



June 22, 2023

Arcadis

2839 Paces Ferry Road SE, Suite 900
Atlanta, Georgia 30339

Attention: Mr. Michael Diaz

Subject: **Addendum #2 to Report of Subsurface Exploration and Geotechnical Engineering Evaluation**
FCWS Elevated Storage Tank
461 Sandy Creek Road
Fayetteville, Georgia
Oasis Project No. 224927

Dear Michael:

As you are aware, Oasis Consulting Services (Oasis) previously submitted a Report of Subsurface Exploration and Geotechnical Engineering Evaluation dated October 4, 2022 (fka - Trilith Studios Above Ground Storage Tank, Oasis Project No 224927) and an Addendum to Report of Subsurface Exploration and Geotechnical Engineering Evaluation dated November 22, 2022. In those reports we provided the recommendation of deep foundations for support of the Above Ground Storage Tank. Recently, you provided Oasis newly anticipated foundation loads to be applied to the proposed deep foundations and asked that we review the foundation support options in light of the newly provided anticipated loads.

This Addendum #2 report should be used in conjunction with our previous reports referenced above and not as a separate report. The recommendations contained in our original reports remain in effect unless otherwise modified in this addendum report.

PROJECT INFORMATION

We understand the project consists of the construction of a 400,000-gallon (36' diameter) elevated storage tank in an area of the Trilith Development. Based on our review of the newly provided load calculations, we understand the elevated storage tank will have maximum outside column loads of 847.0 kips and a maximum center riser load 1068.0 kips with a horizontal reaction of 34.6 kips caused by the seismic load.

FOUNDATION OPTIONS

As noted above, we were asked to review the foundation support options in light of the anticipated loads and provide an axial pile and lateral pile analysis along with pile uplift resistance recommendations. For our analysis, we used a combination of soil conditions from borings B-2 and B-3 as a conservative approach. Boring B-2 soil consistency from the depth of 47 feet to 57 feet below existing grade was interpolated from boring B-3.

Our analysis considered a deep foundation system as the most appropriate foundation solution for the design as they will provide the necessary axial and lateral support for the anticipated loads. We considered caissons and auger cast-in-place (ACIP) piles for this project. After review, caissons did not appear feasible due to the depth needed to support the provided loads. In our opinion, auger cast piles would be the most cost-effective and feasible deep foundation system at this site due to the availability to achieve the depth needed to support the provided loads and therefore, detailed recommendations are provided for this system only.

For this project we analyzed 16-inch and 18-inch diameter ACIP piles. Estimated allowable compressive capacity was calculated using the SPT N-values and American Association of State Highway Transportation Officials (AASHTO) methods. Axial pile analysis was performed using the computer program RSPile by Rocscience with a deflection of 0.5-inches. Lateral pile analysis was performed using the computer program LPile. Results are attached.

Based on the boring data, ACIP piles will develop their capacity from a combination of skin friction and end bearing but mainly skin friction for this site. ACIP piles consisting of 16 or 18 inches in diameter, depending on the anticipated loads, appear to be a feasible foundation option for the axial loads. **However, 16-inch diameter ACIP piles do not appear to meet the newly provided horizontal reaction of 34.6 kips caused by the seismic load due to increased deflection beyond 0.5-inches (see attached L-Pile analysis).** Auger refusal depths in the borings varied significantly in the parking deck area, and we estimate pile lengths on the order of 85 to 95 feet based on the existing grade elevation. If desired, we recommend additional air track borings be performed at each column location to better quantify the depth to rock and estimated ACIP pile depths, which should help to provide a more accurate pile construction costs estimate. If partially weathered rock is encountered (PWR) refusal should be defined as a penetration rate of one foot or less per minute using a drive box with a minimum dead weight of 5,000 pounds and a torque of at least 25,000 foot-pounds. It is recommended that a center-to-center pile spacing of at least three (3) pile diameters be maintained to minimize settlement and pile capacity reductions caused by group effects. Where piles are spaced no closer than three pile diameters, a group reduction factor will not be required.

The allowable load design capacity generated is based on pile skin resistance since end bearing support varied significantly. The allowable axial compression design capacities include a factor of safety of 2.0 for skin friction in soil and 3.0 for the end bearing resistance in weak rock. The 28-day compressive strength of the grout should be at least 4,000 psi. To provide tension reinforcement, a full-length steel-reinforcing cage should be installed into the center of each pile immediately following grouting. The cage should be designed by the structural engineer based on design allowable capacities. Spacing devices (Centralizers) should be attached to the cage at one-third points but not in the cage area. Piles subject to uplift forces must be provided with adequate reinforcement steel through the entire length.

We recommend the design loads and pile lengths for the piles be verified by performing at least one (1) static load test and monitored in general accordance with ASTM D1143. We recommend that the pile(s) be tested to a minimum of two (2) times their allowable compression design capacity. After completing the pile load test and failure does not occur first, we recommend loading the test pile to three (3) times the design load. The primary purpose of the testing program would be to evaluate the axial/compression capacity of the proposed piles at the recommended minimum depth. The load tests are used to provide evidence that the contractor can produce an ACIP pile, which can safely support the design loads at the project site, and to satisfy project requirements. The load test location should be selected after installing 2 to 4 probe piles throughout the water tower foundations. The probe piles would assist the pile contractor and geotechnical engineer in evaluating the equipment and pile response to the specific site conditions and in determining tentative installation criteria for the test pile. All production piles should be placed using the same procedures and equipment used for installation of the test pile. If ultimate uplift loads are to be in excess of 1/8th of the vertical capacity, a modified load test must be performed on a separate pile to verify tensile or uplift capacity.

It is recommended that the installation of the probe piles, test pile(s) and all production piles be monitored by a representative of Oasis. The installation of auger-cast piles should be sequenced such that adjacent piles with a center-to-center pile spacing of at least six (6) pile diameters within the same cap should not be constructed within the same 12-hour period. Piles can be installed with a center-to-center pile spacing of at least four (4) pile diameters within the same cap after curing for at least 24 hours. These recommendations should provide adequate time for curing.

All piles must be installed with a grout ratio in excess of 1.15. The grout ratio is the actual volume of pumped grout divided by the theoretical volume of the pile. During the forming of the pile, the minimum required pump strokes per linear foot of pile, as determined by pump calibration, should be achieved. Should less than the required pump strokes occur in any one-foot increment, the auger should be immediately advanced three (3) feet below the point in question and forming of the pile resumed. Pressure of the grout during pumping should be maintained between 75 and 300 pounds

per square inch (psi). If the pressure falls below 75 psi, the auger should be advanced to a point three (3) feet lower than the elevation at which the pressure loss occurred. If the auger jumps upward during withdrawal or if the grouting process is interrupted, the auger should be inserted at least three (3) feet below the point in question and the pumping process continued.

Qualified personnel should be present to cast grout compressive test specimens. At a minimum, at least two sets of specimens, six specimens per set, should be cast per day of pile installation, or at least one set per every 50 cubic yards of grout. A flow cone should be used to check the fluidity of the grout mix.

UPLIFT RESISTANCE

Uplift resistance will rely on side friction developed between the various soils in contact with the ACIP piles. Table 1 below presents our recommendations.

Table 1

Soil Type	Uplift-Allowable Side Friction (ksf)
Fill Soils	0.25
Residual Soils	0.5
PWR	1.5

The upper five (5) feet of ACIP piles should be neglected for uplift calculations due to disturbance and other factors. The recommended friction values include a factor of safety of at least 2 and assume the pile has full depth reinforcement. The actual uplift resistance will depend on the thicknesses of the different strata at each pile location.

CLOSURE

This addendum report of professional services has been performed, the findings derived, and recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices in the local area. This warranty is in lieu of all warranties either expressed or implied. Unless otherwise stated herein, our original recommendations remain unchanged.

This addendum report and the conclusions and recommendations provided herein, are provided exclusively for the use of Arcadis and their design team and is intended solely for design of the referenced project. Oasis is not responsible for the conclusions, opinions or recommendations of others based on these data.

We sincerely appreciate the opportunity to provide you with these geotechnical services for the project. We remain available to assist you with the project if additional information is needed. Should you have any questions concerning this report, please do not hesitate to contact us.

Sincerely,
Oasis Consulting Services

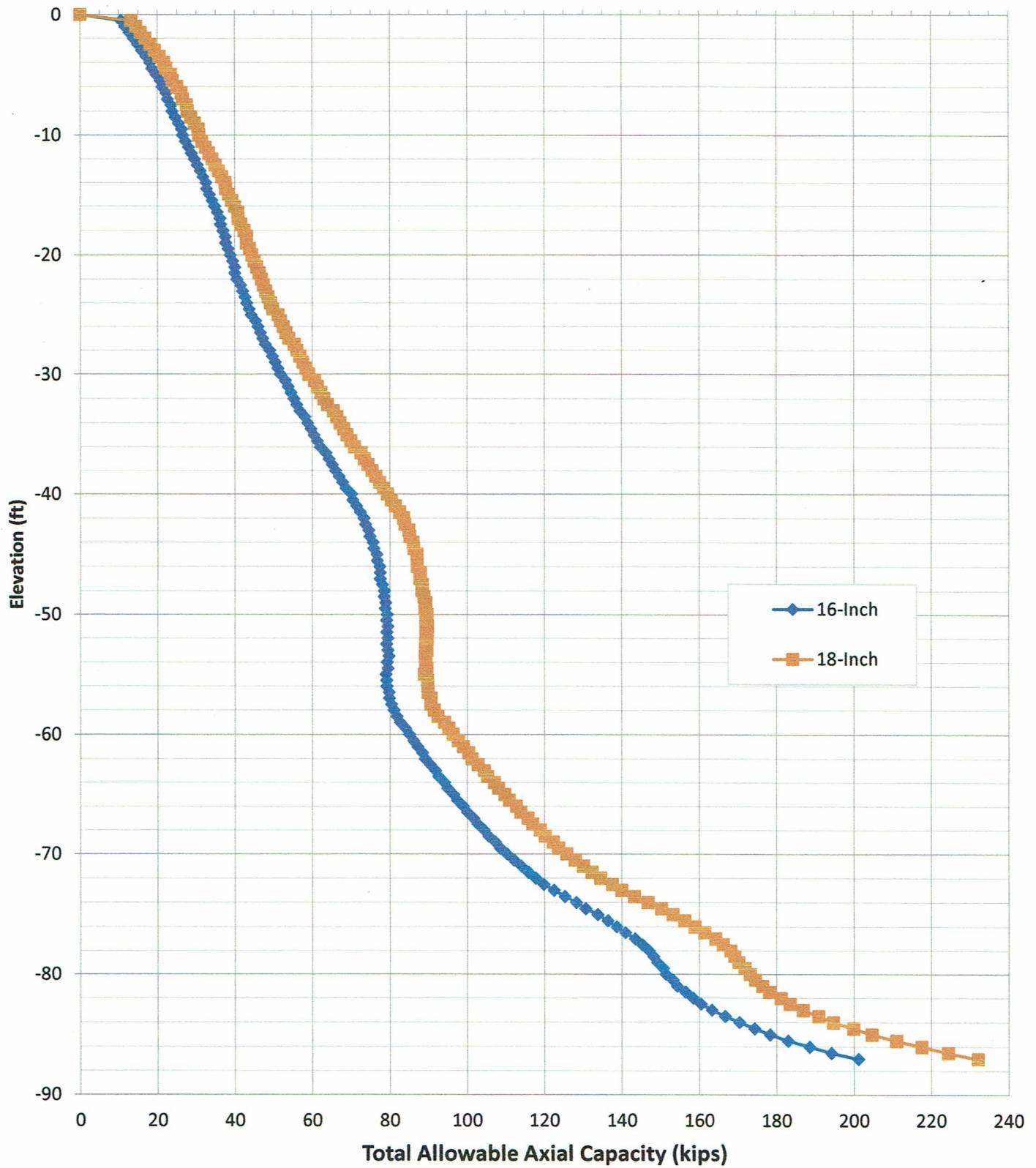


Benjamin D. Thomason, E.I.T.
Project Engineer
GA Registration #: EIT022461



Attachments: Total Allowable Axial Pile Analysis
Lateral Pile Analysis, 16-Inch ACIP
Lateral Pile Analysis, 18-Inch ACIP

FCWS Elevated Storage Tank
Auger Cast-In-Place Piles



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LPile for Windows, Version 2022-12.005

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:

\D-OCS\PROJECTS\Arcadis.10004\224927.Trilith Studios Above Ground Storage
Tank\01.Subsurface Exploration\07.Redesign of ACIPs\

Name of input data file:

LPile 16 inch ACIP Axial & Shear (USCS units) 6-21-23.lp12d

Name of output report file:

LPile 16 inch ACIP Axial & Shear (USCS units) 6-21-23.lp12o

Name of plot output file:

LPile 16 inch ACIP Axial & Shear (USCS units) 6-21-23.lp12p

Name of runtime message file:

LPile 16 inch ACIP Axial & Shear (USCS units) 6-21-23.lp12r

Date and Time of Analysis

Date: June 22, 2023

Time: 9:02:09

Problem Title

Project Name: FCWS Elevated Storage Tank

Job Number: 224927

Client: Arcadis

Engineer:

Description:

Program Options and Settings

Computational Options:

- Conventional Analysis

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
- Use of p-y modification factors for p-y curves not selected
- 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	=	90.000 ft
Depth of ground surface below top of pile	=	0.0000 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	Pile Diameter
	feet	inches
1	0.000	16.0000
2	90.000	16.0000

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	=	90.000000 ft
Shaft Diameter	=	16.000000 in

Soil and Rock Layering Information

The soil profile is modelled using 16 layers

Layer 1 is Piedmont residual soil

Distance from top of pile to top of layer	=	0.0000 ft
Distance from top of pile to bottom of layer	=	3.000000 ft
Effective unit weight at top of layer	=	110.000000 pcf
Effective unit weight at bottom of layer	=	110.000000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	17.000000 blows/ft
SPT N60 at bottom of layer	=	17.000000 blows/ft

Layer 2 is Piedmont residual soil

Distance from top of pile to top of layer	=	3.000000 ft
Distance from top of pile to bottom of layer	=	5.500000 ft
Effective unit weight at top of layer	=	110.000000 pcf
Effective unit weight at bottom of layer	=	110.000000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	17.000000 blows/ft
SPT N60 at bottom of layer	=	17.000000 blows/ft

Layer 3 is Piedmont residual soil

Distance from top of pile to top of layer	=	5.500000 ft
Distance from top of pile to bottom of layer	=	8.000000 ft
Effective unit weight at top of layer	=	110.000000 pcf
Effective unit weight at bottom of layer	=	110.000000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	13.000000 blows/ft
SPT N60 at bottom of layer	=	13.000000 blows/ft

Layer 4 is Piedmont residual soil

Distance from top of pile to top of layer	=	8.000000 ft
Distance from top of pile to bottom of layer	=	12.000000 ft
Effective unit weight at top of layer	=	110.000000 pcf
Effective unit weight at bottom of layer	=	110.000000 pcf

The type of field test is the Standard Penetration Test (SPT)
SPT N60 at top of layer = 11.000000 blows/ft
SPT N60 at bottom of layer = 11.000000 blows/ft

Layer 5 is Piedmont residual soil

Distance from top of pile to top of layer = 12.000000 ft
Distance from top of pile to bottom of layer = 17.000000 ft
Effective unit weight at top of layer = 110.000000 pcf
Effective unit weight at bottom of layer = 110.000000 pcf
The type of field test is the Standard Penetration Test (SPT)
SPT N60 at top of layer = 11.000000 blows/ft
SPT N60 at bottom of layer = 11.000000 blows/ft

Layer 6 is Piedmont residual soil

Distance from top of pile to top of layer = 17.000000 ft
Distance from top of pile to bottom of layer = 22.000000 ft
Effective unit weight at top of layer = 110.000000 pcf
Effective unit weight at bottom of layer = 110.000000 pcf
The type of field test is the Standard Penetration Test (SPT)
SPT N60 at top of layer = 8.000000 blows/ft
SPT N60 at bottom of layer = 8.000000 blows/ft

Layer 7 is Piedmont residual soil

Distance from top of pile to top of layer = 22.000000 ft
Distance from top of pile to bottom of layer = 27.000000 ft
Effective unit weight at top of layer = 110.000000 pcf
Effective unit weight at bottom of layer = 110.000000 pcf
The type of field test is the Standard Penetration Test (SPT)
SPT N60 at top of layer = 10.000000 blows/ft
SPT N60 at bottom of layer = 10.000000 blows/ft

Layer 8 is Piedmont residual soil

Distance from top of pile to top of layer = 27.000000 ft
Distance from top of pile to bottom of layer = 32.000000 ft
Effective unit weight at top of layer = 47.600000 pcf
Effective unit weight at bottom of layer = 47.600000 pcf
The type of field test is the Standard Penetration Test (SPT)
SPT N60 at top of layer = 12.000000 blows/ft
SPT N60 at bottom of layer = 12.000000 blows/ft

Layer 9 is Piedmont residual soil

Distance from top of pile to top of layer	=	32.000000 ft
Distance from top of pile to bottom of layer	=	37.000000 ft
Effective unit weight at top of layer	=	47.600000 pcf
Effective unit weight at bottom of layer	=	47.600000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	15.000000 blows/ft
SPT N60 at bottom of layer	=	15.000000 blows/ft

Layer 10 is Piedmont residual soil

Distance from top of pile to top of layer	=	37.000000 ft
Distance from top of pile to bottom of layer	=	42.000000 ft
Effective unit weight at top of layer	=	47.600000 pcf
Effective unit weight at bottom of layer	=	47.600000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	15.000000 blows/ft
SPT N60 at bottom of layer	=	15.000000 blows/ft

Layer 11 is Piedmont residual soil

Distance from top of pile to top of layer	=	42.000000 ft
Distance from top of pile to bottom of layer	=	47.000000 ft
Effective unit weight at top of layer	=	47.600000 pcf
Effective unit weight at bottom of layer	=	47.600000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	9.000000 blows/ft
SPT N60 at bottom of layer	=	9.000000 blows/ft

Layer 12 is Piedmont residual soil

Distance from top of pile to top of layer	=	47.000000 ft
Distance from top of pile to bottom of layer	=	57.000000 ft
Effective unit weight at top of layer	=	47.600000 pcf
Effective unit weight at bottom of layer	=	47.600000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	8.000000 blows/ft
SPT N60 at bottom of layer	=	12.000000 blows/ft

Layer 13 is Piedmont residual soil

Distance from top of pile to top of layer	=	57.000000 ft
Distance from top of pile to bottom of layer	=	62.000000 ft
Effective unit weight at top of layer	=	47.600000 pcf
Effective unit weight at bottom of layer	=	47.600000 pcf
The type of field test is the Standard Penetration Test (SPT)		

SPT N60 at top of layer	=	12.000000 blows/ft
SPT N60 at bottom of layer	=	12.000000 blows/ft

Layer 14 is Piedmont residual soil

Distance from top of pile to top of layer	=	62.000000 ft
Distance from top of pile to bottom of layer	=	72.000000 ft
Effective unit weight at top of layer	=	47.600000 pcf
Effective unit weight at bottom of layer	=	47.600000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	17.000000 blows/ft
SPT N60 at bottom of layer	=	22.000000 blows/ft

Layer 15 is Piedmont residual soil

Distance from top of pile to top of layer	=	72.000000 ft
Distance from top of pile to bottom of layer	=	82.000000 ft
Effective unit weight at top of layer	=	47.600000 pcf
Effective unit weight at bottom of layer	=	47.600000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	40.000000 blows/ft
SPT N60 at bottom of layer	=	22.000000 blows/ft

Layer 16 is Piedmont residual soil

Distance from top of pile to top of layer	=	82.000000 ft
Distance from top of pile to bottom of layer	=	90.000000 ft
Effective unit weight at top of layer	=	47.600000 pcf
Effective unit weight at bottom of layer	=	68.600000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	50.000000 blows/ft
SPT N60 at bottom of layer	=	100.000000 blows/ft

(Depth of the lowest soil layer extends 0.000 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	In-situ Test Type	In-situ Test Property
1	Piedmont	0.00	110.0000	SPT	17.0000

	Residual Soil	3.0000	110.0000	SPT	17.0000
2	Piedmont	3.0000	110.0000	SPT	17.0000
	Residual Soil	5.5000	110.0000	SPT	17.0000
3	Piedmont	5.5000	110.0000	SPT	13.0000
	Residual Soil	8.0000	110.0000	SPT	13.0000
4	Piedmont	8.0000	110.0000	SPT	11.0000
	Residual Soil	12.0000	110.0000	SPT	11.0000
5	Piedmont	12.0000	110.0000	SPT	11.0000
	Residual Soil	17.0000	110.0000	SPT	11.0000
6	Piedmont	17.0000	110.0000	SPT	8.0000
	Residual Soil	22.0000	110.0000	SPT	8.0000
7	Piedmont	22.0000	110.0000	SPT	10.0000
	Residual Soil	27.0000	110.0000	SPT	10.0000
8	Piedmont	27.0000	47.6000	SPT	12.0000
	Residual Soil	32.0000	47.6000	SPT	12.0000
9	Piedmont	32.0000	47.6000	SPT	15.0000
	Residual Soil	37.0000	47.6000	SPT	15.0000
10	Piedmont	37.0000	47.6000	SPT	15.0000
	Residual Soil	42.0000	47.6000	SPT	15.0000
11	Piedmont	42.0000	47.6000	SPT	9.0000
	Residual Soil	47.0000	47.6000	SPT	9.0000
12	Piedmont	47.0000	47.6000	SPT	8.0000
	Residual Soil	57.0000	47.6000	SPT	12.0000
13	Piedmont	57.0000	47.6000	SPT	12.0000
	Residual Soil	62.0000	47.6000	SPT	12.0000
14	Piedmont	62.0000	47.6000	SPT	17.0000
	Residual Soil	72.0000	47.6000	SPT	22.0000
15	Piedmont	72.0000	47.6000	SPT	40.0000
	Residual Soil	82.0000	47.6000	SPT	22.0000
16	Piedmont	82.0000	47.6000	SPT	50.0000
	Residual Soil	90.0000	68.6000	SPT	100.0000

Static Loading Type

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

Concentrated Loads Applied to All Load Cases

Concentrated loads along depth defined using 1 points

Point No.	Depth X ft	Shear Force lbs	Moment in-lbs
-----	-----	-----	-----

1 0.00000 0.00000 0.00000

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 4

Load Compute vs. Pile Length	Load Top y	Condition Run Analysis	Condition	Axial Thrust
No.	Type	1	2	Force, lbs
1	5	y = 0.500000 in	S = 0.0000 in/in	200000.
	N.A.	Yes		
2	4	y = 0.500000 in	M = 0.0000 in-lbs	200000.
	N.A.	Yes		
3	2	V = 34600. lbs	S = 0.0000 in/in	200000.
	No	Yes		
4	1	V = 34600. lbs	M = 0.0000 in-lbs	200000.
	No	Yes		

V = shear force applied normal to pile axis

M = bending moment applied to pile head

y = lateral deflection normal to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading (Load Types 1, 2, and 3).

Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

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

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section	=	90.000000 ft
Shaft Diameter	=	16.000000 in
Concrete Cover Thickness (to edge of trans. reinf.)	=	3.000000 in
Number of Reinforcing Bars	=	6 bars
Yield Stress of Reinforcing Bars	=	60000. psi
Modulus of Elasticity of Reinforcing Bars	=	29000000. psi
Gross Area of Shaft	=	201.061930 sq. in.
Total Area of Reinforcing Steel	=	2.640000 sq. in.
Area Ratio of Steel Reinforcement	=	1.31 percent
Edge-to-Edge Bar Spacing	=	3.500000 in
Maximum Concrete Aggregate Size	=	0.750000 in
Ratio of Bar Spacing to Aggregate Size	=	4.67
Offset of Center of Rebar Cage from Center of Pile	=	0.0000 in
Transverse Reinforcement		
Type: Hoop		
Number of Transverse Reinf. (per spacing)	=	45
Spacing of Transverse Reinf.	=	12.000000 in
Yield Stress of Transverse Reinf.	=	60000. psi
Diameter of Transverse Reinf.	=	0.375000 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As	=	833.035 kips
Tensile Load for Cracking of Concrete	=	-91.358 kips
Nominal Axial Tensile Capacity	=	-158.400 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	0.750000	0.440000	4.250000	0.00000
2	0.750000	0.440000	2.125000	3.680608
3	0.750000	0.440000	-2.12500	3.680608
4	0.750000	0.440000	-4.25000	0.00000
5	0.750000	0.440000	-2.12500	-3.68061
6	0.750000	0.440000	2.125000	-3.68061

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

Minimum spacing between any two bars not equal to zero = 3.500 inches
between bars 4 and 5.

Ratio of bar spacing to maximum aggregate size = 4.67

Concrete Properties:

Compressive Strength of Concrete	=	4000. psi
Modulus of Elasticity of Concrete	=	3604997. psi
Modulus of Rupture of Concrete	=	-474.34165 psi
Compression Strain at Peak Stress	=	0.001886
Tensile Strain at Fracture of Concrete	=	-0.0001154
Maximum Coarse Aggregate Size	=	0.750000 in

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

Number	Axial Thrust Force kips
1	200.000

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 318-14, Section 21.2.3.

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 = 200.000 kips

Bending Max Conc Curvature Stress rad/in. ksi	Bending Max Steel Moment Stress in-kip ksi	Bending Run Stiffness Msg	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in
0.00000125	15.7384570	12590766.	192.6305167	0.0002408	0.0002208
0.9556729	6.8407562				
0.00000250	31.4644388	12585776.	100.3234840	0.0002508	0.0002108
0.9922683	6.9892526				

0.00000375	47.1896818	12583915.	69.5581435	0.0002608	0.0002008
1.0286928	7.1381481				
0.00000500	62.9138154	12582763.	54.1782262	0.0002709	0.0001909
1.0649453	7.2874428				
0.00000625	78.6364688	12581835.	44.9524784	0.0002810	0.0001810
1.1010251	7.4371367				
0.00000750	94.3572714	12580970.	38.8038155	0.0002910	0.0001710
1.1369311	7.5872299				
0.00000875	110.0758522	12580097.	34.4134871	0.0003011	0.0001611
1.1726625	7.7377224				
0.00001000	125.7918405	12579184.	31.1221178	0.0003112	0.0001512
1.2082183	7.8886142				
0.00001125	141.5048653	12578210.	28.5633883	0.0003213	0.0001413
1.2435976	8.0399055				
0.00001250	157.2145553	12577164.	26.5175067	0.0003315	0.0001315
1.2787995	8.1915962				
0.00001375	172.9205395	12576039.	24.8446058	0.0003416	0.0001216
1.3138230	8.3436866				
0.00001500	188.6224464	12574830.	23.4514404	0.0003518	0.0001118
1.3486673	8.4961766				
0.00001625	204.3199046	12573533.	22.2734566	0.0003619	0.0001019
1.3833314	8.6490665				
0.00001750	220.0125423	12572145.	21.2645441	0.0003721	0.00009213
1.4178144	8.8023562				
0.00001875	235.6999876	12570666.	20.3908890	0.0003823	0.00008233
1.4521154	8.9560460				
0.00002000	251.3818686	12569093.	19.6271307	0.0003925	0.00007254
1.4862334	9.1101359				
0.00002125	267.0578129	12567426.	18.9538759	0.0004028	0.00006277
1.5201675	9.2646261				
0.00002250	282.7274480	12565664.	18.3560409	0.0004130	0.00005301
1.5539168	9.4195168				
0.00002375	298.3904013	12563806.	17.8217176	0.0004233	0.00004327
1.5874804	9.5748080				
0.00002500	314.0462996	12561852.	17.3413793	0.0004335	0.00003353
1.6208574	9.7305001				
0.00002625	329.6947697	12559801.	16.9073143	0.0004438	0.00002382
1.6540467	9.8865931				
0.00002750	345.3354382	12557652.	16.5132127	0.0004541	0.00001411
1.6870475	10.0430872				
0.00002875	360.9679311	12555406.	16.1538622	0.0004644	0.00000442
1.7198589	10.1999827				
0.00003000	376.5918266	12553061.	15.8249188	0.0004747	-0.00000525
1.7524799	10.3572794				
0.00003125	392.2053422	12550571.	15.5227266	0.0004851	-0.00001491
1.7849088	10.5149711				
0.00003250	407.8044816	12547830.	15.2441806	0.0004954	-0.00002456
1.8171429	10.6730403				
0.00003375	423.3846493	12544730.	14.9866316	0.0005058	-0.00003420
1.8491789	10.8314658				

0.00003500	438.9414408	12541184.	14.7478093	0.0005162	-0.00004383
1.8810138	10.9902266	12537121.	14.5257564	0.0005266	-0.00005344
0.00003625	454.4706542	12532496.	14.3187784	0.0005370	-0.00006305
1.9126445	11.1493015	12527276.	14.1254005	0.0005474	-0.00007264
0.00003750	469.9686082	12521441.	13.9443335	0.0005578	-0.00008223
1.9440683	11.3086717	12514984.	13.7744458	0.0005682	-0.00009180
0.00003875	485.4319266	12507905.	13.6147400	0.0005786	-0.000101
1.9752826	11.4683190	12500212.	13.4643338	0.0005891	-0.000111
0.00004000	500.8576206	12493736.	13.1815785	0.0005932	-0.000127
2.0062851	11.6282270	12487277.	13.0280246	0.0006025	-0.000137
0.00004125	516.2430752	12480804.	12.8811505	0.0006119	-0.000148
2.0370735	11.7883809	12474349.	12.7402922	0.0006211	-0.000159
0.00004250	531.5859714	12467883.	12.2312945	0.0006374	-0.000203
2.0676460	11.9487672	12461424.	12.0043743	0.0006752	-0.000225
0.00004375	546.8842577	12454963.	11.7936782	0.0006929	-0.000247
2.0980008	12.1093736	12448504.	11.5974402	0.0007103	-0.000270
0.00004500	546.8842577	12442145.	11.4137840	0.0007276	-0.000292
2.1096998	12.0863601 C	12435686.	11.2417007	0.0007448	-0.000315
0.00004625	546.8842577	12429327.	11.0798946	0.0007617	-0.000338
2.1366451	12.2161381 C	12422968.	10.9273932	0.0007786	-0.000361
0.00004750	548.9270361	12416609.	10.7833962	0.0007953	-0.000385
2.1632057	12.3439849 C	12410250.	10.6470943	0.0008118	-0.000408
0.00004875	558.3361350	12403891.	10.5175936	0.0008283	-0.000432
2.1893647	12.4696883 C	12397532.	10.3947020	0.0008446	-0.000455
0.00005125	576.3305762	12391173.	10.2618375	0.0008619	-0.000478
2.2405924	12.7156572 C	12384814.	10.1305718	0.0008792	-0.000501
0.00005375	593.3754743	12378455.	10.0003055	0.0008965	-0.000524
2.2904737	12.9552304 C	12372096.	9.8690392	0.0009138	-0.000547
0.00005625	609.4331368	12365737.	9.7477729	0.0009311	-0.000570
2.3389621	13.1876358 C	12359378.	9.6265066	0.0009484	-0.000593
0.00005875	624.7616660	12353019.	9.5052403	0.0009657	-0.000616
2.3862643	13.4147794 C	12346660.	9.3839740	0.0009830	-0.000639
0.00006125	639.4349258	12340301.	9.2627077	0.0009993	-0.000662
2.4324373	13.6370533 C	12333942.	9.1414414	0.0010166	-0.000685
0.00006375	653.4524098	12327583.	9.0201751	0.0010339	-0.000708
2.4774715	13.8541315 C	12321224.	8.8989088	0.0010512	-0.000731
0.00006625	666.9210682	12314865.	8.7776425	0.0010685	-0.000754
2.5214587	14.0668177 C	12308506.	8.6563762	0.0010858	-0.000777
0.00006875	679.8575134	12302147.	8.5351100	0.0011031	-0.000799
2.5644101	14.2750394 C	12295788.	8.4138437	0.0011204	-0.000822
0.00007125	692.3031849	12289429.	8.2925774	0.0011377	-0.000845
2.6063628	14.4790253 C	12283070.	8.1713111	0.0011550	-0.000868
0.00007375	704.3033682	12276711.	8.0500448	0.0011723	-0.000891
2.6473596	14.6790874 C	12270352.	7.9287785	0.0011896	-0.000914
0.00007625	715.8798755	12263993.	7.8075122	0.0012069	-0.000937
2.6874208	14.8752861 C	12257634.	7.6862459	0.0012242	-0.000960
0.00007875	727.0223341	12251275.	7.5649796	0.0012415	-0.000983
2.7265307	15.0672535 C	12244916.	7.4437133	0.0012588	-0.001006
0.00008125	737.8253380	12238557.	7.3224470	0.0012761	-0.001029
2.7647885	15.2560160 C	12232198.	7.2011807	0.0012934	-0.001052

0.00008375	748.3310916	8935297.	10.2780097	0.0008608	-0.000479
2.8022419	15.4420157 C				
0.00008625	758.5564406	8794857.	10.1670321	0.0008769	-0.000503
2.8389117	15.6253890 C				
0.00008875	768.4043886	8658078.	10.0606587	0.0008929	-0.000527
2.8746824	15.8045206 C				
0.00009125	778.0531368	8526610.	9.9594575	0.0009088	-0.000551
2.9097607	15.9819148 C				
0.00009375	787.4595239	8399568.	9.8627541	0.0009246	-0.000575
2.9440999	16.1568626 C				
0.00009625	796.5819163	8276176.	9.7698901	0.0009404	-0.000600
2.9776453	16.3285061 C				
0.00009875	805.5900843	8157874.	9.6815333	0.0009561	-0.000624
3.0106085	16.4995914 C				
0.0001013	814.2579123	8042053.	9.5959972	0.0009716	-0.000648
3.0427076	16.6661469 C				
0.0001038	822.8677637	7931256.	9.5146800	0.0009871	-0.000673
3.0742979	16.8329939 C				
0.0001063	831.1694922	7822772.	9.4358024	0.0010026	-0.000697
3.1050624	16.9955663 C				
0.0001088	839.4388279	7718978.	9.3607809	0.0010180	-0.000722
3.1353564	17.1588631 C				
0.0001113	847.4018449	7617095.	9.2877177	0.0010333	-0.000747
3.1648240	17.3175994 C				
0.0001138	855.3301948	7519386.	9.2180641	0.0010486	-0.000771
3.1938236	17.4769891 C				
0.0001163	863.0366126	7423971.	9.1504627	0.0010637	-0.000796
3.2221057	17.6331975 C				
0.0001188	870.6425910	7331727.	9.0854983	0.0010789	-0.000821
3.2498371	17.7886851 C				
0.0001213	878.1515221	7242487.	9.0230042	0.0010940	-0.000846
3.2770196	17.9434390 C				
0.0001238	885.4534292	7155179.	8.9621568	0.0011091	-0.000871
3.3035081	18.0950406 C				
0.0001263	892.7247604	7071087.	8.9039068	0.0011241	-0.000896
3.3295434	18.2473290 C				
0.0001288	899.8357879	6989016.	8.8472944	0.0011391	-0.000921
3.3549458	18.3972859 C				
0.0001313	906.8217453	6909118.	8.7924347	0.0011540	-0.000946
3.3797692	18.5457050 C				
0.0001338	913.7776070	6831982.	8.7398006	0.0011689	-0.000971
3.4041437	18.6948019 C				
0.0001363	920.5761403	6756522.	8.6884653	0.0011838	-0.000996
3.4278914	18.8413991 C				
0.0001388	927.2649349	6682991.	8.6386475	0.0011986	-0.001021
3.4510837	18.9866582 C				
0.0001413	933.9241473	6611852.	8.5907566	0.0012134	-0.001047
3.4738317	19.1325872 C				
0.0001438	940.4895111	6542536.	8.5442789	0.0012282	-0.001072
3.4960436	19.2774631 C				

0.0001463	946.8995076	6474527.	8.4987449	0.0012429	-0.001097
3.5176375	19.4196022 C				
0.0001488	953.2804587	6408608.	8.4548952	0.0012577	-0.001122
3.5387916	19.5624046 C				
0.0001588	978.0519144	6160957.	8.2918249	0.0013163	-0.001224
3.6183564	20.1267875 C				
0.0001688	1002.	5936355.	8.1464495	0.0013747	-0.001325
3.6900686	20.6831879 C				
0.0001788	1025.	5731790.	8.0164640	0.0014329	-0.001427
3.7541599	21.2350459 C				
0.0001888	1047.	5544726.	7.9000474	0.0014911	-0.001529
3.8107999	-22.880015 C				
0.0001988	1068.	5372360.	7.7947893	0.0015492	-0.001631
3.8599464	-24.698883 C				
0.0002088	1088.	5213112.	7.6996595	0.0016073	-0.001733
3.9017217	-26.517487 C				
0.0002188	1108.	5065670.	7.6140463	0.0016656	-0.001834
3.9362134	-28.330897 C				
0.0002288	1127.	4927836.	7.5355300	0.0017238	-0.001936
3.9632433	-30.146878 C				
0.0002388	1146.	4799310.	7.4648567	0.0017822	-0.002038
3.9829539	-31.954098 C				
0.0002488	1164.	4678483.	7.4001462	0.0018408	-0.002139
3.9951938	-33.759295 C				
0.0002588	1181.	4564706.	7.3412758	0.0018996	-0.002240
3.9999382	-35.558201 C				
0.0002688	1198.	4457390.	7.2885146	0.0019588	-0.002341
3.9986242	-37.343639 C				
0.0002788	1214.	4355141.	7.2397967	0.0020181	-0.002442
3.9993374	-39.126993 C				
0.0002888	1229.	4257951.	7.1958748	0.0020778	-0.002542
3.9996990	-40.898442 C				
0.0002988	1244.	4165475.	7.1565559	0.0021380	-0.002642
3.9998602	-42.655488 C				
0.0003088	1259.	4077321.	7.1213728	0.0021987	-0.002741
3.9999159	-44.398316 C				
0.0003188	1273.	3992822.	7.0886192	0.0022595	-0.002841
3.9999033	-46.139075 C				
0.0003288	1286.	3912071.	7.0592563	0.0023207	-0.002939
3.9998204	-47.866514 C				
0.0003388	1299.	3834824.	7.0330018	0.0023824	-0.003038
3.9996051	-49.580457 C				
0.0003488	1312.	3760848.	7.0095513	0.0024446	-0.003135
3.9991442	-51.281255 C				
0.0003588	1324.	3689939.	6.9886310	0.0025072	-0.003233
3.9982725	-52.969331 C				
0.0003688	1336.	3621913.	6.9699936	0.0025702	-0.003330
3.9983025	-54.645130 C				
0.0003788	1347.	3556497.	6.9531605	0.0026335	-0.003426
3.9998816	-56.311926 C				

0.0003888	1358.	3493550.	6.9378354	0.0026971	-0.003523
3.9990618	-57.971488 CY				
0.0003988	1369.	3433039.	6.9242713	0.0027611	-0.003619
3.9971536	-59.619558 CY				
0.0004088	1379.	3374294.	6.9119404	0.0028253	-0.003715
3.9999024	-60.000000 CY				
0.0004188	1388.	3315267.	6.8990560	0.0028890	-0.003811
3.9985599	-60.000000 CY				
0.0004288	1396.	3255233.	6.8845711	0.0029518	-0.003908
3.9993138	-60.000000 CY				
0.0004388	1401.	3194007.	6.8684007	0.0030135	-0.004006
3.9989154	-60.000000 CY				
0.0004488	1405.	3131303.	6.8496939	0.0030738	-0.004106
3.9991129	-60.000000 CY				
0.0004588	1408.	3068180.	6.8296183	0.0031331	-0.004207
3.9984036	-60.000000 CY				
0.0004688	1409.	3006784.	6.8099640	0.0031922	-0.004308
3.9999510	-60.000000 CY				
0.0004788	1411.	2947370.	6.7908467	0.0032511	-0.004409
3.9969305	-60.000000 CY				
0.0004888	1413.	2890145.	6.7722786	0.0033100	-0.004510
3.9994043	-60.000000 CY				
0.0004988	1414.	2835073.	6.7548442	0.0033690	-0.004611
3.9979910	-60.000000 CY				
0.0005088	1415.	2781977.	6.7385828	0.0034283	-0.004712
3.9976913	-60.000000 CY				
0.0005188	1417.	2730829.	6.7232471	0.0034877	-0.004812
3.9996718	-60.000000 CY				
0.0005288	1418.	2681479.	6.7088748	0.0035473	-0.004913
3.9964425	-60.000000 CY				
0.0005388	1419.	2633819.	6.6954331	0.0036072	-0.005013
3.9975998	-60.000000 CY				
0.0005488	1420.	2587813.	6.6827425	0.0036672	-0.005113
3.9995935	-60.000000 CY				
0.0006088	1420.	2332752.	6.6888981	0.0040719	-0.005668
3.9999608	-60.000000 CY				

Summary of Results for Nominal 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 Tens. No. Strain	Axial Thrust kips	Nominal Mom. Cap. in-kip	Max. Comp. Strain	Max.
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1	200.000	1400.126	0.00300000
-0.00398499			

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 (0.75).

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to ACI 318, 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 Stiff.	Resist.	Nominal	Nominal	Ult. (Fac)	Ult. (Fac)	Bend.
Load Ult Mom	Factor	Ax. Thrust	Moment Cap	Ax. Thrust	Moment Cap	at
No. kip-in^2		kips	in-kips	kips	in-kips	
1 6872966.	0.65	200.000000	1400.	130.000000	910.081773	
1 5516033.	0.75	200.000000	1400.	150.000000	1050.	
1 4069747.	0.90	200.000000	1400.	180.000000	1260.	

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	0.00	0.00	N.A.	Yes	N.A.	N.A.
2	3.0000	3.0000	No	Yes	N.A.	N.A.
3	5.5000	5.5000	No	Yes	N.A.	N.A.

4	8.0000	8.0000	No	Yes	N.A.	N.A.
5	12.0000	12.0000	No	Yes	N.A.	N.A.
6	17.0000	17.0000	No	Yes	N.A.	N.A.
7	22.0000	22.0000	No	Yes	N.A.	N.A.
8	27.0000	27.0000	No	Yes	N.A.	N.A.
9	32.0000	32.0000	No	Yes	N.A.	N.A.
10	37.0000	37.0000	No	Yes	N.A.	N.A.
11	42.0000	42.0000	No	Yes	N.A.	N.A.
12	47.0000	47.0000	No	Yes	N.A.	N.A.
13	57.0000	57.0000	No	Yes	N.A.	N.A.
14	62.0000	62.0000	No	Yes	N.A.	N.A.
15	72.0000	72.0000	No	Yes	N.A.	N.A.
16	82.0000	82.0000	No	Yes	N.A.	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.

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

Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)
 Displacement of pile head = 0.500000 inches
 Rotation of pile head = 0.000E+00 radians
 Axial load on pile head = 200000.0 lbs

Res.	Depth feet	Soil Spr. X Es*H lb/inch	Deflect. y Lat. Load inches lb/inch	Bending Moment in-lbs lb/inch	Shear Force lbs	Slope S radians	Total Stress psi*	Bending Stiffness 1b-in^2	Soil p
									Distrib.
	0.00	0.5000	0.5000	-1384933.	52558.	0.00	0.00	3.34E+09	
-764.975		8262.		0.00					
0.9000		0.4758		-858542.	44196.	-0.00363	0.00	3.34E+09	
-758.493		17217.		0.00					
1.8000		0.4216		-414620.	36114.	-0.00520	0.00	1.25E+10	
-738.063		18908.		0.00					
2.7000		0.3635		-56015.	28316.	-0.00540	0.00	1.26E+10	
-706.113		20979.		0.00					
3.6000		0.3049		220333.	20930.	-0.00533	0.00	1.26E+10	

-661.655	23435.	0.00					
4.5000	0.2484	419097.	14091.	-0.00506	0.00	1.25E+10	
-604.883	26301.	0.00					
5.4000	0.1957	546528.	7924.	-0.00463	0.00	1.23E+10	
-537.006	29630.	0.00					
6.3000	0.1483	610283.	3125.	-0.00409	0.00	1.08E+10	
-351.831	25626.	0.00					
7.2000	0.1074	631686.	-336.450	-0.00346	0.00	1.05E+10	
-289.115	29072.	0.00					
8.1000	0.07352	617969.	-2928.	-0.00283	0.00	1.07E+10	
-190.782	28027.	0.00					
9.0000	0.04635	580655.	-4704.	-0.00224	0.00	1.12E+10	
-138.185	32198.	0.00					
9.9000	0.02524	526012.	-5926.	-0.00173	0.00	1.25E+10	
-88.084	37695.	0.00					
10.8000	0.00903	460114.	-6591.	-0.00130	0.00	1.25E+10	
-34.954	41818.	0.00					
11.7000	-0.00290	389283.	-6719.	-9.37E-04	0.00	1.26E+10	
11.2307	41818.	0.00					
12.6000	-0.01121	319038.	-6424.	-6.32E-04	0.00	1.26E+10	
43.4079	41818.	0.00					
13.5000	-0.01656	253264.	-5846.	-3.86E-04	0.00	1.26E+10	
63.6400	41508.	0.00					
14.4000	-0.01956	194443.	-5111.	-1.94E-04	0.00	1.26E+10	
72.4352	40003.	0.00					
15.3000	-0.02075	143710.	-4310.	-4.88E-05	0.00	1.26E+10	
75.8270	39467.	0.00					
16.2000	-0.02061	101555.	-3493.	5.65E-05	0.00	1.26E+10	
75.4350	39528.	0.00					
17.1000	-0.01953	68010.	-2802.	1.29E-04	0.00	1.26E+10	
52.6261	29102.	0.00					
18.0000	-0.01782	40478.	-2253.	1.76E-04	0.00	1.26E+10	
49.0105	29705.	0.00					
18.9000	-0.01573	18587.	-1749.	2.01E-04	0.00	1.26E+10	
44.3044	30413.	0.00					
19.8000	-0.01347	1829.	-1305.	2.10E-04	0.00	1.26E+10	
37.9449	30413.	0.00					
20.7000	-0.01120	-10506.	-929.709	2.06E-04	0.00	1.26E+10	
31.5378	30413.	0.00					
21.6000	-0.00902	-19143.	-622.220	1.93E-04	0.00	1.26E+10	
25.4047	30413.	0.00					
22.5000	-0.00702	-24782.	-351.580	1.75E-04	0.00	1.26E+10	
24.7138	38016.	0.00					
23.4000	-0.00525	-27492.	-118.333	1.52E-04	0.00	1.26E+10	
18.4801	38016.	0.00					
24.3000	-0.00373	-27995.	52.4330	1.28E-04	0.00	1.26E+10	
13.1432	38016.	0.00					
25.2000	-0.00248	-26914.	170.4915	1.05E-04	0.00	1.26E+10	
8.7195	38016.	0.00					
26.1000	-0.00147	-24765.	245.5149	8.26E-05	0.00	1.26E+10	

5.1737	38016.	0.00					
27.0000	-6.92E-04	-21968.	289.2365	6.26E-05	0.00	1.26E+10	
2.9229	45619.	0.00					
27.9000	-1.18E-04	-18788.	307.7046	4.51E-05	0.00	1.26E+10	
0.4971	45619.	0.00					
28.8000	2.83E-04	-15516.	303.9449	3.04E-05	0.00	1.26E+10	
-1.193	45619.	0.00					
29.7000	5.39E-04	-12354.	285.2068	1.84E-05	0.00	1.26E+10	
-2.277	45619.	0.00					
30.6000	6.81E-04	-9435.	257.3794	9.10E-06	0.00	1.26E+10	
-2.877	45619.	0.00					
31.5000	7.36E-04	-6834.	225.0670	2.13E-06	0.00	1.26E+10	
-3.107	45619.	0.00					
32.4000	7.27E-04	-4583.	187.5624	-2.77E-06	0.00	1.26E+10	
-3.838	57024.	0.00					
33.3000	6.76E-04	-2771.	147.5698	-5.93E-06	0.00	1.26E+10	
-3.568	57024.	0.00					
34.2000	5.99E-04	-1370.	111.2265	-7.70E-06	0.00	1.26E+10	
-3.162	57024.	0.00					
35.1000	5.09E-04	-335.195	79.6262	-8.43E-06	0.00	1.26E+10	
-2.690	57024.	0.00					
36.0000	4.17E-04	386.4348	53.2192	-8.41E-06	0.00	1.26E+10	
-2.201	57024.	0.00					
36.9000	3.28E-04	850.6753	31.9921	-7.88E-06	0.00	1.26E+10	
-1.730	57024.	0.00					
37.8000	2.47E-04	1112.	15.6180	-7.04E-06	0.00	1.26E+10	
-1.302	57024.	0.00					
38.7000	1.76E-04	1218.	3.5787	-6.04E-06	0.00	1.26E+10	
-0.928	57024.	0.00					
39.6000	1.16E-04	1215.	-4.741	-5.00E-06	0.00	1.26E+10	
-0.613	57024.	0.00					
40.5000	6.78E-05	1138.	-9.984	-3.99E-06	0.00	1.26E+10	
-0.358	57024.	0.00					
41.4000	3.00E-05	1016.	-12.772	-3.06E-06	0.00	1.26E+10	
-0.158	57024.	0.00					
42.3000	1.63E-06	874.9512	-13.656	-2.25E-06	0.00	1.26E+10	
-0.00515	34214.	0.00					
43.2000	-1.86E-05	731.2239	-13.365	-1.56E-06	0.00	1.26E+10	
0.05905	34214.	0.00					
44.1000	-3.21E-05	593.0292	-12.496	-9.95E-07	0.00	1.26E+10	
0.1018	34214.	0.00					
45.0000	-4.01E-05	465.6086	-11.260	-5.41E-07	0.00	1.26E+10	
0.1271	34214.	0.00					
45.9000	-4.38E-05	352.1535	-9.824	-1.90E-07	0.00	1.26E+10	
0.1388	34214.	0.00					
46.8000	-4.42E-05	254.2356	-8.318	6.99E-08	0.00	1.26E+10	
0.1401	34214.	0.00					
47.7000	-4.23E-05	172.1922	-6.895	2.53E-07	0.00	1.26E+10	
0.1233	31477.	0.00					
48.6000	-3.88E-05	104.2107	-5.592	3.71E-07	0.00	1.26E+10	

0.1179	32846.	0.00					
49.5000	-3.43E-05	49.7906	-4.369	4.37E-07	0.00	1.26E+10	
0.1086	34214.	0.00					
50.4000	-2.93E-05	7.9454	-3.261	4.62E-07	0.00	1.26E+10	
0.09662	35583.	0.00					
51.3000	-2.43E-05	-22.645	-2.290	4.56E-07	0.00	1.26E+10	
0.08313	36952.	0.00					
52.2000	-1.95E-05	-43.497	-1.468	4.28E-07	0.00	1.26E+10	
0.06911	38320.	0.00					
53.1000	-1.51E-05	-56.207	-0.796	3.85E-07	0.00	1.26E+10	
0.05535	39689.	0.00					
54.0000	-1.12E-05	-62.356	-0.268	3.34E-07	0.00	1.26E+10	
0.04245	41057.	0.00					
54.9000	-7.85E-06	-63.438	0.1278	2.80E-07	0.00	1.26E+10	
0.03084	42426.	0.00					
55.8000	-5.12E-06	-60.805	0.4064	2.27E-07	0.00	1.26E+10	
0.02076	43794.	0.00					
56.7000	-2.95E-06	-55.638	0.5853	1.77E-07	0.00	1.26E+10	
0.01235	45163.	0.00					
57.6000	-1.30E-06	-48.927	0.6817	1.32E-07	0.00	1.26E+10	
0.00550	45619.	0.00					
58.5000	-1.05E-07	-41.483	0.7138	9.31E-08	0.00	1.26E+10	
4.45E-04	45619.	0.00					
59.4000	7.08E-07	-33.910	0.7001	6.08E-08	0.00	1.26E+10	
-0.00299	45619.	0.00					
60.3000	1.21E-06	-26.623	0.6564	3.48E-08	0.00	1.26E+10	
-0.00510	45619.	0.00					
61.2000	1.46E-06	-19.882	0.5956	1.49E-08	0.00	1.26E+10	
-0.00617	45619.	0.00					
62.1000	1.53E-06	-13.823	0.5127	4.12E-10	0.00	1.26E+10	
-0.00917	64817.	0.00					
63.0000	1.47E-06	-8.809	0.4143	-9.29E-09	0.00	1.26E+10	
-0.00905	66528.	0.00					
63.9000	1.33E-06	-4.834	0.3202	-1.51E-08	0.00	1.26E+10	
-0.00839	68239.	0.00					
64.8000	1.14E-06	-1.828	0.2349	-1.80E-08	0.00	1.26E+10	
-0.00739	69949.	0.00					
65.7000	9.39E-07	0.3187	0.1614	-1.87E-08	0.00	1.26E+10	
-0.00623	71660.	0.00					
66.6000	7.39E-07	1.7382	0.1006	-1.78E-08	0.00	1.26E+10	
-0.00502	73371.	0.00					
67.5000	5.55E-07	2.5689	0.05268	-1.59E-08	0.00	1.26E+10	
-0.00386	75082.	0.00					
68.4000	3.95E-07	2.9448	0.01668	-1.36E-08	0.00	1.26E+10	
-0.00281	76792.	0.00					
69.3000	2.62E-07	2.9877	-0.00878	-1.10E-08	0.00	1.26E+10	
-0.00191	78503.	0.00					
70.2000	1.57E-07	2.8027	-0.02538	-8.53E-09	0.00	1.26E+10	
-0.00117	80214.	0.00					
71.1000	7.80E-08	2.4763	-0.03488	-6.26E-09	0.00	1.26E+10	

-5.92E-04	81924.	0.00					
72.0000	2.18E-08	2.0764	-0.03973	-4.31E-09	0.00	1.26E+10	
-3.07E-04	152064.	0.00					
72.9000	-1.51E-08	1.6367	-0.04029	-2.72E-09	0.00	1.26E+10	
2.04E-04	145905.	0.00					
73.8000	-3.69E-08	1.2178	-0.03661	-1.49E-09	0.00	1.26E+10	
4.77E-04	139747.	0.00					
74.7000	-4.74E-08	0.8524	-0.03087	-6.07E-10	0.00	1.26E+10	
5.86E-04	133588.	0.00					
75.6000	-5.00E-08	0.5537	-0.02451	-4.00E-12	0.00	1.26E+10	
5.90E-04	127430.	0.00					
76.5000	-4.75E-08	0.3229	-0.01845	3.72E-10	0.00	1.26E+10	
5.33E-04	121271.	0.00					
77.4000	-4.20E-08	0.1536	-0.01315	5.76E-10	0.00	1.26E+10	
4.47E-04	115112.	0.00					
78.3000	-3.50E-08	0.03626	-0.00883	6.58E-10	0.00	1.26E+10	
3.53E-04	108954.	0.00					
79.2000	-2.78E-08	-0.03993	-0.00549	6.56E-10	0.00	1.26E+10	
2.64E-04	102795.	0.00					
80.1000	-2.09E-08	-0.08521	-0.00306	6.02E-10	0.00	1.26E+10	
1.87E-04	96637.	0.00					
81.0000	-1.48E-08	-0.109	-0.00138	5.19E-10	0.00	1.26E+10	
1.24E-04	90478.	0.00					
81.9000	-9.65E-09	-0.117	-3.07E-04	4.23E-10	0.00	1.26E+10	
7.53E-05	84319.	0.00					
82.8000	-5.63E-09	-0.117	6.88E-04	3.22E-10	0.00	1.26E+10	
1.09E-04	209088.	0.00					
83.7000	-2.69E-09	-0.104	0.00159	2.27E-10	0.00	1.26E+10	
5.74E-05	230472.	0.00					
84.6000	-7.18E-10	-0.08374	0.00199	1.47E-10	0.00	1.26E+10	
1.67E-05	251856.	0.00					
85.5000	4.80E-10	-0.06154	0.00201	8.46E-11	0.00	1.26E+10	
-1.22E-05	273240.	0.00					
86.4000	1.11E-09	-0.04064	0.00178	4.07E-11	0.00	1.26E+10	
-3.02E-05	294624.	0.00					
87.3000	1.36E-09	-0.02320	0.00140	1.34E-11	0.00	1.26E+10	
-3.98E-05	316008.	0.00					
88.2000	1.40E-09	-0.01036	9.54E-04	-1.05E-12	0.00	1.26E+10	
-4.36E-05	337392.	0.00					
89.1000	1.34E-09	-0.00259	4.78E-04	-6.60E-12	0.00	1.26E+10	
-4.44E-05	358776.	0.00					
90.0000	1.25E-09	0.00	0.00	-7.71E-12	0.00	1.26E+10	
-4.42E-05	190080.	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	=	0.5000000 inches
Computed slope at pile head	=	0.000000 radians
Maximum bending moment	=	-1384933. inch-lbs
Maximum shear force	=	52558. lbs
Depth of maximum bending moment	=	0.000000 feet below pile head
Depth of maximum shear force	=	0.000000 feet below pile head
Number of iterations	=	11
Number of zero deflection points	=	6

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

Pile-head conditions are Displacement and Moment (Loading Type 4)

Displacement of pile head	=	0.500000 inches
Moment at pile head	=	0.0 in-lbs
Axial load at pile head	=	200000.0 lbs

Res.	Depth	Deflect.	Bending	Shear	Slope	Total	Bending	Soil
	X	Soil Spr.	Distrib.	Force	S	Stress	Stiffness	p
	Es*H	Lat.	Moment	lbs	radians	psi*	lb-in^2	
	feet	inches	in-lbs	lbs	radians	psi*	lb-in^2	
	lb/inch	lb/inch	lb/inch					
	0.00	0.5000	0.00	32529.	-0.00808	0.00	1.26E+10	
-764.975	8262.	0.00						
0.9000	0.4127	324157.	24435.	-0.00794	0.00	1.26E+10		
-733.908	19204.	0.00						
1.8000	0.3285	562109.	16794.	-0.00754	0.00	1.14E+10		
-681.144	22395.	0.00						
2.7000	0.2500	719464.	9840.	-0.00685	0.00	9.33E+09		
-606.695	26213.	0.00						
3.6000	0.1804	804256.	3788.	-0.00591	0.00	8.17E+09		
-514.059	30767.	0.00						
4.5000	0.1224	826793.	-1203.	-0.00481	0.00	7.88E+09		
-410.175	36192.	0.00						
5.4000	0.07660	799039.	-5055.	-0.00372	0.00	8.24E+09		
-303.139	42743.	0.00						
6.3000	0.04210	733666.	-7515.	-0.00276	0.00	9.14E+09		
-152.333	39083.	0.00						
7.2000	0.01696	648652.	-8751.	-0.00199	0.00	1.03E+10		

-76.626	48799.	0.00					
8.1000	-8.42E-04	553233.	-9147.	-0.00139	0.00	1.15E+10	
3.2613	41818.	0.00					
9.0000	-0.01304	457074.	-8857.	-9.32E-04	0.00	1.25E+10	
50.4753	41818.	0.00					
9.9000	-0.02098	365951.	-8171.	-5.78E-04	0.00	1.26E+10	
76.4659	39368.	0.00					
10.8000	-0.02552	283067.	-7279.	-2.99E-04	0.00	1.26E+10	
88.8323	37596.	0.00					
11.7000	-0.02743	210019.	-6292.	-8.70E-05	0.00	1.26E+10	
93.8328	36942.	0.00					
12.6000	-0.02740	147526.	-5280.	6.66E-05	0.00	1.26E+10	
93.7429	36954.	0.00					
13.5000	-0.02599	95694.	-4287.	1.71E-04	0.00	1.26E+10	
90.0868	37429.	0.00					
14.4000	-0.02370	54192.	-3347.	2.35E-04	0.00	1.26E+10	
83.9806	38263.	0.00					
15.3000	-0.02091	22385.	-2481.	2.68E-04	0.00	1.26E+10	
76.2821	39397.	0.00					
16.2000	-0.01791	-566.244	-1704.	2.78E-04	0.00	1.26E+10	
67.6615	40797.	0.00					
17.1000	-0.01492	-15624.	-1112.	2.71E-04	0.00	1.26E+10	
42.0067	30413.	0.00					
18.0000	-0.01207	-25753.	-701.622	2.53E-04	0.00	1.26E+10	
33.9816	30413.	0.00					
18.9000	-0.00946	-31871.	-374.327	2.28E-04	0.00	1.26E+10	
26.6285	30413.	0.00					
19.8000	-0.00714	-34824.	-121.955	1.99E-04	0.00	1.26E+10	
20.1072	30413.	0.00					
20.7000	-0.00515	-35367.	64.8958	1.69E-04	0.00	1.26E+10	
14.4947	30413.	0.00					
21.6000	-0.00348	-34154.	196.1161	1.40E-04	0.00	1.26E+10	
9.8053	30413.	0.00					
22.5000	-0.00213	-31734.	289.6142	1.11E-04	0.00	1.26E+10	
7.5091	38016.	0.00					
23.4000	-0.00108	-28379.	350.6665	8.55E-05	0.00	1.26E+10	
3.7968	38016.	0.00					
24.3000	-2.87E-04	-24529.	376.6249	6.28E-05	0.00	1.26E+10	
1.0103	38016.	0.00					
25.2000	2.77E-04	-20515.	376.8090	4.35E-05	0.00	1.26E+10	
-0.976	38016.	0.00					
26.1000	6.52E-04	-16578.	359.1525	2.75E-05	0.00	1.26E+10	
-2.294	38016.	0.00					
27.0000	8.72E-04	-12877.	326.8719	1.49E-05	0.00	1.26E+10	
-3.684	45619.	0.00					
27.9000	9.74E-04	-9582.	284.7684	5.28E-06	0.00	1.26E+10	
-4.113	45619.	0.00					
28.8000	9.86E-04	-6748.	240.0647	-1.73E-06	0.00	1.26E+10	
-4.166	45619.	0.00					
29.7000	9.36E-04	-4389.	196.2112	-6.50E-06	0.00	1.26E+10	

-3.955	45619.	0.00					
30.6000	8.46E-04	-2482.	155.5614	-9.45E-06	0.00	1.26E+10	
-3.573	45619.	0.00					
31.5000	7.32E-04	-987.725	119.5672	-1.09E-05	0.00	1.26E+10	
-3.093	45619.	0.00					
32.4000	6.10E-04	147.7567	85.4858	-1.13E-05	0.00	1.26E+10	
-3.218	57024.	0.00					
33.3000	4.88E-04	907.5727	54.1866	-1.08E-05	0.00	1.26E+10	
-2.578	57024.	0.00					
34.2000	3.75E-04	1365.	29.5664	-9.87E-06	0.00	1.26E+10	
-1.982	57024.	0.00					
35.1000	2.75E-04	1589.	11.0250	-8.60E-06	0.00	1.26E+10	
-1.452	57024.	0.00					
36.0000	1.89E-04	1640.	-2.218	-7.22E-06	0.00	1.26E+10	
-1.000	57024.	0.00					
36.9000	1.19E-04	1572.	-11.015	-5.84E-06	0.00	1.26E+10	
-0.629	57024.	0.00					
37.8000	6.33E-05	1428.	-16.215	-4.55E-06	0.00	1.26E+10	
-0.334	57024.	0.00					
38.7000	2.07E-05	1242.	-18.611	-3.41E-06	0.00	1.26E+10	
-0.109	57024.	0.00					
39.6000	-1.03E-05	1040.	-18.907	-2.43E-06	0.00	1.26E+10	
0.05464	57024.	0.00					
40.5000	-3.18E-05	843.6573	-17.706	-1.62E-06	0.00	1.26E+10	
0.1678	57024.	0.00					
41.4000	-4.54E-05	664.9457	-15.505	-9.76E-07	0.00	1.26E+10	
0.2397	57024.	0.00					
42.3000	-5.29E-05	512.9606	-13.307	-4.70E-07	0.00	1.26E+10	
0.1674	34214.	0.00					
43.2000	-5.56E-05	379.5555	-11.452	-8.77E-08	0.00	1.26E+10	
0.1760	34214.	0.00					
44.1000	-5.47E-05	265.9774	-9.565	1.89E-07	0.00	1.26E+10	
0.1734	34214.	0.00					
45.0000	-5.15E-05	172.1368	-7.748	3.77E-07	0.00	1.26E+10	
0.1631	34214.	0.00					
45.9000	-4.66E-05	96.9974	-6.070	4.93E-07	0.00	1.26E+10	
0.1476	34214.	0.00					
46.8000	-4.08E-05	38.8990	-4.574	5.51E-07	0.00	1.26E+10	
0.1294	34214.	0.00					
47.7000	-3.47E-05	-4.182	-3.329	5.66E-07	0.00	1.26E+10	
0.1012	31477.	0.00					
48.6000	-2.86E-05	-35.457	-2.313	5.49E-07	0.00	1.26E+10	
0.08703	32846.	0.00					
49.5000	-2.29E-05	-56.516	-1.452	5.09E-07	0.00	1.26E+10	
0.07240	34214.	0.00					
50.4000	-1.76E-05	-69.024	-0.748	4.55E-07	0.00	1.26E+10	
0.05804	35583.	0.00					
51.3000	-1.30E-05	-74.634	-0.194	3.94E-07	0.00	1.26E+10	
0.04454	36952.	0.00					
52.2000	-9.11E-06	-74.911	0.2213	3.30E-07	0.00	1.26E+10	

0.03233	38320.	0.00					
53.1000	-5.90E-06	-71.279	0.5129	2.67E-07	0.00	1.26E+10	
0.02167	39689.	0.00					
54.0000	-3.35E-06	-64.986	0.6986	2.09E-07	0.00	1.26E+10	
0.01272	41057.	0.00					
54.9000	-1.39E-06	-57.090	0.7968	1.56E-07	0.00	1.26E+10	
0.00548	42426.	0.00					
55.8000	2.77E-08	-48.449	0.8258	1.11E-07	0.00	1.26E+10	
-1.13E-04	43794.	0.00					
56.7000	1.00E-06	-39.731	0.8026	7.31E-08	0.00	1.26E+10	
-0.00419	45163.	0.00					
57.6000	1.61E-06	-31.429	0.7434	4.25E-08	0.00	1.26E+10	
-0.00678	45619.	0.00					
58.5000	1.92E-06	-23.859	0.6629	1.88E-08	0.00	1.26E+10	
-0.00811	45619.	0.00					
59.4000	2.01E-06	-17.190	0.5732	1.23E-09	0.00	1.26E+10	
-0.00850	45619.	0.00					
60.3000	1.95E-06	-11.482	0.4829	-1.11E-08	0.00	1.26E+10	
-0.00822	45619.	0.00					
61.2000	1.77E-06	-6.711	0.3981	-1.89E-08	0.00	1.26E+10	
-0.00749	45619.	0.00					
62.1000	1.54E-06	-2.801	0.3078	-2.30E-08	0.00	1.26E+10	
-0.00923	64817.	0.00					
63.0000	1.28E-06	0.03663	0.2154	-2.41E-08	0.00	1.26E+10	
-0.00787	66528.	0.00					
63.9000	1.02E-06	1.9562	0.1382	-2.33E-08	0.00	1.26E+10	
-0.00643	68239.	0.00					
64.8000	7.75E-07	3.1226	0.07641	-2.11E-08	0.00	1.26E+10	
-0.00502	69949.	0.00					
65.7000	5.61E-07	3.6978	0.02919	-1.82E-08	0.00	1.26E+10	
-0.00372	71660.	0.00					
66.6000	3.82E-07	3.8317	-0.00493	-1.50E-08	0.00	1.26E+10	
-0.00260	73371.	0.00					
67.5000	2.38E-07	3.6558	-0.02790	-1.17E-08	0.00	1.26E+10	
-0.00166	75082.	0.00					
68.4000	1.29E-07	3.2797	-0.04178	-8.77E-09	0.00	1.26E+10	
-9.14E-04	76792.	0.00					
69.3000	4.90E-08	2.7911	-0.04864	-6.16E-09	0.00	1.26E+10	
-3.56E-04	78503.	0.00					
70.2000	-4.58E-09	2.2557	-0.05039	-4.00E-09	0.00	1.26E+10	
3.40E-05	80214.	0.00					
71.1000	-3.73E-08	1.7200	-0.04867	-2.29E-09	0.00	1.26E+10	
2.83E-04	81924.	0.00					
72.0000	-5.41E-08	1.2142	-0.04303	-1.03E-09	0.00	1.26E+10	
7.62E-04	152064.	0.00					
72.9000	-5.96E-08	0.7950	-0.03457	-1.72E-10	0.00	1.26E+10	
8.06E-04	145905.	0.00					
73.8000	-5.78E-08	0.4682	-0.02618	3.70E-10	0.00	1.26E+10	
7.48E-04	139747.	0.00					
74.7000	-5.16E-08	0.2278	-0.01869	6.68E-10	0.00	1.26E+10	

6.39E-04	133588.	0.00					
75.6000	-4.34E-08	0.06154	-0.01248	7.92E-10	0.00	1.26E+10	
5.12E-04	127430.	0.00					
76.5000	-3.45E-08	-0.04519	-0.00762	7.99E-10	0.00	1.26E+10	
3.88E-04	121271.	0.00					
77.4000	-2.61E-08	-0.107	-0.00403	7.34E-10	0.00	1.26E+10	
2.78E-04	115112.	0.00					
78.3000	-1.87E-08	-0.135	-0.00151	6.31E-10	0.00	1.26E+10	
1.88E-04	108954.	0.00					
79.2000	-1.25E-08	-0.142	1.49E-04	5.12E-10	0.00	1.26E+10	
1.19E-04	102795.	0.00					
80.1000	-7.62E-09	-0.134	0.00116	3.93E-10	0.00	1.26E+10	
6.81E-05	96637.	0.00					
81.0000	-3.99E-09	-0.119	0.00171	2.85E-10	0.00	1.26E+10	
3.35E-05	90478.	0.00					
81.9000	-1.47E-09	-0.09872	0.00195	1.91E-10	0.00	1.26E+10	
1.15E-05	84319.	0.00					
82.8000	1.41E-10	-0.07731	0.00200	1.16E-10	0.00	1.26E+10	
-2.72E-06	209088.	0.00					
83.7000	1.03E-09	-0.05608	0.00186	5.87E-11	0.00	1.26E+10	
-2.21E-05	230472.	0.00					
84.6000	1.41E-09	-0.03732	0.00157	1.86E-11	0.00	1.26E+10	
-3.28E-05	251856.	0.00					
85.5000	1.44E-09	-0.02232	0.00119	-6.96E-12	0.00	1.26E+10	
-3.63E-05	273240.	0.00					
86.4000	1.26E-09	-0.01151	8.12E-04	-2.15E-11	0.00	1.26E+10	
-3.43E-05	294624.	0.00					
87.3000	9.72E-10	-0.00469	4.73E-04	-2.84E-11	0.00	1.26E+10	
-2.84E-05	316008.	0.00					
88.2000	6.44E-10	-0.00117	2.11E-04	-3.09E-11	0.00	1.26E+10	
-2.01E-05	337392.	0.00					
89.1000	3.04E-10	4.65E-06	4.78E-05	-3.14E-11	0.00	1.26E+10	
-1.01E-05	358776.	0.00					
90.0000	-3.53E-11	0.00	0.00	-3.14E-11	0.00	1.26E+10	
1.24E-06	190080.	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	=	0.50000000 inches
Computed slope at pile head	=	-0.0080798 radians
Maximum bending moment	=	826793. inch-lbs
Maximum shear force	=	32529. lbs

Depth of maximum bending moment = 4.50000000 feet below pile head
 Depth of maximum shear force = 0.000000 feet below pile head
 Number of iterations = 12
 Number of zero deflection points = 7

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

Pile-head conditions are Shear and Pile-head Rotation (Loading Type 2)

Shear force at pile head	=	34600.0 lbs
Rotation of pile head	=	0.000E+00 radians
Axial load at pile head	=	200000.0 lbs

(Zero slope for this load indicates fixed-head conditions)

Res.	Depth feet	Deflect. Soil Spr. X Es*H	Bending Distrib. y Lat. Load inches	Shear Force lbs	Slope radians	Total Stress psi*	Bending Stiffness lb-in^2	Soil p
0.00	0.2072	-962995.	34600.	0.00	0.00	6.31E+09		
-553.253	14417.	0.00						
0.9000	0.1983	-619800.	28692.	-0.00135	0.00	6.31E+09		
-540.753	29447.	0.00						
1.8000	0.1780	-337387.	23017.	-0.00203	0.00	1.26E+10		
-510.181	30961.	0.00						
2.7000	0.1545	-113854.	17718.	-0.00222	0.00	1.26E+10		
-471.125	32940.	0.00						
3.6000	0.1299	54937.	12877.	-0.00225	0.00	1.26E+10		
-425.343	35359.	0.00						
4.5000	0.1059	174015.	8557.	-0.00215	0.00	1.26E+10		
-374.666	38219.	0.00						
5.4000	0.08345	249069.	4801.	-0.00197	0.00	1.26E+10		
-321.002	41546.	0.00						
6.3000	0.06333	286219.	1968.	-0.00174	0.00	1.26E+10		
-203.581	34718.	0.00						
7.2000	0.04587	299092.	-6.712	-0.00149	0.00	1.26E+10		
-162.094	38165.	0.00						
8.1000	0.03119	292503.	-1440.	-0.00123	0.00	1.26E+10		
-103.325	35783.	0.00						
9.0000	0.01922	273319.	-2384.	-9.91E-04	0.00	1.26E+10		
-71.463	40160.	0.00						

9.9000	0.00979	245292.	-2974.	-7.68E-04	0.00	1.26E+10
-37.894	41818.	0.00				
10.8000	0.00263	212390.	-3234.	-5.71E-04	0.00	1.26E+10
-10.190	41818.	0.00				
11.7000	-0.00255	177905.	-3236.	-4.04E-04	0.00	1.26E+10
9.8843	41818.	0.00				
12.6000	-0.00609	144243.	-3055.	-2.65E-04	0.00	1.26E+10
23.5699	41818.	0.00				
13.5000	-0.00828	113063.	-2755.	-1.55E-04	0.00	1.26E+10
32.0762	41818.	0.00				
14.4000	-0.00943	85414.	-2384.	-6.97E-05	0.00	1.26E+10
36.5234	41818.	0.00				
15.3000	-0.00979	61867.	-1982.	-6.48E-06	0.00	1.26E+10
37.9046	41818.	0.00				
16.2000	-0.00957	42627.	-1577.	3.84E-05	0.00	1.26E+10
37.0652	41818.	0.00				
17.1000	-0.00896	27631.	-1241.	6.85E-05	0.00	1.26E+10
25.2335	30413.	0.00				
18.0000	-0.00809	15527.	-981.607	8.70E-05	0.00	1.26E+10
22.7893	30413.	0.00				
18.9000	-0.00708	6052.	-750.868	9.63E-05	0.00	1.26E+10
19.9401	30413.	0.00				
19.8000	-0.00601	-1108.	-551.753	9.84E-05	0.00	1.26E+10
16.9331	30413.	0.00				
20.7000	-0.00496	-6291.	-384.958	9.52E-05	0.00	1.26E+10
13.9549	30413.	0.00				
21.6000	-0.00396	-9834.	-249.442	8.83E-05	0.00	1.26E+10
11.1408	30413.	0.00				
22.5000	-0.00305	-12060.	-131.345	7.89E-05	0.00	1.26E+10
10.7290	38016.	0.00				
23.4000	-0.00225	-13012.	-30.611	6.82E-05	0.00	1.26E+10
7.9254	38016.	0.00				
24.3000	-0.00158	-13016.	42.1349	5.70E-05	0.00	1.26E+10
5.5460	38016.	0.00				
25.2000	-0.00102	-12348.	91.4753	4.61E-05	0.00	1.26E+10
3.5911	38016.	0.00				
26.1000	-5.79E-04	-11239.	121.8769	3.60E-05	0.00	1.26E+10
2.0388	38016.	0.00				
27.0000	-2.42E-04	-9871.	138.4144	2.70E-05	0.00	1.26E+10
1.0237	45619.	0.00				
27.9000	3.08E-06	-8366.	143.8720	1.91E-05	0.00	1.26E+10
-0.01299	45619.	0.00				
28.8000	1.71E-04	-6846.	139.9015	1.26E-05	0.00	1.26E+10
-0.722	45619.	0.00				
29.7000	2.75E-04	-5398.	129.7172	7.36E-06	0.00	1.26E+10
-1.164	45619.	0.00				
30.6000	3.30E-04	-4076.	115.9065	3.30E-06	0.00	1.26E+10
-1.394	45619.	0.00				
31.5000	3.47E-04	-2909.	100.4715	3.01E-07	0.00	1.26E+10
-1.464	45619.	0.00				

32.4000	3.36E-04	-1907.	82.9693	-1.76E-06	0.00	1.26E+10
-1.777	57024.	0.00				
33.3000	3.09E-04	-1109.	64.5768	-3.06E-06	0.00	1.26E+10
-1.629	57024.	0.00				
34.2000	2.70E-04	-499.215	48.0677	-3.75E-06	0.00	1.26E+10
-1.428	57024.	0.00				
35.1000	2.28E-04	-54.798	33.8670	-3.99E-06	0.00	1.26E+10
-1.202	57024.	0.00				
36.0000	1.84E-04	249.5304	22.1209	-3.90E-06	0.00	1.26E+10
-0.973	57024.	0.00				
36.9000	1.43E-04	439.8719	12.7781	-3.61E-06	0.00	1.26E+10
-0.757	57024.	0.00				
37.8000	1.06E-04	541.1170	5.6563	-3.19E-06	0.00	1.26E+10
-0.562	57024.	0.00				
38.7000	7.45E-05	575.8116	0.4966	-2.71E-06	0.00	1.26E+10
-0.394	57024.	0.00				
39.6000	4.80E-05	563.5375	-2.996	-2.22E-06	0.00	1.26E+10
-0.253	57024.	0.00				
40.5000	2.66E-05	520.6785	-5.123	-1.75E-06	0.00	1.26E+10
-0.141	57024.	0.00				
41.4000	1.01E-05	460.4598	-6.170	-1.33E-06	0.00	1.26E+10
-0.05332	57024.	0.00				
42.3000	-2.16E-06	393.1683	-6.421	-9.66E-07	0.00	1.26E+10
0.00683	34214.	0.00				
43.2000	-1.08E-05	325.9454	-6.200	-6.58E-07	0.00	1.26E+10
0.03412	34214.	0.00				
44.1000	-1.64E-05	262.0987	-5.735	-4.06E-07	0.00	1.26E+10
0.05185	34214.	0.00				
45.0000	-1.95E-05	203.8138	-5.121	-2.06E-07	0.00	1.26E+10
0.06188	34214.	0.00				
45.9000	-2.08E-05	152.3687	-4.431	-5.30E-08	0.00	1.26E+10
0.06593	34214.	0.00				
46.8000	-2.07E-05	108.3311	-3.721	5.88E-08	0.00	1.26E+10
0.06551	34214.	0.00				
47.7000	-1.95E-05	71.7335	-3.060	1.36E-07	0.00	1.26E+10
0.05695	31477.	0.00				
48.6000	-1.77E-05	41.6458	-2.461	1.85E-07	0.00	1.26E+10
0.05395	32846.	0.00				
49.5000	-1.56E-05	17.7738	-1.904	2.10E-07	0.00	1.26E+10
0.04927	34214.	0.00				
50.4000	-1.32E-05	-0.384	-1.403	2.18E-07	0.00	1.26E+10
0.04349	35583.	0.00				
51.3000	-1.09E-05	-13.469	-0.968	2.12E-07	0.00	1.26E+10
0.03713	36952.	0.00				
52.2000	-8.63E-06	-22.198	-0.602	1.96E-07	0.00	1.26E+10
0.03062	38320.	0.00				
53.1000	-6.61E-06	-27.314	-0.305	1.75E-07	0.00	1.26E+10
0.02430	39689.	0.00				
54.0000	-4.85E-06	-29.546	-0.07450	1.51E-07	0.00	1.26E+10
0.01842	41057.	0.00				

54.9000	-3.36E-06	-29.574	0.09617	1.25E-07	0.00	1.26E+10
0.01318	42426.	0.00				
55.8000	-2.14E-06	-28.010	0.2142	1.01E-07	0.00	1.26E+10
0.00867	43794.	0.00				
56.7000	-1.18E-06	-25.383	0.2877	7.78E-08	0.00	1.26E+10
0.00494	45163.	0.00				
57.6000	-4.58E-07	-22.133	0.3248	5.74E-08	0.00	1.26E+10
0.00194	45619.	0.00				
58.5000	5.90E-08	-18.616	0.3339	3.99E-08	0.00	1.26E+10
-2.49E-04	45619.	0.00				
59.4000	4.04E-07	-15.093	0.3233	2.55E-08	0.00	1.26E+10
-0.00171	45619.	0.00				
60.3000	6.09E-07	-11.742	0.3002	1.40E-08	0.00	1.26E+10
-0.00257	45619.	0.00				
61.2000	7.05E-07	-8.669	0.2702	5.20E-09	0.00	1.26E+10
-0.00298	45619.	0.00				
62.1000	7.21E-07	-5.927	0.2308	-1.06E-09	0.00	1.26E+10
-0.00433	64817.	0.00				
63.0000	6.82E-07	-3.679	0.1847	-5.18E-09	0.00	1.26E+10
-0.00420	66528.	0.00				
63.9000	6.09E-07	-1.915	0.1412	-7.58E-09	0.00	1.26E+10
-0.00385	68239.	0.00				
64.8000	5.19E-07	-0.596	0.1023	-8.66E-09	0.00	1.26E+10
-0.00336	69949.	0.00				
65.7000	4.22E-07	0.3317	0.06900	-8.77E-09	0.00	1.26E+10
-0.00280	71660.	0.00				
66.6000	3.29E-07	0.9320	0.04178	-8.23E-09	0.00	1.26E+10
-0.00224	73371.	0.00				
67.5000	2.45E-07	1.2697	0.02052	-7.28E-09	0.00	1.26E+10
-0.00170	75082.	0.00				
68.4000	1.72E-07	1.4067	0.00473	-6.14E-09	0.00	1.26E+10
-0.00122	76792.	0.00				
69.3000	1.12E-07	1.3983	-0.00628	-4.93E-09	0.00	1.26E+10
-8.16E-04	78503.	0.00				
70.2000	6.54E-08	1.2923	-0.01331	-3.78E-09	0.00	1.26E+10
-4.86E-04	80214.	0.00				
71.1000	3.06E-08	1.1272	-0.01719	-2.74E-09	0.00	1.26E+10
-2.32E-04	81924.	0.00				
72.0000	6.22E-09	0.9329	-0.01891	-1.86E-09	0.00	1.26E+10
-8.76E-05	152064.	0.00				
72.9000	-9.52E-09	0.7266	-0.01869	-1.15E-09	0.00	1.26E+10
1.29E-04	145905.	0.00				
73.8000	-1.85E-08	0.5340	-0.01670	-6.05E-10	0.00	1.26E+10
2.40E-04	139747.	0.00				
74.7000	-2.26E-08	0.3684	-0.01390	-2.18E-10	0.00	1.26E+10
2.79E-04	133588.	0.00				
75.6000	-2.32E-08	0.2347	-0.01091	4.09E-11	0.00	1.26E+10
2.74E-04	127430.	0.00				
76.5000	-2.17E-08	0.1325	-0.00812	1.98E-10	0.00	1.26E+10
2.44E-04	121271.	0.00				

77.4000	-1.89E-08	0.05847	-0.00571	2.80E-10	0.00	1.26E+10
2.02E-04	115112.	0.00				
78.3000	-1.56E-08	0.00789	-0.00377	3.09E-10	0.00	1.26E+10
1.58E-04	108954.	0.00				
79.2000	-1.23E-08	-0.02430	-0.00229	3.02E-10	0.00	1.26E+10
1.17E-04	102795.	0.00				
80.1000	-9.13E-09	-0.04282	-0.00122	2.73E-10	0.00	1.26E+10
8.17E-05	96637.	0.00				
81.0000	-6.38E-09	-0.05173	-4.86E-04	2.32E-10	0.00	1.26E+10
5.34E-05	90478.	0.00				
81.9000	-4.11E-09	-0.05431	-2.37E-05	1.87E-10	0.00	1.26E+10
3.21E-05	84319.	0.00				
82.8000	-2.34E-09	-0.05305	3.95E-04	1.41E-10	0.00	1.26E+10
4.54E-05	209088.	0.00				
83.7000	-1.07E-09	-0.04640	7.63E-04	9.81E-11	0.00	1.26E+10
2.28E-05	230472.	0.00				
84.6000	-2.24E-10	-0.03700	9.14E-04	6.24E-11	0.00	1.26E+10
5.23E-06	251856.	0.00				
85.5000	2.78E-10	-0.02691	9.05E-04	3.50E-11	0.00	1.26E+10
-7.03E-06	273240.	0.00				
86.4000	5.31E-10	-0.01760	7.89E-04	1.59E-11	0.00	1.26E+10
-1.45E-05	294624.	0.00				
87.3000	6.21E-10	-0.00995	6.12E-04	4.05E-12	0.00	1.26E+10
-1.82E-05	316008.	0.00				
88.2000	6.18E-10	-0.00439	4.10E-04	-2.10E-12	0.00	1.26E+10
-1.93E-05	337392.	0.00				
89.1000	5.75E-10	-0.00108	2.02E-04	-4.45E-12	0.00	1.26E+10
-1.91E-05	358776.	0.00				
90.0000	5.22E-10	0.00	0.00	-4.91E-12	0.00	1.26E+10
-1.84E-05	190080.	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	=	0.20722932 inches
Computed slope at pile head	=	0.000000 radians
Maximum bending moment	=	-962995. inch-lbs
Maximum shear force	=	34600. lbs
Depth of maximum bending moment	=	0.000000 feet below pile head
Depth of maximum shear force	=	0.000000 feet below pile head
Number of iterations	=	14
Number of zero deflection points	=	6

 Computed Values of Pile Loading and Deflection
 for Lateral Loading for Load Case Number 4

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

Shear force at pile head	=	34600.0 lbs
Applied moment at pile head	=	0.0 in-lbs
Axial thrust load on pile head	=	200000.0 lbs

Depth	Deflect.	Bending	Shear	Slope	Total	Bending	Soil
Res.	Soil	Spr.	Distrib.				
X	y	Moment	Force	S	Stress	Stiffness	p
feet	inches	in-lbs	lbs	radians	psi*	lb-in^2	
lb/inch	lb/inch	lb/inch					
0.00	0.5981	2.40E-08	34600.	-0.00968	0.00	1.26E+10	
-776.422	7010.	0.00					
0.9000	0.4935	349316.	26285.	-0.00953	0.00	1.26E+10	
-763.406	16706.	0.00					
1.8000	0.3922	608941.	18257.	-0.00908	0.00	1.08E+10	
-723.292	19918.	0.00					
2.7000	0.2974	782890.	10814.	-0.00828	0.00	8.46E+09	
-654.945	23785.	0.00					
3.6000	0.2134	878288.	4245.	-0.00712	0.00	7.24E+09	
-561.605	28423.	0.00					
4.5000	0.1435	905352.	-1225.	-0.00576	0.00	6.93E+09	
-451.416	33965.	0.00					
5.4000	0.08893	876712.	-5471.	-0.00440	0.00	7.26E+09	
-334.774	40656.	0.00					
6.3000	0.04841	806207.	-8188.	-0.00322	0.00	8.15E+09	
-168.491	37589.	0.00					
7.2000	0.01943	713742.	-9558.	-0.00227	0.00	9.42E+09	
-85.172	47346.	0.00					
8.1000	-7.14E-04	609575.	-10003.	-0.00156	0.00	1.08E+10	
2.7645	41818.	0.00					
9.0000	-0.01429	504417.	-9689.	-0.00104	0.00	1.25E+10	
55.3412	41818.	0.00					
9.9000	-0.02317	404774.	-8945.	-6.48E-04	0.00	1.25E+10	
82.5366	38469.	0.00					
10.8000	-0.02829	314006.	-7981.	-3.39E-04	0.00	1.26E+10	
96.0364	36664.	0.00					
11.7000	-0.03049	233856.	-6913.	-1.03E-04	0.00	1.26E+10	
101.5963	35987.	0.00					
12.6000	-0.03052	165123.	-5816.	6.80E-05	0.00	1.26E+10	

101.6747	35977.	0.00					
13.5000	-0.02902	107943.	-4738.	1.85E-04	0.00	1.26E+10	
97.9025	36433.	0.00					
14.4000	-0.02652	61981.	-3715.	2.58E-04	0.00	1.26E+10	
91.4672	37248.	0.00					
15.3000	-0.02345	26574.	-2772.	2.96E-04	0.00	1.26E+10	
83.2802	38362.	0.00					
16.2000	-0.02012	831.3312	-1922.	3.08E-04	0.00	1.26E+10	
74.0558	39744.	0.00					
17.1000	-0.01679	-16275.	-1270.	3.01E-04	0.00	1.26E+10	
46.7979	30094.	0.00					
18.0000	-0.01362	-27893.	-809.809	2.82E-04	0.00	1.26E+10	
38.3427	30413.	0.00					
18.9000	-0.01070	-34987.	-440.111	2.55E-04	0.00	1.26E+10	
30.1198	30413.	0.00					
19.8000	-0.00810	-38502.	-154.290	2.24E-04	0.00	1.26E+10	
22.8100	30413.	0.00					
20.7000	-0.00586	-39286.	58.0120	1.90E-04	0.00	1.26E+10	
16.5052	30413.	0.00					
21.6000	-0.00399	-38072.	207.7583	1.57E-04	0.00	1.26E+10	
11.2256	30413.	0.00					
22.5000	-0.00246	-35478.	315.2204	1.26E-04	0.00	1.26E+10	
8.6747	38016.	0.00					
23.4000	-0.00127	-31806.	386.2283	9.68E-05	0.00	1.26E+10	
4.4749	38016.	0.00					
24.3000	-3.73E-04	-27554.	417.4806	7.14E-05	0.00	1.26E+10	
1.3126	38016.	0.00					
25.2000	2.70E-04	-23097.	419.4338	4.96E-05	0.00	1.26E+10	
-0.951	38016.	0.00					
26.1000	6.99E-04	-18709.	401.0096	3.17E-05	0.00	1.26E+10	
-2.461	38016.	0.00					
27.0000	9.55E-04	-14572.	365.9412	1.74E-05	0.00	1.26E+10	
-4.033	45619.	0.00					
27.9000	0.00108	-10879.	319.6306	6.51E-06	0.00	1.26E+10	
-4.543	45619.	0.00					
28.8000	0.00110	-7696.	270.1138	-1.46E-06	0.00	1.26E+10	
-4.627	45619.	0.00					
29.7000	0.00104	-5039.	221.3160	-6.92E-06	0.00	1.26E+10	
-4.410	45619.	0.00					
30.6000	9.46E-04	-2886.	175.9281	-1.03E-05	0.00	1.26E+10	
-3.995	45619.	0.00					
31.5000	8.21E-04	-1194.	135.6248	-1.21E-05	0.00	1.26E+10	
-3.468	45619.	0.00					
32.4000	6.85E-04	95.6042	97.3610	-1.25E-05	0.00	1.26E+10	
-3.618	57024.	0.00					
33.3000	5.50E-04	963.1170	62.1387	-1.21E-05	0.00	1.26E+10	
-2.905	57024.	0.00					
34.2000	4.24E-04	1490.	34.3602	-1.10E-05	0.00	1.26E+10	
-2.239	57024.	0.00					
35.1000	3.12E-04	1753.	13.3776	-9.64E-06	0.00	1.26E+10	

-1.646	57024.	0.00					
36.0000	2.16E-04	1821.	-1.666	-8.11E-06	0.00	1.26E+10	
-1.139	57024.	0.00					
36.9000	1.37E-04	1752.	-11.714	-6.58E-06	0.00	1.26E+10	
-0.721	57024.	0.00					
37.8000	7.37E-05	1596.	-17.710	-5.14E-06	0.00	1.26E+10	
-0.389	57024.	0.00					
38.7000	2.55E-05	1392.	-20.539	-3.86E-06	0.00	1.26E+10	
-0.135	57024.	0.00					
39.6000	-9.73E-06	1169.	-20.989	-2.76E-06	0.00	1.26E+10	
0.05137	57024.	0.00					
40.5000	-3.42E-05	950.2873	-19.738	-1.85E-06	0.00	1.26E+10	
0.1804	57024.	0.00					
41.4000	-4.98E-05	750.7631	-17.344	-1.12E-06	0.00	1.26E+10	
0.2629	57024.	0.00					
42.3000	-5.85E-05	580.5080	-14.925	-5.54E-07	0.00	1.26E+10	
0.1852	34214.	0.00					
43.2000	-6.17E-05	430.7774	-12.869	-1.20E-07	0.00	1.26E+10	
0.1956	34214.	0.00					
44.1000	-6.11E-05	303.0656	-10.768	1.95E-07	0.00	1.26E+10	
0.1934	34214.	0.00					
45.0000	-5.75E-05	197.3514	-8.739	4.09E-07	0.00	1.26E+10	
0.1823	34214.	0.00					
45.9000	-5.22E-05	112.5354	-6.861	5.42E-07	0.00	1.26E+10	
0.1654	34214.	0.00					
46.8000	-4.58E-05	46.8039	-5.184	6.10E-07	0.00	1.26E+10	
0.1452	34214.	0.00					
47.7000	-3.90E-05	-2.077	-3.786	6.30E-07	0.00	1.26E+10	
0.1137	31477.	0.00					
48.6000	-3.22E-05	-37.687	-2.642	6.13E-07	0.00	1.26E+10	
0.09804	32846.	0.00					
49.5000	-2.58E-05	-61.793	-1.671	5.70E-07	0.00	1.26E+10	
0.08172	34214.	0.00					
50.4000	-1.99E-05	-76.252	-0.876	5.11E-07	0.00	1.26E+10	
0.06565	35583.	0.00					
51.3000	-1.48E-05	-82.912	-0.248	4.42E-07	0.00	1.26E+10	
0.05051	36952.	0.00					
52.2000	-1.04E-05	-83.528	0.2231	3.71E-07	0.00	1.26E+10	
0.03679	38320.	0.00					
53.1000	-6.75E-06	-79.697	0.5557	3.01E-07	0.00	1.26E+10	
0.02480	39689.	0.00					
54.0000	-3.87E-06	-72.825	0.7690	2.36E-07	0.00	1.26E+10	
0.01470	41057.	0.00					
54.9000	-1.66E-06	-64.105	0.8835	1.77E-07	0.00	1.26E+10	
0.00652	42426.	0.00					
55.8000	-4.51E-08	-54.505	0.9197	1.26E-07	0.00	1.26E+10	
1.83E-04	43794.	0.00					
56.7000	1.06E-06	-44.784	0.8967	8.35E-08	0.00	1.26E+10	
-0.00445	45163.	0.00					
57.6000	1.76E-06	-35.498	0.8326	4.90E-08	0.00	1.26E+10	

-0.00742	45619.	0.00					
58.5000	2.12E-06	-27.012	0.7441	2.22E-08	0.00	1.26E+10	
-0.00897	45619.	0.00					
59.4000	2.24E-06	-19.522	0.6446	2.26E-09	0.00	1.26E+10	
-0.00945	45619.	0.00					
60.3000	2.17E-06	-13.098	0.5441	-1.17E-08	0.00	1.26E+10	
-0.00917	45619.	0.00					
61.2000	1.98E-06	-7.719	0.4493	-2.07E-08	0.00	1.26E+10	
-0.00838	45619.	0.00					
62.1000	1.72E-06	-3.304	0.3481	-2.54E-08	0.00	1.26E+10	
-0.01035	64817.	0.00					
63.0000	1.44E-06	-0.08994	0.2445	-2.68E-08	0.00	1.26E+10	
-0.00884	66528.	0.00					
63.9000	1.15E-06	2.0928	0.1577	-2.60E-08	0.00	1.26E+10	
-0.00724	68239.	0.00					
64.8000	8.74E-07	3.4278	0.08802	-2.36E-08	0.00	1.26E+10	
-0.00566	69949.	0.00					
65.7000	6.35E-07	4.0960	0.03469	-2.04E-08	0.00	1.26E+10	
-0.00421	71660.	0.00					
66.6000	4.34E-07	4.2652	-0.00397	-1.68E-08	0.00	1.26E+10	
-0.00295	73371.	0.00					
67.5000	2.72E-07	4.0828	-0.03009	-1.32E-08	0.00	1.26E+10	
-0.00189	75082.	0.00					
68.4000	1.48E-07	3.6724	-0.04598	-9.90E-09	0.00	1.26E+10	
-0.00105	76792.	0.00					
69.3000	5.81E-08	3.1324	-0.05395	-6.98E-09	0.00	1.26E+10	
-4.23E-04	78503.	0.00					
70.2000	-2.74E-09	2.5372	-0.05612	-4.55E-09	0.00	1.26E+10	
2.03E-05	80214.	0.00					
71.1000	-4.01E-08	1.9397	-0.05437	-2.63E-09	0.00	1.26E+10	
3.04E-04	81924.	0.00					
72.0000	-5.95E-08	1.3742	-0.04820	-1.21E-09	0.00	1.26E+10	
8.38E-04	152064.	0.00					
72.9000	-6.62E-08	0.9038	-0.03885	-2.31E-10	0.00	1.26E+10	
8.94E-04	145905.	0.00					
73.8000	-6.45E-08	0.5361	-0.02951	3.87E-10	0.00	1.26E+10	
8.35E-04	139747.	0.00					
74.7000	-5.78E-08	0.2647	-0.02114	7.30E-10	0.00	1.26E+10	
7.15E-04	133588.	0.00					
75.6000	-4.87E-08	0.07629	-0.01417	8.77E-10	0.00	1.26E+10	
5.75E-04	127430.	0.00					
76.5000	-3.89E-08	-0.04521	-0.00871	8.90E-10	0.00	1.26E+10	
4.37E-04	121271.	0.00					
77.4000	-2.95E-08	-0.116	-0.00465	8.21E-10	0.00	1.26E+10	
3.14E-04	115112.	0.00					
78.3000	-2.12E-08	-0.149	-0.00180	7.07E-10	0.00	1.26E+10	
2.14E-04	108954.	0.00					
79.2000	-1.42E-08	-0.158	8.36E-05	5.76E-10	0.00	1.26E+10	
1.35E-04	102795.	0.00					
80.1000	-8.74E-09	-0.150	0.00124	4.44E-10	0.00	1.26E+10	

7.82E-05	96637.	0.00					
81.0000	-4.64E-09	-0.133	0.00187	3.23E-10	0.00	1.26E+10	
3.88E-05	90478.	0.00					
81.9000	-1.77E-09	-0.111	0.00215	2.18E-10	0.00	1.26E+10	
1.38E-05	84319.	0.00					
82.8000	7.22E-11	-0.08727	0.00222	1.33E-10	0.00	1.26E+10	
-1.40E-06	209088.	0.00					
83.7000	1.10E-09	-0.06359	0.00209	6.83E-11	0.00	1.26E+10	
-2.36E-05	230472.	0.00					
84.6000	1.55E-09	-0.04253	0.00176	2.28E-11	0.00	1.26E+10	
-3.61E-05	251856.	0.00					
85.5000	1.60E-09	-0.02560	0.00135	-6.45E-12	0.00	1.26E+10	
-4.04E-05	273240.	0.00					
86.4000	1.41E-09	-0.01334	9.25E-04	-2.32E-11	0.00	1.26E+10	
-3.84E-05	294624.	0.00					
87.3000	1.10E-09	-0.00553	5.44E-04	-3.12E-11	0.00	1.26E+10	
-3.21E-05	316008.	0.00					
88.2000	7.33E-10	-0.00145	2.48E-04	-3.42E-11	0.00	1.26E+10	
-2.29E-05	337392.	0.00					
89.1000	3.56E-10	-3.32E-05	6.00E-05	-3.49E-11	0.00	1.26E+10	
-1.18E-05	358776.	0.00					
90.0000	-2.05E-11	0.00	0.00	-3.49E-11	0.00	1.26E+10	
7.22E-07	190080.	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. 4:

Pile-head deflection	=	0.59811917 inches
Computed slope at pile head	=	-0.0096836 radians
Maximum bending moment	=	905352. inch-lbs
Maximum shear force	=	34600. lbs
Depth of maximum bending moment	=	4.50000000 feet below pile head
Depth of maximum shear force	=	0.000000 feet below pile head
Number of iterations	=	28
Number of zero deflection points	=	7

Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs
 Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians
 Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
 Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
 Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

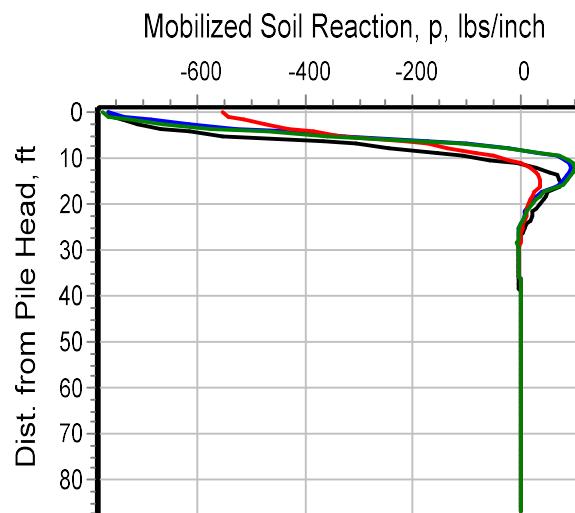
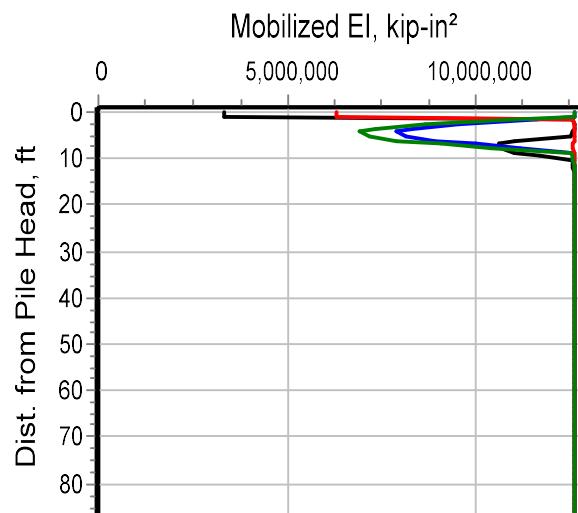
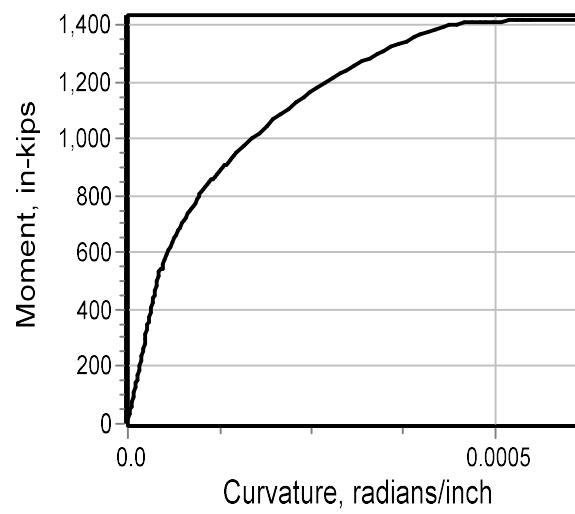
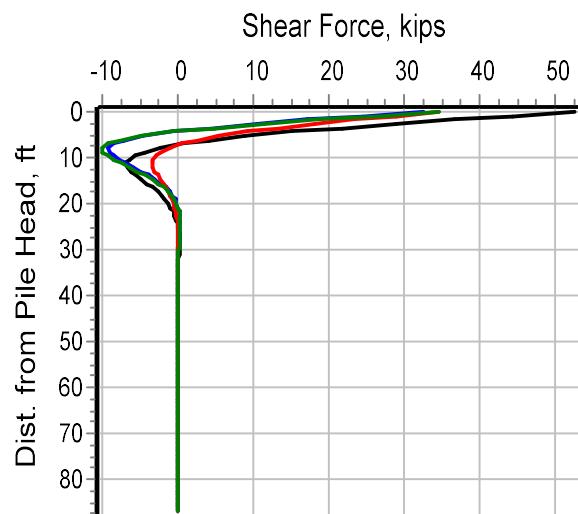
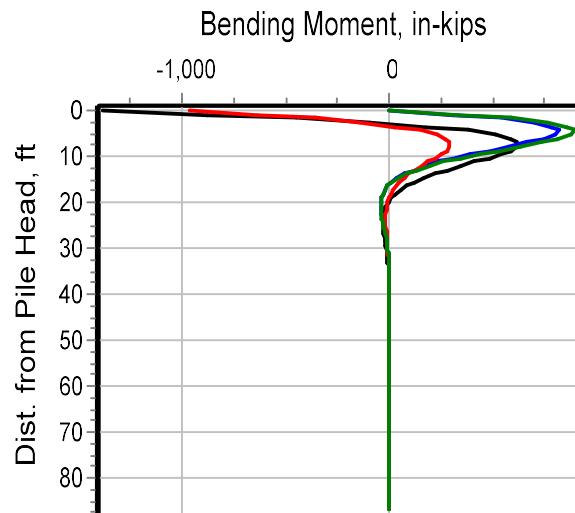
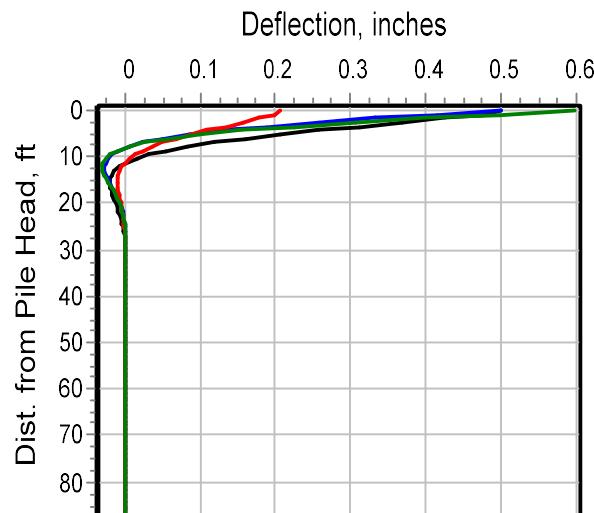
Load	Load	Load	Axial	Pile-head	Pile-head	Max	
Shear	Max	Moment					
Case	Type	Pile-head	Type	Pile-head	Loading	Rotation	in
Pile		in Pile					
No.	1	Load 1	2	Load 2	lbs	inches	radians
		in-lbs					lbs
1	y, in	0.5000	S, rad	0.00	200000.	0.5000	0.00
52558.	-1384933.						
2	y, in	0.5000	M, in-lb	0.00	200000.	0.5000	-0.00808
32529.	826793.						
3	V, lb	34600.	S, rad	0.00	200000.	0.2072	0.00
34600.	-962995.						
4	V, lb	34600.	M, in-lb	0.00	200000.	0.5981	-0.00968
34600.	905352.						

Maximum pile-head deflection = 0.5981191748 inches
 Maximum pile-head rotation = -0.0096836086 radians = -0.554830 deg.

The analysis ended normally.

FCWS Elevated Storage Tank
Fayette County
Oasis Project No. 224927

Lateral Pile Analysis
16-Inch ACIP



---- Fixed Head w 0.5" Deflection,
----- Pinned Head w 0.5" Deflection,
- - - - Fixed Head w Shear
- - - - Pinned Head w Shear

=====

LPile for Windows, Version 2022-12.005

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:

\D-OCS\PROJECTS\Arcadis.10004\224927.Trilith Studios Above Ground Storage
Tank\01.Subsurface Exploration\07.Redesign of ACIPs\

Name of input data file:

LPile 18 inch ACIP Axial & Shear (USCS units) 6-21-23.lp12d

Name of output report file:

LPile 18 inch ACIP Axial & Shear (USCS units) 6-21-23.lp12o

Name of plot output file:

LPile 18 inch ACIP Axial & Shear (USCS units) 6-21-23.lp12p

Name of runtime message file:

LPile 18 inch ACIP Axial & Shear (USCS units) 6-21-23.lp12r

Date and Time of Analysis

Date: June 22, 2023

Time: 9:23:14

Problem Title

Project Name: FCWS Elevated Storage Tank

Job Number: 224927

Client: Arcadis

Engineer:

Description:

Program Options and Settings

Computational Options:

- Conventional Analysis

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
- Use of p-y modification factors for p-y curves not selected
- 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	=	90.000 ft
Depth of ground surface below top of pile	=	0.0000 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	Pile Diameter
	feet	inches
1	0.000	18.0000
2	90.000	18.0000

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	=	90.000000 ft
Shaft Diameter	=	18.000000 in

Soil and Rock Layering Information

The soil profile is modelled using 16 layers

Layer 1 is Piedmont residual soil

Distance from top of pile to top of layer	=	0.0000 ft
Distance from top of pile to bottom of layer	=	3.000000 ft
Effective unit weight at top of layer	=	110.000000 pcf
Effective unit weight at bottom of layer	=	110.000000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	17.000000 blows/ft
SPT N60 at bottom of layer	=	17.000000 blows/ft

Layer 2 is Piedmont residual soil

Distance from top of pile to top of layer	=	3.000000 ft
Distance from top of pile to bottom of layer	=	5.500000 ft
Effective unit weight at top of layer	=	110.000000 pcf
Effective unit weight at bottom of layer	=	110.000000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	17.000000 blows/ft
SPT N60 at bottom of layer	=	17.000000 blows/ft

Layer 3 is Piedmont residual soil

Distance from top of pile to top of layer	=	5.500000 ft
Distance from top of pile to bottom of layer	=	8.000000 ft
Effective unit weight at top of layer	=	110.000000 pcf
Effective unit weight at bottom of layer	=	110.000000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	13.000000 blows/ft
SPT N60 at bottom of layer	=	13.000000 blows/ft

Layer 4 is Piedmont residual soil

Distance from top of pile to top of layer	=	8.000000 ft
Distance from top of pile to bottom of layer	=	12.000000 ft
Effective unit weight at top of layer	=	110.000000 pcf
Effective unit weight at bottom of layer	=	110.000000 pcf

The type of field test is the Standard Penetration Test (SPT)
SPT N60 at top of layer = 11.000000 blows/ft
SPT N60 at bottom of layer = 11.000000 blows/ft

Layer 5 is Piedmont residual soil

Distance from top of pile to top of layer = 12.000000 ft
Distance from top of pile to bottom of layer = 17.000000 ft
Effective unit weight at top of layer = 110.000000 pcf
Effective unit weight at bottom of layer = 110.000000 pcf
The type of field test is the Standard Penetration Test (SPT)
SPT N60 at top of layer = 11.000000 blows/ft
SPT N60 at bottom of layer = 11.000000 blows/ft

Layer 6 is Piedmont residual soil

Distance from top of pile to top of layer = 17.000000 ft
Distance from top of pile to bottom of layer = 22.000000 ft
Effective unit weight at top of layer = 110.000000 pcf
Effective unit weight at bottom of layer = 110.000000 pcf
The type of field test is the Standard Penetration Test (SPT)
SPT N60 at top of layer = 8.000000 blows/ft
SPT N60 at bottom of layer = 8.000000 blows/ft

Layer 7 is Piedmont residual soil

Distance from top of pile to top of layer = 22.000000 ft
Distance from top of pile to bottom of layer = 27.000000 ft
Effective unit weight at top of layer = 110.000000 pcf
Effective unit weight at bottom of layer = 110.000000 pcf
The type of field test is the Standard Penetration Test (SPT)
SPT N60 at top of layer = 10.000000 blows/ft
SPT N60 at bottom of layer = 10.000000 blows/ft

Layer 8 is Piedmont residual soil

Distance from top of pile to top of layer = 27.000000 ft
Distance from top of pile to bottom of layer = 32.000000 ft
Effective unit weight at top of layer = 47.600000 pcf
Effective unit weight at bottom of layer = 47.600000 pcf
The type of field test is the Standard Penetration Test (SPT)
SPT N60 at top of layer = 12.000000 blows/ft
SPT N60 at bottom of layer = 12.000000 blows/ft

Layer 9 is Piedmont residual soil

Distance from top of pile to top of layer	=	32.000000 ft
Distance from top of pile to bottom of layer	=	37.000000 ft
Effective unit weight at top of layer	=	47.600000 pcf
Effective unit weight at bottom of layer	=	47.600000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	15.000000 blows/ft
SPT N60 at bottom of layer	=	15.000000 blows/ft

Layer 10 is Piedmont residual soil

Distance from top of pile to top of layer	=	37.000000 ft
Distance from top of pile to bottom of layer	=	42.000000 ft
Effective unit weight at top of layer	=	47.600000 pcf
Effective unit weight at bottom of layer	=	47.600000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	15.000000 blows/ft
SPT N60 at bottom of layer	=	15.000000 blows/ft

Layer 11 is Piedmont residual soil

Distance from top of pile to top of layer	=	42.000000 ft
Distance from top of pile to bottom of layer	=	47.000000 ft
Effective unit weight at top of layer	=	47.600000 pcf
Effective unit weight at bottom of layer	=	47.600000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	9.000000 blows/ft
SPT N60 at bottom of layer	=	8.000000 blows/ft

Layer 12 is Piedmont residual soil

Distance from top of pile to top of layer	=	47.000000 ft
Distance from top of pile to bottom of layer	=	57.000000 ft
Effective unit weight at top of layer	=	47.600000 pcf
Effective unit weight at bottom of layer	=	47.600000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	8.000000 blows/ft
SPT N60 at bottom of layer	=	12.000000 blows/ft

Layer 13 is Piedmont residual soil

Distance from top of pile to top of layer	=	57.000000 ft
Distance from top of pile to bottom of layer	=	62.000000 ft
Effective unit weight at top of layer	=	47.600000 pcf
Effective unit weight at bottom of layer	=	47.600000 pcf
The type of field test is the Standard Penetration Test (SPT)		

SPT N60 at top of layer	=	12.000000 blows/ft
SPT N60 at bottom of layer	=	12.000000 blows/ft

Layer 14 is Piedmont residual soil

Distance from top of pile to top of layer	=	62.000000 ft
Distance from top of pile to bottom of layer	=	72.000000 ft
Effective unit weight at top of layer	=	47.600000 pcf
Effective unit weight at bottom of layer	=	47.600000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	17.000000 blows/ft
SPT N60 at bottom of layer	=	22.000000 blows/ft

Layer 15 is Piedmont residual soil

Distance from top of pile to top of layer	=	72.000000 ft
Distance from top of pile to bottom of layer	=	82.000000 ft
Effective unit weight at top of layer	=	47.600000 pcf
Effective unit weight at bottom of layer	=	47.600000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	40.000000 blows/ft
SPT N60 at bottom of layer	=	22.000000 blows/ft

Layer 16 is Piedmont residual soil

Distance from top of pile to top of layer	=	82.000000 ft
Distance from top of pile to bottom of layer	=	90.000000 ft
Effective unit weight at top of layer	=	47.600000 pcf
Effective unit weight at bottom of layer	=	68.600000 pcf
The type of field test is the Standard Penetration Test (SPT)		
SPT N60 at top of layer	=	50.000000 blows/ft
SPT N60 at bottom of layer	=	100.000000 blows/ft

(Depth of the lowest soil layer extends 0.000 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	In-situ Test Type	In-situ Test Property
1	Piedmont	0.00	110.0000	SPT	17.0000

	Residual Soil	3.0000	110.0000	SPT	17.0000
2	Piedmont	3.0000	110.0000	SPT	17.0000
	Residual Soil	5.5000	110.0000	SPT	17.0000
3	Piedmont	5.5000	110.0000	SPT	13.0000
	Residual Soil	8.0000	110.0000	SPT	13.0000
4	Piedmont	8.0000	110.0000	SPT	11.0000
	Residual Soil	12.0000	110.0000	SPT	11.0000
5	Piedmont	12.0000	110.0000	SPT	11.0000
	Residual Soil	17.0000	110.0000	SPT	11.0000
6	Piedmont	17.0000	110.0000	SPT	8.0000
	Residual Soil	22.0000	110.0000	SPT	8.0000
7	Piedmont	22.0000	110.0000	SPT	10.0000
	Residual Soil	27.0000	110.0000	SPT	10.0000
8	Piedmont	27.0000	47.6000	SPT	12.0000
	Residual Soil	32.0000	47.6000	SPT	12.0000
9	Piedmont	32.0000	47.6000	SPT	15.0000
	Residual Soil	37.0000	47.6000	SPT	15.0000
10	Piedmont	37.0000	47.6000	SPT	15.0000
	Residual Soil	42.0000	47.6000	SPT	15.0000
11	Piedmont	42.0000	47.6000	SPT	9.0000
	Residual Soil	47.0000	47.6000	SPT	8.0000
12	Piedmont	47.0000	47.6000	SPT	8.0000
	Residual Soil	57.0000	47.6000	SPT	12.0000
13	Piedmont	57.0000	47.6000	SPT	12.0000
	Residual Soil	62.0000	47.6000	SPT	12.0000
14	Piedmont	62.0000	47.6000	SPT	17.0000
	Residual Soil	72.0000	47.6000	SPT	22.0000
15	Piedmont	72.0000	47.6000	SPT	40.0000
	Residual Soil	82.0000	47.6000	SPT	22.0000
16	Piedmont	82.0000	47.6000	SPT	50.0000
	Residual Soil	90.0000	68.6000	SPT	100.0000

Static Loading Type

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

Concentrated Loads Applied to All Load Cases

Concentrated loads along depth defined using 1 points

Point No.	Depth X ft	Shear Force lbs	Moment in-lbs
-----	-----	-----	-----

1 0.00000 0.00000 0.00000

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 4

Load Compute vs. Pile Length	Load Top y	Condition Run Analysis	Condition	Axial Thrust
No.	Type	1	2	Force, lbs
1	5	y = 0.500000 in	S = 0.0000 in/in	230000.
	N.A.	Yes		
2	4	y = 0.500000 in	M = 0.0000 in-lbs	230000.
	N.A.	Yes		
3	2	V = 34600. lbs	S = 0.0000 in/in	230000.
	No	Yes		
4	1	V = 34600. lbs	M = 0.0000 in-lbs	230000.
	No	Yes		

V = shear force applied normal to pile axis

M = bending moment applied to pile head

y = lateral deflection normal to pile axis

S = pile slope relative to original pile batter angle

R = rotational stiffness applied to pile head

Values of top y vs. pile lengths can be computed only for load types with specified shear loading (Load Types 1, 2, and 3).

Thrust force is assumed to be acting axially for all pile batter angles.

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

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

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft (Bored Pile):

Length of Section	=	90.00000 ft
Shaft Diameter	=	18.00000 in
Concrete Cover Thickness (to edge of trans. reinf.)	=	3.00000 in
Number of Reinforcing Bars	=	6 bars
Yield Stress of Reinforcing Bars	=	60000. psi
Modulus of Elasticity of Reinforcing Bars	=	29000000. psi
Gross Area of Shaft	=	254.469005 sq. in.
Total Area of Reinforcing Steel	=	2.640000 sq. in.
Area Ratio of Steel Reinforcement	=	1.04 percent
Edge-to-Edge Bar Spacing	=	4.500000 in
Maximum Concrete Aggregate Size	=	0.750000 in
Ratio of Bar Spacing to Aggregate Size	=	6.00
Offset of Center of Rebar Cage from Center of Pile	=	0.0000 in
Transverse Reinforcement		
Type: Hoop		
Number of Transverse Reinf. (per spacing)	=	45
Spacing of Transverse Reinf.	=	12.000000 in
Yield Stress of Transverse Reinf.	=	60000. psi
Diameter of Transverse Reinf.	=	0.375000 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As	=	1014.619 kips
Tensile Load for Cracking of Concrete	=	-113.571 kips
Nominal Axial Tensile Capacity	=	-158.400 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	0.750000	0.440000	5.250000	0.00000
2	0.750000	0.440000	2.625000	4.546633
3	0.750000	0.440000	-2.62500	4.546633
4	0.750000	0.440000	-5.25000	0.00000
5	0.750000	0.440000	-2.62500	-4.54663
6	0.750000	0.440000	2.625000	-4.54663

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

Minimum spacing between any two bars not equal to zero = 4.500 inches
between bars 4 and 5.

Ratio of bar spacing to maximum aggregate size = 6.00

Concrete Properties:

Compressive Strength of Concrete	=	4000. psi
Modulus of Elasticity of Concrete	=	3604997. psi
Modulus of Rupture of Concrete	=	-474.34165 psi
Compression Strain at Peak Stress	=	0.001886
Tensile Strain at Fracture of Concrete	=	-0.0001154
Maximum Coarse Aggregate Size	=	0.750000 in

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

Number	Axial Thrust Force kips
1	230.000

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 318-14, Section 21.2.3.

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 = 230.000 kips

Bending Max Conc Curvature Stress rad/in. ksi	Bending Max Steel Moment Stress in-kip ksi	Bending Run Stiffness Msg	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in
0.00000125	25.4110799	20328864.	178.6591279	0.0002233	0.0002008
0.8906656	6.3295809				
0.00000250	50.8107404	20324296.	93.8400675	0.0002346	0.0001896
0.9322701	6.5097799				

0.00000375	76.2088897	20322371.	65.5717269	0.0002459	0.0001784
0.9736591	6.6904878				
0.00000500	101.6047705	20320954.	51.4410664	0.0002572	0.0001672
1.0148312	6.8717046				
0.00000625	126.9976255	20319620.	42.9654783	0.0002685	0.0001560
1.0557853	7.0534305				
0.00000750	152.3866973	20318226.	37.3174267	0.0002799	0.0001449
1.0965199	7.2356653				
0.00000875	177.7712282	20316712.	33.2851105	0.0002912	0.0001337
1.1370337	7.4184093				
0.00001000	203.1504605	20315046.	30.2626294	0.0003026	0.0001226
1.1773255	7.6016625				
0.00001125	228.5236358	20313212.	27.9133719	0.0003140	0.0001115
1.2173939	7.7854251				
0.00001250	253.8899959	20311200.	26.0353713	0.0003254	0.0001004
1.2572375	7.9696971				
0.00001375	279.2487820	20309002.	24.5001034	0.0003369	0.00008938
1.2968551	8.1544788				
0.00001500	304.5992349	20306616.	23.2218853	0.0003483	0.00007833
1.3362453	8.3397702				
0.00001625	329.9405952	20304037.	22.1413983	0.0003598	0.00006730
1.3754068	8.5255715				
0.00001750	355.2721029	20301263.	21.2162717	0.0003713	0.00005628
1.4143383	8.7118829				
0.00001875	380.5929976	20298293.	20.4154338	0.0003828	0.00004529
1.4530384	8.8987047				
0.00002000	405.9025182	20295126.	19.7155809	0.0003943	0.00003431
1.4915058	9.0860370				
0.00002125	431.1999034	20291760.	19.0988924	0.0004059	0.00002335
1.5297393	9.2738800				
0.00002250	456.4843909	20288195.	18.5515081	0.0004174	0.00001241
1.5677374	9.4622341				
0.00002375	481.7552181	20284430.	18.0624854	0.0004290	0.00000148
1.6054989	9.6510994				
0.00002500	507.0110851	20280443.	17.6230682	0.0004406	-0.00000942
1.6430221	9.8404745				
0.00002625	532.2458858	20276034.	17.2261466	0.0004522	-0.00002031
1.6803038	10.0303417				
0.00002750	557.4497949	20270902.	16.8658862	0.0004638	-0.00003119
1.7173392	10.2206693				
0.00002875	582.6128515	20264795.	16.5374645	0.0004755	-0.00004205
1.7541233	10.4114236				
0.00003000	607.7259367	20257531.	16.2368645	0.0004871	-0.00005289
1.7906515	10.6025722				
0.00003125	632.7809179	20248989.	15.9607143	0.0004988	-0.00006373
1.8269195	10.7940849				
0.00003250	657.7708912	20239104.	15.7061644	0.0005105	-0.00007455
1.8629233	10.9859350				
0.00003375	682.6896998	20227843.	15.4707896	0.0005221	-0.00008536
1.8986595	11.1780979				

0.00003500	707.5322088	20215206.	15.2525145	0.0005338	-0.00009616
1.9341251	11.3705523				
0.00003625	732.2939668	20201213.	15.0495520	0.0005455	-0.000107
1.9693172	11.5632791				
0.00003750	732.2939668	19527839.	14.6819689	0.0005506	-0.000124
1.9841428	11.5622663 C				
0.00003875	732.2939668	18897909.	14.4770581	0.0005610	-0.000137
2.0150341	11.7174066 C				
0.00004000	738.8996655	18472492.	14.2825240	0.0005713	-0.000149
2.0453986	11.8697279 C				
0.00004125	753.5232066	18267229.	14.0976203	0.0005815	-0.000161
2.0752671	12.0194658 C				
0.00004250	767.6350238	18062001.	13.9215783	0.0005917	-0.000173
2.1046555	12.1667204 C				
0.00004375	781.2781344	17857786.	13.7537636	0.0006017	-0.000186
2.1335857	12.3116502 C				
0.00004500	794.5026549	17655615.	13.5936567	0.0006117	-0.000198
2.1620844	12.4544721 C				
0.00004625	807.2953598	17455035.	13.4405022	0.0006216	-0.000211
2.1901393	12.5950111 C				
0.00004750	819.7305961	17257486.	13.2940337	0.0006315	-0.000224
2.2177935	12.7336566 C				
0.00004875	831.8316486	17063213.	13.1537998	0.0006412	-0.000236
2.2450600	12.8704971 C				
0.00005125	855.0706457	16684305.	12.8902414	0.0006606	-0.000262
2.2984504	13.1388089 C				
0.00005375	876.9973067	16316229.	12.6461869	0.0006797	-0.000288
2.3502821	13.3993064 C				
0.00005625	897.8163307	15961179.	12.4196633	0.0006986	-0.000314
2.4006841	13.6530118 C				
0.00005875	917.6703047	15619920.	12.2088412	0.0007173	-0.000340
2.4497497	13.9006259 C				
0.00006125	936.6336776	15291978.	12.0119346	0.0007357	-0.000367
2.4975262	14.1423859 C				
0.00006375	954.7803584	14976947.	11.8274586	0.0007540	-0.000393
2.5440635	14.3785757 C				
0.00006625	972.1830527	14674461.	11.6541736	0.0007721	-0.000420
2.5894129	14.6095173 C				
0.00006875	988.9130939	14384190.	11.4910423	0.0007900	-0.000447
2.6336275	14.8355768 C				
0.00007125	1005.	14105828.	11.3371956	0.0008078	-0.000475
2.6767624	15.0571682 C				
0.00007375	1021.	13839080.	11.1919058	0.0008254	-0.000502
2.7188736	15.2747512 C				
0.00007625	1036.	13583668.	11.0545649	0.0008429	-0.000530
2.7600197	15.4888437 C				
0.00007875	1050.	13337480.	10.9239227	0.0008603	-0.000557
2.8001246	15.6983209 C				
0.00008125	1064.	13101008.	10.7997741	0.0008775	-0.000585
2.8392833	15.9041555 C				

0.00008375	1078.	12874865.	10.6820981	0.0008946	-0.000613
2.8776155	16.1077084 C				
0.00008625	1092.	12656778.	10.5696955	0.0009116	-0.000641
2.9150092	16.3073886 C				
0.00008875	1105.	12447005.	10.4624353	0.0009285	-0.000669
2.9515401	16.5040056 C				
0.00009125	1117.	12246251.	10.3605125	0.0009454	-0.000697
2.9873402	16.6991939 C				
0.00009375	1130.	12051384.	10.2622913	0.0009621	-0.000725
3.0221776	16.8896673 C				
0.00009625	1142.	11865599.	10.1692233	0.0009788	-0.000754
3.0564153	17.0802823 C				
0.00009875	1154.	11684481.	10.0790067	0.0009953	-0.000782
3.0896711	17.2655681 C				
0.0001013	1166.	11511840.	9.9935320	0.0010118	-0.000811
3.1223879	17.4516960 C				
0.0001038	1177.	11343405.	9.9104791	0.0010282	-0.000839
3.1541626	17.6327167 C				
0.0001063	1188.	11182302.	9.8315168	0.0010446	-0.000868
3.1853885	17.8142991 C				
0.0001088	1199.	11025737.	9.7550398	0.0010609	-0.000897
3.2157933	17.9922696 C				
0.0001113	1210.	10874866.	9.6817124	0.0010771	-0.000925
3.2455609	18.1693126 C				
0.0001138	1220.	10729429.	9.6113630	0.0010933	-0.000954
3.2747021	18.3455465 C				
0.0001163	1231.	10587691.	9.5429388	0.0011094	-0.000983
3.3030430	18.5180702 C				
0.0001188	1241.	10451548.	9.4776273	0.0011255	-0.001012
3.3308667	18.6913918 C				
0.0001213	1251.	10319182.	9.4142637	0.0011415	-0.001041
3.3579702	18.8620925 C				
0.0001238	1261.	10190693.	9.3529391	0.0011574	-0.001070
3.3844059	19.0309202 C				
0.0001263	1271.	10066951.	9.2942583	0.0011734	-0.001099
3.4103303	19.2005400 C				
0.0001288	1281.	9946451.	9.2371943	0.0011893	-0.001128
3.4355611	19.3676866 C				
0.0001313	1290.	9829324.	9.1818716	0.0012051	-0.001157
3.4601518	19.5331865 C				
0.0001338	1300.	9716257.	9.1288181	0.0012210	-0.001187
3.4842359	19.6994662 C				
0.0001363	1309.	9606592.	9.0775774	0.0012368	-0.001216
3.5077431	19.8652157 C				
0.0001388	1318.	9499249.	9.0273492	0.0012525	-0.001245
3.5305340	20.0276093 C				
0.0001413	1327.	9395408.	8.9790880	0.0012683	-0.001274
3.5528226	-20.362098 C				
0.0001438	1336.	9294883.	8.9326923	0.0012841	-0.001303
3.5746062	-20.915901 C				

0.0001463	1345.	9196765.	8.8874422	0.0012998	-0.001333
3.5957591	-21.471573 C				
0.0001488	1354.	9100929.	8.8432692	0.0013154	-0.001362
3.6162859	-22.029159 C				
0.0001588	1388.	8743564.	8.6807265	0.0013781	-0.001479
3.6930886	-24.258419 C				
0.0001688	1421.	8420946.	8.5365588	0.0014405	-0.001597
3.7611684	-26.492028 C				
0.0001788	1453.	8126991.	8.4071106	0.0015028	-0.001715
3.8204955	-28.732953 C				
0.0001888	1483.	7858344.	8.2910300	0.0015649	-0.001833
3.8713162	-30.975787 C				
0.0001988	1513.	7612308.	8.1876434	0.0016273	-0.001950
3.9138241	-33.212782 C				
0.0002088	1541.	7384141.	8.0930400	0.0016894	-0.002068
3.9477248	-35.456571 C				
0.0002188	1569.	7173692.	8.0092123	0.0017520	-0.002185
3.9733576	-37.686871 C				
0.0002288	1596.	6976784.	7.9319234	0.0018144	-0.002303
3.9903953	-39.922415 C				
0.0002388	1622.	6793427.	7.8632082	0.0018773	-0.002420
3.9989599	-42.143424 C				
0.0002488	1647.	6621204.	7.8009795	0.0019405	-0.002537
3.9998118	-44.357496 C				
0.0002588	1671.	6458566.	7.7445150	0.0020039	-0.002654
3.9996285	-46.564407 C				
0.0002688	1694.	6304958.	7.6944890	0.0020679	-0.002770
3.9985378	-48.753888 C				
0.0002788	1717.	6159551.	7.6501690	0.0021325	-0.002885
3.9990051	-50.926258 C				
0.0002888	1739.	6020981.	7.6091207	0.0021971	-0.003000
3.9991820	-53.096937 C				
0.0002988	1759.	5889356.	7.5727588	0.0022624	-0.003115
3.9991669	-55.250823 C				
0.0003088	1780.	5764119.	7.5405956	0.0023282	-0.003229
3.9989542	-57.388203 C				
0.0003188	1799.	5644783.	7.5121922	0.0023945	-0.003343
3.9984757	-59.509485 C				
0.0003288	1818.	5529739.	7.4865642	0.0024612	-0.003456
3.9975796	-60.000000 CY				
0.0003388	1832.	5409375.	7.4578852	0.0025264	-0.003571
4.0000000	-60.000000 CY				
0.0003488	1842.	5281301.	7.4239284	0.0025891	-0.003688
3.9995904	-60.000000 CY				
0.0003588	1848.	5149995.	7.3872446	0.0026502	-0.003807
3.9978937	-60.000000 CY				
0.0003688	1852.	5022125.	7.3515804	0.0027109	-0.003927
3.9999712	-60.000000 CY				
0.0003788	1856.	4900350.	7.3187812	0.0027720	-0.004046
3.9986506	-60.000000 CY				

0.0003888	1860.	4784372.	7.2882948	0.0028333	-0.004164
3.9992503	-60.000000 CY	4673206.	7.2584905	0.0028943	-0.004283
0.0003988	1863.	4567156.	7.2307615	0.0029556	-0.004402
3.9987990	-60.000000 CY	4465691.	7.2051926	0.0030172	-0.004520
0.0004088	1867.	4368698.	7.1813467	0.0030790	-0.004638
3.9992271	-60.000000 CY	4275706.	7.1593535	0.0031412	-0.004756
0.0004188	1870.	4186619.	7.1388394	0.0032036	-0.004874
3.9984267	-60.000000 CY	4101106.	7.1198306	0.0032662	-0.004991
0.0004288	1873.	4018881.	7.1015885	0.0033289	-0.005109
3.9999864	-60.000000 CY	3939807.	7.0838181	0.0033914	-0.005226
0.0004388	1876.	3863671.	7.0674269	0.0034542	-0.005343
3.9973890	-60.000000 CY	3790434.	7.0520853	0.0035172	-0.005460
0.0004488	1879.	3719934.	7.0377150	0.0035804	-0.005577
3.9997298	-60.000000 CY	3651886.	7.0245118	0.0036440	-0.005694
0.0004588	1881.	3586296.	7.0121280	0.0037077	-0.005810
3.9952339	-60.000000 CY	3523025.	7.0005259	0.0037715	-0.005926
0.0004688	1884.	3461852.	6.9898622	0.0038357	-0.006042
3.9987032	-60.000000 CY				
0.0004788	1886.				
3.9999902	-60.000000 CY				
0.0004888	1888.				
3.9960061	-60.000000 CY				
0.0004988	1890.				
3.9989962	-60.000000 CY				
0.0005088	1893.				
3.9999909	-60.000000 CY				
0.0005188	1894.				
3.9955213	-60.000000 CY				
0.0005288	1896.				
3.9986603	-60.000000 CY				
0.0005388	1898.				
3.9999628	-60.000000 CY				
0.0005488	1900.				
3.9935965	-60.000000 CY				

Summary of Results for Nominal 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 Tens. No. Strain	Axial Thrust kips	Nominal Mom. Cap. in-kip	Max. Comp. Strain	Max.
1	230.000	1869.121	0.00300000	

-0.00448732

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 (0.75).

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to ACI 318, 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 Stiff.	Resist.	Nominal Ax. Thrust	Nominal Moment Cap	Ult. (Fac)	Ult. (Fac)	Bend. at
Load Ult Mom No.	Factor kip-in^2	kips	in-kips	kips	in-kips	
10805183.	0.65	230.00000	1869.	149.50000	1215.	
8608628.	0.75	230.00000	1869.	172.50000	1402.	
6385697.	0.90	230.00000	1869.	207.00000	1682.	

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 Rock Layer	F0 Integral for Layer lbs	F1 Integral for Layer lbs
1	0.00	0.00	N.A.	Yes	N.A.	N.A.
2	3.0000	3.0000	No	Yes	N.A.	N.A.
3	5.5000	5.5000	No	Yes	N.A.	N.A.
4	8.0000	8.0000	No	Yes	N.A.	N.A.
5	12.0000	12.0000	No	Yes	N.A.	N.A.

6	17.0000	17.0000	No	Yes	N.A.	N.A.
7	22.0000	22.0000	No	Yes	N.A.	N.A.
8	27.0000	27.0000	No	Yes	N.A.	N.A.
9	32.0000	32.0000	No	Yes	N.A.	N.A.
10	37.0000	37.0000	No	Yes	N.A.	N.A.
11	42.0000	42.0000	No	Yes	N.A.	N.A.
12	47.0000	47.0000	No	Yes	N.A.	N.A.
13	57.0000	57.0000	No	Yes	N.A.	N.A.
14	62.0000	62.0000	No	Yes	N.A.	N.A.
15	72.0000	72.0000	No	Yes	N.A.	N.A.
16	82.0000	82.0000	No	Yes	N.A.	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.

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

Pile-head conditions are Displacement and Pile-head Rotation (Loading Type 5)

Displacement of pile head = 0.500000 inches

Rotation of pile head = 0.000E+00 radians

Axial load on pile head = 230000.0 lbs

Res.	Depth	Soil	Deflect.	Bending	Shear	Slope	Total	Bending	Soil
			Res.	Spr.	Distrib.				
			X	y	Moment	Force	S	Stress	p
			Es*H	Lat.	Load				
	feet	lb/inch	lb/inch	inches	lb/inch	in-lbs	lbs	radians	psi*
	lb/inch	lb/inch	lb/inch				lb		lb-in^2
-946.330	0.00	0.5000	10220.	-1855887.	0.00	67385.	0.00	0.00	4.91E+09
-935.970	0.9000	0.4779	21150.	-1179491.	0.00	57105.	-0.00334	0.00	4.91E+09
-906.819	1.8000	0.4278	22892.	-605816.	0.00	47154.	-0.00480	0.00	2.03E+10
-866.133	2.7000	0.3742	24996.	-137110.	0.00	37580.	-0.00500	0.00	2.03E+10
-813.379	3.6000	0.3198	27465.	230751.	0.00	28511.	-0.00497	0.00	2.03E+10
	4.5000	0.2668		503435.		20074.	-0.00478	0.00	2.03E+10

-748.894	30317.	0.00				
5.4000	0.2166	688101.	12392.	-0.00446	0.00	2.02E+10
-673.762	33591.	0.00				
6.3000	0.1704	793268.	6319.	-0.00404	0.00	1.77E+10
-450.859	28571.	0.00				
7.2000	0.1295	844642.	1821.	-0.00352	0.00	1.69E+10
-382.115	31876.	0.00				
8.1000	0.09435	850102.	-1667.	-0.00298	0.00	1.68E+10
-263.752	30191.	0.00				
9.0000	0.06515	823437.	-4197.	-0.00245	0.00	1.72E+10
-204.853	33958.	0.00				
9.9000	0.04154	771593.	-6104.	-0.00196	0.00	1.80E+10
-148.217	38537.	0.00				
10.8000	0.02292	701312.	-7415.	-0.00154	0.00	2.02E+10
-94.633	44584.	0.00				
11.7000	0.00836	619062.	-8123.	-0.00118	0.00	2.03E+10
-36.397	47045.	0.00				
12.6000	-0.00265	531746.	-8257.	-8.77E-04	0.00	2.03E+10
11.5332	47045.	0.00				
13.5000	-0.01059	445073.	-7945.	-6.17E-04	0.00	2.03E+10
46.1387	47045.	0.00				
14.4000	-0.01598	363192.	-7320.	-4.02E-04	0.00	2.03E+10
69.5989	47045.	0.00				
15.3000	-0.01928	288950.	-6498.	-2.29E-04	0.00	2.03E+10
82.7253	46348.	0.00				
16.2000	-0.02092	223974.	-5575.	-9.23E-05	0.00	2.03E+10
88.1521	45518.	0.00				
17.1000	-0.02127	168986.	-4748.	1.22E-05	0.00	2.03E+10
64.9493	32980.	0.00				
18.0000	-0.02065	121349.	-4055.	8.94E-05	0.00	2.03E+10
63.4819	33197.	0.00				
18.9000	-0.01934	80957.	-3386.	1.43E-04	0.00	2.03E+10
60.3151	33683.	0.00				
19.8000	-0.01756	47494.	-2760.	1.77E-04	0.00	2.03E+10
55.6328	34214.	0.00				
20.7000	-0.01551	20456.	-2194.	1.95E-04	0.00	2.03E+10
49.1363	34214.	0.00				
21.6000	-0.01334	-876.905	-1701.	2.01E-04	0.00	2.03E+10
42.2680	34214.	0.00				
22.5000	-0.01118	-17279.	-1234.	1.96E-04	0.00	2.03E+10
44.2696	42768.	0.00				
23.4000	-0.00912	-28494.	-799.588	1.84E-04	0.00	2.03E+10
36.0967	42768.	0.00				
24.3000	-0.00721	-35462.	-450.380	1.67E-04	0.00	2.03E+10
28.5713	42768.	0.00				
25.2000	-0.00552	-39050.	-178.096	1.47E-04	0.00	2.03E+10
21.8518	42768.	0.00				
26.1000	-0.00405	-40037.	26.4095	1.26E-04	0.00	2.03E+10
16.0196	42768.	0.00				
27.0000	-0.00280	-39104.	184.8254	1.05E-04	0.00	2.03E+10

13.3167	51322.	0.00					
27.9000	-0.00178	-36565.	302.5071	8.46E-05	0.00	2.03E+10	
8.4762	51322.	0.00					
28.8000	-9.75E-04	-32990.	373.2963	6.61E-05	0.00	2.03E+10	
4.6329	51322.	0.00					
29.7000	-3.55E-04	-28831.	407.4350	4.97E-05	0.00	2.03E+10	
1.6891	51322.	0.00					
30.6000	9.86E-05	-24436.	414.0260	3.56E-05	0.00	2.03E+10	
-0.469	51322.	0.00					
31.5000	4.12E-04	-20064.	400.9121	2.37E-05	0.00	2.03E+10	
-1.960	51322.	0.00					
32.4000	6.11E-04	-15895.	370.7246	1.42E-05	0.00	2.03E+10	
-3.630	64152.	0.00					
33.3000	7.19E-04	-12127.	328.0679	6.73E-06	0.00	2.03E+10	
-4.269	64152.	0.00					
34.2000	7.57E-04	-8842.	280.7452	1.16E-06	0.00	2.03E+10	
-4.494	64152.	0.00					
35.1000	7.44E-04	-6069.	232.6156	-2.80E-06	0.00	2.03E+10	
-4.418	64152.	0.00					
36.0000	6.96E-04	-3803.	186.4233	-5.42E-06	0.00	2.03E+10	
-4.136	64152.	0.00					
36.9000	6.27E-04	-2015.	143.9850	-6.96E-06	0.00	2.03E+10	
-3.723	64152.	0.00					
37.8000	5.46E-04	-658.655	106.3717	-7.67E-06	0.00	2.03E+10	
-3.242	64152.	0.00					
38.7000	4.61E-04	320.5742	74.0755	-7.76E-06	0.00	2.03E+10	
-2.739	64152.	0.00					
39.6000	3.78E-04	979.9480	47.1586	-7.42E-06	0.00	2.03E+10	
-2.246	64152.	0.00					
40.5000	3.01E-04	1376.	25.3816	-6.79E-06	0.00	2.03E+10	
-1.787	64152.	0.00					
41.4000	2.31E-04	1562.	8.3109	-6.01E-06	0.00	2.03E+10	
-1.374	64152.	0.00					
42.3000	1.71E-04	1585.	-2.379	-5.18E-06	0.00	2.03E+10	
-0.605	38235.	0.00					
43.2000	1.20E-04	1536.	-7.887	-4.35E-06	0.00	2.03E+10	
-0.415	37465.	0.00					
44.1000	7.70E-05	1437.	-11.540	-3.56E-06	0.00	2.03E+10	
-0.262	36695.	0.00					
45.0000	4.27E-05	1305.	-13.722	-2.83E-06	0.00	2.03E+10	
-0.142	35925.	0.00					
45.9000	1.59E-05	1154.	-14.769	-2.18E-06	0.00	2.03E+10	
-0.05185	35155.	0.00					
46.8000	-4.26E-06	996.4540	-14.976	-1.60E-06	0.00	2.03E+10	
0.01356	34385.	0.00					
47.7000	-1.87E-05	838.8303	-14.571	-1.12E-06	0.00	2.03E+10	
0.06142	35412.	0.00					
48.6000	-2.84E-05	687.2637	-13.715	-7.12E-07	0.00	2.03E+10	
0.09714	36952.	0.00					
49.5000	-3.41E-05	546.1203	-12.534	-3.84E-07	0.00	2.03E+10	

0.1216	38491.	0.00					
50.4000	-3.67E-05	418.4347	-11.143	-1.28E-07	0.00	2.03E+10	
0.1360	40031.	0.00					
51.3000	-3.69E-05	306.0588	-9.643	6.45E-08	0.00	2.03E+10	
0.1419	41570.	0.00					
52.2000	-3.53E-05	209.8325	-8.115	2.02E-07	0.00	2.03E+10	
0.1409	43110.	0.00					
53.1000	-3.25E-05	129.7629	-6.629	2.92E-07	0.00	2.03E+10	
0.1344	44650.	0.00					
54.0000	-2.90E-05	65.2026	-5.233	3.44E-07	0.00	2.03E+10	
0.1240	46189.	0.00					
54.9000	-2.51E-05	15.0201	-3.965	3.65E-07	0.00	2.03E+10	
0.1109	47729.	0.00					
55.8000	-2.11E-05	-22.245	-2.846	3.63E-07	0.00	2.03E+10	
0.09632	49269.	0.00					
56.7000	-1.73E-05	-48.246	-1.887	3.44E-07	0.00	2.03E+10	
0.08119	50808.	0.00					
57.6000	-1.37E-05	-64.713	-1.097	3.14E-07	0.00	2.03E+10	
0.06501	51322.	0.00					
58.5000	-1.05E-05	-73.513	-0.478	2.77E-07	0.00	2.03E+10	
0.04976	51322.	0.00					
59.4000	-7.69E-06	-76.411	-0.01178	2.38E-07	0.00	2.03E+10	
0.03652	51322.	0.00					
60.3000	-5.34E-06	-74.948	0.3225	1.97E-07	0.00	2.03E+10	
0.02537	51322.	0.00					
61.2000	-3.42E-06	-70.427	0.5472	1.59E-07	0.00	2.03E+10	
0.01626	51322.	0.00					
62.1000	-1.91E-06	-63.916	0.7046	1.23E-07	0.00	2.03E+10	
0.01288	72919.	0.00					
63.0000	-7.62E-07	-55.819	0.8027	9.13E-08	0.00	2.03E+10	
0.00528	74844.	0.00					
63.9000	6.45E-08	-47.032	0.8287	6.40E-08	0.00	2.03E+10	
-4.59E-04	76769.	0.00					
64.8000	6.21E-07	-38.236	0.8018	4.14E-08	0.00	2.03E+10	
-0.00452	78693.	0.00					
65.7000	9.58E-07	-29.918	0.7388	2.33E-08	0.00	2.03E+10	
-0.00715	80618.	0.00					
66.6000	1.12E-06	-22.394	0.6538	9.36E-09	0.00	2.03E+10	
-0.00859	82542.	0.00					
67.5000	1.16E-06	-15.842	0.5584	-7.94E-10	0.00	2.03E+10	
-0.00907	84467.	0.00					
68.4000	1.11E-06	-10.328	0.4617	-7.75E-09	0.00	2.03E+10	
-0.00885	86391.	0.00					
69.3000	9.93E-07	-5.832	0.3700	-1.20E-08	0.00	2.03E+10	
-0.00812	88316.	0.00					
70.2000	8.46E-07	-2.275	0.2880	-1.42E-08	0.00	2.03E+10	
-0.00707	90240.	0.00					
71.1000	6.86E-07	0.4599	0.2182	-1.47E-08	0.00	2.03E+10	
-0.00586	92165.	0.00					
72.0000	5.29E-07	2.5110	0.1413	-1.39E-08	0.00	2.03E+10	

-0.00838	171072.	0.00					
72.9000	3.86E-07	3.5811	0.06432	-1.23E-08	0.00	2.03E+10	
-0.00587	164144.	0.00					
73.8000	2.64E-07	3.9613	0.01183	-1.03E-08	0.00	2.03E+10	
-0.00385	157215.	0.00					
74.7000	1.65E-07	3.8876	-0.02133	-8.18E-09	0.00	2.03E+10	
-0.00229	150287.	0.00					
75.6000	8.76E-08	3.5412	-0.04000	-6.20E-09	0.00	2.03E+10	
-0.00116	143358.	0.00					
76.5000	3.08E-08	3.0545	-0.04838	-4.45E-09	0.00	2.03E+10	
-3.89E-04	136430.	0.00					
77.4000	-8.52E-09	2.5183	-0.04993	-2.97E-09	0.00	2.03E+10	
1.02E-04	129502.	0.00					
78.3000	-3.34E-08	1.9908	-0.04733	-1.77E-09	0.00	2.03E+10	
3.79E-04	122573.	0.00					
79.2000	-4.68E-08	1.5048	-0.04257	-8.46E-10	0.00	2.03E+10	
5.02E-04	115645.	0.00					
80.1000	-5.17E-08	1.0754	-0.03706	-1.60E-10	0.00	2.03E+10	
5.20E-04	108716.	0.00					
81.0000	-5.03E-08	0.7051	-0.03169	3.13E-10	0.00	2.03E+10	
4.74E-04	101788.	0.00					
81.9000	-4.49E-08	0.3893	-0.02700	6.04E-10	0.00	2.03E+10	
3.94E-04	94859.	0.00					
82.8000	-3.73E-08	0.1189	-0.02049	7.39E-10	0.00	2.03E+10	
8.12E-04	235224.	0.00					
83.7000	-2.89E-08	-0.05692	-0.01235	7.55E-10	0.00	2.03E+10	
6.95E-04	259281.	0.00					
84.6000	-2.10E-08	-0.152	-0.00563	7.00E-10	0.00	2.03E+10	
5.50E-04	283338.	0.00					
85.5000	-1.38E-08	-0.182	-5.35E-04	6.11E-10	0.00	2.03E+10	
3.94E-04	307395.	0.00					
86.4000	-7.76E-09	-0.166	0.00288	5.18E-10	0.00	2.03E+10	
2.38E-04	331452.	0.00					
87.3000	-2.64E-09	-0.122	0.00463	4.42E-10	0.00	2.03E+10	
8.68E-05	355509.	0.00					
88.2000	1.78E-09	-0.06838	0.00476	3.91E-10	0.00	2.03E+10	
-6.27E-05	379566.	0.00					
89.1000	5.81E-09	-0.02154	0.00325	3.67E-10	0.00	2.03E+10	
-2.17E-04	403623.	0.00					
90.0000	9.72E-09	0.00	0.00	3.62E-10	0.00	2.03E+10	
-3.85E-04	213840.	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 = 0.50000000 inches
 Computed slope at pile head = 0.000000 radians
 Maximum bending moment = -1855887. inch-lbs
 Maximum shear force = 67385. lbs
 Depth of maximum bending moment = 0.000000 feet below pile head
 Depth of maximum shear force = 0.000000 feet below pile head
 Number of iterations = 14
 Number of zero deflection points = 6

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

Pile-head conditions are Displacement and Moment (Loading Type 4)

Displacement of pile head = 0.500000 inches
 Moment at pile head = 0.0 in-lbs
 Axial load at pile head = 230000.0 lbs

Res.	Depth feet	Deflect. y inches	Bending Moment in-lbs	Shear Force lbs	Slope radians	Total Stress psi*	Bending Stiffness lb-in^2	Soil p
	X Es*H lb/inch	y Lat. Load lb/inch	Moment in-lbs lb/inch					
	0.00	0.5000	0.00	42120.	-0.00751	0.00	2.03E+10	
-946.330	10220.	0.00						
0.9000	0.4188	418370.	32146.	-0.00740	0.00	2.03E+10		
-900.728	23225.	0.00						
1.8000	0.3401	731126.	22775.	-0.00709	0.00	1.91E+10		
-834.496	26501.	0.00						
2.7000	0.2658	945519.	14232.	-0.00654	0.00	1.51E+10		
-747.585	30375.	0.00						
3.6000	0.1988	1071036.	6722.	-0.00576	0.00	1.30E+10		
-643.210	34941.	0.00						
4.5000	0.1414	1119319.	399.1107	-0.00482	0.00	1.22E+10		
-527.683	40295.	0.00						
5.4000	0.09474	1103594.	-4658.	-0.00385	0.00	1.25E+10		
-408.728	46596.	0.00						
6.3000	0.05837	1037821.	-8074.	-0.00295	0.00	1.35E+10		
-224.043	41455.	0.00						
7.2000	0.03094	943860.	-10044.	-0.00220	0.00	1.52E+10		
-140.612	49087.	0.00						
8.1000	0.01076	831828.	-11056.	-0.00160	0.00	1.71E+10		

-46.891	47045.	0.00					
9.0000	-0.00372	713019.	-11222.	-0.00115	0.00	2.02E+10	
16.2104	47045.	0.00					
9.9000	-0.01409	595154.	-10803.	-8.02E-04	0.00	2.03E+10	
61.3880	47045.	0.00					
10.8000	-0.02104	483662.	-9993.	-5.14E-04	0.00	2.03E+10	
88.5507	45458.	0.00					
11.7000	-0.02520	381858.	-8965.	-2.84E-04	0.00	2.03E+10	
101.7901	43621.	0.00					
12.6000	-0.02717	291423.	-7833.	-1.05E-04	0.00	2.03E+10	
107.8195	42856.	0.00					
13.5000	-0.02747	213179.	-6664.	2.93E-05	0.00	2.03E+10	
108.7133	42745.	0.00					
14.4000	-0.02654	147333.	-5505.	1.25E-04	0.00	2.03E+10	
105.8989	43095.	0.00					
15.3000	-0.02477	93645.	-4391.	1.89E-04	0.00	2.03E+10	
100.4342	43799.	0.00					
16.2000	-0.02245	51548.	-3346.	2.28E-04	0.00	2.03E+10	
93.1325	44796.	0.00					
17.1000	-0.01985	20246.	-2510.	2.47E-04	0.00	2.03E+10	
61.5458	33492.	0.00					
18.0000	-0.01712	-3904.	-1885.	2.51E-04	0.00	2.03E+10	
54.2452	34214.	0.00					
18.9000	-0.01442	-21721.	-1346.	2.44E-04	0.00	2.03E+10	
45.6882	34214.	0.00					
19.8000	-0.01185	-34181.	-896.189	2.29E-04	0.00	2.03E+10	
37.5260	34214.	0.00					
20.7000	-0.00947	-42219.	-531.629	2.09E-04	0.00	2.03E+10	
29.9852	34214.	0.00					
21.6000	-0.00733	-46704.	-244.364	1.86E-04	0.00	2.03E+10	
23.2119	34214.	0.00					
22.5000	-0.00546	-48419.	-2.327	1.60E-04	0.00	2.03E+10	
21.6097	42768.	0.00					
23.4000	-0.00386	-47550.	197.0113	1.35E-04	0.00	2.03E+10	
15.3049	42768.	0.00					
24.3000	-0.00255	-44833.	334.0929	1.10E-04	0.00	2.03E+10	
10.0806	42768.	0.00					
25.2000	-0.00148	-40881.	420.2548	8.75E-05	0.00	2.03E+10	
5.8753	42768.	0.00					
26.1000	-6.56E-04	-36190.	466.0155	6.70E-05	0.00	2.03E+10	
2.5989	42768.	0.00					
27.0000	-3.66E-05	-31148.	480.9894	4.91E-05	0.00	2.03E+10	
0.1740	51322.	0.00					
27.9000	4.04E-04	-26045.	471.5535	3.39E-05	0.00	2.03E+10	
-1.921	51322.	0.00					
28.8000	6.96E-04	-21131.	443.3223	2.14E-05	0.00	2.03E+10	
-3.307	51322.	0.00					
29.7000	8.66E-04	-16575.	403.2415	1.14E-05	0.00	2.03E+10	
-4.116	51322.	0.00					
30.6000	9.41E-04	-12478.	356.8628	3.64E-06	0.00	2.03E+10	

-4.473	51322.	0.00					
31.5000	9.45E-04	-8885.	308.4639	-2.03E-06	0.00	2.03E+10	
-4.490	51322.	0.00					
32.4000	8.97E-04	-5805.	255.4328	-5.93E-06	0.00	2.03E+10	
-5.331	64152.	0.00					
33.3000	8.17E-04	-3338.	200.4503	-8.36E-06	0.00	2.03E+10	
-4.851	64152.	0.00					
34.2000	7.17E-04	-1434.	151.2603	-9.63E-06	0.00	2.03E+10	
-4.258	64152.	0.00					
35.1000	6.09E-04	-23.372	108.7411	-1.00E-05	0.00	2.03E+10	
-3.616	64152.	0.00					
36.0000	5.01E-04	965.0457	73.1609	-9.77E-06	0.00	2.03E+10	
-2.973	64152.	0.00					
36.9000	3.98E-04	1605.	44.3463	-9.08E-06	0.00	2.03E+10	
-2.363	64152.	0.00					
37.8000	3.04E-04	1968.	21.8243	-8.13E-06	0.00	2.03E+10	
-1.808	64152.	0.00					
38.7000	2.22E-04	2117.	4.9371	-7.05E-06	0.00	2.03E+10	
-1.320	64152.	0.00					
39.6000	1.52E-04	2110.	-7.067	-5.93E-06	0.00	2.03E+10	
-0.903	64152.	0.00					
40.5000	9.42E-05	1994.	-14.966	-4.83E-06	0.00	2.03E+10	
-0.559	64152.	0.00					
41.4000	4.77E-05	1810.	-19.515	-3.82E-06	0.00	2.03E+10	
-0.283	64152.	0.00					
42.3000	1.16E-05	1591.	-21.265	-2.92E-06	0.00	2.03E+10	
-0.04090	38235.	0.00					
43.2000	-1.54E-05	1366.	-21.197	-2.14E-06	0.00	2.03E+10	
0.05350	37465.	0.00					
44.1000	-3.46E-05	1144.	-20.274	-1.47E-06	0.00	2.03E+10	
0.1174	36695.	0.00					
45.0000	-4.71E-05	935.0317	-18.793	-9.16E-07	0.00	2.03E+10	
0.1568	35925.	0.00					
45.9000	-5.44E-05	742.8755	-16.990	-4.70E-07	0.00	2.03E+10	
0.1769	35155.	0.00					
46.8000	-5.73E-05	570.3764	-15.050	-1.22E-07	0.00	2.03E+10	
0.1824	34385.	0.00					
47.7000	-5.70E-05	418.4055	-13.056	1.41E-07	0.00	2.03E+10	
0.1868	35412.	0.00					
48.6000	-5.43E-05	287.6750	-11.044	3.29E-07	0.00	2.03E+10	
0.1856	36952.	0.00					
49.5000	-4.99E-05	178.2181	-9.082	4.52E-07	0.00	2.03E+10	
0.1778	38491.	0.00					
50.4000	-4.45E-05	89.2632	-7.231	5.23E-07	0.00	2.03E+10	
0.1649	40031.	0.00					
51.3000	-3.86E-05	19.4238	-5.539	5.52E-07	0.00	2.03E+10	
0.1485	41570.	0.00					
52.2000	-3.26E-05	-33.121	-4.035	5.49E-07	0.00	2.03E+10	
0.1300	43110.	0.00					
53.1000	-2.67E-05	-70.463	-2.737	5.21E-07	0.00	2.03E+10	

0.1105	44650.	0.00					
54.0000	-2.13E-05	-94.824	-1.648	4.77E-07	0.00	2.03E+10	
0.09110	46189.	0.00					
54.9000	-1.64E-05	-108.433	-0.764	4.23E-07	0.00	2.03E+10	
0.07257	47729.	0.00					
55.8000	-1.22E-05	-113.435	-0.07286	3.64E-07	0.00	2.03E+10	
0.05547	49269.	0.00					
56.7000	-8.55E-06	-111.816	0.4439	3.04E-07	0.00	2.03E+10	
0.04023	50808.	0.00					
57.6000	-5.58E-06	-105.358	0.8045	2.47E-07	0.00	2.03E+10	
0.02653	51322.	0.00					
58.5000	-3.22E-06	-95.666	1.0304	1.93E-07	0.00	2.03E+10	
0.01531	51322.	0.00					
59.4000	-1.41E-06	-84.062	1.1492	1.46E-07	0.00	2.03E+10	
0.00669	51322.	0.00					
60.3000	-7.54E-08	-71.567	1.1872	1.04E-07	0.00	2.03E+10	
3.58E-04	51322.	0.00					
61.2000	8.46E-07	-58.937	1.1674	6.96E-08	0.00	2.03E+10	
-0.00402	51322.	0.00					
62.1000	1.43E-06	-46.697	1.0937	4.16E-08	0.00	2.03E+10	
-0.00964	72919.	0.00					
63.0000	1.74E-06	-35.520	0.9763	1.97E-08	0.00	2.03E+10	
-0.01208	74844.	0.00					
63.9000	1.85E-06	-25.705	0.8399	3.46E-09	0.00	2.03E+10	
-0.01318	76769.	0.00					
64.8000	1.82E-06	-17.395	0.6972	-7.99E-09	0.00	2.03E+10	
-0.01325	78693.	0.00					
65.7000	1.68E-06	-10.606	0.5579	-1.54E-08	0.00	2.03E+10	
-0.01256	80618.	0.00					
66.6000	1.48E-06	-5.268	0.4288	-1.96E-08	0.00	2.03E+10	
-0.01135	82542.	0.00					
67.5000	1.26E-06	-1.247	0.3144	-2.14E-08	0.00	2.03E+10	
-0.00984	84467.	0.00					
68.4000	1.02E-06	1.6288	0.2171	-2.13E-08	0.00	2.03E+10	
-0.00819	86391.	0.00					
69.3000	7.98E-07	3.5475	0.1376	-1.99E-08	0.00	2.03E+10	
-0.00653	88316.	0.00					
70.2000	5.94E-07	4.7002	0.07559	-1.77E-08	0.00	2.03E+10	
-0.00496	90240.	0.00					
71.1000	4.16E-07	5.2682	0.02965	-1.51E-08	0.00	2.03E+10	
-0.00355	92165.	0.00					
72.0000	2.68E-07	5.4154	-0.01246	-1.22E-08	0.00	2.03E+10	
-0.00425	171072.	0.00					
72.9000	1.52E-07	5.0598	-0.04787	-9.44E-09	0.00	2.03E+10	
-0.00231	164144.	0.00					
73.8000	6.44E-08	4.4283	-0.06540	-6.92E-09	0.00	2.03E+10	
-9.38E-04	157215.	0.00					
74.7000	2.45E-09	3.6815	-0.07065	-4.76E-09	0.00	2.03E+10	
-3.41E-05	150287.	0.00					
75.6000	-3.84E-08	2.9259	-0.06808	-3.01E-09	0.00	2.03E+10	

5.10E-04	143358.	0.00					
76.5000	-6.25E-08	2.2260	-0.06106	-1.64E-09	0.00	2.03E+10	
7.90E-04	136430.	0.00					
77.4000	-7.38E-08	1.6152	-0.05202	-6.18E-10	0.00	2.03E+10	
8.85E-04	129502.	0.00					
78.3000	-7.59E-08	1.1055	-0.04259	1.04E-10	0.00	2.03E+10	
8.61E-04	122573.	0.00					
79.2000	-7.16E-08	0.6948	-0.03380	5.82E-10	0.00	2.03E+10	
7.66E-04	115645.	0.00					
80.1000	-6.33E-08	0.3726	-0.02622	8.66E-10	0.00	2.03E+10	
6.37E-04	108716.	0.00					
81.0000	-5.29E-08	0.1242	-0.02009	9.98E-10	0.00	2.03E+10	
4.98E-04	101788.	0.00					
81.9000	-4.17E-08	-0.06631	-0.01542	1.01E-09	0.00	2.03E+10	
3.67E-04	94859.	0.00					
82.8000	-3.10E-08	-0.214	-0.00980	9.39E-10	0.00	2.03E+10	
6.75E-04	235224.	0.00					
83.7000	-2.15E-08	-0.283	-0.00337	8.07E-10	0.00	2.03E+10	
5.15E-04	259281.	0.00					
84.6000	-1.35E-08	-0.291	0.00133	6.55E-10	0.00	2.03E+10	
3.55E-04	283338.	0.00					
85.5000	-7.31E-09	-0.257	0.00437	5.09E-10	0.00	2.03E+10	
2.08E-04	307395.	0.00					
86.4000	-2.55E-09	-0.199	0.00592	3.88E-10	0.00	2.03E+10	
7.83E-05	331452.	0.00					
87.3000	1.07E-09	-0.131	0.00615	3.00E-10	0.00	2.03E+10	
-3.52E-05	355509.	0.00					
88.2000	3.94E-09	-0.06743	0.00522	2.48E-10	0.00	2.03E+10	
-1.38E-04	379566.	0.00					
89.1000	6.42E-09	-0.01974	0.00317	2.24E-10	0.00	2.03E+10	
-2.40E-04	403623.	0.00					
90.0000	8.78E-09	0.00	0.00	2.19E-10	0.00	2.03E+10	
-3.48E-04	213840.	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	=	0.50000000 inches
Computed slope at pile head	=	-0.0075144 radians
Maximum bending moment	=	1119319. inch-lbs
Maximum shear force	=	42120. lbs
Depth of maximum bending moment	=	4.50000000 feet below pile head
Depth of maximum shear force	=	0.000000 feet below pile head

Number of iterations = 17
 Number of zero deflection points = 6

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

Pile-head conditions are Shear and Pile-head Rotation (Loading Type 2)

Shear force at pile head = 34600.0 lbs
 Rotation of pile head = 0.000E+00 radians
 Axial load at pile head = 230000.0 lbs

(Zero slope for this load indicates fixed-head conditions)

Depth Res.	Deflect. Soil Spr.	Bending Distrib.	Shear Force	Slope S	Total Stress	Bending Stiffness	Soil p
X Es*H feet lb/inch	y Lat. inches lb/inch	Moment Load in-lbs lb/inch	lbs	radians	psi*	lb-in^2	
0.00	0.1391	-1067278.	34600.	0.00	0.00	1.31E+10	
-522.387	20278.	0.00					
0.9000	0.1343	-722967.	29018.	-7.40E-04	0.00	1.31E+10	
-511.304	41104.	0.00					
1.8000	0.1231	-436809.	23642.	-0.00116	0.00	2.03E+10	
-484.217	42476.	0.00					
2.7000	0.1094	-206553.	18603.	-0.00133	0.00	2.03E+10	
-449.028	44336.	0.00					
3.6000	0.09446	-28398.	13975.	-0.00139	0.00	2.03E+10	
-407.936	46642.	0.00					
4.5000	0.07937	102212.	9813.	-0.00137	0.00	2.03E+10	
-362.891	49377.	0.00					
5.4000	0.06487	190360.	6149.	-0.00129	0.00	2.03E+10	
-315.651	52549.	0.00					
6.3000	0.05147	241439.	3338.	-0.00118	0.00	2.03E+10	
-204.761	42968.	0.00					
7.2000	0.03945	268315.	1322.	-0.00104	0.00	2.03E+10	
-168.621	46165.	0.00					
8.1000	0.02897	275170.	-199.797	-8.97E-04	0.00	2.03E+10	
-113.203	42204.	0.00					
9.0000	0.02007	268457.	-1272.	-7.53E-04	0.00	2.03E+10	
-85.367	45937.	0.00					
9.9000	0.01271	251431.	-2032.	-6.14E-04	0.00	2.03E+10	
-55.380	47045.	0.00					

10.8000	0.00680	227615.	-2491.	-4.87E-04	0.00	2.03E+10
-29.624	47045.	0.00				
11.7000	0.00219	200042.	-2703.	-3.73E-04	0.00	2.03E+10
-9.560	47045.	0.00				
12.6000	-0.00126	171090.	-2725.	-2.75E-04	0.00	2.03E+10
5.4998	47045.	0.00				
13.5000	-0.00374	142554.	-2607.	-1.91E-04	0.00	2.03E+10
16.2814	47045.	0.00				
14.4000	-0.00539	115729.	-2392.	-1.23E-04	0.00	2.03E+10
23.4983	47045.	0.00				
15.3000	-0.00639	91491.	-2115.	-6.76E-05	0.00	2.03E+10
27.8216	47045.	0.00				
16.2000	-0.00685	70378.	-1804.	-2.46E-05	0.00	2.03E+10
29.8573	47045.	0.00				
17.1000	-0.00692	52655.	-1524.	8.12E-06	0.00	2.03E+10
21.9153	34214.	0.00				
18.0000	-0.00668	37418.	-1291.	3.20E-05	0.00	2.03E+10
21.1589	34214.	0.00				
18.9000	-0.00623	24600.	-1071.	4.85E-05	0.00	2.03E+10
19.7222	34214.	0.00				
19.8000	-0.00563	14050.	-867.876	5.88E-05	0.00	2.03E+10
17.8383	34214.	0.00				
20.7000	-0.00496	5562.	-686.773	6.40E-05	0.00	2.03E+10
15.6991	34214.	0.00				
21.6000	-0.00425	-1102.	-529.321	6.52E-05	0.00	2.03E+10
13.4588	34214.	0.00				
22.5000	-0.00355	-6195.	-380.784	6.32E-05	0.00	2.03E+10
14.0481	42768.	0.00				
23.4000	-0.00288	-9641.	-243.291	5.90E-05	0.00	2.03E+10
11.4135	42768.	0.00				
24.3000	-0.00227	-11743.	-133.070	5.34E-05	0.00	2.03E+10
8.9979	42768.	0.00				
25.2000	-0.00173	-12781.	-47.495	4.68E-05	0.00	2.03E+10
6.8492	42768.	0.00				
26.1000	-0.00126	-13002.	16.4407	4.00E-05	0.00	2.03E+10
4.9908	42768.	0.00				
27.0000	-8.66E-04	-12624.	65.6041	3.32E-05	0.00	2.03E+10
4.1135	51322.	0.00				
27.9000	-5.43E-04	-11750.	101.7609	2.67E-05	0.00	2.03E+10
2.5822	51322.	0.00				
28.8000	-2.89E-04	-10559.	123.1095	2.08E-05	0.00	2.03E+10
1.3713	51322.	0.00				
29.7000	-9.43E-05	-9194.	132.9346	1.55E-05	0.00	2.03E+10
0.4482	51322.	0.00				
30.6000	4.72E-05	-7765.	134.1445	1.10E-05	0.00	2.03E+10
-0.224	51322.	0.00				
31.5000	1.44E-04	-6351.	129.2361	7.29E-06	0.00	2.03E+10
-0.685	51322.	0.00				
32.4000	2.05E-04	-5009.	118.9751	4.27E-06	0.00	2.03E+10
-1.215	64152.	0.00				

33.3000	2.36E-04	-3803.	104.8305	1.93E-06	0.00	2.03E+10
-1.404	64152.	0.00				
34.2000	2.46E-04	-2755.	89.3486	1.88E-07	0.00	2.03E+10
-1.463	64152.	0.00				
35.1000	2.40E-04	-1874.	73.7362	-1.04E-06	0.00	2.03E+10
-1.428	64152.	0.00				
36.0000	2.24E-04	-1157.	58.8451	-1.85E-06	0.00	2.03E+10
-1.329	64152.	0.00				
36.9000	2.01E-04	-593.495	45.2332	-2.31E-06	0.00	2.03E+10
-1.191	64152.	0.00				
37.8000	1.74E-04	-168.321	33.2224	-2.51E-06	0.00	2.03E+10
-1.033	64152.	0.00				
38.7000	1.46E-04	136.5957	22.9531	-2.52E-06	0.00	2.03E+10
-0.869	64152.	0.00				
39.6000	1.19E-04	339.9948	14.4311	-2.40E-06	0.00	2.03E+10
-0.709	64152.	0.00				
40.5000	9.45E-05	460.2068	7.5686	-2.18E-06	0.00	2.03E+10
-0.561	64152.	0.00				
41.4000	7.23E-05	514.3204	2.2184	-1.92E-06	0.00	2.03E+10
-0.429	64152.	0.00				
42.3000	5.30E-05	517.6823	-1.112	-1.65E-06	0.00	2.03E+10
-0.188	38235.	0.00				
43.2000	3.66E-05	498.4881	-2.811	-1.38E-06	0.00	2.03E+10
-0.127	37465.	0.00				
44.1000	2.32E-05	463.8117	-3.923	-1.12E-06	0.00	2.03E+10
-0.07871	36695.	0.00				
45.0000	1.24E-05	419.3424	-4.570	-8.90E-07	0.00	2.03E+10
-0.04110	35925.	0.00				
45.9000	3.95E-06	369.5261	-4.861	-6.80E-07	0.00	2.03E+10
-0.01286	35155.	0.00				
46.8000	-2.33E-06	317.7222	-4.890	-4.97E-07	0.00	2.03E+10
0.00743	34385.	0.00				
47.7000	-6.80E-06	266.3656	-4.730	-3.42E-07	0.00	2.03E+10
0.02228	35412.	0.00				
48.6000	-9.73E-06	217.2564	-4.430	-2.14E-07	0.00	2.03E+10
0.03328	36952.	0.00				
49.5000	-1.14E-05	171.7428	-4.030	-1.11E-07	0.00	2.03E+10
0.04068	38491.	0.00				
50.4000	-1.21E-05	130.7478	-3.568	-3.02E-08	0.00	2.03E+10
0.04491	40031.	0.00				
51.3000	-1.21E-05	94.8183	-3.075	2.97E-08	0.00	2.03E+10
0.04645	41570.	0.00				
52.2000	-1.15E-05	64.1814	-2.577	7.20E-08	0.00	2.03E+10
0.04580	43110.	0.00				
53.1000	-1.05E-05	38.8019	-2.095	9.93E-08	0.00	2.03E+10
0.04346	44650.	0.00				
54.0000	-9.33E-06	18.4406	-1.645	1.15E-07	0.00	2.03E+10
0.03990	46189.	0.00				
54.9000	-8.04E-06	2.7085	-1.237	1.20E-07	0.00	2.03E+10
0.03553	47729.	0.00				

55.8000	-6.73E-06	-8.883	-0.880	1.19E-07	0.00	2.03E+10
0.03072	49269.	0.00				
56.7000	-5.48E-06	-16.880	-0.575	1.12E-07	0.00	2.03E+10
0.02578	50808.	0.00				
57.6000	-4.32E-06	-21.849	-0.324	1.01E-07	0.00	2.03E+10
0.02054	51322.	0.00				
58.5000	-3.29E-06	-24.392	-0.129	8.91E-08	0.00	2.03E+10
0.01563	51322.	0.00				
59.4000	-2.40E-06	-25.081	0.01679	7.59E-08	0.00	2.03E+10
0.01139	51322.	0.00				
60.3000	-1.65E-06	-24.407	0.1206	6.28E-08	0.00	2.03E+10
0.00784	51322.	0.00				
61.2000	-1.04E-06	-22.787	0.1897	5.03E-08	0.00	2.03E+10
0.00495	51322.	0.00				
62.1000	-5.64E-07	-20.560	0.2369	3.87E-08	0.00	2.03E+10
0.00381	72919.	0.00				
63.0000	-2.04E-07	-17.861	0.2651	2.85E-08	0.00	2.03E+10
0.00141	74844.	0.00				
63.9000	5.29E-08	-14.975	0.2707	1.98E-08	0.00	2.03E+10
-3.76E-04	76769.	0.00				
64.8000	2.24E-07	-12.112	0.2599	1.26E-08	0.00	2.03E+10
-0.00163	78693.	0.00				
65.7000	3.26E-07	-9.423	0.2380	6.91E-09	0.00	2.03E+10
-0.00243	80618.	0.00				
66.6000	3.73E-07	-7.006	0.2094	2.54E-09	0.00	2.03E+10
-0.00285	82542.	0.00				
67.5000	3.80E-07	-4.912	0.1780	-6.25E-10	0.00	2.03E+10
-0.00298	84467.	0.00				
68.4000	3.60E-07	-3.159	0.1464	-2.77E-09	0.00	2.03E+10
-0.00288	86391.	0.00				
69.3000	3.21E-07	-1.737	0.1167	-4.07E-09	0.00	2.03E+10
-0.00262	88316.	0.00				
70.2000	2.72E-07	-0.619	0.09025	-4.70E-09	0.00	2.03E+10
-0.00227	90240.	0.00				
71.1000	2.19E-07	0.2356	0.06788	-4.80E-09	0.00	2.03E+10
-0.00187	92165.	0.00				
72.0000	1.68E-07	0.8714	0.04340	-4.50E-09	0.00	2.03E+10
-0.00266	171072.	0.00				
72.9000	1.22E-07	1.1954	0.01900	-3.95E-09	0.00	2.03E+10
-0.00185	164144.	0.00				
73.8000	8.27E-08	1.3015	0.00249	-3.29E-09	0.00	2.03E+10
-0.00120	157215.	0.00				
74.7000	5.09E-08	1.2654	-0.00784	-2.61E-09	0.00	2.03E+10
-7.09E-04	150287.	0.00				
75.6000	2.64E-08	1.1451	-0.01356	-1.97E-09	0.00	2.03E+10
-3.50E-04	143358.	0.00				
76.5000	8.40E-09	0.9824	-0.01602	-1.40E-09	0.00	2.03E+10
-1.06E-04	136430.	0.00				
77.4000	-3.94E-09	0.8061	-0.01634	-9.28E-10	0.00	2.03E+10
4.73E-05	129502.	0.00				

78.3000	-1.17E-08	0.6342	-0.01537	-5.46E-10	0.00	2.03E+10
1.32E-04	122573.	0.00				
79.2000	-1.57E-08	0.4769	-0.01374	-2.51E-10	0.00	2.03E+10
1.68E-04	115645.	0.00				
80.1000	-1.71E-08	0.3386	-0.01191	-3.40E-11	0.00	2.03E+10
1.72E-04	108716.	0.00				
81.0000	-1.65E-08	0.2199	-0.01014	1.14E-10	0.00	2.03E+10
1.55E-04	101788.	0.00				
81.9000	-1.46E-08	0.1190	-0.00861	2.04E-10	0.00	2.03E+10
1.28E-04	94859.	0.00				
82.8000	-1.21E-08	0.03291	-0.00650	2.45E-10	0.00	2.03E+10
2.63E-04	235224.	0.00				
83.7000	-9.32E-09	-0.02259	-0.00387	2.47E-10	0.00	2.03E+10
2.24E-04	259281.	0.00				
84.6000	-6.71E-09	-0.05197	-0.00171	2.28E-10	0.00	2.03E+10
1.76E-04	283338.	0.00				
85.5000	-4.40E-09	-0.06076	-8.75E-05	1.98E-10	0.00	2.03E+10
1.25E-04	307395.	0.00				
86.4000	-2.44E-09	-0.05485	9.93E-04	1.67E-10	0.00	2.03E+10
7.49E-05	331452.	0.00				
87.3000	-7.95E-10	-0.04013	0.00154	1.42E-10	0.00	2.03E+10
2.62E-05	355509.	0.00				
88.2000	6.21E-10	-0.02231	0.00156	1.25E-10	0.00	2.03E+10
-2.18E-05	379566.	0.00				
89.1000	1.91E-09	-0.00700	0.00106	1.17E-10	0.00	2.03E+10
-7.13E-05	403623.	0.00				
90.0000	3.16E-09	0.00	0.00	1.15E-10	0.00	2.03E+10
-1.25E-04	213840.	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	=	0.13911148 inches
Computed slope at pile head	=	0.000000 radians
Maximum bending moment	=	-1067278. inch-lbs
Maximum shear force	=	34600. lbs
Depth of maximum bending moment	=	0.000000 feet below pile head
Depth of maximum shear force	=	0.000000 feet below pile head
Number of iterations	=	12
Number of zero deflection points	=	6

 Computed Values of Pile Loading and Deflection
 for Lateral Loading for Load Case Number 4

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

Shear force at pile head	=	34600.0 lbs
Applied moment at pile head	=	0.0 in-lbs
Axial thrust load on pile head	=	230000.0 lbs

Depth	Deflect.	Bending	Shear	Slope	Total	Bending	Soil
Res.	Soil	Spr.	Distrib.				
X	y	Moment	Force	S	Total	Bending	Soil
Es*H	Lat.	Load	Force	S	Stress	Stiffness	p
feet	inches	in-lbs	lbs	radians	psi*	lb-in^2	
lb/inch	lb/inch	lb/inch					
-----	-----	-----	-----	-----	-----	-----	-----
0.00	0.3309	-3.87E-08	34600.	-0.00494	0.00	2.03E+10	
-825.100	13467.	0.00					
0.9000	0.2775	337836.	26024.	-0.00485	0.00	2.03E+10	
-763.063	29699.	0.00					
1.8000	0.2261	586222.	18182.	-0.00461	0.00	2.03E+10	
-689.086	32922.	0.00					
2.7000	0.1780	753458.	11197.	-0.00423	0.00	1.83E+10	
-604.517	36680.	0.00					
3.6000	0.1347	849076.	5166.	-0.00373	0.00	1.68E+10	
-512.232	41057.	0.00					
4.5000	0.09739	883589.	152.4698	-0.00316	0.00	1.62E+10	
-416.275	46160.	0.00					
5.4000	0.06641	868085.	-3828.	-0.00258	0.00	1.65E+10	
-320.862	52181.	0.00					
6.3000	0.04158	813741.	-6507.	-0.00205	0.00	1.74E+10	
-175.285	45533.	0.00					
7.2000	0.02221	737694.	-8043.	-0.00158	0.00	1.86E+10	
-109.146	53068.	0.00					
8.1000	0.00748	647850.	-8809.	-0.00119	0.00	2.02E+10	
-32.586	47045.	0.00					
9.0000	-0.00352	553348.	-8902.	-8.71E-04	0.00	2.03E+10	
15.3246	47045.	0.00					
9.9000	-0.01133	459900.	-8552.	-6.01E-04	0.00	2.03E+10	
49.3660	47045.	0.00					
10.8000	-0.01650	371602.	-7898.	-3.80E-04	0.00	2.03E+10	
71.8897	47045.	0.00					
11.7000	-0.01954	291199.	-7058.	-2.04E-04	0.00	2.03E+10	
83.6027	46210.	0.00					
12.6000	-0.02090	220162.	-6131.	-6.77E-05	0.00	2.03E+10	
88.1066	45524.	0.00					
13.5000	-0.02100	159111.	-5177.	3.31E-05	0.00	2.03E+10	

88.4296	45476.	0.00					
14.4000	-0.02019	108164.	-4237.	1.04E-04	0.00	2.03E+10	
85.7517	45878.	0.00					
15.3000	-0.01875	67077.	-3337.	1.51E-04	0.00	2.03E+10	
80.9566	46629.	0.00					
16.2000	-0.01693	35344.	-2501.	1.78E-04	0.00	2.03E+10	
73.7490	47045.	0.00					
17.1000	-0.01491	12166.	-1848.	1.91E-04	0.00	2.03E+10	
47.2260	34214.	0.00					
18.0000	-0.01281	-5519.	-1374.	1.92E-04	0.00	2.03E+10	
40.5952	34214.	0.00					
18.9000	-0.01075	-18462.	-970.572	1.86E-04	0.00	2.03E+10	
34.0647	34214.	0.00					
19.8000	-0.00880	-27407.	-636.126	1.74E-04	0.00	2.03E+10	
27.8698	34214.	0.00					
20.7000	-0.00700	-33066.	-365.894	1.58E-04	0.00	2.03E+10	
22.1731	34214.	0.00					
21.6000	-0.00539	-36094.	-153.941	1.39E-04	0.00	2.03E+10	
17.0775	34214.	0.00					
22.5000	-0.00399	-37083.	23.5849	1.20E-04	0.00	2.03E+10	
15.7976	42768.	0.00					
23.4000	-0.00280	-36180.	168.7832	1.00E-04	0.00	2.03E+10	
11.0910	42768.	0.00					
24.3000	-0.00182	-33936.	267.5900	8.18E-05	0.00	2.03E+10	
7.2066	42768.	0.00					
25.2000	-0.00103	-30807.	328.6092	6.46E-05	0.00	2.03E+10	
4.0933	42768.	0.00					
26.1000	-4.24E-04	-27159.	359.7852	4.92E-05	0.00	2.03E+10	
1.6800	42768.	0.00					
27.0000	2.93E-05	-23280.	368.1052	3.58E-05	0.00	2.03E+10	
-0.139	51322.	0.00					
27.9000	3.49E-04	-19386.	358.3892	2.45E-05	0.00	2.03E+10	
-1.660	51322.	0.00					
28.8000	5.58E-04	-15660.	335.1047	1.52E-05	0.00	2.03E+10	
-2.652	51322.	0.00					
29.7000	6.77E-04	-12223.	303.4117	7.76E-06	0.00	2.03E+10	
-3.217	51322.	0.00					
30.6000	7.26E-04	-9145.	267.4157	2.09E-06	0.00	2.03E+10	
-3.449	51322.	0.00					
31.5000	7.22E-04	-6458.	230.2628	-2.06E-06	0.00	2.03E+10	
-3.431	51322.	0.00					
32.4000	6.81E-04	-4161.	189.8794	-4.88E-06	0.00	2.03E+10	
-4.047	64152.	0.00					
33.3000	6.17E-04	-2332.	148.2435	-6.60E-06	0.00	2.03E+10	
-3.663	64152.	0.00					
34.2000	5.39E-04	-926.580	111.1825	-7.47E-06	0.00	2.03E+10	
-3.200	64152.	0.00					
35.1000	4.55E-04	106.7355	79.2960	-7.69E-06	0.00	2.03E+10	
-2.705	64152.	0.00					
36.0000	3.73E-04	824.3998	52.7350	-7.44E-06	0.00	2.03E+10	

-2.214	64152.	0.00					
36.9000	2.95E-04	1283.	31.3280	-6.88E-06	0.00	2.03E+10	
-1.751	64152.	0.00					
37.8000	2.24E-04	1535.	14.6872	-6.13E-06	0.00	2.03E+10	
-1.331	64152.	0.00					
38.7000	1.62E-04	1630.	2.2941	-5.29E-06	0.00	2.03E+10	
-0.964	64152.	0.00					
39.6000	1.10E-04	1611.	-6.434	-4.43E-06	0.00	2.03E+10	
-0.652	64152.	0.00					
40.5000	6.66E-05	1513.	-12.094	-3.60E-06	0.00	2.03E+10	
-0.396	64152.	0.00					
41.4000	3.21E-05	1368.	-15.260	-2.83E-06	0.00	2.03E+10	
-0.191	64152.	0.00					
42.3000	5.42E-06	1198.	-16.393	-2.15E-06	0.00	2.03E+10	
-0.01918	38235.	0.00					
43.2000	-1.44E-05	1024.	-16.227	-1.56E-06	0.00	2.03E+10	
0.04990	37465.	0.00					
44.1000	-2.83E-05	855.1971	-15.438	-1.06E-06	0.00	2.03E+10	
0.09619	36695.	0.00					
45.0000	-3.73E-05	696.1460	-14.248	-6.50E-07	0.00	2.03E+10	
0.1242	35925.	0.00					
45.9000	-4.24E-05	550.6601	-12.833	-3.19E-07	0.00	2.03E+10	
0.1379	35155.	0.00					
46.8000	-4.42E-05	420.5290	-11.329	-6.10E-08	0.00	2.03E+10	
0.1408	34385.	0.00					
47.7000	-4.37E-05	306.2649	-9.795	1.32E-07	0.00	2.03E+10	
0.1432	35412.	0.00					
48.6000	-4.14E-05	208.2997	-8.257	2.69E-07	0.00	2.03E+10	
0.1415	36952.	0.00					
49.5000	-3.79E-05	126.5691	-6.764	3.58E-07	0.00	2.03E+10	
0.1350	38491.	0.00					
50.4000	-3.36E-05	60.4141	-5.362	4.07E-07	0.00	2.03E+10	
0.1247	40031.	0.00					
51.3000	-2.91E-05	8.7246	-4.084	4.26E-07	0.00	2.03E+10	
0.1119	41570.	0.00					
52.2000	-2.44E-05	-29.925	-2.953	4.20E-07	0.00	2.03E+10	
0.09759	43110.	0.00					
53.1000	-2.00E-05	-57.151	-1.980	3.97E-07	0.00	2.03E+10	
0.08267	44650.	0.00					
54.0000	-1.59E-05	-74.660	-1.167	3.62E-07	0.00	2.03E+10	
0.06789	46189.	0.00					
54.9000	-1.22E-05	-84.150	-0.509	3.20E-07	0.00	2.03E+10	
0.05383	47729.	0.00					
55.8000	-8.97E-06	-87.251	0.00218	2.74E-07	0.00	2.03E+10	
0.04091	49269.	0.00					
56.7000	-6.26E-06	-85.465	0.3821	2.28E-07	0.00	2.03E+10	
0.02944	50808.	0.00					
57.6000	-4.04E-06	-80.133	0.6446	1.84E-07	0.00	2.03E+10	
0.01918	51322.	0.00					
58.5000	-2.28E-06	-72.458	0.8065	1.44E-07	0.00	2.03E+10	

0.01081	51322.	0.00					
59.4000	-9.30E-07	-63.426	0.8888	1.08E-07	0.00	2.03E+10	
0.00442	51322.	0.00					
60.3000	5.15E-08	-53.795	0.9113	7.66E-08	0.00	2.03E+10	
-2.45E-04	51322.	0.00					
61.2000	7.24E-07	-44.122	0.8914	5.06E-08	0.00	2.03E+10	
-0.00344	51322.	0.00					
62.1000	1.14E-06	-34.792	0.8311	2.96E-08	0.00	2.03E+10	
-0.00772	72919.	0.00					
63.0000	1.36E-06	-26.316	0.7384	1.34E-08	0.00	2.03E+10	
-0.00945	74844.	0.00					
63.9000	1.43E-06	-18.909	0.6324	1.36E-09	0.00	2.03E+10	
-0.01018	76769.	0.00					
64.8000	1.39E-06	-12.663	0.5226	-7.03E-09	0.00	2.03E+10	
-0.01015	78693.	0.00					
65.7000	1.28E-06	-7.586	0.4162	-1.24E-08	0.00	2.03E+10	
-0.00956	80618.	0.00					
66.6000	1.13E-06	-3.613	0.3181	-1.54E-08	0.00	2.03E+10	
-0.00860	82542.	0.00					
67.5000	9.49E-07	-0.638	0.2316	-1.65E-08	0.00	2.03E+10	
-0.00742	84467.	0.00					
68.4000	7.68E-07	1.4718	0.1583	-1.63E-08	0.00	2.03E+10	
-0.00615	86391.	0.00					
69.3000	5.97E-07	2.8629	0.09880	-1.51E-08	0.00	2.03E+10	
-0.00488	88316.	0.00					
70.2000	4.42E-07	3.6810	0.05252	-1.34E-08	0.00	2.03E+10	
-0.00369	90240.	0.00					
71.1000	3.07E-07	4.0640	0.01844	-1.13E-08	0.00	2.03E+10	
-0.00262	92165.	0.00					
72.0000	1.97E-07	4.1356	-0.01254	-9.16E-09	0.00	2.03E+10	
-0.00311	171072.	0.00					
72.9000	1.09E-07	3.8386	-0.03834	-7.04E-09	0.00	2.03E+10	
-0.00166	164144.	0.00					
73.8000	4.44E-08	3.3425	-0.05081	-5.14E-09	0.00	2.03E+10	
-6.46E-04	157215.	0.00					
74.7000	-1.50E-09	2.7666	-0.05419	-3.51E-09	0.00	2.03E+10	
2.08E-05	150287.	0.00					
75.6000	-3.15E-08	2.1895	-0.05182	-2.20E-09	0.00	2.03E+10	
4.18E-04	143358.	0.00					
76.5000	-4.90E-08	1.6583	-0.04622	-1.18E-09	0.00	2.03E+10	
6.19E-04	136430.	0.00					
77.4000	-5.69E-08	1.1971	-0.03919	-4.17E-10	0.00	2.03E+10	
6.82E-04	129502.	0.00					
78.3000	-5.80E-08	0.8138	-0.03195	1.17E-10	0.00	2.03E+10	
6.58E-04	122573.	0.00					
79.2000	-5.44E-08	0.5063	-0.02526	4.68E-10	0.00	2.03E+10	
5.82E-04	115645.	0.00					
80.1000	-4.79E-08	0.2660	-0.01951	6.73E-10	0.00	2.03E+10	
4.82E-04	108716.	0.00					
81.0000	-3.98E-08	0.08149	-0.01488	7.65E-10	0.00	2.03E+10	

3.76E-04	101788.	0.00					
81.9000	-3.13E-08	-0.05928	-0.01137	7.71E-10	0.00	2.03E+10	
2.75E-04	94859.	0.00					
82.8000	-2.32E-08	-0.168	-0.00715	7.11E-10	0.00	2.03E+10	
5.05E-04	235224.	0.00					
83.7000	-1.60E-08	-0.217	-0.00235	6.08E-10	0.00	2.03E+10	
3.84E-04	259281.	0.00					
84.6000	-1.00E-08	-0.222	0.00114	4.92E-10	0.00	2.03E+10	
2.64E-04	283338.	0.00					
85.5000	-5.37E-09	-0.195	0.00339	3.81E-10	0.00	2.03E+10	
1.53E-04	307395.	0.00					
86.4000	-1.81E-09	-0.150	0.00452	2.89E-10	0.00	2.03E+10	
5.57E-05	331452.	0.00					
87.3000	8.81E-10	-0.09890	0.00466	2.23E-10	0.00	2.03E+10	
-2.90E-05	355509.	0.00					
88.2000	3.01E-09	-0.05073	0.00393	1.83E-10	0.00	2.03E+10	
-1.06E-04	379566.	0.00					
89.1000	4.84E-09	-0.01482	0.00239	1.66E-10	0.00	2.03E+10	
-1.81E-04	403623.	0.00					
90.0000	6.59E-09	0.00	0.00	1.62E-10	0.00	2.03E+10	
-2.61E-04	213840.	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. 4:

Pile-head deflection	=	0.33085913 inches
Computed slope at pile head	=	-0.0049419 radians
Maximum bending moment	=	883589. inch-lbs
Maximum shear force	=	34600. lbs
Depth of maximum bending moment	=	4.50000000 feet below pile head
Depth of maximum shear force	=	0.000000 feet below pile head
Number of iterations	=	20
Number of zero deflection points	=	6

Summary of Pile-head Responses for Conventional Analyses

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, V, lbs, and Load 2 = Moment, M, in-lbs

Load Type 2: Load 1 = Shear, V, lbs, and Load 2 = Slope, S, radians

Load Type 3: Load 1 = Shear, V, lbs, and Load 2 = Rot. Stiffness, R, in-lbs/rad.
Load Type 4: Load 1 = Top Deflection, y, inches, and Load 2 = Moment, M, in-lbs
Load Type 5: Load 1 = Top Deflection, y, inches, and Load 2 = Slope, S, radians

Load Case	Shear Max Pile	Load Type	Axial Loading	Pile-head Deflection	Pile-head Rotation	Max in		
No.	1 in	Load 1 Pile-head	2 Type	Load 2 Pile-head	lbs Loading	inches Deflection	radians Rotation	lbs
1	y, in	0.5000	S, rad	0.00	230000.	0.5000	0.00	
67385.	-1855887.							
2	y, in	0.5000	M, in-lb	0.00	230000.	0.5000	-0.00751	
42120.	1119319.							
3	V, lb	34600.	S, rad	0.00	230000.	0.1391	0.00	
34600.	-1067278.							
4	V, lb	34600.	M, in-lb	0.00	230000.	0.3309	-0.00494	
34600.	883589.							

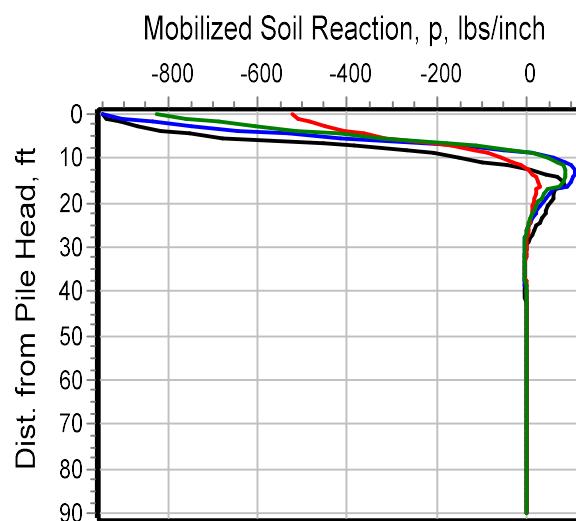
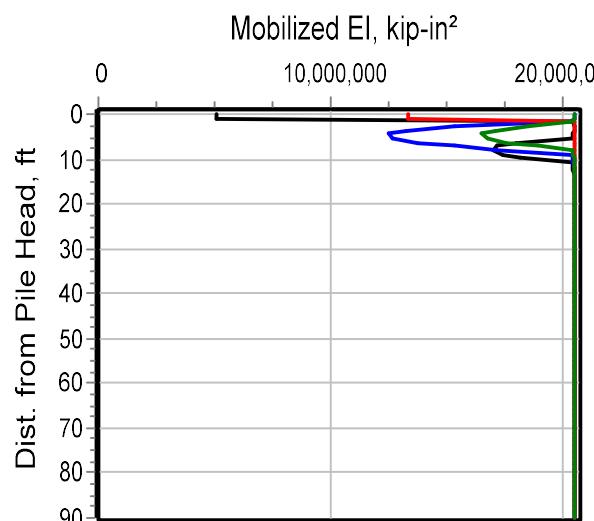
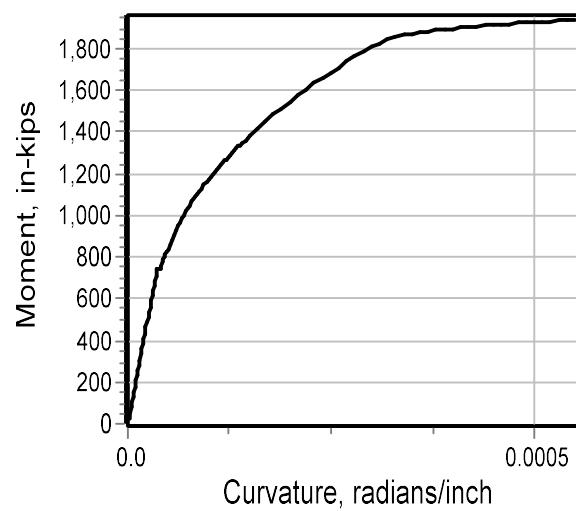
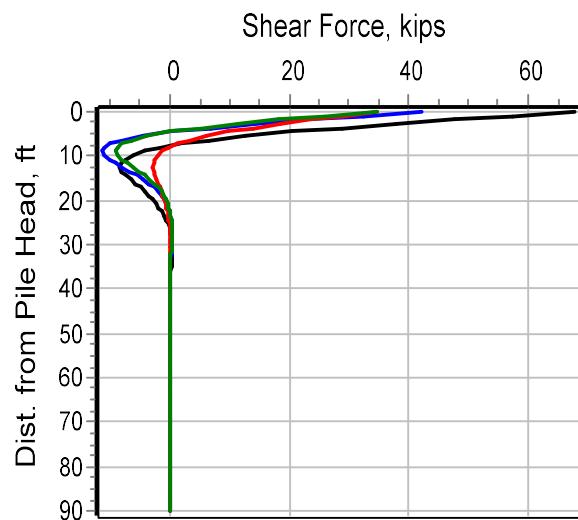
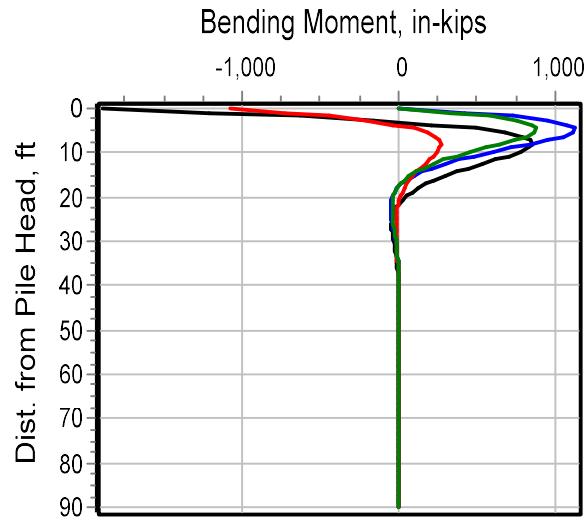
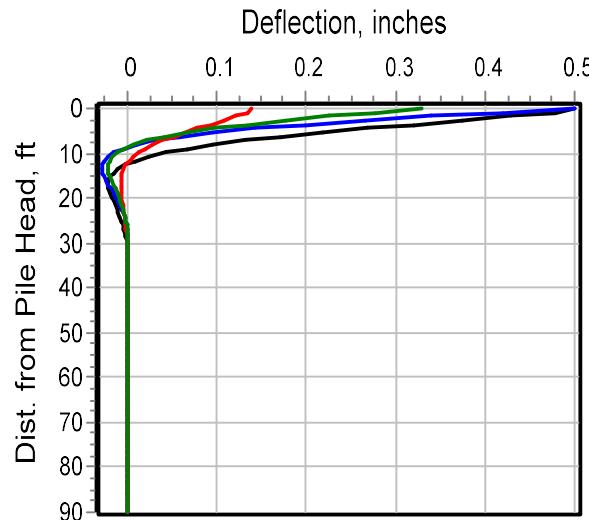
Maximum pile-head deflection = 0.5000000000 inches

Maximum pile-head rotation = -0.0075144291 radians = -0.430545 deg.

The analysis ended normally.

FCWS Elevated Storage Tank
Fayette County
Oasis Project No. 224927

Lateral Pile Analysis
18-Inch ACIP



---- Fixed Head w 0.5" Deflection,
----- Pinned Head w 0.5" Deflection,

---- Fixed Head w Shear
----- Pinned Head w Shear