.86E+07	148197.	-0.00422	0.00	1.84E+12	-558.8758	13377.	0.00
37.4400	0.3253	3.98E+07	143374.	-0.00404	0.00	1.84E+12	-557.5749	14810.	0.00
38.1600	0.2912	4.11E+07	138601.	-0.00385	0.00	1.84E+12	-547.4666	16244.	0.00
38.8800	0.2588	4.22E+07	133948.	-0.00365	0.00	1.84E+12	-529.4573	17677.	0.00
39.6000	0.2281	4.34E+07	129482.	-0.00345	0.00	1.84E+12	-504.4830	19110.	0.00
40.3200	0.1991	4.45E+07	125257.	-0.00324	0.00	1.84E+12	-473.5084	20544.	0.00
41.0400	0.1720	4.55E+07	91672.	-0.00303	0.00	1.84E+12	-7301.	366710.	0.00
41.7600	0.1467	4.61E+07	31005.	-0.00282	0.00	1.84E+12	-6743.	397050.	0.00
42.4800	0.1233	4.61E+07	-24828.	-0.00260	0.00	1.84E+12	-6181.	433104.	0.00
43.2000	0.1018	4.56E+07	-75791.	-0.00239	0.00	1.84E+12	-5616.	476737.	0.00
43.9200	0.08209	4.48E+07	-121839.	-0.00217	0.00	1.84E+12	-5043.	530830.	0.00
44.6400	0.06422	4.35E+07	-162898.	-0.00197	0.00	1.84E+12	-4461.	600148.	0.00
45.3600	0.04812	4.19E+07	-198850.	-0.00177	0.00	1.84E+12	-3861.	693320.	0.00
46.0800	0.03372	4.01E+07	-218320.	-0.00157	0.00	1.84E+12	-645.4632	165384.	0.00
46.8000	0.02094	3.82E+07	-222918.	-0.00139	0.00	1.84E+12	-418.8605	172789.	0.00
47.5200	0.00971	3.62E+07	-225602.	-0.00122	0.00	1.85E+12	-202.5804	180194.	0.00
48.2400	-5.26E-05	3.43E+07	-226473.	-0.00105	0.00	1.85E+12	1.1428	187599.	0.00
48.9600	-0.00843	3.23E+07	-225645.	-8.95E-04	0.00	1.85E+12	190.3591	195005.	0.00
49.6800	-0.01551	3.04E+07	-223253.	-7.48E-04	0.00	1.85E+12	363.3908	202410.	0.00
50.4000	-0.02136	2.85E+07	-219442.	-6.11E-04	0.00	1.85E+12	518.8171	209815.	0.00
51.1200	-0.02607	2.66E+07	-214917.	-4.83E-04	0.00	1.86E+12	528.5955	175178.	0.00
51.8400	-0.02971	2.47E+07	-209943.	-3.63E-04	0.00	1.86E+12	622.8696	181150.	0.00
52.5600	-0.03235	2.30E+07	-204225.	-2.52E-04	0.00	1.86E+12	700.6256	187122.	0.00
53.2800	-0.03407	2.12E+07	-197909.	-1.50E-04	0.00	1.86E+12	761.4273	193094.	0.00
54.0000	-0.03494	1.95E+07	-191142.	-5.52E-05	0.00	1.86E+12	804.9881	199066.	0.00
54.7200	-0.03502	1.79E+07	-184074.	2.44E-06	0.00	6.30E+12	831.1586	205038.	0.00
55.4400	-0.03490	1.64E+07	-176802.	2.59E-05	0.00	6.30E+12	852.2592	211010.	0.00
56.1600	-0.03458	1.49E+07	-169369.	4.73E-05	0.00	6.31E+12	868.3204	216982.	0.00
56.8800	-0.03408	1.34E+07	-161819.	6.67E-05	0.00	6.32E+12	879.4037	222953.	0.00
57.6000	-0.03342	1.21E+07	-154194.	8.41E-05	0.00	6.33E+12	885.5988	228925.	0.00
58.3200	-0.03263	1.08E+07	-146536.	9.96E-05	0.00	6.34E+12	887.0195	234897.	0.00
59.0400	-0.03170	9530328.	-138886.	1.13E-04	0.00	6.34E+12	883.8025	240869.	0.00
59.7600	-0.03067	8363338.	-131284.	1.26E-04	0.00	6.35E+12	876.1030	246841.	0.00
60.4800	-0.02953	7261749.	-123766.	1.36E-04	0.00	6.35E+12	864.0934	252813.	0.00
61.2000	-0.02831	6224664.	-114974.	1.45E-04	0.00	6.36E+12	1171.	357424.	0.00
61.9200	-0.02702	5275006.	-104873.	1.53E-04	0.00	6.37E+12	1167.	373139.	0.00
62.6400	-0.02566	4412451.	-94835.	1.60E-04	0.00	6.37E+12	1157.	389478.	0.00
63.3600	-0.02426	3636252.	-84908.	1.65E-04	0.00	6.37E+12	1141.	406486.	0.00
64.0800	-0.02281	2945240.	-75141.	1.70E-04	0.00	6.38E+12	1120.	424223.	0.00
64.8000	-0.02132	2337820.	-65583.	1.73E-04	0.00	6.38E+12	1093.	442771.	0.00
65.5200	-0.01981	1811971.	-56309.	1.76E-04	0.00	6.38E+12	1054.	459603.	0.00
66.2400	-0.01828	1364792.	-47471.	1.78E-04	0.00	6.38E+12	992.0639	468919.	0.00
66.9600	-0.01673	991671.	-39185.	1.80E-04	0.00	6.38E+12	926.0736	478235.	0.00
67.6800	-0.01517	687680.	-31486.	1.81E-04	0.00	6.38E+12	856.0899	487551.	0.00
68.4000	-0.01360	447596.	-24408.	1.82E-04	0.00	6.38E+12	782.2795	496868.	0.00
69.1200	-0.01203	265910.	-17984.	1.82E-04	0.00	6.38E+12	704.7811	506184.	0.00
69.8400	-0.01045	136834.	-12245.	1.83E-04	0.00	6.38E+12	623.7044	515500.	0.00
70.5600	-0.00888	54318.	-7221.	1.83E-04	0.00	6.38E+12	539.1312	524817.	0.00
71.2800	-0.00730	12048.	-3143.	1.83E-04	0.00	6.38E+12	404.8477	479350.	0.00
72.0000	-0.00572	0.00	0.00	1.83E-04	0.00	6.38E+12	322.7967	243855.	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             =     2.97831771 inches
Computed slope at pile head      =    -0.00623908 radians
Maximum bending moment           =      46069576. inch-lbs
Maximum shear force              =       -226473. lbs
Depth of maximum bending moment  =    42.48000000 feet below pile head
Depth of maximum shear force     =    48.24000000 feet below pile head
Number of iterations             =            385
Number of zero deflection points =              1
```

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	6.74
8.64	26.98
17.28	53.95
25.92	80.93
34.56	107.90
43.20	134.88
51.84	161.86
60.48	188.83
69.12	215.81
77.76	242.78
86.40	269.76
95.04	296.74
103.68	323.71
112.32	350.69
120.96	377.66
129.60	404.64
138.24	431.62
146.88	458.59
155.52	485.57
164.16	512.54
172.80	539.52
181.44	566.50
190.08	593.47
198.72	620.45
207.36	647.42
216.00	674.40
224.64	701.38
233.28	728.35
241.92	755.33
250.56	782.30
259.20	809.28
267.84	836.26
276.48	863.23
285.12	890.21
293.76	917.18
302.40	944.16
311.04	971.14
319.68	998.11
328.32	1025.09
336.96	1052.06
345.60	1079.04
354.24	1106.02
362.88	186.96

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	4.9784	-0.00258	0.00	-0.01036	0.00	6.38E+12	0.00	0.00	10.1160
0.7200	4.8890	377.5767	218.5057	-0.01036	0.00	6.38E+12	0.00	0.00	40.4640
1.4400	4.7995	3776.	742.9190	-0.01036	0.00	6.38E+12	0.00	0.00	80.9280
2.1600	4.7100	13215.	1617.	-0.01036	0.00	6.38E+12	0.00	0.00	121.3920
2.8800	4.6206	31717.	2841.	-0.01036	0.00	6.38E+12	0.00	0.00	161.8560
3.6000	4.5311	62300.	4414.	-0.01036	0.00	6.38E+12	0.00	0.00	202.3200
4.3200	4.4416	107987.	6337.	-0.01036	0.00	6.38E+12	0.00	0.00	242.7840
5.0400	4.3521	171798.	8609.	-0.01036	0.00	6.38E+12	0.00	0.00	283.2480

5.7600	4.2627	256753.	11231.	-0.01035	0.00	6.38E+12	0.00	0.00	323.7120
6.4800	4.1732	365873.	14203.	-0.01035	0.00	6.38E+12	0.00	0.00	364.1760
7.2000	4.0838	502178.	17524.	-0.01035	0.00	6.38E+12	0.00	0.00	404.6400
7.9200	3.9943	668690.	21195.	-0.01035	0.00	6.38E+12	0.00	0.00	445.1040
8.6400	3.9049	868429.	25216.	-0.01035	0.00	6.38E+12	0.00	0.00	485.5680
9.3600	3.8154	1104415.	29586.	-0.01035	0.00	6.38E+12	0.00	0.00	526.0320
10.0800	3.7260	1379669.	34305.	-0.01035	0.00	6.38E+12	0.00	0.00	566.4960
10.8000	3.6366	1697212.	39375.	-0.01035	0.00	6.38E+12	0.00	0.00	606.9600
11.5200	3.5472	2060064.	44794.	-0.01034	0.00	6.38E+12	0.00	0.00	647.4240
12.2400	3.4578	2471246.	50562.	-0.01034	0.00	6.38E+12	0.00	0.00	687.8880
12.9600	3.3685	2933779.	56680.	-0.01034	0.00	6.38E+12	0.00	0.00	728.3520
13.6800	3.2792	3450682.	63148.	-0.01033	0.00	6.37E+12	0.00	0.00	768.8160
14.4000	3.1899	4024978.	69965.	-0.01033	0.00	6.37E+12	0.00	0.00	809.2800
15.1200	3.1007	4659686.	77132.	-0.01032	0.00	6.37E+12	0.00	0.00	849.7440
15.8400	3.0116	5357827.	84649.	-0.01032	0.00	6.37E+12	0.00	0.00	890.2080
16.5600	2.9225	6122422.	92515.	-0.01031	0.00	6.36E+12	0.00	0.00	930.6720
17.2800	2.8335	6956491.	100731.	-0.01030	0.00	6.36E+12	0.00	0.00	971.1360
18.0000	2.7445	7863055.	109297.	-0.01029	0.00	6.35E+12	0.00	0.00	1012.
18.7200	2.6557	8845135.	118212.	-0.01028	0.00	6.35E+12	0.00	0.00	1052.
19.4400	2.5669	9905750.	127476.	-0.01026	0.00	6.34E+12	0.00	0.00	1093.
20.1600	2.4783	1.10E+07	137090.	-0.01025	0.00	6.33E+12	0.00	0.00	1133.
20.8800	2.3898	1.23E+07	147054.	-0.01023	0.00	6.33E+12	0.00	0.00	1173.
21.6000	2.3014	1.36E+07	157368.	-0.01022	0.00	6.32E+12	0.00	0.00	1214.
22.3200	2.2132	1.50E+07	168031.	-0.01020	0.00	6.31E+12	0.00	0.00	1254.
23.0400	2.1252	1.65E+07	179043.	-0.01018	0.00	6.30E+12	0.00	0.00	1295.
23.7600	2.0374	1.81E+07	190406.	-0.01015	0.00	6.29E+12	0.00	0.00	1335.
24.4800	1.9498	1.98E+07	202118.	-0.01009	0.00	1.86E+12	0.00	0.00	1376.
25.2000	1.8630	2.16E+07	214179.	-0.01000	0.00	1.86E+12	0.00	0.00	1416.
25.9200	1.7770	2.35E+07	226590.	-0.00989	0.00	1.86E+12	0.00	0.00	1457.
26.6400	1.6920	2.55E+07	239351.	-0.00978	0.00	1.86E+12	0.00	0.00	1497.
27.3600	1.6081	2.76E+07	252461.	-0.00966	0.00	1.85E+12	0.00	0.00	1538.
28.0800	1.5252	2.99E+07	265921.	-0.00952	0.00	1.85E+12	0.00	0.00	1578.
28.8000	1.4435	3.22E+07	279731.	-0.00938	0.00	1.85E+12	0.00	0.00	1619.
29.5200	1.3632	3.47E+07	293890.	-0.00922	0.00	1.85E+12	0.00	0.00	1659.
30.2400	1.2842	3.73E+07	301886.	-0.00905	0.00	1.85E+12	-88.6076	596.1404	280.4380
30.9600	1.2068	3.99E+07	301098.	-0.00887	0.00	1.84E+12	-374.2531	2680.	0.00
31.6800	1.1309	4.25E+07	296531.	-0.00868	0.00	1.84E+12	-682.8665	5217.	0.00
32.4000	1.0568	4.50E+07	289238.	-0.00847	0.00	1.84E+12	-1005.	8220.	0.00
33.1200	0.9845	4.75E+07	279133.	-0.00825	0.00	1.84E+12	-1334.	11704.	0.00
33.8400	0.9142	4.99E+07	266179.	-0.00802	0.00	1.83E+12	-1665.	15733.	0.00
34.5600	0.8459	5.21E+07	255149.	-0.00778	0.00	1.83E+12	-888.6833	9077.	0.00
35.2800	0.7797	5.43E+07	247212.	-0.00753	0.00	1.83E+12	-948.4750	10511.	0.00
36.0000	0.7157	5.64E+07	238841.	-0.00727	0.00	1.83E+12	-989.3676	11944.	0.00
36.7200	0.6540	5.84E+07	230193.	-0.00700	0.00	1.82E+12	-1013.	13377.	0.00
37.4400	0.5947	6.03E+07	221414.	-0.00672	0.00	1.82E+12	-1019.	14810.	0.00
38.1600	0.5379	6.22E+07	212641.	-0.00643	0.00	1.82E+12	-1011.	16244.	0.00
38.8800	0.4837	6.40E+07	203997.	-0.00613	0.00	1.82E+12	-989.5306	17677.	0.00
39.6000	0.4320	6.57E+07	195595.	-0.00582	0.00	1.82E+12	-955.5589	19110.	0.00
40.3200	0.3831	6.74E+07	187532.	-0.00550	0.00	1.81E+12	-910.8815	20544.	0.00
41.0400	0.3369	6.90E+07	143249.	-0.00518	0.00	1.81E+12	-9340.	239503.	0.00
41.7600	0.2936	6.99E+07	64216.	-0.00485	0.00	1.81E+12	-8955.	263503.	0.00
42.4800	0.2532	7.01E+07	-11289.	-0.00451	0.00	1.81E+12	-8523.	290874.	0.00
43.2000	0.2156	6.97E+07	-82851.	-0.00418	0.00	1.81E+12	-8042.	322234.	0.00
43.9200	0.1809	6.87E+07	-149939.	-0.00385	0.00	1.81E+12	-7488.	357541.	0.00
44.6400	0.1491	6.71E+07	-211650.	-0.00353	0.00	1.81E+12	-6797.	393887.	0.00
45.3600	0.1200	6.50E+07	-267356.	-0.00321	0.00	1.82E+12	-6098.	439045.	0.00
46.0800	0.09358	6.25E+07	-301437.	-0.00291	0.00	1.82E+12	-1791.	165384.	0.00
46.8000	0.06972	5.98E+07	-315198.	-0.00262	0.00	1.82E+12	-1394.	172789.	0.00
47.5200	0.04831	5.70E+07	-325574.	-0.00234	0.00	1.83E+12	-1007.	180194.	0.00
48.2400	0.02923	5.42E+07	-332668.	-0.00208	0.00	1.83E+12	-634.6370	187599.	0.00
48.9600	0.01236	5.13E+07	-336615.	-0.00183	0.00	1.83E+12	-278.9865	195005.	0.00
49.6800	-0.00242	4.84E+07	-337576.	-0.00160	0.00	1.83E+12	56.6188	202410.	0.00
50.4000	-0.01523	4.54E+07	-335734.	-0.00138	0.00	1.84E+12	369.7713	209815.	0.00
51.1200	-0.02619	4.26E+07	-331842.	-0.00117	0.00	1.84E+12	531.0212	175178.	0.00
51.8400	-0.03543	3.97E+07	-326339.	-9.76E-04	0.00	1.84E+12	742.8029	181150.	0.00
52.5600	-0.04306	3.69E+07	-319102.	-7.97E-04	0.00	1.85E+12	932.5219	187122.	0.00
53.2800	-0.04919	3.42E+07	-310324.	-6.30E-04	0.00	1.85E+12	1099.	193094.	0.00
54.0000	-0.05395	3.16E+07	-300205.	-4.77E-04	0.00	1.85E+12	1243.	199066.	0.00
54.7200	-0.05743	2.90E+07	-288947.	-3.35E-04	0.00	1.85E+12	1363.	205038.	0.00
55.4400	-0.05975	2.66E+07	-276756.	-2.06E-04	0.00	1.86E+12	1459.	211010.	0.00
56.1600	-0.06099	2.42E+07	-264310.	-8.78E-05	0.00	1.86E+12	1422.	201438.	0.00
56.8800	-0.06126	2.20E+07	-252357.	1.96E-05	0.00	1.86E+12	1345.	189659.	0.00
57.6000	-0.06065	1.99E+07	-240931.	1.17E-04	0.00	1.86E+12	1300.	185202.	0.00
58.3200	-0.05924	1.78E+07	-229625.	1.75E-04	0.00	6.30E+12	1317.	192093.	0.00
59.0400	-0.05763	1.59E+07	-218194.	1.98E-04	0.00	6.31E+12	1329.	199242.	0.00
59.7600	-0.05582	1.41E+07	-206686.	2.19E-04	0.00	6.32E+12	1335.	206649.	0.00
60.4800	-0.05385	1.23E+07	-195149.	2.37E-04	0.00	6.33E+12	1336.	214312.	0.00
61.2000	-0.05173	1.07E+07	-182279.	2.52E-04	0.00	6.34E+12	1643.	274504.	0.00
61.9200	-0.04948	9170582.	-168072.	2.66E-04	0.00	6.34E+12	1645.	287261.	0.00

62.6400	-0.04713	7779844.	-153883.	2.78E-04	0.00	6.35E+12	1639.	300535.	0.00		
63.3600	-0.04469	6511485.	-139777.	2.87E-04	0.00	6.36E+12	1626.	314362.	0.00		
64.0800	-0.04217	5364500.	-125821.	2.95E-04	0.00	6.37E+12	1605.	328785.	0.00		
64.8000	-0.03958	4337298.	-112083.	3.02E-04	0.00	6.37E+12	1575.	343860.	0.00		
65.5200	-0.03695	3427697.	-98633.	3.07E-04	0.00	6.38E+12	1538.	359663.	0.00		
66.2400	-0.03428	2632919.	-85539.	3.11E-04	0.00	6.38E+12	1493.	376294.	0.00		
66.9600	-0.03157	1949578.	-72815.	3.14E-04	0.00	6.38E+12	1453.	397503.	0.00		
67.6800	-0.02884	1374667.	-60345.	3.17E-04	0.00	6.38E+12	1434.	429594.	0.00		
68.4000	-0.02610	906816.	-48073.	3.18E-04	0.00	6.38E+12	1407.	465613.	0.00		
69.1200	-0.02335	543963.	-36088.	3.19E-04	0.00	6.38E+12	1368.	506184.	0.00		
69.8400	-0.02059	283213.	-24873.	3.20E-04	0.00	6.38E+12	1228.	515500.	0.00		
70.5600	-0.01782	114149.	-14891.	3.20E-04	0.00	6.38E+12	1083.	524817.	0.00		
71.2800	-0.01506	25896.	-6606.	3.20E-04	0.00	6.38E+12	835.3347	479350.	0.00		
72.0000	-0.01229	0.00	0.00	3.20E-04	0.00	6.38E+12	693.7964	243855.	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 = 4.97844721 inches
Computed slope at pile head = -0.01035558 radians
Maximum bending moment = 70093725. inch-lbs
Maximum shear force = -337576. lbs
Depth of maximum bending moment = 42.48000000 feet below pile head
Depth of maximum shear force = 49.68000000 feet below pile head
Number of iterations = 23
Number of zero deflection points = 1

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	2.97831771	46069576.	-226473.	-0.00623908
2	0.000000	0.000000	0.000000	2.97831771	46069576.	-226473.	-0.00623908
3	0.000000	0.000000	0.000000	4.97844721	70093725.	-337576.	-0.01035558

Maximum pile-head deflection = 4.9784472083 inches
Maximum pile-head rotation = -0.0103555776 radians = -0.593331 deg.

LRFD Performance by Load Case Combination

Load Case No.	Section No.	Resistance Factor for Moment	Factored Moment Capacity of Section in-lbs	Maximum Moment Developed in Section in-lbs	Fact. Mom. Fraction Developed in Section	Pass/Fail for LRFD Moment of Section	Maximum Shear Developed in Section lbs	Pile-top Deflection Developed inches	Pile-top Rotation Developed Radians	Name of Load Case Combination
1	1	1.00	118931560.	46069576.	0.387362	Pass	-226473.	2.978318	-0.006239	Soil Only
2	1	1.00	118931560.	46069576.	0.387362	Pass	-226473.	2.978318	-0.006239	Service 1
3	1	0.90	107038404.	70093725.	0.654847	Pass	-337576.	4.978447	-0.010356	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.

```
================================================================================

                    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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================================================================================

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--------------------------------------------------------------------------------
                            Files Used for Analysis
--------------------------------------------------------------------------------

Path to file locations:
\2015\2015370\FRA\96053\structures\wall_4W16\design\Checked Lpile runs\

Name of input data file:
Wall 4W16 Tangent Shaft Design - 24inch waterline.lp11

Name of output report file:
Wall 4W16 Tangent Shaft Design - 24inch waterline.lp11

Name of plot output file:
Wall 4W16 Tangent Shaft Design - 24inch waterline.lp11

Name of runtime message file:
Wall 4W16 Tangent Shaft Design - 24inch waterline.lp11



--------------------------------------------------------------------------------
                            Date and Time of Analysis
--------------------------------------------------------------------------------

               Date:  February 17, 2021           Time:  13:02:37



--------------------------------------------------------------------------------
                                  Problem Title
--------------------------------------------------------------------------------

FRA-70-14.05 - Wall 4W16 East Qtr of wall

Job Number:

Client:

Engineer: TJW

Description: Tangent 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 = 64.000 ft
Depth of ground surface below top of pile = 30.4600 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	72.0000
2	64.000	72.0000

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 = 64.000000 ft
   Shaft Diameter = 72.000000 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 7 layers

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

Distance from top of pile to top of layer	=	30.460000 ft
Distance from top of pile to bottom of layer	=	36.560000 ft
Effective unit weight at top of layer	=	140.000000 pcf
Effective unit weight at bottom of layer	=	140.000000 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	=	355.000000 pci
Subgrade k at bottom of layer	=	355.000000 pci

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

Distance from top of pile to top of layer	=	36.560000 ft
Distance from top of pile to bottom of layer	=	37.560000 ft
Effective unit weight at top of layer	=	140.000000 pcf
Effective unit weight at bottom of layer	=	140.000000 pcf
Friction angle at top of layer	=	39.000000 deg.
Friction angle at bottom of layer	=	39.000000 deg.
Subgrade k at top of layer	=	140.000000 pci
Subgrade k at bottom of layer	=	140.000000 pci

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

Distance from top of pile to top of layer	=	37.560000 ft
Distance from top of pile to bottom of layer	=	41.560000 ft
Effective unit weight at top of layer	=	77.600000 pcf
Effective unit weight at bottom of layer	=	77.600000 pcf
Friction angle at top of layer	=	39.000000 deg.
Friction angle at bottom of layer	=	39.000000 deg.
Subgrade k at top of layer	=	140.000000 pci
Subgrade k at bottom of layer	=	140.000000 pci

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

Distance from top of pile to top of layer	=	41.560000 ft
Distance from top of pile to bottom of layer	=	46.560000 ft
Effective unit weight at top of layer	=	77.600000 pcf
Effective unit weight at bottom of layer	=	77.600000 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 5 is stiff clay with water-induced erosion

Distance from top of pile to top of layer	=	46.560000 ft
Distance from top of pile to bottom of layer	=	51.560000 ft
Effective unit weight at top of layer	=	77.600000 pcf
Effective unit weight at bottom of layer	=	77.600000 pcf
Undrained cohesion at top of layer	=	8000. psf
Undrained cohesion at bottom of layer	=	8000. psf
Epsilon-50 at top of layer	=	0.003300
Epsilon-50 at bottom of layer	=	0.003300
Subgrade k at top of layer	=	2665. pci
Subgrade k at bottom of layer	=	2665. pci

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

Distance from top of pile to top of layer	=	51.560000 ft
Distance from top of pile to bottom of layer	=	56.560000 ft
Effective unit weight at top of layer	=	67.600000 pcf
Effective unit weight at bottom of layer	=	67.600000 pcf
Friction angle at top of layer	=	33.000000 deg.
Friction angle at bottom of layer	=	33.000000 deg.
Subgrade k at top of layer	=	60.000000 pci
Subgrade k at bottom of layer	=	60.000000 pci

Layer 7 is sand, p-y criteria by Reese et al., 1974

```
   Distance from top of pile to top of layer          =    56.560000 ft
   Distance from top of pile to bottom of layer       =    74.560000 ft
   Effective unit weight at top of layer              =    77.600000 pcf
   Effective unit weight at bottom of layer           =    77.600000 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 10.560 ft below the pile tip)


**** Warning - Possible Input Data Error ****

Values entered for effective unit weights of soil were outside the limits of
20 pcf to 140 pcf.

The maximum input value, in layer   1, for effective unit weight = 140.00 pcf

This data may be erroneous. Please check your data.
```

Summary of Input Soil Properties

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	30.4600	140.0000	--	42.0000	--	355.0000
	(Reese, et al.)	36.5600	140.0000	--	42.0000	--	355.0000
2	Sand	36.5600	140.0000	--	39.0000	--	140.0000
	(Reese, et al.)	37.5600	140.0000	--	39.0000	--	140.0000
3	Sand	37.5600	77.6000	--	39.0000	--	140.0000
	(Reese, et al.)	41.5600	77.6000	--	39.0000	--	140.0000
4	Sand	41.5600	77.6000	--	43.0000	--	215.0000
	(Reese, et al.)	46.5600	77.6000	--	43.0000	--	215.0000
5	Stiff Clay	46.5600	77.6000	8000.	--	0.00330	2665.
	with Free Water	51.5600	77.6000	8000.	--	0.00330	2665.
6	Sand	51.5600	67.6000	--	33.0000	--	60.0000
	(Reese, et al.)	56.5600	67.6000	--	33.0000	--	60.0000
7	Sand	56.5600	77.6000	--	42.0000	--	195.0000
	(Reese, et al.)	74.5600	77.6000	--	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	30.460	0.6400	1.0000
2	95.000	0.6400	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 = 1

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	70545.00	2

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

Point	Depth in	Distributed Load lb/inch
1	0.00	0.00
2	366.00	1289.00

Totals of Unfactored Loads by Load Type for LRFD Analyses:

Number of Defined Unfactored Load Cases = 1

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	0.00	0
Live Loads	(LL)	0.00	0.00	0.00	0
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	70545.00	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)	0.00	0.00	0.00	0
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	1.00	Soil Only
2	1.00	1.00	--	--	--	--	--	1.00	--	--	--	--	--	1.00	1.00	Service 1
3	1.00	1.75	--	--	--	--	--	1.50	--	--	--	--	--	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*DL + 1.00*Hs

```
Factored Horizontal Force =                    0.00 lbs
Factored Vertical Force   =                70545.00 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

Factored Horizontal Force =                    0.00 lbs
Factored Vertical Force   =                70545.00 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 =  1.00*DL + 1.75*LL + 1.50*Hs

Factored Horizontal Force =                    0.00 lbs
Factored Vertical Force   =               105817.50 lbs
Factored Moment           =                    0.00 in-lbs


Totals of Factored Loads by Load Combination:
-----------------------------------------------


      Load             Factored           Factored           Factored
   Combination       Horiz. Force          Moment           Vert. Force     Load Combination Name
     Number              lbs              in-lbs               lbs
----------------   ----------------   ----------------   ----------------
-----------------------------------------------------------------
        1                     0.00               0.00           70545.00   Soil Only


        2                     0.00               0.00           70545.00   Service 1


        3                     0.00               0.00          105817.50   Strength 1



Sorted Values of Axial Thrust Forces Sorted for LRFD Computations:
--------------------------------------------------------------------

Number of Unique Axial Thrust Values = 2

Number   Factored Axial Thrust
------   ---------------------
   1       70545.000
   2      117575.000

-------------------------------------------------------------------------------
     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	=	64.000000 ft
Shaft Diameter	=	72.000000 in
Concrete Cover Thickness (to edge of long. rebar)	=	6.500000 in
Number of Reinforcing Bars	=	50 bars
Yield Stress of Reinforcing Bars	=	60000. psi
Modulus of Elasticity of Reinforcing Bars	=	29000000. psi
Gross Area of Shaft	=	4072. sq. in.
Total Area of Reinforcing Steel	=	78.000000 sq. in.
Area Ratio of Steel Reinforcement	=	1.92 percent
Edge-to-Edge Bar Spacing	=	4.407036 in
Maximum Concrete Aggregate Size	=	0.375000 in
Ratio of Bar Spacing to Aggregate Size	=	11.75
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	=	18257.914 kips
Tensile Load for Cracking of Concrete	=	-1921.904 kips
Nominal Axial Tensile Capacity	=	-4680.000 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.410000	1.560000	28.786370	-0.704930
2	1.410000	1.560000	28.786370	0.704930
3	1.410000	1.560000	28.057302	6.476096
4	1.410000	1.560000	27.706684	7.841662
5	1.410000	1.560000	25.565291	13.250205
6	1.410000	1.560000	24.886086	14.485674
7	1.410000	1.560000	21.466918	19.191755
8	1.410000	1.560000	20.501803	20.219498
9	1.410000	1.560000	16.019700	23.927416
10	1.410000	1.560000	14.829317	24.682856
11	1.410000	1.560000	9.565905	27.159630
12	1.410000	1.560000	8.225050	27.595300
13	1.410000	1.560000	2.511050	28.685304
14	1.410000	1.560000	1.103973	28.773830
15	1.410000	1.560000	-4.701585	28.408575
16	1.410000	1.560000	-6.086471	28.144394
17	1.410000	1.560000	-11.618801	26.346831
18	1.410000	1.560000	-12.894480	25.746542
19	1.410000	1.560000	-17.805965	22.629618
20	1.410000	1.560000	-18.892280	21.730940
21	1.410000	1.560000	-22.874315	17.490504
22	1.410000	1.560000	-23.703010	16.349904
23	1.410000	1.560000	-26.505388	11.252397
24	1.410000	1.560000	-27.024392	9.941543
25	1.410000	1.560000	-28.471030	4.307260
26	1.410000	1.560000	-28.647732	2.908518
27	1.410000	1.560000	-28.647732	-2.908518
28	1.410000	1.560000	-28.471030	-4.307260
29	1.410000	1.560000	-27.024392	-9.941543
30	1.410000	1.560000	-26.505388	-11.252397
31	1.410000	1.560000	-23.703010	-16.349904
32	1.410000	1.560000	-22.874315	-17.490504
33	1.410000	1.560000	-18.892280	-21.730940
34	1.410000	1.560000	-17.805965	-22.629618
35	1.410000	1.560000	-12.894480	-25.746542
36	1.410000	1.560000	-11.618801	-26.346831
37	1.410000	1.560000	-6.086471	-28.144394
38	1.410000	1.560000	-4.701585	-28.408575
39	1.410000	1.560000	1.103973	-28.773830
40	1.410000	1.560000	2.511050	-28.685304
41	1.410000	1.560000	8.225050	-27.595300
42	1.410000	1.560000	9.565905	-27.159630
43	1.410000	1.560000	14.829317	-24.682856
44	1.410000	1.560000	16.019700	-23.927416
45	1.410000	1.560000	20.501803	-20.219498
46	1.410000	1.560000	21.466918	-19.191755
47	1.410000	1.560000	24.886086	-14.485674
48	1.410000	1.560000	25.565291	-13.250205
49	1.410000	1.560000	27.706684	-7.841662
50	1.410000	1.560000	28.057302	-6.476096

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

Minimum spacing between any two bars not equal to zero = 4.407 inches
between bars 36 and 37.

Ratio of bar spacing to maximum aggregate size = 11.75

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 = 0.375000 in

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

Number	Axial Thrust Force kips
1	70.545
2	117.575

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 = 70.545 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	2658.	6379437334.	44.8455217	0.00001869	-0.00001131	0.0782266	0.4592334	
8.33333E-07	5305.	6365773588.	40.4357421	0.00003370	-0.00002630	0.1403862	0.8118971	
0.00000125	7939.	6351399841.	38.9659556	0.00004871	-0.00004129	0.2020501	1.1645659	
0.00000167	10561.	6336844264.	38.2311187	0.00006372	-0.00005628	0.2632177	1.5172374	
0.00000208	13171.	6322215525.	37.7902539	0.00007873	-0.00007127	0.3238891	1.8699112	
0.00000250	15769.	6307550121.	37.4963733	0.00009374	-0.00008626	0.3840642	2.2225871	
0.00000292	18354.	6292863730.	37.2864828	0.0001088	-0.0001012	0.4437431	2.5752650	
0.00000333	18354.	5506255763.	24.0186866	0.00008006	-0.0001599	0.3274767	-3.9769936	C
0.00000375	18354.	4894449568.	23.6943401	0.00008885	-0.0001811	0.3625105	-4.5093905	C
0.00000417	18354.	4405004611.	23.4362501	0.00009765	-0.0002023	0.3973997	-5.0416198	C
0.00000458	18354.	4004549646.	23.2211310	0.0001064	-0.0002236	0.4320481	-5.5743747	C
0.00000500	18354.	3670837176.	23.0421411	0.0001152	-0.0002448	0.4665346	-6.1070895	C
0.00000542	18354.	3388465085.	22.8917837	0.0001240	-0.0002660	0.5008772	-6.6396323	C
0.00000583	18354.	3146431865.	22.7639268	0.0001328	-0.0002872	0.5350756	-7.1720024	C
0.00000625	18354.	2936669741.	22.6532833	0.0001416	-0.0003084	0.5691101	-7.7043424	C
0.00000667	18354.	2753127882.	22.5551536	0.0001504	-0.0003296	0.6029423	-8.2369369	C
0.00000708	18354.	2591179183.	22.4694365	0.0001592	-0.0003508	0.6366308	-8.7693532	C
0.00000750	18354.	2447224784.	22.3940659	0.0001680	-0.0003720	0.6701753	-9.3015906	C
0.00000792	18354.	2318423479.	22.3274112	0.0001768	-0.0003932	0.7035755	-9.8336485	C
0.00000833	18354.	2202502305.	22.2681675	0.0001856	-0.0004144	0.7368311	-10.3655262	C
0.00000875	18354.	2097621243.	22.2152788	0.0001944	-0.0004356	0.7699419	-10.8972230	C
0.00000917	18354.	2002274823.	22.1678809	0.0002032	-0.0004568	0.8029076	-11.4287383	C
0.00000958	18901.	1972236127.	22.1252601	0.0002120	-0.0004780	0.8357279	-11.9600714	C
0.00001000	19669.	1966899078.	22.0868214	0.0002209	-0.0004991	0.8684025	-12.4912218	C
0.00001042	20437.	1961932405.	22.0520653	0.0002297	-0.0005203	0.9009312	-13.0221886	C
0.00001083	21204.	1957293200.	22.0205690	0.0002386	-0.0005414	0.9333137	-13.5529712	C

0.00001125	21971.	1952944909.	21.9919724	0.0002474	-0.0005626	0.9655496	-14.0835690 C
0.00001167	22737.	1948856199.	21.9659668	0.0002563	-0.0005837	0.9976387	-14.6139812 C
0.00001208	23502.	1944997615.	21.9417235	0.0002651	-0.0006049	1.0295558	-15.1444043 C
0.00001250	24267.	1941347779.	21.9194500	0.0002740	-0.0006260	1.0613185	-15.6746993 C
0.00001292	25031.	1937887010.	21.8991284	0.0002829	-0.0006471	1.0929344	-16.2048018 C
0.00001333	25795.	1934597613.	21.8805778	0.0002917	-0.0006683	1.1244034	-16.7347102 C
0.00001375	26558.	1931463769.	21.8636390	0.0003006	-0.0006894	1.1557251	-17.2644242 C
0.00001417	27320.	1928471610.	21.8481716	0.0003095	-0.0007105	1.1868993	-17.7939430 C
0.00001458	28082.	1925608853.	21.8340514	0.0003184	-0.0007316	1.2179255	-18.3232660 C
0.00001500	28843.	1922864576.	21.8211678	0.0003273	-0.0007527	1.2488036	-18.8523922 C
0.00001542	29604.	1920229041.	21.8094223	0.0003362	-0.0007738	1.2795332	-19.3813209 C
0.00001583	30363.	1917693530.	21.7987268	0.0003451	-0.0007949	1.3101139	-19.9100514 C
0.00001625	31123.	1915250222.	21.7890021	0.0003541	-0.0008159	1.3405456	-20.4385828 C
0.00001708	32640.	1910612670.	21.7721876	0.0003719	-0.0008581	1.4009602	-21.4950458 C
0.00001792	34154.	1906267951.	21.7584879	0.0003898	-0.0009002	1.4607747	-22.5507026 C
0.00001875	35666.	1902176027.	21.7474998	0.0004078	-0.0009422	1.5199863	-23.6055472 C
0.00001958	37175.	1898303735.	21.7388886	0.0004257	-0.0009843	1.5785926	-24.6595729 C
0.00002042	38682.	1894623314.	21.7323747	0.0004437	-0.0010263	1.6365910	-25.7127732 C
0.00002125	40186.	1891111347.	21.7277222	0.0004617	-0.0010683	1.6939786	-26.7651412 C
0.00002208	41688.	1887747941.	21.7247313	0.0004798	-0.0011102	1.7507530	-27.8166700 C
0.00002292	43187.	1884516083.	21.7232311	0.0004978	-0.0011522	1.8069114	-28.8673526 C
0.00002375	44683.	1881401140.	21.7230751	0.0005159	-0.0011941	1.8624511	-29.9171820 C
0.00002458	46177.	1878390449.	21.7241367	0.0005341	-0.0012359	1.9173693	-30.9661508 C
0.00002542	47668.	1875473000.	21.7263060	0.0005522	-0.0012778	1.9716631	-32.0142519 C
0.00002625	49157.	1872639170.	21.7294873	0.0005704	-0.0013196	2.0253298	-33.0614778 C
0.00002708	50643.	1869880508.	21.7335968	0.0005886	-0.0013614	2.0783664	-34.1078208 C
0.00002792	52126.	1867189565.	21.7385608	0.0006069	-0.0014031	2.1307701	-35.1532735 C
0.00002875	53606.	1864559743.	21.7443144	0.0006251	-0.0014449	2.1825379	-36.1978279 C
0.00002958	55084.	1861985179.	21.7508001	0.0006435	-0.0014865	2.2336668	-37.2414762 C
0.00003042	56559.	1859460640.	21.7579667	0.0006618	-0.0015282	2.2841538	-38.2842103 C
0.00003125	58031.	1856981445.	21.7657689	0.0006802	-0.0015698	2.3339958	-39.3260222 C
0.00003208	59500.	1854543386.	21.7741660	0.0006986	-0.0016114	2.3831897	-40.3669034 C
0.00003292	60966.	1852142672.	21.7831216	0.0007170	-0.0016530	2.4317324	-41.4068455 C
0.00003375	62430.	1849775879.	21.7926032	0.0007355	-0.0016945	2.4796207	-42.4458401 C
0.00003458	63891.	1847439899.	21.8025813	0.0007540	-0.0017360	2.5268513	-43.4838784 C
0.00003542	65348.	1845131910.	21.8130296	0.0007725	-0.0017775	2.5734210	-44.5209515 C
0.00003625	66803.	1842849339.	21.8239242	0.0007911	-0.0018189	2.6193264	-45.5570505 C
0.00003708	68255.	1840589834.	21.8352434	0.0008097	-0.0018603	2.6645642	-46.5921662 C
0.00003792	69704.	1838351318.	21.8469678	0.0008284	-0.0019016	2.7091310	-47.6262882 C
0.00003875	71150.	1836131661.	21.8590797	0.0008470	-0.0019430	2.7530233	-48.6594091 C
0.00003958	72593.	1833929112.	21.8715629	0.0008657	-0.0019843	2.7962375	-49.6915183 C
0.00004042	74033.	1831741990.	21.8844028	0.0008845	-0.0020255	2.8387702	-50.7226061 C
0.00004125	75470.	1829568737.	21.8975862	0.0009033	-0.0020667	2.8806177	-51.7526624 C
0.00004208	76903.	1827407912.	21.9111009	0.0009221	-0.0021079	2.9217764	-52.7816772 C
0.00004292	78334.	1825258172.	21.9249359	0.0009409	-0.0021491	2.9622424	-53.8096401 C
0.00004375	79761.	1823118270.	21.9390812	0.0009598	-0.0021902	3.0020122	-54.8365406 C
0.00004458	81186.	1820987040.	21.9535276	0.0009788	-0.0022312	3.0410818	-55.8623682 C
0.00004542	82607.	1818864692.	21.9679816	0.0009977	-0.0022723	3.0794209	-56.8874874 C
0.00004625	84025.	1816750168.	21.9824853	0.0010167	-0.0023133	3.1170305	-57.9118415 C
0.00004708	85439.	1814641556.	21.9972543	0.0010357	-0.0023543	3.1539273	-58.9351322 C
0.00004792	86851.	1812537965.	22.0122826	0.0010548	-0.0023952	3.1901073	-59.9573488 C
0.00004875	88191.	1809040099.	22.0217394	0.0010736	-0.0024364	3.2250364	-60.0000000 CY
0.00004958	89371.	1802432518.	22.0181480	0.0010917	-0.0024783	3.2580433	-60.0000000 CY
0.00005292	93226.	1761752611.	21.9400962	0.0011610	-0.0026490	3.3771606	-60.0000000 CY
0.00005625	96303.	1712044956.	21.8130730	0.0012270	-0.0028230	3.4808699	-60.0000000 CY
0.00005958	98859.	1659174421.	21.6637683	0.0012908	-0.0029992	3.5721304	-60.0000000 CY
0.00006292	101031.	1605784060.	21.5038748	0.0013530	-0.0031770	3.6525017	-60.0000000 CY
0.00006625	102933.	1553699162.	21.3429269	0.0014140	-0.0033560	3.7232540	-60.0000000 CY
0.00006958	104586.	1503039432.	21.1788957	0.0014737	-0.0035363	3.7846962	-60.0000000 CY
0.00007292	106062.	1454567631.	21.0149501	0.0015323	-0.0037177	3.8375079	-60.0000000 CY
0.00007625	107357.	1407956522.	20.8534055	0.0015901	-0.0038999	3.8822395	-60.0000000 CY
0.00007958	108547.	1363936921.	20.7004679	0.0016474	-0.0040826	3.9195497	-60.0000000 CY
0.00008292	109602.	1321830507.	20.5514705	0.0017041	-0.0042659	3.9494437	-60.0000000 CY
0.00008625	110560.	1281860362.	20.4040880	0.0017599	-0.0044501	3.9721235	-60.0000000 CY
0.00008958	111446.	1244044244.	20.2632197	0.0018152	-0.0046348	3.9880096	-60.0000000 CY
0.00009292	112239.	1207954772.	20.1271044	0.0018701	-0.0048199	3.9972368	-60.0000000 CY
0.00009625	112957.	1173575639.	19.9965553	0.0019247	-0.0050053	3.9988250	-60.0000000 CY
0.00009958	113645.	1141200632.	19.8763204	0.0019794	-0.0051906	3.9997646	-60.0000000 CY
0.0001029	114269.	1110307597.	19.7594401	0.0020336	-0.0053764	3.9983813	-60.0000000 CY
0.0001063	114832.	1080769349.	19.6430801	0.0020871	-0.0055629	3.9970038	-60.0000000 CY
0.0001096	115342.	1052552904.	19.5317034	0.0021403	-0.0057497	3.9994523	-60.0000000 CY
0.0001129	115813.	1025646820.	19.4257228	0.0021935	-0.0059365	3.9961351	-60.0000000 CY
0.0001163	116274.	1000209662.	19.3282714	0.0022469	-0.0061231	3.9997119	-60.0000000 CY
0.0001196	116697.	975865368.	19.2348083	0.0023002	-0.0063098	3.9959988	-60.0000000 CY
0.0001229	117088.	952583317.	19.1451959	0.0023533	-0.0064967	3.9995612	-60.0000000 CY
0.0001263	117450.	930293476.	19.0581534	0.0024061	-0.0066839	3.9943282	-60.0000000 CY
0.0001296	117780.	908914989.	18.9704871	0.0024583	-0.0068717	3.9986648	-60.0000000 CY
0.0001329	118080.	888378542.	18.8848437	0.0025101	-0.0070599	3.9994389	-60.0000000 CY
0.0001363	118373.	868792182.	18.8052951	0.0025622	-0.0072478	3.9959798	-60.0000000 CY

0.0001396	118662.	850118213.	18.7307239	0.0026145	-0.0074355	3.9992676	-60.0000000 CY
0.0001429	118929.	832156060.	18.6581582	0.0026666	-0.0076234	3.9973222	-60.0000000 CY
0.0001462	119185.	814942877.	18.5896916	0.0027187	-0.0078113	3.9955975	-60.0000000 CY
0.0001496	119418.	798334372.	18.5218735	0.0027706	-0.0079994	3.9989086	-60.0000000 CY
0.0001529	119644.	782414121.	18.4574513	0.0028225	-0.0081875	3.9998962	-60.0000000 CY
0.0001562	119848.	767027984.	18.3945244	0.0028741	-0.0083759	3.9926465	-60.0000000 CY
0.0001596	120047.	752251445.	18.3326615	0.0029256	-0.0085644	3.9969327	-60.0000000 CY
0.0001629	120223.	737942040.	18.2683035	0.0029762	-0.0087538	3.9993301	-60.0000000 CY
0.0001662	120398.	724195746.	18.2072888	0.0030270	-0.0089430	3.9988898	-60.0000000 CYT
0.0001696	120569.	710971304.	18.1498540	0.0030779	-0.0091321	3.9908110	-60.0000000 CYT
0.0001729	120739.	698250064.	18.0951780	0.0031290	-0.0093210	3.9953138	-60.0000000 CYT
0.0001762	120902.	685970605.	18.0420805	0.0031799	-0.0095101	3.9983072	-60.0000000 CYT
0.0001796	121054.	674082806.	17.9896563	0.0032306	-0.0096994	3.9998018	-60.0000000 CYT
0.0001829	121204.	662617821.	17.9399244	0.0032815	-0.0098885	3.9961153	-60.0000000 CYT
0.0002029	121904.	600760953.	17.6797450	0.0035875	-0.0110225	3.9933865	60.0000000 CYT
0.0002229	121959.	547105309.	17.5515312	0.0039125	-0.0121375	3.9937270	60.0000000 CYT

Axial Thrust Force = 117.575 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	2657.	6375702721.	50.7449107	0.00002114	-0.00000886	0.0885425	0.5305177	
8.33333E-07	5303.	6363811821.	43.3935253	0.00003616	-0.00002384	0.1506480	0.8833769	
0.00000125	7938.	6350073664.	40.9435512	0.00005118	-0.00003882	0.2122591	1.2362537	
0.00000167	10560.	6335840891.	39.7187067	0.00006620	-0.00005380	0.2733742	1.5891375	
0.00000208	13170.	6321406957.	38.9838779	0.00008122	-0.00006878	0.3339928	1.9420260	
0.00000250	15767.	6306871764.	38.4940472	0.00009624	-0.00008376	0.3941149	2.2949184	
0.00000292	18352.	6292278514.	38.1442121	0.0001113	-0.00009875	0.4537404	2.6478146	
0.00000333	20925.	6277648897.	37.8818728	0.0001263	-0.0001137	0.5128693	3.0007144	
0.00000375	20925.	5580132353.	25.4278433	0.00009535	-0.0001746	0.3887544	-4.3208720	C
0.00000417	20925.	5022119117.	25.0166670	0.0001042	-0.0001958	0.4238557	-4.8506527	C
0.00000458	20925.	4565562834.	24.6769799	0.0001131	-0.0002169	0.4587259	-5.3808681	C
0.00000500	20925.	4185099265.	24.3908727	0.0001220	-0.0002380	0.4933649	-5.9115234	C
0.00000542	20925.	3863168552.	24.1498525	0.0001308	-0.0002592	0.5278566	-6.4420107	C
0.00000583	20925.	3587227941.	23.9390654	0.0001396	-0.0002804	0.5620816	-6.9732081	C
0.00000625	20925.	3348079412.	23.7565646	0.0001485	-0.0003015	0.5961414	-7.5043726	C
0.00000667	20925.	3138824448.	23.5977657	0.0001573	-0.0003227	0.6300548	-8.0353653	C
0.00000708	20925.	2954187716.	23.4584887	0.0001662	-0.0003438	0.6638214	-8.5661854	C
0.00000750	20925.	2790066176.	23.3335227	0.0001750	-0.0003650	0.6973844	-9.0972588	C
0.00000792	20925.	2643220588.	23.2208932	0.0001838	-0.0003862	0.7307528	-9.6285199	C
0.00000833	20925.	2511059559.	23.1202604	0.0001927	-0.0004073	0.7639752	-10.1596037	C
0.00000875	20925.	2391485294.	23.0299130	0.0002015	-0.0004285	0.7970512	-10.6905095	C
0.00000917	20925.	2282781417.	22.9484508	0.0002104	-0.0004496	0.8299805	-11.2212368	C
0.00000958	20925.	2183530051.	22.8747171	0.0002192	-0.0004708	0.8627629	-11.7517848	C
0.00001000	20925.	2092549632.	22.8077481	0.0002281	-0.0004919	0.8953980	-12.2821530	C
0.00001042	21131.	2028569893.	22.7467342	0.0002369	-0.0005131	0.9278857	-12.8123407	C
0.00001083	21898.	2021316497.	22.6909902	0.0002458	-0.0005342	0.9602256	-13.3423472	C
0.00001125	22664.	2014535705.	22.6386900	0.0002547	-0.0005553	0.9923660	-13.8725773	C
0.00001167	23429.	2008185119.	22.5903614	0.0002636	-0.0005764	1.0243456	-14.4027277	C
0.00001208	24194.	2002222870.	22.5459005	0.0002724	-0.0005976	1.0561779	-14.9326907	C
0.00001250	24958.	1996609969.	22.5049225	0.0002813	-0.0006187	1.0878624	-15.4624656	C
0.00001292	25721.	1991312457.	22.4670922	0.0002902	-0.0006398	1.1193989	-15.9920517	C
0.00001333	26484.	1986300618.	22.4321165	0.0002991	-0.0006609	1.1507871	-16.5214482	C
0.00001375	27246.	1981548339.	22.3997376	0.0003080	-0.0006820	1.1820267	-17.0506546	C
0.00001417	28008.	1977032575.	22.3697280	0.0003169	-0.0007031	1.2131175	-17.5796700	C
0.00001458	28769.	1972732917.	22.3418866	0.0003258	-0.0007242	1.2440590	-18.1084938	C
0.00001500	29529.	1968631221.	22.3160341	0.0003347	-0.0007453	1.2748510	-18.6371251	C
0.00001542	30289.	1964711304.	22.2920112	0.0003437	-0.0007663	1.3054932	-19.1655633	C
0.00001583	31049.	1960958687.	22.2696748	0.0003526	-0.0007874	1.3359854	-19.6938076	C
0.00001625	31807.	1957360373.	22.2488969	0.0003615	-0.0008085	1.3663271	-20.2218573	C
0.00001708	33322.	1950581008.	22.2115666	0.0003794	-0.0008506	1.4265580	-21.2773697	C
0.00001792	34835.	1944292521.	22.1792247	0.0003974	-0.0008926	1.4861835	-22.3320944	C
0.00001875	36346.	1938428558.	22.1512176	0.0004153	-0.0009347	1.5452011	-23.3860254	C
0.00001958	37853.	1932934048.	22.1270029	0.0004333	-0.0009767	1.6036082	-24.4391562	C
0.00002042	39358.	1927762899.	22.1061270	0.0004513	-0.0010187	1.6614023	-25.4914806	C
0.00002125	40861.	1922876238.	22.0882076	0.0004694	-0.0010606	1.7185807	-26.5429920	C
0.00002208	42361.	1918240963.	22.0729202	0.0004874	-0.0011026	1.7751408	-27.5936846	C
0.00002292	43859.	1913829048.	22.0599876	0.0005055	-0.0011445	1.8310799	-28.6435503	C
0.00002375	45353.	1909616104.	22.0491718	0.0005237	-0.0011863	1.8863954	-29.6925832	C
0.00002458	46846.	1905581141.	22.0402672	0.0005418	-0.0012282	1.9410845	-30.7407764	C
0.00002542	48335.	1901705910.	22.0330951	0.0005600	-0.0012700	1.9951444	-31.7881230	C
0.00002625	49822.	1897974470.	22.0274998	0.0005782	-0.0013118	2.0485723	-32.8346158	C
0.00002708	51306.	1894372833.	22.0233449	0.0005965	-0.0013535	2.1013654	-33.8802479	C
0.00002792	52787.	1890888670.	22.0205104	0.0006147	-0.0013953	2.1535208	-34.9250118	C
0.00002875	54266.	1887511071.	22.0188903	0.0006330	-0.0014370	2.2050356	-35.9689001	C
0.00002958	55742.	1884230349.	22.0183908	0.0006514	-0.0014786	2.2559069	-37.0119055	C

0.00003042	57215.	1881037865.	22.0189283	0.0006697	-0.0015203	2.3061317	-38.0540202 C
0.00003125	58685.	1877925894.	22.0204285	0.0006881	-0.0015619	2.3557069	-39.0952366 C
0.00003208	60153.	1874887505.	22.0228248	0.0007066	-0.0016034	2.4046296	-40.1355467 C
0.00003292	61617.	1871916458.	22.0260574	0.0007250	-0.0016450	2.4528966	-41.1749426 C
0.00003375	63079.	1869007120.	22.0300728	0.0007435	-0.0016865	2.5005048	-42.2134162 C
0.00003458	64538.	1866154392.	22.0348226	0.0007620	-0.0017280	2.5474510	-43.2509592 C
0.00003542	65994.	1863353645.	22.0402630	0.0007806	-0.0017694	2.5937319	-44.2875633 C
0.00003625	67447.	1860600668.	22.0463546	0.0007992	-0.0018108	2.6393444	-45.3232199 C
0.00003708	68897.	1857891617.	22.0530615	0.0008178	-0.0018522	2.6842852	-46.3579203 C
0.00003792	70344.	1855222977.	22.0603511	0.0008365	-0.0018935	2.7285508	-47.3916559 C
0.00003875	71788.	1852591528.	22.0681939	0.0008551	-0.0019349	2.7721379	-48.4244175 C
0.00003958	73229.	1849994309.	22.0765627	0.0008739	-0.0019761	2.8150430	-49.4561962 C
0.00004042	74667.	1847428596.	22.0854330	0.0008926	-0.0020174	2.8572627	-50.4869827 C
0.00004125	76102.	1844891874.	22.0947822	0.0009114	-0.0020586	2.8987934	-51.5167675 C
0.00004208	77534.	1842381820.	22.1045897	0.0009302	-0.0020998	2.9396316	-52.5455411 C
0.00004292	78962.	1839896280.	22.1148367	0.0009491	-0.0021409	2.9797735	-53.5732938 C
0.00004375	80388.	1837433332.	22.1255058	0.0009680	-0.0021820	3.0192157	-54.6000144 C
0.00004458	81810.	1834990970.	22.1365812	0.0009869	-0.0022231	3.0579541	-55.6256951 C
0.00004542	83229.	1832567533.	22.1480482	0.0010059	-0.0022641	3.0959851	-56.6503247 C
0.00004625	84645.	1830161403.	22.1598936	0.0010249	-0.0023051	3.1333047	-57.6738926 C
0.00004708	86058.	1827771068.	22.1721050	0.0010439	-0.0023461	3.1699092	-58.6963882 C
0.00004792	87467.	1825395111.	22.1846710	0.0010630	-0.0023870	3.2057945	-59.7178007 C
0.00004875	88821.	1821978093.	22.1931718	0.0010819	-0.0024281	3.2405594	-60.0000000 CY
0.00004958	90038.	1815883616.	22.1905010	0.0011003	-0.0024697	3.2735711	-60.0000000 CY
0.00005292	93963.	1775677967.	22.1106540	0.0011700	-0.0026400	3.3921736	-60.0000000 CY
0.00005625	97078.	1725828284.	21.9837714	0.0012366	-0.0028134	3.4954368	-60.0000000 CY
0.00005958	99663.	1672665369.	21.8305392	0.0013007	-0.0029893	3.5858027	-60.0000000 CY
0.00006292	101854.	1618864364.	21.6655857	0.0013631	-0.0031669	3.6651039	-60.0000000 CY
0.00006625	103774.	1566397058.	21.5001273	0.0014244	-0.0033456	3.7347502	-60.0000000 CY
0.00006958	105437.	1515263487.	21.3336822	0.0014845	-0.0035255	3.7951637	-60.0000000 CY
0.00007292	106931.	1466481547.	21.1700519	0.0015436	-0.0037064	3.8470317	-60.0000000 CY
0.00007625	108235.	1419474081.	21.0044616	0.0016016	-0.0038884	3.8904721	-60.0000000 CY
0.00007958	109434.	1375089502.	20.8479107	0.0016591	-0.0040709	3.9264527	-60.0000000 CY
0.00008292	110502.	1332683306.	20.6959697	0.0017160	-0.0042540	3.9549951	-60.0000000 CY
0.00008625	111464.	1292331996.	20.5501419	0.0017724	-0.0044376	3.9764052	-60.0000000 CY
0.00008958	112362.	1254271560.	20.4084327	0.0018283	-0.0046217	3.9908400	-60.0000000 CY
0.00009292	113159.	1217853445.	20.2692596	0.0018834	-0.0048066	3.9985130	-60.0000000 CY
0.00009625	113879.	1183161867.	20.1359642	0.0019381	-0.0049919	3.9969444	-60.0000000 CY
0.00009958	114564.	1150437008.	20.0124093	0.0019929	-0.0051771	3.9999991	-60.0000000 CY
0.0001029	115198.	1119333047.	19.8959903	0.0020476	-0.0053624	3.9993583	-60.0000000 CY
0.0001063	115772.	1089619943.	19.7835459	0.0021020	-0.0055480	3.9969579	-60.0000000 CY
0.0001096	116286.	1061160935.	19.6698746	0.0021555	-0.0057345	3.9999460	-60.0000000 CY
0.0001129	116753.	1033973296.	19.5613289	0.0022088	-0.0059212	3.9978902	-60.0000000 CY
0.0001163	117211.	1008267765.	19.4610209	0.0022623	-0.0061077	3.9999996	-60.0000000 CY
0.0001196	117637.	983721479.	19.3660429	0.0023159	-0.0062941	3.9978270	-60.0000000 CY
0.0001229	118032.	960262327.	19.2748000	0.0023692	-0.0064808	3.9999835	-60.0000000 CY
0.0001263	118398.	937808064.	19.1879487	0.0024225	-0.0066675	3.9966433	-60.0000000 CY
0.0001296	118733.	916268693.	19.1035757	0.0024755	-0.0068545	3.9996668	-60.0000000 CY
0.0001329	119039.	895587701.	19.0185924	0.0025279	-0.0070421	3.9938653	-60.0000000 CY
0.0001363	119329.	875807973.	18.9365884	0.0025801	-0.0072299	3.9980253	-60.0000000 CY
0.0001396	119616.	856949522.	18.8597018	0.0026325	-0.0074175	3.9999364	-60.0000000 CY
0.0001429	119886.	838850077.	18.7863589	0.0026849	-0.0076051	3.9935002	-60.0000000 CY
0.0001462	120141.	821480108.	18.7159000	0.0027372	-0.0077928	3.9978116	-60.0000000 CY
0.0001496	120378.	804753673.	18.6469049	0.0027893	-0.0079807	3.9998256	-60.0000000 CY
0.0001529	120604.	788690411.	18.5813531	0.0028414	-0.0081686	3.9939560	-60.0000000 CY
0.0001562	120810.	773186664.	18.5170224	0.0028933	-0.0083567	3.9957152	-60.0000000 CY
0.0001596	121011.	758293312.	18.4554732	0.0029452	-0.0085448	3.9988027	-60.0000000 CY
0.0001629	121197.	743920163.	18.3951188	0.0029969	-0.0087331	3.9999842	-60.0000000 CY
0.0001662	121372.	730055643.	18.3356055	0.0030483	-0.0089217	3.9922016	-60.0000000 CYT
0.0001696	121542.	716708162.	18.2762110	0.0030993	-0.0091107	3.9946507	-60.0000000 CYT
0.0001729	121711.	703868516.	18.2196627	0.0031505	-0.0092995	3.9979177	-60.0000000 CYT
0.0001762	121878.	691507793.	18.1658066	0.0032017	-0.0094883	3.9996752	-60.0000000 CYT
0.0001796	122030.	679514639.	18.1120787	0.0032526	-0.0096774	3.9972703	-60.0000000 CYT
0.0001829	122177.	667939517.	18.0608897	0.0033036	-0.0098664	3.9893822	-60.0000000 CYT
0.0002029	122868.	605509698.	17.7996348	0.0036118	-0.0109982	3.9886048	60.0000000 CYT
0.0002229	122898.	551319900.	17.6849669	0.0039423	-0.0121077	3.9862115	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	70.545	120304.846	0.00300000

2	117.575	121207.625	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	120305.	45.854250	78198.	1.8255E+09
2	0.65	121208.	76.423750	78785.	1.8402E+09
1	0.75	120305.	49.381500	90229.	1.7934E+09
2	0.75	121208.	82.302500	90906.	1.8070E+09
1	0.90	120305.	52.908750	108274.	1.3740E+09
2	0.90	121208.	88.181250	109087.	1.3879E+09

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	30.4600	0.00	N.A.	No	0.00	306997.
2	36.5600	6.6868	Yes	No	306997.	108022.
3	37.5600	7.6871	Yes	No	415018.	539621.
4	41.5600	10.7602	Yes	No	954639.	1096403.
5	46.5600	272.3853	No	No	2051042.	231484.
6	51.5600	26.0130	No	No	2282526.	1074562.
7	56.5600	23.1297	Yes	No	3357088.	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 Horizontal Soil Pressures

Depth in	Distributed Load lb/in
0.00	6.76
7.68	27.05
15.36	54.10
23.04	81.14
30.72	108.19
38.40	135.24
46.08	162.29
53.76	189.34
61.44	216.38
69.12	243.43
76.80	270.48
84.48	297.53

92.16	324.57
99.84	351.62
107.52	378.67
115.20	405.72
122.88	432.77
130.56	459.81
138.24	486.86
145.92	513.91
153.60	540.96
161.28	568.01
168.96	595.05
176.64	622.10
184.32	649.15
192.00	676.20
199.68	703.24
207.36	730.29
215.04	757.34
222.72	784.39
230.40	811.44
238.08	838.48
245.76	865.53
253.44	892.58
261.12	919.63
268.80	946.68
276.48	973.72
284.16	1000.77
291.84	1027.82
299.52	1054.87
307.20	1081.91
314.88	1108.96
322.56	1136.01
330.24	1163.06
337.92	1190.11
345.60	1217.15
353.28	1244.20
360.96	1271.25
368.64	201.08

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	3.2186	-0.00115	8.80E-07	-0.00676	0.00	6.38E+12	0.00	0.00	6.7620
0.6400	3.1667	3859.	129.8298	-0.00676	0.00	6.38E+12	0.00	0.00	27.0479
1.2800	3.1148	9314.	441.4212	-0.00676	0.00	6.38E+12	0.00	0.00	54.0957
1.9200	3.0630	17960.	960.7403	-0.00676	0.00	6.38E+12	0.00	0.00	81.1436
2.5600	3.0111	31391.	1688.	-0.00676	0.00	6.38E+12	0.00	0.00	108.1915
3.2000	2.9592	51204.	2623.	-0.00676	0.00	6.38E+12	0.00	0.00	135.2393
3.8400	2.9073	78993.	3765.	-0.00676	0.00	6.38E+12	0.00	0.00	162.2872
4.4800	2.8554	116355.	5115.	-0.00676	0.00	6.38E+12	0.00	0.00	189.3351
5.1200	2.8036	164884.	6673.	-0.00675	0.00	6.38E+12	0.00	0.00	216.3830
5.7600	2.7517	226176.	8439.	-0.00675	0.00	6.38E+12	0.00	0.00	243.4308
6.4000	2.6998	301825.	10412.	-0.00675	0.00	6.38E+12	0.00	0.00	270.4787
7.0400	2.6479	393428.	12593.	-0.00675	0.00	6.38E+12	0.00	0.00	297.5266
7.6800	2.5961	502580.	14982.	-0.00675	0.00	6.38E+12	0.00	0.00	324.5744
8.3200	2.5442	630875.	17579.	-0.00675	0.00	6.38E+12	0.00	0.00	351.6223
8.9600	2.4923	779909.	20383.	-0.00675	0.00	6.38E+12	0.00	0.00	378.6702
9.6000	2.4405	951278.	23395.	-0.00675	0.00	6.38E+12	0.00	0.00	405.7180
10.2400	2.3887	1146577.	26615.	-0.00675	0.00	6.38E+12	0.00	0.00	432.7659
10.8800	2.3368	1367400.	30043.	-0.00675	0.00	6.38E+12	0.00	0.00	459.8138
11.5200	2.2850	1615343.	33678.	-0.00675	0.00	6.38E+12	0.00	0.00	486.8616
12.1600	2.2332	1892001.	37521.	-0.00674	0.00	6.38E+12	0.00	0.00	513.9095
12.8000	2.1814	2198970.	41571.	-0.00674	0.00	6.38E+12	0.00	0.00	540.9574
13.4400	2.1296	2537845.	45830.	-0.00674	0.00	6.38E+12	0.00	0.00	568.0052
14.0800	2.0779	2910220.	50296.	-0.00674	0.00	6.38E+12	0.00	0.00	595.0531

14.7200	2.0262	3317691.	54970.	-0.00673	0.00	6.37E+12	0.00	0.00	622.1010
15.3600	1.9745	3761852.	59852.	-0.00673	0.00	6.37E+12	0.00	0.00	649.1489
16.0000	1.9229	4244300.	64941.	-0.00672	0.00	6.37E+12	0.00	0.00	676.1967
16.6400	1.8712	4766628.	70238.	-0.00672	0.00	6.37E+12	0.00	0.00	703.2446
17.2800	1.8197	5330433.	75743.	-0.00671	0.00	6.37E+12	0.00	0.00	730.2925
17.9200	1.7682	5937308.	81455.	-0.00670	0.00	6.36E+12	0.00	0.00	757.3403
18.5600	1.7167	6588849.	87375.	-0.00670	0.00	6.36E+12	0.00	0.00	784.3882
19.2000	1.6653	7286651.	93503.	-0.00669	0.00	6.35E+12	0.00	0.00	811.4361
19.8400	1.6140	8032309.	99839.	-0.00668	0.00	6.35E+12	0.00	0.00	838.4839
20.4800	1.5627	8827417.	106383.	-0.00667	0.00	6.35E+12	0.00	0.00	865.5318
21.1200	1.5115	9673571.	113134.	-0.00666	0.00	6.34E+12	0.00	0.00	892.5797
21.7600	1.4604	1.06E+07	120093.	-0.00665	0.00	6.34E+12	0.00	0.00	919.6275
22.4000	1.4095	1.15E+07	127259.	-0.00663	0.00	6.33E+12	0.00	0.00	946.6754
23.0400	1.3586	1.25E+07	134633.	-0.00662	0.00	6.33E+12	0.00	0.00	973.7233
23.6800	1.3078	1.36E+07	142216.	-0.00660	0.00	6.32E+12	0.00	0.00	1001.
24.3200	1.2572	1.47E+07	150005.	-0.00658	0.00	6.31E+12	0.00	0.00	1028.
24.9600	1.2067	1.59E+07	158003.	-0.00657	0.00	6.31E+12	0.00	0.00	1055.
25.6000	1.1563	1.72E+07	166208.	-0.00655	0.00	6.30E+12	0.00	0.00	1082.
26.2400	1.1061	1.85E+07	174621.	-0.00650	0.00	2.00E+12	0.00	0.00	1109.
26.8800	1.0565	1.98E+07	183242.	-0.00643	0.00	1.97E+12	0.00	0.00	1136.
27.5200	1.0074	2.13E+07	192070.	-0.00634	0.00	1.96E+12	0.00	0.00	1163.
28.1600	0.9590	2.28E+07	201106.	-0.00626	0.00	1.95E+12	0.00	0.00	1190.
28.8000	0.9113	2.44E+07	210350.	-0.00616	0.00	1.94E+12	0.00	0.00	1217.
29.4400	0.8643	2.60E+07	219802.	-0.00606	0.00	1.93E+12	0.00	0.00	1244.
30.0800	0.8182	2.78E+07	229461.	-0.00596	0.00	1.93E+12	0.00	0.00	1271.
30.7200	0.7728	2.96E+07	234686.	-0.00584	0.00	1.92E+12	-111.6637	1110.	201.0761
31.3600	0.7284	3.14E+07	233453.	-0.00572	0.00	1.91E+12	-410.4752	4328.	0.00
32.0000	0.6849	3.32E+07	229051.	-0.00559	0.00	1.91E+12	-736.0040	8252.	0.00
32.6400	0.6425	3.49E+07	222080.	-0.00545	0.00	1.90E+12	-1079.	12899.	0.00
33.2800	0.6012	3.66E+07	212441.	-0.00531	0.00	1.90E+12	-1431.	18282.	0.00
33.9200	0.5610	3.82E+07	200071.	-0.00516	0.00	1.90E+12	-1790.	24511.	0.00
34.5600	0.5219	3.97E+07	184943.	-0.00500	0.00	1.89E+12	-2149.	31627.	0.00
35.2000	0.4841	4.10E+07	167093.	-0.00484	0.00	1.89E+12	-2499.	39643.	0.00
35.8400	0.4476	4.22E+07	146619.	-0.00467	0.00	1.89E+12	-2833.	48602.	0.00
36.4800	0.4124	4.33E+07	123666.	-0.00449	0.00	1.88E+12	-3144.	58553.	0.00
37.1200	0.3786	4.41E+07	101180.	-0.00432	0.00	1.88E+12	-2711.	54995.	0.00
37.7600	0.3462	4.48E+07	80336.	-0.00413	0.00	1.88E+12	-2717.	60280.	0.00
38.4000	0.3151	4.54E+07	59573.	-0.00395	0.00	1.88E+12	-2690.	65565.	0.00
39.0400	0.2855	4.58E+07	39130.	-0.00376	0.00	1.88E+12	-2634.	70850.	0.00
39.6800	0.2573	4.60E+07	19221.	-0.00358	0.00	1.88E+12	-2551.	76134.	0.00
40.3200	0.2306	4.61E+07	40.0488	-0.00339	0.00	1.88E+12	-2444.	81419.	0.00
40.9600	0.2053	4.60E+07	-18245.	-0.00320	0.00	1.88E+12	-2317.	86704.	0.00
41.6000	0.1814	4.58E+07	-39958.	-0.00301	0.00	1.88E+12	-3337.	141269.	0.00
42.2400	0.1590	4.54E+07	-64649.	-0.00283	0.00	1.88E+12	-3093.	149385.	0.00
42.8800	0.1380	4.48E+07	-87393.	-0.00264	0.00	1.88E+12	-2830.	157501.	0.00
43.5200	0.1184	4.40E+07	-108068.	-0.00246	0.00	1.88E+12	-2554.	165617.	0.00
44.1600	0.1002	4.31E+07	-126580.	-0.00228	0.00	1.88E+12	-2267.	173733.	0.00
44.8000	0.08336	4.21E+07	-142865.	-0.00211	0.00	1.89E+12	-1974.	181849.	0.00
45.4400	0.06782	4.09E+07	-156886.	-0.00194	0.00	1.89E+12	-1677.	189965.	0.00
46.0800	0.05356	3.97E+07	-168632.	-0.00178	0.00	1.89E+12	-1381.	198081.	0.00
46.7200	0.04053	3.84E+07	-196266.	-0.00162	0.00	1.90E+12	-5815.	1101943.	0.00
47.3600	0.02870	3.67E+07	-237386.	-0.00147	0.00	1.90E+12	-4893.	1309577.	0.00
48.0000	0.01800	3.47E+07	-271058.	-0.00132	0.00	1.90E+12	-3876.	1653418.	0.00
48.6400	0.00838	3.25E+07	-296096.	-0.00119	0.00	1.91E+12	-2645.	2423004.	0.00
49.2800	-2.33E-04	3.02E+07	-305906.	-0.00106	0.00	1.92E+12	89.8782	2958280.	0.00
49.9200	-0.00792	2.78E+07	-295688.	-9.46E-04	0.00	1.93E+12	2571.	2492460.	0.00
50.5600	-0.01476	2.56E+07	-272341.	-8.39E-04	0.00	1.94E+12	3509.	1826062.	0.00
51.2000	-0.02081	2.36E+07	-242863.	-7.42E-04	0.00	1.94E+12	4167.	1537636.	0.00
51.8400	-0.02615	2.19E+07	-225870.	-6.52E-04	0.00	1.95E+12	257.6681	75663.	0.00
52.4800	-0.03083	2.02E+07	-223680.	-5.70E-04	0.00	1.96E+12	312.8506	77928.	0.00
53.1200	-0.03490	1.85E+07	-221079.	-4.95E-04	0.00	2.00E+12	364.4684	80192.	0.00
53.7600	-0.03843	1.68E+07	-218095.	-4.49E-04	0.00	6.30E+12	412.6344	82457.	0.00
54.4000	-0.04180	1.51E+07	-214739.	-4.30E-04	0.00	6.31E+12	461.1494	84722.	0.00
55.0400	-0.04503	1.35E+07	-211010.	-4.12E-04	0.00	6.32E+12	510.0533	86987.	0.00
55.6800	-0.04814	1.19E+07	-206903.	-3.97E-04	0.00	6.33E+12	559.4009	89252.	0.00
56.3200	-0.05113	1.03E+07	-202416.	-3.83E-04	0.00	6.34E+12	609.2613	91517.	0.00
56.9600	-0.05403	8756613.	-192877.	-3.72E-04	0.00	6.35E+12	1875.	266501.	0.00
57.6000	-0.05684	7330804.	-178555.	-3.62E-04	0.00	6.35E+12	1855.	250642.	0.00
58.2400	-0.05959	6014406.	-163948.	-3.54E-04	0.00	6.36E+12	1949.	251164.	0.00
58.8800	-0.06228	4812947.	-148622.	-3.48E-04	0.00	6.37E+12	2042.	251835.	0.00
59.5200	-0.06493	3731943.	-132579.	-3.42E-04	0.00	6.37E+12	2136.	252606.	0.00
60.1600	-0.06754	2776898.	-115820.	-3.39E-04	0.00	6.38E+12	2229.	253439.	0.00
60.8000	-0.07013	1953313.	-98344.	-3.36E-04	0.00	6.38E+12	2322.	254303.	0.00
61.4400	-0.07270	1266692.	-80152.	-3.34E-04	0.00	6.38E+12	2415.	255175.	0.00
62.0800	-0.07525	722537.	-61243.	-3.33E-04	0.00	6.38E+12	2509.	256036.	0.00
62.7200	-0.07781	326360.	-41616.	-3.32E-04	0.00	6.38E+12	2602.	256871.	0.00
63.3600	-0.08035	83674.	-21271.	-3.32E-04	0.00	6.38E+12	2696.	257671.	0.00
64.0000	-0.08290	0.00	0.00	-3.32E-04	0.00	6.38E+12	2843.	131707.	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             =     3.21860911 inches
Computed slope at pile head      =    -0.00675540 radians
Maximum bending moment           =      46056598. inch-lbs
Maximum shear force              =       -305906. lbs
Depth of maximum bending moment  =    40.32000000 feet below pile head
Depth of maximum shear force     =    49.28000000 feet below pile head
Number of iterations             =            186
Number of zero deflection points =              1
```

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	6.76
7.68	27.05
15.36	54.10
23.04	81.14
30.72	108.19
38.40	135.24
46.08	162.29
53.76	189.34
61.44	216.38
69.12	243.43
76.80	270.48
84.48	297.53
92.16	324.57
99.84	351.62
107.52	378.67
115.20	405.72
122.88	432.77
130.56	459.81
138.24	486.86
145.92	513.91
153.60	540.96
161.28	568.01
168.96	595.05
176.64	622.10
184.32	649.15
192.00	676.20
199.68	703.24
207.36	730.29
215.04	757.34
222.72	784.39
230.40	811.44
238.08	838.48
245.76	865.53
253.44	892.58
261.12	919.63
268.80	946.68
276.48	973.72
284.16	1000.77
291.84	1027.82
299.52	1054.87
307.20	1081.91
314.88	1108.96
322.56	1136.01
330.24	1163.06
337.92	1190.11
345.60	1217.15
353.28	1244.20
360.96	1271.25
368.64	201.08

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	3.2186	-0.00115	8.80E-07	-0.00676	0.00	6.38E+12	0.00	0.00	6.7620
0.6400	3.1667	3859.	129.8298	-0.00676	0.00	6.38E+12	0.00	0.00	27.0479
1.2800	3.1148	9314.	441.4212	-0.00676	0.00	6.38E+12	0.00	0.00	54.0957
1.9200	3.0630	17960.	960.7403	-0.00676	0.00	6.38E+12	0.00	0.00	81.1436
2.5600	3.0111	31391.	1688.	-0.00676	0.00	6.38E+12	0.00	0.00	108.1915
3.2000	2.9592	51204.	2623.	-0.00676	0.00	6.38E+12	0.00	0.00	135.2393
3.8400	2.9073	78993.	3765.	-0.00676	0.00	6.38E+12	0.00	0.00	162.2872
4.4800	2.8554	116355.	5115.	-0.00676	0.00	6.38E+12	0.00	0.00	189.3351
5.1200	2.8036	164884.	6673.	-0.00675	0.00	6.38E+12	0.00	0.00	216.3830
5.7600	2.7517	226176.	8439.	-0.00675	0.00	6.38E+12	0.00	0.00	243.4308
6.4000	2.6998	301825.	10412.	-0.00675	0.00	6.38E+12	0.00	0.00	270.4787
7.0400	2.6479	393428.	12593.	-0.00675	0.00	6.38E+12	0.00	0.00	297.5266
7.6800	2.5961	502580.	14982.	-0.00675	0.00	6.38E+12	0.00	0.00	324.5744
8.3200	2.5442	630875.	17579.	-0.00675	0.00	6.38E+12	0.00	0.00	351.6223
8.9600	2.4923	779909.	20383.	-0.00675	0.00	6.38E+12	0.00	0.00	378.6702
9.6000	2.4405	951278.	23395.	-0.00675	0.00	6.38E+12	0.00	0.00	405.7180
10.2400	2.3887	1146577.	26615.	-0.00675	0.00	6.38E+12	0.00	0.00	432.7659
10.8800	2.3368	1367400.	30043.	-0.00675	0.00	6.38E+12	0.00	0.00	459.8138
11.5200	2.2850	1615343.	33678.	-0.00675	0.00	6.38E+12	0.00	0.00	486.8616
12.1600	2.2332	1892001.	37521.	-0.00674	0.00	6.38E+12	0.00	0.00	513.9095
12.8000	2.1814	2198970.	41571.	-0.00674	0.00	6.38E+12	0.00	0.00	540.9574
13.4400	2.1296	2537845.	45830.	-0.00674	0.00	6.38E+12	0.00	0.00	568.0052
14.0800	2.0779	2910220.	50296.	-0.00674	0.00	6.38E+12	0.00	0.00	595.0531
14.7200	2.0262	3317691.	54970.	-0.00673	0.00	6.37E+12	0.00	0.00	622.1010
15.3600	1.9745	3761852.	59852.	-0.00673	0.00	6.37E+12	0.00	0.00	649.1489
16.0000	1.9229	4244300.	64941.	-0.00672	0.00	6.37E+12	0.00	0.00	676.1967
16.6400	1.8712	4766628.	70238.	-0.00672	0.00	6.37E+12	0.00	0.00	703.2446
17.2800	1.8197	5330433.	75743.	-0.00671	0.00	6.37E+12	0.00	0.00	730.2925
17.9200	1.7682	5937308.	81455.	-0.00670	0.00	6.36E+12	0.00	0.00	757.3403
18.5600	1.7167	6588849.	87375.	-0.00670	0.00	6.36E+12	0.00	0.00	784.3882
19.2000	1.6653	7286651.	93503.	-0.00669	0.00	6.35E+12	0.00	0.00	811.4361
19.8400	1.6140	8032309.	99839.	-0.00668	0.00	6.35E+12	0.00	0.00	838.4839
20.4800	1.5627	8827417.	106383.	-0.00667	0.00	6.35E+12	0.00	0.00	865.5318
21.1200	1.5115	9673571.	113134.	-0.00666	0.00	6.34E+12	0.00	0.00	892.5797
21.7600	1.4604	1.06E+07	120093.	-0.00665	0.00	6.34E+12	0.00	0.00	919.6275
22.4000	1.4095	1.15E+07	127259.	-0.00663	0.00	6.33E+12	0.00	0.00	946.6754
23.0400	1.3586	1.25E+07	134633.	-0.00662	0.00	6.33E+12	0.00	0.00	973.7233
23.6800	1.3078	1.36E+07	142216.	-0.00660	0.00	6.32E+12	0.00	0.00	1001.
24.3200	1.2572	1.47E+07	150005.	-0.00658	0.00	6.31E+12	0.00	0.00	1028.
24.9600	1.2067	1.59E+07	158003.	-0.00657	0.00	6.31E+12	0.00	0.00	1055.
25.6000	1.1563	1.72E+07	166208.	-0.00655	0.00	6.30E+12	0.00	0.00	1082.
26.2400	1.1061	1.85E+07	174621.	-0.00650	0.00	2.00E+12	0.00	0.00	1109.
26.8800	1.0565	1.98E+07	183242.	-0.00643	0.00	1.97E+12	0.00	0.00	1136.
27.5200	1.0074	2.13E+07	192070.	-0.00634	0.00	1.96E+12	0.00	0.00	1163.
28.1600	0.9590	2.28E+07	201106.	-0.00626	0.00	1.95E+12	0.00	0.00	1190.
28.8000	0.9113	2.44E+07	210350.	-0.00616	0.00	1.94E+12	0.00	0.00	1217.
29.4400	0.8643	2.60E+07	219802.	-0.00606	0.00	1.93E+12	0.00	0.00	1244.
30.0800	0.8182	2.78E+07	229461.	-0.00596	0.00	1.93E+12	0.00	0.00	1271.
30.7200	0.7728	2.96E+07	234686.	-0.00584	0.00	1.92E+12	-111.6637	1110.	201.0761
31.3600	0.7284	3.14E+07	233453.	-0.00572	0.00	1.91E+12	-410.4752	4328.	0.00
32.0000	0.6849	3.32E+07	229051.	-0.00559	0.00	1.91E+12	-736.0040	8252.	0.00
32.6400	0.6425	3.49E+07	222080.	-0.00545	0.00	1.90E+12	-1079.	12899.	0.00
33.2800	0.6012	3.66E+07	212441.	-0.00531	0.00	1.90E+12	-1431.	18282.	0.00
33.9200	0.5610	3.82E+07	200071.	-0.00516	0.00	1.90E+12	-1790.	24511.	0.00
34.5600	0.5219	3.97E+07	184943.	-0.00500	0.00	1.89E+12	-2149.	31627.	0.00
35.2000	0.4841	4.10E+07	167093.	-0.00484	0.00	1.89E+12	-2499.	39643.	0.00
35.8400	0.4476	4.22E+07	146619.	-0.00467	0.00	1.89E+12	-2833.	48602.	0.00
36.4800	0.4124	4.33E+07	123666.	-0.00449	0.00	1.88E+12	-3144.	58553.	0.00
37.1200	0.3786	4.41E+07	101180.	-0.00432	0.00	1.88E+12	-2711.	54995.	0.00
37.7600	0.3462	4.48E+07	80336.	-0.00413	0.00	1.88E+12	-2717.	60280.	0.00

38.4000	0.3151	4.54E+07	59573.	-0.00395	0.00	1.88E+12	-2690.	65565.	0.00
39.0400	0.2855	4.58E+07	39130.	-0.00376	0.00	1.88E+12	-2634.	70850.	0.00
39.6800	0.2573	4.60E+07	19221.	-0.00358	0.00	1.88E+12	-2551.	76134.	0.00
40.3200	0.2306	4.61E+07	40.0488	-0.00339	0.00	1.88E+12	-2444.	81419.	0.00
40.9600	0.2053	4.60E+07	-18245.	-0.00320	0.00	1.88E+12	-2317.	86704.	0.00
41.6000	0.1814	4.58E+07	-39958.	-0.00301	0.00	1.88E+12	-3337.	141269.	0.00
42.2400	0.1590	4.54E+07	-64649.	-0.00283	0.00	1.88E+12	-3093.	149385.	0.00
42.8800	0.1380	4.48E+07	-87393.	-0.00264	0.00	1.88E+12	-2830.	157501.	0.00
43.5200	0.1184	4.40E+07	-108068.	-0.00246	0.00	1.88E+12	-2554.	165617.	0.00
44.1600	0.1002	4.31E+07	-126580.	-0.00228	0.00	1.88E+12	-2267.	173733.	0.00
44.8000	0.08336	4.21E+07	-142865.	-0.00211	0.00	1.89E+12	-1974.	181849.	0.00
45.4400	0.06782	4.09E+07	-156886.	-0.00194	0.00	1.89E+12	-1677.	189965.	0.00
46.0800	0.05356	3.97E+07	-168632.	-0.00178	0.00	1.89E+12	-1381.	198081.	0.00
46.7200	0.04053	3.84E+07	-196266.	-0.00162	0.00	1.90E+12	-5815.	1101943.	0.00
47.3600	0.02870	3.67E+07	-237386.	-0.00147	0.00	1.90E+12	-4893.	1309577.	0.00
48.0000	0.01800	3.47E+07	-271058.	-0.00132	0.00	1.90E+12	-3876.	1653418.	0.00
48.6400	0.00838	3.25E+07	-296096.	-0.00119	0.00	1.91E+12	-2645.	2423004.	0.00
49.2800	-2.33E-04	3.02E+07	-305906.	-0.00106	0.00	1.92E+12	89.8782	2958280.	0.00
49.9200	-0.00792	2.78E+07	-295688.	-9.46E-04	0.00	1.93E+12	2571.	2492460.	0.00
50.5600	-0.01476	2.56E+07	-272341.	-8.39E-04	0.00	1.94E+12	3509.	1826062.	0.00
51.2000	-0.02081	2.36E+07	-242863.	-7.42E-04	0.00	1.94E+12	4167.	1537636.	0.00
51.8400	-0.02615	2.19E+07	-225870.	-6.52E-04	0.00	1.95E+12	257.6681	75663.	0.00
52.4800	-0.03083	2.02E+07	-223680.	-5.70E-04	0.00	1.96E+12	312.8506	77928.	0.00
53.1200	-0.03490	1.85E+07	-221079.	-4.95E-04	0.00	2.00E+12	364.4684	80192.	0.00
53.7600	-0.03843	1.68E+07	-218095.	-4.49E-04	0.00	6.30E+12	412.6344	82457.	0.00
54.4000	-0.04180	1.51E+07	-214739.	-4.30E-04	0.00	6.31E+12	461.1494	84722.	0.00
55.0400	-0.04503	1.35E+07	-211010.	-4.12E-04	0.00	6.32E+12	510.0533	86987.	0.00
55.6800	-0.04814	1.19E+07	-206903.	-3.97E-04	0.00	6.33E+12	559.4009	89252.	0.00
56.3200	-0.05113	1.03E+07	-202416.	-3.83E-04	0.00	6.34E+12	609.2613	91517.	0.00
56.9600	-0.05403	8756613.	-192877.	-3.72E-04	0.00	6.35E+12	1875.	266501.	0.00
57.6000	-0.05684	7330804.	-178555.	-3.62E-04	0.00	6.35E+12	1855.	250642.	0.00
58.2400	-0.05959	6014406.	-163948.	-3.54E-04	0.00	6.36E+12	1949.	251164.	0.00
58.8800	-0.06228	4812947.	-148622.	-3.48E-04	0.00	6.37E+12	2042.	251835.	0.00
59.5200	-0.06493	3731943.	-132579.	-3.42E-04	0.00	6.37E+12	2136.	252606.	0.00
60.1600	-0.06754	2776898.	-115820.	-3.39E-04	0.00	6.38E+12	2229.	253439.	0.00
60.8000	-0.07013	1953313.	-98344.	-3.36E-04	0.00	6.38E+12	2322.	254303.	0.00
61.4400	-0.07270	1266692.	-80152.	-3.34E-04	0.00	6.38E+12	2415.	255175.	0.00
62.0800	-0.07525	722537.	-61243.	-3.33E-04	0.00	6.38E+12	2509.	256036.	0.00
62.7200	-0.07781	326360.	-41616.	-3.32E-04	0.00	6.38E+12	2602.	256871.	0.00
63.3600	-0.08035	83674.	-21271.	-3.32E-04	0.00	6.38E+12	2696.	257671.	0.00
64.0000	-0.08290	0.00	0.00	-3.32E-04	0.00	6.38E+12	2843.	131707.	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             =     3.21860911 inches
Computed slope at pile head      =    -0.00675540 radians
Maximum bending moment           =      46056598. inch-lbs
Maximum shear force              =       -305906. lbs
Depth of maximum bending moment  =    40.32000000 feet below pile head
Depth of maximum shear force     =    49.28000000 feet below pile head
Number of iterations             =            186
Number of zero deflection points =              1
```

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	6.76
7.68	27.05
15.36	54.10
23.04	81.14
30.72	108.19
38.40	135.24
46.08	162.29

53.76	189.34
61.44	216.38
69.12	243.43
76.80	270.48
84.48	297.53
92.16	324.57
99.84	351.62
107.52	378.67
115.20	405.72
122.88	432.77
130.56	459.81
138.24	486.86
145.92	513.91
153.60	540.96
161.28	568.01
168.96	595.05
176.64	622.10
184.32	649.15
192.00	676.20
199.68	703.24
207.36	730.29
215.04	757.34
222.72	784.39
230.40	811.44
238.08	838.48
245.76	865.53
253.44	892.58
261.12	919.63
268.80	946.68
276.48	973.72
284.16	1000.77
291.84	1027.82
299.52	1054.87
307.20	1081.91
314.88	1108.96
322.56	1136.01
330.24	1163.06
337.92	1190.11
345.60	1217.15
353.28	1244.20
360.96	1271.25
368.64	201.08

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	5.5130	0.00202	-4.59E-06	-0.01147	0.00	6.38E+12	0.00	0.00	10.1430
0.6400	5.4250	9618.	194.7446	-0.01147	0.00	6.38E+12	0.00	0.00	40.5718
1.2800	5.3369	21628.	662.1318	-0.01147	0.00	6.38E+12	0.00	0.00	81.1436
1.9200	5.2488	38425.	1441.	-0.01147	0.00	6.38E+12	0.00	0.00	121.7154
2.5600	5.1608	62401.	2532.	-0.01147	0.00	6.38E+12	0.00	0.00	162.2872
3.2000	5.0727	95949.	3934.	-0.01147	0.00	6.38E+12	0.00	0.00	202.8590
3.8400	4.9847	141461.	5648.	-0.01147	0.00	6.38E+12	0.00	0.00	243.4308
4.4800	4.8966	201332.	7673.	-0.01147	0.00	6.38E+12	0.00	0.00	284.0026
5.1200	4.8085	277954.	10010.	-0.01147	0.00	6.38E+12	0.00	0.00	324.5744
5.7600	4.7205	373720.	12658.	-0.01147	0.00	6.38E+12	0.00	0.00	365.1462
6.4000	4.6324	491022.	15619.	-0.01146	0.00	6.38E+12	0.00	0.00	405.7180
7.0400	4.5444	632254.	18890.	-0.01146	0.00	6.38E+12	0.00	0.00	446.2898
7.6800	4.4564	799809.	22474.	-0.01146	0.00	6.38E+12	0.00	0.00	486.8616
8.3200	4.3683	996079.	26368.	-0.01146	0.00	6.38E+12	0.00	0.00	527.4334
8.9600	4.2803	1223458.	30575.	-0.01146	0.00	6.38E+12	0.00	0.00	568.0052
9.6000	4.1923	1484338.	35093.	-0.01146	0.00	6.38E+12	0.00	0.00	608.5770
10.2400	4.1043	1781112.	39923.	-0.01146	0.00	6.38E+12	0.00	0.00	649.1489
10.8800	4.0163	2116172.	45064.	-0.01145	0.00	6.38E+12	0.00	0.00	689.7207

11.5200	3.9283	2491911.	50517.	-0.01145	0.00	6.38E+12	0.00	0.00	730.2925
12.1600	3.8404	2910723.	56281.	-0.01145	0.00	6.37E+12	0.00	0.00	770.8643
12.8000	3.7525	3374999.	62357.	-0.01144	0.00	6.37E+12	0.00	0.00	811.4361
13.4400	3.6646	3887132.	68745.	-0.01144	0.00	6.37E+12	0.00	0.00	852.0079
14.0800	3.5768	4449515.	75444.	-0.01144	0.00	6.37E+12	0.00	0.00	892.5797
14.7200	3.4889	5064540.	82455.	-0.01143	0.00	6.36E+12	0.00	0.00	933.1515
15.3600	3.4012	5734600.	89777.	-0.01142	0.00	6.36E+12	0.00	0.00	973.7233
16.0000	3.3135	6462086.	97411.	-0.01142	0.00	6.36E+12	0.00	0.00	1014.
16.6400	3.2258	7249392.	105357.	-0.01141	0.00	6.35E+12	0.00	0.00	1055.
17.2800	3.1383	8098909.	113614.	-0.01140	0.00	6.35E+12	0.00	0.00	1095.
17.9200	3.0508	9013030.	122183.	-0.01139	0.00	6.34E+12	0.00	0.00	1136.
18.5600	2.9633	9994147.	131063.	-0.01138	0.00	6.34E+12	0.00	0.00	1177.
19.2000	2.8760	1.10E+07	140255.	-0.01136	0.00	6.33E+12	0.00	0.00	1217.
19.8400	2.7888	1.22E+07	149759.	-0.01135	0.00	6.33E+12	0.00	0.00	1258.
20.4800	2.7017	1.34E+07	159574.	-0.01133	0.00	6.32E+12	0.00	0.00	1298.
21.1200	2.6147	1.46E+07	169700.	-0.01132	0.00	6.31E+12	0.00	0.00	1339.
21.7600	2.5279	1.60E+07	180139.	-0.01130	0.00	6.31E+12	0.00	0.00	1379.
22.4000	2.4412	1.74E+07	190889.	-0.01128	0.00	6.30E+12	0.00	0.00	1420.
23.0400	2.3546	1.89E+07	201950.	-0.01126	0.00	6.22E+12	0.00	0.00	1461.
23.6800	2.2683	2.05E+07	213323.	-0.01121	0.00	2.09E+12	0.00	0.00	1501.
24.3200	2.1825	2.22E+07	225008.	-0.01113	0.00	2.00E+12	0.00	0.00	1542.
24.9600	2.0974	2.40E+07	237004.	-0.01104	0.00	1.99E+12	0.00	0.00	1582.
25.6000	2.0130	2.59E+07	249312.	-0.01094	0.00	1.98E+12	0.00	0.00	1623.
26.2400	1.9293	2.79E+07	261932.	-0.01084	0.00	1.96E+12	0.00	0.00	1663.
26.8800	1.8465	2.99E+07	274863.	-0.01072	0.00	1.95E+12	0.00	0.00	1704.
27.5200	1.7646	3.21E+07	288105.	-0.01060	0.00	1.94E+12	0.00	0.00	1745.
28.1600	1.6837	3.44E+07	301659.	-0.01047	0.00	1.94E+12	0.00	0.00	1785.
28.8000	1.6038	3.68E+07	315525.	-0.01033	0.00	1.93E+12	0.00	0.00	1826.
29.4400	1.5251	3.92E+07	329703.	-0.01018	0.00	1.92E+12	0.00	0.00	1866.
30.0800	1.4476	4.18E+07	344192.	-0.01001	0.00	1.91E+12	0.00	0.00	1907.
30.7200	1.3713	4.45E+07	352174.	-0.00984	0.00	1.90E+12	-129.8383	727.1609	301.6141
31.3600	1.2964	4.73E+07	350996.	-0.00965	0.00	1.90E+12	-478.5043	2835.	0.00
32.0000	1.2230	4.99E+07	345852.	-0.00946	0.00	1.89E+12	-860.9340	5406.	0.00
32.6400	1.1512	5.26E+07	337678.	-0.00925	0.00	1.89E+12	-1268.	8458.	0.00
33.2800	1.0810	5.52E+07	326325.	-0.00903	0.00	1.88E+12	-1689.	11999.	0.00
33.9200	1.0125	5.76E+07	311701.	-0.00880	0.00	1.87E+12	-2119.	16076.	0.00
34.5600	0.9459	6.00E+07	293767.	-0.00856	0.00	1.87E+12	-2551.	20712.	0.00
35.2000	0.8811	6.21E+07	272552.	-0.00831	0.00	1.87E+12	-2974.	25923.	0.00
35.8400	0.8183	6.42E+07	248148.	-0.00804	0.00	1.86E+12	-3381.	31732.	0.00
36.4800	0.7575	6.60E+07	220708.	-0.00778	0.00	1.86E+12	-3765.	38169.	0.00
37.1200	0.6988	6.76E+07	192217.	-0.00750	0.00	1.86E+12	-3655.	40163.	0.00
37.7600	0.6423	6.89E+07	163405.	-0.00722	0.00	1.85E+12	-3848.	46015.	0.00
38.4000	0.5880	7.01E+07	133618.	-0.00693	0.00	1.85E+12	-3909.	51052.	0.00
39.0400	0.5359	7.10E+07	103444.	-0.00664	0.00	1.85E+12	-3949.	56599.	0.00
39.6800	0.4860	7.17E+07	72969.	-0.00634	0.00	1.85E+12	-3987.	62997.	0.00
40.3200	0.4385	7.21E+07	42313.	-0.00604	0.00	1.85E+12	-3996.	69994.	0.00
40.9600	0.3932	7.23E+07	11699.	-0.00574	0.00	1.85E+12	-3976.	77653.	0.00
41.6000	0.3503	7.23E+07	-22729.	-0.00544	0.00	1.85E+12	-4989.	109382.	0.00
42.2400	0.3097	7.20E+07	-60879.	-0.00514	0.00	1.85E+12	-4946.	122652.	0.00
42.8800	0.2714	7.14E+07	-98541.	-0.00484	0.00	1.85E+12	-4862.	137610.	0.00
43.5200	0.2353	7.05E+07	-135539.	-0.00455	0.00	1.85E+12	-4773.	155784.	0.00
44.1600	0.2015	6.93E+07	-171370.	-0.00426	0.00	1.85E+12	-4558.	173733.	0.00
44.8000	0.1699	6.79E+07	-204320.	-0.00397	0.00	1.86E+12	-4023.	181849.	0.00
45.4400	0.1404	6.62E+07	-233107.	-0.00370	0.00	1.86E+12	-3474.	189965.	0.00
46.0800	0.1131	6.43E+07	-257650.	-0.00343	0.00	1.86E+12	-2917.	198081.	0.00
46.7200	0.08780	6.22E+07	-301719.	-0.00317	0.00	1.87E+12	-8559.	748661.	0.00
47.3600	0.06447	5.97E+07	-362750.	-0.00292	0.00	1.87E+12	-7334.	873725.	0.00
48.0000	0.04301	5.67E+07	-413916.	-0.00268	0.00	1.88E+12	-5991.	1069678.	0.00
48.6400	0.02334	5.33E+07	-453864.	-0.00245	0.00	1.88E+12	-4413.	1452202.	0.00
49.2800	0.00533	4.97E+07	-478694.	-0.00224	0.00	1.89E+12	-2053.	2958280.	0.00
49.9200	-0.01112	4.60E+07	-474880.	-0.00205	0.00	1.90E+12	3047.	2103267.	0.00
50.5600	-0.02615	4.24E+07	-445242.	-0.00187	0.00	1.91E+12	4671.	1371735.	0.00
51.2000	-0.03987	3.91E+07	-405155.	-0.00171	0.00	1.92E+12	5768.	1110952.	0.00
51.8400	-0.05239	3.62E+07	-381023.	-0.00156	0.00	1.93E+12	516.1610	75663.	0.00
52.4800	-0.06380	3.33E+07	-376555.	-0.00142	0.00	1.94E+12	647.4049	77928.	0.00
53.1200	-0.07420	3.04E+07	-371094.	-0.00129	0.00	1.95E+12	774.8175	80192.	0.00
53.7600	-0.08369	2.76E+07	-364669.	-0.00118	0.00	1.97E+12	898.5030	82457.	0.00
54.4000	-0.09234	2.48E+07	-357307.	-0.00108	0.00	1.98E+12	1019.	84722.	0.00
55.0400	-0.1003	2.21E+07	-349034.	-9.88E-04	0.00	2.00E+12	1136.	86987.	0.00
55.6800	-0.1075	1.94E+07	-339876.	-9.34E-04	0.00	6.17E+12	1250.	89252.	0.00
56.3200	-0.1146	1.69E+07	-329833.	-9.12E-04	0.00	6.30E+12	1366.	91517.	0.00
56.9600	-0.1215	1.44E+07	-313421.	-8.93E-04	0.00	6.31E+12	2908.	183801.	0.00
57.6000	-0.1283	1.21E+07	-291016.	-8.77E-04	0.00	6.33E+12	2926.	175146.	0.00
58.2400	-0.1350	9908656.	-267902.	-8.63E-04	0.00	6.34E+12	3093.	175962.	0.00
58.8800	-0.1416	7943073.	-243503.	-8.52E-04	0.00	6.35E+12	3261.	176906.	0.00
59.5200	-0.1481	6169828.	-217805.	-8.44E-04	0.00	6.36E+12	3431.	177949.	0.00
60.1600	-0.1545	4598953.	-190794.	-8.37E-04	0.00	6.37E+12	3603.	179065.	0.00
60.8000	-0.1609	3240591.	-162454.	-8.33E-04	0.00	6.37E+12	3777.	180234.	0.00
61.4400	-0.1673	2105006.	-132771.	-8.29E-04	0.00	6.38E+12	3953.	181443.	0.00

62.0800	-0.1737	1202580.	-101727.	-8.27E-04	0.00	6.38E+12	4131.	182677.	0.00
62.7200	-0.1800	543825.	-69306.	-8.26E-04	0.00	6.38E+12	4312.	183927.	0.00
63.3600	-0.1864	139377.	-35493.	-8.26E-04	0.00	6.38E+12	4494.	185186.	0.00
64.0000	-0.1927	0.00	0.00	-8.26E-04	0.00	6.38E+12	4749.	94621.	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 = 5.51303059 inches
Computed slope at pile head = -0.01146647 radians
Maximum bending moment = 72336142. inch-lbs
Maximum shear force = -478694. lbs
Depth of maximum bending moment = 40.96000000 feet below pile head
Depth of maximum shear force = 49.28000000 feet below pile head
Number of iterations = 99
Number of zero deflection points = 1

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	70545.	3.21860911	46056598.	-305906.	-0.00675540
2	0.000000	0.000000	70545.	3.21860911	46056598.	-305906.	-0.00675540
3	0.000000	0.000000	105818.	5.51303059	72336142.	-478694.	-0.01146647

Maximum pile-head deflection = 5.5130305919 inches
Maximum pile-head rotation = -0.0114664685 radians = -0.656980 deg.

LRFD Performance by Load Case Combination

Load Case No.	Section No.	Resistance Factor for Moment	Factored Moment Capacity of Section in-lbs	Maximum Moment Developed in Section in-lbs	Fact. Mom. Fraction Developed in Section	Pass/Fail for LRFD Moment	Maximum Shear Developed in Section lbs	Pile-top Deflection Developed inches	Pile-top Rotation Developed Radians	Name of Load Case Combination
1	1	1.00	120304846.	46056598.	0.382832	Pass	-305906.	3.218609	-0.006755	Soil Only
2	1	1.00	120304846.	46056598.	0.382832	Pass	-305906.	3.218609	-0.006755	Service 1
3	1	0.90	109086863.	72336142.	0.663106	Pass	-478694.	5.513031	-0.011466	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.