



REPORT OF SUBSURFACE INVESTIGATION AND GEOTECHNICAL ENGINEERING SERVICES

**Renovate/Expand SCI Phase II
Veterans Affairs Medical Center
Hampton, Virginia**

**G E T Project No: WM11-152G
November 1, 2011**

Prepared for:

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TO: **RDC/John Poe Architects**
524 Fernwood Avenue
Altamonte Springs, Florida 32701

Attn: Mr. Thomas M. Hesse, AIA, LEED AP BD+C

RE: Report of Subsurface Investigation & Geotechnical Engineering Services
Renovate/Expand SCI Phase II
Veterans Affairs Medical Center
Hampton, Virginia
GET Project No: WM11-152G

Dear Mr. Hesse:

In compliance with your instructions, we have completed our Subsurface Investigation and Geotechnical Engineering Services for the referenced project. The results of this Study, together with our recommendations, are presented in this report.

Often, because of design and construction details that occur on a project, questions arise concerning subsurface conditions. **G E T Solutions, Inc.** would be pleased to continue its role as Geotechnical Engineer during the final design phase and project implementation.

Thank you for the opportunity to work with you on this project. We trust that the information contained herein meets your immediate need, and should you have any questions or if we could be of further assistance, please do not hesitate to contact us.

Respectfully Submitted,
G E T Solutions, Inc.

James R. Wheeler
Project Geologist

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EXECUTIVE SUMMARY

The project sites are located along Franklin Boulevard towards the southeast corner of the Veterans Affairs Medical Center complex in the City of Hampton, Virginia. The construction is planned to consist of constructing two (2) 1-story additions to the existing SCI building. The building additions are expected to consist of masonry walls, brick veneer, and structural steel framing, supported by a deep foundation system. Also, a asphalt paved or possibly pervious paver type parking lot, a SWM facility, along with other infrastructure components are planned for this development.

Our field exploration program included four (4) 25 to 60-foot deep Standard Penetration Test (SPT) borings drilled within the proposed building addition footprints and one (1) 4.5-foot deep hand auger boring performed within the proposed pavement area. A brief description of the subsurface soil conditions is tabulated below:

DEPTH (Feet)	STRATUM	DESCRIPTION	RANGES OF SPT ⁽¹⁾ N-VALUES
0 to 0.17-0.5	Topsoil	2 to 6 inches of Topsoil	-
0.17-0.5 to 3.5-8.0	FILL/Possible FILL	Silty and Clayey SAND (SM and SC) and Sandy, Lean CLAY (CL), both containing varying amounts of Gravel, organics, marine shell fragments, and/or construction debris	Sands: 6 - 24 Clay: 9 - 15
3.5-8.0 to 4.5-29.0	I	SAND (SP, SP-SM, SM, and SC) with varying amounts of Silt and Clay <i>Isolated deposit of Lean CLAY (CL) was encountered at a depth of 8 to 12 feet and 18 to 22 feet below existing grades at boring locations B-1 and B-4, respectively. Boring cave-in was encountered in hand auger boring HA-1 at 4.5 feet below existing grades.</i>	2 - 13
22.0-32.0 to 25.0-43.5	II	Lean and Fat CLAY (CL and CH) with varying amounts of Sand <i>Boring B-2 was terminated within this cohesive layer.</i>	WOH ⁽²⁾ - 9
30.0-43.5 to 60.0 Boring Termination Depth	III	Silty fine to medium SAND (SM) with trace marine shell fragments, "Yorktown Formation"	2 - 65

Note (1) SPT = Standard Penetration Test, N-Values in Blows-per-foot

Note (2) WOH = Weight of Hammer

The groundwater level was recorded at the boring locations and as observed through the wetness of the recovered soil samples during the drilling operations. The initial groundwater table was estimated to occur at depths of approximately 3.5 to 12 feet below current grades at the boring locations (corresponding to elevations 0 to 1 foot MSL). All boreholes were backfilled upon completion for safety reasons. As such, a stabilized 24-hour reading was not obtained in the borings.

The following evaluations and recommendations were developed based on our field exploration and laboratory-testing program:

- The proposed building construction areas should be cleared by means of removing all topsoil, root mat, trees, shrubs, sidewalks, or any otherwise unsuitable materials. It is estimated that an initial cut of up to 6 inches in depth will be required to remove the topsoil materials. This cut is expected to extend deeper in isolated areas to remove deeper deposits of unsuitable soils, organics, and/or unsuitable FILL which becomes evident during the clearing.
- A field testing program is recommended during construction. This testing program should include as a minimum, test pits and subgrade load testing (proofrolling) in the pavement areas, compaction testing, pile load testing, and pile installation monitoring. Several 4-foot deep test pits should be excavated within the proposed pavement areas to determine whether the FILL materials may remain in place beneath the pavements or whether it should be removed.
- The project's budget should include an allowance for subgrade improvements (undercut of unsuitable soils and subsequent backfilling).
- Considering the proximity of the proposed building additions to the existing building, driven piles could potentially generate vibrations which are potentially damaging to this existing building. As such, an alternative deep foundation, using auger cast piles, has been recommended in order to minimize the vibration levels and minimize the potential for vibration induced damage.
- Deep foundations comprised of 14-inch diameter, auger cast piles were evaluated for support of the proposed SCI additions. The pile characteristics are tabulated below:

Lateral Dimensions	Pile Tip Elevation (ft, MSL)¹	Allowable Compression Capacity (tons)	Allowable Tension Capacity (tons)	Lateral Capacity (tons)²
14-inch Diameter	-40	40	20	4

Note (1) Pile tip elevation provided is below mean sea level (MSL).

Note (2) Lateral capacity computed for a lateral load applied at the pile butt level, at ground level for a maximum butt deflection of 0.5 inches for a free end condition or 0.25 inches for a fixed end condition.

- Based on the subsurface profile as indicated by the borings at this site and seismic site testing performed by us in the project vicinity, the site is expected to be a Site Class 'D' in accordance with Table 1613.5.2 of the 2009 International Building Code.
- Pavement sections to be designed using a CBR value of 12.2; typical pavement sections are provided in the body of the report.

This summary briefly discusses some of the major topics mentioned in the attached report. Accordingly, this report should be read in its entirety to thoroughly evaluate the contents.

1.0 PROJECT INFORMATION

1.1 Project Authorization

G E T Solutions, Inc. has completed our Subsurface Investigation and Geotechnical Engineering Services for the proposed Renovate/Expand SCI Phase II project located within the Veterans Affairs Medical Center complex in the City of Hampton, Virginia. The geotechnical engineering services were conducted in general accordance with the scope presented in **G E T** Proposal No. PVB11-349G, dated September 9, 2011. Verbal authorization to proceed with our services was received initially from the client and then followed up by electronic mail on November 1, 2011.

1.2 Project Site Location and Description

The project sites are located along Franklin Boulevard towards the southeast corner of the Veterans Affairs Medical Center complex in the City of Hampton, Virginia. The project will consist of two additions and a parking lot. The larger of the two additions will be located along the east side of the SCI building, whereas the smaller addition will be located along the west side of the SCI building. The parking lot will be located on the other side of Franklin Boulevard off to the southeast of the existing SCI building.

At the time of our field reconnaissance, the proposed eastern addition footprint is within a landscaped area that is mainly grass covered with several sidewalks, trees, and shrubs. The western addition is also located in a landscaped area mainly grass covered with sidewalks. The southern portion of this eastern addition footprint is currently within a disturbed area that is fenced off due to construction being completed for the Phase I addition to the SCI building. Elevations within the addition footprints generally range from about 10 to 12 feet MSL and slope slightly downward away from the existing building. The parking lot is in a cleared grass covered area with elevations currently about 3 to 5 feet MSL.

Photographic documentation of the site conditions at the time of our site reconnaissance is illustrated on the following page in Figures 1 and 2.



Figure 1: Facing west looking towards proposed eastern addition location.



Figure 2: Facing east looking towards proposed western addition location.

1.3 Project Construction Description

The construction is planned to consist of building two (2) 1-story additions to the existing SCI building. The building additions are planned to be of masonry wall, brick veneer, structural steel framing with an elevated slab. The maximum column and wall loads associated with these structures are not expected to exceed 175 kips and 5 klf, respectively. Finished floor elevations are expected to coincide with the existing building floor elevations and be supported over a crawl space. Finish grades for the crawl space are not known at this time, but are expected to be several feet or more below current grades similar to the Phase I addition. Therefore, cuts up to 5 feet, possibly more, are expected to be required in order to establish finish grades for the crawl spaces.

The specific design of the parking lot is not known at this time, but is expected to consist of either an asphalt or pervious paver type parking lot. From our understanding, several feet of fill (about 3 to 5 feet) will be required to establish finish grades within parking lot area. Also, other infrastructure components (utilities, SWM facility, etc.) are planned for this development.

If any of the noted information is incorrect or has changed, please inform **GET Solutions, Inc.** so that we may amend the recommendations presented in this report, if appropriate.

1.4 Purpose and Scope of Services

The purpose of this study was to obtain information on the general subsurface conditions at the proposed project site. The subsurface conditions encountered were then evaluated with respect to the available project characteristics. In this regard, engineering assessments for the following items were formulated:

1. General assessment of the soils revealed by the borings performed at the proposed development.
2. General location and description of potentially deleterious material encountered in the borings that may interfere with construction progress or structure performance, including existing fills or surficial/subsurface organics.
3. Soil subgrade preparation, including stripping, grading and compaction. Engineering criteria for placement and compaction of approved structural fill material.
4. Construction considerations for fill placement and subgrade preparation.
5. Feasibility of utilizing a deep foundation system for support of the proposed additions. Design parameters required for the foundation system, including pile type, pile length, allowable capacities, and expected total and differential settlements. Also, pile installation and testing criteria is evaluated and discussed in this report.

6. Evaluation of the subsurface profile to determine the site class definition for earthquake design considerations based on the 2009 International Building Code (IBC).
7. Typical pavement sections based on the field exploration and our experience with similar soil conditions.

The scope of services did not include an environmental assessment for determining the presence or absence of wetlands or hazardous or toxic material in the soil, bedrock, surface water, groundwater or air, on or below or around this site.

2.0 FIELD AND LABORATORY PROCEDURES

2.1 Field Exploration

In order to explore the general subsurface soil types and to aid in developing associated foundation design parameters, four (4) 25 to 60-foot deep Standard Penetration Test (SPT) borings (designated as B-1 through B-4) were drilled by **G E T Solutions, Inc.** within the proposed building addition footprints.

The SPT borings were performed with the use of rotary wash “mud” drilling procedures in general accordance with ASTM D 1586. The tests were performed continuously from the existing ground surface to a depth of 12 feet, and at 5-foot intervals thereafter. The soil samples were obtained with a standard 1.4” I.D., 2” O.D., 30” long split-spoon sampler. The sampler was driven with blows of a 140 lb. hammer falling 30 inches, using an automatic hammer. The number of blows required to drive the sampler each 6-inch increment of penetration was recorded and is shown on the boring logs. The sum of the second and third penetration increments is termed the SPT N-value (uncorrected for automatic hammer). A representative portion of each disturbed split-spoon sample was collected with each SPT, placed in a glass jar, sealed, labeled, and returned to our laboratory for review.

In order to explore the general subsurface soil types and to aid in developing associated pavement design parameters, one (1) 4.5-foot deep hand auger boring (designated as HA-1) was performed within the proposed pavement area. In addition, one (1) bulk soil sample (designated as CBR-1) was collected from the proposed pavement area at this hand auger boring location. The bulk subgrade soil sample was collected from a depth ranging from 0.5 to 1.5 feet below existing grades. The bulk soil sample was returned to our laboratory and subjected to CBR, Proctor, and classification testing in accordance with ASTM standards.

The boring and CBR locations were established and located in the field by a representative of **G E T Solutions, Inc.** The approximate boring locations are shown on the “Boring Location Plan” included in Appendix I.

2.2 Laboratory Testing

Representative portions of all soil samples collected during drilling were sealed in glass jars or plastic bags, labeled and transferred to our laboratory for classification and analysis. The soil classification was performed by a Geotechnical Engineer in accordance with ASTM D 2488. The classification system for soil exploration is included in Appendix II.

Four (4) representative soil split spoon samples were selected and subjected to natural moisture, -#200 sieve wash, and Atterberg Limits testing and analysis in order to corroborate the visual classification of the soils. These test results are tabulated below and are also presented on the "Boring Logs" sheets of Appendix III.

Table I - Laboratory Classification Test Results

Boring No.	Depth (Ft)	Natural Moisture Content (%)	-#200 Sieve (%)	Atterberg Limits LL/PL/PI	USCS Classification
B-1	38-40	47	99	46/19/27	CL
B-3	23-25	54	71	66/29/37	CH
B-3	43-45	34	17	Non Plastic	SM
B-4	53-55	28	26	Non Plastic	SM

The bulk soil sample that was obtained from the proposed pavement area was returned to the laboratory and subjected to natural moisture content, -#200 sieve wash, Atterberg Limits, Standard Proctor, and CBR testing in accordance with ASTM standards. These test results are presented on the Summary of CBR Test Results in Appendix VII.

3.0 SUBSURFACE CONDITIONS

3.1 Site Geology

The project site lies within a major physiographic province called the Atlantic Coastal Plain. Numerous transgressions and regressions of the Atlantic Ocean have deposited marine, lagoonal, and fluvial (stream lain) sediments. The regional geology is very complex, and generally consists of interbedded layers of varying mixtures of sands, silts and clays. Based on our review of existing geologic and soil boring data, the geologic stratigraphy encountered in our subsurface explorations generally consisted of marine deposited sands, silts and clays, and late Pliocene age deposits of the Yorktown Formation. The Yorktown Formation stratum, once encountered, generally extends to depths of several hundred feet below sea level.

3.2 Subsurface Soil Conditions

The results of our field exploration program indicated the following:

Table II – Subsurface Soil Conditions

DEPTH (Feet)	STRATUM	DESCRIPTION	RANGES OF SPT ⁽¹⁾ N-VALUES
0 to 0.17-0.5	Topsoil	2 to 6 inches of Topsoil	-
0.17-0.5 to 3.5-8.0	FILL/Possible FILL	Silty and Clayey SAND (SM and SC) and Sandy, Lean CLAY (CL), both containing varying amounts of Gravel, organics, marine shell fragments, and/or construction debris	Sands: 6 - 24 Clay: 9 - 15
3.5-8.0 to 4.5-29.0	I	SAND (SP, SP-SM, SM, and SC) with varying amounts of Silt and Clay <i>Isolated deposit of Lean CLAY (CL) was encountered at a depth of 8 to 12 feet and 18 to 22 feet below existing grades at boring locations B-1 and B-4, respectively. Boring cave-in was encountered in hand auger boring HA-1 at 4.5 feet below existing grades.</i>	2 - 13
22.0-32.0 to 25.0-43.5	II	Lean and Fat CLAY (CL and CH) with varying amounts of Sand <i>Boring B-2 was terminated within this cohesive layer.</i>	WOH ⁽²⁾ - 9
30.0-43.5 to 60.0 Boring Termination Depth	III	Silty fine to medium SAND (SM) with trace marine shell fragments, "Yorktown Formation"	2 - 65

Note (1) SPT = Standard Penetration Test, N-Values in Blows-per-foot

Note (2) WOH = Weight of Hammer

It is noted that the topsoil designation references the presence of surficial organic laden soil, and does not represent any particular quality specification. This material is to be tested for approval prior to use.

The subsurface description is of a generalized nature provided to highlight the major soil strata encountered. The records of the subsurface exploration included in Appendix III (Boring Logs sheets) and in Appendix IV (Generalized Soil Profile) should be reviewed for specific information as to the individual borings. The stratifications shown on the records of the subsurface exploration represent the conditions only at the actual boring locations. Variations may occur and should be expected between boring locations. The stratifications represent the approximate boundary between subsurface materials and the transition may be gradual.

3.3 Groundwater Information

The groundwater level was recorded at the boring locations and as observed through the wetness of the recovered soil samples during the drilling operations. The initial groundwater table was estimated to occur at depths of approximately 3.5 to 12 feet below current grades at the boring locations (corresponding to elevations 0 to 1 foot MSL). All boreholes were backfilled upon completion for safety reasons. As such, a stabilized groundwater reading was not obtained at the boring locations.

As subsurface soils begin to dry moisture moves upwards through the soil profile by means of capillary action. Based on the subsurface soil composition (soils containing more than 30% of fines by weight), these initial groundwater readings (based on the relative wetness of the soils) could be in part attributed to the capillary action of the soils. As such, if the static groundwater elevation is critical to the design of the proposed structure and site infrastructure it is recommended to install temporary groundwater monitoring wells to substantiate these initial readings.

Groundwater conditions will vary with environmental variations and seasonal conditions such as the frequency and magnitude of rainfall patterns and tides, as well as, man-made influences, such as existing swales, drainage ponds, under-drains and areas of covered soil (paved parking lots, side walks, etc.). In the project's area, seasonal groundwater fluctuations of ± 3 feet are common; however, greater fluctuations have been documented. Again, we recommend that the contractor determine the actual groundwater levels at the time of the construction to determine groundwater impact on the construction procedures, if necessary.

4.0 EVALUATION AND RECOMMENDATIONS

Our recommendations are based on the previously discussed project information, our interpretation of the SPT borings, laboratory data, and our observations during our site reconnaissance. If the proposed construction should vary from what has been described herein, or should differing conditions be encountered during construction, we request the opportunity to review our recommendations and make any necessary changes.

On the basis of the results of our soil test borings and in conjunction with the anticipated high foundation loads associated with the building additions, it is our opinion that the proposed framing should be supported by means of a deep foundation system.

Due to the large amount of energy required to install driven deep foundations, vibrations of considerable magnitudes are generated. These vibrations could be potentially damaging the existing SCI building. As such, an alternative deep foundation consisting of auger cast piles will minimize the vibrations and reduce the risk for potential vibration related damage/disturbances in the adjacent building.

Section 4.5 describes the pile capacity analysis and provides our recommendations for axial compressive, tensile, and lateral pile capacities; the pile testing program; and pile construction criteria for auger cast piles. In addition, we have provided estimates of potential settlement.

4.1 Clearing and Grading

The proposed construction areas should be cleared by means of removing all topsoil, root mat, trees, shrubs, sidewalks, or any otherwise unsuitable materials. It is estimated that a cut of up to 6 inches in depth will be required to remove the topsoil materials. This cut is expected to extend deeper in isolated areas to remove deeper deposits of unsuitable soils, and/or organics which become evident during the clearing.

The results of our field exploration program indicated that the soils below the topsoil material predominantly consisted of Silty and Clayey SAND (SM and SC) and Sandy, Lean CLAY (CL). Combinations of excess surface moisture from precipitation ponding on the site and the construction traffic, including heavy compaction equipment, may create pumping and general deterioration of the bearing capabilities of the surface soils. Therefore, undercutting to remove very soft soils in isolated areas should be anticipated. In this regard, and in order to reduce the potential for undercutting, care should be exercised during the grading and construction operations at the site. Furthermore, inherently wet subgrade soils combined with potential poor site drainage make this site particularly susceptible to subgrade deterioration. Thus, grading should be performed during a dry season if at all possible. This should minimize these potential problems, although they may not be eliminated.

It is recommended that the budget include an allowance for undercutting of unsuitable soils and replacing them with Imported Structural Fill and/or additional Aggregate Base Material within the pavement areas.

Control of surface water is very important to the successful completion of the proposed construction. The contractor should plan his grading activities to control surface water and minimize erosion of exposed cut or fill material. This may include constructing temporary berms, ditches, and swales to intercept runoff and discharge it in a controlled fashion.

4.2 Subgrade Preparation (Pavement Areas)

Following the clearing operation, the exposed subgrade soils should be densified with a large static drum or sheepsfoot roller. Subgrades to a depth of at least 6 inches should be compacted to a dry density of at least 95% of the Standard Proctor maximum dry density, in accordance with ASTM D 698 (if possible). The moisture content of the subgrade should be within +/- 2% of the optimum moisture content at the time of compaction. These compaction and moisture recommendations may be achievable in the relatively wet environment. As such, some subgrade improvements should be expected.

After the subgrade soils have been compacted, they should be evaluated by **G E T Solutions, Inc.** for stability. Accordingly, the subgrade soils should be proofrolled to check for pockets of loose material hidden beneath a crust of better soil. Several passes should be made by a large rubber-tired roller or loaded dump truck over the construction areas, with the successive passes aligned perpendicularly (if possible). The number of passes will be determined in the field by the Geotechnical Engineer depending on the soil conditions. Any pumping and unstable areas observed during proofrolling (beyond the initial cut) should be undercut and/or stabilized at the direction of the Geotechnical Engineer. These improvement recommendations (where required) should also consider the thickness of the subbase and its ability to bridge marginal areas.

In addition to the proofroll, several 4-foot deep test pits should be excavated within the proposed pavement areas. The test pits are considered necessary to determine the thickness and composition of the FILL materials. The test pits should be performed under the observation of a representative **G E T Solutions, Inc.**, who will evaluate the composition of the recovered soils. In addition to the test pits, several compaction tests should be performed on the FILL material within the proposed pavement areas to further substantiate the suitability of the existing material. It is possible that some subgrade improvements will be required to provide suitable soils for pavement support. The FILL material may remain in place under pavements if approved by the Geotechnical Engineer (to be determined following the completion of the test pits and compaction testing).

Recommendations concerning the subgrade improvements (as necessary) will be provided in the field following the testing procedures. Again, the project's budget should include an allowance for subgrade improvements within the pavement areas (undercut/backfill with Structural Fill or Aggregate Base Material).

4.3 Structural Fill and Placement

Any material to be used for Structural Fill should be evaluated and tested by **G E T Solutions, Inc.** prior to placement to determine if they are suitable for the intended use. Suitable Structural Fill material should consist of sand or gravel containing less than 25% by weight of fines (SP, SM, SW, GP, GW - with dimensions not to exceed 2 inches in diameter), having a liquid limit less than 20 and plastic limit less than 6, and should be free of rubble, organics, clay, debris and other unsuitable material.

All Structural Fill should be compacted to a dry density of at least 95% of the Standard Proctor maximum dry density, in accordance with ASTM D698. The moisture content of the Structural Fill should be within +/- 2% of the optimum moisture content at the time of placement. In general, the compaction should be accomplished by placing the fill in maximum 8-inch loose lifts and mechanically compacting each lift to at least the specified minimum dry density.

We recommend that fill placement be monitored on a full-time basis by a qualified Geotechnical Engineering firm to verify that the specified materials are used and the required degree of compaction is achieved.

Surface water control measures should be instituted to protect the new fill from erosion. A protective cover of grass or other vegetation should be established on permanent slopes as soon as possible during construction.

Utility excavations may encounter the groundwater table, depending on utility depth and location on site. Dewatering at depths below the groundwater level may require well pointing. Seepage from shallow perched water may require pumping from sumps, depending on seasonal conditions. Prior to bidding and/or construction, the grading contractor should determine actual groundwater conditions at the location of deep excavations so its impact on the project can be determined.

4.4 Suitability of On-Site Soils

Based on our laboratory and visual classification, the majority of the subsurface soils do not appear suitable for reuse as Structural Fill. Some of the SAND (SP-SM, SM) subgrade soils recovered beneath the FILL materials may be suitable for reuse as Structural Fill; however, these soils are commonly located near or below the groundwater level and will require extensive moisture manipulation (stockpiling and placement in thin lifts) prior to their use. In order to verify the acceptance or rejection of the existing soils for re-use as Structural Fill, additional classification tests (natural moisture and -#200 sieve wash) will have to be performed during construction.

4.5 Auger Cast Pile Foundation Recommendations

4.5.1 Axial Compression Capacity Recommendations

For this project, we have analyzed 14-inch diameter auger cast piles. Auger cast piles consist of drilling to a desired depth with a continuous flight auger. Then, as the auger is slowly withdrawn, concrete grout is injected through the auger's stem.

The workmanship is critical for the auger cast piling system to be successful. As such, it is recommended to retain the services of **G E T Solutions, Inc.** to perform construction inspection services during the project implementation. The duties of the inspector will be described in more detail in the following sections.

We conducted pile capacity analyses using static formulas with coefficients recommended by Geoffrey Myerhoff and George Sowers. The analyses include the contributions of shaft friction and end bearing to the pile capacity. The piles are expected to derive their capacity from the combination of end bearing and friction resistance associated with the medium dense Sands of the subsurface profile.

Table III below provides our recommended pile diameter and embedment depth for the foundations. The allowable capacity for the piles includes a safety factor of at least 2.0 to allow for a pile load test program. The capacity of a group of piles spaced at least 3 pile diameters apart, center to center, can be taken as the sum of the individual capacities with no reduction factor. If closer pile spacing is anticipated, the Geotechnical Engineer should be contacted to evaluate the efficiency of the specific pile group. The final tip elevations will be adjusted based on the results of the load test program(s).

Table III – Pile Length and Capacity for 14 inch Auger Cast Piles

Lateral Dimensions	Pile Tip Elevation (ft, MSL)¹	Allowable Compression Capacity (tons)	Allowable Tension Capacity (tons)	Lateral Capacity (tons)²
14-inch Diameter	-40	40	20	4

Note (1) Pile tip elevation provided is below mean sea level (MSL).

Note (2) Lateral capacity computed for a lateral load applied at the pile butt level, at ground level for a maximum butt deflection of 0.5 inches for a free end condition or 0.25 inches for a fixed end condition.

We conducted our lateral analyses using L-Pile Plus, a computer software package by ENSOFT®. The software requires as input, quantitative data related to strength and deformation behavior of the subsurface materials, the structural properties of the pile, and an understanding of shaft/soil interaction during lateral loading. The program calculates the lateral deflections, internal moment forces and internal shear forces experienced by a pile subjected to the specific loading conditions. The program does not analyze whether the pile is structurally capable of resisting the moments and shear stresses generated. This analysis should be performed by the project structural engineer. The L-Pile data sheets are attached to this report (Appendix V).

If for some reason during construction, auger “refusal” is encountered before the piles reach their design tip elevations, the Geotechnical Engineer should be retained to provide specific recommendations for this condition. The reinforcing steel (cage) should be designed by the project Structural Engineer, who should also evaluate the structural capacity of the pile as related to the above provided pile/soil capacities.

4.5.2 Pile Settlement

Based on the results of load tests performed on piles in similar soil conditions, it is anticipated that the total butt settlements (including elastic shortening) will not exceed about ½-inch, which is the settlement necessary to mobilize the soil/pile capacity in combination with the pile tip settlements due to the stress increase in the underlying soils.

4.5.3 Test Piles

We recommend the installation of at least three (3) test piles for the eastern addition and two (2) test piles for the western addition and performing a static pile load test on at least two (2) of the test piles (one per addition) to confirm the design pile depth and capacity. The Geotechnical Engineer should be called on to recommend test pile locations once the foundation plan is complete and pile locations have been determined. The load test should be performed in accordance with Procedure A (Quick Test) of ASTM D 1143 – Standard Test Methods for Deep Foundations Under Static Axial Compressive Load and carried out to at least 2.0 times the design load, or failure. The pile load test should be performed under the observation of the Geotechnical Engineer or his representative who should record the dial gage readings. The records of the pile load test should be reviewed by the Geotechnical Engineer and the Structural Engineer to verify the pile design criteria. The production piles should be installed using the same equipment and methods as for the test piles.

4.5.4 Pile Installation Monitoring

The Geotechnical Engineer should observe the installation of the test piles and all production piles. The purpose of the geotechnical engineer's observations is to determine if production installations are being performed in accordance with the previously derived criteria. Continuous installation records should be maintained for all piles. The field duties of the Geotechnical Engineer (or a qualified engineer's representative) should include the following:

1. Being knowledgeable of the subsurface conditions at the site and the project-specific criteria.
2. Being aware of aspects of the installation including type of pile equipment and pile installation tolerances.
3. Keeping an accurate record of pile installation and procedures.
4. Documenting that the piles are installed to the proper depth indicative of the intended bearing stratum.
5. Perform flow cone testing to insure specification requirements are met.
6. Generally confirming that the pile installation equipment is operating as anticipated.
7. Mold grout compressive strength test specimens.
8. Informing the geotechnical engineer of any unusual subsurface conditions.
9. Notifying the contractor and structural engineer when unanticipated difficulties or conditions are encountered.

10. Document quantity of grout pumped into each pile hole.

11. Provide rated load capacity of the pile.

4.6 Seismic Evaluation

Based on the subsurface profile as indicated by the borings at this site and seismic site testing performed by us in the project vicinity, the site is expected to be a Site Class 'D' in accordance with Table 1613.5.2 of the 2009 International Building Code.

4.7 Pavement Design

Our design assumes that either curbs and gutters or ditches and swales will be provided along the edges of all pavements to prevent water penetration of the subgrade soils. Based on the results of our soil borings, it appears that the soils that will be exposed as pavement subgrade will consist mainly of Silty SAND (SM). In accordance with VDOT standards, the average soaked CBR value was multiplied by a factor of two-thirds to determine a pavement design CBR value. The two-thirds factor provides the necessary safety margins to compensate for some non-uniformity of the soil. Therefore, a design CBR value of 12.2 should be used to evaluate the pavement sections at this project site. Typical pavement sections are provided in Table IV below.

Table IV – Typical Pavement Sections

Section	Reinforced Portland Cement Concrete (min. 4,000 psi)	Hot Mix Asphalt		Aggregate Base ¹	Subgrade ²
		Surface	Base		
Light Duty Parking Stalls	-	2"	-	8"	Stable and Compacted
Heavy Duty Parking Lot Drive Isle/Entrances	-	2"	3"	8"	Stable and Compacted
Heavy Duty Dumpster Pad	6"	-	-	8"	Stable and Compacted

1 - VDOT Type 21-A, compacted to a dry density of at least 95% of the Standard Proctor maximum dry density (ASTM D 698).

2 - Compacted to a dry density of at least 95% of the Standard Proctor maximum dry density (ASTM D 698).

As previously stated, the subgrade soils consisted primarily of Silty SAND (SM), which has high fines content (Silt) and is moisture sensitive. Accordingly, during the subgrade testing (proofrolling and compaction testing) isolated areas of unstable subgrade soils will probably become evident. Subgrade scarification, aeration, and drying or subgrade stabilization in the form of undercutting may be required to achieve a stable subgrade.

Actual pavement section thickness should be provided by the design Civil Engineer based on traffic loads, volume, and the owners design life requirements. The above section corresponds to thickness representative of typical local construction practices and periodic maintenance should be anticipated. All pavement material and construction procedures should conform to Virginia Department of Transportation (VDOT) requirements.

Following pavement rough grading operations, the exposed subgrade should be observed under proofrolling. This proofrolling should be accomplished with a fully loaded dump truck or 7 to 10 ton drum roller to check for pockets of soft material hidden beneath a thin crust of better soil. Any unsuitable materials thus exposed should be removed and replaced with a well-compacted material. The inspection of these phases should be performed by the Geotechnical Engineer or his representative. The subgrade soils are likely to be unstable at the time of construction and some ground improvement requirements are anticipated. Considering this, the project's budget should include a contingency to accommodate the potential subgrade improvements.

Where excessively unstable subgrade soils are observed during proofrolling and/or fill placement, it is expected that these weak areas can be stabilized by means of thickening the aggregate base course layer by 4 to 6 inches and/or lining the subgrade with geotextile fabric. These recommendations are to be addressed by the Geotechnical Engineer during construction, if necessary, who will recommend the most economical approach at the time.

5.0 CONSTRUCTION CONSIDERATIONS

5.1 Drainage and Groundwater Concerns

It is expected that dewatering may be required for excavations that extend near or below the groundwater table. Dewatering above the groundwater level could probably be accomplished by pumping from sumps. Dewatering at depths below the groundwater level will require well pointing.

It would be advantageous to construct all fills early in the construction. If this is not accomplished, disturbance of the existing site drainage could result in collection of surface water in some areas, thus rendering these areas wet and very loose. Temporary drainage ditches should be employed by the contractor to accentuate drainage during construction. We recommend that the contractor determine the actual groundwater levels at the time of construction to determine groundwater impact on this project.

5.2 Site Utility Installation

Based on our laboratory and visual classification, the majority of the subsurface soils do not appear suitable for reuse as Structural Fill. Some of the SAND (SP-SM, SM) subgrade soils recovered beneath the FILL materials may be suitable for reuse as Structural Fill; however, these soils are commonly located near or below the groundwater level and will require extensive moisture manipulation (stockpiling and placement in thin lifts) prior to their use. In order to verify the acceptance or rejection of the existing soils for re-use as Structural Fill, additional classification tests (natural moisture and -#200 sieve wash) will have to be performed during construction.

It is possible that isolated utility pipes and structures will bear within the wet granular materials located at depths in excess of 3 feet below current grades within the pavement areas and about 10 feet below current grades within the building addition areas. In these instances additional bedding materials (VDOT No. 57 stone) may be required to facilitate suitable pipe and/or structure bedding.

5.3 Excavations

In Federal Register, Volume 54, No. 209 (October, 1989), the United States Department of Labor, Occupational Safety and Health Administration (OSHA) amended its "Construction Standards for Excavations, 29 CFR, part 1926, Subpart P". This document was issued to better insure the safety of workmen entering trenches or excavations. It is mandated by this federal regulation that all excavations, whether they be utility trenches, basement excavation or footing excavations, be constructed in accordance with the new (OSHA) guidelines. It is our understanding that these regulations are being strictly enforced and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's responsible person, as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

We are providing this information solely as a service to our client. **GET Solutions, Inc.** is not assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred.

6.0 REPORT LIMITATIONS

The recommendations submitted are based on the available soil information obtained by **G E T Solutions, Inc.** and the information supplied by the client and its consultants for the proposed project. If there are any revisions to the plans for this project or if deviations from the subsurface conditions noted in this report are encountered during construction, **G E T Solutions, Inc.** should be notified immediately to determine if changes in the foundation recommendations are required. If **G E T Solutions, Inc.** is not retained to perform these functions, **G E T Solutions, Inc.** can not be responsible for the impact of those conditions on the geotechnical recommendations for the project.

The Geotechnical Engineer warrants that the findings, recommendations, specifications or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

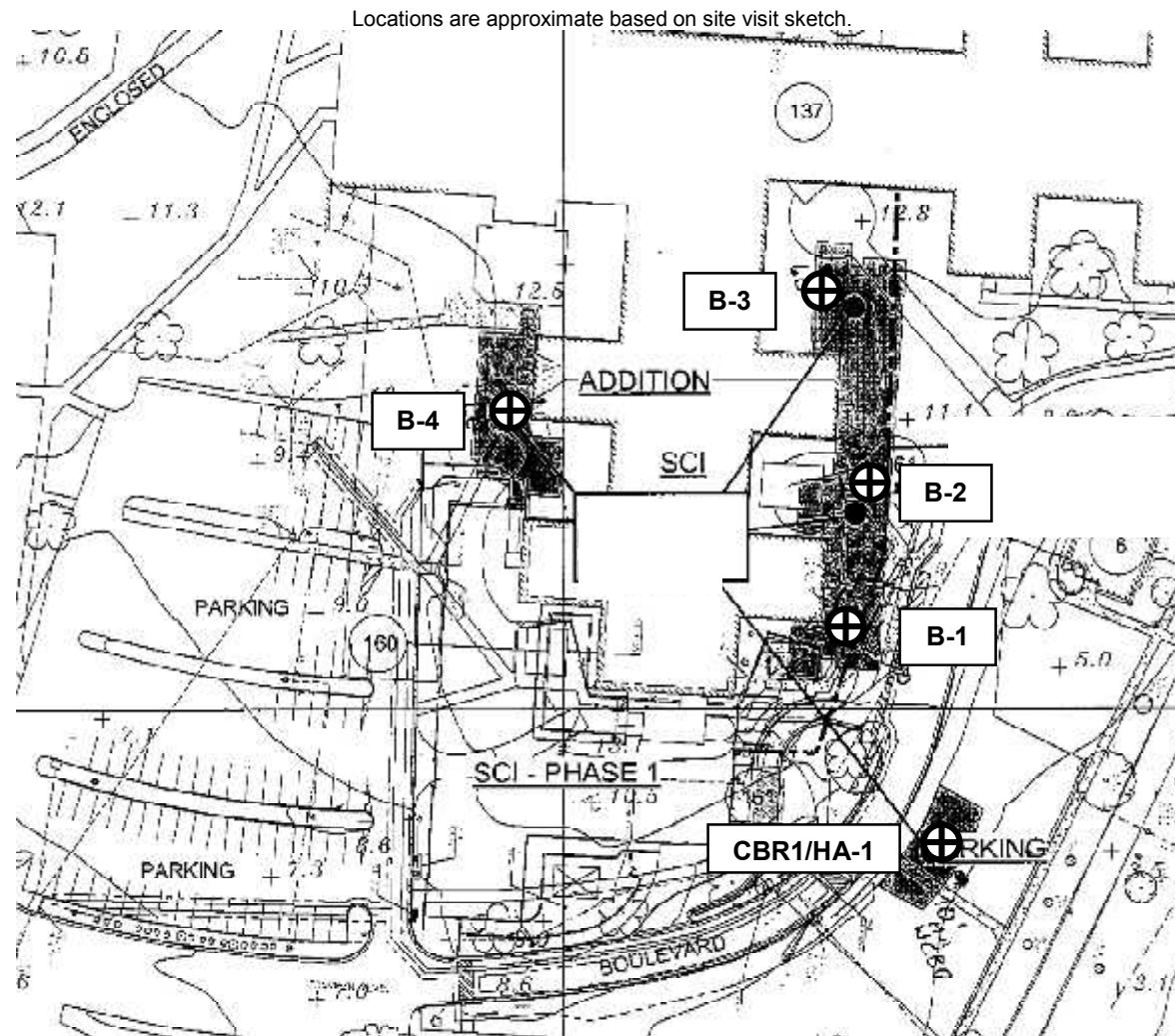
After the plans and specifications are more complete the Geotechnical Engineer should be provided the opportunity to review the final design plans and specifications to assure our engineering recommendations have been properly incorporated into the design documents so that the earthwork and foundation recommendations can be properly interpreted and implemented. At that time, it may be necessary to submit supplementary recommendations. This report has been prepared for the exclusive use of RDH/John Poe Architects and their consultants for the specific application to the Renovate/Expand SCI Phase II project located in the City of Hampton, Virginia.

APPENDICES

- I** BORING LOCATION PLAN
- II** CLASSIFICATION SYSTEM FOR SOIL EXPLORATION
- III** BORING LOGS
- IV** GENERALIZED SOIL PROFILE
- V** L-PILE ANALYSIS
- VI** SUMMARY OF CBR TEST RESULTS

APPENDIX I

BORING LOCATION PLAN



NORTH

Boring Location Plan

Project: Renovate/Expand SCI Phase II
Veteran Affairs Medical Center, Hampton, Virginia
Project No: WM11-152G
Client: John Poe Architects

Scale: As Drawn
Date: 11/1/2011
Plot By: RT

APPENDIX II

CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

Standard Penetration Test (SPT), N-value

Standard Penetration Tests (SPT) were performed in the field in general accordance with ASTM D 1586. The soil samples were obtained with a standard 1.4" I.D., 2" O.D., 30" long split-spoon sampler. The sampler was driven with blows of a 140 lb. hammer falling 30 inches. The number of blows required to drive the sampler each 6-inch increment (4 increments for each soil sample) of penetration was recorded and is shown on the boring logs. The sum of the second and third penetration increments is termed the SPT N-value.

NON COHESIVE SOILS

(SILT, SAND, GRAVEL and Combinations)

Relative Density

Very Loose	4 blows/ft. or less
Loose	5 to 10 blows/ft.
Medium Dense	11 to 30 blows/ft.
Dense	31 to 50 blows/ft.
Very Dense	51 blows/ft. or more

Particle Size Identification

Boulders	8 inch diameter or more
Cobbles	3 to 8 inch diameter
Gravel	Coarse 1 to 3 inch diameter
	Medium $\frac{1}{2}$ to 1 inch diameter
	Fine $\frac{1}{4}$ to $\frac{1}{2}$ inch diameter
Sand	Coarse 2.00 mm to $\frac{1}{4}$ inch (diameter of pencil lead)
	Medium 0.42 to 2.00 mm (diameter of broom straw)
	Fine 0.074 to 0.42 mm (diameter of human hair)
Silt	0.002 to 0.074 mm (cannot see particles)

CLASSIFICATION SYMBOLS (ASTM D 2487 and D 2488)

Coarse Grained Soils

More than 50% retained on No. 200 sieve

GW - Well-graded Gravel
GP - Poorly graded Gravel
GW-GM - Well-graded Gravel w/Silt
GW-GC - Well-graded Gravel w/Clay
GP-GM - Poorly graded Gravel w/Silt
GP-GC - Poorly graded Gravel w/Clay
GM - Silty Gravel
GC - Clayey Gravel
GC-GM - Silty, Clayey Gravel
SW - Well-graded Sand
SP - Poorly graded Sand
SW-SM - Well-graded Sand w/Silt
SW-SC - Well-graded Sand w/Clay
SP-SM - Poorly graded Sand w/Silt
SP-SC - Poorly graded Sand w/Clay
SM - Silty Sand
SC - Clayey Sand
SC-SM - Silty, Clayey Sand

Fine-Grained Soils

50% or more passes the No. 200 sieve

CL - Lean Clay
CL-ML - Silty Clay
ML - Silt
OL - Organic Clay/Silt
 Liquid Limit 50% or greater
CH - Fat Clay
MH - Elastic Silt
OH - Organic Clay/Silt

Highly Organic Soils

PT - Peat

COHESIVE SOILS

(CLAY, SILT and Combinations)

Consistency

Very Soft	2 blows/ft. or less
Soft	3 to 4 blows/ft.
Medium Stiff	5 to 8 blows/ft.
Stiff	9 to 15 blows/ft.
Very Stiff	16 to 30 blows/ft.
Hard	31 blows/ft. or more

Relative Proportions

<u>Descriptive Term</u>	<u>Percent</u>
Trace	0-5
Few	5-10
Little	15-25
Some	30-45
Mostly	50-100

Strata Changes

In the column "Description" on the boring log, the horizontal lines represent approximate strata changes.

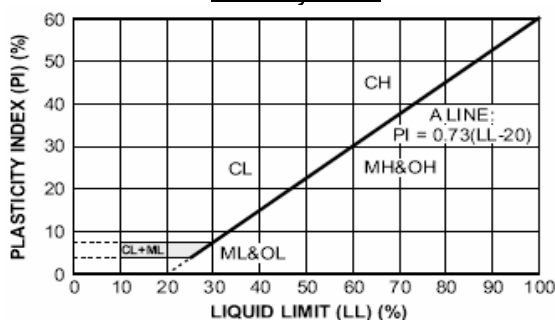
Groundwater Readings

Groundwater conditions will vary with environmental variations and seasonal conditions, such as the frequency and magnitude of rainfall patterns, as well as tidal influences and man-made influences, such as existing swales, drainage ponds, underdrains and areas of covered soil (paved parking lots, side walks, etc.).

Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

Less than 5 percent	GW, GP, SW, SP
More than 12 percent	GM, GC, SM, SC
5 to 12 percent	Borderline cases requiring dual symbols

Plasticity Chart



APPENDIX III
BORING LOGS



PROJECT: Renovate/Expand SCI Phase II

CLIENT: RDC/John Poe Architects

PROJECT LOCATION: Hampton, Virginia

PROJECT NO.: WM11-152G

BORING LOCATION: See Attached Boring Location Plan

SURFACE ELEVATION: 12'

DRILLER: GET Solutions Inc.

LOGGED BY: J.Wheeler

DRILLING METHOD: Rotary Wash "Mud" Drill

DATE: 10-13-11

DEPTH TO WATER - INITIAL*: 12' **AFTER 24 HOURS:** NT **CAVING** C

LOG OF BORING No. B-1

Elevation (MSL) (ft)	Depth (meters)	Depth (feet)	Description	Graphic	Sample No.	Sample Recovery	Sample Type	Blows Per 1.75'	N-value	% <#200	(new title)
TEST RESULTS											
Plastic Limit ——— Liquid Limit											
Moisture Content ●											
Penetration											
10 20 30 40 50 60 70											
0	0	0	2 Inches of Topsoil								
10		0.17	Orangish brown to dark gray, moist, Clayey, fine to medium SAND (SC) with trace organics, marine shell fragments, and construction debris, FILL, Loose to Medium Dense		1	24	SS	2 4 6 10	10		
					2	12	SS	10 12 12 10	24		
	5				3	20	SS	6 8 7 9	15		
5		7	Dark gray, moist, Sandy, Lean CLAY (CL) with trace marine shell fragments, FILL, Stiff		4	15	SS	7 7 8 6	15		
	2.5				5	20	SS	2 3 3 5	6		
	10		Slightly mottled, gray-orangish brown to gray, moist, Sandy, Lean CLAY (CL) Medium Stiff		6	24	SS	1 2 3 4	5		
0											
		12	Grayish brown, wet, Silty, fine to medium SAND (SM) with trace Clay, Very Loose		7	18	SS	2 1 3 2	4		
	15										
	5										
-5											
		19	Orangish brown, wet, Clayey, fine to medium SAND (SC) with trace Gravel, Very Loose		8	24	SS	1 1 1 1	2		
-10											
	7.5	25			9	18	SS	1 1 1 1	2		
-15		27	Orangish brown, wet, Clayey, fine to medium SAND (SC) with marine shell fragments, Very Loose to Loose		10	24	SS	1 1 4 3	5		
	30										
		29	Gray, wet, Lean CLAY (CL) with trace Sand, Medium Stiff to Stiff		11	24	SS	2 3 4 8	7		
-20											
	10										
		35									

Notes:

SS = Split Spoon Sample
ST = Shelby Tube Sample
HA = Hand Auger Sample
BS = Bulk Sample
WOH = Weight of Hammer

* The initial groundwater reading may not be indicative of the static groundwater level.



PROJECT: Renovate/Expand SCI Phase II

CLIENT: RDC/John Poe Architects

PROJECT LOCATION: Hampton, Virginia

PROJECT NO.: WM11-152G

BORING LOCATION: See Attached Boring Location Plan

SURFACE ELEVATION: 12'

DRILLER: GET Solutions Inc.

LOGGED BY: J.Wheeler

DRILLING METHOD: Rotary Wash "Mud" Drill

DATE: 10-13-11

DEPTH TO WATER - INITIAL*: 12' AFTER 24 HOURS: NT CAVING C

LOG OF BORING No. B-1

Elevation (MSL) (ft)	Depth (meters)	Depth (feet)	Description	Graphic	Sample No.	Sample Recovery	Sample Type	Blows Per 1.75'	N-Value	% < #200	(new title)
TEST RESULTS											
Plastic Limit ——— Liquid Limit											
Moisture Content ●											
Penetration											
-25			Gray, wet, Lean CLAY (CL) with trace Sand, Medium Stiff to Stiff		12	24	SS	2 3 4 8	7	99	
	40										
	12.5										
-30			Gray, wet, Silty, fine to medium SAND (SM) with trace marine shell fragments, "Yorktown Formation", Medium Dense to Dense		13	24	SS	3 3 9 10	12		
	45										
-35					14	24	SS	9 13 18 21	31		
	15										
	50										
-40					15	24	SS	11 13 17 29	30		
	55										
-45	17.5		Gray, wet, Silty, fine to medium SAND (SM) with trace Clay and marine shell fragments, "Yorktown Formation", Very Dense		16	24	SS	23 28 37 38	65		
	60		Boring terminated at 60 ft.								
-50											
	20	65									
-55											
	70										
-60											

Notes:

SS = Split Spoon Sample
ST = Shelby Tube Sample
HA = Hand Auger Sample
BS = Bulk Sample
WOH = Weight of Hammer

* The initial groundwater reading may not be indicative of the static groundwater level.



PROJECT: Renovate/Expand SCI Phase II

CLIENT: RDC/John Poe Architects

PROJECT LOCATION: Hampton, Virginia

PROJECT NO.: WM11-152G

BORING LOCATION: See Attached Boring Location Plan

SURFACE ELEVATION: 11'

DRILLER: GET Solutions Inc.
















LOGGED BY: J.Wheeler

DRILLING METHOD: Rotary Wash "Mud" Drill

DATE: 10-13-11

DEPTH TO WATER - INITIAL*: 10' AFTER 24 HOURS: NT CAVING C

LOG OF BORING No. B-2

Elevation (MSL) (ft)	Depth (meters)	Depth (feet)	Description	Graphic	Sample No.	Sample Recovery	Sample Type	Blows Per 1.75"	N-Value	% <#200	(new title)		
											TEST RESULTS		
											Plastic Limit		Liquid Limit
											Moisture Content		
Penetration													
											10 20 30 40 50 60 70		
-10	0	0	2 Inches of Topsoil		1	20	SS	3 4 5	9				
			Orangish brown, moist, Sandy, Lean CLAY (CL) with trace Gravel, FILL, Stiff		2	22	SS	6 8 12 9	20				
		5	Brown to dark gray, moist, Clayey, fine to medium SAND (SC) with trace Gravel and construction debris, FILL, Medium Dense		3	18	SS	5 6 5 7	11				
5			Dark gray, moist, Clayey, fine to medium SAND (SC) with trace Gravel and organics, FILL, Medium Dense		4	15	SS	5 6 3 4	9				
	2.5		Brown, moist to wet, Clayey, fine to medium SAND (SC) with trace organics to 8 Feet, Very Loose to Loose		5	20	SS	2 1 2 3	3				
		10	Wet Below 10 Feet		6	24	SS	1 2 3 4	5				
0			Orangish brown, wet, Silty, fine to medium SAND (SM) with trace Gravel and Clay, Very Loose		7	20	SS	2 1 1 1	2				
	15		Light brown, wet, Silty, fine SAND (SM) with trace Clay, Loose		8	18	SS	3 2 3 1	5				
-5	5		Mottled, orangish brown-brown, wet, Lean CLAY (CL) with Sand, Soft		9	20	SS	1 1 2 1	3				
	7.5	25	Boring terminated at 25 ft.										
-15													
		30											
-20													
	10												
		35											
-25													

Notes:

SS = Split Spoon Sample
ST = Shelby Tube Sample
HA = Hand Auger Sample
BS = Bulk Sample
WOH = Weight of Hammer

* The initial groundwater reading may not be indicative of the static groundwater level.



PROJECT: Renovate/Expand SCI Phase II

CLIENT: RDC/John Poe Architects

PROJECT LOCATION: Hampton, Virginia

PROJECT NO.: WM11-152G

BORING LOCATION: See Attached Boring Location Plan

SURFACE ELEVATION: 12'

DRILLER: GET Solutions Inc.












LOGGED BY: J.Wheeler

DRILLING METHOD: Rotary Wash "Mud" Drill

DATE: 10-13-11

DEPTH TO WATER - INITIAL*: 12' AFTER 24 HOURS: NT CAVING C

LOG OF BORING No. B-3

Elevation (MSL) (ft)	Depth (meters)	Depth (feet)	Description	Graphic	Sample No.	Sample Recovery	Sample Type	Blows Per 1.75'	N-Value	% < #200	(new title)
TEST RESULTS											
Plastic Limit ——— Liquid Limit											
Moisture Content ●											
Penetration 											
10 20 30 40 50 60 70											
0	0	0	6 Inches of Topsoil		1	24	SS	1 3 4 4	7		
10			Orangish brown, moist, Clayey, fine to medium SAND (SC) with organics and marine shell fragments, FILL, Loose		2	20	SS	5 6 7 9	13		
	5		Orangish brown to gray, moist, Clayey, fine to medium SAND (SC) with trace Gravel and marine shell fragments, FILL, Medium Dense		3	18	SS	5 7 7 7	14		
5			Grayish brown to orangish brown, moist, Silty, fine to medium SAND (SM) with trace Clay, Loose to Medium Dense		4	20	SS	6 5 8 6	13		
	2.5				5	22	SS	2 3 6 7	9		
	10		Orangish brown, moist to wet, Silty, fine to medium SAND (SM) with trace Gravel and Clay, Medium Dense		6	16	SS	6 6 5 4	11		
0			Wet Below 12 Feet								
					7	24	SS	2 2 2 2	4		
	15		Orangish brown to gray, wet, Clayey, fine to medium SAND (SC), Very Loose								
5											
					8	18	SS	3 3 3 3	6		
	20		Orangish brown, wet, poorly graded SAND (SP) with trace Gravel and Silt, Loose								
					9	24	SS	0 0 0 1	0	71	
	7.5	25	Orangish brown, wet, Fat CLAY (CH) with Sand, Very Soft								
					10	24	SS	2 3 5 4	8		
	30		Gray, wet, Lean CLAY (CL) with trace Sand, Medium Stiff								
					11	18	SS	12 22 20 13	42		
	10		Orangish brown, wet, Silty, fine to medium SAND (SM) with marine shell fragments, Dense								
		35									

Notes:

SS = Split Spoon Sample
ST = Shelby Tube Sample
HA = Hand Auger Sample
BS = Bulk Sample
WOH = Weight of Hammer

* The initial groundwater reading may not be indicative of the static groundwater level.



PROJECT: Renovate/Expand SCI Phase II

CLIENT: RDC/John Poe Architects

PROJECT LOCATION: Hampton, Virginia

PROJECT NO.: WM11-152G

BORING LOCATION: See Attached Boring Location Plan

SURFACE ELEVATION: 12'

DRILLER: GET Solutions Inc.



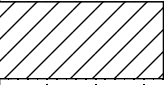
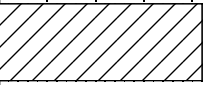
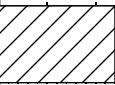
LOGGED BY: J.Wheeler

DRILLING METHOD: Rotary Wash "Mud" Drill

DATE: 10-13-11

DEPTH TO WATER - INITIAL*: 12' AFTER 24 HOURS: NT CAVING C

LOG OF BORING No. B-3

Elevation (MSL) (ft)	Depth (meters)	Depth (feet)	Description	Graphic	Sample No.	Sample Recovery	Sample Type	Blows Per 1.75'	N-value	% < #200	(new title)
TEST RESULTS											
Plastic Limit ——— Liquid Limit											
Moisture Content ●											
Penetration 											
10 20 30 40 50 60 70											
-25			Orangish brown, wet, Silty, fine to medium SAND (SM) with marine shell fragments, Dense								
					12	24	SS	1 1 1	2		
	12.5	40	Gray, wet, Silty, fine to medium SAND (SM) with trace marine shell fragments "Yorktown Formation", Very Loose to Dense								
-30											
		45			13	24	SS	1 2 2	3	17	
-35											
	15	50			14	24	SS	10 12 22 19	34		
-40											
		55			15	24	SS	8 15 27 28	42		
-45	17.5										
		60			16	24	SS	7 8 16 25	24		
-50			Boring terminated at 60 ft.								
		65									
-55	20										
		70									
-60											

Notes:

SS = Split Spoon Sample
ST = Shelby Tube Sample
HA = Hand Auger Sample
BS = Bulk Sample
WOH = Weight of Hammer

* The initial groundwater reading may not be indicative of the static groundwater level.



PROJECT: Renovate/Expand SCI Phase II

CLIENT: RDC/John Poe Architects

PROJECT LOCATION: Hampton, Virginia

PROJECT NO.: WM11-152G

BORING LOCATION: See Attached Boring Location Plan

SURFACE ELEVATION: 12'

DRILLER: GET Solutions Inc.













LOGGED BY: J.Wheeler

DRILLING METHOD: Rotary Wash "Mud" Drill

DATE: 10-13-11

DEPTH TO WATER - INITIAL*: 12' **AFTER 24 HOURS:** NT **CAVING** C

LOG OF BORING No. B-4

Elevation (MSL) (ft)	Depth (meters)	Depth (feet)	Description	Graphic	Sample No.	Sample Recovery	Sample Type	Blows Per 1.75'	N-Value	% < #200	(new title)
TEST RESULTS											
Plastic Limit ——— Liquid Limit											
Moisture Content ●											
Penetration 											
10 20 30 40 50 60 70											
	0	0	6 Inches of Topsoil		1	20	SS	3 4 5	10		
			Brown, moist, Silty, fine to medium SAND (SM) with trace Gravel, FILL, Loose		2	24	SS	6 6 6	11		
		5	Dark gray, moist, Clayey, fine to medium SAND (SC) with trace Gravel and organics and marine shell fragments, FILL, Loose to Medium Dense		3	20	SS	3 3 3	6		
			Brown, moist, poorly graded SAND (SP-SM) with Silt, Possible FILL, Loose		4	15	SS	3 3 3	6		
		10	Orangish brown, moist, Clayey, fine to medium SAND (SC), Very Loose		5	18	SS	2 2 3	4		
			Orangish brown, moist, Silty, fine to medium SAND (SM) with trace Clay, Very Loose		6	18	SS	2 2 4	4		
		15	Brown, moist to wet, poorly graded SAND (SP-SM) with Silt, Loose		7	12	SS	3 4 5	10		
		20	Mottled, orangish brown-gray, wet, Sandy, Lean CLAY (CL), Soft		8	12	SS	2 2 5	4		
		25	Orangish brown, wet, Clayey, fine to medium SAND (SC) with marine shell fragments, Medium Dense		9	24	SS	3 4 7 8	11		
		30	Gray, wet, Clayey, fine SAND (SC) with marine shell fragments, Loose		10	24	SS	4 4 5 5	9		
		35	Gray, wet, Lean CLAY (CL) with Sand and trace marine shell fragments, Stiff		11	24	SS	3 4 5 6	9		

Notes:

SS = Split Spoon Sample
ST = Shelby Tube Sample
HA = Hand Auger Sample
BS = Bulk Sample
WOH = Weight of Hammer

* The initial groundwater reading may not be indicative of the static groundwater level.



PROJECT: Renovate/Expand SCI Phase II

CLIENT: RDC/John Poe Architects

PROJECT LOCATION: Hampton, Virginia

PROJECT NO.: WM11-152G

BORING LOCATION: See Attached Boring Location Plan

SURFACE ELEVATION: 12'

DRILLER: GET Solutions Inc.


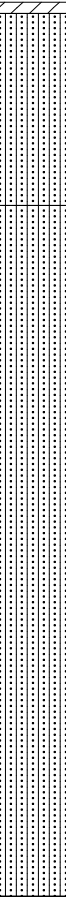



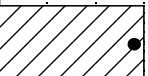
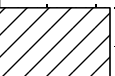
LOGGED BY: J.Wheeler

DRILLING METHOD: Rotary Wash "Mud" Drill

DATE: 10-13-11

DEPTH TO WATER - INITIAL*: 12' AFTER 24 HOURS: NT CAVING C

LOG OF BORING No. B-4

Elevation (MSL) (ft)	Depth (meters)	Depth (feet)	Description	Graphic	Sample No.	Sample Recovery	Sample Type	Blows Per 1.75'	N-value	% < #200	(new title)
TEST RESULTS											
Plastic Limit ——— Liquid Limit											
Moisture Content ●											
Penetration 											
10 20 30 40 50 60 70											
-25			Gray, wet, Lean CLAY (CL) with Sand and trace marine shell fragments, Stiff								
		40	Brown, wet, Silty, fine to medium SAND (SM) with marine shell fragments, Medium Dense		12	24	SS	5 7 14 18	21		
	12.5										
-30			Gray, wet, Silty, fine to medium SAND (SM) with trace marine shell fragments, "Yorktown Formation", Medium Dense		13	24	SS	5 6 8 10	14		
		45									
-35											
	15				14	24	SS	3 4 7 16	11		
		50									
-40											
					15	24	SS	8 14 16 15	30	26	
		55									
-45	17.5										
					16	24	SS	7 9 14 19	23		
		60	Boring terminated at 60 ft.								
-50											
		65									
	20										
-55											
		70									
-60											

Notes:

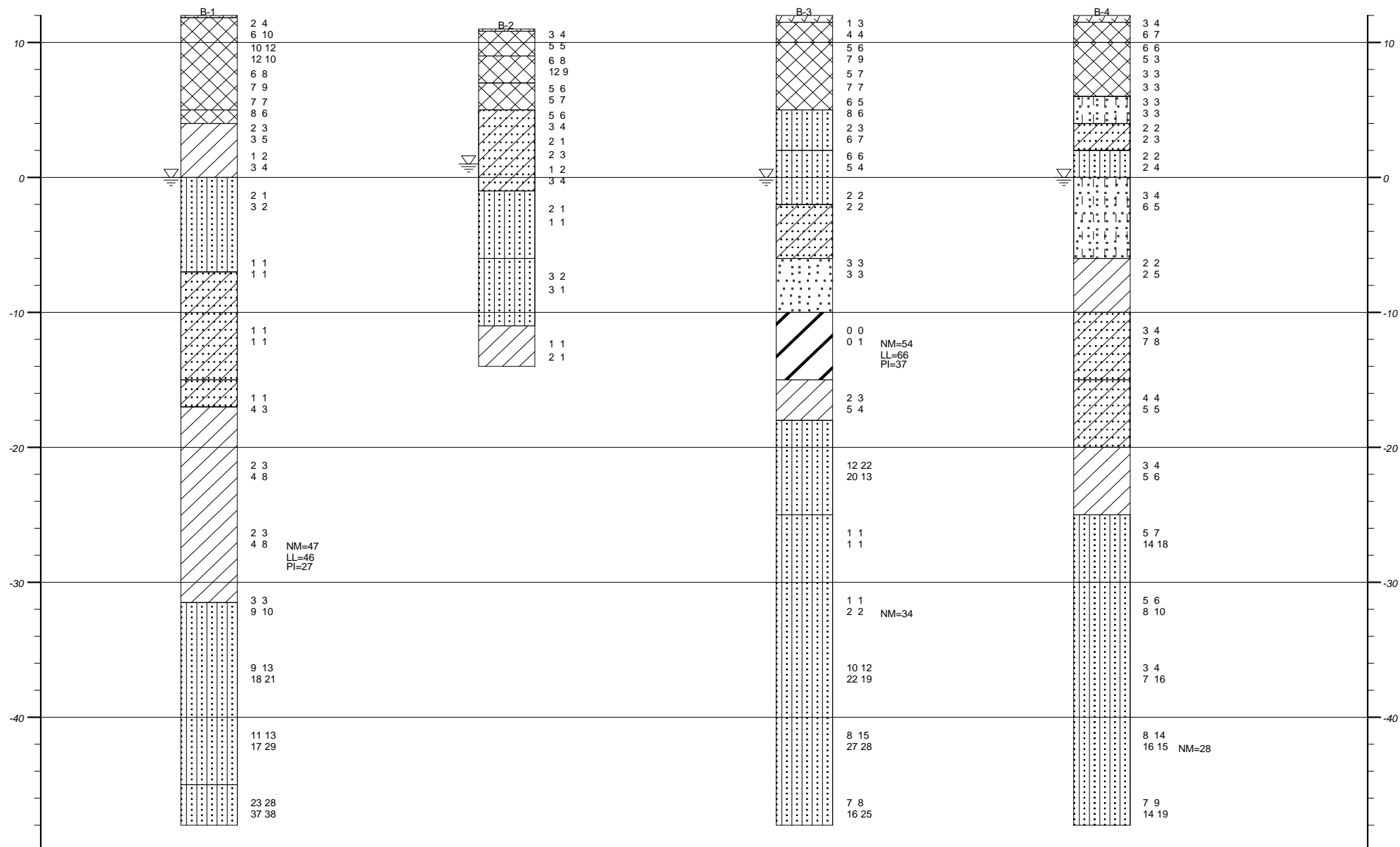
SS = Split Spoon Sample
ST = Shelby Tube Sample
HA = Hand Auger Sample
BS = Bulk Sample
WOH = Weight of Hammer

* The initial groundwater reading may not be indicative of the static groundwater level.

APPENDIX IV

GENERALIZED SOIL PROFILE

ELEVATION IN FEET



ELEVATION IN FEET

GET Solutions, Inc. GENERALIZED SOIL PROFILE

HORIZONTAL
SCALE:
VERTICAL
SCALE: 1"=10'

DRAWN BY/APPROVED BY
JW

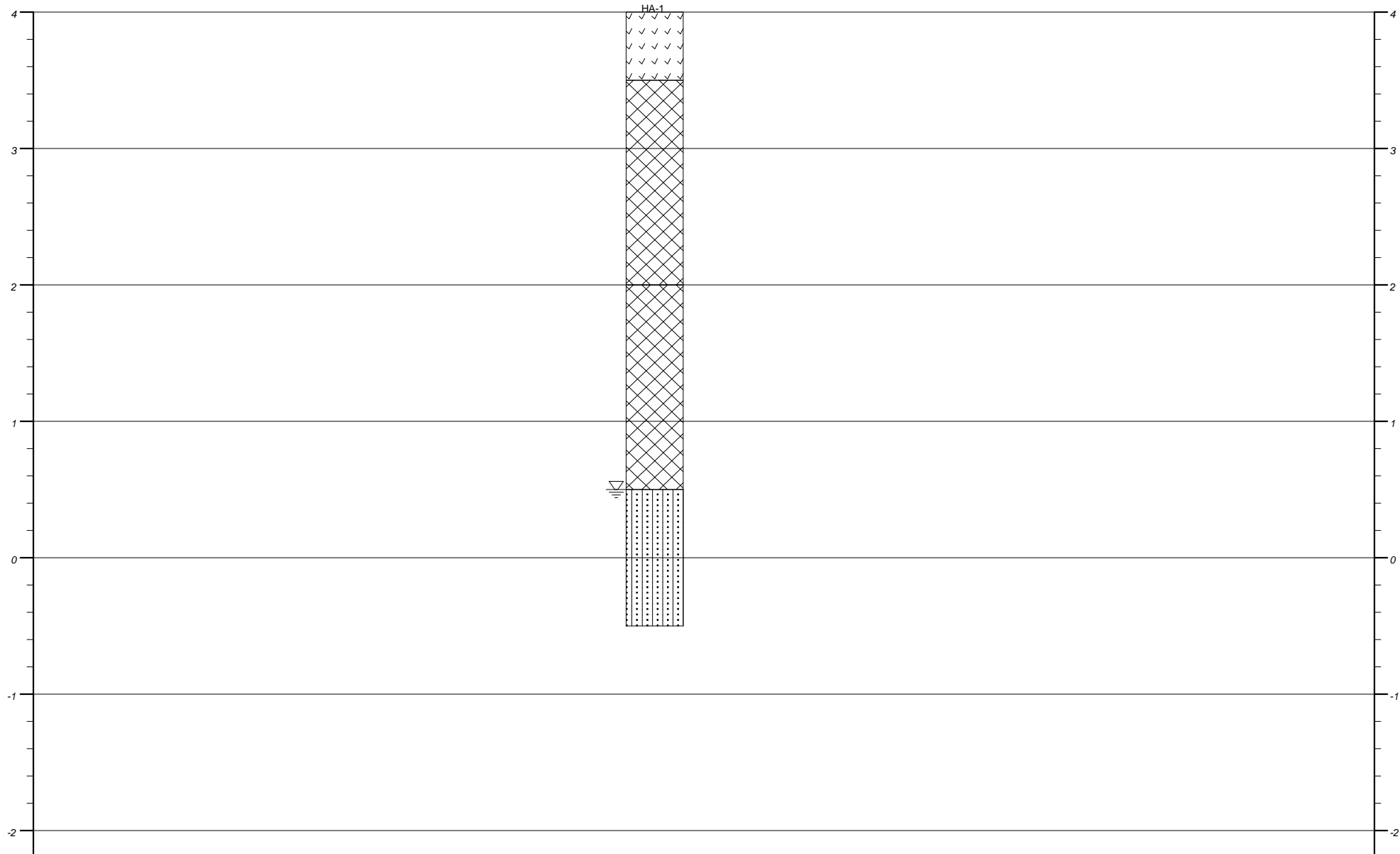
DATE DRAWN
10/27/2011

Renovate/Expand SCI Phase II
Hampton, Virginia

PROJECT NO. WM11-152G

FIGURE NUMBER

ELEVATION IN FEET



ELEVATION IN FEET

Strata symbols



Topsoil



Fill



Silty sand

GET Solutions, Inc.
GENERALIZED SOIL PROFILE

HORIZONTAL
SCALE:
VERTICAL
SCALE: 1"=1'

DRAWN BY/APPROVED BY
JW

DATE DRAWN
10/27/2011

Renovate/Expand SCI Phase II
Hampton, Virginia

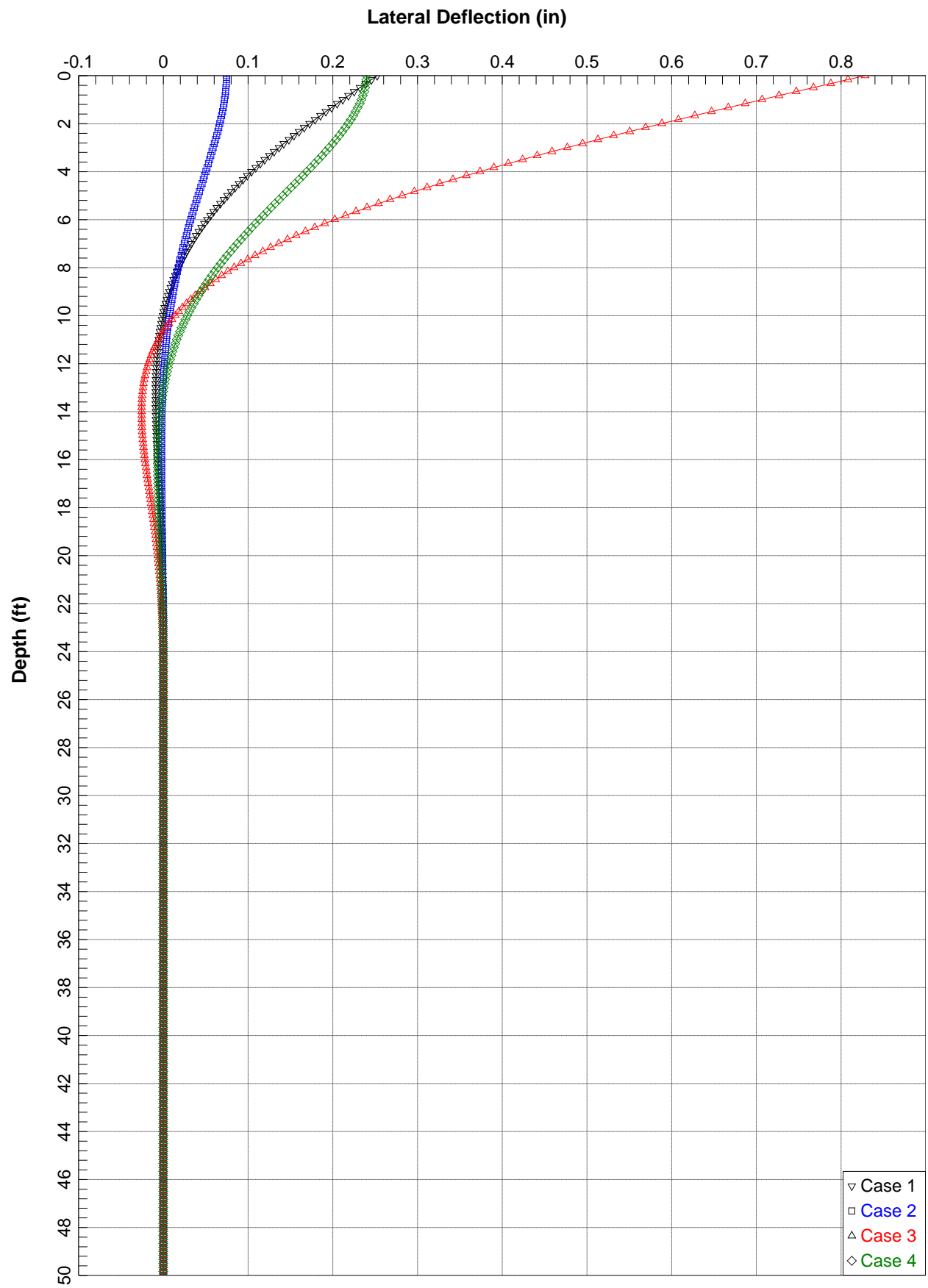
PROJECT NO. WM11-152G

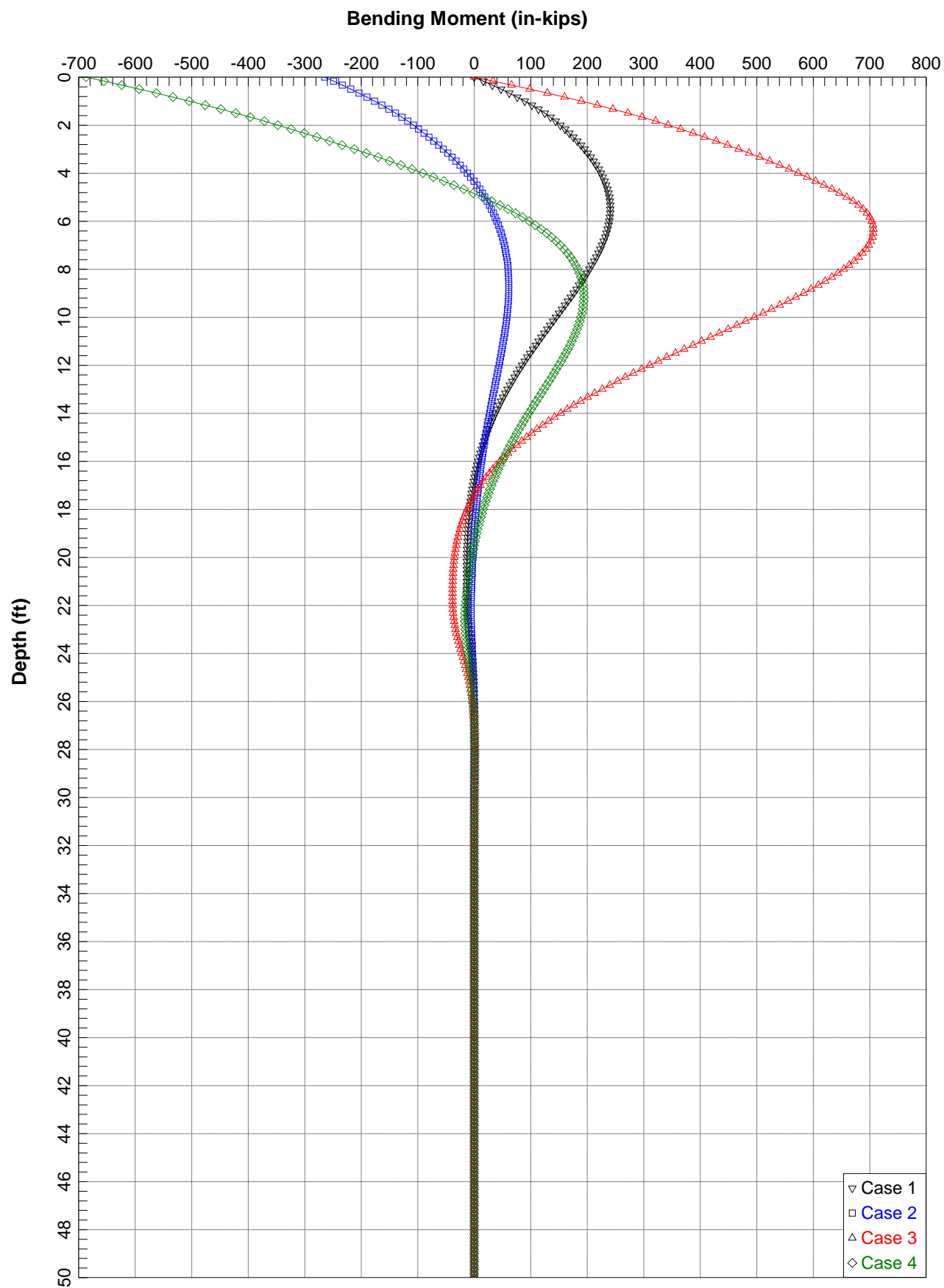
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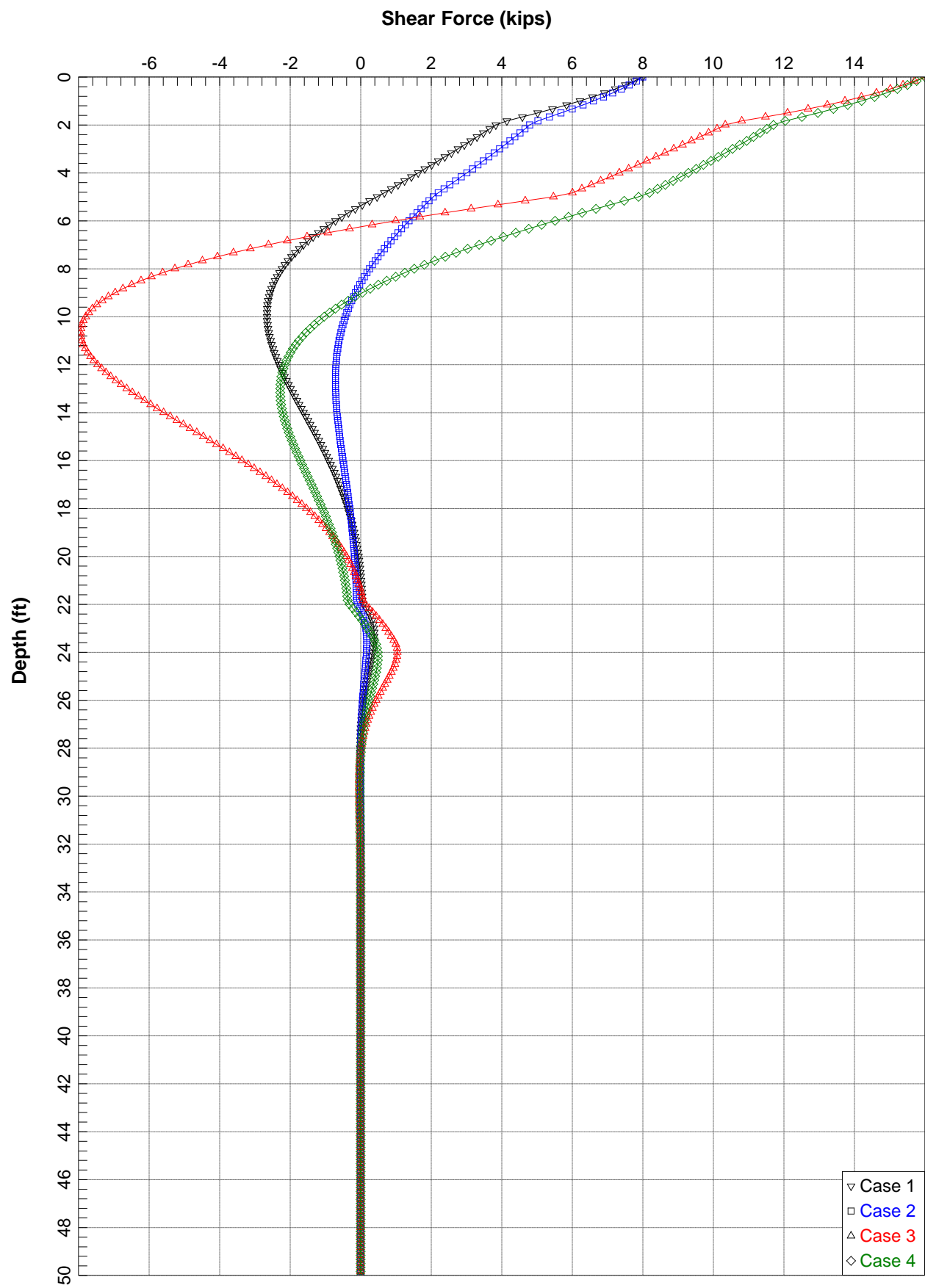
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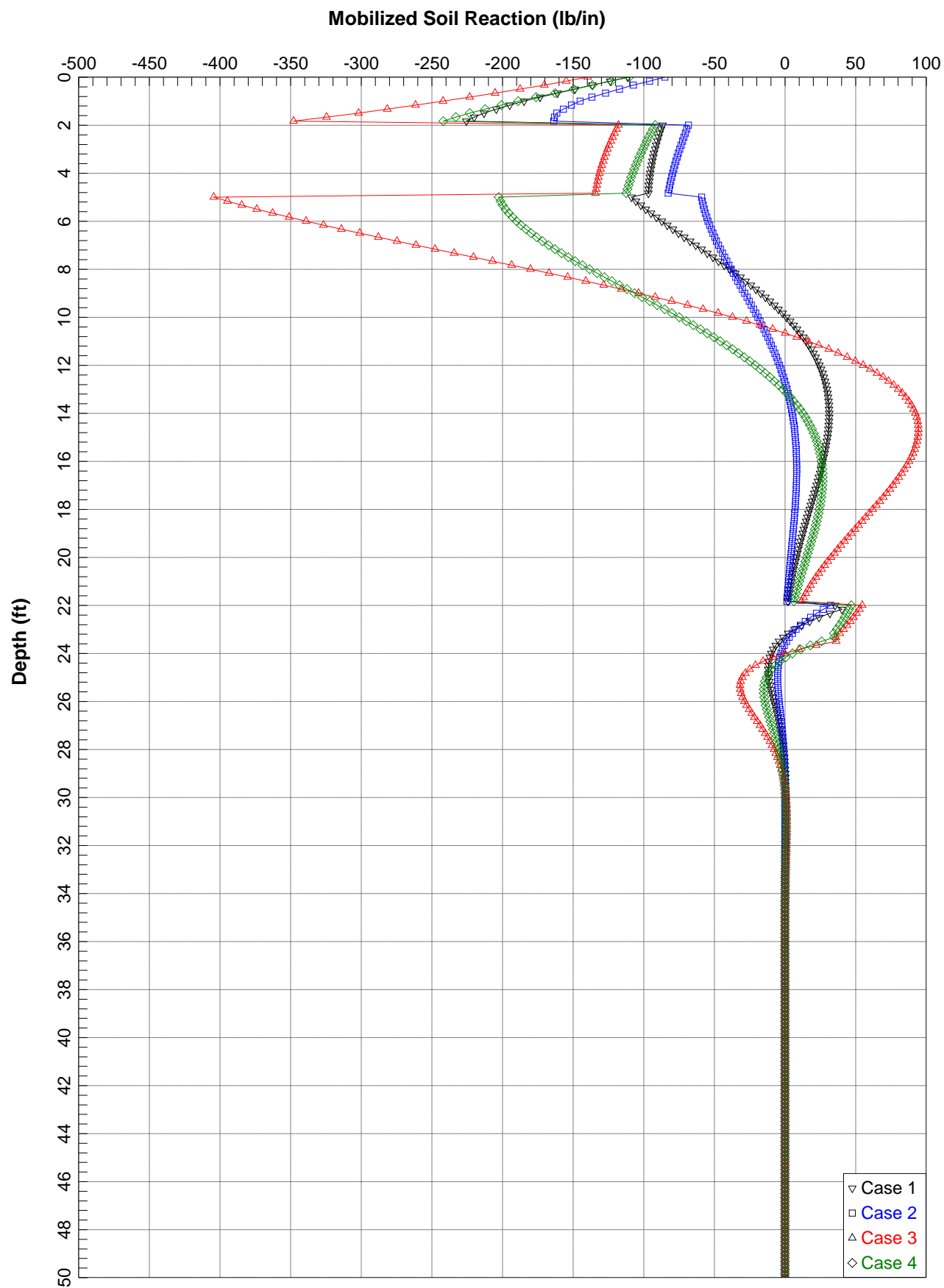
APPENDIX V

L-PILE ANALYSIS









L-Pile.lpo

LPILE Plus for Windows, Version 5.0 (5.0.38)

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

(c) 1985-2007 by Ensoft, Inc.
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This program is licensed to:

Mark Scholfield
GET Solutions, Inc.

Path to file locations: G:\Geo Projects\Williamsburg Projects\WM11-152G RenovateExpand SCI
Phase II\
Name of input data file: L-Pile.lpd
Name of output file: L-Pile.lpo
Name of plot output file: L-Pile.lpp
Name of runtime file: L-Pile.lpr

Time and Date of Analysis

Date: October 31, 2011 Time: 16:23:25

Problem Title

Renovate/Expand SCI Phase II

Program Options

Units Used in Computations - US Customary Units: Inches, Pounds

Basic Program Options:

Analysis Type 1:

- Computation of Lateral Pile Response Using User-specified Constant EI

Computation Options:

- Only internally-generated p-y curves used in analysis
- Analysis does not use p-y multipliers (individual pile or shaft action only)
- Analysis assumes no shear resistance at pile tip
- Analysis for fixed-length pile or shaft only
- No computation of foundation stiffness matrix elements
- Output pile response for full length of pile
- Analysis assumes no soil movements acting on pile
- No additional p-y curves to be computed at user-specified depths

Solution Control Parameters:

- Number of pile increments = 300

- Maximum number of iterations allowed = 100
- Deflection tolerance for convergence = 1.0000E-05 in
- Maximum allowable deflection = 1.0000E+02 in

Printing Options:

- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (spacing of output points) = 1

Pile Structural Properties and Geometry

Pile Length = 600.00 in

Depth of ground surface below top of pile = -24.00 in

Slope angle of ground surface = .00 deg.

Structural properties of pile defined using 2 points

Point	Depth X in	Pile Diameter in	Moment of Inertia in**4	Pile Area Sq.in	Modulus of Elasticity lbs/Sq.in
1	0.0000	14.00000000	1885.0000	154.0000	4000000.
2	600.0000	14.00000000	1885.0000	154.0000	4000000.

Soil and Rock Layering Information

The soil profile is modelled using 5 layers

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

Distance from top of pile to top of layer = -24.000 in

Distance from top of pile to bottom of layer = 24.000 in

p-y subgrade modulus k for top of soil layer = 90.000 lbs/in**3

p-y subgrade modulus k for bottom of layer = 90.000 lbs/in**3

Layer 2 is stiff clay without free water

Distance from top of pile to top of layer = 24.000 in

Distance from top of pile to bottom of layer = 60.000 in

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

Distance from top of pile to top of layer = 60.000 in

Distance from top of pile to bottom of layer = 264.000 in

p-y subgrade modulus k for top of soil layer = 20.000 lbs/in**3

p-y subgrade modulus k for bottom of layer = 20.000 lbs/in**3

Layer 4 is stiff clay without free water

Distance from top of pile to top of layer = 264.000 in

Distance from top of pile to bottom of layer = 438.000 in

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

Distance from top of pile to top of layer = 438.000 in

Distance from top of pile to bottom of layer = 618.000 in

p-y subgrade modulus k for top of soil layer = 60.000 lbs/in**3

p-y subgrade modulus k for bottom of layer = 60.000 lbs/in**3

L-Pile.lpo

(Depth of lowest layer extends 18.00 in below pile tip)

Effective Unit Weight of Soil vs. Depth

Effective unit weight of soil with depth defined using 10 points

Point No.	Depth X in	Eff. Unit Weight lbs/in**3
1	-24.00	.06500
2	24.00	.06500
3	24.00	.06500
4	60.00	.06500
5	60.00	.02900
6	264.00	.02900
7	264.00	.03500
8	438.00	.03500
9	438.00	.03500
10	618.00	.03500

Shear Strength of Soils

Shear strength parameters with depth defined using 10 points

Point No.	Depth X in	Cohesion c lbs/in**2	Angle of Friction Deg.	E50 or k _{rm}	RQD %
1	-24.000	.00000	30.00	-----	-----
2	24.000	.00000	30.00	-----	-----
3	24.000	3.50000	.00	.01000	.0
4	60.000	3.50000	.00	.01000	.0
5	60.000	.00000	28.00	-----	-----
6	264.000	.00000	28.00	-----	-----
7	264.000	4.00000	.00	.01000	.0
8	438.000	4.00000	.00	.01000	.0
9	438.000	.00000	32.00	-----	-----
10	618.000	.00000	32.00	-----	-----

Notes:

- (1) Cohesion = uniaxial compressive strength for rock materials.
- (2) Values of E50 are reported for clay strata.
- (3) Default values will be generated for E50 when input values are 0.
- (4) RQD and k_{rm} are reported only for weak rock strata.

Loading Type

Cyclic loading criteria was used for computation of p-y curves.

Number of cycles of loading = 200.

L-Pile.lpo

Pile-head Loading and Pile-head Fixity Conditions

Number of Loads specified = 4

Load Case Number 1

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

Shear force at pile head = 8000.000 lbs
 Bending moment at pile head = .000 in-lbs
 Axial load at pile head = 80000.000 lbs

(Zero moment at pile head for this load indicates a free-head condition)

Load Case Number 2

Pile-head boundary conditions are Shear and Slope (BC Type 2)

Shear force at pile head = 8000.000 lbs
 Slope at pile head = .000 in/in
 Axial load at pile head = 80000.000 lbs

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

Load Case Number 3

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

Shear force at pile head = 16000.000 lbs
 Bending moment at pile head = .000 in-lbs
 Axial load at pile head = 80000.000 lbs

(Zero moment at pile head for this load indicates a free-head condition)

Load Case Number 4

Pile-head boundary conditions are Shear and Slope (BC Type 2)

Shear force at pile head = 16000.000 lbs
 Slope at pile head = .000 in/in
 Axial load at pile head = 80000.000 lbs

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

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

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

Specified shear force at pile head = 8000.000 lbs
 Specified moment at pile head = .000 in-lbs
 Specified axial load at pile head = 80000.000 lbs

(Zero moment for this load indicates free-head conditions)

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Soil Res. p lbs/in	Es*h F/L lbs/in
0.000	.252589	-2.4067E-06	8000.0000	-.0034207	519.4805	-111.4124	441.0812

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2. 000	. 245748	16324. 4926	7764. 9013	-. 0034186	580. 1020	-123. 6863	1006. 6116
4. 000	. 238915	32153. 5470	7504. 9469	-. 0034121	638. 8836	-136. 2680	1140. 7238
6. 000	. 232099	47436. 1646	7220. 0778	-. 0034016	695. 6360	-148. 6011	1280. 4957
8. 000	. 225309	62122. 3648	6910. 5132	-. 0033871	750. 1737	-160. 9635	1428. 8264
10. 000	. 218551	76162. 0743	6576. 2631	-. 0033687	802. 3105	-173. 2865	1585. 7759
12. 000	. 211834	89505. 4053	6218. 2595	-. 0033467	851. 8613	-184. 7170	1743. 9801
14. 000	. 205164	102106.	5838. 6565	-. 0033213	898. 6543	-194. 8860	1899. 8061
16. 000	. 198549	113923.	5439. 3929	-. 0032927	942. 5362	-204. 3775	2058. 7159
18. 000	. 191993	124917.	5021. 9376	-. 0032610	983. 3644	-213. 0778	2219. 6361
20. 000	. 185505	135054.	4588. 9084	-. 0032265	1021. 0078	-219. 9515	2371. 3865
22. 000	. 179087	144305.	4143. 4186	-. 0031895	1055. 3627	-225. 5382	2518. 7516
24. 000	. 172747	152648.	3831. 1904	-. 0031501	1086. 3447	-86. 6900	1003. 6668
26. 000	. 166487	160638.	3656. 8280	-. 0031085	1116. 0150	-87. 6723	1053. 2030
28. 000	. 160313	168270.	3480. 5461	-. 0030649	1144. 3576	-88. 6096	1105. 4611
30. 000	. 154227	175541.	3302. 4352	-. 0030193	1171. 3575	-89. 5013	1160. 6414
32. 000	. 148235	182446.	3122. 5873	-. 0029718	1197. 0003	-90. 3466	1218. 9627
34. 000	. 142340	188983.	2941. 0959	-. 0029226	1221. 2723	-91. 1448	1280. 6634
36. 000	. 136545	195146.	2758. 0560	-. 0028716	1244. 1607	-91. 8951	1346. 0050
38. 000	. 130853	200934.	2573. 5642	-. 0028191	1265. 6532	-92. 5967	1415. 2736
40. 000	. 125269	206342.	2387. 7187	-. 0027651	1285. 7387	-93. 2489	1488. 7837
42. 000	. 119793	211369.	2200. 6191	-. 0027097	1304. 4065	-93. 8508	1566. 8811
44. 000	. 114430	216012.	2012. 3668	-. 0026530	1321. 6469	-94. 4015	1649. 9472
46. 000	. 109181	220268.	1823. 0649	-. 0025951	1337. 4511	-94. 9003	1738. 4032
48. 000	. 104049	224135.	1632. 8183	-. 0025362	1351. 8108	-95. 3463	1832. 7156
50. 000	. 099036	227611.	1441. 7335	-. 0024763	1364. 7190	-95. 7384	1933. 4021
52. 000	. 094144	230694.	1249. 9193	-. 0024155	1376. 1691	-96. 0758	2041. 0388
54. 000	. 089374	233383.	1057. 4861	-. 0023540	1386. 1558	-96. 3574	2156. 2686
56. 000	. 084728	235677.	864. 5466	-. 0022917	1394. 6744	-96. 5821	2279. 8107
58. 000	. 080207	237575.	671. 2156	-. 0022290	1401. 7213	-96. 7488	2412. 4726
60. 000	. 075812	239075.	465. 7766	-. 0021658	1407. 2935	-108. 6901	2867. 3502
62. 000	. 071544	240131.	251. 6537	-. 0021022	1411. 2136	-105. 4328	2947. 3502
64. 000	. 067403	240755.	44. 1940	-. 0020384	1413. 5297	-102. 0269	3027. 3502
66. 000	. 063390	240960.	-156. 3210	-. 0019745	1414. 2924	-98. 4881	3107. 3502
68. 000	. 059505	240761.	-349. 6410	-. 0019107	1413. 5541	-94. 8320	3187. 3502
70. 000	. 055748	240173.	-535. 5467	-. 0018469	1411. 3693	-91. 0737	3267. 3502
72. 000	. 052118	239210.	-713. 8486	-. 0017833	1407. 7937	-87. 2281	3347. 3502
74. 000	. 048615	237888.	-884. 3863	-. 0017200	1402. 8848	-83. 3096	3427. 3502
76. 000	. 045238	236223.	-1047. 0281	-. 0016571	1396. 7009	-79. 3321	3507. 3502
78. 000	. 041986	234230.	-1201. 6695	-. 0015947	1389. 3014	-75. 3093	3587. 3502
80. 000	. 038859	231927.	-1348. 2329	-. 0015329	1380. 7463	-71. 2542	3667. 3502
82. 000	. 035854	229328.	-1486. 6665	-. 0014717	1371. 0962	-67. 1794	3747. 3502
84. 000	. 032972	226451.	-1616. 9429	-. 0014113	1360. 4121	-63. 0971	3827. 3502
86. 000	. 030209	223312.	-1739. 0589	-. 0013516	1348. 7550	-59. 0189	3907. 3502
88. 000	. 027565	219927.	-1853. 0335	-. 0012929	1336. 1861	-54. 9558	3987. 3502
90. 000	. 025038	216313.	-1958. 9079	-. 0012350	1322. 7662	-50. 9185	4067. 3502
92. 000	. 022625	212487.	-2056. 7434	-. 0011781	1308. 5559	-46. 9170	4147. 3502
94. 000	. 020325	208463.	-2146. 6212	-. 0011223	1293. 6151	-42. 9607	4227. 3502
96. 000	. 018136	204259.	-2228. 6406	-. 0010676	1278. 0034	-39. 0587	4307. 3502
98. 000	. 016055	199890.	-2302. 9184	-. 0010140	1261. 7793	-35. 2192	4387. 3502
100. 000	. 014080	195372.	-2369. 5876	-. 0009615	1245. 0005	-31. 4500	4467. 3502
102. 000	. 012209	190720.	-2428. 7962	-. 0009103	1227. 7238	-27. 7586	4547. 3502
104. 000	. 010439	185948.	-2480. 7062	-. 0008604	1210. 0047	-24. 1515	4627. 3502
106. 000	. 008767	181072.	-2525. 4927	-. 0008117	1191. 8975	-20. 6350	4707. 3502
108. 000	. 007192	176106.	-2563. 3424	-. 0007643	1173. 4553	-17. 2147	4787. 3502
110. 000	. 005710	171064.	-2594. 4529	-. 0007183	1154. 7296	-13. 8958	4867. 3502
112. 000	. 004319	165958.	-2619. 0314	-. 0006736	1135. 7706	-10. 6827	4947. 3502
114. 000	. 003015	160803.	-2637. 2939	-. 0006303	1116. 6267	-7. 5797	5027. 3502
116. 000	. 001798	155611.	-2649. 4639	-. 0005883	1097. 3449	-4. 5903	5107. 3502
118. 000	. 000662	150393.	-2655. 7718	-. 0005477	1077. 9704	-1. 7176	5187. 3502
120. 000	-. 000393	145163.	-2656. 4536	-. 0005085	1058. 5466	1. 0358	5267. 3502
122. 000	-. 001372	139930.	-2651. 7499	-. 0004707	1039. 1154	3. 6678	5347. 3502
124. 000	-. 002276	134706.	-2641. 9055	-. 0004343	1019. 7166	6. 1766	5427. 3502
126. 000	-. 003109	129502.	-2627. 1678	-. 0003992	1000. 3883	8. 5610	5507. 3502

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128.000	-.003873	124326.	-2607.7868	-.0003656	981.1668	10.8201	5587.3502
130.000	-.004571	119187.	-2584.0134	-.0003333	962.0864	12.9534	5667.3502
132.000	-.005206	114096.	-2556.0992	-.0003023	943.1796	14.9608	5747.3502
134.000	-.005781	109060.	-2524.2957	-.0002727	924.4770	16.8427	5827.3502
136.000	-.006297	104086.	-2488.8533	-.0002445	906.0075	18.5997	5907.3502
138.000	-.006758	99182.5972	-2450.0210	-.0002175	887.7979	20.2326	5987.3502
140.000	-.007167	94355.7178	-2408.0455	-.0001918	869.8731	21.7429	6067.3502
142.000	-.007526	89611.8055	-2363.1707	-.0001674	852.2565	23.1320	6147.3502
144.000	-.007837	84956.6178	-2315.6369	-.0001443	834.9693	24.4017	6227.3502
146.000	-.008103	80395.4316	-2265.6809	-.0001224	818.0312	25.5543	6307.3502
148.000	-.008326	75933.0504	-2213.5348	-.0001016	801.4600	26.5919	6387.3502
150.000	-.008510	71573.8140	-2159.4259	-8.2067E-05	785.2719	27.5171	6467.3502
152.000	-.008655	67321.6083	-2103.5762	-6.3646E-05	769.4812	28.3326	6547.3502
154.000	-.008764	63179.8759	-2046.2022	-4.6338E-05	754.1007	29.0414	6627.3502
156.000	-.008840	59151.6278	-1987.5141	-3.0114E-05	739.1417	29.6466	6707.3502
158.000	-.008885	55239.4557	-1927.7162	-1.4943E-05	724.6138	30.1513	6787.3502
160.000	-.008900	51445.5446	-1867.0058	-7.9333E-07	710.5250	30.5590	6867.3502
162.000	-.008888	47771.6863	-1805.5736	1.2365E-05	696.8820	30.8731	6947.3502
164.000	-.008850	44219.2931	-1743.6033	2.4566E-05	683.6901	31.0972	7027.3502
166.000	-.008789	40789.4121	-1681.2711	3.5840E-05	670.9531	31.2350	7107.3502
168.000	-.008707	37482.7399	-1618.7461	4.6221E-05	658.6737	31.2901	7187.3502
170.000	-.008605	34299.6371	-1556.1897	5.5741E-05	646.8532	31.2663	7267.3502
172.000	-.008484	31240.1438	-1493.7559	6.4434E-05	635.4917	31.1675	7347.3502
174.000	-.008347	28303.9948	-1431.5908	7.2331E-05	624.5882	30.9975	7427.3502
176.000	-.008195	25490.6347	-1369.8331	7.9465E-05	614.1407	30.7602	7507.3502
178.000	-.008029	22799.2336	-1308.6134	8.5870E-05	604.1461	30.4594	7587.3502
180.000	-.007851	20228.7026	-1248.0550	9.1576E-05	594.6004	30.0990	7667.3502
182.000	-.007663	17777.7092	-1188.2732	9.6617E-05	585.4985	29.6828	7747.3502
184.000	-.007465	15444.6923	-1129.3758	.0001010	576.8348	29.2146	7827.3502
186.000	-.007259	13227.8784	-1071.4631	.0001048	568.6026	28.6982	7907.3502
188.000	-.007045	11125.2957	-1014.6277	.0001081	560.7946	28.1372	7987.3502
190.000	-.006826	9134.7896	-958.9551	.0001107	553.4028	27.5354	8067.3502
192.000	-.006602	7254.0375	-904.5234	.0001129	546.4186	26.8963	8147.3502
194.000	-.006375	5480.5628	-851.4036	.0001146	539.8327	26.2235	8227.3502
196.000	-.006144	3811.7495	-799.6597	.0001158	533.6356	25.5204	8307.3502
198.000	-.005911	2244.8559	-749.3490	.0001166	527.8169	24.7903	8387.3502
200.000	-.005677	777.0284	-700.5220	.0001170	522.3660	24.0366	8467.3502
202.000	-.005443	-594.6855	-653.2229	.0001171	521.6889	23.2625	8547.3502
204.000	-.005209	-1873.3244	-607.4896	.0001167	526.4372	22.4709	8627.3502
206.000	-.004976	-3062.0002	-563.3538	.0001161	530.8513	21.6649	8707.3502
208.000	-.004745	-4163.8863	-520.8413	.0001151	534.9432	20.8475	8787.3502
210.000	-.004516	-5182.2058	-479.9725	.0001139	538.7248	20.0213	8867.3502
212.000	-.004289	-6120.2200	-440.7621	.0001124	542.2081	19.1891	8947.3502
214.000	-.004066	-6981.2181	-403.2195	.0001106	545.4055	18.3535	9027.3502
216.000	-.003847	-7768.5060	-367.3493	.0001087	548.3291	17.5168	9107.3502
218.000	-.003631	-8485.3970	-333.1509	.0001065	550.9913	16.6815	9187.3502
220.000	-.003421	-9135.2017	-300.6194	.0001042	553.4043	15.8499	9267.3502
222.000	-.003215	-9721.2190	-269.7455	.0001017	555.5805	15.0241	9347.3502
224.000	-.003014	-10246.7276	-240.5154	9.9052E-05	557.5320	14.2060	9427.3502
226.000	-.002818	-10714.9771	-212.9116	9.6272E-05	559.2709	13.3978	9507.3502
228.000	-.002629	-11129.1807	-186.9126	9.3374E-05	560.8090	12.6012	9587.3502
230.000	-.002445	-11492.5074	-162.4936	9.0374E-05	562.1583	11.8179	9667.3502
232.000	-.002267	-11808.0748	-139.6260	8.7284E-05	563.3301	11.0496	9747.3502
234.000	-.002096	-12078.9425	-118.2785	8.4116E-05	564.3360	10.2979	9827.3502
236.000	-.001931	-12308.1057	-98.4162	8.0882E-05	565.1870	9.5643	9907.3502
238.000	-.001772	-12498.4895	-80.0019	7.7592E-05	565.8940	8.8500	9987.3502
240.000	-.001620	-12652.9428	-62.9955	7.4256E-05	566.4676	8.1565	10067.3502
242.000	-.001475	-12774.2333	-47.3542	7.0884E-05	566.9180	7.4848	10147.3502
244.000	-.001337	-12865.0424	-33.0332	6.7483E-05	567.2552	6.8362	10227.3502
246.000	-.001205	-12927.9608	-19.9854	6.4062E-05	567.4889	6.2117	10307.3502
248.000	-.001081	-12965.4838	-8.1614	6.0628E-05	567.6282	5.6123	10387.3502
250.000	-.000963	-12980.0076	2.4897	5.7187E-05	567.6821	5.0389	10467.3502
252.000	-.000852	-12973.8250	12.0209	5.3745E-05	567.6592	4.4924	10547.3502

254.000	-	.000748	-12949.1224	20.4868	5.0307E-05	567.5674	3.9736	10627.3502
256.000	-	.000651	-12907.9760	27.9435	4.6878E-05	567.4146	3.4832	10707.3502
258.000	-	.000560	-12852.3491	34.4488	4.3461E-05	567.2081	3.0220	10787.3502
260.000	-	.000477	-12784.0886	40.0614	4.0061E-05	566.9546	2.5906	10867.3502
262.000	-	.000400	-12704.9230	44.8417	3.6681E-05	566.6606	2.1897	10947.3502
264.000	-	.000330	-12616.4594	82.5839	3.3322E-05	566.3321	35.5524	215436.
266.000	-	.000267	-12385.2507	158.5125	3.0006E-05	565.4735	40.3762	302723.
268.000	-	.000210	-11992.0116	230.6785	2.6773E-05	564.0132	31.7898	302723.
270.000	-	.000160	-11471.1043	286.6347	2.3662E-05	562.0788	24.1664	302723.
272.000	-	.000115	-10853.0445	328.2652	2.0701E-05	559.7836	17.4641	302723.
274.000	-7.	69E-05	-10164.6678	357.3625	1.7913E-05	557.2273	11.6332	302723.
276.000	-4.	37E-05	-9429.3268	375.6143	1.5315E-05	554.4966	6.6186	302723.
278.000	-1.	56E-05	-8667.1113	384.5940	1.2915E-05	551.6661	2.3611	302723.
280.000	7.	93E-06	-7895.0836	385.7546	1.0718E-05	548.7991	-1.2005	302723.
282.000	2.	73E-05	-7127.5226	380.4261	8.7256E-06	545.9488	-4.1280	302723.
284.000	4.	28E-05	-6376.1713	369.8148	6.9346E-06	543.1586	-6.4833	302723.
286.000	5.	50E-05	-5650.4827	355.0049	5.3396E-06	540.4637	-8.3266	302723.
288.000	6.	42E-05	-4957.8605	336.9622	3.9326E-06	537.8917	-9.7161	302723.
290.000	7.	07E-05	-4303.8923	316.5385	2.7043E-06	535.4631	-10.7076	302723.
292.000	7.	50E-05	-3692.5718	294.4775	1.6437E-06	533.1930	-11.3534	302723.
294.000	7.	73E-05	-3126.5082	271.4214	7.3935E-07	531.0909	-11.7028	302723.
296.000	7.	80E-05	-2607.1229	247.9176	-2.1080E-08	529.1621	-11.8010	302723.
298.000	7.	72E-05	-2134.8311	224.4265	-6.4999E-07	527.4083	-11.6900	302723.
300.000	7.	54E-05	-1709.2087	201.3290	-1.1598E-06	525.8277	-11.4075	302723.
302.000	7.	26E-05	-1329.1438	178.9337	-1.5628E-06	524.4163	-10.9878	302723.
304.000	6.	91E-05	-992.9736	157.4846	-1.8707E-06	523.1680	-10.4613	302723.
306.000	6.	51E-05	-698.6067	137.1681	-2.0951E-06	522.0748	-9.8552	302723.
308.000	6.	07E-05	-443.6308	118.1201	-2.2466E-06	521.1280	-9.1929	302723.
310.000	5.	61E-05	-225.4075	100.4322	-2.3353E-06	520.3176	-8.4950	302723.
312.000	5.	14E-05	-41.1546	84.1583	-2.3707E-06	519.6333	-7.7790	302723.
314.000	4.	66E-05	111.9842	69.3196	-2.3613E-06	519.8964	-7.0597	302723.
316.000	4.	19E-05	236.8795	55.9106	-2.3150E-06	520.3602	-6.3494	302723.
318.000	3.	74E-05	336.3674	43.9032	-2.2390E-06	520.7296	-5.6581	302723.
320.000	3.	30E-05	413.2088	33.2514	-2.1396E-06	521.0150	-4.9938	302723.
322.000	2.	88E-05	470.0576	23.8949	-2.0224E-06	521.2261	-4.3627	302723.
324.000	2.	49E-05	509.4357	15.7630	-1.8925E-06	521.3723	-3.7693	302723.
326.000	2.	13E-05	533.7150	8.7768	-1.7542E-06	521.4625	-3.2169	302723.
328.000	1.	79E-05	545.1042	2.8527	-1.6111E-06	521.5048	-2.7073	302723.
330.000	1.	48E-05	545.6412	-2.0960	-1.4664E-06	521.5068	-2.2414	302723.
332.000	1.	20E-05	537.1894	-6.1569	-1.3228E-06	521.4754	-1.8194	302723.
334.000	9.	52E-06	521.4370	-9.4168	-1.1824E-06	521.4169	-1.4405	302723.
336.000	7.	29E-06	499.9004	-11.9609	-1.0470E-06	521.3369	-1.1035	302723.
338.000	5.	33E-06	473.9285	-13.8711	-9.1780E-07	521.2405	-	8066675
340.000	3.	62E-06	444.7097	-15.2256	-7.9596E-07	521.1320	-	5478564
342.000	2.	15E-06	413.2806	-16.0982	-6.8217E-07	521.0152	-	3247546
344.000	8.	91E-07	380.5350	-16.5578	-5.7689E-07	520.8936	-	1348382
346.000	-1.	62E-07	347.2339	-16.6682	-4.8037E-07	520.7700	.	0245220
348.000	-1.	03E-06	314.0161	-16.4876	-3.9267E-07	520.6466	.	1560001
350.000	-1.	73E-06	281.4091	-16.0694	-3.1370E-07	520.5255	.	2622634
352.000	-2.	29E-06	249.8391	-15.4612	-2.4325E-07	520.4083	.	3459302
354.000	-2.	71E-06	219.6422	-14.7057	-1.8098E-07	520.2962	.	4095354
356.000	-3.	01E-06	191.0742	-13.8407	-1.2651E-07	520.1901	.	4555039
358.000	-3.	21E-06	164.3200	-12.8990	-7.9374E-08	520.0907	.	4861295
360.000	-3.	33E-06	139.5034	-11.9093	-3.9079E-08	519.9986	.	5035606
362.000	-3.	37E-06	116.6952	-10.8960	-5.1007E-09	519.9139	.	5097899
364.000	-3.	35E-06	95.9211	-9.8796	2.3098E-08	519.8367	.	5066488
366.000	-3.	28E-06	77.1696	-8.8771	4.6054E-08	519.7671	.	4958054
368.000	-3.	16E-06	60.3980	-7.9025	6.4299E-08	519.7048	.	4787655
370.000	-3.	02E-06	45.5389	-6.9669	7.8349E-08	519.6496	.	4568758
372.000	-2.	85E-06	32.5053	-6.0787	8.8700E-08	519.6012	.	4313294
374.000	-2.	66E-06	21.1958	-5.2442	9.5822E-08	519.5592	.	4031729
376.000	-2.	47E-06	11.4980	-4.4677	1.0016E-07	519.5232	.	3733144
378.000	-2.	26E-06	3.2929	-3.7518	1.0212E-07	519.4927	.	3425327

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380.000	-2.06E-06	-3.5421	-3.0978	1.0209E-07	519.4937	.3114866	302723.
382.000	-1.85E-06	-9.1310	-2.5056	1.0041E-07	519.5144	.2807248	302723.
384.000	-1.66E-06	-13.5967	-1.9742	9.7392E-08	519.5310	.2506963	302723.
386.000	-1.47E-06	-17.0590	-1.5017	9.3326E-08	519.5439	.2217596	302723.
388.000	-1.28E-06	-19.6335	-1.0858	8.8459E-08	519.5534	.1941927	302723.
390.000	-1.11E-06	-21.4304	-.7233902	8.3013E-08	519.5601	.1682022	302723.
392.000	-9.51E-07	-22.5536	-.4112553	7.7180E-08	519.5643	.1439327	302723.
394.000	-8.03E-07	-23.1001	-.1458486	7.1125E-08	519.5663	.1214741	302723.
396.000	-6.66E-07	-23.1598	.0764958	6.4990E-08	519.5665	.1008704	302723.
398.000	-5.43E-07	-22.8150	.2594926	5.8892E-08	519.5652	.0821264	302723.
400.000	-4.31E-07	-22.1407	.4068332	5.2930E-08	519.5627	.0652143	302723.
402.000	-3.31E-07	-21.2046	.5221277	4.7181E-08	519.5593	.0500802	302723.
404.000	-2.42E-07	-20.0672	.6088565	4.1708E-08	519.5550	.0366487	302723.
406.000	-1.64E-07	-18.7825	.6703337	3.6555E-08	519.5503	.0248285	302723.
408.000	-9.59E-08	-17.3976	.7096787	3.1757E-08	519.5451	.0145166	302723.
410.000	-3.70E-08	-15.9539	.7297969	2.7333E-08	519.5398	.0056016	302723.
412.000	1.34E-08	-14.4872	.7333662	2.3296E-08	519.5343	-.0020323	302723.
414.000	5.62E-08	-13.0279	.7228310	1.9647E-08	519.5289	-.0085029	302723.
416.000	9.20E-08	-11.6021	.7004007	1.6380E-08	519.5236	-.0139274	302723.
418.000	1.22E-07	-10.2316	.6680530	1.3485E-08	519.5185	-.0184203	302723.
420.000	1.46E-07	-8.9342	.6275412	1.0943E-08	519.5137	-.0220916	302723.
422.000	1.65E-07	-7.7249	.5804041	8.7332E-09	519.5092	-.0250455	302723.
424.000	1.81E-07	-6.6154	.5279796	6.8313E-09	519.5051	-.0273791	302723.
426.000	1.93E-07	-5.6152	.4714190	5.2093E-09	519.5014	-.0291815	302723.
428.000	2.02E-07	-4.7314	.4117046	3.8370E-09	519.4981	-.0305330	302723.
430.000	2.08E-07	-3.9696	.3496670	2.6831E-09	519.4953	-.0315046	302723.
432.000	2.12E-07	-3.3336	.2860050	1.7145E-09	519.4929	-.0321574	302723.
434.000	2.15E-07	-2.8261	.2213049	8.9753E-10	519.4910	-.0325426	302723.
436.000	2.16E-07	-2.4487	.1560615	1.9796E-10	519.4896	-.0327008	302723.
438.000	2.16E-07	-2.2019	.1202444	-4.1883E-10	519.4887	-.0031162	28881.7058
440.000	2.14E-07	-1.9675	.1140068	-9.7181E-10	519.4878	-.0031214	29121.7058
442.000	2.12E-07	-1.7456	.1077745	-1.4643E-09	519.4870	-.0031109	29361.7058
444.000	2.09E-07	-1.5360	.1015774	-1.8995E-09	519.4862	-.0030862	29601.7058
446.000	2.04E-07	-1.3387	.0954428	-2.2807E-09	519.4855	-.0030484	29841.7058
448.000	1.99E-07	-1.1535	.0893954	-2.6113E-09	519.4848	-.0029990	30081.7058
450.000	1.94E-07	-.9802472	.0834573	-2.8943E-09	519.4842	-.0029391	30321.7058
452.000	1.88E-07	-.8187269	.0776483	-3.1328E-09	519.4836	-.0028699	30561.7058
454.000	1.81E-07	-.6686516	.0719857	-3.3301E-09	519.4830	-.0027926	30801.7058
456.000	1.74E-07	-.5297185	.0664848	-3.4890E-09	519.4825	-.0027083	31041.7058
458.000	1.67E-07	-.4015960	.0611587	-3.6126E-09	519.4820	-.0026179	31281.7058
460.000	1.60E-07	-.2839279	.0560184	-3.7035E-09	519.4816	-.0025224	31521.7058
462.000	1.53E-07	-.1763373	.0510732	-3.7645E-09	519.4812	-.0024228	31761.7058
464.000	1.45E-07	-.0784304	.0463306	-3.7983E-09	519.4808	-.0023199	32001.7058
466.000	1.37E-07	.0102004	.0417962	-3.8074E-09	519.4806	-.0022145	32241.7058
468.000	1.30E-07	.0899730	.0374745	-3.7941E-09	519.4809	-.0021073	32481.7058
470.000	1.22E-07	.1613124	.0333680	-3.7607E-09	519.4811	-.0019991	32721.7058
472.000	1.15E-07	.2246484	.0294783	-3.7096E-09	519.4814	-.0018905	32961.7058
474.000	1.07E-07	.2804128	.0258057	-3.6426E-09	519.4816	-.0017821	33201.7058
476.000	1.00E-07	.3290367	.0223491	-3.5617E-09	519.4817	-.0016744	33441.7058
478.000	9.31E-08	.3709489	.0191067	-3.4689E-09	519.4819	-.0015680	33681.7058
480.000	8.63E-08	.4065734	.0160756	-3.3658E-09	519.4820	-.0014631	33921.7058
482.000	7.96E-08	.4363282	.0132521	-3.2540E-09	519.4821	-.0013603	34161.7058
484.000	7.32E-08	.4606230	.0106318	-3.1350E-09	519.4822	-.0012600	34401.7058
486.000	6.71E-08	.4798585	.0082096	-3.0103E-09	519.4823	-.0011623	34641.7058
488.000	6.12E-08	.4944246	.0059798	-2.8811E-09	519.4824	-.0010675	34881.7058
490.000	5.56E-08	.5046996	.0039363	-2.7486E-09	519.4824	-.0009760	35121.7058
492.000	5.02E-08	.5110492	.0020725	-2.6139E-09	519.4824	-.0008878	35361.7058
494.000	4.51E-08	.5138259	.0003814	-2.4779E-09	519.4824	-.0008032	35601.7058
496.000	4.03E-08	.5133679	-.0011440	-2.3417E-09	519.4824	-.0007222	35841.7058
498.000	3.58E-08	.5099991	-.0025113	-2.2060E-09	519.4824	-.0006451	36081.7058
500.000	3.15E-08	.5040285	-.0037280	-2.0715E-09	519.4824	-.0005717	36321.7058
502.000	2.75E-08	.4957498	-.0048019	-1.9389E-09	519.4824	-.0005022	36561.7058
504.000	2.37E-08	.4854415	-.0057405	-1.8088E-09	519.4823	-.0004365	36801.7058

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506.000	2.02E-08	.4733665	-.0065518	-1.6816E-09	519.4823	-.0003747	37041.7058		
508.000	1.70E-08	.4597723	-.0072434	-1.5578E-09	519.4822	-.0003168	37281.7058		
510.000	1.40E-08	.4448914	-.0078229	-1.4379E-09	519.4822	-.0002627	37521.7058		
512.000	1.12E-08	.4289408	-.0082979	-1.3220E-09	519.4821	-.0002123	37761.7058		
514.000	8.71E-09	.4121227	-.0086758	-1.2104E-09	519.4820	-.0001656	38001.7058		
516.000	6.40E-09	.3946249	-.0089638	-1.1034E-09	519.4820	-.0001224	38241.7058		
518.000	4.30E-09	.3766205	-.0091690	-1.0011E-09	519.4819	-8.2753E-05	38481.7058		
520.000	2.40E-09	.3582691	-.0092982	-9.0368E-10	519.4818	-4.6438E-05	38721.7058		
522.000	6.86E-10	.3397168	-.0093580	-8.1111E-10	519.4818	-1.3368E-05	38961.7058		
524.000	-8.46E-10	.3210966	-.0093548	-7.2346E-10	519.4817	1.6580E-05	39201.7058		
526.000	-2.21E-09	.3025291	-.0092947	-6.4076E-10	519.4816	4.3537E-05	39441.7058		
528.000	-3.41E-09	.2841229	-.0091835	-5.6295E-10	519.4816	6.7636E-05	39681.7058		
530.000	-4.46E-09	.2659751	-.0090269	-4.8999E-10	519.4815	8.9014E-05	39921.7058		
532.000	-5.37E-09	.2481722	-.0088300	-4.2180E-10	519.4814	.0001078	40161.7058		
534.000	-6.15E-09	.2307900	-.0085981	-3.5828E-10	519.4814	.0001242	40401.7058		
536.000	-6.80E-09	.2138946	-.0083357	-2.9930E-10	519.4813	.0001382	40641.7058		
538.000	-7.34E-09	.1975430	-.0080473	-2.4474E-10	519.4813	.0001501	40881.7058		
540.000	-7.78E-09	.1817836	-.0077372	-1.9443E-10	519.4812	.0001600	41121.7058		
542.000	-8.12E-09	.1666563	-.0074093	-1.4822E-10	519.4811	.0001680	41361.7058		
544.000	-8.37E-09	.1521938	-.0070671	-1.0593E-10	519.4811	.0001742	41601.7058		
546.000	-8.55E-09	.1384216	-.0067142	-6.7385E-11	519.4810	.0001788	41841.7058		
548.000	-8.64E-09	.1253586	-.0063536	-3.2401E-11	519.4810	.0001819	42081.7058		
550.000	-8.67E-09	.1130178	-.0059881	-7.8593E-13	519.4809	.0001836	42321.7058		
552.000	-8.65E-09	.1014064	-.0056205	2.7652E-11	519.4809	.0001840	42561.7058		
554.000	-8.56E-09	.0905267	-.0052533	5.3108E-11	519.4809	.0001833	42801.7058		
556.000	-8.43E-09	.0803763	-.0048885	7.5774E-11	519.4808	.0001815	43041.7058		
558.000	-8.26E-09	.0709486	-.0045282	9.5843E-11	519.4808	.0001788	43281.7058		
560.000	-8.05E-09	.0622330	-.0041742	1.1351E-10	519.4808	.0001752	43521.7058		
562.000	-7.81E-09	.0542154	-.0038282	1.2895E-10	519.4807	.0001708	43761.7058		
564.000	-7.53E-09	.0468789	-.0034916	1.4236E-10	519.4807	.0001658	44001.7058		
566.000	-7.24E-09	.0402035	-.0031657	1.5391E-10	519.4807	.0001601	44241.7058		
568.000	-6.92E-09	.0341668	-.0028517	1.6377E-10	519.4806	.0001539	44481.7058		
570.000	-6.58E-09	.0287442	-.0025506	1.7212E-10	519.4806	.0001472	44721.7058		
572.000	-6.23E-09	.0239092	-.0022634	1.7910E-10	519.4806	.0001401	44961.7058		
574.000	-5.87E-09	.0196335	-.0019907	1.8487E-10	519.4806	.0001326	45201.7058		
576.000	-5.49E-09	.0158872	-.0017334	1.8958E-10	519.4806	.0001248	45441.7058		
578.000	-5.11E-09	.0126393	-.0014919	1.9337E-10	519.4806	.0001167	45681.7058		
580.000	-4.72E-09	.0098576	-.0012669	1.9635E-10	519.4806	.0001083	45921.7058		
582.000	-4.32E-09	.0075088	-.0010588	1.9865E-10	519.4805	9.9767E-05	46161.7058		
584.000	-3.92E-09	.0055587	-.0008680	2.0039E-10	519.4805	9.1022E-05	46401.7058		
586.000	-3.52E-09	.0039725	-.0006949	2.0165E-10	519.4805	8.2112E-05	46641.7058		
588.000	-3.12E-09	.0027145	-.0005397	2.0254E-10	519.4805	7.3056E-05	46881.7058		
590.000	-2.71E-09	.0017487	-.0004028	2.0313E-10	519.4805	6.3869E-05	47121.7058		
592.000	-2.30E-09	.0010383	-.0002844	2.0350E-10	519.4805	5.4563E-05	47361.7058		
594.000	-1.90E-09	.0005460	-.0001847	2.0371E-10	519.4805	4.5146E-05	47601.7058		
596.000	-1.49E-09	.0002344	-.0001039	2.0381E-10	519.4805	3.5624E-05	47841.7058		
598.000	-1.08E-09	6.5179E-05	-4.2282E-05	2.0385E-10	519.4805	2.6002E-05	48081.7058		
600.000	-6.74E-10	0.0000	0.0000	2.0386E-10	519.4805	1.6281E-05	24160.8529		

Output Veri fi cation:

Computed forces and moments are wi thi n speci fi ed convergence l i mi ts.

Output Summary for Load Case No. 1:

Pile-head deflection	=	.25258933 in
Computed slope at pile head	=	-.00342073
Maximum bending moment	=	240960.05289 lbs-in
Maximum shear force	=	8000.00000 lbs
Depth of maximum bending moment	=	66.00000000 in
Depth of maximum shear force	=	0.00000 in
Number of iterations	=	20

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Number of zero deflection points =

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

Pile-head boundary conditions are Shear and Slope (BC Type 2)
Specified shear force at pile head = 8000.000 lbs
Specified slope at pile head = 0.000E+00 in/in
Specified axial load at pile head = 80000.000 lbs

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

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Soil Res. p lbs/in	Es*h F/L lbs/in
0.000	.074595	-264764.	8000.0000	9.0206E-17	1502.6906	-85.0443	1140.0818
2.000	.074525	-248929.	7819.0504	-6.8129E-05	1443.8849	-95.9053	2573.7861
4.000	.074322	-233466.	7615.8697	-.0001321	1386.4646	-107.2754	2886.7586
6.000	.073996	-218423.	7391.5020	-.0001920	1330.6009	-117.0923	3164.8171
8.000	.073554	-203839.	7147.4837	-.0002480	1276.4422	-126.9259	3451.2198
10.000	.073004	-189754.	6883.8339	-.0003002	1224.1367	-136.7239	3745.6519
12.000	.072353	-176208.	6602.1336	-.0003488	1173.8322	-144.9763	4007.4569
14.000	.071609	-163234.	6305.9167	-.0003938	1125.6534	-151.2407	4224.0705
16.000	.070778	-150858.	5997.9054	-.0004355	1079.6954	-156.7706	4429.9197
18.000	.069867	-139103.	5679.6448	-.0004739	1036.0423	-161.4901	4622.7752
20.000	.068882	-127988.	5354.9844	-.0005093	994.7662	-163.1703	4737.6457
22.000	.067830	-117520.	5028.1643	-.0005419	955.8936	-163.6498	4825.3058
24.000	.066715	-107702.	4796.1712	-.0005718	919.4333	-68.3434	2048.8197
26.000	.065543	-98152.1471	4658.3778	-.0005991	883.9713	-69.4500	2119.2282
28.000	.064319	-88876.3581	4518.4021	-.0006239	849.5254	-70.5257	2193.0107
30.000	.063047	-79878.8999	4376.3066	-.0006463	816.1130	-71.5698	2270.3539
32.000	.061734	-71164.3308	4232.1549	-.0006663	783.7512	-72.5820	2351.4583
34.000	.060382	-62737.0693	4086.0112	-.0006840	752.4564	-73.5617	2436.5386
36.000	.058997	-54601.3920	3937.9409	-.0006996	722.2443	-74.5086	2525.8253
38.000	.057584	-46761.4317	3788.0102	-.0007130	693.1304	-75.4221	2619.5656
40.000	.056145	-39221.1754	3636.2860	-.0007245	665.1294	-76.3020	2718.0250
42.000	.054686	-31984.4627	3482.8362	-.0007339	638.2557	-77.1478	2821.4891
44.000	.053210	-25054.9839	3327.7292	-.0007415	612.5229	-77.9591	2930.2648
46.000	.051720	-18436.2783	3171.0345	-.0007472	587.9442	-78.7356	3044.6829
48.000	.050221	-12131.7325	3012.8221	-.0007513	564.5320	-79.4768	3165.1002
50.000	.048715	-6144.5791	2853.1630	-.0007537	542.2986	-80.1824	3291.9018
52.000	.047206	-477.8942	2692.1287	-.0007546	521.2552	-80.8520	3425.5043
54.000	.045697	4865.4030	2529.7915	-.0007540	537.5483	-81.4852	3566.3592
56.000	.044190	9882.5530	2366.2246	-.0007520	556.1797	-82.0817	3714.9565
58.000	.042688	14570.9568	2201.5018	-.0007488	573.5902	-82.6411	3871.8293
60.000	.041195	18928.1779	2059.8010	-.0007444	589.7708	-59.0597	2867.3502
62.000	.039711	23048.3567	1942.2203	-.0007388	605.0712	-58.5210	2947.3502
64.000	.038239	26933.4733	1825.8172	-.0007322	619.4987	-57.8821	3027.3502
66.000	.036782	30585.9184	1710.7873	-.0007245	633.0622	-57.1477	3107.3502
68.000	.035341	34008.4745	1597.3171	-.0007160	645.7719	-56.3226	3187.3502
70.000	.033918	37204.2971	1485.5829	-.0007065	657.6397	-55.4116	3267.3502
72.000	.032515	40176.8942	1375.7513	-.0006963	668.6785	-54.4199	3347.3502
74.000	.031133	42930.1065	1267.9790	-.0006852	678.9027	-53.3524	3427.3502
76.000	.029774	45468.0872	1162.4122	-.0006735	688.3275	-52.2144	3507.3502
78.000	.028439	47795.2807	1059.1870	-.0006611	696.9696	-51.0108	3587.3502
80.000	.027130	49916.4026	958.4292	-.0006482	704.8465	-49.7470	3667.3502
82.000	.025847	51836.4180	860.2543	-.0006347	711.9765	-48.4280	3747.3502

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84.000	.024591	53560.5216	764.7673	-.0006207	718.3790	-47.0590	3827.3502
86.000	.023364	55094.1163	672.0634	-.0006063	724.0741	-45.6450	3907.3502
88.000	.022166	56442.7927	582.2273	-.0005915	729.0824	-44.1911	3987.3502
90.000	.020998	57612.3091	495.3338	-.0005764	733.4254	-42.7023	4067.3502
92.000	.019860	58608.5712	411.4480	-.0005610	737.1251	-41.1834	4147.3502
94.000	.018754	59437.6122	330.6253	-.0005453	740.2037	-39.6393	4227.3502
96.000	.017679	60105.5735	252.9115	-.0005295	742.6842	-38.0745	4307.3502
98.000	.016636	60618.6857	178.3433	-.0005134	744.5897	-36.4937	4387.3502
100.000	.015625	60983.2505	106.9482	-.0004973	745.9435	-34.9013	4467.3502
102.000	.014647	61205.6218	38.7453	-.0004811	746.7693	-33.3016	4547.3502
104.000	.013701	61292.1892	-26.2550	-.0004649	747.0908	-31.6987	4627.3502
106.000	.012787	61249.3604	-88.0504	-.0004486	746.9317	-30.0967	4707.3502
108.000	.011906	61083.5453	-146.6465	-.0004324	746.3160	-28.4994	4787.3502
110.000	.011058	60801.1403	-202.0564	-.0004162	745.2672	-26.9105	4867.3502
112.000	.010241	60408.5130	-254.3002	-.0004002	743.8092	-25.3334	4947.3502
114.000	.009457	59911.9883	-303.4053	-.0003842	741.9654	-23.7716	5027.3502
116.000	.008704	59317.8343	-349.4052	-.0003684	739.7589	-22.2283	5107.3502
118.000	.007983	58632.2498	-392.3398	-.0003527	737.2130	-20.7063	5187.3502
120.000	.007293	57861.3515	-432.2548	-.0003373	734.3503	-19.2086	5267.3502
122.000	.006634	57011.1631	-469.2012	-.0003221	731.1931	-17.7378	5347.3502
124.000	.006005	56087.6039	-503.2353	-.0003071	727.7634	-16.2963	5427.3502
126.000	.005406	55096.4790	-534.4181	-.0002923	724.0828	-14.8864	5507.3502
128.000	.004836	54043.4701	-562.8148	-.0002778	720.1725	-13.5103	5587.3502
130.000	.004295	52934.1265	-588.4948	-.0002636	716.0529	-12.1698	5667.3502
132.000	.003781	51773.8574	-611.5312	-.0002498	711.7442	-10.8666	5747.3502
134.000	.003296	50567.9244	-632.0003	-.0002362	707.2659	-9.6025	5827.3502
136.000	.002837	49321.4354	-649.9815	-.0002229	702.6370	-8.3787	5907.3502
138.000	.002404	48039.3384	-665.5567	-.0002100	697.8759	-7.1965	5987.3502
140.000	.001997	46726.4165	-678.8102	-.0001975	693.0004	-6.0570	6067.3502
142.000	.001614	45387.2835	-689.8284	-.0001852	688.0275	-4.9612	6147.3502
144.000	.001256	44026.3795	-698.6993	-.0001734	682.9737	-3.9097	6227.3502
146.000	.000921	42647.9684	-705.5121	-.0001619	677.8549	-2.9031	6307.3502
148.000	.000608	41256.1347	-710.3573	-.0001508	672.6863	-1.9421	6387.3502
150.000	.000318	39854.7818	-713.3261	-.0001400	667.4824	-1.0268	6467.3502
152.000	4.81E-05	38447.6304	-714.5103	-.0001296	662.2569	-.1574516	6547.3502
154.000	-.000201	37038.2174	-714.0020	-.0001196	657.0230	.6658386	6627.3502
156.000	-.000430	35629.8959	-711.8930	-.0001100	651.7931	1.4432	6707.3502
158.000	-.000641	34225.8349	-708.2751	-.0001007	646.5791	2.1747	6787.3502
160.000	-.000833	32829.0200	-703.2398	-9.1809E-05	641.3920	2.8607	6867.3502
162.000	-.001008	31442.2546	-696.8775	-8.3285E-05	636.2422	3.5016	6947.3502
164.000	-.001166	30068.1612	-689.2780	-7.5127E-05	631.1395	4.0979	7027.3502
166.000	-.001309	28709.1831	-680.5300	-6.7331E-05	626.0929	4.6501	7107.3502
168.000	-.001436	27367.5872	-670.7208	-5.9894E-05	621.1108	5.1590	7187.3502
170.000	-.001548	26045.4661	-659.9364	-5.2810E-05	616.2011	5.6254	7267.3502
172.000	-.001647	24744.7410	-648.2611	-4.6074E-05	611.3708	6.0499	7347.3502
174.000	-.001732	23467.1654	-635.7775	-3.9680E-05	606.6265	6.4336	7427.3502
176.000	-.001806	22214.3284	-622.5664	-3.3621E-05	601.9740	6.7775	7507.3502
178.000	-.001867	20987.6585	-608.7066	-2.7892E-05	597.4188	7.0824	7587.3502
180.000	-.001917	19788.4275	-594.2745	-2.2484E-05	592.9654	7.3496	7667.3502
182.000	-.001957	18617.7551	-579.3448	-1.7390E-05	588.6181	7.5801	7747.3502
184.000	-.001987	17476.6131	-563.9894	-1.2603E-05	584.3804	7.7752	7827.3502
186.000	-.002007	16365.8303	-548.2782	-8.1145E-06	580.2555	7.9360	7907.3502
188.000	-.002019	15286.0969	-532.2784	-3.9167E-06	576.2459	8.0638	7987.3502
190.000	-.002023	14237.9699	-516.0549	-1.0017E-09	572.3536	8.1598	8067.3502
192.000	-.002019	13221.8777	-499.6698	3.6409E-06	568.5803	8.2253	8147.3502
194.000	-.002008	12238.1256	-483.1828	7.0175E-06	564.9271	8.2617	8227.3502
196.000	-.001991	11286.9010	-466.6508	1.0138E-05	561.3947	8.2703	8307.3502
198.000	-.001968	10368.2784	-450.1282	1.3010E-05	557.9834	8.2523	8387.3502
200.000	-.001939	9482.2250	-433.6667	1.5642E-05	554.6930	8.2092	8467.3502
202.000	-.001905	8628.6061	-417.3151	1.8044E-05	551.5231	8.1423	8547.3502
204.000	-.001867	7807.1904	-401.1198	2.0224E-05	548.4727	8.0530	8627.3502
206.000	-.001824	7017.6553	-385.1242	2.2190E-05	545.5408	7.9426	8707.3502
208.000	-.001778	6259.5926	-369.3693	2.3951E-05	542.7257	7.8124	8787.3502

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210.000	-.001729	5532.5138	-353.8932	2.5515E-05	540.0257	7.6637	8867.3502
212.000	-.001676	4835.8551	-338.7314	2.6890E-05	537.4386	7.4980	8947.3502
214.000	-.001621	4168.9832	-323.9169	2.8084E-05	534.9622	7.3165	9027.3502
216.000	-.001564	3531.2006	-309.4798	2.9106E-05	532.5937	7.1206	9107.3502
218.000	-.001505	2921.7503	-295.4478	2.9962E-05	530.3305	6.9114	9187.3502
220.000	-.001444	2339.8216	-281.8461	3.0659E-05	528.1695	6.6903	9267.3502
222.000	-.001382	1784.5549	-268.6972	3.1206E-05	526.1075	6.4586	9347.3502
224.000	-.001319	1255.0469	-256.0211	3.1610E-05	524.1412	6.2174	9427.3502
226.000	-.001255	750.3553	-243.8356	3.1875E-05	522.2670	5.9681	9507.3502
228.000	-.001192	269.5043	-232.1557	3.2011E-05	520.4813	5.7118	9587.3502
230.000	-.001127	-188.5110	-220.9943	3.2021E-05	520.1806	5.4496	9667.3502
232.000	-.001063	-624.7199	-210.3619	3.1914E-05	521.8004	5.1828	9747.3502
234.000	-.001000	-1040.1709	-200.2665	3.1693E-05	523.3432	4.9126	9827.3502
236.000	-.000937	-1435.9275	-190.7140	3.1364E-05	524.8129	4.6399	9907.3502
238.000	-.000874	-1813.0635	-181.7080	3.0934E-05	526.2134	4.3660	9987.3502
240.000	-.000813	-2172.6583	-173.2499	3.0405E-05	527.5487	4.0920	10067.3502
242.000	-.000753	-2515.7928	-165.3390	2.9783E-05	528.8230	3.8189	10147.3502
244.000	-.000694	-2843.5449	-157.9722	2.9072E-05	530.0401	3.5479	10227.3502
246.000	-.000636	-3156.9848	-151.1445	2.8276E-05	531.2041	3.2798	10307.3502
248.000	-.000581	-3457.1714	-144.8488	2.7399E-05	532.3188	3.0159	10387.3502
250.000	-.000527	-3745.1475	-139.0757	2.6444E-05	533.3882	2.7572	10467.3502
252.000	-.000475	-4021.9362	-133.8140	2.5414E-05	534.4161	2.5045	10547.3502
254.000	-.000425	-4288.5359	-129.0503	2.4312E-05	535.4061	2.2591	10627.3502
256.000	-.000378	-4545.9171	-124.7693	2.3140E-05	536.3619	2.0219	10707.3502
258.000	-.000333	-4795.0178	-120.9534	2.1901E-05	537.2870	1.7939	10787.3502
260.000	-.000290	-5036.7393	-117.5834	2.0597E-05	538.1846	1.5761	10867.3502
262.000	-.000250	-5271.9426	-114.6378	1.9230E-05	539.0580	1.3695	10947.3502
264.000	-.000213	-5501.4441	-81.0067	1.7801E-05	539.9103	32.2616	302723.
266.000	-.000179	-5601.6658	-21.6515	1.6329E-05	540.2825	27.0936	302723.
268.000	-.000148	-5593.2754	27.8175	1.4844E-05	540.2513	22.3754	302723.
270.000	-.000120	-5495.1458	68.2993	1.3373E-05	539.8869	18.1064	302723.
272.000	-9.43E-05	-5324.3575	100.6843	1.1938E-05	539.2527	14.2786	302723.
274.000	-7.19E-05	-5096.2288	125.8413	1.0556E-05	538.4055	10.8783	302723.
276.000	-5.21E-05	-4824.3705	144.6069	9.2406E-06	537.3960	7.8873	302723.
278.000	-3.49E-05	-4520.7582	157.7779	8.0012E-06	536.2685	5.2836	302723.
280.000	-2.01E-05	-4195.8194	166.1045	6.8452E-06	535.0618	3.0430	302723.
282.000	-7.53E-06	-3858.5306	170.2868	5.7770E-06	533.8093	1.1393	302723.
284.000	3.00E-06	-3516.5209	170.9714	4.7988E-06	532.5392	-.4546316	302723.
286.000	1.17E-05	-3176.1805	168.7506	3.9112E-06	531.2754	-1.7662	302723.
288.000	1.86E-05	-2842.7699	164.1618	3.1129E-06	530.0372	-2.8227	302723.
290.000	2.41E-05	-2520.5294	157.6883	2.4016E-06	528.8406	-3.6509	302723.
292.000	2.83E-05	-2212.7853	149.7607	1.7739E-06	527.6978	-4.2767	302723.
294.000	3.12E-05	-1922.0543	140.7591	1.2255E-06	526.6181	-4.7249	302723.
296.000	3.32E-05	-1650.1410	131.0156	7.5171E-07	525.6084	-5.0187	302723.
298.000	3.42E-05	-1398.2324	120.8169	3.4742E-07	524.6729	-5.1800	302723.
300.000	3.45E-05	-1166.9844	110.4080	7.2052E-09	523.8141	-5.2290	302723.
302.000	3.43E-05	-956.6029	99.9946	-2.7444E-07	523.0329	-5.1843	302723.
304.000	3.34E-05	-766.9182	89.7474	-5.0302E-07	522.3285	-5.0629	302723.
306.000	3.22E-05	-597.4524	79.8048	-6.8397E-07	521.6992	-4.8798	302723.
308.000	3.07E-05	-447.4803	70.2762	-8.2256E-07	521.1423	-4.6487	302723.
310.000	2.89E-05	-316.0843	61.2457	-9.2383E-07	520.6543	-4.3818	302723.
312.000	2.70E-05	-202.2019	52.7745	-9.9256E-07	520.2314	-4.0894	302723.
314.000	2.50E-05	-104.6687	44.9042	-1.0333E-06	519.8692	-3.7808	302723.
316.000	2.29E-05	-22.2543	37.6596	-1.0501E-06	519.5632	-3.4638	302723.
318.000	2.08E-05	46.3056	31.0507	-1.0469E-06	519.6525	-3.1451	302723.
320.000	1.87E-05	102.2834	25.0756	-1.0272E-06	519.8604	-2.8300	302723.
322.000	1.67E-05	146.9368	19.7225	-9.9415E-07	520.0262	-2.5231	302723.
324.000	1.47E-05	181.4915	14.9713	-9.5059E-07	520.1545	-2.2281	302723.
326.000	1.29E-05	207.1260	10.7956	-8.9905E-07	520.2497	-1.9476	302723.
328.000	1.11E-05	224.9614	7.1642	-8.4174E-07	520.3159	-1.6838	302723.
330.000	9.50E-06	236.0521	4.0424	-7.8060E-07	520.3571	-1.4380	302723.
332.000	8.00E-06	241.3809	1.3933	-7.1728E-07	520.3769	-1.2112	302723.
334.000	6.63E-06	241.8548	-.8215808	-6.5319E-07	520.3787	-1.0037	302723.

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336.000	5.39E-06	238.3036	-2.6410	-5.8951E-07	520.3655	-.8156849	302723.
338.000	4.27E-06	231.4795	-4.1035	-5.2720E-07	520.3401	-.6467948	302723.
340.000	3.28E-06	222.0585	-5.2467	-4.6705E-07	520.3051	-.4964921	302723.
342.000	2.40E-06	210.6420	-6.1073	-4.0966E-07	520.2627	-.3640202	302723.
344.000	1.64E-06	197.7605	-6.7197	-3.5550E-07	520.2149	-.2484624	302723.
346.000	9.83E-07	183.8768	-7.1170	-3.0489E-07	520.1634	-.1487843	302723.
348.000	4.22E-07	169.3902	-7.3296	-2.5803E-07	520.1096	-.0638711	302723.
350.000	-4.92E-08	154.6408	-7.3861	-2.1506E-07	520.0548	.0074404	302723.
352.000	-4.38E-07	139.9147	-7.3123	-1.7599E-07	520.0001	.0663346	302723.
354.000	-7.53E-07	125.4480	-7.1320	-1.4080E-07	519.9464	.1139940	302723.
356.000	-1.00E-06	111.4319	-6.8664	-1.0938E-07	519.8943	.1515802	302723.
358.000	-1.19E-06	98.0174	-6.5346	-8.1603E-08	519.8445	.1802186	302723.
360.000	-1.33E-06	85.3196	-6.1534	-5.7288E-08	519.7974	.2009865	302723.
362.000	-1.42E-06	73.4222	-5.7375	-3.6235E-08	519.7532	.2149034	302723.
364.000	-1.47E-06	62.3812	-5.2997	-1.8224E-08	519.7122	.2229246	302723.
366.000	-1.49E-06	52.2293	-4.8508	-3.0233E-09	519.6745	.2259368	302723.
368.000	-1.48E-06	42.9790	-4.4001	9.6038E-09	519.6401	.2247550	302723.
370.000	-1.45E-06	34.6258	-3.9552	1.9896E-08	519.6091	.2201222	302723.
372.000	-1.41E-06	27.1516	-3.5224	2.8090E-08	519.5813	.2127090	302723.
374.000	-1.34E-06	20.5272	-3.1066	3.4413E-08	519.5567	.2031155	302723.
376.000	-1.27E-06	14.7143	-2.7116	3.9087E-08	519.5352	.1918738	302723.
378.000	-1.19E-06	9.6683	-2.3403	4.2321E-08	519.5164	.1794505	302723.
380.000	-1.10E-06	5.3397	-1.9946	4.4311E-08	519.5003	.1662509	302723.
382.000	-1.01E-06	1.6758	-1.6757	4.5242E-08	519.4867	.1526226	302723.
384.000	-9.17E-07	-1.3776	-1.3842	4.5281E-08	519.4856	.1388597	302723.
386.000	-8.27E-07	-3.8755	-1.1201	4.4584E-08	519.4949	.1252074	302723.
388.000	-7.39E-07	-5.8725	-.8830728	4.3292E-08	519.5023	.1118663	302723.
390.000	-6.54E-07	-7.4217	-.6722098	4.1528E-08	519.5081	.0989967	302723.
392.000	-5.73E-07	-8.5746	-.4864900	3.9407E-08	519.5124	.0867231	302723.
394.000	-4.96E-07	-9.3802	-.3246290	3.7026E-08	519.5154	.0751380	302723.
396.000	-4.25E-07	-9.8849	-.1851849	3.4471E-08	519.5172	.0643061	302723.
398.000	-3.59E-07	-10.1320	-.0666108	3.1816E-08	519.5181	.0542680	302723.
400.000	-2.98E-07	-10.1616	.0327005	2.9124E-08	519.5183	.0450434	302723.
402.000	-2.42E-07	-10.0105	.1143787	2.6449E-08	519.5177	.0366348	302723.
404.000	-1.92E-07	-9.7125	.1800434	2.3833E-08	519.5166	.0290300	302723.
406.000	-1.47E-07	-9.2980	.2312785	2.1312E-08	519.5150	.0222051	302723.
408.000	-1.07E-07	-8.7942	.2696104	1.8912E-08	519.5132	.0161268	302723.
410.000	-7.11E-08	-8.2256	.2964918	1.6655E-08	519.5111	.0107547	302723.
412.000	-3.99E-08	-7.6136	.3132895	1.4554E-08	519.5088	.0060430	302723.
414.000	-1.28E-08	-6.9771	.3212753	1.2619E-08	519.5064	.0019427	302723.
416.000	1.06E-08	-6.3325	.3216208	1.0854E-08	519.5040	-.0015973	302723.
418.000	3.06E-08	-5.6941	.3153947	9.2591E-09	519.5017	-.0046288	302723.
420.000	4.76E-08	-5.0739	.3035627	7.8310E-09	519.4994	-.0072032	302723.
422.000	6.19E-08	-4.4823	.2869894	6.5636E-09	519.4972	-.0093701	302723.
424.000	7.38E-08	-3.9281	.2664423	5.4481E-09	519.4951	-.0111770	302723.
426.000	8.37E-08	-3.4183	.2425967	4.4738E-09	519.4932	-.0126686	302723.
428.000	9.17E-08	-2.9591	.2160424	3.6280E-09	519.4915	-.0138857	302723.
430.000	9.82E-08	-2.5553	.1872915	2.8966E-09	519.4900	-.0148652	302723.
432.000	1.03E-07	-2.2109	.1567869	2.2645E-09	519.4887	-.0156395	302723.
434.000	1.07E-07	-1.9289	.1249112	1.7155E-09	519.4877	-.0162362	302723.
436.000	1.10E-07	-1.7118	.0919969	1.2327E-09	519.4869	-.0166781	302723.
438.000	1.12E-07	-1.5613	.0736986	7.9856E-10	519.4863	-.0016202	28881.7058
440.000	1.13E-07	-1.4172	.0704274	4.0353E-10	519.4858	-.0016509	29121.7058
442.000	1.14E-07	-1.2797	.0671056	4.5849E-11	519.4853	-.0016709	29361.7058
444.000	1.14E-07	-1.1488	.0637539	-2.7624E-10	519.4848	-.0016809	29601.7058
446.000	1.13E-07	-1.0246	.0603914	-5.6449E-10	519.4843	-.0016817	29841.7058
448.000	1.11E-07	-.9070699	.0570355	-8.2068E-10	519.4839	-.0016742	30081.7058
450.000	1.09E-07	-.7961967	.0537024	-1.0466E-09	519.4835	-.0016590	30321.7058
452.000	1.07E-07	-.6919255	.0504065	-1.2439E-09	519.4831	-.0016369	30561.7058
454.000	1.04E-07	-.5941725	.0471610	-1.4145E-09	519.4827	-.0016086	30801.7058
456.000	1.01E-07	-.5028288	.0439776	-1.5600E-09	519.4824	-.0015748	31041.7058
458.000	9.82E-08	-.4177628	.0408668	-1.6821E-09	519.4821	-.0015361	31281.7058
460.000	9.47E-08	-.3388235	.0378376	-1.7824E-09	519.4818	-.0014931	31521.7058

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462.000	9.11E-08	-.2658421	.0348981	-1.8626E-09	519.4815	-.0014464	31761.7058
464.000	8.73E-08	-.1986351	.0320550	-1.9242E-09	519.4813	-.0013966	32001.7058
466.000	8.34E-08	-.1370061	.0293142	-1.9687E-09	519.4810	-.0013442	32241.7058
468.000	7.94E-08	-.0807481	.0266804	-1.9976E-09	519.4808	-.0012897	32481.7058
470.000	7.54E-08	-.0296454	.0241572	-2.0123E-09	519.4806	-.0012335	32721.7058
472.000	7.14E-08	.0165247	.0217477	-2.0140E-09	519.4806	-.0011761	32961.7058
474.000	6.73E-08	.0579898	.0194538	-2.0041E-09	519.4807	-.0011178	33201.7058
476.000	6.33E-08	.0949812	.0172768	-1.9838E-09	519.4809	-.0010592	33441.7058
478.000	5.94E-08	.1277318	.0152173	-1.9543E-09	519.4810	-.0010004	33681.7058
480.000	5.55E-08	.1564757	.0132752	-1.9166E-09	519.4811	-.0009418	33921.7058
482.000	5.17E-08	.1814458	.0114497	-1.8718E-09	519.4812	-.0008837	34161.7058
484.000	4.80E-08	.2028736	.0097398	-1.8208E-09	519.4813	-.0008263	34401.7058
486.000	4.45E-08	.2209875	.0081435	-1.7646E-09	519.4813	-.0007699	34641.7058
488.000	4.10E-08	.2360124	.0066589	-1.7040E-09	519.4814	-.0007147	34881.7058
490.000	3.76E-08	.2481683	.0052832	-1.6398E-09	519.4814	-.0006609	35121.7058
492.000	3.44E-08	.2576700	.0040137	-1.5727E-09	519.4815	-.0006086	35361.7058
494.000	3.13E-08	.2647264	.0028472	-1.5034E-09	519.4815	-.0005580	35601.7058
496.000	2.84E-08	.2695398	.0017801	-1.4326E-09	519.4815	-.0005091	35841.7058
498.000	2.56E-08	.2723054	.0008090	-1.3607E-09	519.4815	-.0004621	36081.7058
500.000	2.30E-08	.2732111	-7.0205E-05	-1.2883E-09	519.4815	-.0004171	36321.7058
502.000	2.05E-08	.2724369	-.0008613	-1.2160E-09	519.4815	-.0003740	36561.7058
504.000	1.81E-08	.2701550	-.0015684	-1.1440E-09	519.4815	-.0003331	36801.7058
506.000	1.59E-08	.2665293	-.0021957	-1.0728E-09	519.4815	-.0002942	37041.7058
508.000	1.38E-08	.2617155	-.0027473	-1.0028E-09	519.4815	-.0002574	37281.7058
510.000	1.19E-08	.2558610	-.0032275	-9.3413E-10	519.4815	-.0002228	37521.7058
512.000	1.01E-08	.2491045	-.0036404	-8.6716E-10	519.4814	-.0001902	37761.7058
514.000	8.40E-09	.2415768	-.0039903	-8.0208E-10	519.4814	-.0001597	38001.7058
516.000	6.86E-09	.2333999	-.0042813	-7.3909E-10	519.4814	-.0001313	38241.7058
518.000	5.45E-09	.2246882	-.0045174	-6.7833E-10	519.4814	-.0001048	38481.7058
520.000	4.15E-09	.2155475	-.0047026	-6.1994E-10	519.4813	-8.0376E-05	38721.7058
522.000	2.97E-09	.2060762	-.0048408	-5.6403E-10	519.4813	-5.7834E-05	38961.7058
524.000	1.90E-09	.1963648	-.0049358	-5.1065E-10	519.4812	-3.7150E-05	39201.7058
526.000	9.26E-10	.1864965	-.0049912	-4.5987E-10	519.4812	-1.8264E-05	39441.7058
528.000	5.59E-11	.1765472	-.0050106	-4.1173E-10	519.4812	-1.1081E-06	39681.7058
530.000	-7.21E-10	.1665860	-.0049973	-3.6622E-10	519.4811	1.4387E-05	39921.7058
532.000	-1.41E-09	.1566753	-.0049546	-3.2334E-10	519.4811	2.8294E-05	40161.7058
534.000	-2.01E-09	.1468711	-.0048856	-2.8309E-10	519.4811	4.0688E-05	40401.7058
536.000	-2.54E-09	.1372234	-.0047933	-2.4541E-10	519.4810	5.1643E-05	40641.7058
538.000	-3.00E-09	.1277765	-.0046804	-2.1026E-10	519.4810	6.1236E-05	40881.7058
540.000	-3.38E-09	.1185691	-.0045496	-1.7759E-10	519.4810	6.9545E-05	41121.7058
542.000	-3.71E-09	.1096348	-.0044034	-1.4732E-10	519.4809	7.6646E-05	41361.7058
544.000	-3.97E-09	.1010025	-.0042442	-1.1939E-10	519.4809	8.2615E-05	41601.7058
546.000	-4.18E-09	.0926963	-.0040740	-9.3699E-11	519.4809	8.7527E-05	41841.7058
548.000	-4.35E-09	.0847363	-.0038951	-7.0167E-11	519.4808	9.1454E-05	42081.7058
550.000	-4.46E-09	.0771386	-.0037091	-4.8698E-11	519.4808	9.4470E-05	42321.7058
552.000	-4.54E-09	.0699154	-.0035180	-2.9195E-11	519.4808	9.6643E-05	42561.7058
554.000	-4.58E-09	.0630758	-.0033233	-1.1557E-11	519.4808	9.8041E-05	42801.7058
556.000	-4.59E-09	.0566258	-.0031266	4.3185E-12	519.4807	9.8728E-05	43041.7058
558.000	-4.56E-09	.0505682	-.0029291	1.8535E-11	519.4807	9.8766E-05	43281.7058
560.000	-4.51E-09	.0449036	-.0027321	3.1197E-11	519.4807	9.8215E-05	43521.7058
562.000	-4.44E-09	.0396299	-.0025367	4.2409E-11	519.4807	9.7131E-05	43761.7058
564.000	-4.34E-09	.0347430	-.0023440	5.2272E-11	519.4806	9.5566E-05	44001.7058
566.000	-4.23E-09	.0302370	-.0021549	6.0890E-11	519.4806	9.3571E-05	44241.7058
568.000	-4.10E-09	.0261039	-.0019701	6.8363E-11	519.4806	9.1192E-05	44481.7058
570.000	-3.96E-09	.0223345	-.0017905	7.4787E-11	519.4806	8.8472E-05	44721.7058
572.000	-3.80E-09	.0189181	-.0016166	8.0258E-11	519.4806	8.5451E-05	44961.7058
574.000	-3.64E-09	.0158426	-.0014489	8.4868E-11	519.4806	8.2166E-05	45201.7058
576.000	-3.46E-09	.0130951	-.0012881	8.8706E-11	519.4806	7.8650E-05	45441.7058
578.000	-3.28E-09	.0106617	-.0011345	9.1857E-11	519.4806	7.4934E-05	45681.7058
580.000	-3.09E-09	.0085276	-.0009886	9.4402E-11	519.4806	7.1044E-05	45921.7058
582.000	-2.90E-09	.0066773	-.0008505	9.6418E-11	519.4805	6.7006E-05	46161.7058
584.000	-2.71E-09	.0050947	-.0007207	9.7980E-11	519.4805	6.2839E-05	46401.7058
586.000	-2.51E-09	.0037632	-.0005993	9.9155E-11	519.4805	5.8562E-05	46641.7058

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588.000	-2.31E-09	.0026659	-.0004865	1.0001E-10	519.4805	5.4192E-05	46881.7058
590.000	-2.11E-09	.0017852	-.0003826	1.0060E-10	519.4805	4.9740E-05	47121.7058
592.000	-1.91E-09	.0011033	-.0002876	1.0098E-10	519.4805	4.5218E-05	47361.7058
594.000	-1.71E-09	.0006023	-.0002018	1.0121E-10	519.4805	4.0633E-05	47601.7058
596.000	-1.50E-09	.0002639	-.0001251	1.0132E-10	519.4805	3.5992E-05	47841.7058
598.000	-1.30E-09	6.9334E-05	-5.7856E-05	1.0137E-10	519.4805	3.1299E-05	48081.7058
600.000	-1.10E-09	0.0000	0.0000	1.0138E-10	519.4805	2.6557E-05	24160.8529

Output Veri fi cati on:

Computed forces and moments are wi thi n speci fi ed convergence l i mi ts.

Output Summary for Load Case No. 2:

Pile-head deflection	=	.07459491 in
Computed slope at pile head	=	9.020562E-17
Maximum bending moment	=	-264764.42360 lbs-in
Maximum shear force	=	8000.00000 lbs
Depth of maximum bending moment	=	0.00000 in
Depth of maximum shear force	=	0.00000 in
Number of iterations	=	16
Number of zero deflection points	=	5

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

Pile-head boundary conditions are Shear and Moment (BC Type 1)	
Speci fi ed shear force at pile head	= 16000.000 lbs
Speci fi ed moment at pile head	= .000 in-lbs
Speci fi ed axial load at pile head	= 80000.000 lbs

(Zero moment for this load indicates free-head conditions)

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Soi l Res. p lbs/in	Es*h F/L lbs/in
0.000	.828746	1.8835E-06	16000.0000	-.0102057	519.4805	-139.6447	168.5012
2.000	.808334	33353.6275	15705.4849	-.0102013	643.3401	-154.8704	383.1840
4.000	.787941	66086.3579	15380.2843	-.0101881	764.8940	-170.3302	432.3426
6.000	.767582	98134.9628	15022.4158	-.0101663	883.9074	-187.5384	488.6471
8.000	.747275	129429.	14629.6859	-.0101362	1000.1196	-205.1916	549.1726
10.000	.727037	159897.	14201.2472	-.0100978	1113.2635	-223.2472	614.1284
12.000	.706884	189466.	13735.9826	-.0100515	1223.0660	-242.0174	684.7442
14.000	.686832	218058.	13232.4057	-.0099974	1329.2438	-261.5594	761.6406
16.000	.666895	245594.	12689.3305	-.0099359	1431.5019	-281.5159	844.2590
18.000	.647088	271994.	12105.9618	-.0098673	1529.5396	-301.8528	932.9576
20.000	.627426	297176.	11479.5881	-.0097918	1623.0507	-324.5209	1034.4523
22.000	.607921	321046.	10807.2549	-.0097098	1711.6945	-347.8124	1144.2686
24.000	.588586	343512.	10341.6642	-.0096216	1795.1213	-117.7784	400.2075
26.000	.569434	365492.	10104.6589	-.0095276	1876.7445	-119.2269	418.7557
28.000	.550476	386979.	9864.8119	-.0094278	1956.5390	-120.6201	438.2393
30.000	.531723	407968.	9622.2349	-.0093224	2034.4808	-121.9569	458.7235
32.000	.513186	428451.	9377.0417	-.0092115	2110.5468	-123.2363	480.2790
34.000	.494877	448424.	9129.3481	-.0090952	2184.7147	-124.4573	502.9826
36.000	.476806	467879.	8879.2720	-.0089736	2256.9632	-125.6188	526.9180
38.000	.458983	486812.	8626.9336	-.0088470	2327.2720	-126.7197	552.1763

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40.000	.441418	505218.	8372.4551	-.0087154	2395.6218	-127.7589	578.8572
42.000	.424121	523091.	8115.9608	-.0085791	2461.9942	-128.7353	607.0693
44.000	.407101	540427.	7857.5776	-.0084380	2526.3719	-129.6479	636.9317
46.000	.390369	557222.	7597.4343	-.0082924	2588.7387	-130.4954	668.5750
48.000	.373932	573471.	7335.6622	-.0081425	2649.0792	-131.2767	702.1426
50.000	.357799	589170.	7072.3950	-.0079883	2707.3794	-131.9905	737.7919
52.000	.341979	604316.	6807.7687	-.0078300	2763.6261	-132.6358	775.6967
54.000	.326479	618907.	6541.9217	-.0076678	2817.8073	-133.2112	816.0483
56.000	.311307	632938.	6274.9948	-.0075017	2869.9123	-133.7156	859.0583
58.000	.296472	646407.	6007.1315	-.0073321	2919.9313	-134.1477	904.9608
60.000	.281979	659312.	5468.7173	-.0071589	2967.8558	-404.2665	2867.3502
62.000	.267836	670573.	4669.7471	-.0069825	3009.6714	-394.7036	2947.3502
64.000	.254049	680226.	3890.4957	-.0068034	3045.5183	-384.5478	3027.3502
66.000	.240623	688312.	3132.0982	-.0066219	3075.5459	-373.8497	3107.3502
68.000	.227562	694873.	2395.5891	-.0064384	3099.9118	-362.6594	3187.3502
70.000	.214869	699955.	1681.9034	-.0062534	3118.7812	-351.0264	3267.3502
72.000	.202548	703602.	991.8775	-.0060673	3132.3261	-338.9995	3347.3502
74.000	.190600	705864.	326.2514	-.0058803	3140.7246	-326.6266	3427.3502
76.000	.179027	706789.	-314.3296	-.0056930	3144.1601	-313.9545	3507.3502
78.000	.167828	706428.	-929.3131	-.0055056	3142.8206	-301.0291	3587.3502
80.000	.157004	704833.	-1518.2372	-.0053184	3136.8984	-287.8950	3667.3502
82.000	.146555	702057.	-2080.7277	-.0051318	3126.5886	-274.5956	3747.3502
84.000	.136477	698152.	-2616.4962	-.0049461	3112.0893	-261.1729	3827.3502
86.000	.126770	693174.	-3125.3367	-.0047616	3093.6004	-247.6677	3907.3502
88.000	.117431	687175.	-3607.1234	-.0045785	3071.3235	-234.1190	3987.3502
90.000	.108456	680210.	-4061.8069	-.0043971	3045.4606	-220.5645	4067.3502
92.000	.099842	672335.	-4489.4119	-.0042178	3016.2142	-207.0404	4147.3502
94.000	.091585	663602.	-4890.0334	-.0040406	2983.7865	-193.5811	4227.3502
96.000	.083680	654068.	-5263.8338	-.0038658	2948.3786	-180.2194	4307.3502
98.000	.076122	643784.	-5611.0395	-.0036937	2910.1908	-166.9864	4387.3502
100.000	.068905	632805.	-5931.9376	-.0035244	2869.4210	-153.9116	4467.3502
102.000	.062024	621184.	-6226.8720	-.0033581	2826.2652	-141.0228	4547.3502
104.000	.055473	608972.	-6496.2409	-.0031949	2780.9168	-128.3460	4627.3502
106.000	.049244	596222.	-6740.4924	-.0030351	2733.5660	-115.9055	4707.3502
108.000	.043332	582982.	-6960.1216	-.0028787	2684.3995	-103.7238	4787.3502
110.000	.037730	569302.	-7155.6671	-.0027259	2633.6004	-91.8218	4867.3502
112.000	.032429	555231.	-7327.7076	-.0025767	2581.3476	-80.2187	4947.3502
114.000	.027423	540816.	-7476.8581	-.0024314	2527.8158	-68.9319	5027.3502
116.000	.022703	526102.	-7603.7673	-.0022899	2473.1748	-57.9773	5107.3502
118.000	.018263	511134.	-7709.1136	-.0021523	2417.5897	-47.3690	5187.3502
120.000	.014094	495954.	-7793.6024	-.0020187	2361.2204	-37.1197	5267.3502
122.000	.010188	480605.	-7857.9624	-.0018892	2304.2216	-27.2403	5347.3502
124.000	.006537	465127.	-7902.9431	-.0017638	2246.7424	-17.7404	5427.3502
126.000	.003133	449558.	-7929.3113	-.0016425	2188.9264	-8.6278	5507.3502
128.000	-3.25E-05	433935.	-7937.8482	-.0015253	2130.9113	.0908538	5587.3502
130.000	-.002968	418295.	-7929.3469	-.0014123	2072.8292	8.4104	5667.3502
132.000	-.005682	402670.	-7904.6093	-.0013034	2014.8062	16.3272	5747.3502
134.000	-.008182	387093.	-7864.4436	-.0011987	1956.9622	23.8385	5827.3502
136.000	-.010476	371596.	-7809.6617	-.0010980	1899.4112	30.9434	5907.3502
138.000	-.012574	356206.	-7741.0766	-.0010015	1842.2614	37.6417	5987.3502
140.000	-.014482	340952.	-7659.5005	-.0009090	1785.6145	43.9345	6067.3502
142.000	-.016210	325859.	-7565.7421	-.0008206	1729.5666	49.8240	6147.3502
144.000	-.017765	310951.	-7460.6046	-.0007361	1674.2073	55.3135	6227.3502
146.000	-.019155	296252.	-7344.8841	-.0006556	1619.6207	60.4071	6307.3502
148.000	-.020387	281782.	-7219.3671	-.0005790	1565.8847	65.1100	6387.3502
150.000	-.021470	267560.	-7084.8290	-.0005061	1513.0714	69.4281	6467.3502
152.000	-.022412	253604.	-6942.0328	-.0004370	1461.2473	73.3682	6547.3502
154.000	-.023218	239932.	-6791.7270	-.0003715	1410.4730	76.9377	6627.3502
156.000	-.023898	226556.	-6634.6443	-.0003097	1360.8037	80.1450	6707.3502
158.000	-.024457	213492.	-6471.5007	-.0002513	1312.2892	82.9987	6787.3502
160.000	-.024903	200751.	-6302.9938	-.0001964	1264.9739	85.5082	6867.3502
162.000	-.025242	188343.	-6129.8021	-.0001448	1218.8971	87.6835	6947.3502
164.000	-.025482	176278.	-5952.5837	-9.6392E-05	1174.0932	89.5349	7027.3502

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166.000	-. 025628	164563.	-5771. 9758	-5. 1188E-05	1130. 5914	91. 0731	7107. 3502
168.000	-. 025687	153206.	-5588. 5935	-9. 0431E-06	1088. 4164	92. 3092	7187. 3502
170.000	-. 025664	142212.	-5403. 0296	3. 0137E-05	1047. 5885	93. 2547	7267. 3502
172.000	-. 025566	131585.	-5215. 8536	6. 6450E-05	1008. 1234	93. 9213	7347. 3502
174.000	-. 025398	121327.	-5027. 6116	9. 9992E-05	970. 0327	94. 3208	7427. 3502
176.000	-. 025166	111442.	-4838. 8256	. 0001309	933. 3239	94. 4652	7507. 3502
178.000	-. 024875	101930.	-4649. 9936	. 0001592	898. 0007	94. 3668	7587. 3502
180.000	-. 024529	92791. 1967	-4461. 5890	. 0001850	864. 0632	94. 0378	7667. 3502
182.000	-. 024135	84024. 5273	-4274. 0608	. 0002084	831. 5079	93. 4905	7747. 3502
184.000	-. 023696	75628. 2536	-4087. 8332	. 0002296	800. 3281	92. 7371	7827. 3502
186.000	-. 023216	67599. 7187	-3903. 3061	. 0002486	770. 5140	91. 7900	7907. 3502
188.000	-. 022701	59935. 4749	-3720. 8547	. 0002655	742. 0526	90. 6613	7987. 3502
190.000	-. 022154	52631. 3328	-3540. 8302	. 0002805	714. 9284	89. 3632	8067. 3502
192.000	-. 021579	45682. 4097	-3363. 5595	. 0002935	689. 1234	87. 9076	8147. 3502
194.000	-. 020980	39083. 1781	-3189. 3457	. 0003047	664. 6170	86. 3062	8227. 3502
196.000	-. 020360	32827. 5127	-3018. 4685	. 0003143	641. 3864	84. 5709	8307. 3502
198.000	-. 019723	26908. 7376	-2851. 1848	. 0003222	619. 4069	82. 7129	8387. 3502
200.000	-. 019072	21319. 6721	-2687. 7284	. 0003286	598. 6517	80. 7435	8467. 3502
202.000	-. 018409	16052. 6758	-2528. 3113	. 0003335	579. 0926	78. 6736	8547. 3502
204.000	-. 017738	11099. 6926	-2373. 1236	. 0003371	560. 6995	76. 5140	8627. 3502
206.000	-. 017060	6452. 2944	-2222. 3346	. 0003395	543. 4413	74. 2750	8707. 3502
208.000	-. 016380	2101. 7225	-2076. 0927	. 0003406	527. 2853	71. 9669	8787. 3502
210.000	-. 015698	-1961. 0712	-1934. 5266	. 0003406	526. 7630	69. 5993	8867. 3502
212.000	-. 015017	-5745. 3846	-1797. 7455	. 0003396	540. 8162	67. 1818	8947. 3502
214.000	-. 014339	-9260. 7269	-1665. 8401	. 0003376	553. 8705	64. 7236	9027. 3502
216.000	-. 013667	-12516. 7816	-1538. 8828	. 0003347	565. 9619	62. 2336	9107. 3502
218.000	-. 013001	-15523. 3707	-1416. 9289	. 0003310	577. 1270	59. 7203	9187. 3502
220.000	-. 012343	-18290. 4198	-1300. 0168	. 0003265	587. 4025	57. 1918	9267. 3502
222.000	-. 011694	-20827. 9254	-1188. 1689	. 0003213	596. 8256	54. 6561	9347. 3502
224.000	-. 011057	-23145. 9227	-1081. 3923	. 0003155	605. 4335	52. 1206	9427. 3502
226.000	-. 010432	-25254. 4554	-979. 6793	. 0003091	613. 2636	49. 5924	9507. 3502
228.000	-. 009821	-27163. 5466	-883. 0083	. 0003021	620. 3531	47. 0786	9587. 3502
230.000	-. 009224	-28883. 1708	-791. 3443	. 0002947	626. 7390	44. 5854	9667. 3502
232.000	-. 008642	-30423. 2275	-704. 6398	. 0002868	632. 4580	42. 1192	9747. 3502
234.000	-. 008077	-31793. 5164	-622. 8349	. 0002786	637. 5466	39. 6857	9827. 3502
236.000	-. 007528	-33003. 7132	-545. 8587	. 0002700	642. 0407	37. 2905	9907. 3502
238.000	-. 006997	-34063. 3472	-473. 6292	. 0002611	645. 9757	34. 9389	9987. 3502
240.000	-. 006483	-34981. 7799	-406. 0546	. 0002519	649. 3863	32. 6357	10067. 3502
242.000	-. 005989	-35768. 1850	-343. 0332	. 0002426	652. 3067	30. 3857	10147. 3502
244.000	-. 005513	-36431. 5294	-284. 4544	. 0002330	654. 7700	28. 1931	10227. 3502
246.000	-. 005057	-36980. 5554	-230. 1993	. 0002232	656. 8088	26. 0620	10307. 3502
248.000	-. 004620	-37423. 7637	-180. 1409	. 0002134	658. 4547	23. 9964	10387. 3502
250.000	-. 004203	-37769. 3983	-134. 1448	. 0002034	659. 7382	21. 9997	10467. 3502
252.000	-. 003807	-38025. 4311	-92. 0698	. 0001933	660. 6890	20. 0753	10547. 3502
254.000	-. 003430	-38199. 5487	-53. 7680	. 0001832	661. 3356	18. 2264	10627. 3502
256.000	-. 003074	-38299. 1394	-19. 0857	. 0001731	661. 7054	16. 4559	10707. 3502
258.000	-. 002738	-38331. 2810	12. 1366	. 0001629	661. 8248	14. 7664	10787. 3502
260.000	-. 002422	-38302. 7302	40. 0636	. 0001528	661. 7188	13. 1606	10867. 3502
262.000	-. 002127	-38219. 9116	64. 8649	. 0001426	661. 4112	11. 6407	10947. 3502
264.000	-. 001852	-38088. 9081	131. 2206	. 0001325	660. 9247	54. 7150	59101. 1394
266.000	-. 001597	-37737. 4281	238. 6618	. 0001224	659. 6195	52. 7262	66044. 7195
268.000	-. 001362	-37173. 4418	342. 0581	. 0001125	657. 5251	50. 6701	74415. 7377
270.000	-. 001147	-36405. 1972	441. 2664	. 0001027	654. 6722	48. 5381	84659. 7072
272.000	-. 000951	-35441. 2551	536. 1226	9. 3217E-05	651. 0926	46. 3181	97426. 8349
274.000	-. 000774	-34290. 5365	626. 4336	8. 3969E-05	646. 8194	43. 9930	113707.
276.000	-. 000615	-32962. 3908	711. 9639	7. 5050E-05	641. 8873	41. 5374	135092.
278.000	-. 000474	-31466. 6966	792. 4133	6. 6505E-05	636. 3330	38. 9120	164326.
280.000	-. 000349	-29814. 0191	867. 3766	5. 8377E-05	630. 1957	36. 0513	206638.
282.000	-. 000240	-28015. 8710	939. 7677	5. 0708E-05	623. 5182	36. 3398	302723.
284.000	-. 000146	-26071. 1747	998. 2218	4. 3534E-05	616. 2966	22. 1143	302723.
286.000	-6. 59E-05	-24036. 9149	1030. 3183	3. 6889E-05	608. 7423	9. 9822	302723.
288.000	1. 45E-06	-21961. 7060	1040. 0807	3. 0788E-05	601. 0359	-. 2197338	302723.
290.000	5. 72E-05	-19886. 4440	1031. 2028	2. 5238E-05	593. 3294	-8. 6582	302723.

292.000	.000102	-17844.9709	1007.0448	2.0234E-05	585.7483	-15.4998	302723.
294.000	.000138	-15864.7398	970.6363	1.5763E-05	578.3947	-20.9086	302723.
296.000	.000165	-13967.4696	924.6844	1.1806E-05	571.3491	-25.0434	302723.
298.000	.000185	-12169.7802	871.5844	8.3398E-06	564.6733	-28.0566	302723.
300.000	.000199	-10483.8009	813.4350	5.3354E-06	558.4124	-30.0927	302723.
302.000	.000207	-8917.7474	752.0554	2.7622E-06	552.5968	-31.2869	302723.
304.000	.000210	-7476.4632	689.0034	5.8794E-07	547.2446	-31.7651	302723.
306.000	.000209	-6161.9220	625.5954	-1.2209E-06	542.3630	-31.6429	302723.
308.000	.000205	-4973.6908	562.9266	-2.6977E-06	537.9505	-31.0259	302723.
310.000	.000198	-3909.3522	501.8911	-3.8759E-06	533.9980	-30.0096	302723.
312.000	.000189	-2964.8860	443.2023	-4.7876E-06	530.4907	-28.6793	302723.
314.000	.000179	-2135.0111	387.4120	-5.4639E-06	527.4089	-27.1110	302723.
316.000	.000168	-1413.4894	334.9299	-5.9346E-06	524.7296	-25.3712	302723.
318.000	.000155	-793.3923	286.0409	-6.2273E-06	522.4268	-23.5179	302723.
320.000	.000143	-267.3332	240.9221	-6.3679E-06	520.4733	-21.6009	302723.
322.000	.000130	172.3336	199.6587	-6.3805E-06	520.1205	-19.6625	302723.
324.000	.000117	533.3433	162.2584	-6.2869E-06	521.4611	-17.7378	302723.
326.000	.000105	823.3790	128.6645	-6.1070E-06	522.5382	-15.8561	302723.
328.000	9.28E-05	1049.9555	98.7681	-5.8586E-06	523.3796	-14.0404	302723.
330.000	8.13E-05	1220.3260	72.4187	-5.5575E-06	524.0122	-12.3090	302723.
332.000	7.05E-05	1341.4085	49.4340	-5.2177E-06	524.4619	-10.6756	302723.
334.000	6.05E-05	1419.7316	29.6084	-4.8515E-06	524.7527	-9.1500	302723.
336.000	5.11E-05	1461.3944	12.7200	-4.4694E-06	524.9074	-7.7383	302723.
338.000	4.26E-05	1472.0420	-1.4623	-4.0803E-06	524.9470	-6.4440	302723.
340.000	3.48E-05	1456.8510	-13.1742	-3.6919E-06	524.8906	-5.2679	302723.
342.000	2.78E-05	1420.5266	-22.6509	-3.3103E-06	524.7557	-4.2088	302723.
344.000	2.16E-05	1367.3068	-30.1233	-2.9405E-06	524.5581	-3.2637	302723.
346.000	1.60E-05	1300.9742	-35.8155	-2.5867E-06	524.3117	-2.4284	302723.
348.000	1.12E-05	1224.8727	-39.9415	-2.2517E-06	524.0291	-1.6976	302723.
350.000	7.04E-06	1141.9286	-42.7043	-1.9378E-06	523.7211	-1.0652	302723.
352.000	3.46E-06	1054.6754	-44.2939	-1.6464E-06	523.3971	-5244137	302723.
354.000	4.52E-07	965.2798	-44.8867	-1.3785E-06	523.0651	-0683433	302723.
356.000	-2.05E-06	875.5699	-44.6448	-1.1344E-06	522.7320	3102172	302723.
358.000	-4.09E-06	787.0636	-43.7161	-9.1389E-07	522.4033	6184713	302723.
360.000	-5.71E-06	700.9979	-42.2341	-7.1653E-07	522.0837	8635260	302723.
362.000	-6.95E-06	618.3564	-40.3183	-5.4155E-07	521.7768	1.0523	302723.
364.000	-7.87E-06	539.8980	-38.0746	-3.8794E-07	521.4854	1.1914	302723.
366.000	-8.50E-06	466.1822	-35.5960	-2.5450E-07	521.2117	1.2872	302723.
368.000	-8.89E-06	397.5953	-32.9634	-1.3994E-07	520.9570	1.3455	302723.
370.000	-9.06E-06	334.3735	-30.2460	-4.2867E-08	520.7222	1.3719	302723.
372.000	-9.06E-06	276.6251	-27.5026	3.8168E-08	520.5078	1.3714	302723.
374.000	-8.91E-06	224.3508	-24.7824	1.0461E-07	520.3137	1.3488	302723.
376.000	-8.64E-06	177.4620	-22.1255	1.5790E-07	520.1395	1.3081	302723.
378.000	-8.28E-06	135.7982	-19.5642	1.9945E-07	519.9848	1.2532	302723.
380.000	-7.84E-06	99.1414	-17.1237	2.3061E-07	519.8487	1.1874	302723.
382.000	-7.36E-06	67.2298	-14.8227	2.5267E-07	519.7302	1.1136	302723.
384.000	-6.83E-06	39.7696	-12.6748	2.6686E-07	519.6282	1.0344	302723.
386.000	-6.29E-06	16.4452	-10.6884	2.7432E-07	519.5416	9519958	302723.
388.000	-5.74E-06	-3.0719	-8.8681	2.7609E-07	519.4919	8682932	302723.
390.000	-5.19E-06	-19.1157	-7.2150	2.7315E-07	519.5515	7848373	302723.
392.000	-4.64E-06	-32.0193	-5.7272	2.6637E-07	519.5994	7029163	302723.
394.000	-4.12E-06	-42.1099	-4.4008	2.5654E-07	519.6369	6235664	302723.
396.000	-3.62E-06	-49.7045	-3.2296	2.4436E-07	519.6651	5475979	302723.
398.000	-3.14E-06	-55.1065	-2.2064	2.3046E-07	519.6852	4756204	302723.
400.000	-2.70E-06	-58.6037	-1.3227	2.1538E-07	519.6981	4080680	302723.
402.000	-2.28E-06	-60.4662	-5694047	1.9959E-07	519.7051	3452213	302723.
404.000	-1.90E-06	-60.9452	0630464	1.8348E-07	519.7068	2872298	302723.
406.000	-1.55E-06	-60.2727	5844084	1.6741E-07	519.7043	2341322	302723.
408.000	-1.23E-06	-58.6612	1.0044	1.5163E-07	519.6984	1858743	302723.
410.000	-9.40E-07	-56.3036	1.3326	1.3639E-07	519.6896	1423268	302723.
412.000	-6.82E-07	-53.3743	1.5782	1.2184E-07	519.6787	1033003	302723.
414.000	-4.53E-07	-50.0296	1.7501	1.0813E-07	519.6663	0685597	302723.
416.000	-2.50E-07	-46.4085	1.8565	9.5335E-08	519.6529	0378363	302723.

L-Pi l e. l po									
418.000	-7.16E-08	-42.6341	1.9052	8.3526E-08	519.6388	.0108395	302723.		
420.000	8.41E-08	-38.8146	1.9033	7.2724E-08	519.6247	-.0127340	302723.		
422.000	2.19E-07	-35.0443	1.8574	6.2928E-08	519.6107	-.0331907	302723.		
424.000	3.36E-07	-31.4053	1.7733	5.4115E-08	519.5971	-.0508334	302723.		
426.000	4.36E-07	-27.9683	1.6565	4.6241E-08	519.5844	-.0659543	302723.		
428.000	5.21E-07	-24.7939	1.5118	3.9243E-08	519.5726	-.0788295	302723.		
430.000	5.93E-07	-21.9338	1.3432	3.3046E-08	519.5620	-.0897138	302723.		
432.000	6.53E-07	-19.4316	1.1547	2.7559E-08	519.5527	-.0988368	302723.		
434.000	7.03E-07	-17.3239	.9494301	2.2685E-08	519.5449	-.1063995	302723.		
436.000	7.44E-07	-15.6411	.7304594	1.8313E-08	519.5386	-.1125712	302723.		
438.000	7.76E-07	-14.4080	.6066792	1.4327E-08	519.5340	-.0112090	28881.7058		
440.000	8.01E-07	-13.2190	.5838065	1.0663E-08	519.5296	-.0116637	29121.7058		
442.000	8.19E-07	-12.0761	.5601213	7.3086E-09	519.5254	-.0120215	29361.7058		
444.000	8.30E-07	-10.9809	.5358111	4.2506E-09	519.5213	-.0122887	29601.7058		
446.000	8.36E-07	-9.9343	.5110507	1.4767E-09	519.5174	-.0124717	29841.7058		
448.000	8.36E-07	-8.9371	.4860022	-1.0261E-09	519.5137	-.0125768	30081.7058		
450.000	8.32E-07	-7.9899	.4608154	-3.2711E-09	519.5102	-.0126101	30321.7058		
452.000	8.23E-07	-7.0928	.4356278	-5.2715E-09	519.5069	-.0125775	30561.7058		
454.000	8.11E-07	-6.2457	.4105653	-7.0405E-09	519.5037	-.0124850	30801.7058		
456.000	7.95E-07	-5.4483	.3857424	-8.5914E-09	519.5008	-.0123380	31041.7058		
458.000	7.76E-07	-4.7000	.3612624	-9.9374E-09	519.4980	-.0121420	31281.7058		
460.000	7.55E-07	-4.0001	.3372181	-1.1091E-08	519.4954	-.0119023	31521.7058		
462.000	7.32E-07	-3.3476	.3136921	-1.2066E-08	519.4930	-.0116238	31761.7058		
464.000	7.07E-07	-2.7414	.2907570	-1.2873E-08	519.4907	-.0113113	32001.7058		
466.000	6.80E-07	-2.1804	.2684764	-1.3526E-08	519.4886	-.0109693	32241.7058		
468.000	6.53E-07	-1.6632	.2469049	-1.4036E-08	519.4867	-.0106022	32481.7058		
470.000	6.24E-07	-1.1883	.2260886	-1.4414E-08	519.4849	-.0102141	32721.7058		
472.000	5.95E-07	-.7542456	.2060658	-1.4672E-08	519.4833	-.0098087	32961.7058		
474.000	5.66E-07	-.3593679	.1868674	-1.4819E-08	519.4819	-.0093897	33201.7058		
476.000	5.36E-07	-.0020336	.1685174	-1.4867E-08	519.4805	-.0089604	33441.7058		
478.000	5.06E-07	.3194593	.1510332	-1.4825E-08	519.4817	-.0085239	33681.7058		
480.000	4.77E-07	.6068431	.1344261	-1.4702E-08	519.4828	-.0080832	33921.7058		
482.000	4.47E-07	.8618684	.1187020	-1.4508E-08	519.4837	-.0076409	34161.7058		
484.000	4.19E-07	1.0863	.1038618	-1.4249E-08	519.4846	-.0071994	34401.7058		
486.000	3.90E-07	1.2819	.0899014	-1.3935E-08	519.4853	-.0067610	34641.7058		
488.000	3.63E-07	1.4504	.0768127	-1.3573E-08	519.4859	-.0063277	34881.7058		
490.000	3.36E-07	1.5935	.0645837	-1.3169E-08	519.4864	-.0059013	35121.7058		
492.000	3.10E-07	1.7129	.0531991	-1.2730E-08	519.4869	-.0054834	35361.7058		
494.000	2.85E-07	1.8103	.0426402	-1.2263E-08	519.4872	-.0050755	35601.7058		
496.000	2.61E-07	1.8874	.0328859	-1.1773E-08	519.4875	-.0046788	35841.7058		
498.000	2.38E-07	1.9457	.0239128	-1.1264E-08	519.4877	-.0042943	36081.7058		
500.000	2.16E-07	1.9866	.0156953	-1.0743E-08	519.4879	-.0039231	36321.7058		
502.000	1.95E-07	2.0119	.0082063	-1.0213E-08	519.4880	-.0035659	36561.7058		
504.000	1.75E-07	2.0227	.0014170	-9.6775E-09	519.4880	-.0032233	36801.7058		
506.000	1.56E-07	2.0206	-.0047021	-9.1413E-09	519.4880	-.0028958	37041.7058		
508.000	1.39E-07	2.0069	-.0101816	-8.6071E-09	519.4880	-.0025837	37281.7058		
510.000	1.22E-07	1.9827	-.0150527	-8.0780E-09	519.4879	-.0022874	37521.7058		
512.000	1.06E-07	1.9492	-.0193471	-7.5565E-09	519.4878	-.0020069	37761.7058		
514.000	9.17E-08	1.9077	-.0230963	-7.0450E-09	519.4876	-.0017423	38001.7058		
516.000	7.81E-08	1.8591	-.0263323	-6.5454E-09	519.4874	-.0014936	38241.7058		
518.000	6.55E-08	1.8045	-.0290865	-6.0595E-09	519.4872	-.0012606	38481.7058		
520.000	5.39E-08	1.7447	-.0313902	-5.5888E-09	519.4870	-.0010431	38721.7058		
522.000	4.32E-08	1.6807	-.0332741	-5.1345E-09	519.4868	-.0008408	38961.7058		
524.000	3.33E-08	1.6132	-.0347684	-4.6977E-09	519.4865	-.0006535	39201.7058		
526.000	2.44E-08	1.5431	-.0359025	-4.2791E-09	519.4862	-.0004806	39441.7058		
528.000	1.62E-08	1.4710	-.0367049	-3.8793E-09	519.4860	-.0003219	39681.7058		
530.000	8.85E-09	1.3975	-.0372035	-3.4989E-09	519.4857	-.0001767	39921.7058		
532.000	2.23E-09	1.3233	-.0374250	-3.1380E-09	519.4854	-4.4711E-05	40161.7058		
534.000	-3.70E-09	1.2488	-.0373950	-2.7969E-09	519.4852	7.4712E-05	40401.7058		
536.000	-8.96E-09	1.1746	-.0371382	-2.4755E-09	519.4849	.0001821	40641.7058		
538.000	-1.36E-08	1.1011	-.0366781	-2.1736E-09	519.4846	.0002780	40881.7058		
540.000	-1.77E-08	1.0286	-.0360371	-1.8912E-09	519.4843	.0003630	41121.7058		
542.000	-2.12E-08	.9575368	-.0352363	-1.6278E-09	519.4841	.0004377	41361.7058		

L-Pile Ipo							
544.000	-2.42E-08	.8881797	-.0342959	-1.3830E-09	519.4838	.0005027	41601.7058
546.000	-2.67E-08	.8207957	-.0332347	-1.1563E-09	519.4836	.0005585	41841.7058
548.000	-2.88E-08	.7556109	-.0320704	-9.4726E-10	519.4833	.0006058	42081.7058
550.000	-3.05E-08	.6928172	-.0308195	-7.5516E-10	519.4831	.0006451	42321.7058
552.000	-3.18E-08	.6325746	-.0294974	-5.7938E-10	519.4829	.0006770	42561.7058
554.000	-3.28E-08	.5750132	-.0281183	-4.1922E-10	519.4827	.0007020	42801.7058
556.000	-3.35E-08	.5202354	-.0266956	-2.7396E-10	519.4825	.0007207	43041.7058
558.000	-3.39E-08	.4683185	-.0252413	-1.4285E-10	519.4823	.0007336	43281.7058
560.000	-3.41E-08	.4193161	-.0237665	-2.5131E-11	519.4821	.0007412	43521.7058
562.000	-3.40E-08	.3732607	-.0222813	7.9985E-11	519.4819	.0007439	43761.7058
564.000	-3.37E-08	.3301652	-.0207950	1.7328E-10	519.4817	.0007423	44001.7058
566.000	-3.33E-08	.2900251	-.0193159	2.5553E-10	519.4816	.0007368	44241.7058
568.000	-3.27E-08	.2528197	-.0178515	3.2753E-10	519.4815	.0007277	44481.7058
570.000	-3.20E-08	.2185144	-.0164083	3.9004E-10	519.4813	.0007155	44721.7058
572.000	-3.12E-08	.1870617	-.0149924	4.4383E-10	519.4812	.0007005	44961.7058
574.000	-3.02E-08	.1584030	-.0136088	4.8965E-10	519.4811	.0006830	45201.7058
576.000	-2.92E-08	.1324697	-.0122624	5.2822E-10	519.4810	.0006635	45441.7058
578.000	-2.81E-08	.1091845	-.0109569	5.6027E-10	519.4809	.0006420	45681.7058
580.000	-2.70E-08	.0884628	-.0096959	5.8649E-10	519.4808	.0006190	45921.7058
582.000	-2.58E-08	.0702133	-.0084822	6.0753E-10	519.4808	.0005946	46161.7058
584.000	-2.45E-08	.0543394	-.0073185	6.2405E-10	519.4807	.0005691	46401.7058
586.000	-2.33E-08	.0407395	-.0062069	6.3666E-10	519.4807	.0005426	46641.7058
588.000	-2.20E-08	.0293082	-.0051490	6.4595E-10	519.4806	.0005153	46881.7058
590.000	-2.07E-08	.0199369	-.0041464	6.5248E-10	519.4806	.0004873	47121.7058
592.000	-1.94E-08	.0125139	-.0032003	6.5678E-10	519.4806	.0004588	47361.7058
594.000	-1.81E-08	.0069253	-.0023119	6.5936E-10	519.4805	.0004297	47601.7058
596.000	-1.67E-08	.0030554	-.0014818	6.6069E-10	519.4805	.0004003	47841.7058
598.000	-1.54E-08	.0007867	-.0007110	6.6120E-10	519.4805	.0003705	48081.7058
600.000	-1.41E-08	0.0000	0.0000	6.6130E-10	519.4805	.0003404	24160.8529

Output Veri fi cati on:

Computed forces and moments are wi thi n speci fi ed convergence l i mi ts.

Output Summary for Load Case No. 3:

Pile-head deflection	=	.82874593 in
Computed slope at pile head	=	-.01020573
Maximum bending moment	=	706788.70493 lbs-in
Maximum shear force	=	16000.00000 lbs
Depth of maximum bending moment	=	76.00000000 in
Depth of maximum shear force	=	0.00000 in
Number of iterations	=	17
Number of zero deflection points	=	5

Computed Values of Load Di stri buti on and Defl ecti on
for Lateral Loading for Load Case Number 4

Pile-head boundary condi ti ons are Shear and Slope (BC Type 2)	
Speci fi ed shear force at pile head	= 16000.000 lbs
Speci fi ed slope at pile head	= 0.000E+00 in/in
Speci fi ed axial load at pile head	= 80000.000 lbs

(Zero slope for thi s load i ndi cates fi xed-head condi ti ons)

Depth X	Defl ect. y	Moment M	Shear V	Slope S	Total Stress	Soi l Res. p	Es*h F/L
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L-Pile Ipo							
in	in	lbs-in	lbs	Rad.	lbs/in**2	lbs/in	lbs/in
0.000	.239850	-686797.	16000.0000	-1.3184E-16	3069.9192	-110.0930	459.0079
2.000	.239668	-655002.	15766.8985	-.0001780	2951.8499	-123.0084	1026.4907
4.000	.239138	-623672.	15507.5943	-.0003475	2835.5045	-136.2958	1139.8913
6.000	.238278	-592861.	15221.8746	-.0005089	2721.0853	-149.4240	1254.2007
8.000	.237103	-562622.	14909.7294	-.0006621	2608.7923	-162.7212	1372.5799
10.000	.235629	-533010.	14570.8773	-.0008074	2498.8277	-176.1309	1494.9843
12.000	.233873	-504080.	14205.8575	-.0009450	2391.3954	-188.8889	1615.3122
14.000	.231849	-475884.	13816.2543	-.0010750	2286.6894	-200.7143	1731.4211
16.000	.229573	-448471.	13403.3864	-.0011976	2184.8898	-212.1536	1848.2446
18.000	.227059	-421887.	12968.1205	-.0013130	2086.1709	-223.1124	1965.2370
20.000	.224321	-396178.	12512.0884	-.0014215	1990.6996	-232.9197	2076.6631
22.000	.221373	-371384.	12037.2648	-.0015233	1898.6257	-241.9039	2185.4862
24.000	.218228	-347542.	11703.4541	-.0016186	1810.0866	-91.9068	842.3006
26.000	.214899	-324052.	11518.0975	-.0017077	1722.8579	-93.4499	869.7116
28.000	.211397	-300923.	11329.6928	-.0017906	1636.9662	-94.9548	898.3543
30.000	.207736	-278161.	11138.3173	-.0018674	1552.4376	-96.4207	928.2991
32.000	.203928	-255772.	10944.0499	-.0019382	1469.2973	-97.8467	959.6214
34.000	.199983	-233764.	10746.9713	-.0020031	1387.5702	-99.2320	992.4020
36.000	.195915	-212143.	10547.1635	-.0020623	1307.2802	-100.5758	1026.7276
38.000	.191734	-190916.	10344.7105	-.0021157	1228.4508	-101.8772	1062.6914
40.000	.187452	-170087.	10139.6977	-.0021636	1151.1046	-103.1356	1100.3931
42.000	.183080	-149664.	9932.2120	-.0022060	1075.2635	-104.3501	1139.9401
44.000	.178628	-129653.	9722.3419	-.0022431	1000.9489	-105.5200	1181.4475
46.000	.174108	-110057.	9510.1775	-.0022748	928.1813	-106.6444	1225.0394
48.000	.169529	-90883.9086	9295.8102	-.0023015	856.9804	-107.7228	1270.8490
50.000	.164902	-72137.5664	9079.3330	-.0023231	787.3654	-108.7544	1319.0198
52.000	.160236	-53823.1802	8860.8402	-.0023398	719.3544	-109.7384	1369.7062
54.000	.155543	-35945.4634	8640.4275	-.0023517	652.9650	-110.6743	1423.0744
56.000	.150830	-18508.9183	8418.1919	-.0023589	588.2139	-111.5613	1479.3036
58.000	.146107	-1517.8330	8194.2316	-.0023616	525.1170	-112.3990	1538.5870
60.000	.141383	15023.7208	7879.1351	-.0023598	575.2715	-202.6975	2867.3502
62.000	.136668	30753.8471	7475.0341	-.0023537	633.6858	-201.4035	2947.3502
64.000	.131968	45677.0541	7073.8737	-.0023436	689.1035	-199.7569	3027.3502
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68.000	.122650	73127.9092	6283.1087	-.0023120	791.0430	-195.4638	3187.3502
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72.000	.113486	97440.1948	5512.0113	-.0022666	881.3274	-189.9387	3347.3502
74.000	.108979	108445.	5135.3187	-.0022393	922.1938	-186.7539	3427.3502
76.000	.104529	118698.	4765.2554	-.0022092	960.2691	-183.3094	3507.3502
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86.000	.083319	159190.	3030.8001	-.0020231	1110.6374	-162.7782	3907.3502
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90.000	.075399	170663.	2398.4283	-.0019355	1153.2434	-153.3367	4067.3502
92.000	.071573	175460.	2096.6724	-.0018896	1171.0543	-148.4193	4147.3502
94.000	.067840	179655.	1804.8604	-.0018425	1186.6330	-143.3926	4227.3502
96.000	.064203	183269.	1523.1952	-.0017944	1200.0534	-138.2726	4307.3502
98.000	.060663	186322.	1251.8477	-.0017453	1211.3910	-133.0749	4387.3502
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102.000	.053881	190828.	740.6362	-.0016452	1228.1257	-122.5071	4547.3502
104.000	.050641	192323.	500.9627	-.0015944	1233.6791	-117.1663	4627.3502
106.000	.047503	193342.	271.9898	-.0015433	1237.4618	-111.8066	4707.3502
108.000	.044468	193905.	53.7420	-.0014919	1239.5532	-106.4413	4787.3502
110.000	.041535	194034.	-153.7827	-.0014405	1240.0330	-101.0835	4867.3502
112.000	.038706	193751.	-350.6120	-.0013890	1238.9806	-95.7458	4947.3502
114.000	.035979	193077.	-536.7978	-.0013377	1236.4756	-90.4401	5027.3502
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118.000	.030833	190639.	-877.5632	-.0012359	1227.4222	-79.9698	5187.3502
120.000	.028411	188917.	-1032.3594	-.0011856	1221.0299	-74.8264	5267.3502

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122.000	.026090	186889.	-1176.9429	-.0011357	1213.4963	-69.7572	5347.3502
124.000	.023869	184573.	-1311.4715	-.0010865	1204.8970	-64.7714	5427.3502
126.000	.021745	181990.	-1436.1204	-.0010378	1195.3066	-59.8775	5507.3502
128.000	.019717	179161.	-1551.0813	-.0009899	1184.7980	-55.0834	5587.3502
130.000	.017785	176103.	-1656.5611	-.0009428	1173.4430	-50.3964	5667.3502
132.000	.015946	172836.	-1752.7808	-.0008965	1161.3117	-45.8233	5747.3502
134.000	.014199	169379.	-1839.9743	-.0008512	1148.4724	-41.3703	5827.3502
136.000	.012541	165748.	-1918.3874	-.0008067	1134.9919	-37.0428	5907.3502
138.000	.010972	161963.	-1988.2763	-.0007632	1120.9351	-32.8460	5987.3502
140.000	.009488	158040.	-2049.9067	-.0007208	1106.3649	-28.7844	6067.3502
142.000	.008089	153994.	-2103.5527	-.0006794	1091.3421	-24.8617	6147.3502
144.000	.006771	149843.	-2149.4958	-.0006391	1075.9258	-21.0814	6227.3502
146.000	.005532	145601.	-2188.0237	-.0005999	1060.1728	-17.4464	6307.3502
148.000	.004371	141283.	-2219.4291	-.0005619	1044.1376	-13.9590	6387.3502
150.000	.003285	136903.	-2244.0091	-.0005250	1027.8728	-10.6210	6467.3502
152.000	.002271	132475.	-2262.0641	-.0004893	1011.4287	-7.4340	6547.3502
154.000	.001327	128011.	-2273.8967	-.0004547	994.8533	-4.3986	6627.3502
156.000	.000452	123525.	-2279.8110	-.0004214	978.1924	-1.5156	6707.3502
158.000	-.000358	119027.	-2280.1115	-.0003892	961.4895	1.2151	6787.3502
160.000	-.001105	114529.	-2275.1027	-.0003582	944.7858	3.7937	6867.3502
162.000	-.001791	110041.	-2265.0879	-.0003284	928.1205	6.2211	6947.3502
164.000	-.002419	105573.	-2250.3687	-.0002998	911.5303	8.4982	7027.3502
166.000	-.002990	101135.	-2231.2439	-.0002724	895.0496	10.6265	7107.3502
168.000	-.003508	96735.5926	-2208.0097	-.0002462	878.7108	12.6077	7187.3502
170.000	-.003975	92382.1253	-2180.9580	-.0002211	862.5441	14.4439	7267.3502
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174.000	-.004764	83843.7122	-2116.5484	-.0001744	830.8365	17.6908	7427.3502
176.000	-.005090	79672.1161	-2079.7508	-.0001527	815.3451	19.1069	7507.3502
178.000	-.005374	75573.5663	-2040.2551	-.0001321	800.1251	20.3887	7587.3502
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184.000	-.005995	63766.5861	-1908.1985	-7.6694E-05	756.2795	23.4625	7827.3502
186.000	-.006131	60008.0321	-1860.4940	-6.0278E-05	742.3220	24.2419	7907.3502
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192.000	-.006358	49309.6751	-1709.6310	-1.6835E-05	702.5934	25.8989	8147.3502
194.000	-.006378	45943.8582	-1657.4942	-4.2024E-06	690.0943	26.2379	8227.3502
196.000	-.006374	42681.0431	-1604.7790	7.5516E-06	677.9778	26.4773	8307.3502
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200.000	-.006301	36468.4174	-1498.3838	2.8532E-05	654.9070	26.6748	8467.3502
202.000	-.006234	33519.6602	-1445.0675	3.7814E-05	643.9567	26.6416	8547.3502
204.000	-.006149	30676.0469	-1391.8995	4.6328E-05	633.3969	26.5264	8627.3502
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208.000	-.005933	25302.5756	-1286.6387	6.1163E-05	613.4423	26.0675	8787.3502
210.000	-.005804	22771.1101	-1234.8385	6.7539E-05	604.0417	25.7327	8867.3502
212.000	-.005663	20341.6090	-1183.7723	7.3257E-05	595.0197	25.3335	8947.3502
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216.000	-.005349	15782.2813	-1084.3305	8.2826E-05	578.0885	24.3595	9107.3502
218.000	-.005180	13648.7523	-1036.1776	8.6729E-05	570.1655	23.7933	9187.3502
220.000	-.005003	11609.8175	-989.2043	9.0079E-05	562.5939	23.1800	9267.3502
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226.000	-.004438	6036.0472	-856.2210	9.7053E-05	541.8955	21.0987	9507.3502
228.000	-.004243	4350.1462	-814.7841	9.8430E-05	535.6349	20.3381	9587.3502
230.000	-.004045	2745.4130	-774.8954	9.9371E-05	529.6757	19.5507	9667.3502
232.000	-.003845	1218.7659	-736.6044	9.9897E-05	524.0064	18.7403	9747.3502
234.000	-.003645	-232.9716	-699.9533	.0001000	520.3457	17.9108	9827.3502
236.000	-.003445	-1613.0561	-664.9766	9.9783E-05	525.4706	17.0659	9907.3502
238.000	-.003246	-2924.8085	-631.7014	9.9181E-05	530.3419	16.2093	9987.3502
240.000	-.003048	-4171.5997	-600.1476	9.8240E-05	534.9719	15.3445	10067.3502
242.000	-.002853	-5356.8358	-570.3279	9.6976E-05	539.3733	14.4752	10147.3502
244.000	-.002660	-6483.9437	-542.2479	9.5406E-05	543.5588	13.6048	10227.3502
246.000	-.002471	-7556.3574	-515.9065	9.3544E-05	547.5413	12.7367	10307.3502

248.000	-	002286	-8577.5038	-491.2956	9.1404E-05	551.3333	11.8743	10387.3502
250.000	-	002106	-9550.7890	-468.4005	8.9000E-05	554.9476	11.0209	10467.3502
252.000	-	001930	-10479.5855	-447.1999	8.6343E-05	558.3968	10.1797	10547.3502
254.000	-	001760	-11367.2183	-427.6660	8.3446E-05	561.6930	9.3541	10627.3502
256.000	-	001597	-12216.9522	-409.7647	8.0318E-05	564.8485	8.5472	10707.3502
258.000	-	001439	-13031.9789	-393.4554	7.6969E-05	567.8751	7.7621	10787.3502
260.000	-	001289	-13815.4040	-378.6913	7.3409E-05	570.7844	7.0020	10867.3502
262.000	-	001145	-14570.2347	-365.4193	6.9644E-05	573.5875	6.2700	10947.3502
264.000	-	001010	-15299.3672	-312.1205	6.5682E-05	576.2951	47.0288	93121.1611
266.000	-	000883	-15839.7351	-219.6198	6.1553E-05	578.3018	45.4719	103023.
268.000	-	000764	-16197.5431	-130.2905	5.7304E-05	579.6305	43.8573	114833.
270.000	-	000654	-16379.2344	-44.2523	5.2983E-05	580.3053	42.1810	129086.
272.000	-	000552	-16391.5068	38.3655	4.8637E-05	580.3508	40.4368	146533.
274.000	-	000459	-16241.3363	117.4186	4.4309E-05	579.7932	38.6163	168267.
276.000	-	000375	-15936.0112	192.7420	4.0041E-05	578.6593	36.7071	195939.
278.000	-	000299	-15483.1816	264.1392	3.5874E-05	576.9777	34.6902	232180.
280.000	-	000231	-14890.9341	333.8212	3.1846E-05	574.7784	34.9917	302723.
282.000	-	000171	-14158.0877	394.7620	2.7993E-05	572.0570	25.9491	302723.
284.000	-	000119	-13320.8440	438.7544	2.4349E-05	568.9478	18.0433	302723.
286.000	-	7.40E-05	-12410.8617	468.0049	2.0936E-05	565.5686	11.2072	302723.
288.000	-	3.55E-05	-11455.5240	484.5797	1.7771E-05	562.0209	5.3676	302723.
290.000	-	2.96E-06	-10478.2297	490.3951	1.4862E-05	558.3917	4478721	302723.
292.000	2.40E-05	-9498.6992	487.2125	1.2212E-05	554.7542	-3.6305	302723.	302723.
294.000	4.59E-05	-8533.2875	476.6360	9.8209E-06	551.1691	-6.9461	302723.	302723.
296.000	6.33E-05	-7595.2980	460.1134	7.6819E-06	547.6859	-9.5765	302723.	302723.
298.000	7.66E-05	-6695.2922	438.9398	5.7866E-06	544.3437	-11.5970	302723.	302723.
300.000	8.64E-05	-5841.3905	414.2628	4.1239E-06	541.1727	-13.0800	302723.	302723.
302.000	9.31E-05	-5039.5607	387.0890	2.6808E-06	538.1951	-14.0938	302723.	302723.
304.000	9.71E-05	-4293.8922	358.2922	1.4429E-06	535.4260	-14.7030	302723.	302723.
306.000	9.89E-05	-3606.8536	328.6217	3.9507E-07	532.8747	-14.9674	302723.	302723.
308.000	9.87E-05	-2979.5317	298.7121	-4.7846E-07	530.5451	-14.9422	302723.	302723.
310.000	9.70E-05	-2411.8521	269.0922	-1.1935E-06	528.4370	-14.6777	302723.	302723.
312.000	9.39E-05	-1902.7811	240.1948	-1.7657E-06	526.5466	-14.2196	302723.	302723.
314.000	8.99E-05	-1450.5079	212.3665	-2.2105E-06	524.8670	-13.6087	302723.	302723.
316.000	8.51E-05	-1052.6079	185.8765	-2.5424E-06	523.3894	-12.8813	302723.	302723.
318.000	7.97E-05	-706.1884	160.9258	-2.7757E-06	522.1030	-12.0694	302723.	302723.
320.000	7.40E-05	-408.0165	137.6556	-2.9235E-06	520.9957	-11.2008	302723.	302723.
322.000	6.80E-05	-154.6303	116.1555	-2.9981E-06	520.0547	-10.2994	302723.	302723.
324.000	6.20E-05	57.5649	96.4705	-3.0110E-06	519.6943	-9.3856	302723.	302723.
326.000	5.60E-05	232.2153	78.6085	-2.9725E-06	520.3429	-8.4764	302723.	302723.
328.000	5.01E-05	372.9503	62.5463	-2.8923E-06	520.8655	-7.5859	302723.	302723.
330.000	4.44E-05	483.3259	48.2351	-2.7787E-06	521.2754	-6.7253	302723.	302723.
332.000	3.90E-05	566.7798	35.6063	-2.6394E-06	521.5853	-5.9035	302723.	302723.
334.000	3.39E-05	626.5956	24.5755	-2.4812E-06	521.8074	-5.1273	302723.	302723.
336.000	2.91E-05	665.8758	15.0469	-2.3098E-06	521.9533	-4.4013	302723.	302723.
338.000	2.46E-05	687.5226	6.9168	-2.1303E-06	522.0337	-3.7288	302723.	302723.
340.000	2.06E-05	694.2248	0764382	-1.9470E-06	522.0585	-3.1116	302723.	302723.
342.000	1.68E-05	688.4513	-5.5851	-1.7636E-06	522.0371	-2.5500	302723.	302723.
344.000	1.35E-05	672.4486	-10.1789	-1.5831E-06	521.9777	-2.0438	302723.	302723.
346.000	1.05E-05	648.2422	-13.8142	-1.4080E-06	521.8878	-1.5915	302723.	302723.
348.000	7.87E-06	617.6422	-16.5971	-1.2401E-06	521.7742	-1.1913	302723.	302723.
350.000	5.55E-06	582.2507	-18.6291	-1.0809E-06	521.6427	-0.8407216	302723.	302723.
352.000	3.55E-06	543.4715	-20.0067	-9.3165E-07	521.4987	-0.5368713	302723.	302723.
354.000	1.83E-06	502.5219	-20.8203	-7.9292E-07	521.3466	-0.2766605	302723.	302723.
356.000	3.75E-07	460.4442	-21.1537	-6.6521E-07	521.1904	-0.0568011	302723.	302723.
358.000	-8.33E-07	418.1199	-21.0844	-5.4869E-07	521.0332	-0.1260856	302723.	302723.
360.000	-1.82E-06	376.2821	-20.6830	-4.4333E-07	520.8779	-0.2753982	302723.	302723.
362.000	-2.61E-06	335.5299	-20.0131	-3.4892E-07	520.7265	-0.3944962	302723.	302723.
364.000	-3.22E-06	296.3415	-19.1319	-2.6512E-07	520.5810	-0.4866519	302723.	302723.
366.000	-3.67E-06	259.0871	-18.0902	-1.9146E-07	520.4426	-0.5550120	302723.	302723.
368.000	-3.98E-06	224.0418	-16.9327	-1.2738E-07	520.3125	-0.6025680	302723.	302723.
370.000	-4.18E-06	191.3972	-15.6980	-7.2282E-08	520.1913	-0.6321339	302723.	302723.
372.000	-4.27E-06	161.2730	-14.4195	-2.5509E-08	520.0794	-0.6463311	302723.	302723.

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374.000	-4.28E-06	133.7273	-13.1256	1.3615E-08	519.9771	.6475784	302723.
376.000	-4.22E-06	108.7663	-11.8399	4.5776E-08	519.8844	.6380876	302723.
378.000	-4.10E-06	86.3530	-10.5820	7.1654E-08	519.8012	.6198632	302723.
380.000	-3.93E-06	66.4155	-9.3674	9.1915E-08	519.7272	.5947048	302723.
382.000	-3.73E-06	48.8540	-8.2085	1.0720E-07	519.6619	.5642135	302723.
384.000	-3.50E-06	33.5472	-7.1145	1.1813E-07	519.6051	.5297992	302723.
386.000	-3.26E-06	20.3583	-6.0920	1.2528E-07	519.5561	.4926912	302723.
388.000	-3.00E-06	9.1392	-5.1453	1.2919E-07	519.5145	.4539484	302723.
390.000	-2.74E-06	-.2644618	-4.2769	1.3037E-07	519.4815	.4144718	302723.
392.000	-2.48E-06	-8.0102	-3.4874	1.2927E-07	519.5103	.3750164	302723.
394.000	-2.22E-06	-14.2556	-2.7762	1.2632E-07	519.5335	.3362043	302723.
396.000	-1.97E-06	-19.1555	-2.1415	1.2189E-07	519.5517	.2985368	302723.
398.000	-1.73E-06	-22.8605	-1.5805	1.1632E-07	519.5654	.2624074	302723.
400.000	-1.51E-06	-25.5149	-1.0900	1.0990E-07	519.5753	.2281137	302723.
402.000	-1.29E-06	-27.2557	-.6660272	1.0290E-07	519.5817	.1958688	302723.
404.000	-1.10E-06	-28.2119	-.3043458	9.5545E-08	519.5853	.1658125	302723.
406.000	-9.12E-07	-28.5036	-.0005117	8.8023E-08	519.5864	.1380215	302723.
408.000	-7.43E-07	-28.2421	.2500291	8.0497E-08	519.5854	.1125193	302723.
410.000	-5.90E-07	-27.5293	.4518334	7.3100E-08	519.5828	.0892849	302723.
412.000	-4.51E-07	-26.4582	.6093794	6.5940E-08	519.5788	.0682610	302723.
414.000	-3.26E-07	-25.1129	.7270021	5.9101E-08	519.5738	.0493617	302723.
416.000	-2.15E-07	-23.5691	.8088427	5.2644E-08	519.5680	.0324789	302723.
418.000	-1.16E-07	-21.8943	.8588101	4.6614E-08	519.5618	.0174886	302723.
420.000	-2.81E-08	-20.1487	.8805551	4.1038E-08	519.5553	.0042564	302723.
422.000	4.86E-08	-18.3853	.8774534	3.5928E-08	519.5488	-.0073580	302723.
424.000	1.16E-07	-16.6504	.8525995	3.1281E-08	519.5424	-.0174960	302723.
426.000	1.74E-07	-14.9849	.8088064	2.7086E-08	519.5362	-.0262970	302723.
428.000	2.24E-07	-13.4239	.7486146	2.3318E-08	519.5304	-.0338948	302723.
430.000	2.67E-07	-11.9979	.6743050	1.9946E-08	519.5251	-.0404147	302723.
432.000	3.04E-07	-10.7330	.5879192	1.6932E-08	519.5204	-.0459712	302723.
434.000	3.35E-07	-9.6516	.4912822	1.4228E-08	519.5164	-.0506658	302723.
436.000	3.61E-07	-8.7725	.3860310	1.1784E-08	519.5131	-.0545854	302723.
438.000	3.82E-07	-8.1113	.3259310	9.5452E-09	519.5106	-.0055146	28881.7058
440.000	3.99E-07	-7.4718	.3146094	7.4785E-09	519.5083	-.0058070	29121.7058
442.000	4.12E-07	-6.8552	.3027570	5.5784E-09	519.5060	-.0060454	29361.7058
444.000	4.21E-07	-6.2625	.2904786	3.8386E-09	519.5038	-.0062330	29601.7058
446.000	4.27E-07	-5.6945	.2778723	2.2528E-09	519.5017	-.0063733	29841.7058
448.000	4.30E-07	-5.1518	.2650294	8.1432E-10	519.4997	-.0064696	30081.7058
450.000	4.30E-07	-4.6347	.2520346	-4.8362E-10	519.4977	-.0065252	30321.7058
452.000	4.28E-07	-4.1435	.2389661	-1.6478E-09	519.4959	-.0065433	30561.7058
454.000	4.24E-07	-3.6783	.2258958	-2.6852E-09	519.4942	-.0065270	30801.7058
456.000	4.17E-07	-3.2390	.2128895	-3.6026E-09	519.4925	-.0064793	31041.7058
458.000	4.09E-07	-2.8256	.2000069	-4.4069E-09	519.4910	-.0064033	31281.7058
460.000	4.00E-07	-2.4376	.1873019	-5.1050E-09	519.4896	-.0063017	31521.7058
462.000	3.89E-07	-2.0747	.1748229	-5.7034E-09	519.4882	-.0061773	31761.7058
464.000	3.77E-07	-1.7365	.1626130	-6.2089E-09	519.4870	-.0060326	32001.7058
466.000	3.64E-07	-1.4223	.1507101	-6.6278E-09	519.4858	-.0058703	32241.7058
468.000	3.51E-07	-1.1315	.1391473	-6.9665E-09	519.4847	-.0056925	32481.7058
470.000	3.36E-07	-.8634750	.1279530	-7.2311E-09	519.4837	-.0055017	32721.7058
472.000	3.22E-07	-.6173972	.1171513	-7.4275E-09	519.4828	-.0053000	32961.7058
474.000	3.07E-07	-.3924931	.1067621	-7.5615E-09	519.4820	-.0050892	33201.7058
476.000	2.91E-07	-.1879292	.0968015	-7.6384E-09	519.4812	-.0048714	33441.7058
478.000	2.76E-07	-.0028429	.0872818	-7.6637E-09	519.4805	-.0046483	33681.7058
480.000	2.61E-07	.1636504	.0782121	-7.6424E-09	519.4811	-.0044214	33921.7058
482.000	2.45E-07	.3124512	.0695984	-7.5793E-09	519.4817	-.0041923	34161.7058
484.000	2.30E-07	.4444693	.0614436	-7.4789E-09	519.4822	-.0039625	34401.7058
486.000	2.16E-07	.5606187	.0537480	-7.3456E-09	519.4826	-.0037331	34641.7058
488.000	2.01E-07	.6618119	.0465096	-7.1835E-09	519.4830	-.0035053	34881.7058
490.000	1.87E-07	.7489558	.0397241	-6.9964E-09	519.4833	-.0032802	35121.7058
492.000	1.73E-07	.8229470	.0333851	-6.7879E-09	519.4836	-.0030587	35361.7058
494.000	1.60E-07	.8846683	.0274846	-6.5614E-09	519.4838	-.0028417	35601.7058
496.000	1.47E-07	.9349851	.0220130	-6.3201E-09	519.4840	-.0026299	35841.7058
498.000	1.34E-07	.9747426	.0169591	-6.0668E-09	519.4841	-.0024240	36081.7058

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500.000	1.22E-07	1.0048	.0123107	-5.8043E-09	519.4843	-.0022244	36321.7058		
502.000	1.11E-07	1.0258	.0080545	-5.5349E-09	519.4843	-.0020318	36561.7058		
504.000	1.00E-07	1.0388	.0041762	-5.2611E-09	519.4844	-.0018464	36801.7058		
506.000	9.01E-08	1.0442	.0006611	-4.9849E-09	519.4844	-.0016687	37041.7058		
508.000	8.04E-08	1.0430	-.0025064	-4.7080E-09	519.4844	-.0014988	37281.7058		
510.000	7.13E-08	1.0357	-.0053423	-4.4324E-09	519.4844	-.0013370	37521.7058		
512.000	6.27E-08	1.0230	-.0078627	-4.1593E-09	519.4843	-.0011834	37761.7058		
514.000	5.46E-08	1.0056	-.0100841	-3.8903E-09	519.4843	-.0010380	38001.7058		
516.000	4.71E-08	.9839492	-.0120229	-3.6264E-09	519.4842	-.0009009	38241.7058		
518.000	4.01E-08	.9586609	-.0136958	-3.3688E-09	519.4841	-.0007720	38481.7058		
520.000	3.36E-08	.9302439	-.0151191	-3.1182E-09	519.4840	-.0006513	38721.7058		
522.000	2.77E-08	.8991822	-.0163091	-2.8756E-09	519.4839	-.0005387	38961.7058		
524.000	2.21E-08	.8659278	-.0172817	-2.6415E-09	519.4837	-.0004339	39201.7058		
526.000	1.71E-08	.8309009	-.0180525	-2.4165E-09	519.4836	-.0003369	39441.7058		
528.000	1.25E-08	.7944910	-.0186369	-2.2009E-09	519.4835	-.0002475	39681.7058		
530.000	8.28E-09	.7570577	-.0190496	-1.9951E-09	519.4833	-.0001653	39921.7058		
532.000	4.49E-09	.7189310	-.0193051	-1.7994E-09	519.4832	-9.0190E-05	40161.7058		
534.000	1.08E-09	.6804131	-.0194172	-1.6138E-09	519.4830	-2.1884E-05	40401.7058		
536.000	-1.96E-09	.6417788	-.0193991	-1.4384E-09	519.4829	3.9905E-05	40641.7058		
538.000	-4.67E-09	.6032768	-.0192638	-1.2733E-09	519.4828	9.5467E-05	40881.7058		
540.000	-7.06E-09	.5651311	-.0190232	-1.1183E-09	519.4826	.0001451	41121.7058		
542.000	-9.14E-09	.5275418	-.0186890	-9.7342E-10	519.4825	.0001891	41361.7058		
544.000	-1.10E-08	.4906866	-.0182721	-8.3837E-10	519.4823	.0002278	41601.7058		
546.000	-1.25E-08	.4547216	-.0177829	-7.1299E-10	519.4822	.0002615	41841.7058		
548.000	-1.38E-08	.4197831	-.0172310	-5.9701E-10	519.4821	.0002904	42081.7058		
550.000	-1.49E-08	.3859885	-.0166256	-4.9014E-10	519.4820	.0003150	42321.7058		
552.000	-1.58E-08	.3534375	-.0159752	-3.9207E-10	519.4818	.0003355	42561.7058		
554.000	-1.65E-08	.3222132	-.0152876	-3.0246E-10	519.4817	.0003521	42801.7058		
556.000	-1.70E-08	.2923838	-.0145702	-2.2095E-10	519.4816	.0003653	43041.7058		
558.000	-1.73E-08	.2640030	-.0138298	-1.4716E-10	519.4815	.0003752	43281.7058		
560.000	-1.76E-08	.2371119	-.0130724	-8.0700E-11	519.4814	.0003822	43521.7058		
562.000	-1.77E-08	.2117393	-.0123038	-2.1171E-11	519.4813	.0003864	43761.7058		
564.000	-1.76E-08	.1879033	-.0115292	3.1832E-11	519.4812	.0003882	44001.7058		
566.000	-1.75E-08	.1656124	-.0107531	7.8718E-11	519.4811	.0003878	44241.7058		
568.000	-1.73E-08	.1448657	-.0099798	1.1990E-10	519.4811	.0003855	44481.7058		
570.000	-1.71E-08	.1256548	-.0092130	1.5577E-10	519.4810	.0003813	44721.7058		
572.000	-1.67E-08	.1079639	-.0084561	1.8676E-10	519.4809	.0003756	44961.7058		
574.000	-1.63E-08	.0917708	-.0077119	2.1325E-10	519.4809	.0003685	45201.7058		
576.000	-1.59E-08	.0770480	-.0069831	2.3564E-10	519.4808	.0003602	45441.7058		
578.000	-1.54E-08	.0637629	-.0062720	2.5431E-10	519.4808	.0003509	45681.7058		
580.000	-1.48E-08	.0518787	-.0055803	2.6965E-10	519.4807	.0003407	45921.7058		
582.000	-1.43E-08	.0413552	-.0049099	2.8201E-10	519.4807	.0003297	46161.7058		
584.000	-1.37E-08	.0321487	-.0042621	2.9176E-10	519.4806	.0003181	46401.7058		
586.000	-1.31E-08	.0242132	-.0036381	2.9924E-10	519.4806	.0003059	46641.7058		
588.000	-1.25E-08	.0175004	-.0030389	3.0477E-10	519.4806	.0002933	46881.7058		
590.000	-1.19E-08	.0119601	-.0024652	3.0868E-10	519.4806	.0002803	47121.7058		
592.000	-1.13E-08	.0075407	-.0019178	3.1126E-10	519.4805	.0002671	47361.7058		
594.000	-1.07E-08	.0041893	-.0013971	3.1282E-10	519.4805	.0002536	47601.7058		
596.000	-1.00E-08	.0018520	-.0009037	3.1362E-10	519.4805	.0002399	47841.7058		
598.000	-9.40E-09	.0004741	-.0004379	3.1393E-10	519.4805	.0002260	48081.7058		
600.000	-8.77E-09	0.0000	0.0000	3.1399E-10	519.4805	.0002119	24160.8529		

Output Veri fi cati on:

Computed forces and moments are wi thi n speci fi ed convergence li mi ts.

Output Summary for Load Case No. 4:

Pile-head deflection = .23985003 in
 Computed slope at pile head = -1.318390E-16
 Maximum bending moment = -686796.70266 lbs-in
 Maximum shear force = 16000.00000 lbs

L-Pile.lpo
 Depth of maximum bending moment = 0.00000 in
 Depth of maximum shear force = 0.00000 in
 Number of iterations = 13
 Number of zero deflection points = 5

 Summary of Pile Response(s)

Defini ti on of Symbol s for Pile-Head Loading Condi ti ons:

Type 1 = Shear and Moment, y = pile-head displacement in
 Type 2 = Shear and Slope, M = Pile-head Moment lbs-in
 Type 3 = Shear and Rot. Stiffness, V = Pile-head Shear Force lbs
 Type 4 = Deflection and Moment, S = Pile-head Slope, radians
 Type 5 = Deflection and Slope, R = Rot. Stiffness of Pile-head in-lbs/rad

Load Type	Pile-Head Condi ti on 1	Pile-Head Condi ti on 2	Axi al Load lbs	Pile-Head Deflecti on in	Maxi mum Moment in-lbs	Maxi mum Shear lbs
1	V= 8000.000	M= 0.000	80000.0000	.2525893	240960.	8000.0000
2	V= 8000.000	S= 0.000	80000.0000	.0745949	-264764.	8000.0000
1	V= 16000.	M= 0.000	80000.0000	.8287459	706789.	16000.0000
2	V= 16000.	S= 0.000	80000.0000	.2398500	-686797.	16000.0000

The analysi s ended normal l y.

APPENDIX VI

SUMMARY OF CBR TEST RESULTS

SUMMARY OF CBR TEST RESULTS

Project: Expand/Renovate SCI Phase II

Project Location: Hampton, Virginia

Client: RDC/John Poe Architects

Project Number: WM11-152G

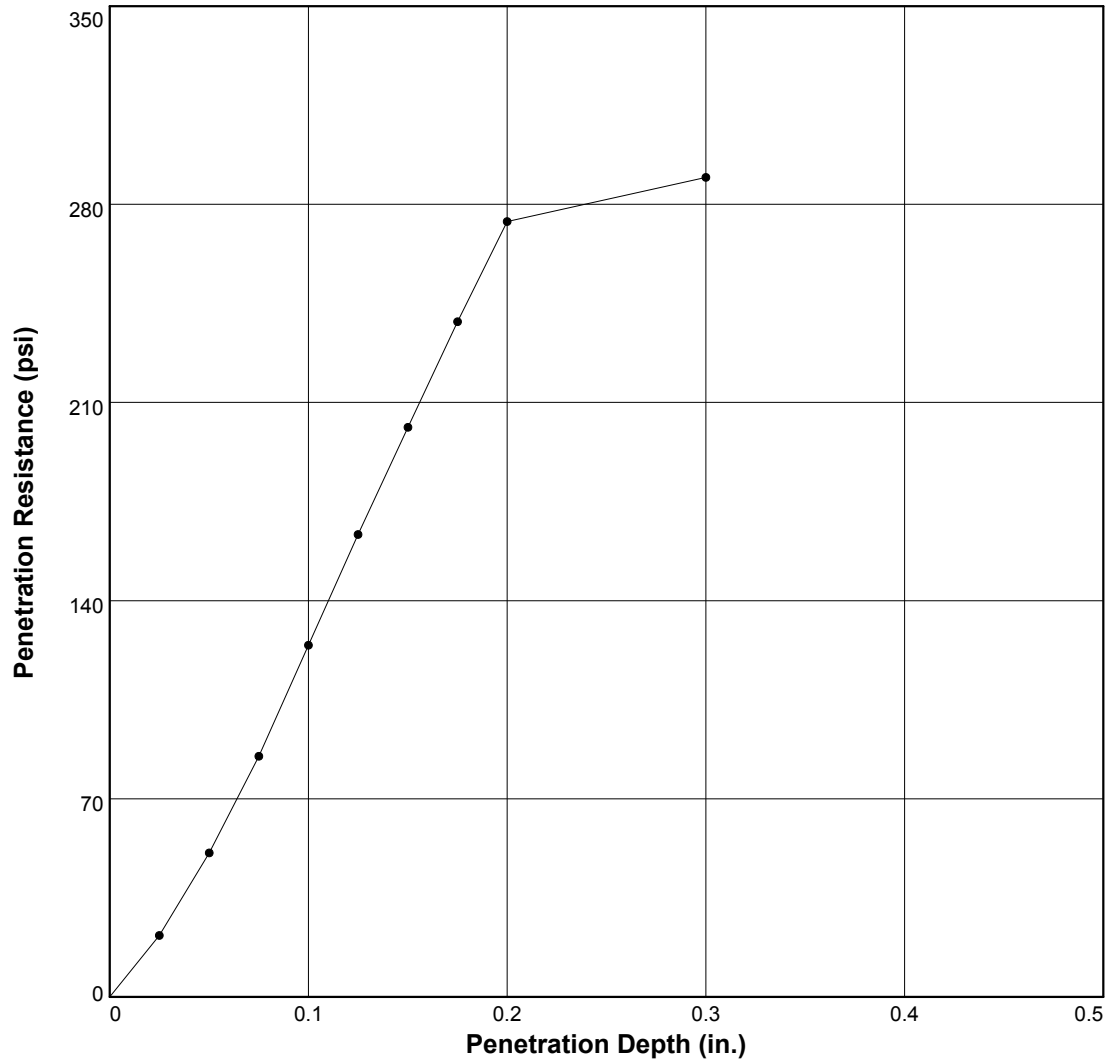
Sample Number	Sample Location	Sample Depth (ft)	USCS Symbol	Natural Moisture Content (%)	Atterberg Limits (LL/PL/PI)	Passing #200 Sieve (%)	Maximum Dry Density (pcf)	Optimum Moisture (%)	Soaked CBR Value	Resiliency Factor	Swell (%)
CBR-1	HA-1	0.5-1.5	SM	14	Non Plastic	47	113.3	12.3	18.3	2.5	0.5



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BEARING RATIO TEST REPORT

ASTM D 1883-05



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ●	113.3	100	12.3	112.7	99.5	14.4	12.4	18.3	0.000	10	0.5
2 ▲											
3 ■											

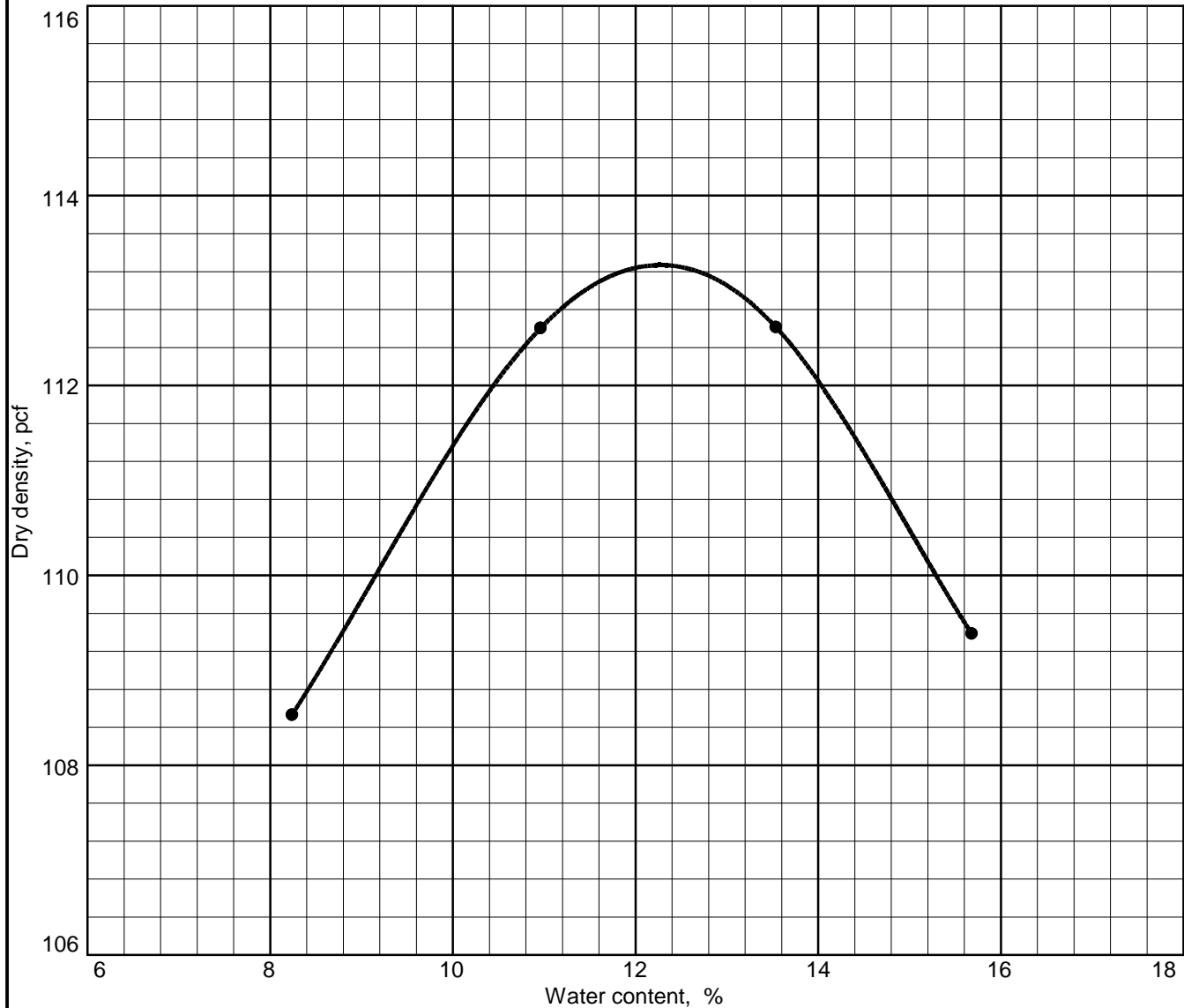
Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Dark brown, Silty, fine SAND (SM) with trace Gravel, Clay, and construction debris	SM	113.3	12.3	NP	NP

Project No: WM11-152G
Project: Renovate/Expand SCI Phase II
Location: CBR #1 - See Attached Boring Location Plan
Sample Number: CBR #1 **Depth:** 0.5-1.5' Below Grade
Date: 10/13/2011

Test Description/Remarks:

CBR #1
 Sample Obtained: 10/13/2011
 Sample Tested: 10/14/2011

MOISTURE DENSITY TEST REPORT (PROCTOR CURVE)



Test specification: ASTM D 698-91 Procedure A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
0.5-1.5' Below	SM	A-4(0)	14	Estimated	NP	NP	3	47

TEST RESULTS		MATERIAL DESCRIPTION	
Maximum dry density = 113.3 pcf Optimum moisture = 12.3 %		Dark brown, Silty, fine SAND (SM) with trace Gravel, Clay, and construction debris	
Project No. WM11-152G Client: RDC/John Poe Architects Project: Renovate/Expand SCI Phase II Location: CBR #1 - See Attached Boring Location Plan		Remarks: CBR #1 Sample Obtained: 10/13/2011 Sample Tested: 10/14/2011	
MOISTURE DENSITY TEST REPORT (PROCTOR CURVE) GET SOLUTIONS, INC.		Figure 2	