BURNS COOLEY DENNIS, INC.

GEOTECHNICAL CONSULTANTS

551 SUNNYBROOK ROAD
RIDGELAND, MS 39157

BUS: (601) 856-9911
FAX: (601) 856-9774

POST OFFICE BOX 12828
JACKSON, MS 39236

May 23, 2003

Natural Resources Conservation Service
3737 Government Street
Alexandria, Louisiana 71302

Project No. 02485-3

Attention: Ralph Broome, Contracting Officer

Geotechnical Investigation
West Lake Boudreaux
Shoreline Protection Project (TE-46)
Terrebonne Parish, Louisiana

Gentlemen:

Submitted herewith is the report documenting the geotechnical investigation for West Lake Boudreaux (TE-46), Terrebonne Parish. The report consists of Volumes 1 and 2.

We appreciate the opportunity to be of service. If you should have any questions concerning this letter, please do not hesitate to call us.

Very truly yours,

BURNS COOLEY DENNIS, INC.

Larry A. Cooley

Larry A. Cooley, P.E.

LAC/khb
Copies Submitted: (6)

TABLE OF CONTENTS

VOLUME 1

TABLES

FIGURES

INTRODUCTION AND PURPOSE

The Natural Resources Conservation Service (NRCS) is planning construction of a shoreline protection and marsh creation project in the western portion of Lake Boudreaux in Terrebonne Parish, Louisiana. The general project area is located near Dulac, Louisiana and includes more than 2 mi. of shoreline protection. A project location map is presented on Figure 1 of this report.

The investigation presented in this report addresses three types of potential bankline stabilization measures: a rock dike, a composite dike of rock with lightweight aggregate core, and a concrete pile with concrete panel wall. Typical sections of these three types of measures are presented on Figures 2, 3 and 4. The investigation also addresses creation of about 221 acres of marsh through the use of dredge fill material including an earthen containment dike system.

The specific purposes of this investigation were:

1) to explore subsurface soil conditions along the alignment of the potential shoreline protection measures, in the marsh creation areas, and in potential dredge fill borrow areas;

2) to determine pertinent physical properties of the soils encountered;

3) to perform foundation analyses of the three types of shoreline protection measures and the earthen containment dike system; and

4) to perform foundation and solidification analyses of the marsh creation areas.

FIELD AND LABORATORY INVESTIGATIONS

Subsurface soil conditions along the alignment of the potential shoreline protection measures were investigated by 12 undisturbed soil borings ranging in depth from 30 ft to 80 ft below the mud line. Subsurface soil conditions in the marsh creation areas were investigated by six additional undisturbed soil borings 30 ft deep plus two of the shoreline protection borings, which were used for dual purposes. Potential borrow sources for the dredge fill materials were investigated by 23 undisturbed soil borings 20 ft deep in the lake area. The boring locations are shown in plan on Figure 6. The borings in the marsh creation areas were drilled using an air boat-mounted drill rig. All of the remaining borings were drilled using a pontoon-mounted drill rig.

All soils were classified in general accordance with the Unified Soil Classification System. A boring legend is shown on Figure 7, which provides a summary of the Unified Soil Classification System and also the symbols and terminology utilized on the graphic logs. Graphic soil profiles created from the boring logs are presented on Figures 8 through 14. All soils were classified in general accordance with the Unified Soil Classification System. The elevation of the water surface at each boring location was determined by our drill crew using site benchmark elevation data supplied by the NRCS. Individual graphic logs of the soil borings are presented in Volume 1, Appendix A.

The field exploration consisted of standard soil sampling using thin-walled Shelby tube samplers. In addition, field vane shear testing was performed at selected depths to evaluate the shear strength of very soft consistency soils in situ. The laboratory testing program consisted of water content determinations, Atterberg limits, unconsolidated-undrained (UU) triaxial compression and unconfined compression tests, table vane shear tests, consolidation tests, specific gravity tests, sieve analyses and hydrometer analyses performed on selected representative samples.

The details and results of the field and laboratory investigations are presented in Appendix A of report Volume 1. Consolidation tests results are included as Figures 1 through 72 in Appendix D of report Volume 1. Unconsolidated-undrained (UU) triaxial compression and unconfined compression shear tests results are included in report Volume 2.

GENERAL SOIL CONDITIONS

A general description of the stratification and physical properties of the soils encountered in this subsurface investigation is included in the following subsections. The descriptions provided refer to the graphic profiles presented on Figures 8 through 14. The graphic logs presented in Appendix A should be referred to for the specific soil conditions encountered at each boring location explored. The depths presented on the boring logs are measured from the water surface.

At boring locations along the proposed shoreline protection measures, the mud line varied from EL. –1.3 ft to EL. –3.0 ft NAVD 88 and was located from 2 ft to 4 ft below the water surface at the time of drilling. In the marsh areas, the mud line varied from EL. 0.9 ft to EL. –1.0

ft and was located from 0.0 ft to 2.0 ft below the water surface at the time of drilling. In the potential borrow areas, the mud line varied from EL. –3.9 ft to EL. –5.9 ft and was located from 5.0 ft to 7.0 ft below the water surface at the time of drilling.

Shoreline Protection Measures

Along the proposed shoreline protection measures, the soils encountered by the borings classify predominately as clays (CH) with silt (ML) or silty sand (SM) strata being encountered in all of the 12 borings at depths ranging from about 7.0 ft to about 13.5 ft. These silt (ML) and silty sand (SM) strata ranged in thickness from about 2 ft to about 19 ft. Borings C and D encountered strata of shell fragments with clay at depths of about 16 ft and 18.5 ft below the mud line, respectively. These strata of shell fragments with clay were about 12 ft and 15 ft in thickness, respectively. Boring A encountered a stratum of peat (PT) about 1 ft in thickness at the mud line. Boring C encountered a stratum of organic clay (OH) about 2 ft in thickness at a depth of about 28 ft below the mud line. Borings 10, B and D encountered strata of silty or sandy clays (CL) 2 ft or less in thickness. Boring E encountered a stratum of clayey sands (SC) about 5 ft in thickness at a depth of about 38 ft below the mud line.

Consistencies of the clays varied from very soft to medium stiff. The silts (ML) or silty sands (SM) ranged from very loose to medium dense except in Boring E, where they ranged from loose to very dense. Clay consistencies were very soft in Boring 1 except from about 18 ft to 20 ft below the mud line, where the consistency was soft. Clay consistencies in Boring 2 were very soft except from about 24 ft to 25 ft below the mud line, where the consistency was soft. Clay consistencies in Boring 6 were very soft except from about 6 ft to 8 ft below the mud line, where the consistency was soft. Clay consistencies in Boring 7 were very soft to a depth of about 28 ft below the mud line, then were soft to the completion depth of the boring. Clay consistencies in about the top 15 ft of Boring 10 varied from very soft to medium stiff and were soft below the silty sand (SM) stratum. Clay consistencies in Boring 12 were very soft in about the top 3 ft then soft to the silt (ML) and silty sand (SM) strata becoming very soft again below these strata. Clay consistencies in Boring 13 were very soft above the silt (ML) stratum then soft below this stratum. Consistencies of the clays (CH) and peat (PT) in Boring A were very soft above and below the silt (ML) stratum to a depth of about 33.5 ft below the mud line except for soft consistency from about 16.5 ft to 19.5 ft below the mud line. Consistencies were then soft to

the completed depth of the boring except for a medium stiff consistency from about 44.5 ft to 60 ft below the mud line. Clay consistencies in Boring B were very soft to a depth of about 12 ft below the mud line. A 2-ft-thick stratum of silty clays (CL) between the silt (ML) and silty sand (SM) strata was soft. The clays (CH) below these strata were very soft to a depth of about 33 ft below the mud line then soft to about 58 ft below the mud line becoming medium stiff to the completed depth of the boring. Clay consistencies in Boring C were soft in the top 5 ft below the mud line then very soft down to the stratum of shell fragments with clay. The organic clays (OH) and clay (CH) below the stratum of shell fragments with clay were soft. Clay consistencies in Boring D were soft to about 7.5 ft below the mud line then very soft to the top of the silt (ML) stratum. The consistency of a 1.5 ft-thick clay (CH) stratum encountered about 17 ft below the mud line was stiff. Clay consistencies below the stratum of shell fragments with clay varied from very soft to medium stiff. Clay consistencies in Boring E were generally soft except from about 43 ft to 48 ft below the mud line where they were very soft and from about 68 ft below the mud line to the completed depth of the boring where they were medium stiff. The clayey sand (SC) stratum from about 38 ft to 43 ft below the mud line was also medium stiff.

Water contents ranged from 26 percent on a sample of silty fine sands (SM) to 302 percent on a sample of clays (CH) with organic matter with approximately 14 percent of the water contents exceeding 100 percent and more than 70 percent of the water contents exceeding 50 percent. Liquid limits ranged from 29 percent on a sample of silts (ML) to 287 percent on a sample of clays (CH). More than 93 percent of the liquid limits exceeded 50 percent, and approximately 40 percent of the liquid limits exceeded 100 percent. Plastic limits ranged from 20 percent on samples of clays (CH) and silty clays (CL) to 113 percent on a sample of organic clays (OH); however, more than 95 percent of the plastic limits were between 20 and 50 percent. Plasticity indices ranged from non-plastic on a sample of silty sand (SM) to 207 percent on a sample of clays (CH) with more than 73 percent of the plasticity indices exceeding 50 percent and more than 13 percent of the plasticity indices exceeding 100 percent.

Unconfined and triaxial compression tests yielded cohesions ranging from about 80 lbs per sq ft to about 910 lbs per sq ft. Approximately 26 percent of the unconfined and triaxial compression tests yielded cohesions below 250 lbs per sq ft, which is the upper limit of very soft consistency. Approximately 4 percent of the unconfined and triaxial compression tests yielded cohesions below 100 lbs per sq ft. Field vane tests performed generally in the upper soils yielded

cohesions ranging from about 40 lbs per sq ft to about 290 lbs per sq ft with approximately 19 percent of the field vane tests yielding cohesions below 100 lbs per sq ft.

Marsh Areas

In the marsh areas, the borings generally encountered a top stratum of predominately clays (CH) ranging in thickness from about 10 ft to about 15 ft overlying strata of silts (ML) or silty sands (SM) generally ranging in thickness from about 8 ft to about 20 ft which were, in turn, underlain by clays (CH).

Consistencies of the top stratum of clays (CH) were generally very soft in Borings 3 and 4, soft to medium stiff in Boring 5, very soft to soft in Borings 8 and 11, and varied from the upper limit of very soft to the lower limit of medium stiff in Boring 9. The clays (CH) that were encountered beneath the silts (ML) and silty sands (SM) were generally found to have a soft consistency. The silts (ML) and silty sands (SM) were loose to medium dense.

In the top stratum of clays (CH), water contents ranged from 35 percent on a sample of silty clays (CL) to 381 percent on a sample of clays (CH) with organic pockets with approximately 24 percent of the water contents exceeding 100 percent and approximately 71 percent of the water contents exceeding 50 percent. Liquid limits ranged from 42 percent on a sample of silty clays (CL) to 343 percent on a sample of clays (CH). More than 93 percent of the liquid limits exceeded 50 percent, and approximately 45 percent of the liquid limits exceeded 100 percent. Plastic limits ranged from 23 percent on a sample of silty clays (CL) to 109 percent on a sample of clays (CH); however, more than 96 percent of the plastic limits were between 23 and 50 percent. Plasticity indices ranged from 19 on a sample of silty clays (CL) to 234 percent on a sample of clays (CH) with organic pockets with more than 82 percent of the plasticity indices exceeding 50 percent and more than 10 percent of the plasticity indices exceeding 100 percent.

Unconfined and triaxial compression tests yielded cohesions ranging from about 50 lbs per sq ft to about 680 lbs per sq ft. Approximately 53 percent of the unconfined and triaxial compression tests yielded cohesions below 250 lbs per sq ft, which is the upper limit of a very soft consistency. Approximately 12 percent of the unconfined and triaxial compression tests yielded cohesions below 100 lbs per sq ft. Field vane tests performed generally in the upper soils

yielded cohesions ranging from about 50 lbs per sq ft to about 230 lbs per sq ft with approximately 22 percent of the field vane tests yielding cohesions below 100 lbs per sq ft.

Potential Borrow Areas

Borings 23 through 32 were drilled in an effort to locate potential borrow sources for the dredge fill, and these borings were ranked in order of suitability of borrow material. Of the initial 10 potential borrow borings, Borings 26, 27, 28, 30 and 31 were considered the least suitable. The remaining Borings 23, 24, 25, 29 and 32 were considered most suitable. Borings 14 through 22 and 33 through 36 were then drilled in the areas expected to provide the most suitable borrow materials. Borings 23, 24, 25, 29 and 32 generally encountered less than 5 ft of silty clays (CL) and clays (CH) overlying strata of mostly silts (ML) and silty sands (SM) ranging in thickness from about 7 ft to 10 ft. These silts (ML) and silty sands (SM) would be less compressible and more suitable as dredge fill for the marsh areas. Borings 14, 15 and 16 encountered about 6 ft to 7 ft of silty clays (CL) and clays (CH) overlying silts and sandy silts (ML) ranging in thickness from about 5 ft to 10 ft. Borings 17 through 20, 22 and 34 encountered about 2 ft to 6 ft of organic clays (OH) and about 5 ft to about 7 ft of clayey materials overlying silts and sandy silts (ML) ranging in thickness from about 5 ft to 12 ft. Boring 21 encountered about 6 ft of clays (CH) overlying about 9 ft of sandy silts (ML) and silty clays (CL). Boring 33 encountered about 5 ft of clays (CH) overlying about 10 ft of silts and sandy silts (ML) and silty sands (SM). Boring 35 encountered about 6 ft of silty clays (CL) and clays (CH) overlying alternating layers of silts and sandy silts (ML), clays (CH) and shell fragments with clay. Boring 36 encountered about 7 ft of silty clays (CL) overlying about 10 ft of silts (ML).

ANALYSES AND RESULTS

Shoreline Protection Measures

The foundation analyses were performed for a rock dike, a composite dike of rock with lightweight aggregate core and a concrete pile with concrete panel wall. Descriptions of the analyses are provided in the following paragraphs.

1) Rock Dike (Refer to Figure 2). The analyses established the expected settlement of the rock structure and expected configuration. The analyses established the stable side slopes of the rock structure and evaluated the 40-ft minimum berm distance shown on Figure 2 between the rock structure and the access channel to be excavated to construct the dike. A minimum factor of safety of 1.3 was required in the stability analyses. The steepest side slope considered for the rock dike structure was 1V on 2H. Initial guidance provided to us indicated that the rock dike would have the same crown width as the previous Land Bridge project, which was 1 ft. Stability analyses were accomplished for all applicable soil borings using this dimension. However, subsequent guidance indicated the crown width would be 3 ft. Those analyses whose safety factors were sufficiently close to 1.3 were then reanalyzed to determine if changes in the rock dike slopes were necessary. Those analyses whose safety factors were sufficiently high to not require a change in the rock dike slopes were not reanalyzed. Consequently, some of the stability analyses indicate a dike crown width of 1 ft, and others indicate 3 ft. The side slope provided for the excavated access channel was 1V on 1H. This slope is only 2.5 ft to 4.2 ft high and was not analyzed for stability. However, due to the low cohesive strengths of some of the upper soils, sloughing of the 1V on 1H side slopes for the access channel may occur. However, the 40-ft minimum berm width should prevent sloughing of the access channel side slopes from adversely affecting the dike structure.

2) Composite Dike of Rock with Lightweight Aggregate Core (Refer to Figure 3). The analyses established the expected settlement of the composite structure and expected configuration. The analyses established the stable side slopes of the composite structure and evaluated the 40-ft minimum berm distance shown on Figure 3 between the composite structure and the access channel to be excavated to construct the dike. A minimum factor of safety of 1.3 was required in the stability analyses. The steepest side slope considered for the composite dike structure was 1V on 2H. Initial guidance provided to us indicated that the composite dike would have the same crown width as the previous Land Bridge project, which was 1 ft. Stability analyses were accomplished for all applicable soil borings using this dimension. However, subsequent guidance indicated the crown width would be 3 ft. Those analyses whose safety factors were sufficiently close to 1.3 were then reanalyzed to determine if changes in the composite dike slopes were necessary. Those analyses whose safety factors were sufficiently

high to not require a change in the composite dike slopes were not reanalyzed. Consequently, some of the stability analyses indicate a dike crown width of 1 ft, and others indicate 3 ft. The side slope provided for the excavated access channel was 1V on 1H. The preceding discussion regarding the stability of this 1V on 1H access channel side slope and its relationship to the 40-ft minimum berm width also pertains to the composite dike section.

3) Concrete Pile with Concrete Panel Wall (Refer to Figure 4). The 16"x16" concrete piles will support a 20-ft span concrete panel wall. The 16-in. by 16-in. concrete pile had to be designed to accommodate the subsurface soil conditions and the anticipated lateral and vertical loads. We understand that the horizontal load acting on the pile will be a uniform load of 690 lbs/ft acting at elevation 0.0 NAVD 88. Each pile will support a 20 ft span concrete panel wall. The resulting lateral load will be about 13.8 kips acting on each pile. The downward vertical load acting at the top of the pile will be 9,000 lbs, the weight of the concrete panel wall. Design assumptions included a free-head condition and cyclic loading conditions. Cyclic loading conditions were considered appropriate to model the repeated wave action the structure will experience over the design life.

Rock Dike Stability

Dike stability analyses were performed using the slope stability program, UTEXAS3 developed by Professor Steve Wright at the University of Texas for the U.S. Army Corps of Engineers Waterways Experiment Station. A total of 12 separate dike analyses were performed for the 12 separate boring locations. The rock dike stability analyses are presented in Appendix B as Figures B-1 through B-12. Shear strengths used in the dike stability analyses are shown on depth versus cohesion plots for each individual soil boring and are presented as Figures B-25 through B-36. A geotextile with a minimum ultimate tensile strength of 4,800 lbs per ft is to be placed at the mud line beneath the rock dike. Pullout resistance of the geotextile was included in the stability analyses. Factors of safety for creep, installation damage, and durability of 1.4, 2.6, and 1.1, respectively, were applied to the ultimate strength of the geotextile. Collectively, these safety factors resulted in use of a maximum of 25 percent of the ultimate tensile strength of the geotextile, or 1,200 lbs per ft, unless the strengths of the soil and rock resulted in less pullout resistance, in which case the lower pullout resistance was used. A factor of safety of 1.5 was

applied to the soil and rock parameters, and an additional efficiency factor of 0.8 for soil or rock on geotextile was also applied in computing pullout resistance.

Composite Dike of Rock With Lightweight Aggregate Core Stability

The approach used in analyzing the composite dike of rock with lightweight aggregate core was the same as in analyzing the rock dike, as discussed previously in this report. This same approach applies to the computer program, soil shear strength selection, use of geotextile, and factors of safety. The stability analyses for the composite dike of rock with lightweight aggregate core are presented in Appendix B as Figures B-13 through B-24.

Dike Stability Summary

Table 1 presents a tabulation of results of both the rock dike and composite dike stability analyses. The "Distance to Excavation" column in Table 1 is the distance in ft from the top of the 1V on 1H excavation slope of the access channel to the waterway side dike toe.

Table 1 - Dike Stability Summary

Boring No.	Rock Dike Slope, H	Composite Dike Slope, H	Distance To Excavation, Ft	
			Rock	Comp
1	2.5	2	40	40
2	3.5	2	40	40
A	2.5	2	40	40
6	2	2	40	40
B	2	2	40	40
7	2.5	2	40	40
C	2	2	40	40
10	2	2	40	40
D	2	2	40	40
12	2	2	40	40
E	2	2	40	40
13	6	2.5	40	40

Dike Settlement

The settlement analyses for both the rock dike and composite dike sections were performed using the computer program CSETT developed at the U.S. Army Corps of Engineers Waterways Experiment Station. CSETT was designed to compute induced stresses under

general-shaped loads and to evaluate resulting consolidation settlements in underlying strata. The time-rate of consolidation computations were derived from Terzaghi's classical theory of one-dimensional consolidation.

The parameters utilized in the settlement analyses for the foundation soils were developed from the results of the consolidation tests performed for this investigation. A tabulated summary of all consolidation test data is presented on Figure 15. The parameters were selected from the individual tests considering the anticipated stress ranges, including in situ stresses and induced stresses. The two-dimensional aspect of the embankment sections was considered in selecting the coefficient of consolidation parameters. Settlement analyses were performed for a rock dike section and a composite dike section for each of the soil borings that had been analyzed for dike stability.

The results of the settlement analyses are presented as computer input and output in Volume 1, Appendix E. The input lists the stratification and soil parameters used in each analysis, and the output shows the computed ultimate settlement and the time-rate of settlement. Results of the analyses are also presented in summary form in Tables 2 and 3 with the exception that not all time intervals included in the output are presented in the tabulation. Time rate of settlement plots, which include all time intervals analyzed, are presented on Figures 16 through 18. The settlement analyses did not consider any secondary compression settlements nor any undrained creep.

Table 2 – Summary of Settlement Analyses for a Rock Dike

Boring No.	Dike Height, ft	Ultimate Settlement, ft	Ultimate Settlement % Dike Height	¼-Year Settlement, ft	¼-Year Settlement % Dike Height
1	6.0	1.33	22.2	0.44	7.3
2	7.0	1.51	21.6	0.47	6.7
A	6.4	1.38	21.6	0.53	8.3
6	6.0	0.75	12.5	0.25	4.2
B	5.5	0.51	9.3	0.18	3.3
7	6.6	0.62	9.4	0.39	5.9
C	6.3	0.32	5.1	0.17	2.7
10	5.7	0.36	6.3	0.32	5.6
D	5.7	0.46	8.1	0.14	2.5
12	5.9	0.66	11.2	0.29	4.9
E	5.3	0.21	4.0	0.18	3.4
13	5.6	1.48	26.4	1.10	19.6

Table 3 – Summary of Settlement Analyses for a Composite Dike

Boring No.	Dike Height, ft	Ultimate Settlement, ft	Ultimate Settlement % Dike Height	¼-Year Settlement, ft	¼-Year Settlement % Dike Height
1	6.0	0.91	15.2	0.30	5.0
2	7.0	0.89	12.7	0.28	4.0
A	6.4	0.90	14.1	0.36	5.6
6	6.0	0.62	10.3	0.21	3.5
B	5.5	0.43	7.8	0.15	2.7
7	6.6	0.48	7.3	0.32	4.8
C	6.3	0.27	4.3	0.15	2.4
10	5.7	0.28	4.9	0.25	4.4
D	5.7	0.39	6.8	0.11	1.9
12	5.9	0.56	9.5	0.25	4.2
E	5.3	0.18	3.4	0.16	3.0
13	5.6	0.86	15.4	0.68	12.1

Concrete Pile with Concrete Panel Wall Analysis

Based upon the relatively large cyclic horizontal load, small vertical load, and weak soil conditions present at each boring location, it was expected that the lateral capacity would control the design of the concrete pile with concrete panel wall system. Similar to the dike stability, the soil conditions encountered within the top 20 ft to 30 ft of each boring have the dominant impact on the lateral stability of each pile. Consequently, a total of 12 lateral analyses were required to correspond with the 12 dike analyses. In addition, each of 12 soil borings was analyzed for a series of horizontal forces against the wall consisting of uniform loads of 400, 600, 800, 1,000, 1,200 and 1,400 lbs/ft at elevation 0.0 NAVD 88. These loads were distributed across a 20-ft panel length. The shear strengths used in the dike stability analyses (refer to Figures B-25 through B-36) were also used in the lateral stability analysis to define the soil conditions within the controlling upper zone of each analysis. The same soil unit weights and soil stratification that were used for the rock dike stability analyses presented on Figures B-1 through B-12 were also used to define the soil conditions within the upper zone for each lateral analysis.

The lateral capacity of a 16-in. square concrete pile was estimated using the computer program LPILE, Version 4.0, which models resistance as a series of load versus deflection (p-y) curves along the length of the shaft. All 12 analyses were initially performed using an 80-ft pile length. The lateral deflection of the 16-in. square concrete pile at the location of the horizontal load at elevation 0.0 NAVD 88 was determined for each analysis. A set of curves for each set of

horizontal forces against the wall as stated in the previous paragraph was developed for each set of analyses showing the lateral deflection below elevation 0.0 NAVD 88 along the length of the 80-ft pile. From these curves minimum pile lengths were recommended based on points of fixity determined from the depths where increasing pile penetration does not decrease pile lateral deflections. The lateral deflection at elevation 0.0 NAVD versus the length of pile was generated as necessary to verify the recommended penetration depths. Moment and shear diagrams along the 80-ft pile length were determined for the series of horizontal forces against the wall for each set of analyses. The results of all 12 lateral analyses for 16-in. square concrete piles are presented in Appendix C as Figures C-1 through C-36. The lateral deflection, moment and shear along the 16-in. square 80-ft-long pile are presented for each set of analyses. The results of the lateral analyses are presented as computer input and output in Volume 2 of this report.

A tabulation of the results of the lateral stability analyses for the two extreme loading cases, 400 and 1,400 lbs/ft, is presented in Table 4. The maximum deflection column in Table 4 is the lateral distance in inches an 80-ft long pile would deflect at elevation 0.0 NAVD 88. The deflection of the top of the pile at elevation 3.5 NAVD 88 will be expected to be between 1 in. to 3 in. larger than the maximum deflection presented in Table 4.

Table 4 – Maximum Lateral Deflection in Inches at Elevation 0.0 NAVD 88 for 16"X16" 80-ft-long Concrete Pile

Boring No.	Maximum Lateral Deflection for 400 lbs/ft Cyclic Loading	Maximum Lateral Deflection for 1,400 lbs/ft Cyclic Loading
1	1.47	10.83
2	1.57	10.01
A	1.53	22.84
6	1.23	8.94
B	1.59	10.53
7	1.82	32.67
C	1.06	8.86
10	1.23	8.29
D	1.65	11.00
12	1.09	8.21
E	0.51	3.64
13	1.58	11.66

Table 5 is a tabulation by analysis Boring No. of the maximum moment and shear along the 80-ft length of the 16-in. square concrete pile for the two extreme loading cases, 400 and 1,400 lbs/ft.

Table 5 – Maximum Moment (in-kips) and Shear (kips) Along the 80-ft Length of a 16"X16" Concrete Pile

Boring No.	Maximum Moment, in-kips, for 400 lbs/ft Loading	Maximum Moment, in-kips, for 1,400 lbs/ft Loading	Maximum Shear, kips, for 400 lbs/ft Loading	Maximum Shear, kips, for 1,400 lbs/ft Loading
1	892.5	4364.9	8.0	28.0
2	985.6	4495.2	8.0	-28.4
A	927.9	4634.0	8.0	28.0
6	808.4	4080.4	8.0	28.0
B	898.2	4584.8	8.0	-31.1
7	902.2	5676.0	8.0	-31.3
C	798.1	4439.1	8.0	-41.7
10	764.3	3975.9	8.0	-36.3
D	815.9	4780.2	8.0	-44.3
12	728.4	4394.6	8.0	-39.8
E	612.8	3981.8	-8.7	-45.1
13	952.8	4750.1	8.0	-29.0

The maximum deflections presented in Table 4 does not represent a permanent lateral displacement of the pile, but rather illustrates the maximum displacement of the pile under the assumed load from cyclic conditions. If the assumed load represents a maximum loading condition, then some rebound of the pile will occur when the load is reduced. The magnitude of the rebound will vary greatly. Some piles may rebound to a near vertical condition; however, after being subject to numerous cycles of the full assumed load, the permanent deformation of the some of the piles may approach the maximum lateral deflection presented in Table 4.

As indicated previously, it was expected that the lateral capacity and not the vertical capacity would control the design of the concrete piles. Axial capacities of 16-in. square concrete piles were estimated using static equations to confirm there is adequate axial capacity to support the anticipated load. Since the lateral analysis was expected to control the design, axial capacities were only performed at select boring locations as considered appropriate to estimate the reasonable range of axial capacities expected along the entire length of the project. The vertical load acting on the pile is 9,000 lbs, the weight of the concrete panels, plus the weight of

the pile. Therefore, we expect that the total axial support required for the 16-in. square concrete piles will range from 15 kips to 17 kips, depending upon the length and weight of the piles. For the static equations, the unit skin friction and the bearing capacity factor, N_q, of the sands and silts were estimated using empirical procedures for drained shear strengths. Drained shear strengths were considered appropriate for the silts because of their permeability characteristics. The unit skin friction of the clays (adhesion) was estimated to be equivalent to the undrained strength profiles utilized for the lateral analysis. Because of the low strength of the soils across the entire site, the unit skin friction of the clays was taken as the undrained shear strength. The unit end bearing was taken as the undrained shear strength times a bearing capacity factor of 9. The skin friction provided by the soil within 5 ft of the ground surface was neglected in the analysis. Axial pile capacity curves are presented on Figures C-109 through C-120 for the 16-in. square concrete piles. The results of the axial analyses are presented as computer input and output in Volume 2 of this report.

Concrete Pile with Concrete Panel Wall Recommendations

If the maximum lateral deflections are not acceptable, or the pile cannot structurally handle the maximum moment and shear along the length of the piles then shorter wall panel lengths should be considered. In order to assist in determining a necessary panel length, lateral analyses were also performed for 10-ft and 15-ft panel lengths for all 12 shoreline borings for the entire series of horizontal forces against the wall stated previously for an 80-ft-long pile. Results of these analyses are shown in the form of lateral deflection, bending moment and shear force versus depth curves presented on Figures C-37 through C-72 for the 15-ft panel length and on Figures C-73 through C-108 for the 10-ft panel length.

Table 6 is a tabulation by analysis Boring No. of the minimum recommended pile length below elevation 0.0 NAVD 88, for a 16-in. square concrete pile for the minimum and maximum loading cases of 400 and 1,400 lbs/ft for a 20-ft-long wall panel. Lateral deflections, maximum moments and maximum shear forces for these minimum recommended pile lengths are approximately the same as for 80-ft-long piles as presented in Tables 4 and 5. The moment and shear distributions presented in Appendix C for the 80-ft-long piles do shift slightly for the minimum penetration lengths; however, the magnitudes are approximately the same.

Table 6 – Minimum Penetration Below El. 0.0 NAVD 88 (ft), 16" Square Concrete Pile for a 20-ft-long Wall Panel

Boring No.	Minimum Recommended Penetration, feet, for 400 lbs/ft Loading	Minimum Recommended Penetration, feet, for 1,400 lbs/ft Loading
1	50	70
2	50	65
A	50	70
6	55	70
B	55	65
7	45	80
C	50	55
10	45	60
D	50	55
12	45	60
E	45	45
13	50	60

Containment Levee Stability

Containment levee stability analyses were performed using the slope stability program, UTEXAS3. The analyses established the stable side slopes and evaluated the 25-ft minimum berm distance shown on Figure 5 between the containment levee and the containment levee borrow channel. Where the 25-ft minimum berm width was inadequate, the minimum required berm width was determined. A 2-ft crown width was utilized. A minimum factor of safety of 1.3 was required in the stability analyses. The steepest side slope considered for the containment levee was 1V on 2H. The crown elevation of the containment levee was based on settlement and shrinkage computations discussed in subsequent paragraphs, which provide a minimum freeboard of 0.5 ft above the required dredge fill elevation. A total of eight separate analyses were performed for the eight separate boring locations, Borings 3, 4, 5, 8, 9, and 11 in the marsh areas and Borings 12 and 13 along the proposed shoreline protection measures. The containment levee stability analyses are presented in Appendix F as Figures F-1 through F-8. Shear strengths used in the containment levee stability analyses are shown on depth versus cohesion plots for each individual soil boring and are presented as Figures F-9 through F-16. The shear strength of the embankment was assumed to be 80 percent of the strength of the top stratum of the foundation soils. The depth of the borrow channel was limited to 10 ft in the stability analyses

and was assumed to have 1V on 1H side slopes. Table 7 presents a tabulated summary of the results of the containment levee stability analyses. The "Distance to Excavation" column in Table 7 is the minimum required distance in ft from the top of the excavation slope of the containment levee borrow channel to the interior containment levee toe.

Table 7 – Containment Levee Stability Summary

Boring No.	Gross Crown Elevation	Slope, H	Distance To Excavation, Ft
3	4.0	2	25
4	3.8	2	70
5	3.8	2	25
8	3.8	2	25
9	3.8	2	25
11	3.8	2	30
12	4.0	2	45
13	7.0	9	80

Containment Levee Settlement

The settlement analyses for the containment levee sections were performed using the computer program CSETT described in the previous section on dike settlement. The parameters utilized in the settlement analyses for the foundation soils were developed from the results of the consolidation tests performed for this investigation. A tabulated summary of all consolidation test data is presented on Figure 15. The parameters were selected from the individual tests considering the anticipated stress ranges, including in situ stresses and induced stresses. The two-dimensional aspect of the embankment sections was considered in selecting the coefficient of consolidation parameters. Settlement analyses were performed for each of the soil borings that had been analyzed for containment levee stability.

The results of the settlement analyses are presented as computer input and output in Volume 2 of the report. The input lists the stratification and soil parameters used in each

analysis, and the output shows the computed ultimate settlement and the time-rate of settlement. Time rate of settlement curves, which include all time intervals analyzed, are presented on Figures 19 through 21. Time rate of settlement curves are shown both with and without embankment shrinkage. The curves that include embankment shrinkage are based on the assumptions that after the containment levees are constructed to gross grade, 15 percent shrinkage of this cast fill would occur during the first year after construction, and then the dredge fill would be placed. The 15 percent shrinkage factor is based on information contained on page 112 of U.S. Army Engineer Waterways Experiment Station Technical Report D-77-9, "Design and Construction of Retaining Dikes for Containment of Dredged Material" by David P. Hammer and Edward D. Blackburn, dated August 1977. This document was incorporated into a USACE Engineer Manual, EM 1110-2-5008, with the same title dated 15 October 1980. The information regarding embankment shrinkage is contained on Page 106 of the EM. These curves are plotted as containment levee elevation versus time. The curves that do not include embankment shrinkage assume that the dredge fill is placed one year after the embankment is constructed to gross grade. These curves are plotted as settlement versus time. The settlement analyses did not consider any secondary compression settlements nor any undrained creep.

Table 8 presents a comparison of the initial dredge fill elevation and the elevation of the containment levee after one year of foundation consolidation and 15 percent embankment shrinkage to demonstrate that the minimum 0.5 ft freeboard would be provided one year after containment levee construction.

Table 8 – Comparison of Containment Levee and Dredge Fill Elevation (Ft NAVD88)

Boring No.	Initial Levee C/L EL.	1-Yr Levee C/L EL.	Initial Dredge Fill EL.	Initial Difference Levee Minus Fill
3	4.0	3.06	2.5	0.56
4	3.8	3.05	2.5	0.55
5	3.8	3.01	2.5	0.51
8	3.8	3.08	2.5	0.58
9	3.8	3.06	2.5	0.56
11	3.8	3.09	2.5	0.59
12	4.0	3.04	2.5	0.54
13	7.0	4.02	3.5	0.52

Dredge Fill Settlement and Shrinkage

The settlement analyses for the dredge fill were performed using the computer program CSETT described in the preceding paragraph on dike settlement. The parameters utilized in the settlement analyses for the foundation soils were developed from the results of the consolidation tests performed for this investigation. A tabulated summary of all consolidation test data is presented on Figure 15. The parameters were selected from the individual tests considering the anticipated stress ranges, including in situ stresses and induced stresses. Settlement analyses were performed for each of the soil borings that had been analyzed for containment levee stability.

The results of the settlement analyses are presented as computer input and output in Volume 2 of the report. The input lists the stratification and soil parameters used in each analysis, and the output shows the computed ultimate settlement and the time-rate of settlement. Time rate of settlement curves, which include all time intervals analyzed up to the 20-year life of the project are presented on Figures 22 through 25. Time rate of settlement curves are shown both with and without fill shrinkage. The curves that include fill shrinkage are based on the assumptions that after the dredge fill is placed, 30 percent shrinkage of this dredge fill would occur uniformly during the first four years after placement. Several technical reports published by the U. S. Army Engineer Waterways Experiment Station were researched regarding the selection of an appropriate shrinkage factor for the dredge fill. The 30 percent shrinkage factor is based in part on information contained on pages 112 and 113 of U.S. Army Engineer Waterways Experiment Station Technical Report D-77-9, "Design and Construction of Retaining Dikes for Containment of Dredged Material" by David P. Hammer and Edward D. Blackburn, dated August 1977 and pages 106 and 107 of USACE EM 1110-2-5008 dated 15 October 1980 and in addition, an evaluation of the percentages of material types indicated by the dredge fill borrow borings to a depth of 20 ft below the water surface. Borrow borings, except those from the least suitable areas, indicate that about half the soils above 20 ft in depth would be expected to be silts and sandy silts (ML) with some silty sands (SM). These materials should experience a relatively small amount of shrinkage. If the remaining materials, which are expected to be various types of clays, some with and some without organic matter, experience about 50 percent total shrinkage, and no shrinkage occurs in the silty and sandy materials, about 25 percent of overall shrinkage would be expected for the dredge fill. An additional 10 percent of shrinkage in

the silty and sandy materials would increase the overall value to about 30 percent. This estimate is an overall estimate, and could deviate significantly from this value in areas where the dredge materials happen to consist of only one of these material types. The initial ground elevation in the marsh areas on which the dredge fill is to be placed was assumed to be an average EL. –0.5 ft. The curves that include both fill shrinkage and foundation consolidation are plotted as dredge fill elevation versus time. The curves that do not include dredge fill shrinkage assume that the dredge fill is placed one year after the embankment is constructed to gross grade and are plotted as settlement versus time. The settlement analyses did not consider any secondary compression settlements nor any undrained creep.

RECOMMENDATIONS

Presented here are our recommendations that are based on the results of the analyses and conclusions that we have drawn from the analyses. It should be recognized that we are not knowledgeable of the construction costs involved, environmental considerations or other factors that will influence the required decisions by the NRCS.

Stability analyses for Borings 6, B, 7, C, 10, D, 12 and E indicate the rock dike could be constructed using 1V on 2H side slopes provided a 4,800 lb per ft minimum tensile strength geotextile is placed beneath the rock dike. However, stability analyses of Borings 1, 2, A and 13 indicate the rock dike would require 1V on 2.5H, 1V on 3.5H, 1V on 2.5H and 1V on 6H side slopes, respectively. These flatter side slope requirements are located at the ends of the proposed shoreline protection. The rock dike would be expected to incur ultimate settlements ranging from about 0.2 ft to about 1.5 ft with an average of the 12 settlement computations of 0.80 ft.

Except for Boring 13 at the southern end of the proposed shoreline protection, stability analyses indicate the entire length of the composite dike could be constructed using 1V on 2H side slopes provided a 4,800 lb per ft minimum tensile strength geotextile is placed beneath the composite dike. The analysis of Boring 13 indicated 1V on 2.5H side slopes would be required for the composite dike. Ultimate settlements would be expected to range from slightly less than 0.2 ft to about 0.9 ft with an average of the 12 settlement computations of 0.56 ft.

The concrete pile with concrete panel wall utilizing 16-in. square piles and 20-ft-long wall panels would require pile lengths of 45 ft to 80 ft depending on the selected loading.

Lateral deflections would vary greatly, also depending on the selected loading. As discussed previously in this report, developing the maximum lateral deflections would require numerous applications of the design loading which may or may not occur. If computed deflections cannot be tolerated for the selected loading, shorter panel lengths would reduce these deflections. In any case piles should be designed by a structural engineer to accommodate the lateral deflections, moment and shear along the length of the piles as presented in Appendix C.

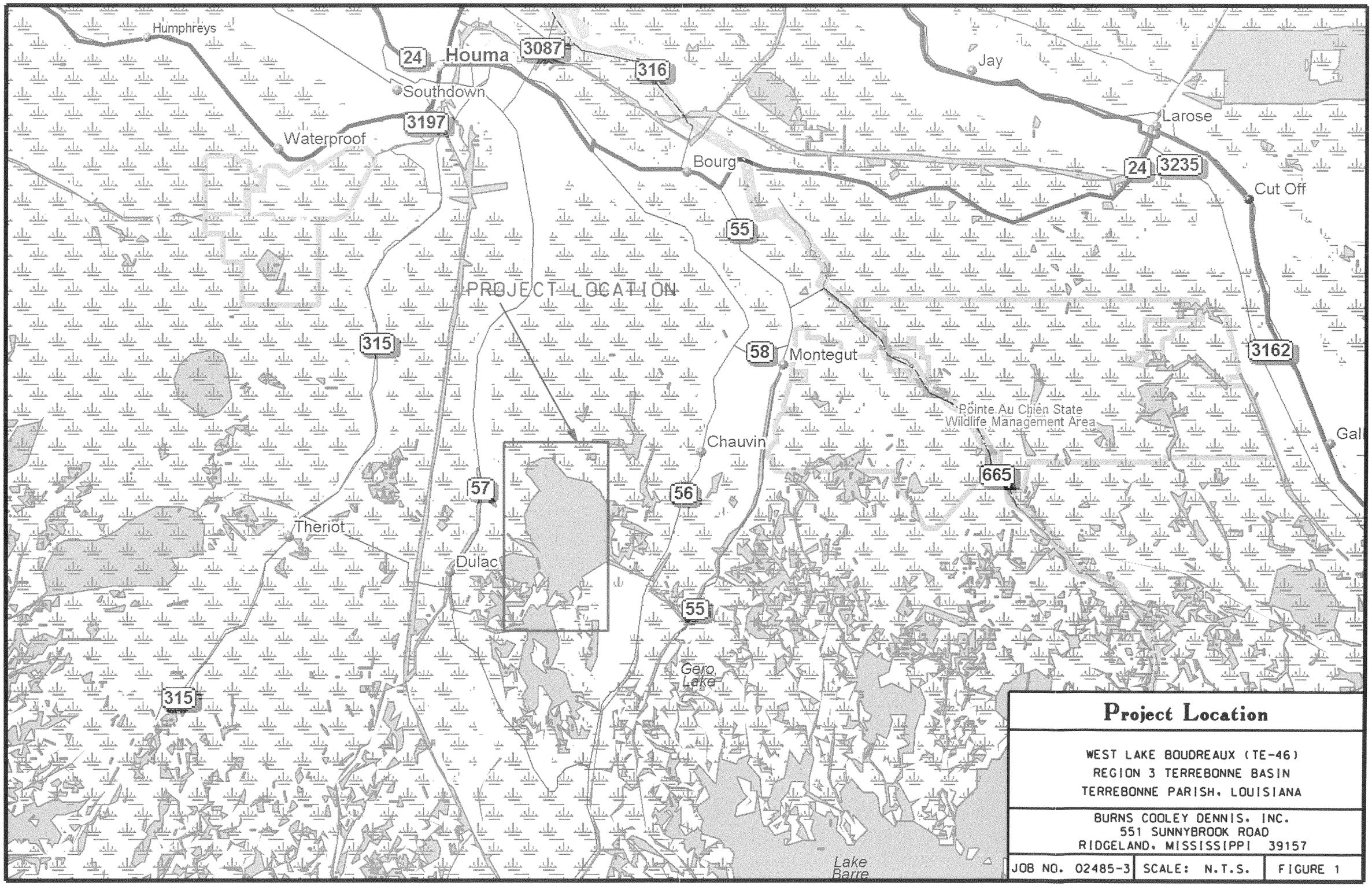
Unless the concrete pile with concrete panel wall has cost or other advantages, based on the above considerations, it appears that either the rock dike or composite dike would be a suitable alternative for shoreline protection measures except for the area represented by Boring 13. For the area represented by Boring 13, the composite dike would have a significant advantage over the rock dike. The composite dike would experience somewhat less settlement than the rock dike in all areas.

Containment levee side slopes, gross crown elevations, and berm widths are presented in Table 7. Dredge fill elevations can be selected from Figures 22 through 25 based upon the target elevation desired with respect to time.

REPORT LIMITATIONS

The analyses and conclusions discussed in this report are based on conditions as they existed at the time of our field investigation and further on the assumption that the exploratory borings are representative of subsurface conditions within the areas investigated. It should be noted that actual subsurface conditions between and beyond the borings might differ from those encountered at the boring locations.

This report has been prepared for the exclusive use of the Natural Resources Conservation Service for specific application to the geotechnical-related aspects of design and construction of a shoreline protection and marsh creation project (TE-46) in the western portion of Lake Boudreaux in Terrebonne Parish, Louisiana. The only warranty made by us in connection with the services provided is we have used that degree of care and skill ordinarily exercised under similar conditions by reputable members of our profession practicing in the same or similar locality. No other warranty, express or implied, is made or intended.

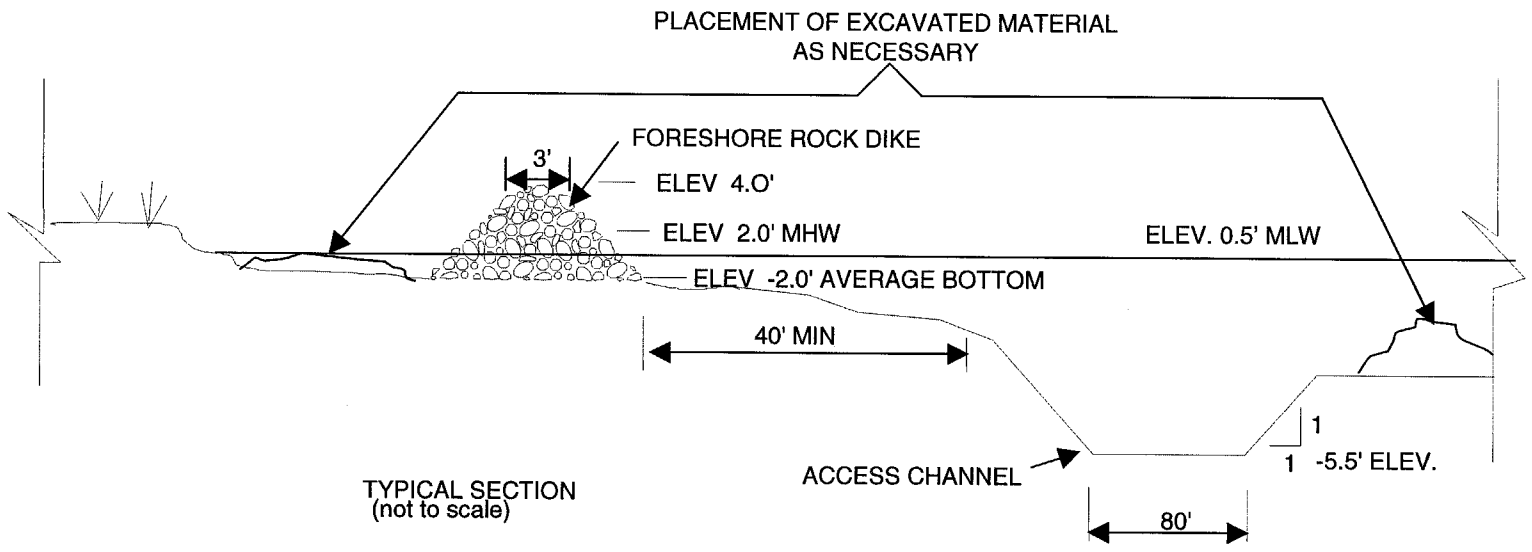


Project Location

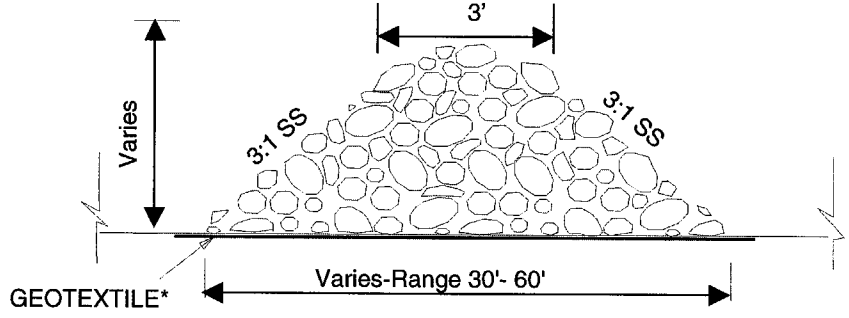
WEST LAKE BOUDREAUX (TE-46)
REGION 3 TERREBONNE BASIN
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3	SCALE: N.T.S.	FIGURE 1



TYPICAL SECTION
(not to scale)



TYPICAL DETAIL
(not to scale)

NOTES:

1. All elevations shown in NAVD 88.
2. Total length to be determined.
3. Excavated material will be placed in open water areas (not on existing emergent marsh).

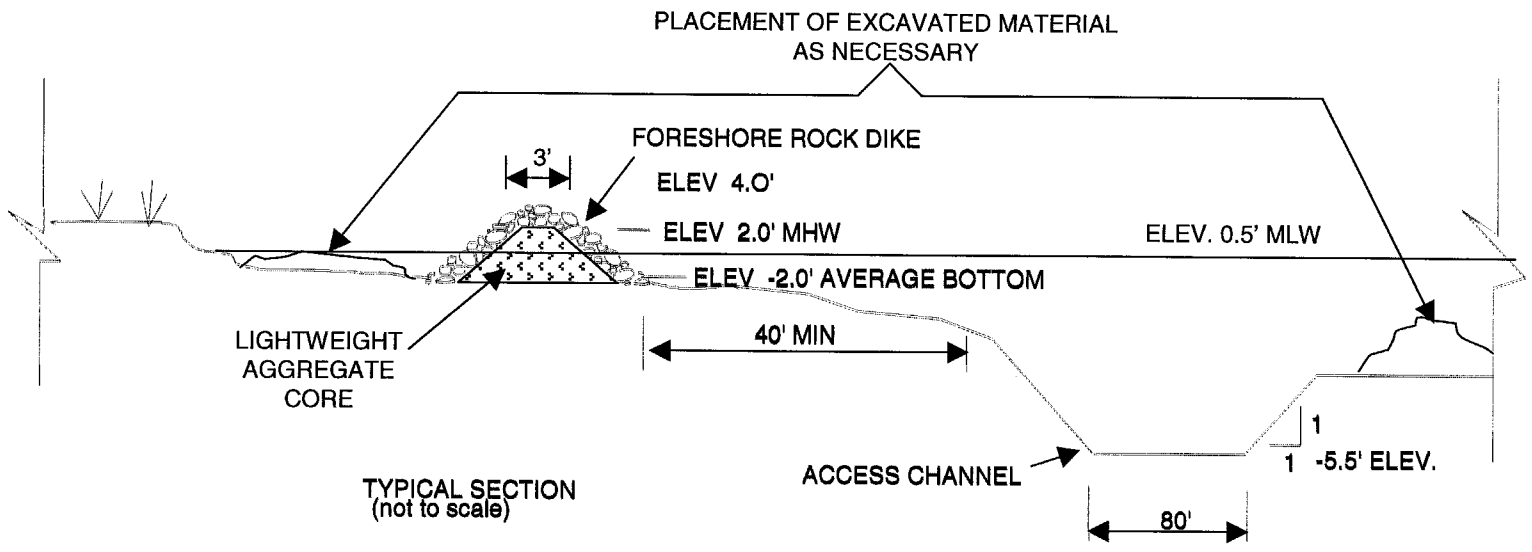
* As Needed

Typical Rock Riprap Dike
Lake Boudreaux TE-46
Terrebonne Parish, Louisiana

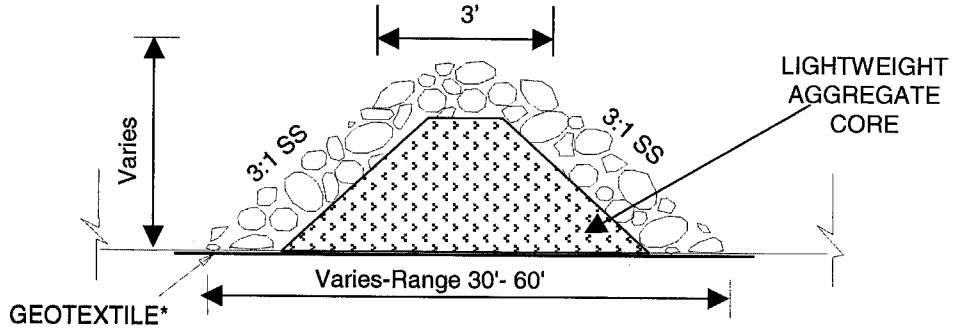
USDA-NRCS-WRS
Alexandria, Louisiana

12yrppt-sdw-0403

Figure 2



TYPICAL SECTION
(not to scale)



TYPICAL DETAIL
(not to scale)

NOTES:

1. All elevations shown in NAVD 88.
2. Total length to be determined.
3. Excavated material will be placed in open water areas (not on existing emergent marsh).

* As Needed

Typical Rock Riprap Dike
With Lightweight Aggregate Core
Lake Boudreaux TE-46
Terrebonne Parish, Louisiana

USDA-NRCS-WRS
Alexandria, Louisiana

12yrppt-sdw-0403

Figure 3

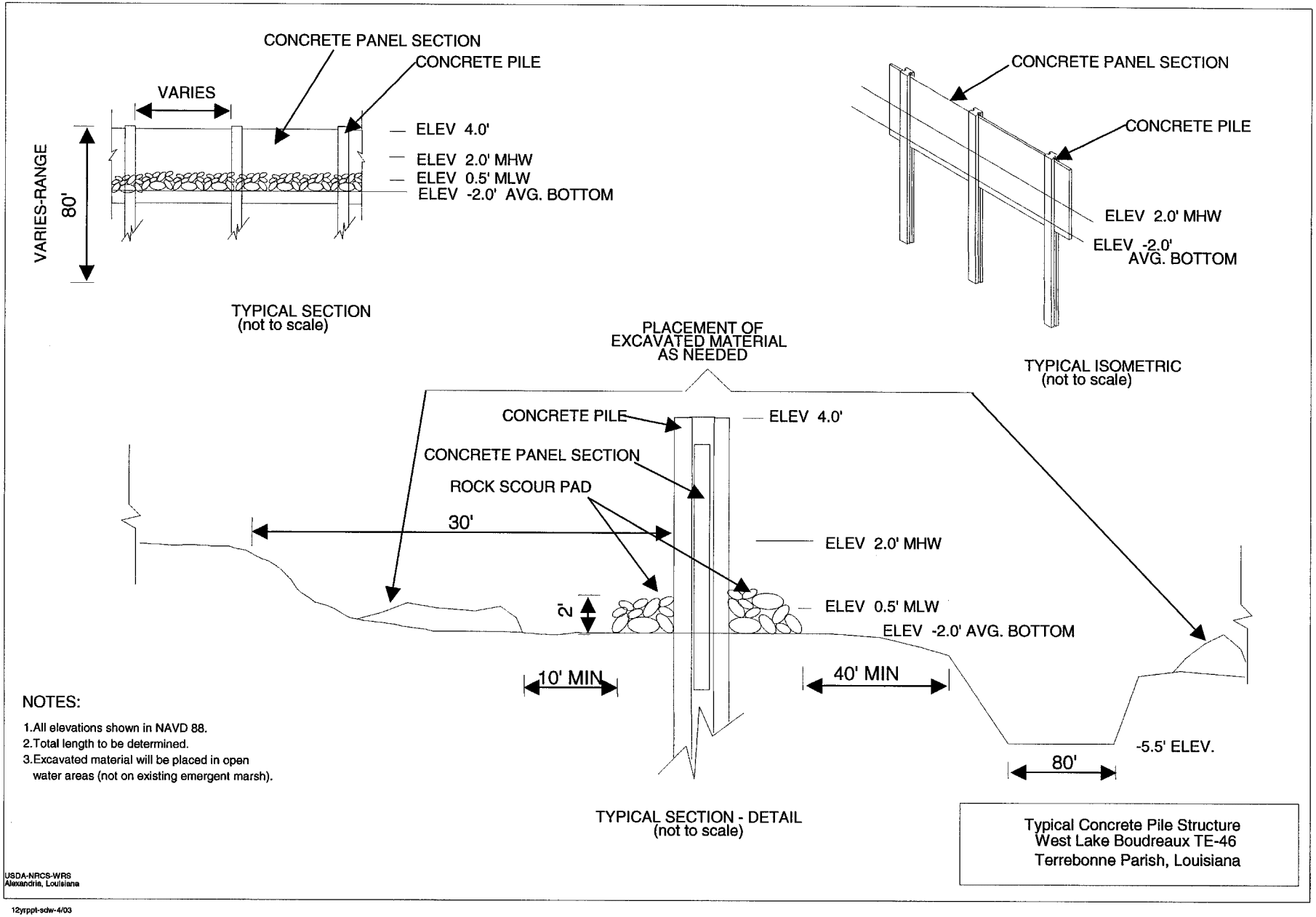
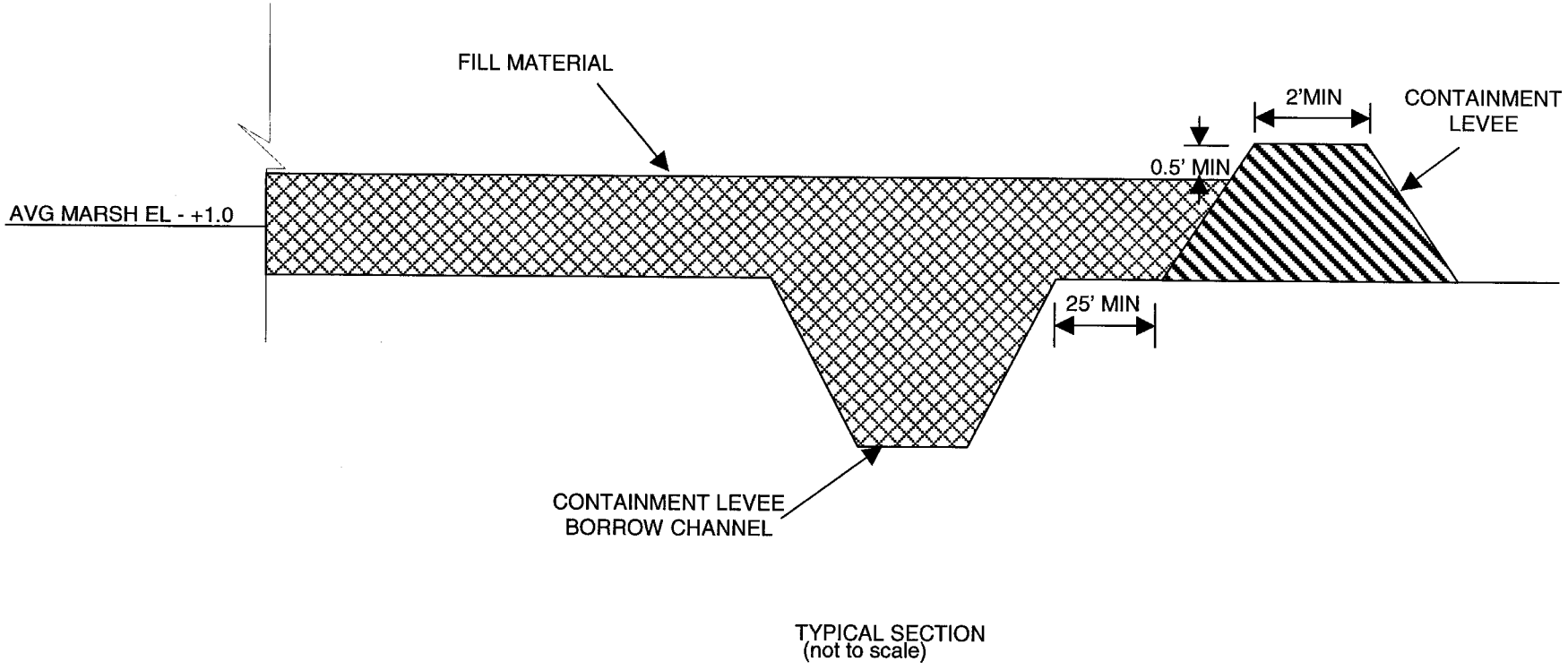

CONCRETE PANEL SECTION
CONCRETE PILE
VARIES
VARIES-RANGE
80'
ELEV 4.0'
ELEV 2.0' MHW
ELEV 0.5' MLW
ELEV -2.0' AVG. BOTTOM
TYPICAL SECTION
(not to scale)
CONCRETE PANEL SECTION
CONCRETE PILE
ELEV 2.0' MHW
ELEV -2.0'
AVG. BOTTOM
TYPICAL ISOMETRIC
(not to scale)
PLACEMENT OF
EXCAVATED MATERIAL
AS NEEDED
CONCRETE PILE
ELEV 4.0'
CONCRETE PANEL SECTION
ROCK SCOUR PAD
30'
ELEV 2.0' MHW
2'
ELEV 0.5' MLW
ELEV -2.0' AVG. BOTTOM
10' MIN
40' MIN
-5.5' ELEV.
80'
NOTES:
1.All elevations shown in NAVD 88.
2.Total length to be determined.
3.Excavated material will be placed in open
water areas (not on existing emergent marsh).
TYPICAL SECTION - DETAIL
(not to scale)
Typical Concrete Pile Structure
West Lake Boudreaux TE-46
Terrebonne Parish, Louisiana
USDA-NRCS-WRS
Alexandria, Louisiana
12yrppt-sdw-4/03

Figure 4



TYPICAL SECTION
(not to scale)

NOTES:

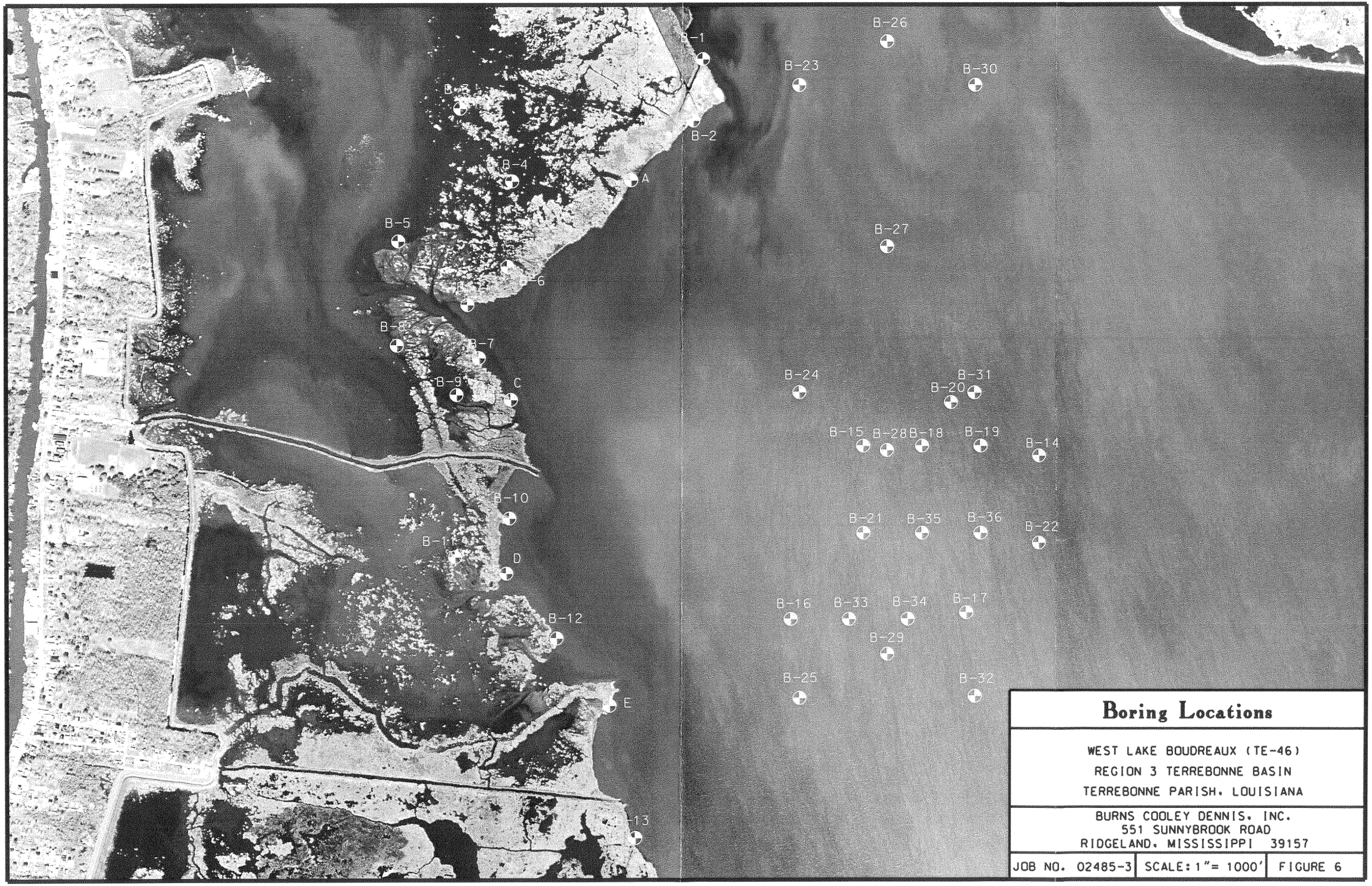
1. All elevations shown in NAVD88.
2. Total length to be determined.
3. Excavated material will be placed in open water areas (not on existing marsh).
4. Side slopes of containment levee to be determined by geotechnical analysis.
5. Initial construction elevation of containment levee to be determined by geotechnical analysis.
6. Target elevation for marsh creation is +1.5 NAVD

Typical Marsh Creation
Lake Boudreaux TE-46
Terrebonne Parish, Louisiana

USDA-NRCS-WRS
Alexandria, Louisiana

12yrppt-sdw-0403

Figure 5



Boring Locations

WEST LAKE BOUDREAUX (TE-46)
REGION 3 TERREBONNE BASIN
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3	SCALE: 1"= 1000'	FIGURE 6

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			SYMBOL & LETTER	DESCRIPTION
COARSE-GRAINED SOILS More than half of material larger than No. 200 sieve size	GRAVELS More than half of coarse fraction larger than No.4 sieve size	Clean Gravels (Little or no fines)	GW	WELL GRADED GRAVEL, GRAVEL-SAND MIXTURE
			GP	POORLY GRADED GRAVEL, GRAVEL-SAND MIXTURE
		Gravels with fines (Appreciable amount of fines)	GM	SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURE
			GC	CLAYEY GRAVEL, GRAVEL-SAND-CLAY MIXTURE
	SANDS More than half of coarse fraction smaller than No.4 sieve size	Clean Sands (Little or no fines)	SW	WELL GRADED SAND, GRAVELLY SAND
			SP	POORLY GRADED SAND, GRAVELLY SAND
		Sands with fines (Appreciable amount of fines)	SM	SILTY SAND, SAND-SILT MIXTURE
			SC	CLAYEY SAND, SAND-CLAY MIXTURE
FINE-GRAINED SOILS More than half of material smaller than No. 200 sieve size	SILTS AND CLAYS	Liquid limit less than 50	ML	SILT WITH LITTLE OR NO PLASTICITY
			ML	CLAYEY SILT, SILT WITH SLIGHT TO MEDIUM PLASTICITY
			ML	SANDY SILT
			CL	SILTY CLAY, LOW TO MEDIUM PLASTICITY
			CL	SANDY CLAY, LOW TO MEDIUM PLASTICITY (30% TO 50% SAND)
	SILTS AND CLAYS	Liquid limit greater than 50	MH	SILT, HIGH PLASTICITY
			CH	CLAY, HIGH PLASTICITY
			OH	ORGANIC CLAY OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOIL
				SHELL FRAGMENTS WITH CLAY

TERMS CHARACTERIZING SOIL STRUCTURE

Slickensided	- Clays with polished and striated planes created as a result of volume changes related to shrinking, swelling and/orchanges in overburden pressure.
Fissured	- Clays with a blocky or jointed structure generally created by seasonal shrinking and swelling.
Laminated	- Composed of thin alternating layers of varying color and texture.
Calcareous	- Containing appreciable quantities of calcium carbonate.
Parting	- Paper thin (less than 1/8 inch).
Seam	- 1/8 inch to 3 inch thickness.
Layer	- Greater than 3 inches in thickness.

TERMS CHARACTERIZING SOIL STRUCTURE

COARSE-GRAINED SOILS		FINE-GRAINED SOILS		
DENSITY	PENETRATION RESISTANCE, N Blows per Foot	CONSISTANCY	COHESION Kips/Sq. Ft	PENETRATION RESISTANCE, N Blows per Foot
Very loose	0 - 4	Very Soft	<0.25	0 - 1
Loose	5 - 10	Soft	0.25 - 0.50	2 - 4
Medium Dense	11 - 30	Medium Stiff	0.50 - 1.00	5 - 8
Dense	31 - 50	Stiff	1.00 - 2.00	9 - 15
Very Dense	>4.00	Very Stiff	2.00 - 4.00	16 - 30
		Hard	>4.00	>30

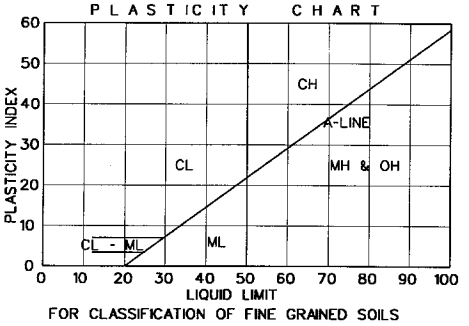
PARTICLE SIZE IDENTIFICATION

Sand	- Coarse-2 mm to 4.76 mm Medium-0.42 mm to 2 mm Fine-0.074 mm to 0.42 mm
Silt & Clay	- Less than 0.074 mm

RELATIVE COMPOSITION

Slightly With Sandy (or gravelly)	5 - 15% 16 - 29% 30 - 50%

PLASTICITY CHART



FOR CLASSIFICATION OF FINE GRAINED SOILS

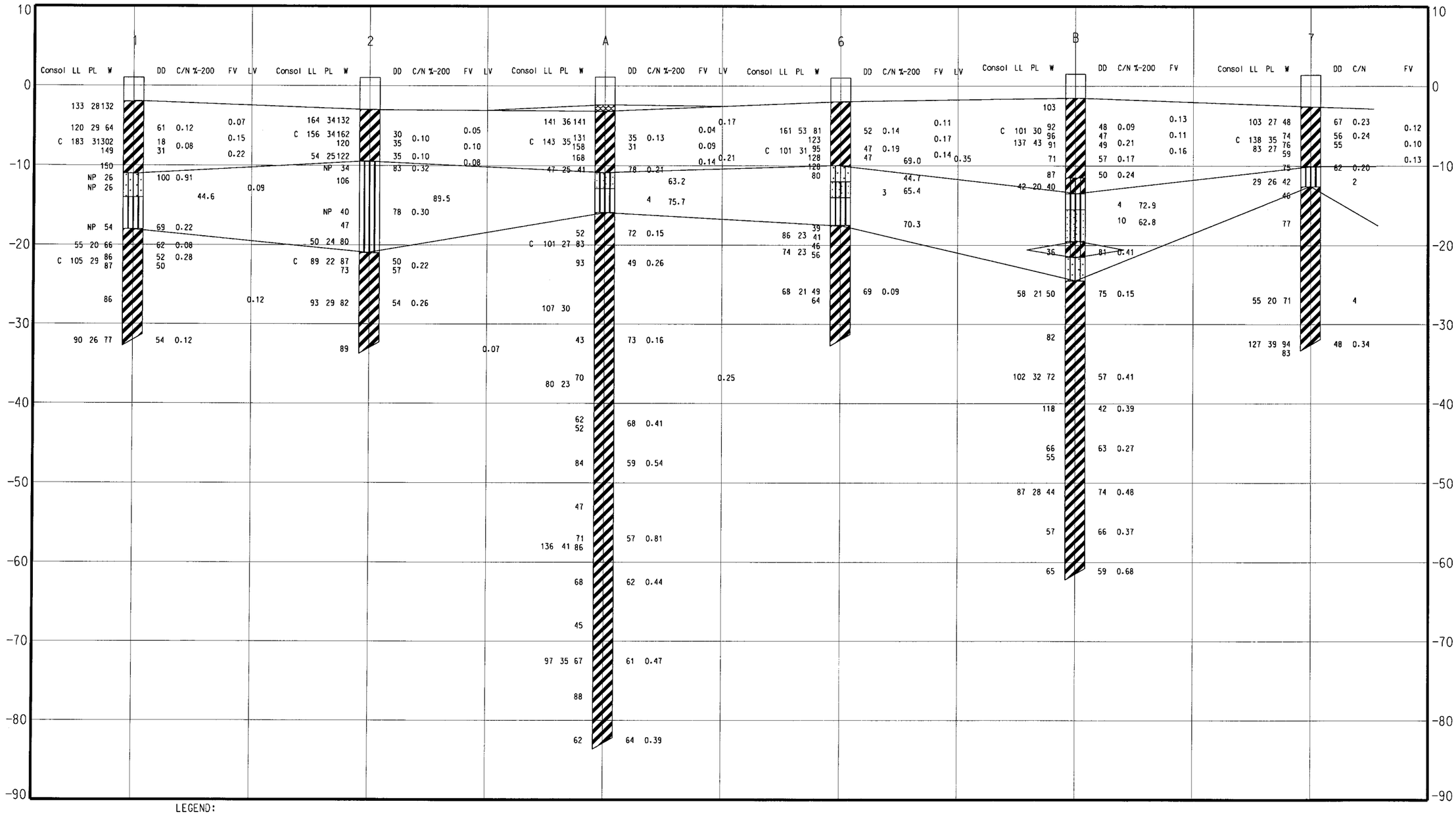
SAMPLE TYPES
(Shown in Sample Column)

- Shelby Tube
- Split Spoon
- No Recovery
- Auger
- Dennison Barrell

CLASSIFICATION, SYMBOLS AND TERMS USED ON GRAPHICAL BORING LOGS

BURNS COOLEY DENNIS, INC.

FIGURE 7



LEGEND:

Consol = Consolidation Test
LL = Liquid Limit
PL = Plastic Limit
W = Water Content

DD = Dry Density (pcf)
C/N = Cohesion (ksf)/Penetration Resistance, N (blows per ft) in the same column
% -200 = % Passing No. 200 Sieve

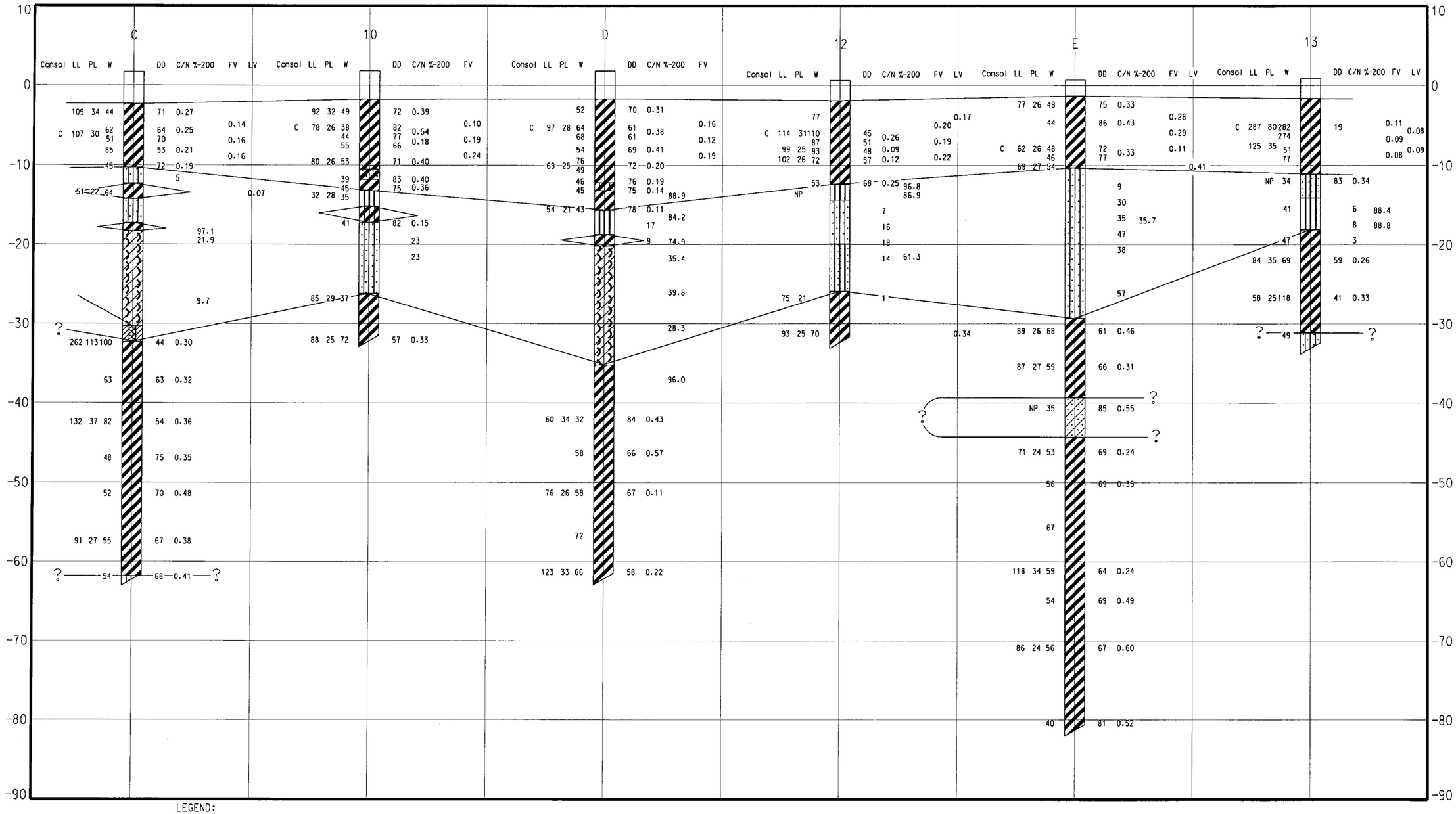
NOTE: See Figure 7 for boring log legend.

SUBSURFACE PROFILE
SHORELINE PROTECTION MEASURES

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

Job No.	02485-3	Date	5/21/03	Figure	8

BURNS COOLEY DENNIS, INC.



LEGEND:

Consol = Consolidation Test
LL = Liquid Limit
PL = Plastic Limit
W = Water Content

DD = Dry Density (pcf)
C/N = Cohesion (ksf)/Penetration Resistance, N (blows per ft) in the same column
% -200 = % Passing No. 200 Sieve

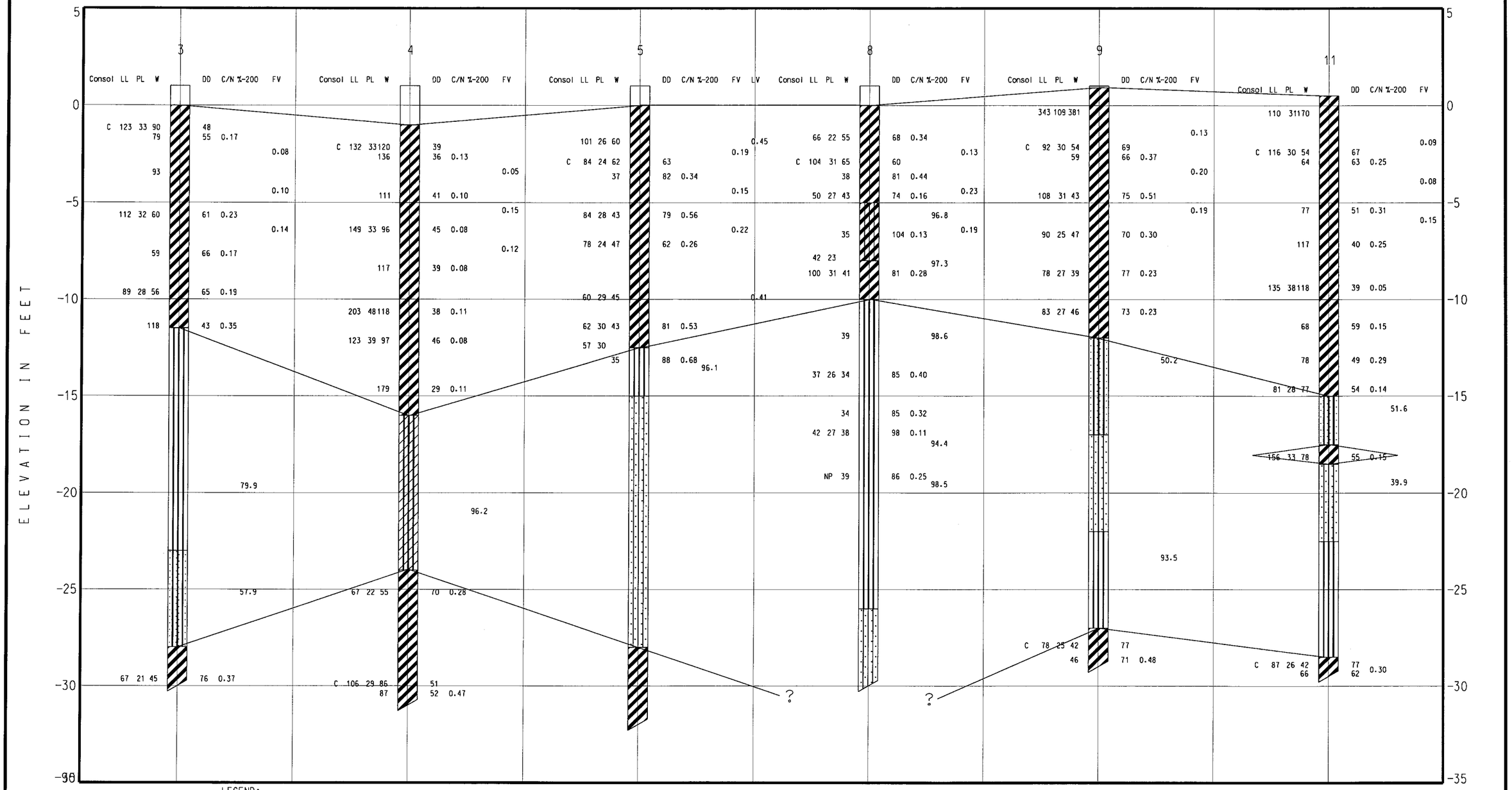
NOTE: See Figure 7 for boring log legend.

SUBSURFACE PROFILE
SHORELINE PROTECTION MEASURES

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

Job No.	02485-3	Date	5/21/03	Figure	9

BURNS COOLEY DENNIS, INC.



LEGEND:

Consol = Consolidation Test
LL = Liquid Limit
PL = Plastic Limit
W = Water Content

DD = Dry Density (pcf)
C/N = Cohesion (ksf)/Penetration Resistance, N (blows per ft) in the same column
% -200 = % Passing No. 200 Sieve

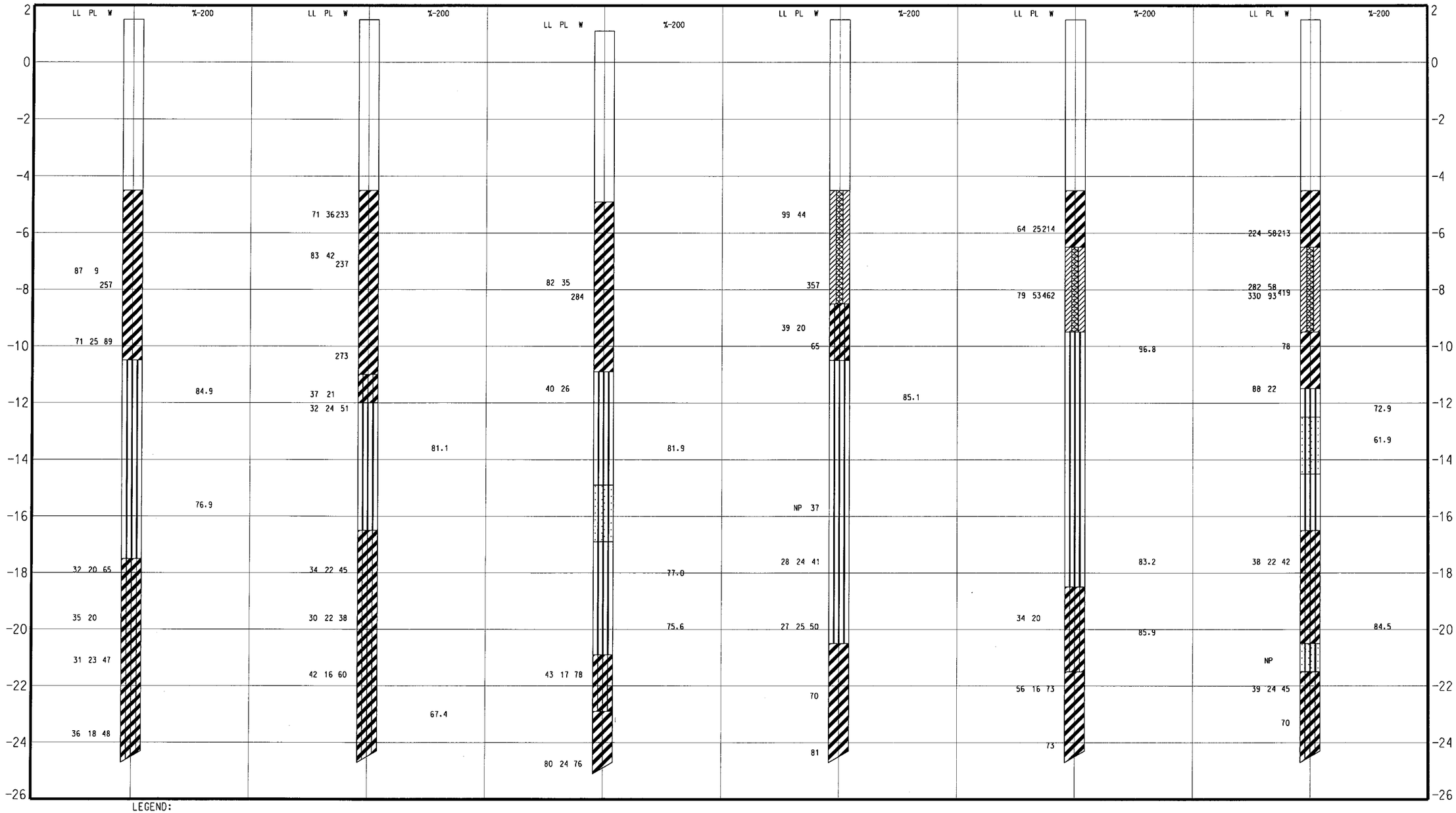
NOTE: See Figure 7 for boring log legend.

SUBSURFACE PROFILE
MARSH AREAS

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

Job No.	02485-3	Date	5/21/03	Figure	10

BURNS COOLEY DENNIS, INC.



LEGEND:
- LL = Liquid Limit
- PL = Plastic Limit
- W = Water Content
- DD = Dry Density (pcf)
- C/N = Cohesion (ksf)/Penetration Resistance, N (blows per ft) in the same column
- % -200 = % Passing No. 200 Sieve

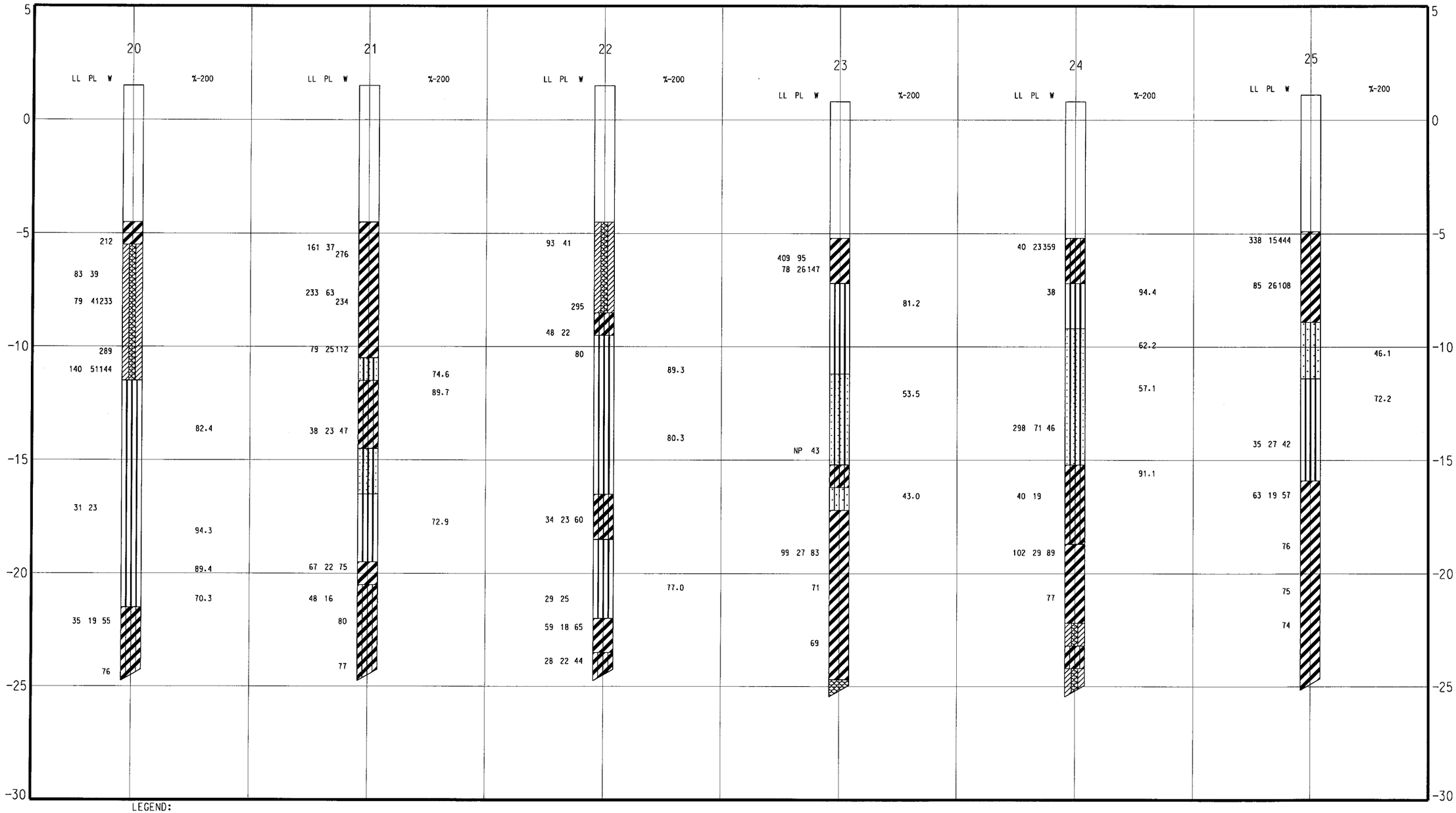
NOTE: See Figure 7 for boring log legend.

BORROW BORINGS

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

Job No.	02485-3	Date	5/22/03	Figure	11

BURNS COOLEY DENNIS, INC.



LEGEND:
LL = Liquid Limit
PL = Plastic Limit
W = Water Content
DD = Dry Density (pcf)
C/N = Cohesion (ksf)/Penetration Resistance, N (blows per ft) in the same column
% -200 = % Passing No. 200 Sieve

NOTE: See Figure 7 for boring log legend.

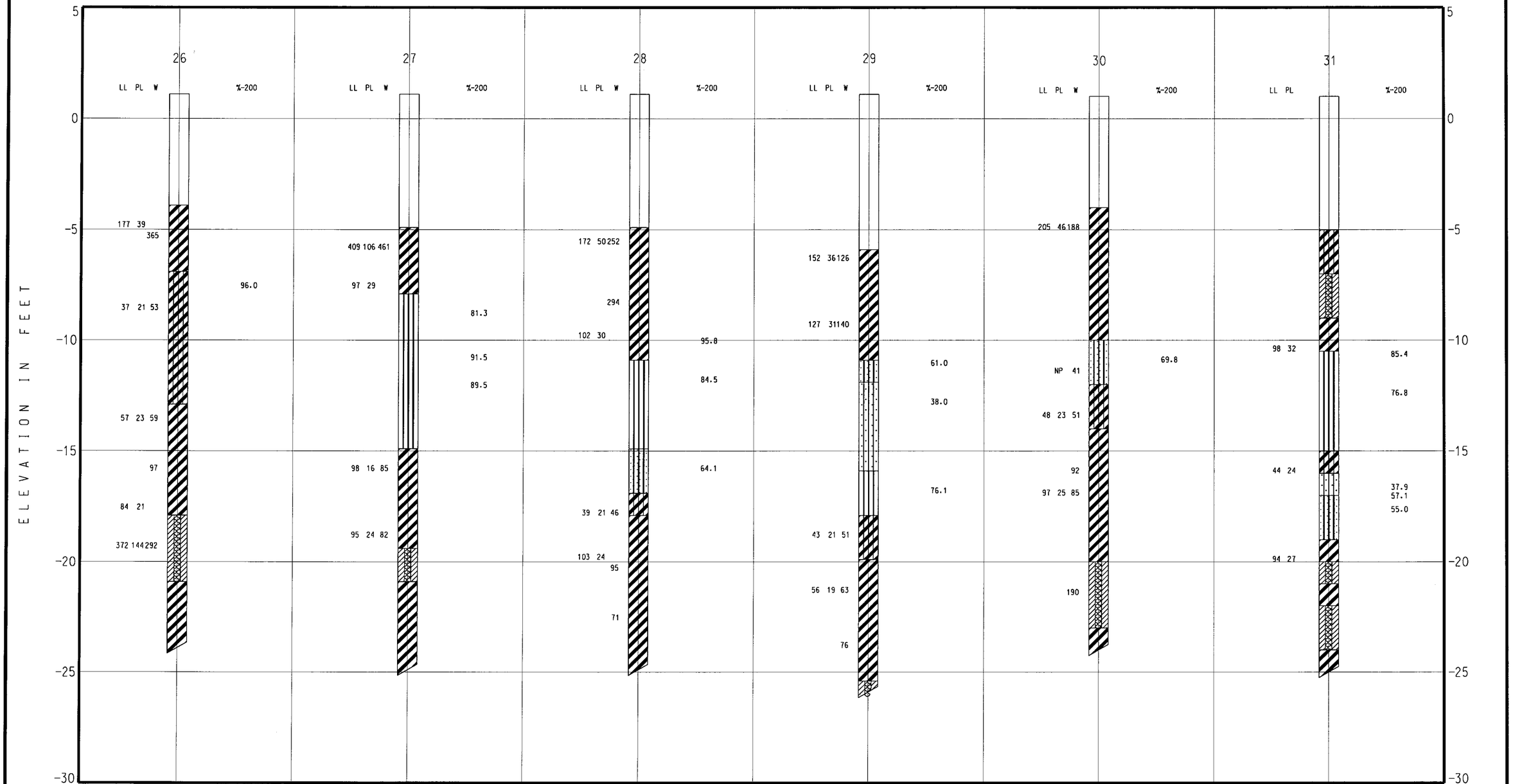
BORROW BORINGS

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

Job No.	02485-3	Date	5/22/03	Figure	12

GENERIC FENCE FIELD.DGN

BURNS COOLEY DENNIS, INC.



LEGEND:
LL = Liquid Limit
PL = Plastic Limit
W = Water Content
DD = Dry Density (pcf)
C/N = Cohesion (ksf)/Penetration Resistance, N (blows per ft) in the same column
% -200 = % Passing No. 200 Sieve

NOTE: See Figure 7 for boring log legend.

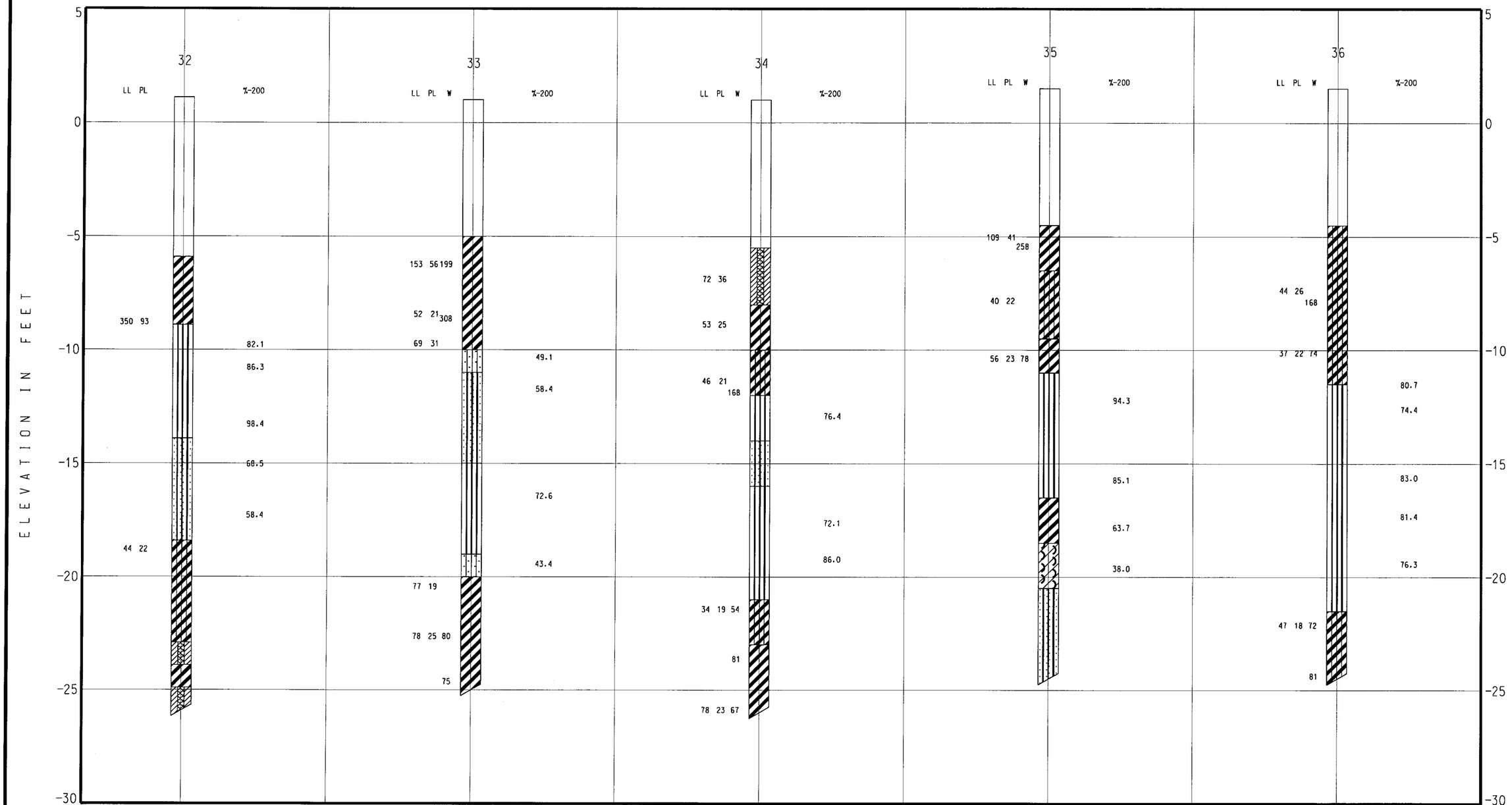
BORROW BORINGS

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

Job No.	02485-3	Date	5/22/03	Figure	13

GENERIC FENCE FLEV.DIG

BURNS COOLEY DENNIS, INC.



LEGEND:
- LL = Liquid Limit
- PL = Plastic Limit
- W = Water Content
- DD = Dry Density (pcf)
- C/N = Cohesion (ksf)/Penetration Resistance, N (blows per ft) in the same column
- % -200 = % Passing No. 200 Sieve

NOTE: See Figure 7 for boring log legend.

BORROW BORINGS

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

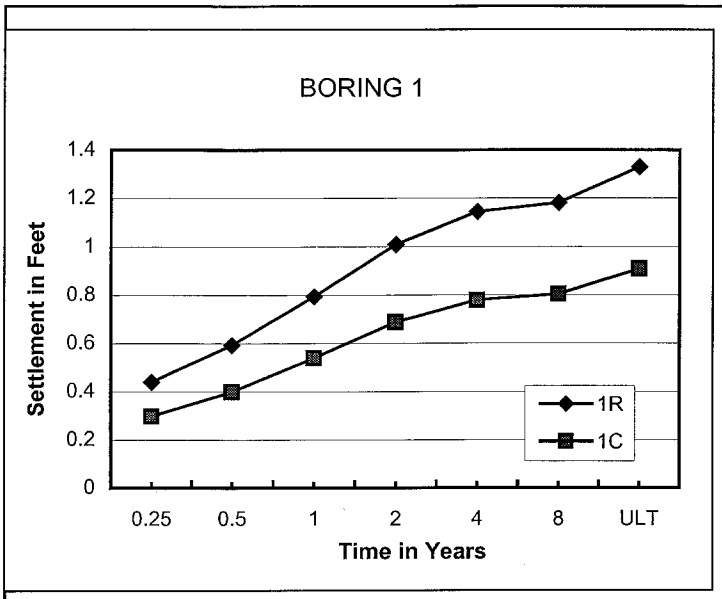
Job No.	02485-3	Date	5/22/03	Figure	14

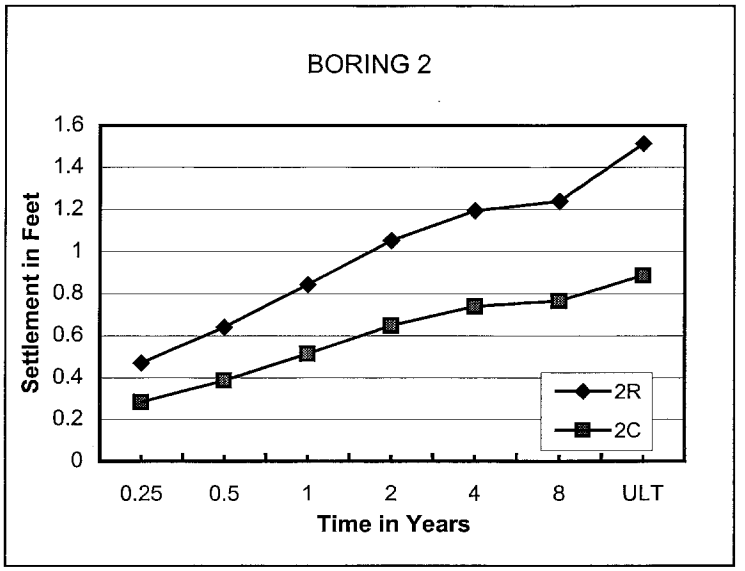
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

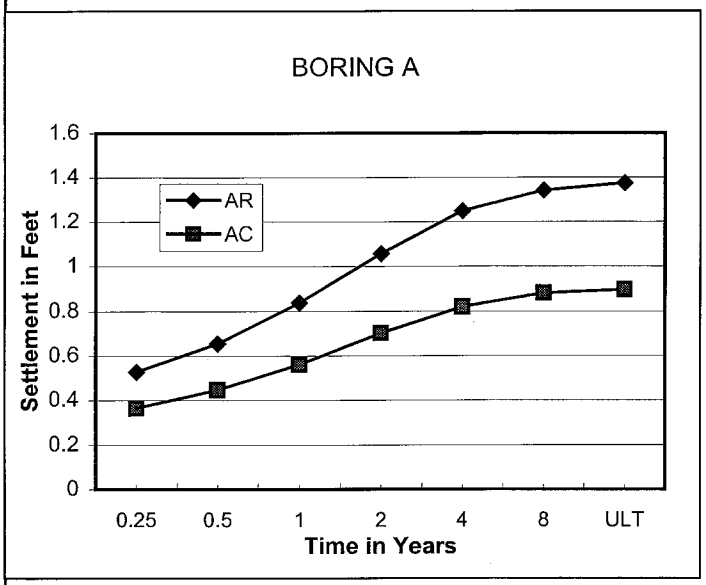
CONSOLIDATION TEST DATA

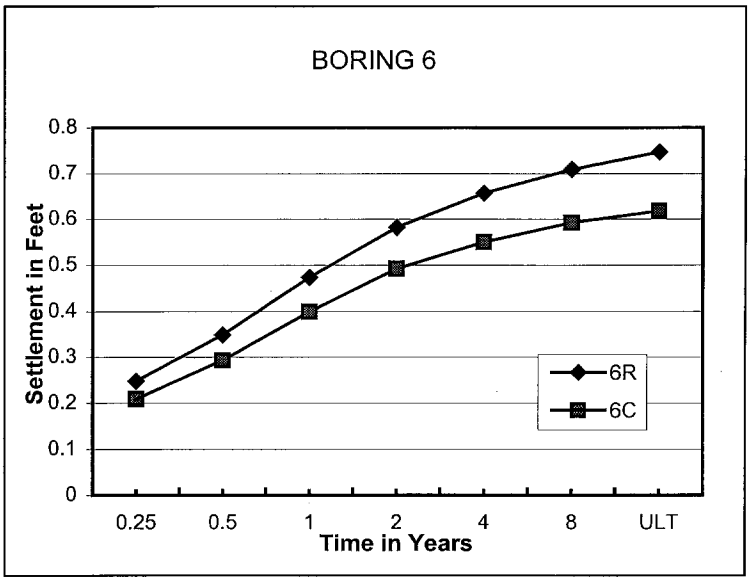
Boring No.	Sample No.	Depth below Mudline (ft)	Laboratory Classification	Water Content %	Dry Density	Void Ratio e	Atterberg Limits			Overburden Pressure P_o (tsf)	Preconsolidation Pressure P_c (tsf)	Compression Index C_c	Recompression Index C_r
							LL	PL	PI				
1	5	4.75	Very soft gray clay (CH) with organic matter	301.8	17.5	8.690	183	31	152	0.063	0.23	3.55	-
1	19	19.75	Soft gray clay (CH), slightly silty, slickensided, with shell fragments	87.3	49.6	2.425	105	29	76	0.335	0.88	1.58	0.28
2	3	2.75	Very soft gray clay (CH) with organic matter	162.1	30.4	4.338	156	34	122	0.020	0.16	1.69	-
2	19	18.75	Very soft gray clay (CH) with silt pockets	86.6	49.7	2.412	89	22	67	0.333	0.60	1.32	0.35
A	3	4.25	Very soft gray clay (CH) with organic matter	157.7	31.2	4.205	143	35	108	0.041	0.19	1.86	-
A	16	17.10	Soft gray clay (CH), slightly silty, with shell fragments	90.4	48.5	2.503	101	27	74	0.212	0.49	1.26	0.21
3	1	1.00	Very soft gray clay (CH) with organic matter	89.5	48.1	2.372	123	33	90	0.016	0.28	0.84	-
4	1	1.20	Very soft gray clay (CH) with organic matter	119.8	39.2	3.143	132	33	99	0.014	0.35	1.29	-
4	11	28.75	Soft gray clay (CH), slickensided, with shell fragments	86.0	50.6	2.353	106	29	77	0.545	0.91	1.62	0.37
5	2	2.75	Soft gray clay (CH), blocky	61.5	62.5	1.597	84	24	60	0.074	0.67	0.53	0.14
6	5	5.75	Very soft gray clay (CH) with organic matter	95.1	46.5	2.487	101	31	70	0.094	0.44	1.23	-
B	3	3.75	Very soft gray clay (CH) with organic matter	95.5	47.1	2.511	101	30	71	0.059	0.35	0.90	-
7	3	3.75	Very soft gray clay (CH), blocky, with trace of organic matter	75.6	54.9	2.015	138	35	103	0.070	0.75	0.74	0.22
C	3	3.50	Soft gray clay (CH), blocky, with trace of organic matter	50.8	69.5	1.380	107	30	77	0.076	0.51	0.47	0.10
8	2	2.75	Soft gray clay (CH), blocky	65.2	59.8	1.713	104	31	73	0.060	0.57	0.56	0.14
9	2	2.92	Soft gray clay (CH) with trace of organic matter	54.1	68.9	1.354	92	30	62	0.070	0.80	0.45	0.11
9	10	28.67	Soft gray clay (CH) with trace of organic matter and shell fragments	42.3	77.2	1.199	78	25	53	0.691	0.92	0.40	0.05
10	3	3.25	Soft gray clay (CH), slickensided, with organic matter	38.0	81.8	1.076	78	26	52	0.080	0.95	0.23	0.05
D	3	3.25	Soft gray clay (CH), blocky	64.2	60.8	1.791	97	28	69	0.075	0.80	0.59	0.19
11	2	2.75	Soft gray clay (CH)	54.3	66.6	1.549	116	30	86	0.063	0.55	0.49	0.12
11	11	29.25	Soft gray clay (CH) with sandy silt pockets and shell fragments	41.9	77.0	1.197	87	26	61	0.570	0.55	0.40	0.10
12	3	3.75	Soft gray clay (CH), blocky	110.0	45.2	2.754	114	31	83	0.060	0.68	1.25	0.36
E	7	6.25	Soft gray clay (CH), blocky, with silt pockets and seams and organic matter	48.2	71.8	1.357	62	26	36	0.166	1.20	0.38	0.09
13	3	3.25	Very soft black and dark gray clay (CH) with organic matter	285.4	18.9	7.586	287	80	207	0.017	0.15	3.20	-

Figure 15



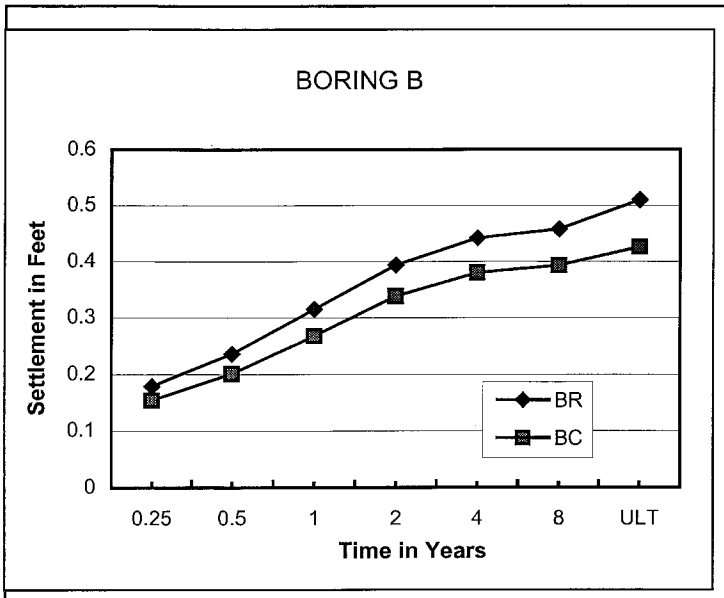


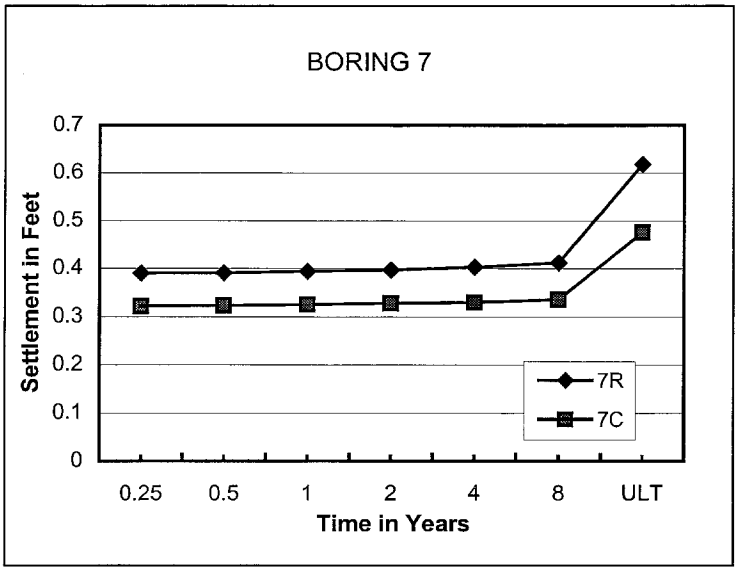


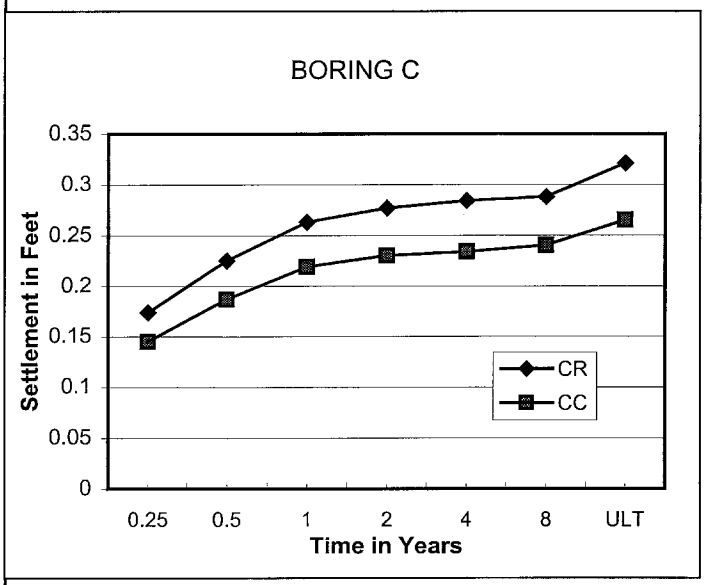


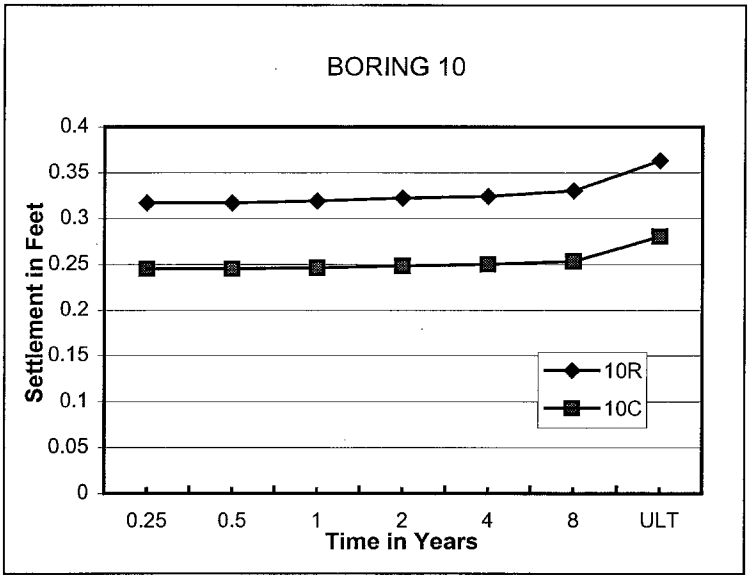
DIKE SETTLEMENT VERSUS TIME

WEST LAKE BOUDREAUX TE-46 TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/20/03	Figure 16



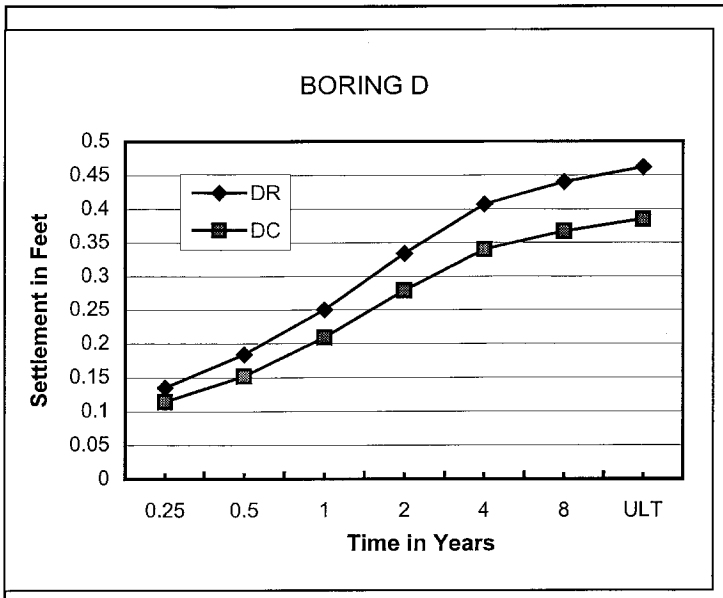


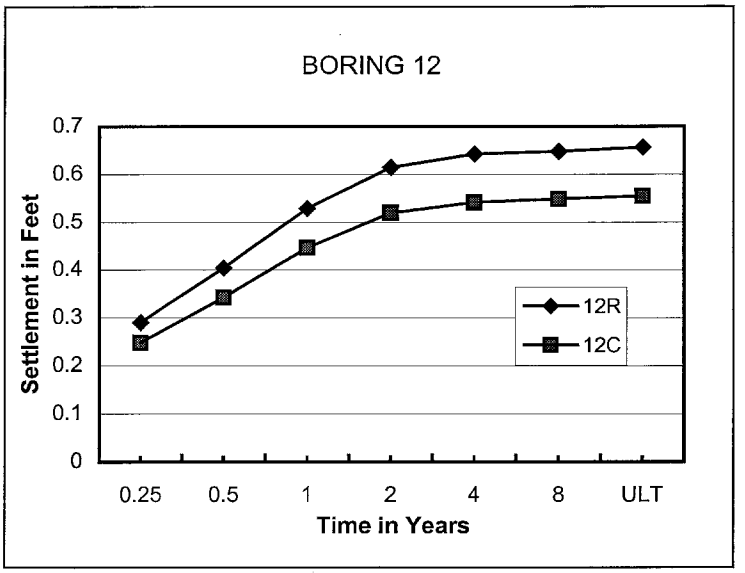


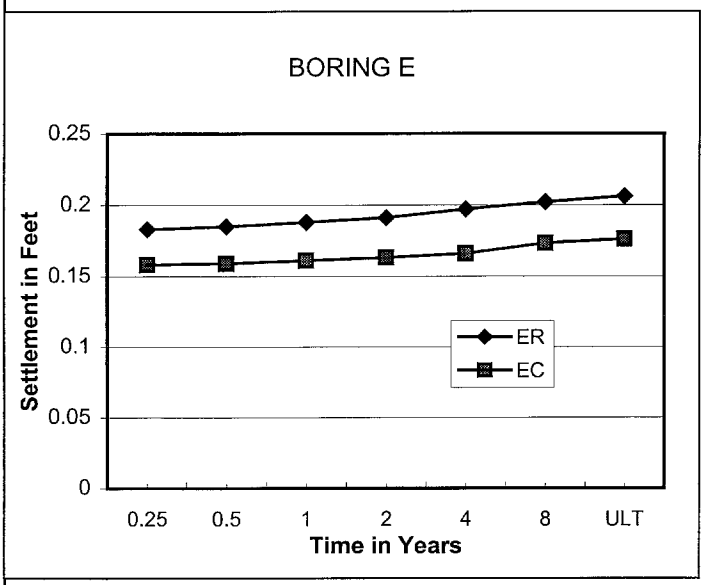


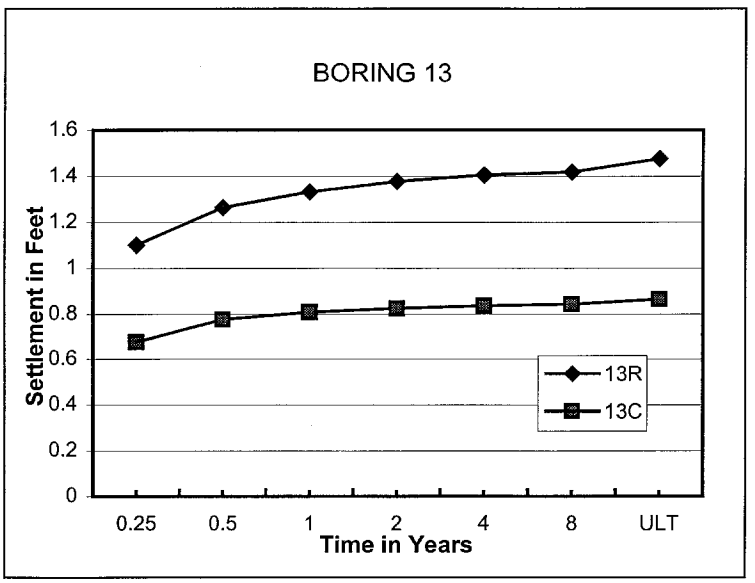
DIKE SETTLEMENT VERSUS TIME

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/20/03	Figure 17





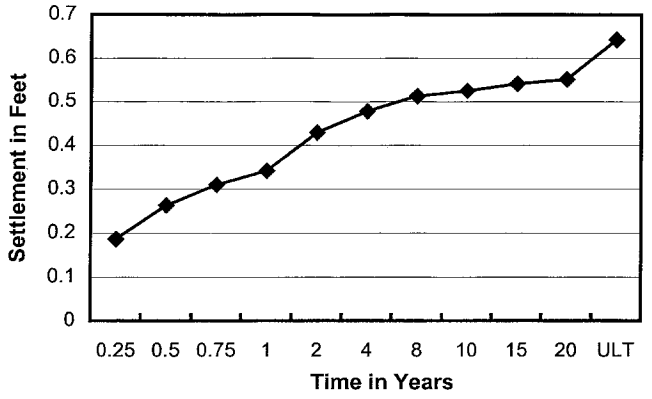




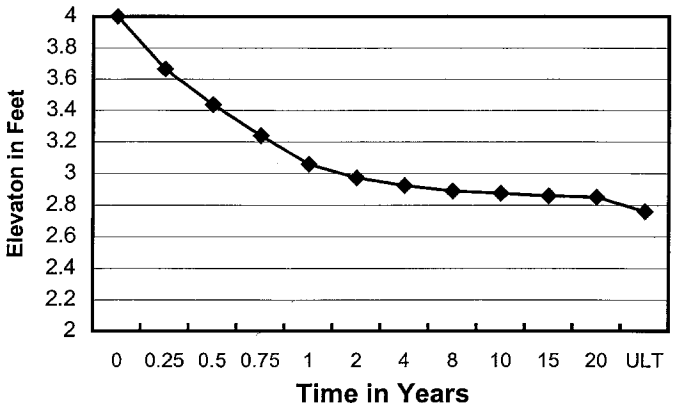
DIKE SETTLEMENT VERSUS TIME

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/20/03	Figure 18

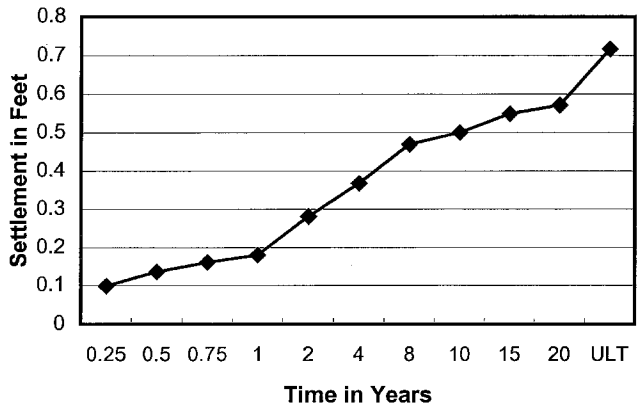
BORING 3
FOUNDATION CONSOLIDATION



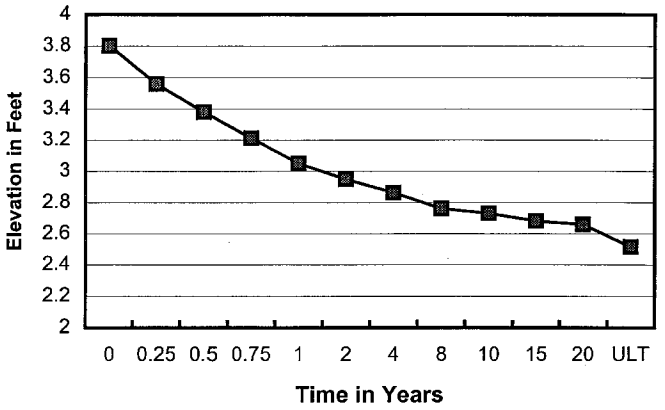
BORING 3
CROWN ELEVATION WITH SHRINKAGE



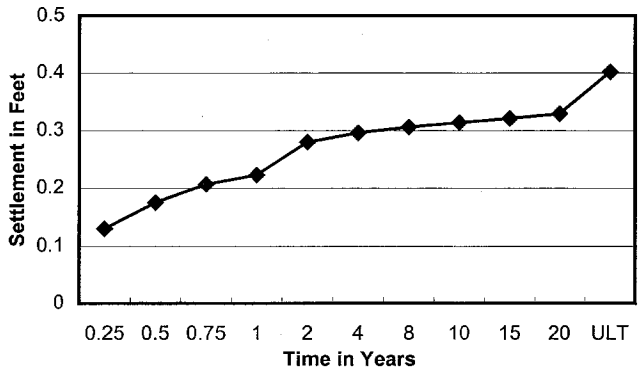
BORING 4
FOUNDATION CONSOLIDATION



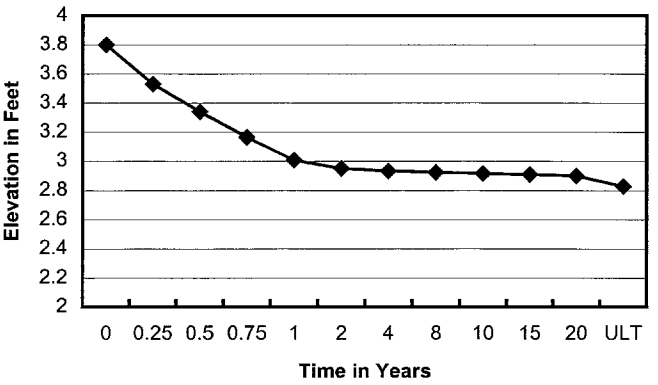
BORING 4
CROWN ELEVATION WITH SHRINKAGE



BORING 5
FOUNDATION CONSOLIDATION



BORING 5
CROWN ELEVATION WITH SHRINKAGE

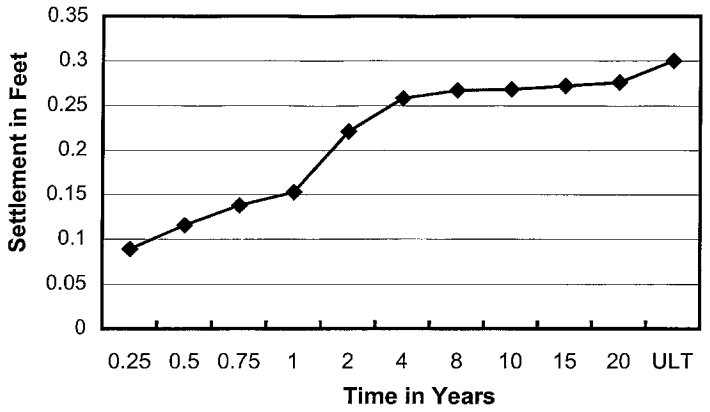


CONTAINMENT LEVEE SETTLEMENT VERSUS TIME

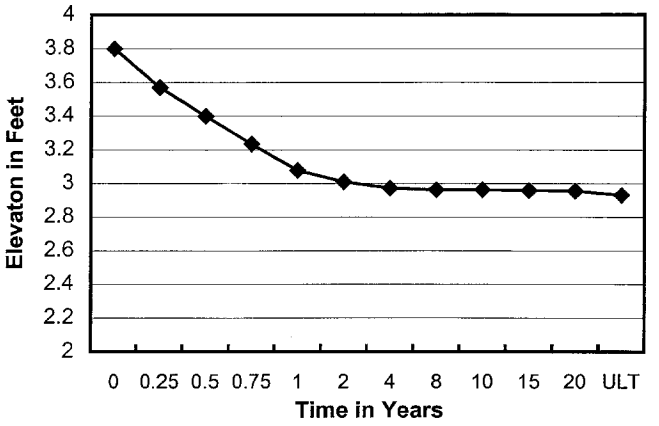
WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/20/03	Figure 19

BURNS COOLEY DENNIS, INC

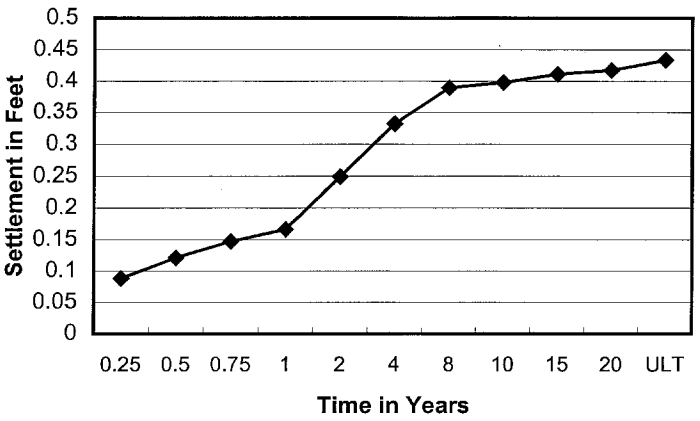
BORING 8
FOUNDATION CONSOLIDATION



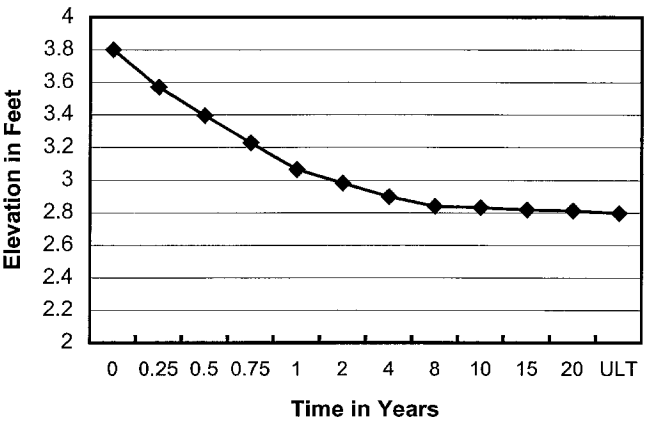
BORING 8
CROWN ELEVATION WITH SHRINKAGE



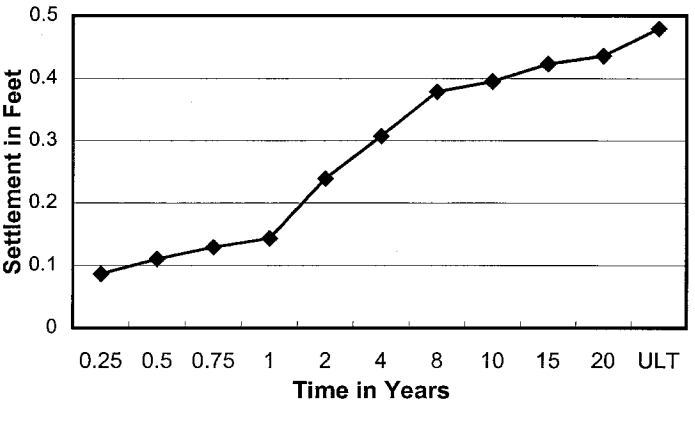
BORING 9
FOUNDATION CONSOLIDATION



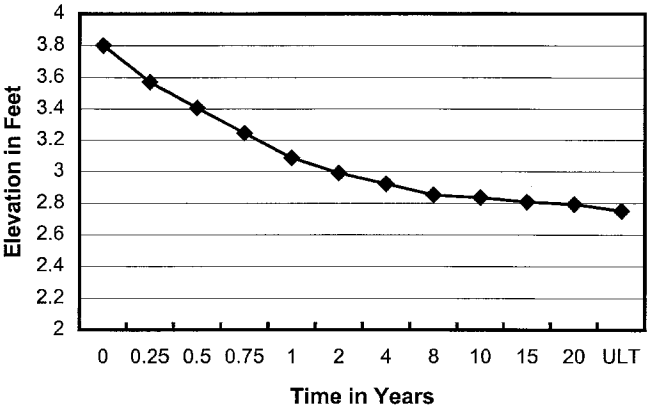
BORING 9
CROWN ELEVATION WITH SHRINKAGE



BORING 11
FOUNDATION CONSOLIDATION



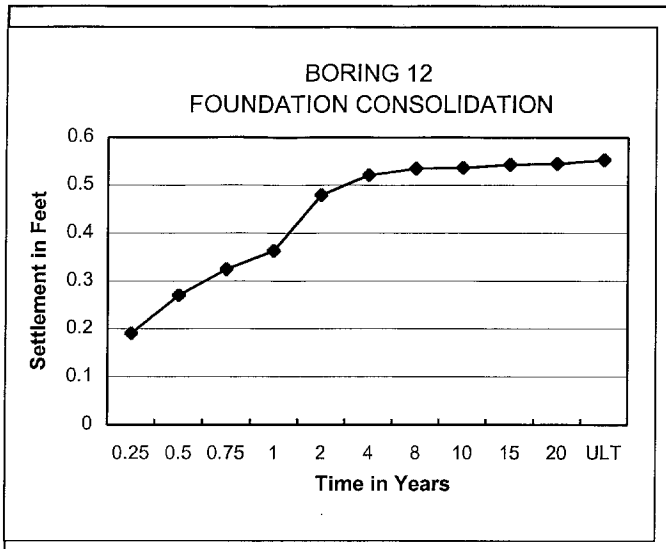
BORING 11
CROWN ELEVATION WITH SHRINKAGE

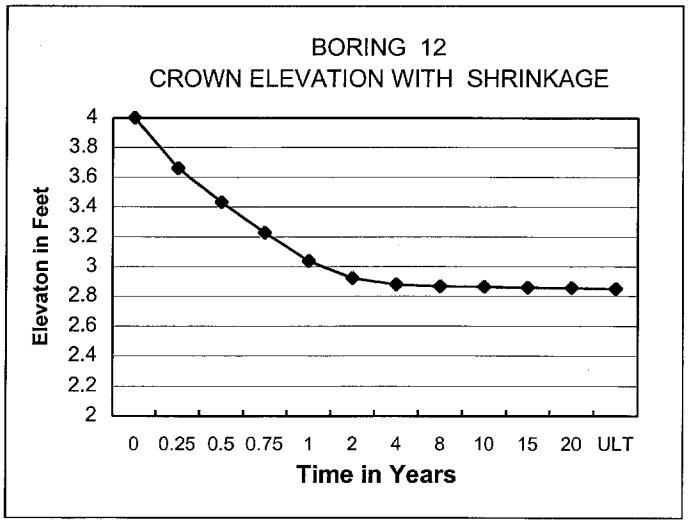


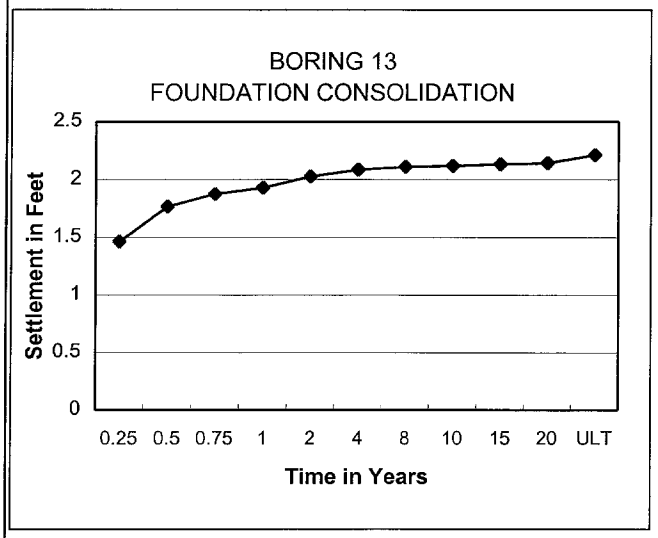
CONTAINMENT LEVEE SETTLEMENT VERSUS TIME

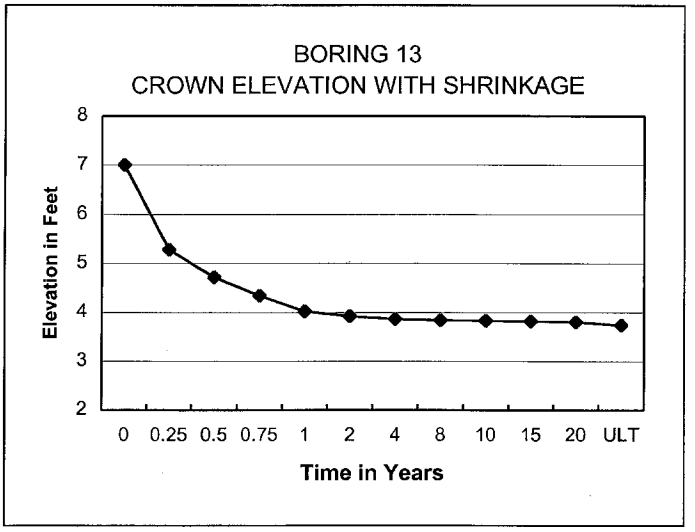
WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/20/03	Figure 20

BURNS COOLEY DENNIS, INC





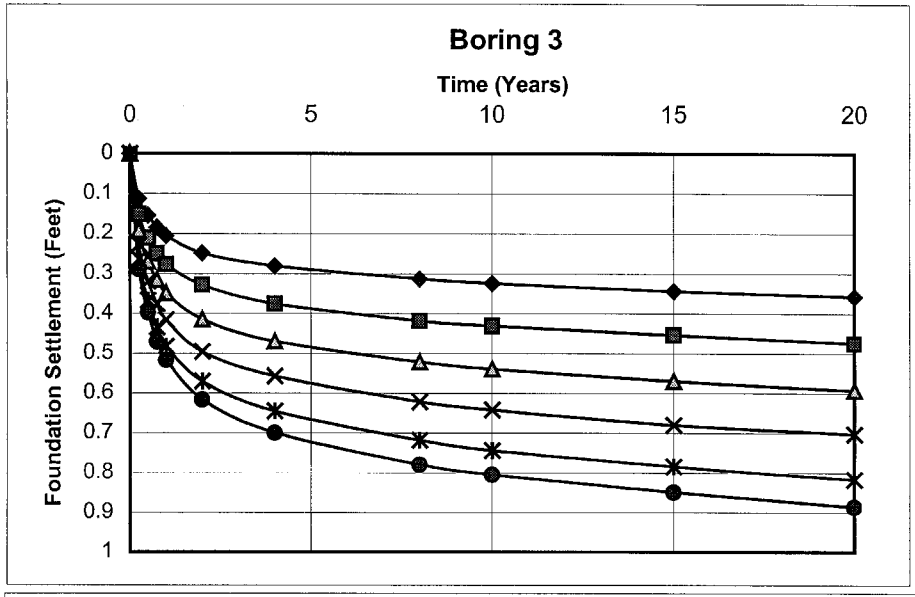


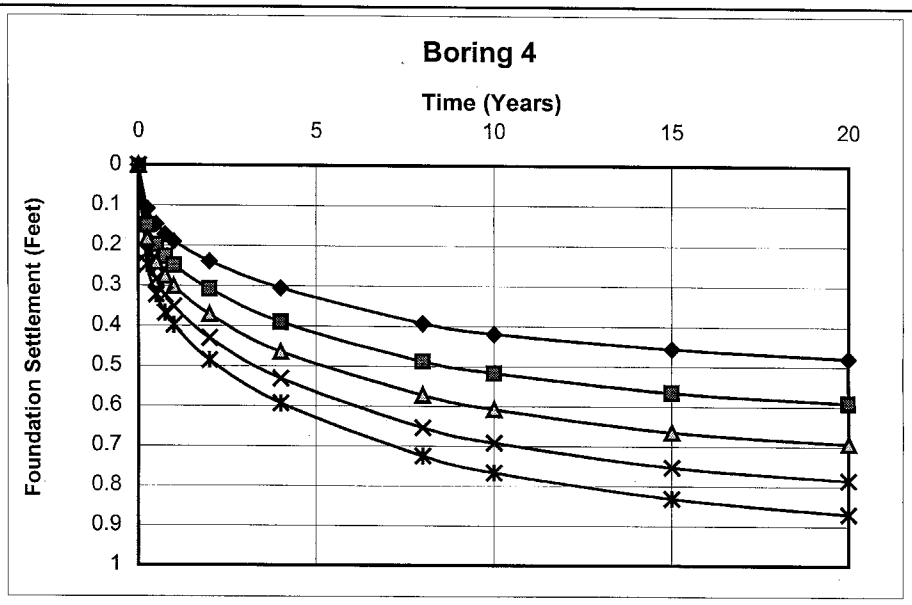


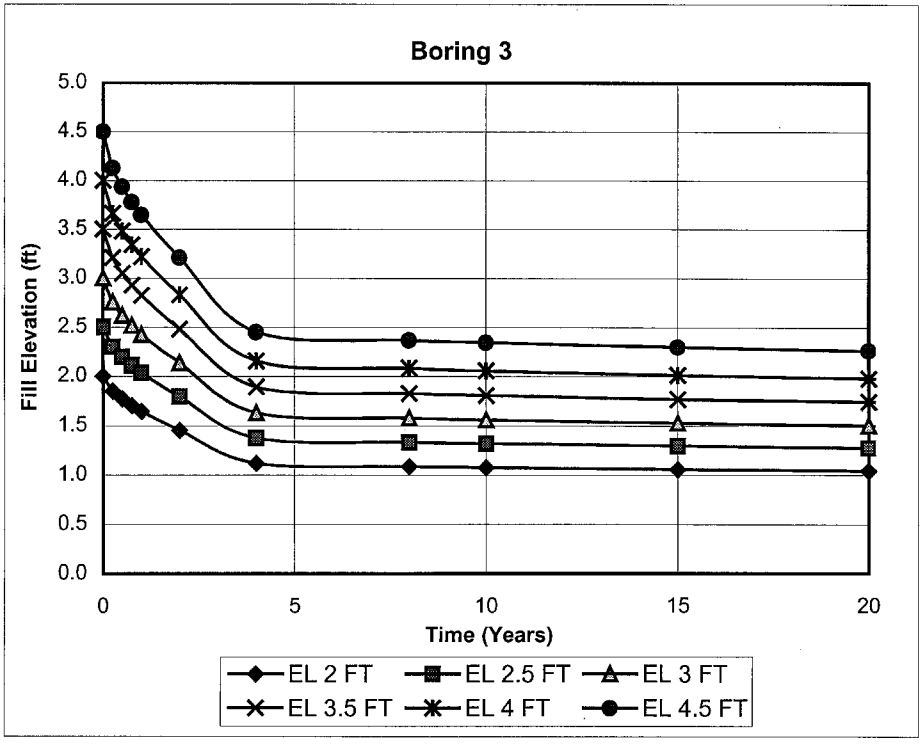
CONTAINMENT LEVEE SETTLEMENT VERSUS TIME

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/20/03	Figure 21

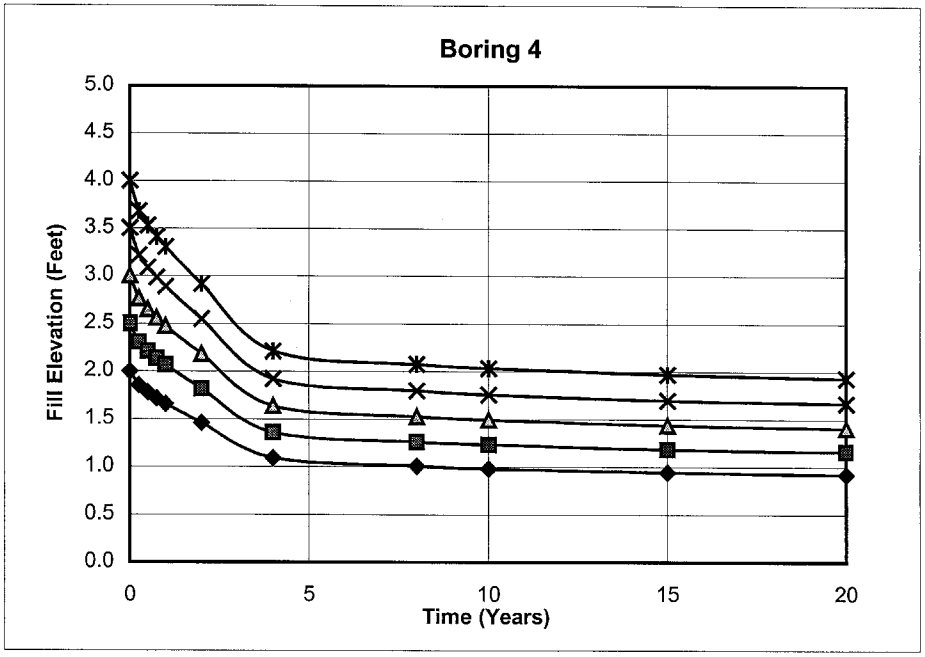
BURNS COOLEY DENNIS, INC







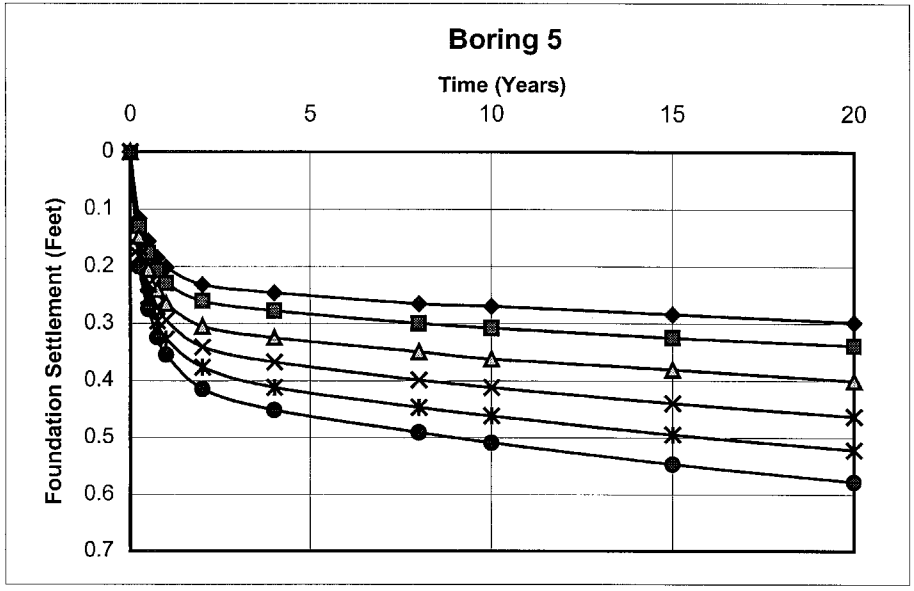
Legend for Dredge Fill Elevation

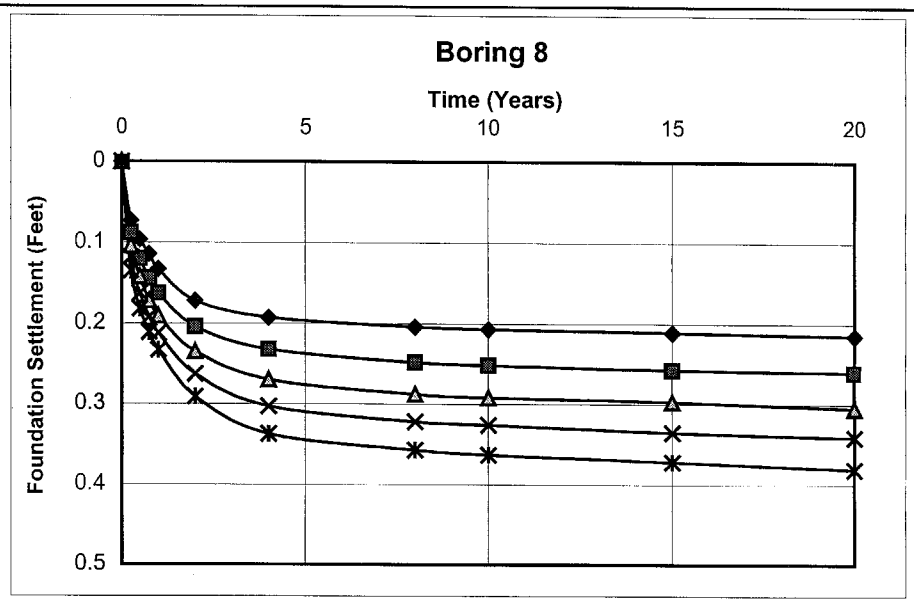


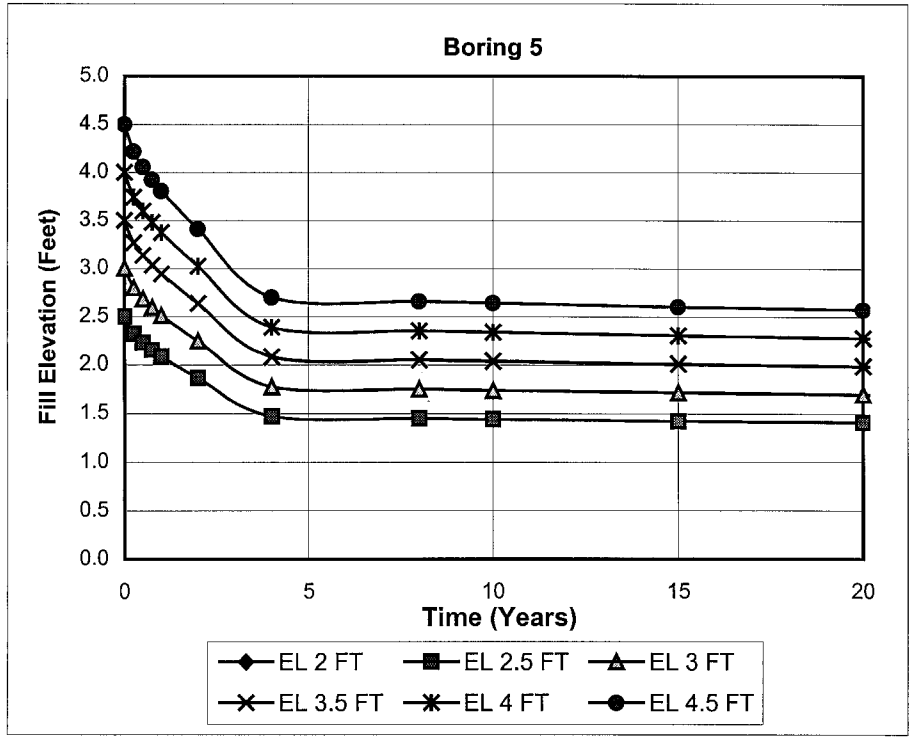
DREDGE FILL SETTLEMENT VERSUS TIME

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

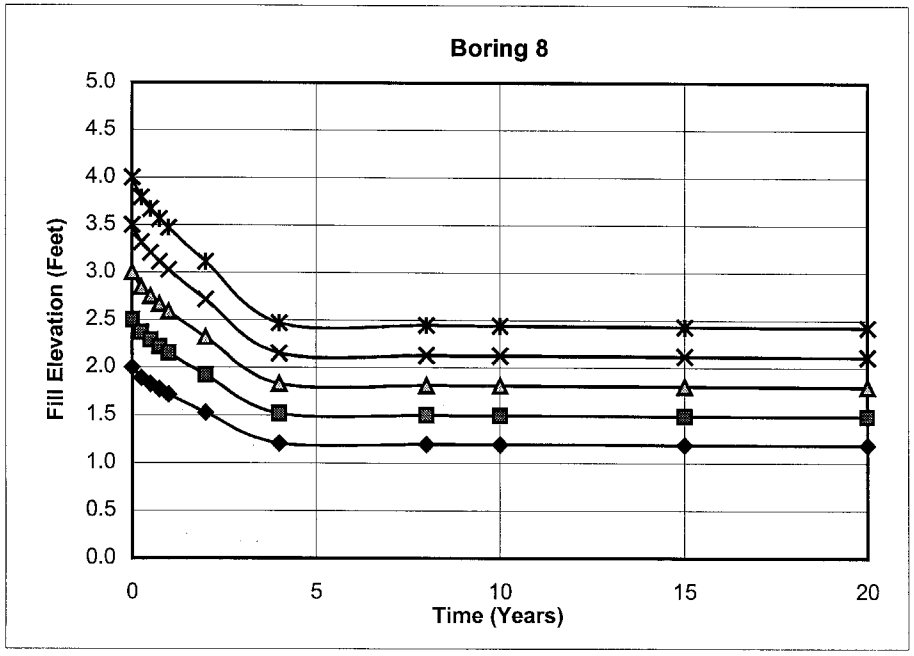
Job No. 02485-3	Date 5/20/03	Figure 22







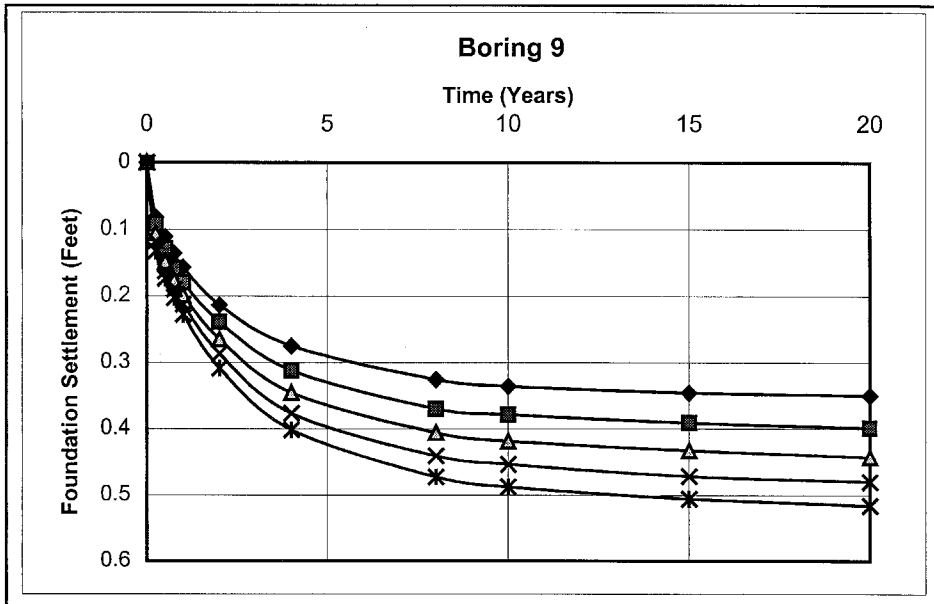
Legend for Dredge Fill Elevation

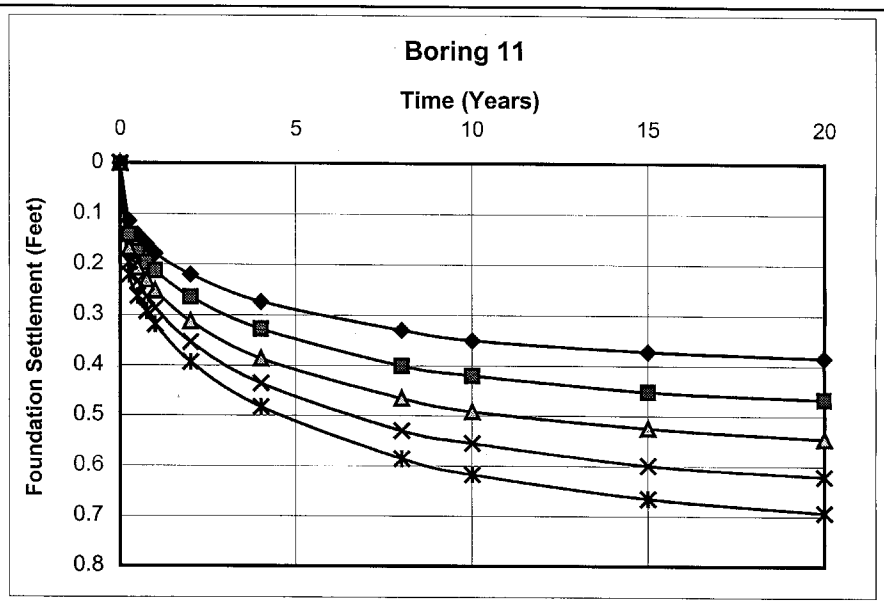


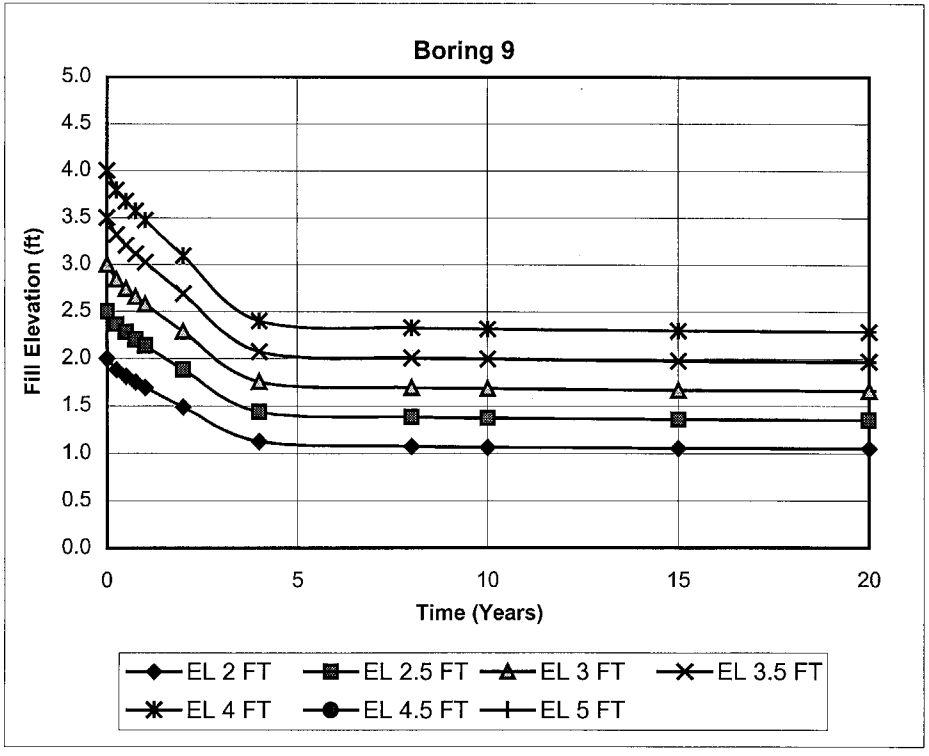
DREDGE FILL SETTLEMENT VERSUS TIME

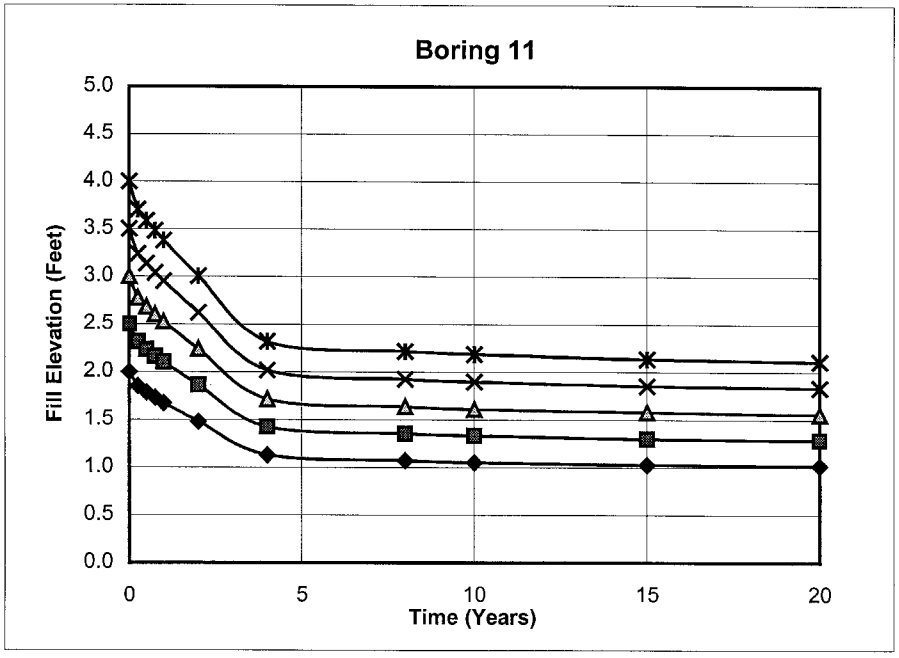
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

Job No. 02485-3	Date 5/20/03	Figure 23







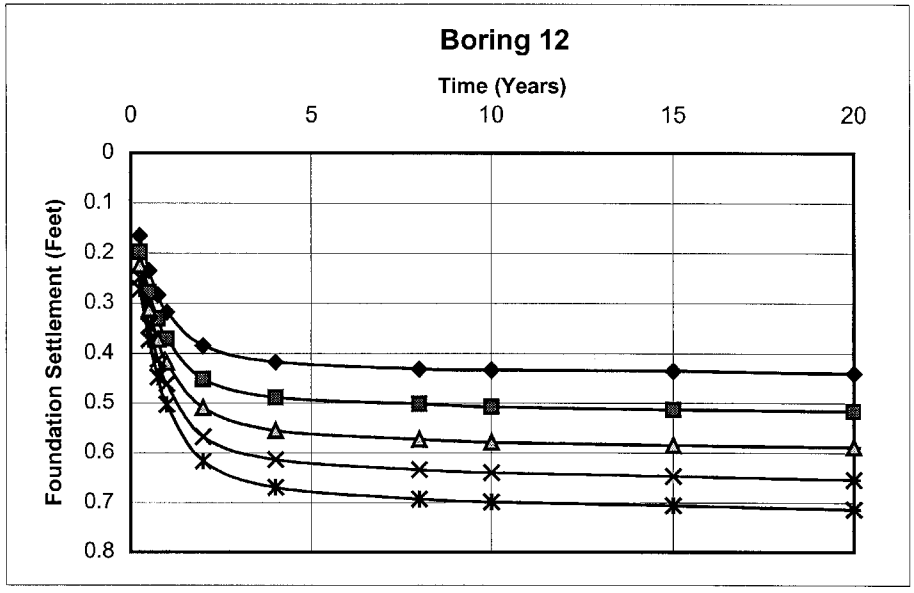


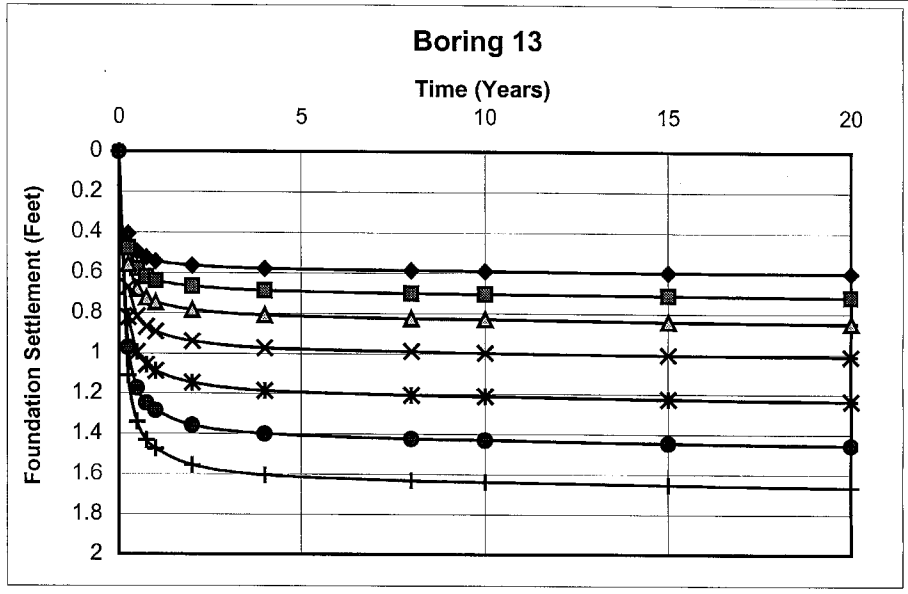
Legend for Dredge Fill Elevation

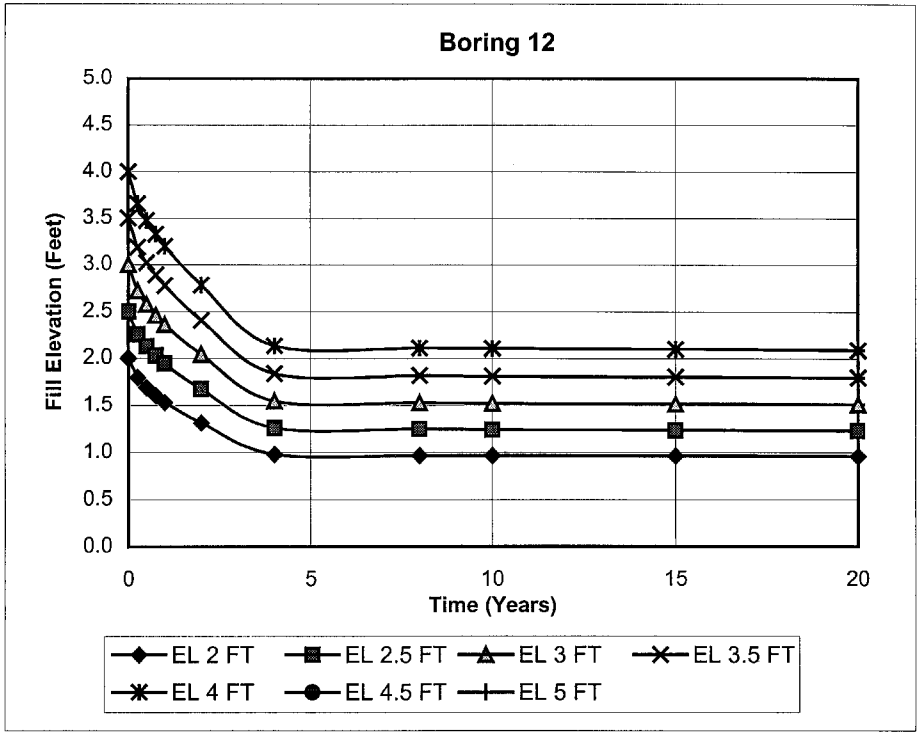
DREDGE FILL SETTLEMENT VERSUS TIME

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

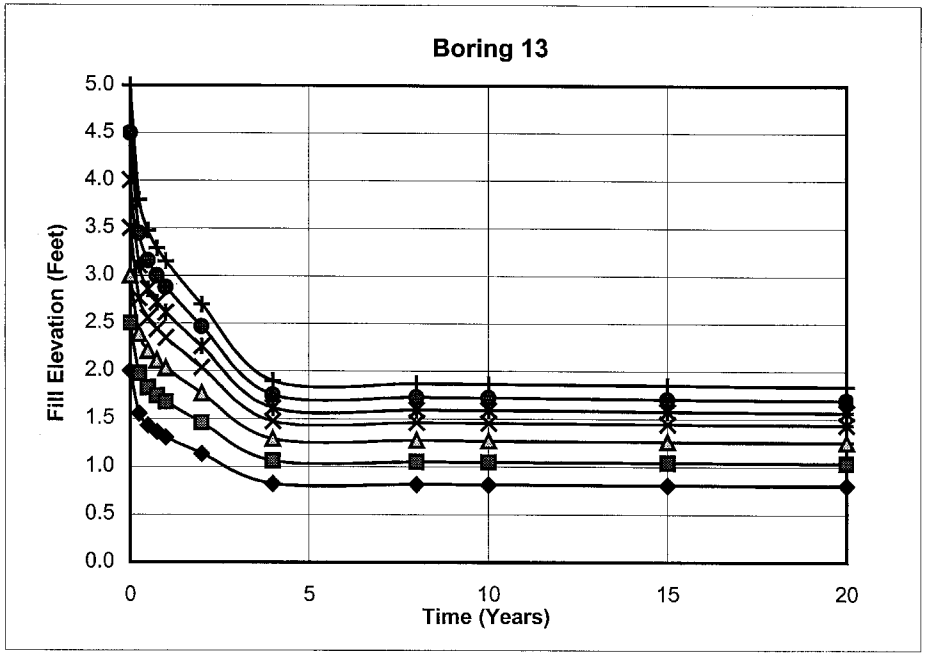
Job No. 02485-3	Date 5/20/03	Figure 24







Legend for Dredge Fill Elevation



DREDGE FILL SETTLEMENT VERSUS TIME

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

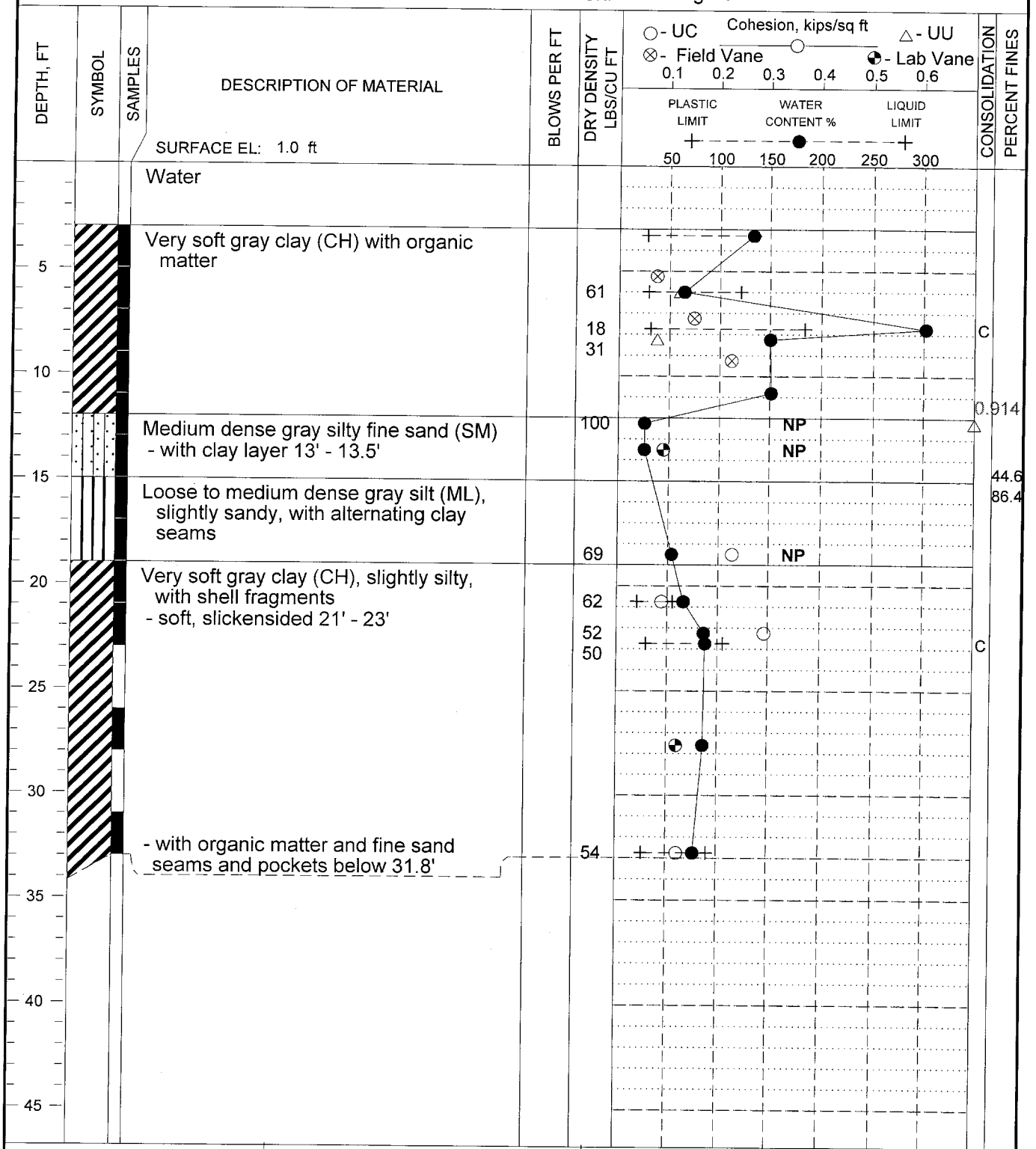
Job No. 02485-3	Date 5/20/03	Figure 25

LOG OF BORING NO. 1

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 33 ft

DATE: 03/14/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ ar

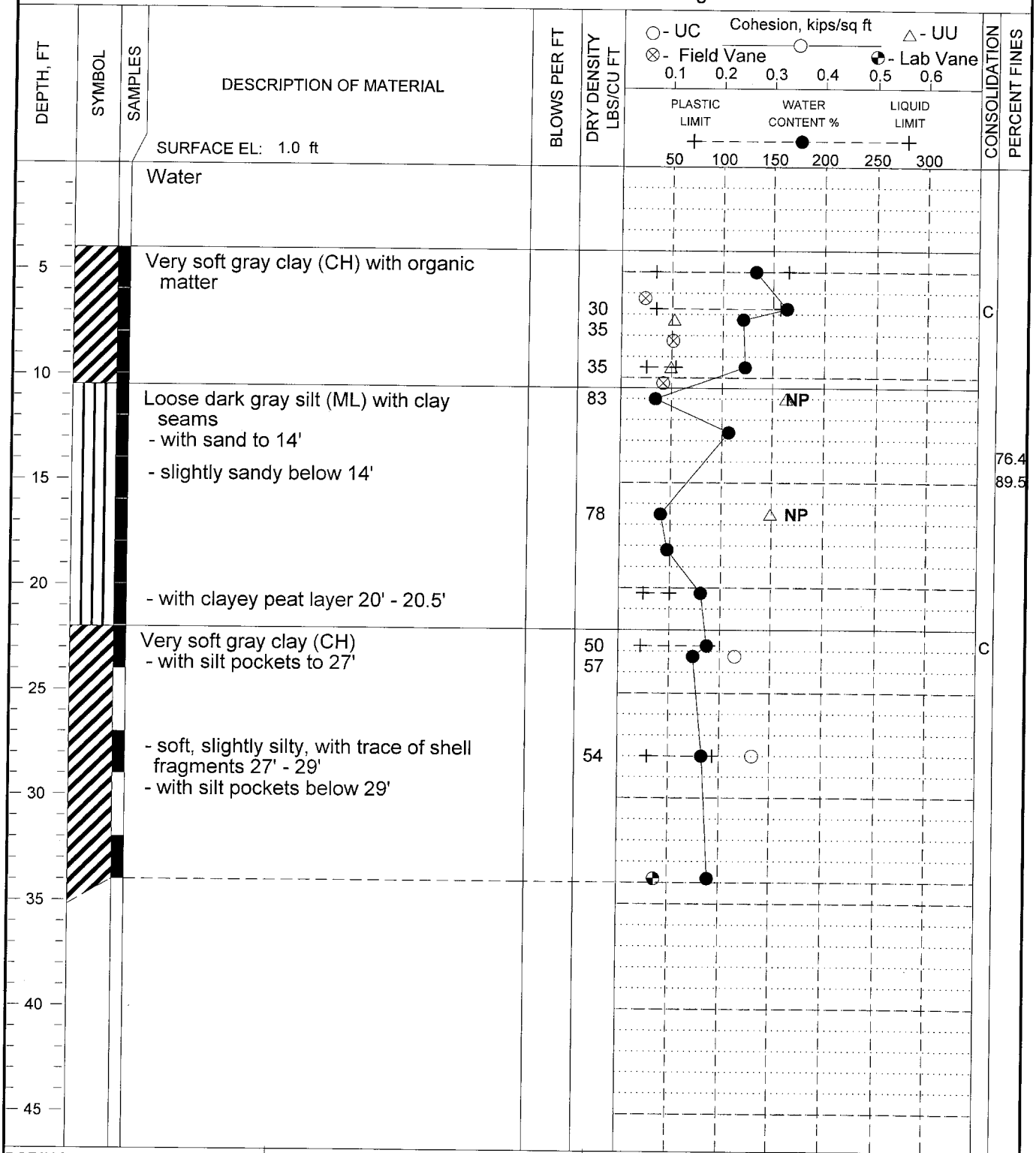
FIGURE A-1

LOG OF BORING NO. 2

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 34 ft

DATE: 03/14/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

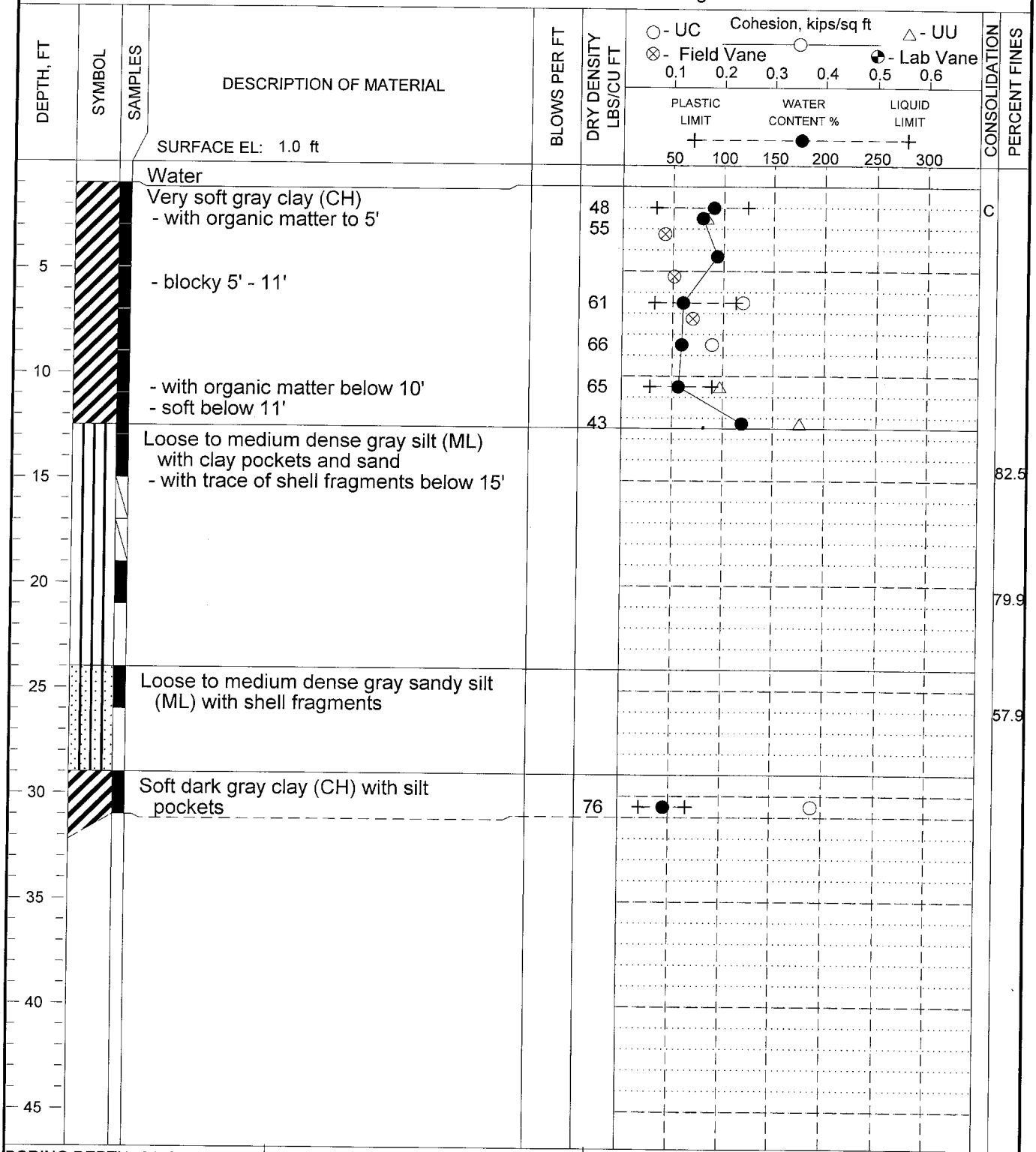
FIGURE A-2

LOG OF BORING NO. 3

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 31 ft

DATE: 04/09/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

FIGURE A-3

LOG OF BORING NO. 4

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	DRY DENSITY LBS/CU FT	Cohesion, kips/sq ft: ○- UC, △- UU, ⊗- Field Vane, ◒- Lab Vane (0.1 0.2 0.3 0.4 0.5 0.6); PLASTIC LIMIT / WATER CONTENT % / LIQUID LIMIT (50 100 150 200 250 300)	CONSOLIDATION	PERCENT FINES
			SURFACE EL: 1.0 ft					
			Water					
			Very soft gray clay (CH) with organic matter		39 36 41 45 39 38 46 29		C	
20			Loose to medium dense gray clayey silt (ML)					95.1 96.2
25			Soft gray clay (CH) with shell fragments - with sand pockets and mica to 30'		70			
30			- slickensided below 30'		51 52		C	
35								
40								
45								

BORING DEPTH: 32 ft

DATE: 04/09/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

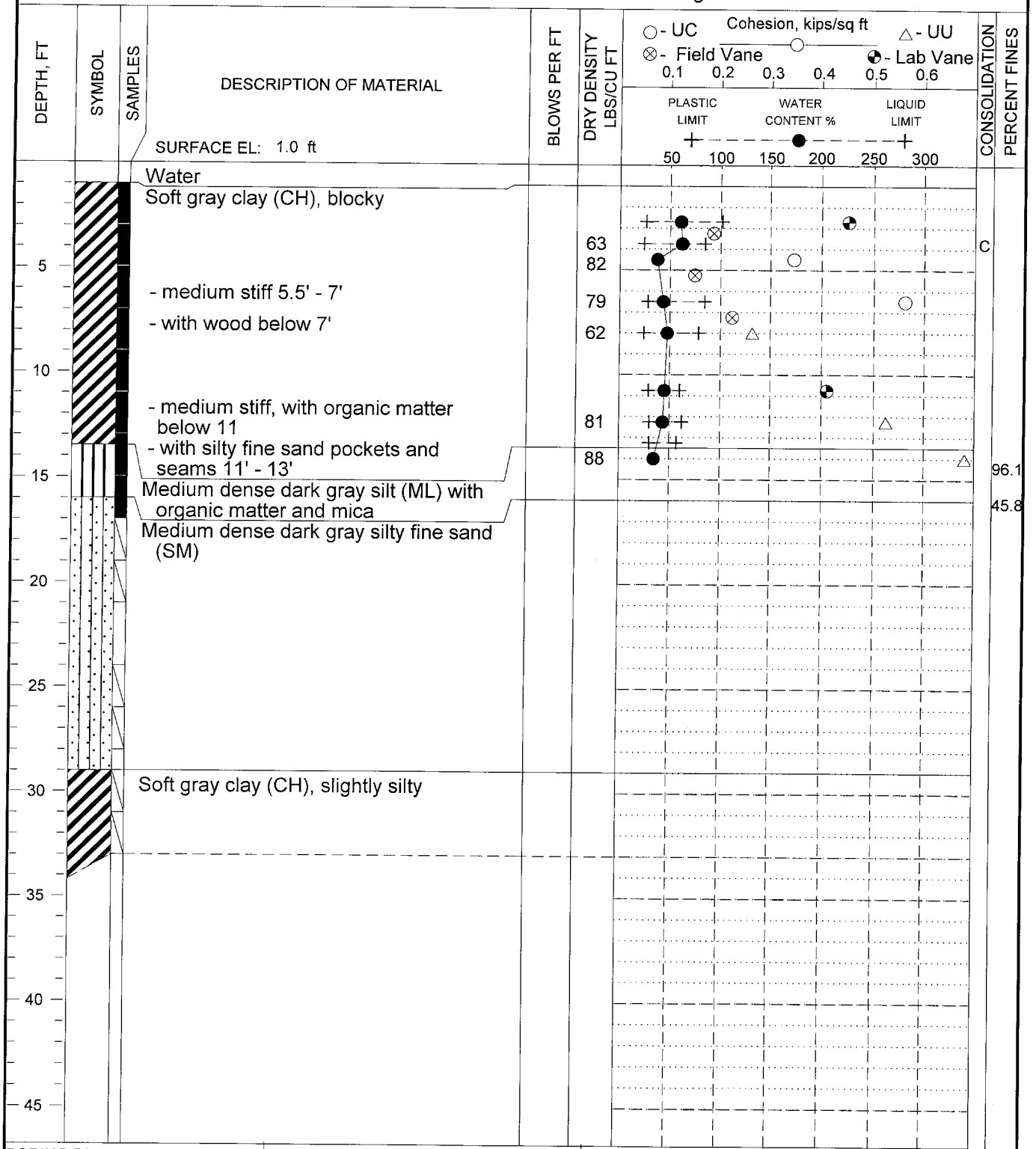
FIGURE A-4

LOG OF BORING NO. 5

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 33 ft

DATE: 04/09/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ ar

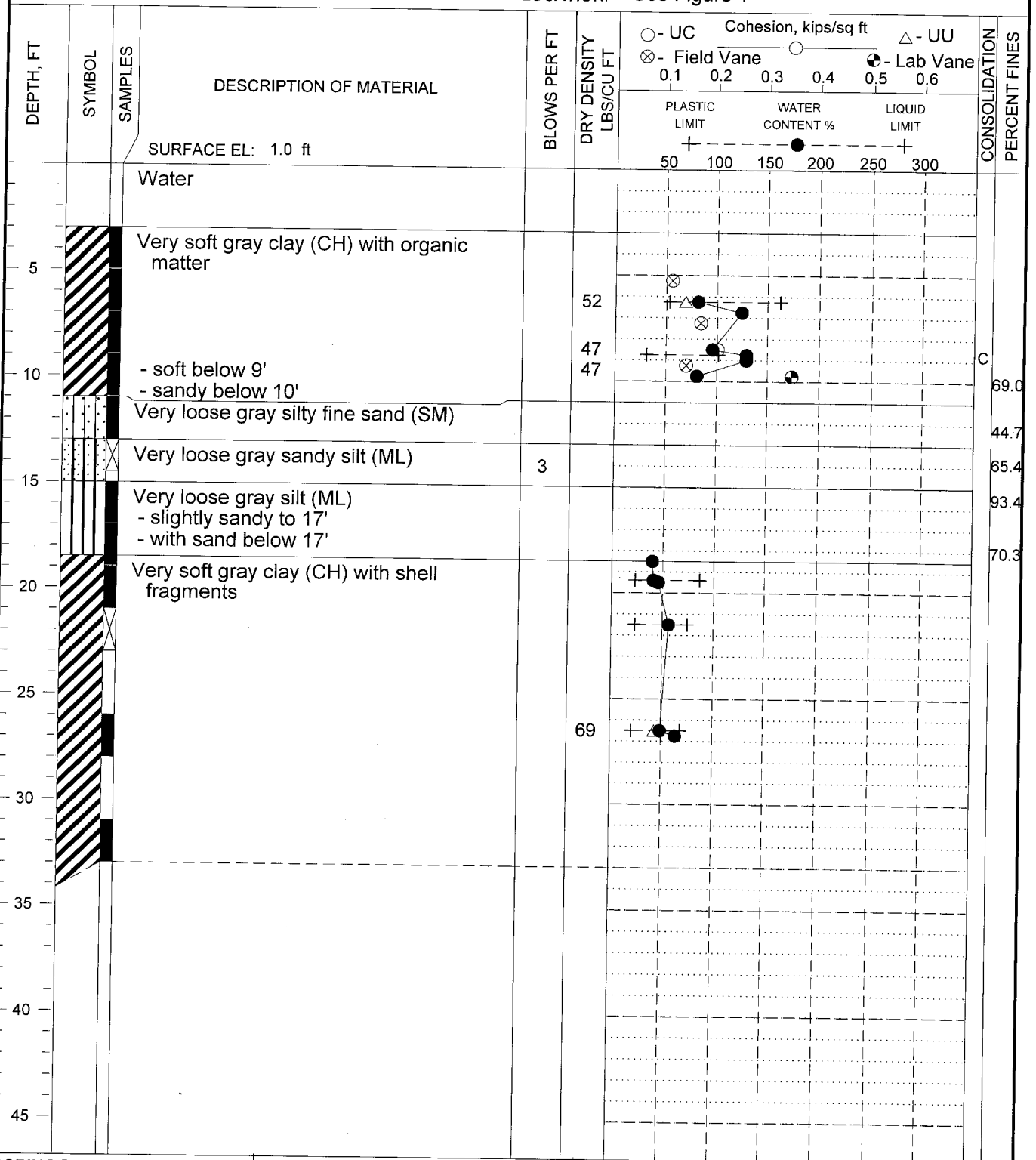
FIGURE A-5

LOG OF BORING NO. 6

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 33 ft

DATE: 03/15/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02465-1 GP1.ai

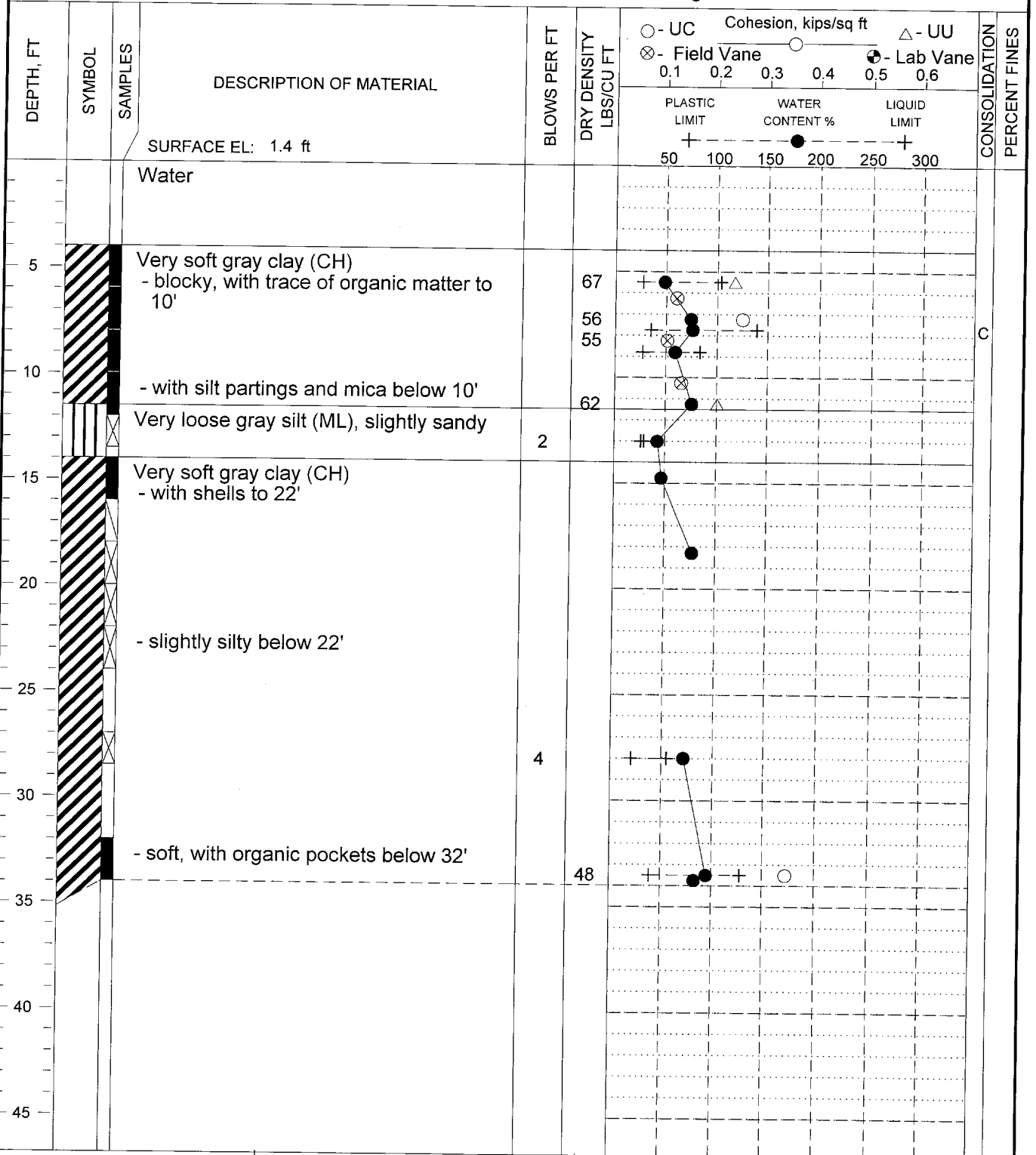
FIGURE A-6

LOG OF BORING NO. 7

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 34 ft

DATE: 03/16/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ ar

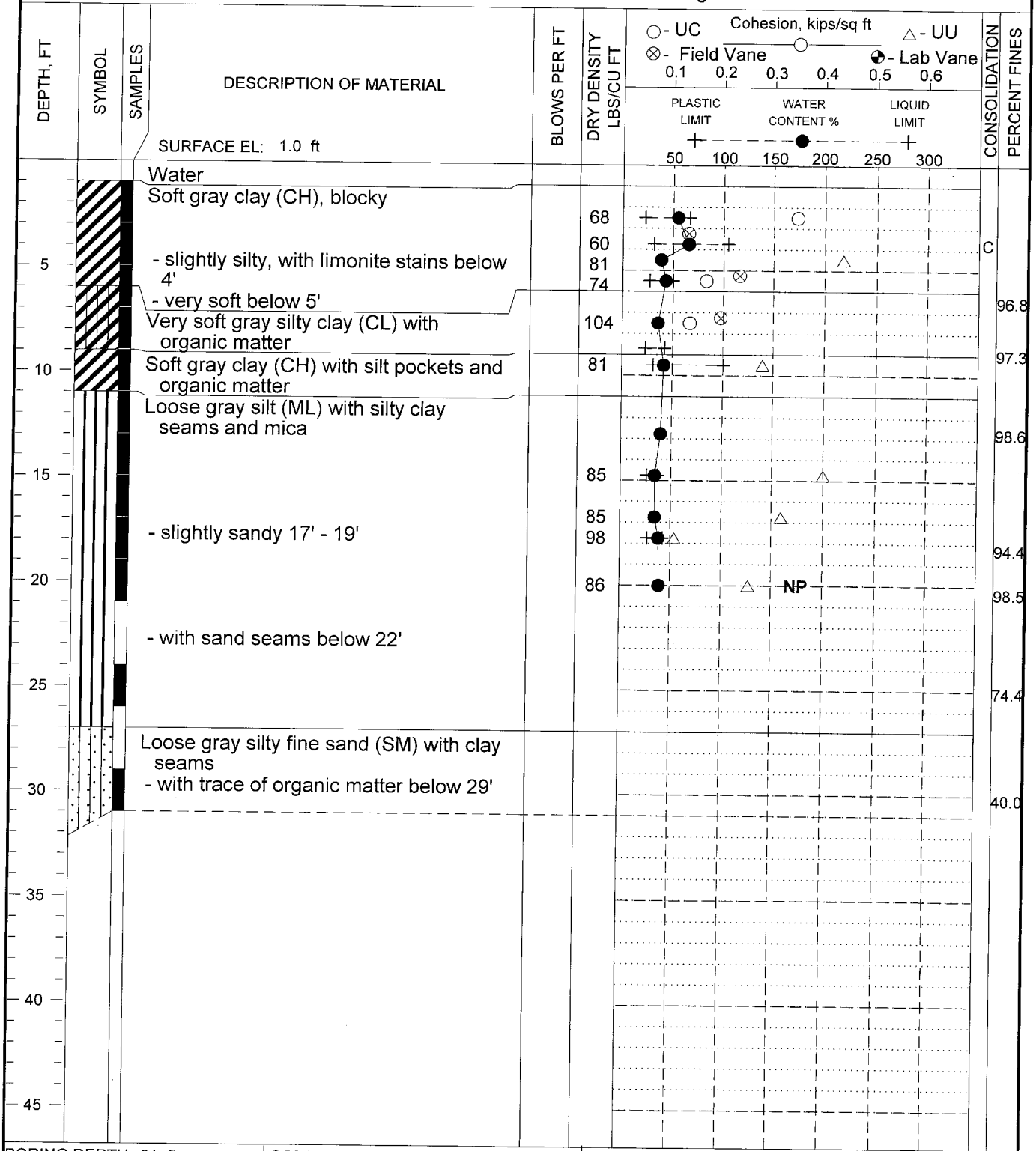
FIGURE A-7

LOG OF BORING NO. 8

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 31 ft

DATE: 04/09/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

024853.GPJ.ar

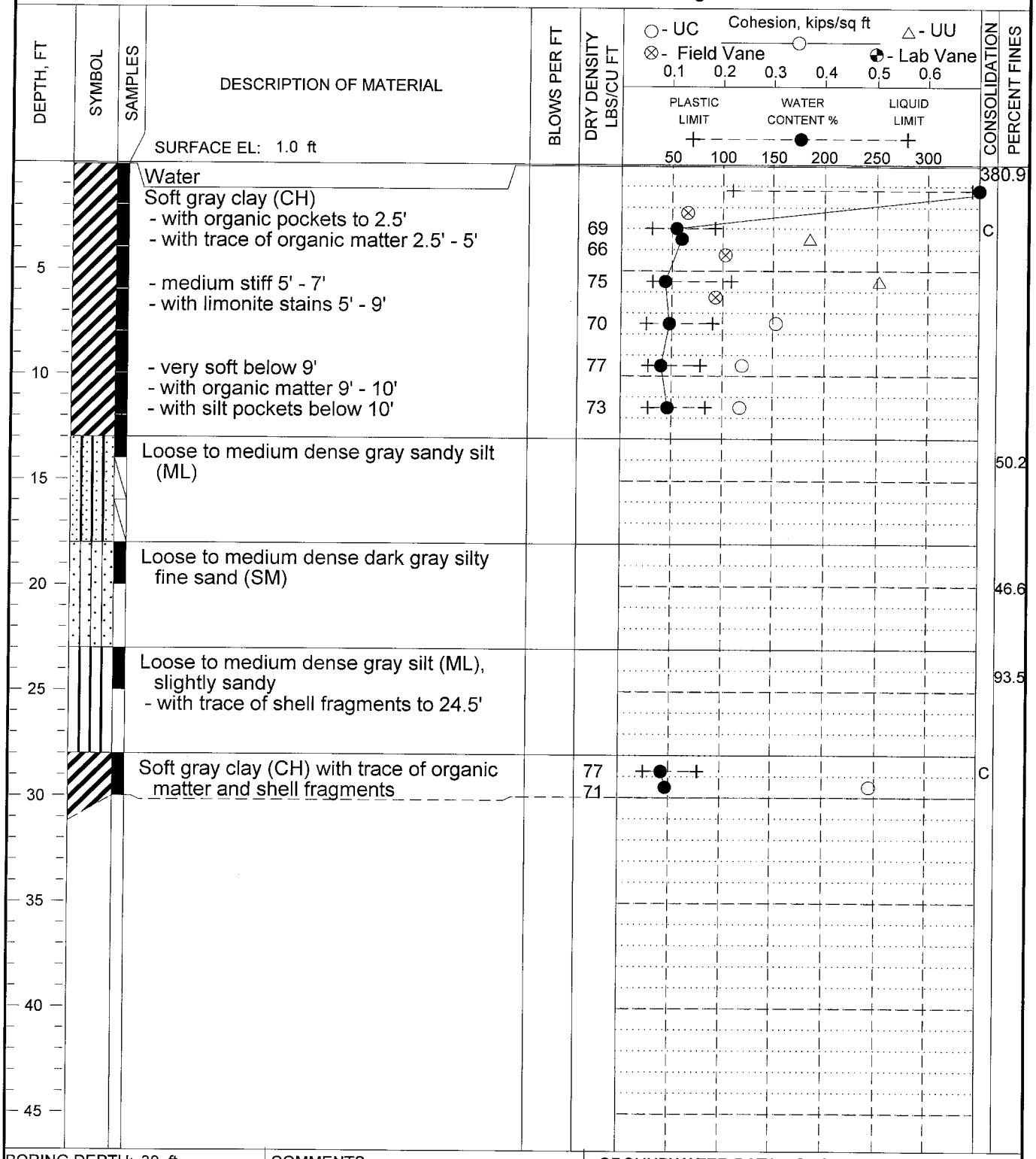
FIGURE A-8

LOG OF BORING NO. 9

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 30 ft

DATE: 04/09/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

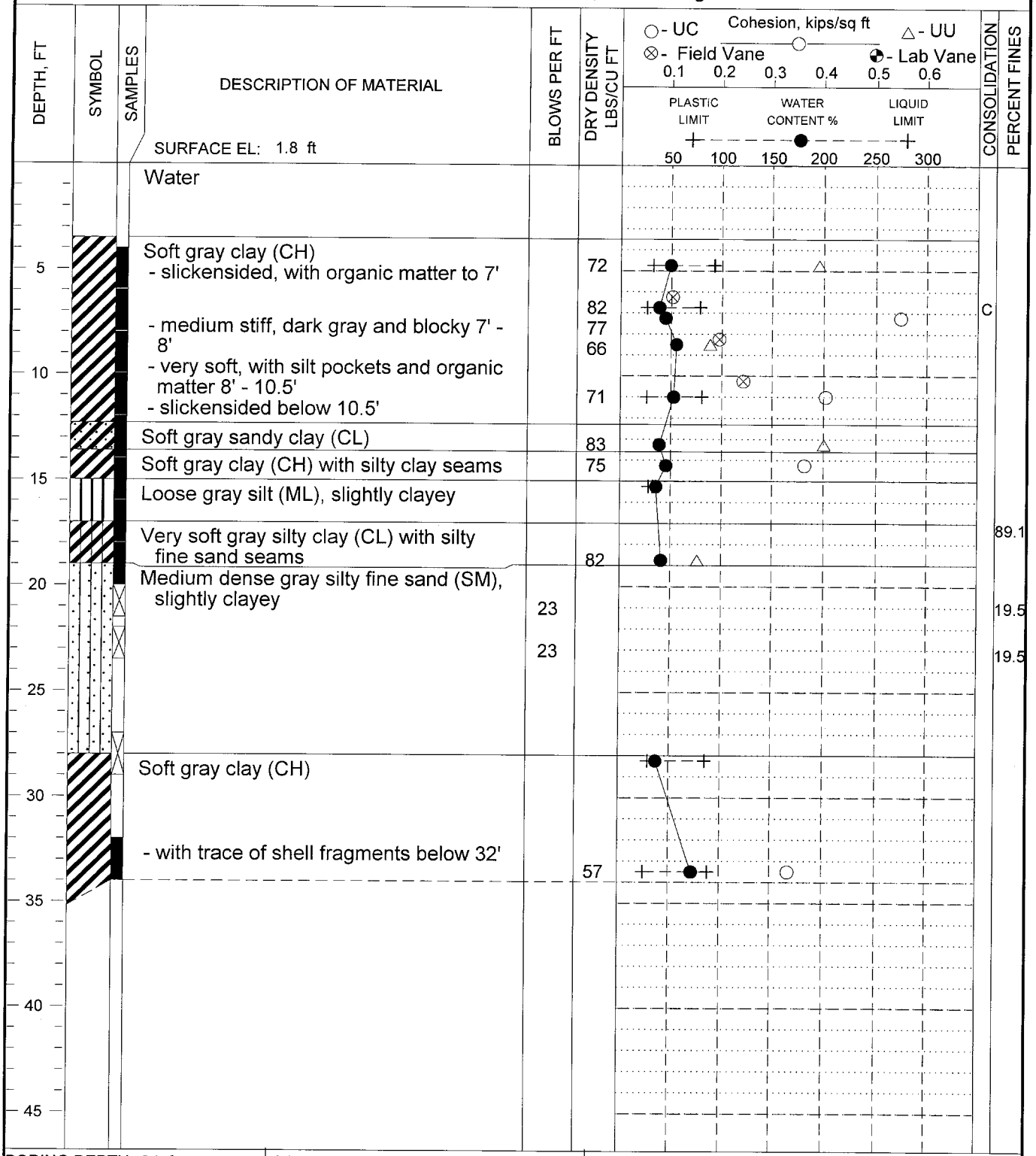
FIGURE A-9

LOG OF BORING NO. 10

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 34 ft

DATE: 03/18/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

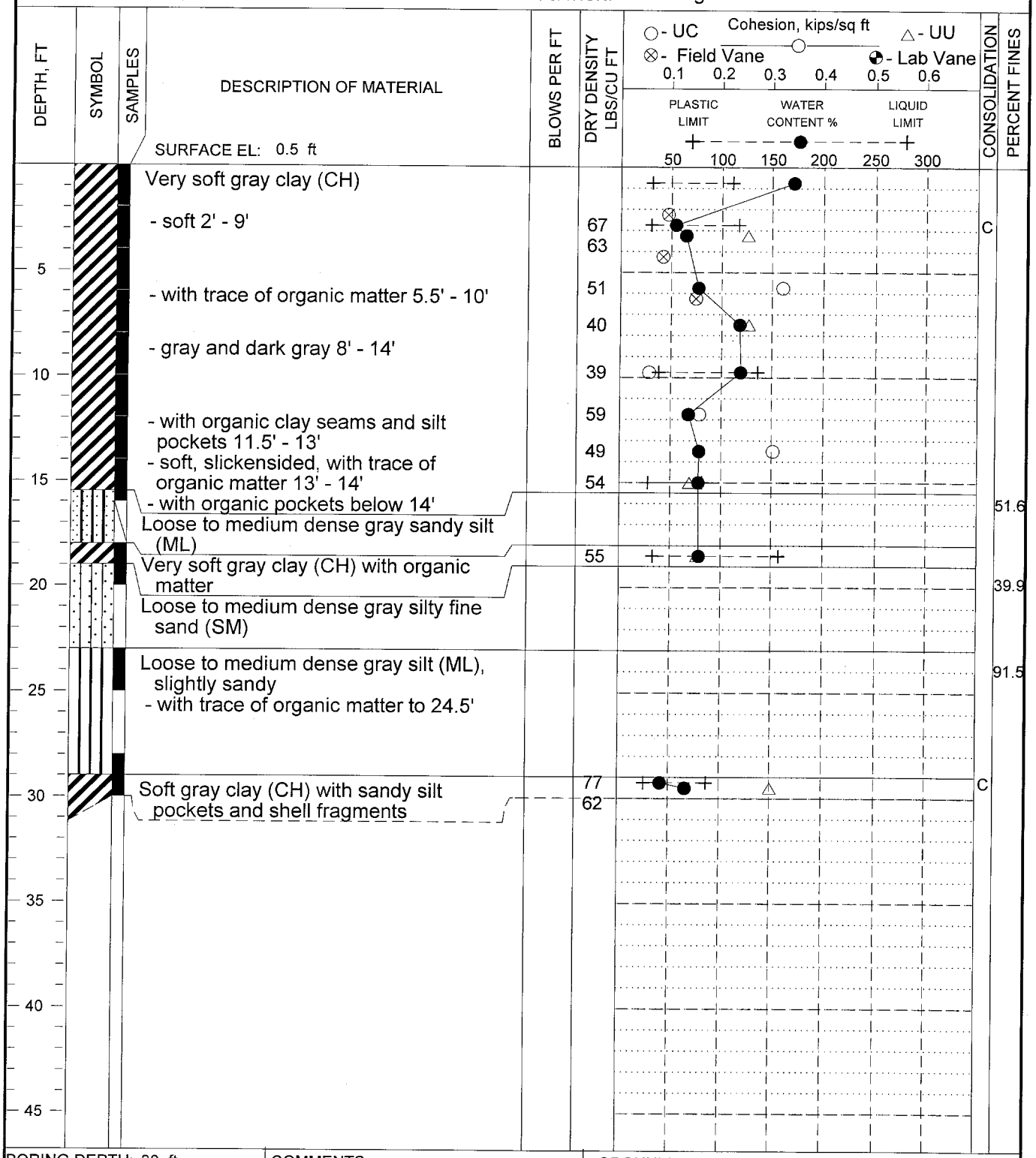
FIGURE A-10

LOG OF BORING NO. 11

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 30 ft

DATE: 04/10/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ ar

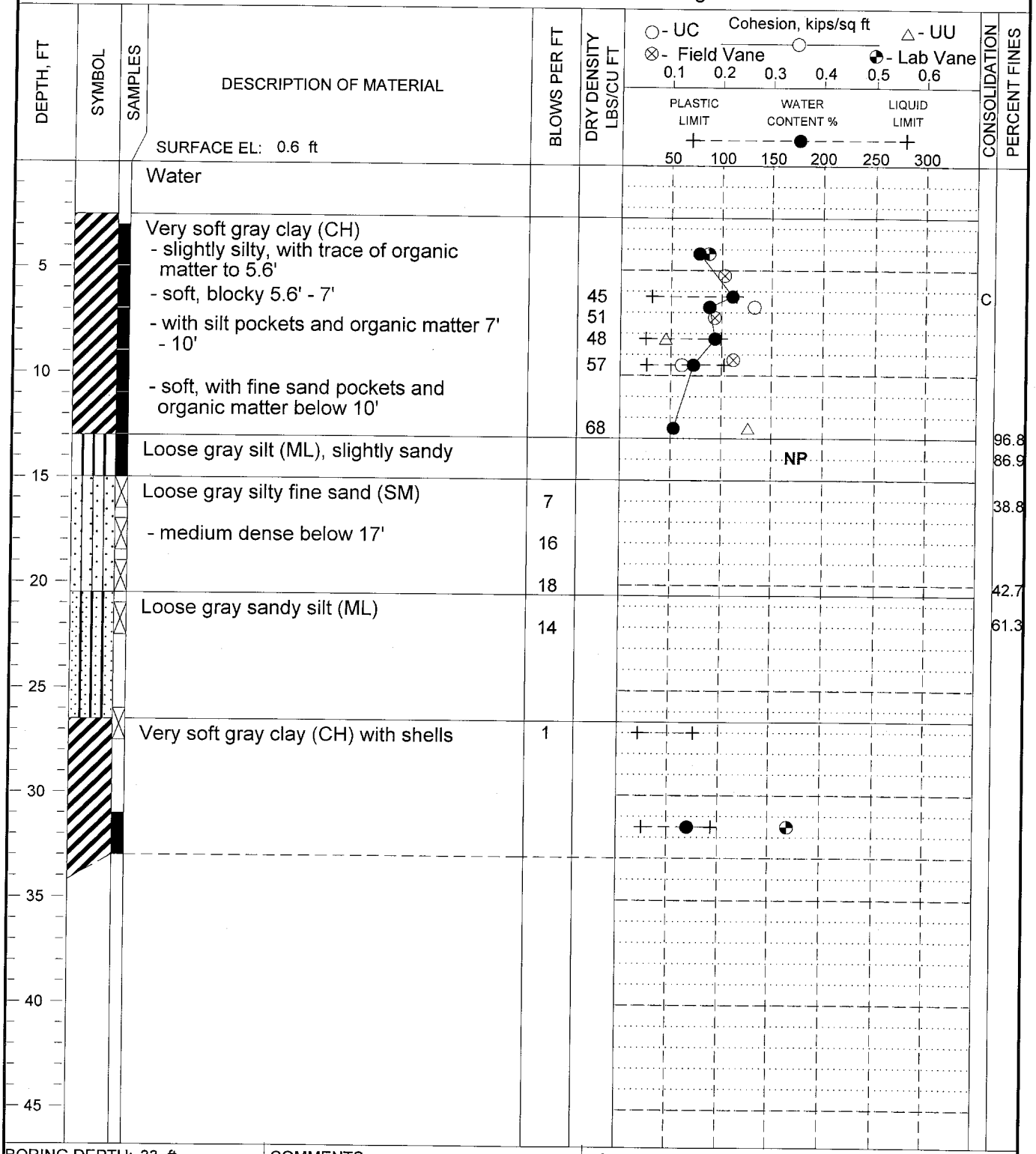
FIGURE A-11

LOG OF BORING NO. 12

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 33 ft

DATE: 03/24/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

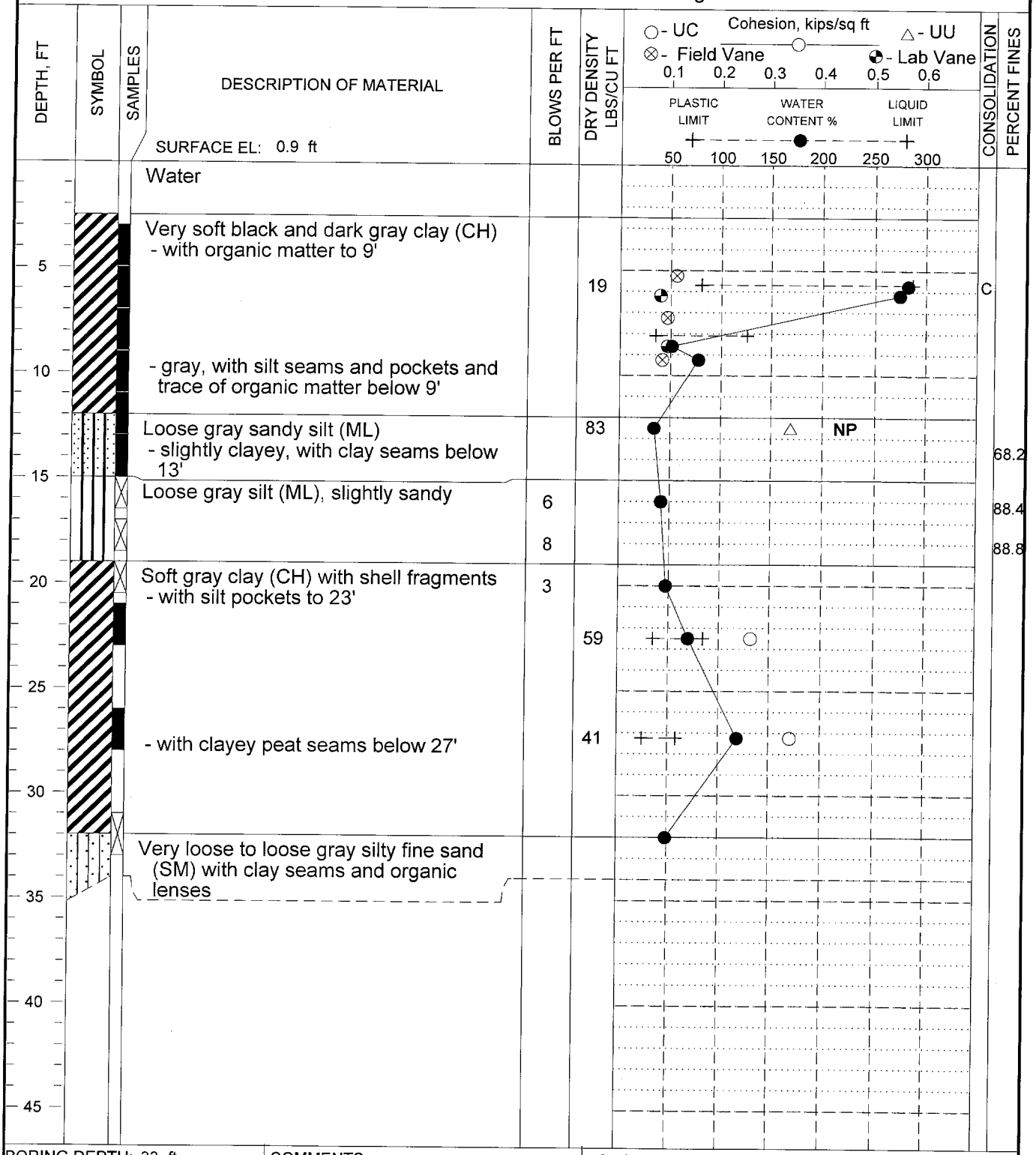
FIGURE A-12

LOG OF BORING NO. 13

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 33 ft

DATE: 03/25/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

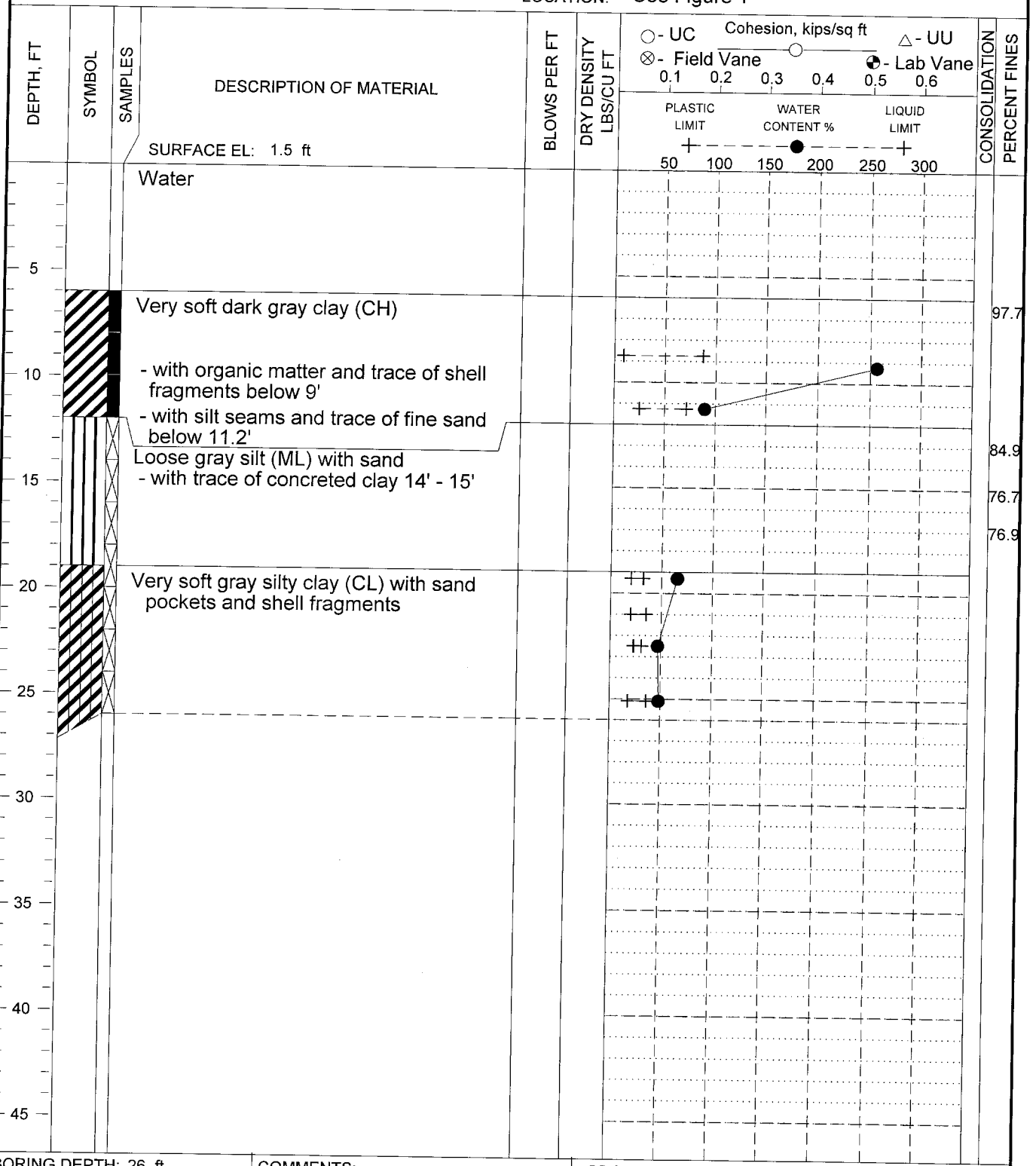
FIGURE A-13

LOG OF BORING NO. 14

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 26 ft

DATE: 03/27/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3 GP1.ai

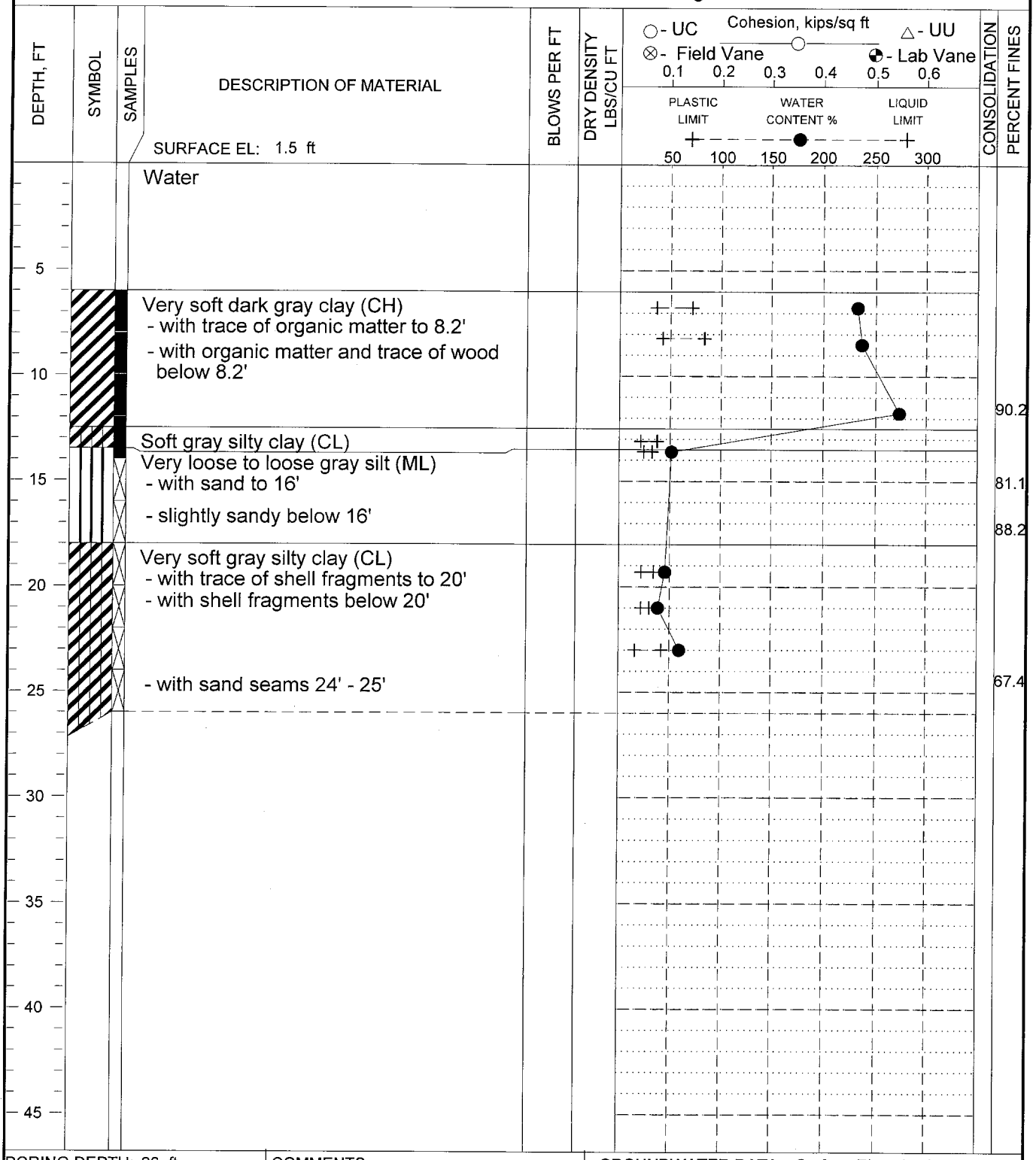
FIGURE A-14

LOG OF BORING NO. 15

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 26 ft

DATE: 03/27/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-1.GPJ.ar

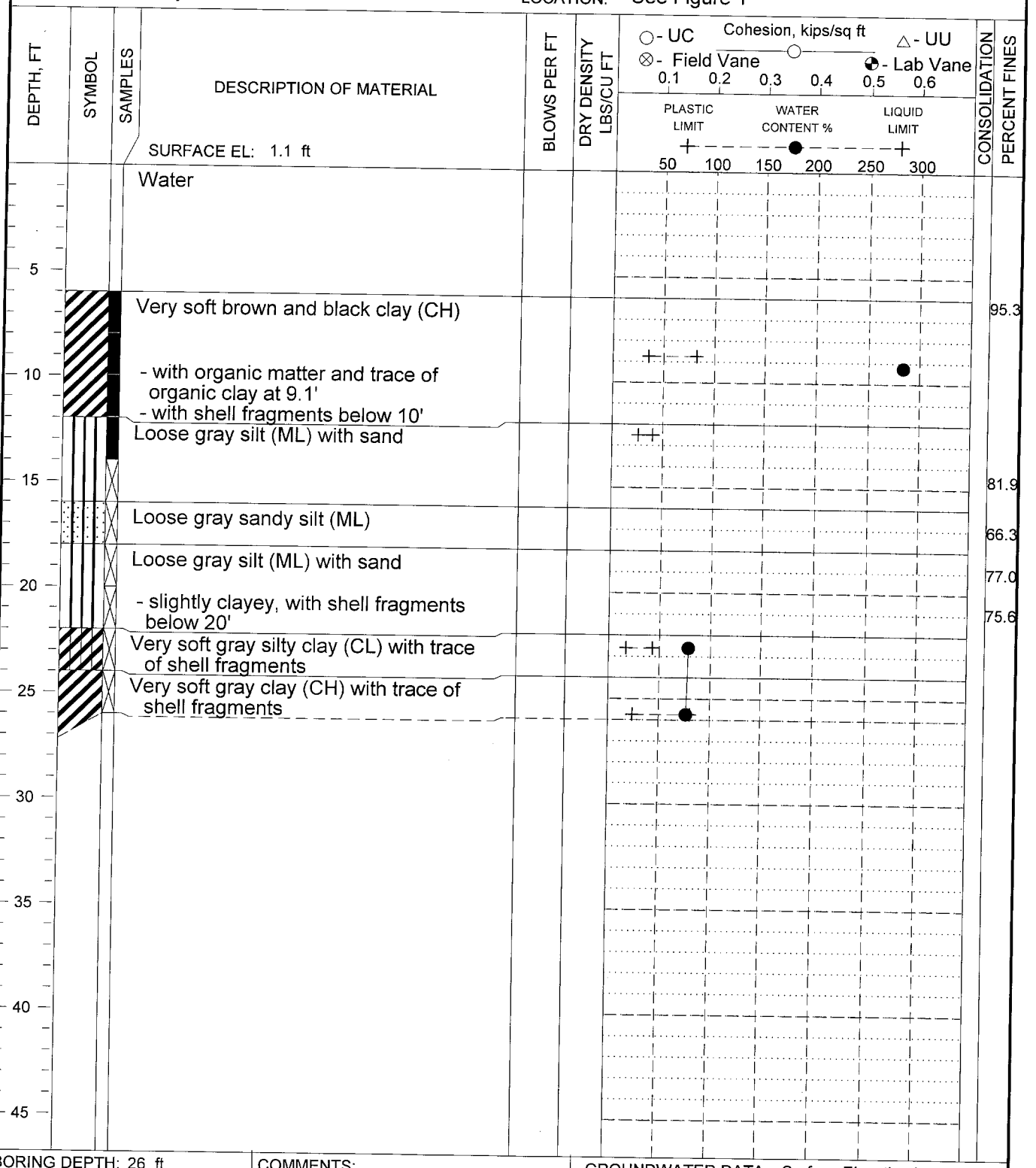
FIGURE A-15

LOG OF BORING NO. 16

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 26 ft

DATE: 03/27/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

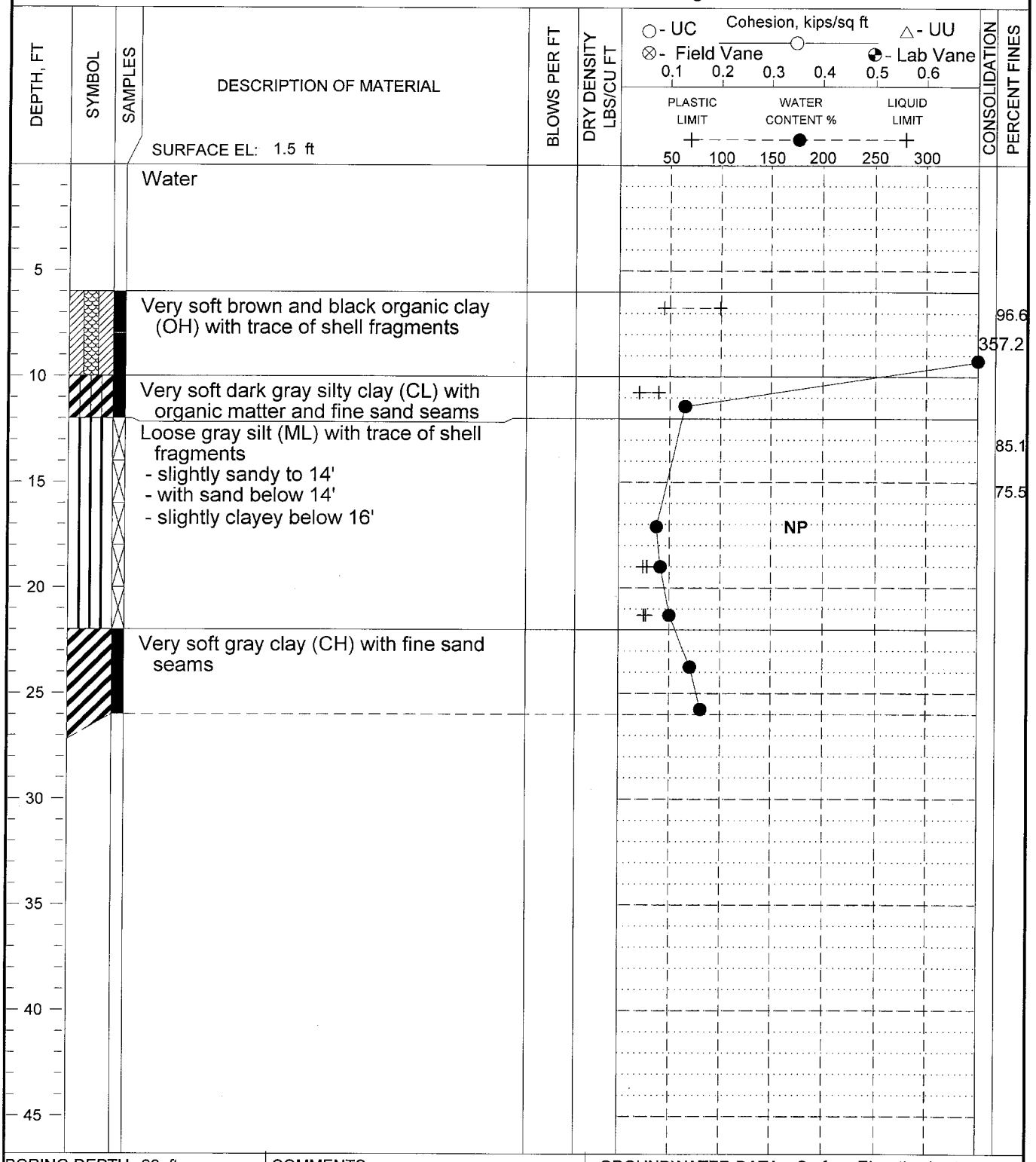
FIGURE A-16

LOG OF BORING NO. 17

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 26 ft

DATE: 03/27/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-1.GPJ.ar

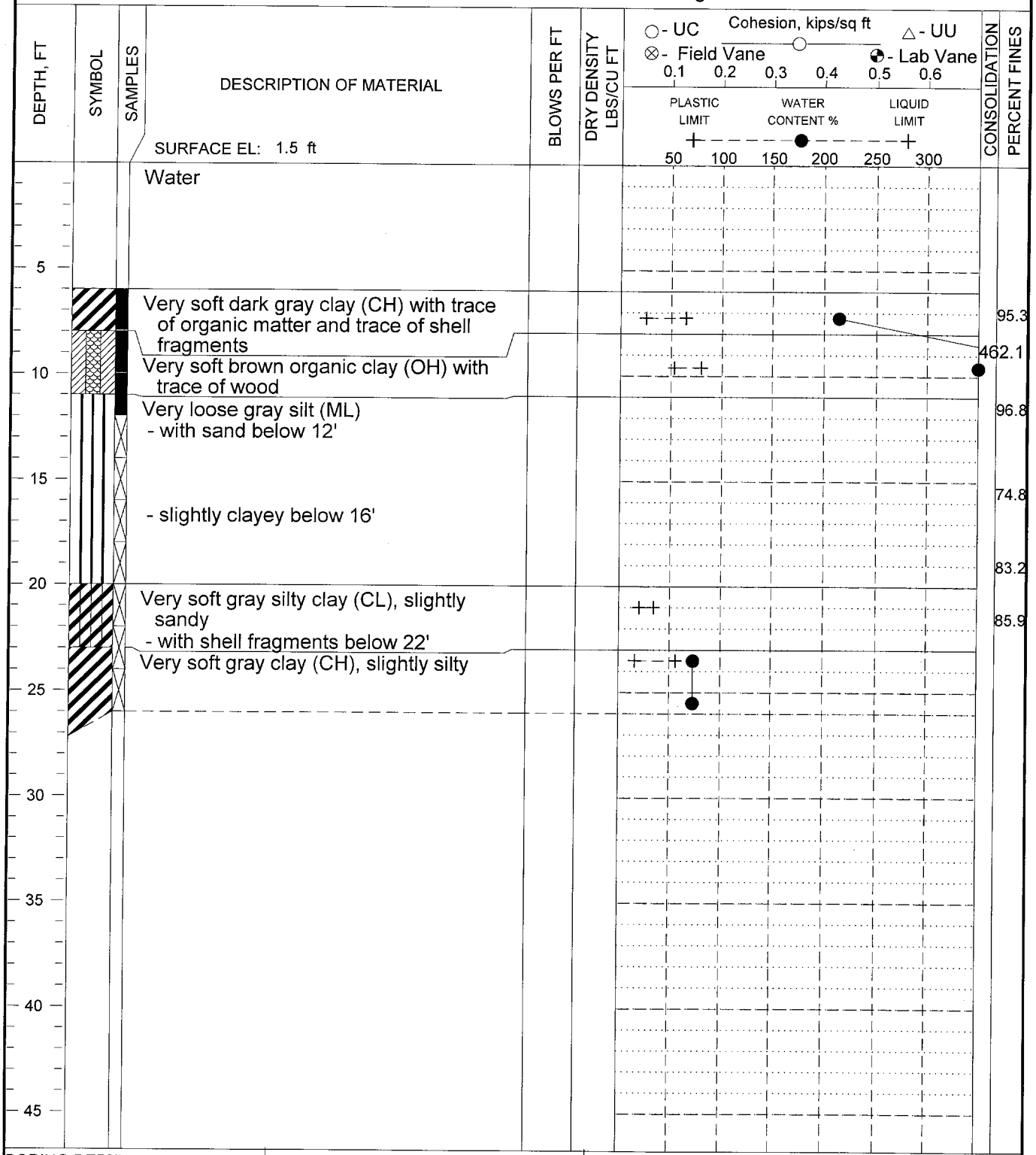
FIGURE A-17

LOG OF BORING NO. 18

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 26 ft

DATE: 03/27/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

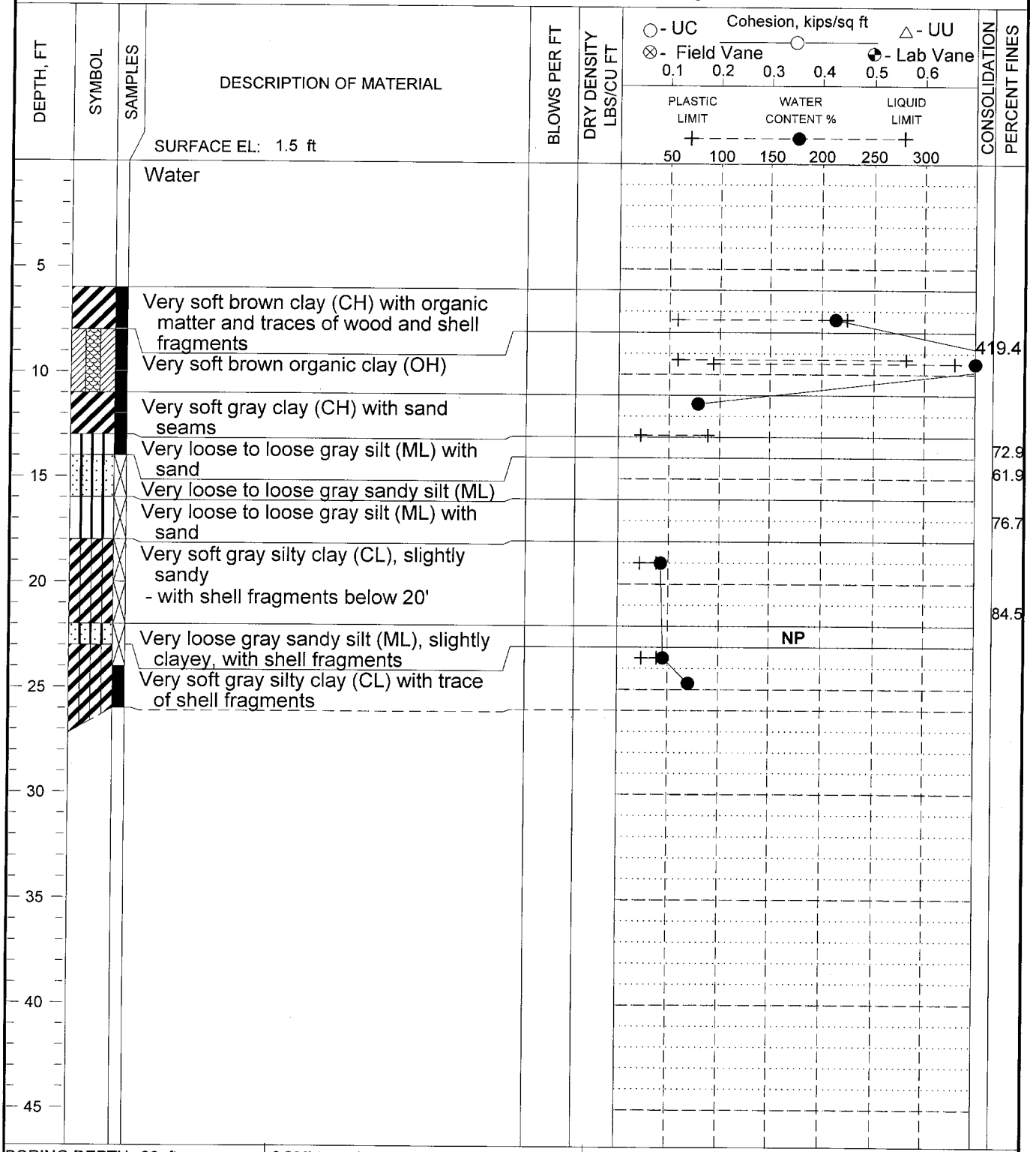
FIGURE A-18

LOG OF BORING NO. 19

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 26 ft

DATE: 03/27/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

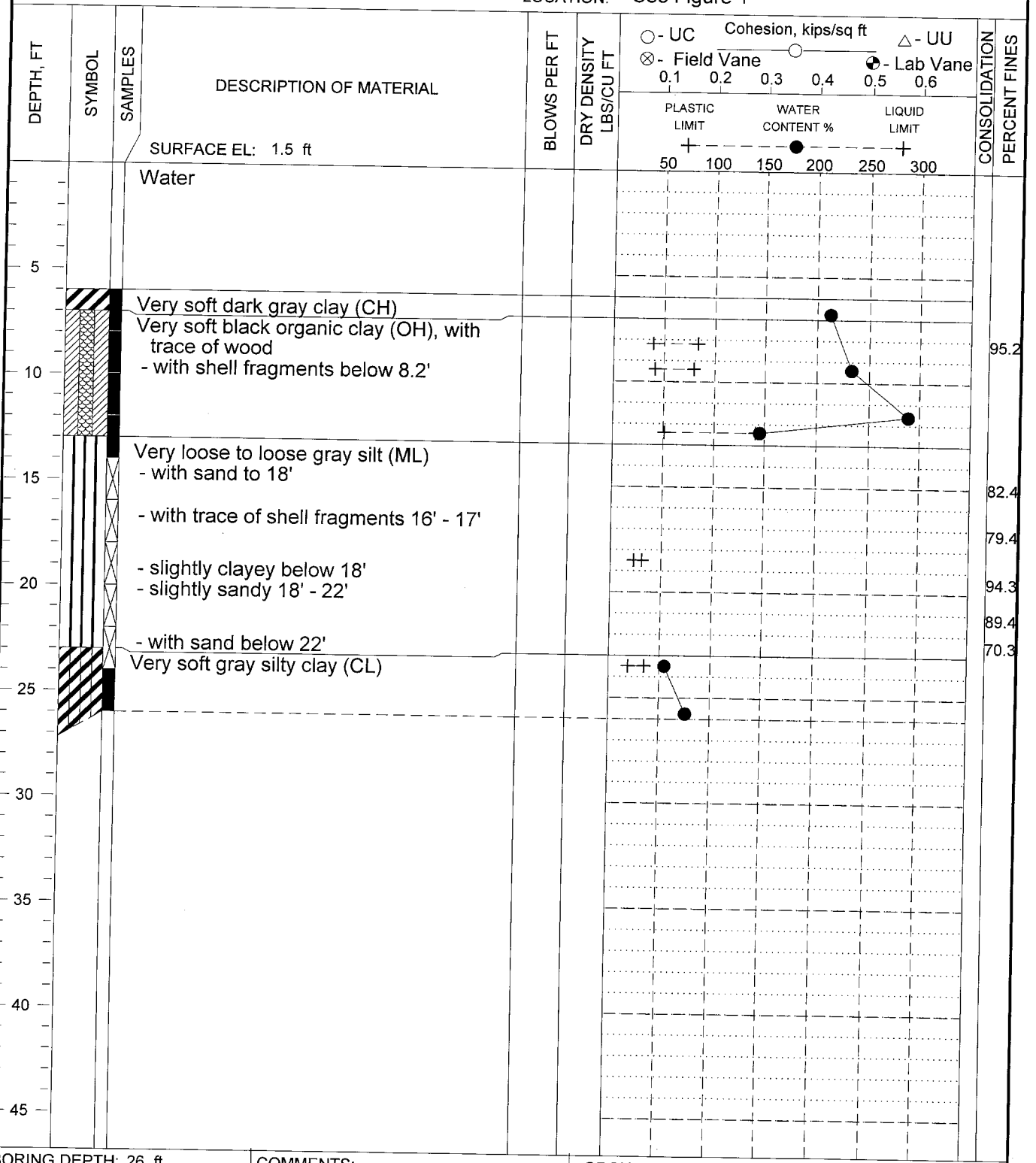
FIGURE A-19

LOG OF BORING NO. 20

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 26 ft

DATE: 03/27/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-1.GPJ ar

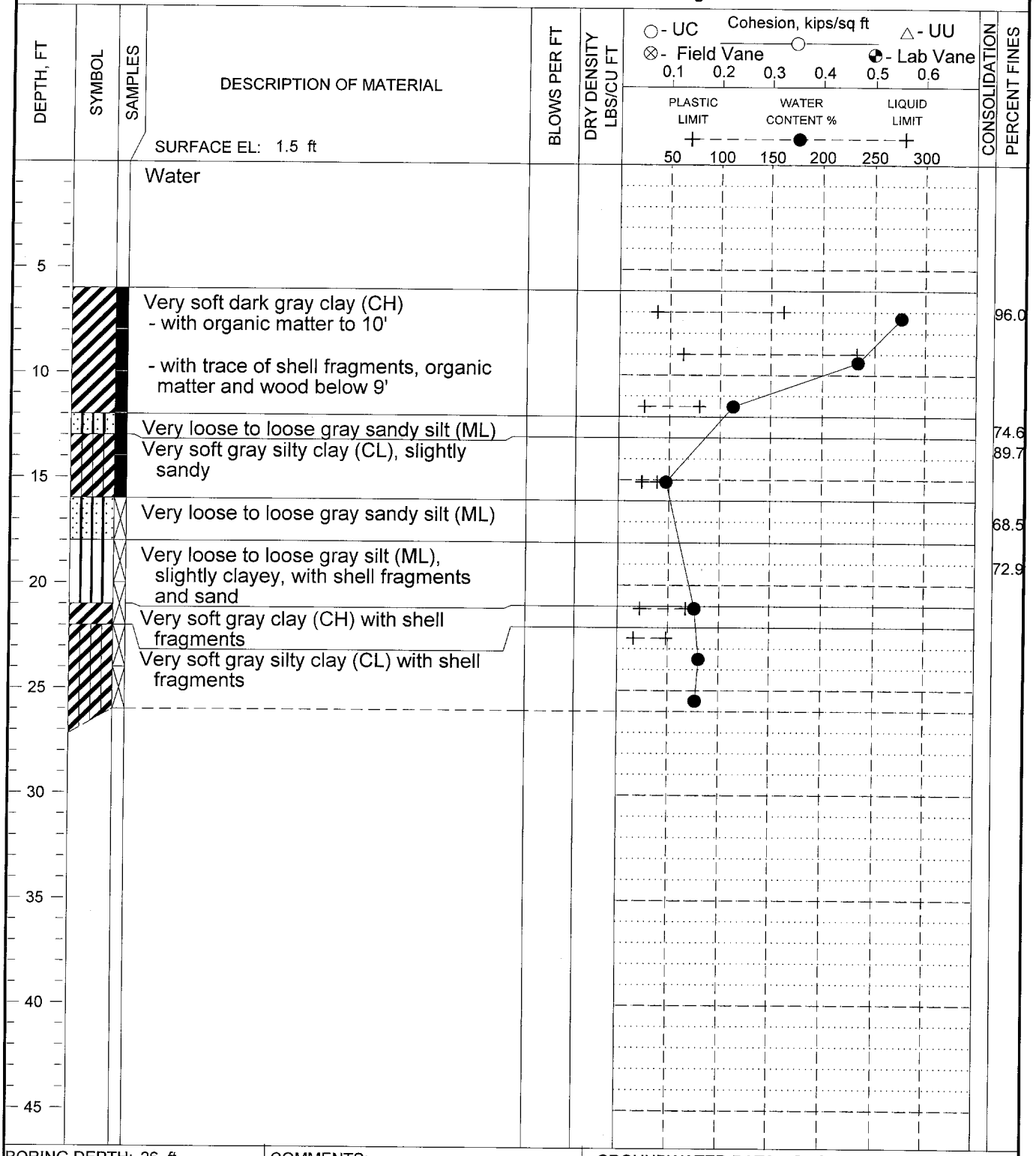
FIGURE A-20

LOG OF BORING NO. 21

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 26 ft

DATE: 03/27/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

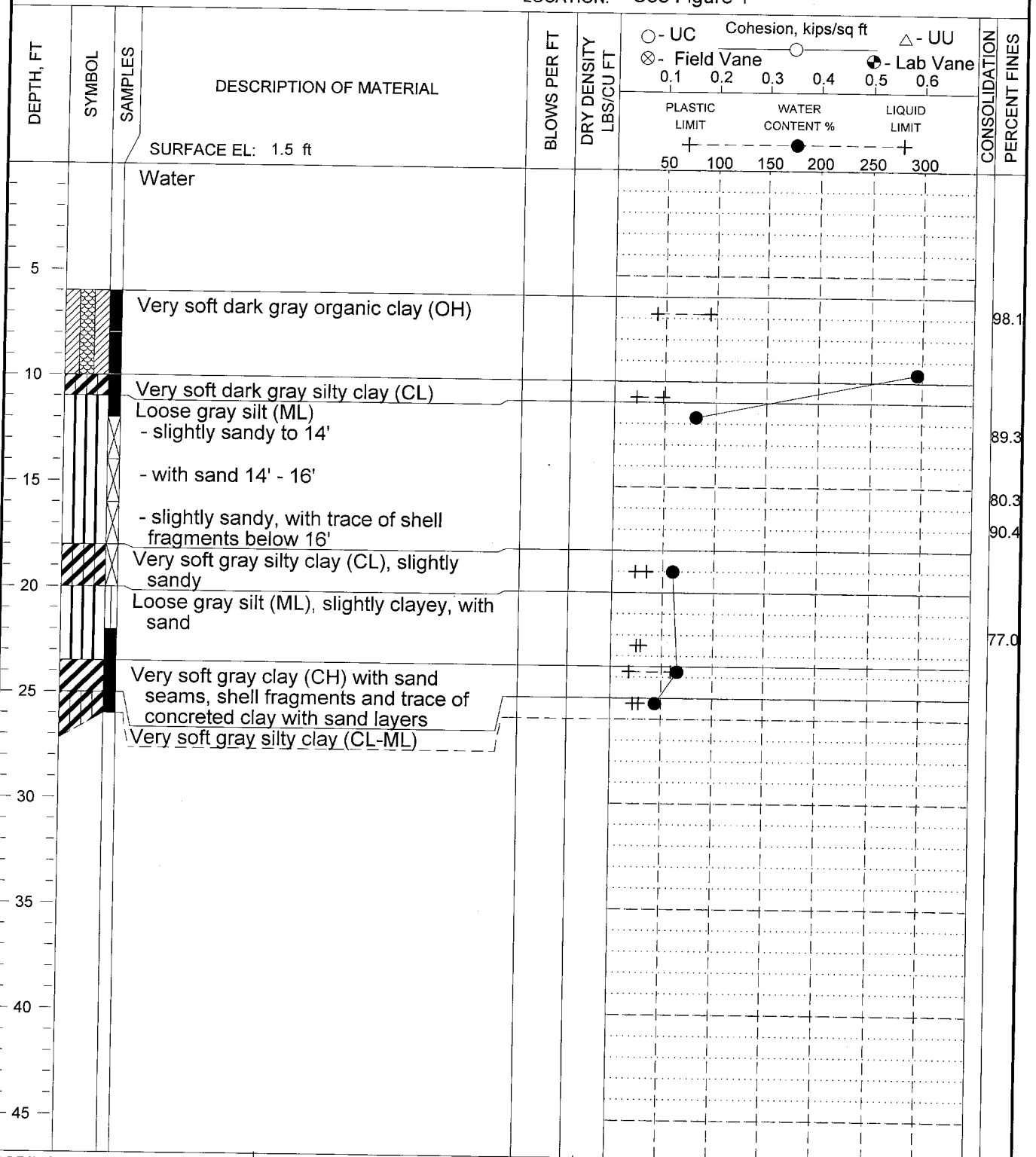
FIGURE A-21

LOG OF BORING NO. 22

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 26 ft

DATE: 03/27/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3 GP1.ai

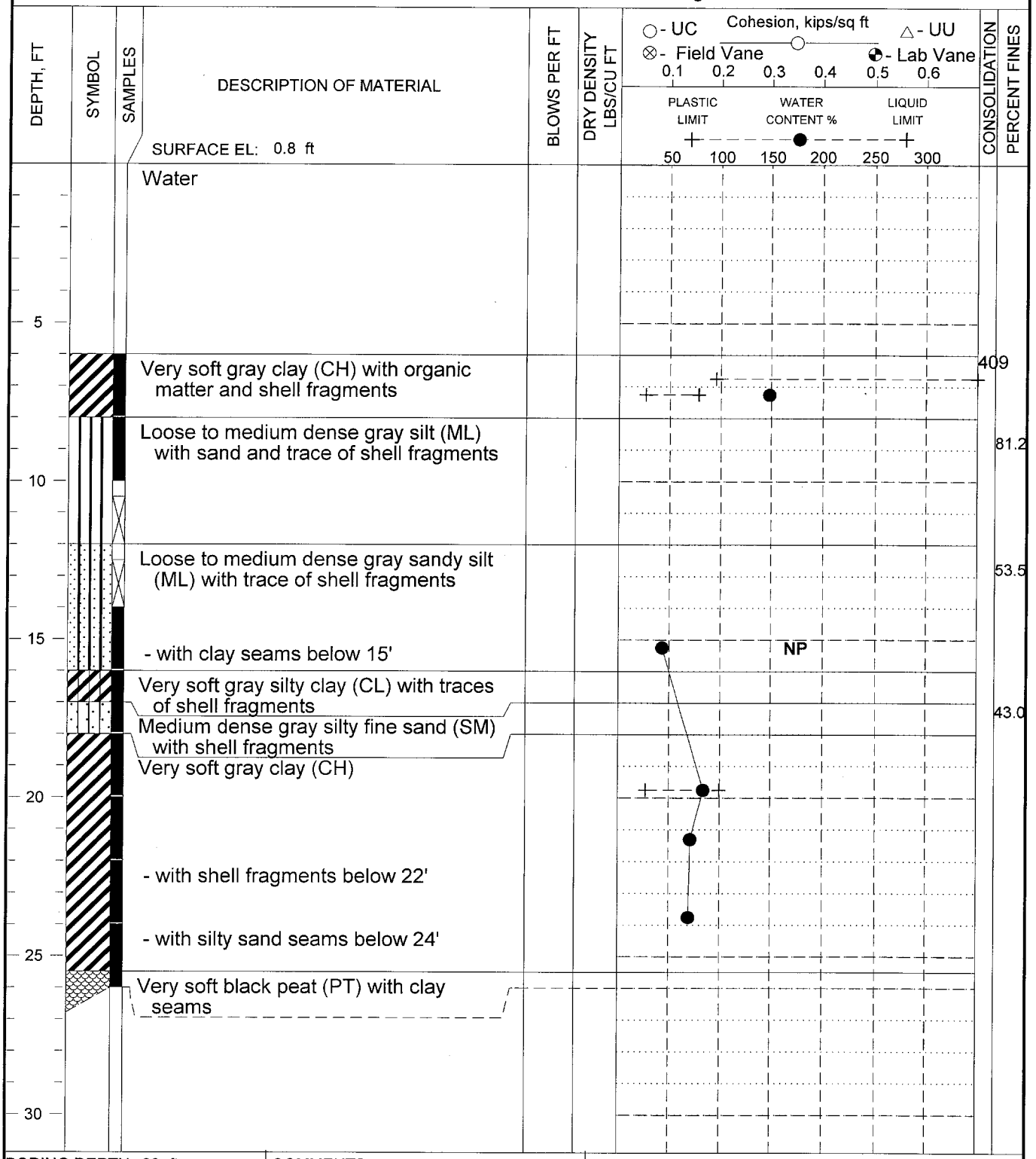
FIGURE A-22

LOG OF BORING NO. 23

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 26 ft

DATE: 03/11/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

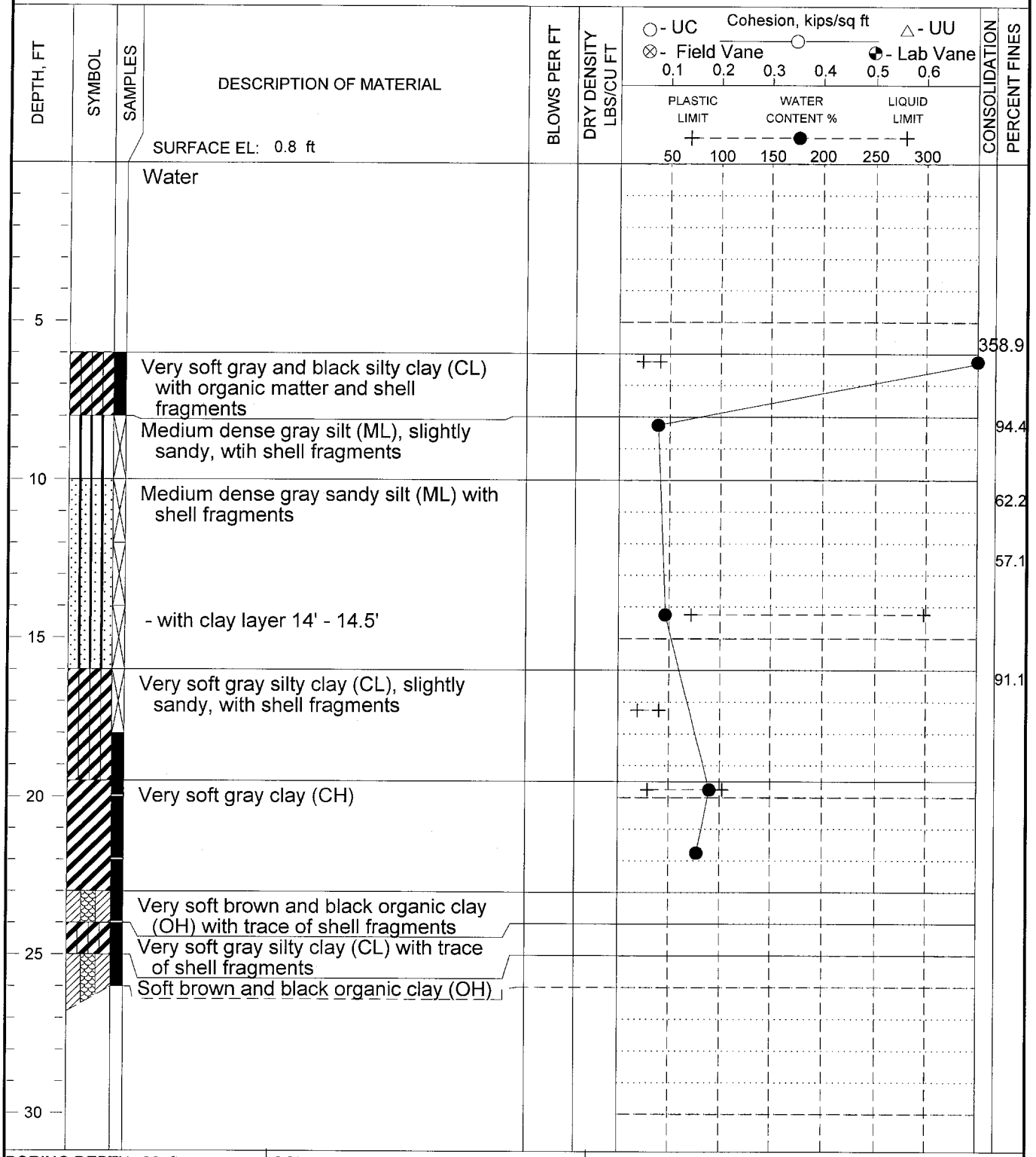
FIGURE A-23

LOG OF BORING NO. 24

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 26 ft

DATE: 03/11/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

FIGURE A-24

LOG OF BORING NO. 25

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	DRY DENSITY LBS/CU FT	Cohesion, kips/sq ft: ○- UC, △- UU, ⊗- Field Vane, ◐- Lab Vane (0.1 0.2 0.3 0.4 0.5 0.6); PLASTIC LIMIT / WATER CONTENT % / LIQUID LIMIT (50 100 150 200 250 300)	CONSOLIDATION	PERCENT FINES
			SURFACE EL: 1.1 ft					
			Water					
5			Very soft brown clay (CH) - with organic matter and trace of shell fragments to 8' - gray, with trace of organic matter below 8'					43.8
10			Medium dense gray silty fine sand (SM), slightly clayey					46.1
			Medium dense gray silt (ML), slightly clayey, with sand					72.2
15								
			Very soft gray clay (CH), slightly silty - with trace of shell fragments to 21'					
20								
			- with sand layers and shell fragments below 21'					
25								
30								

BORING DEPTH: 26 ft

DATE: 03/12/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02486-3.GPJ.ar

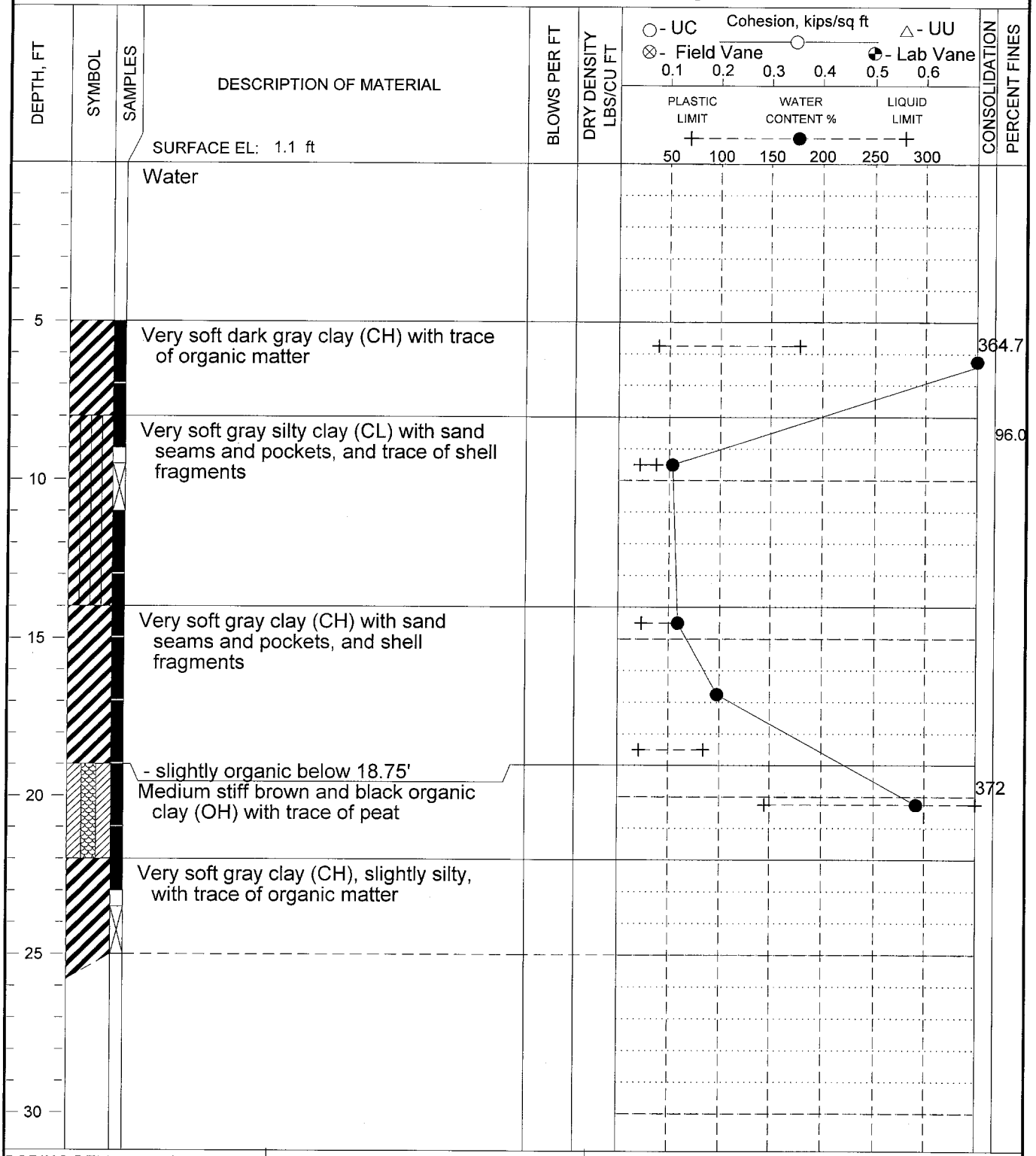
FIGURE A-25

LOG OF BORING NO. 26

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 26 ft

DATE: 03/12/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

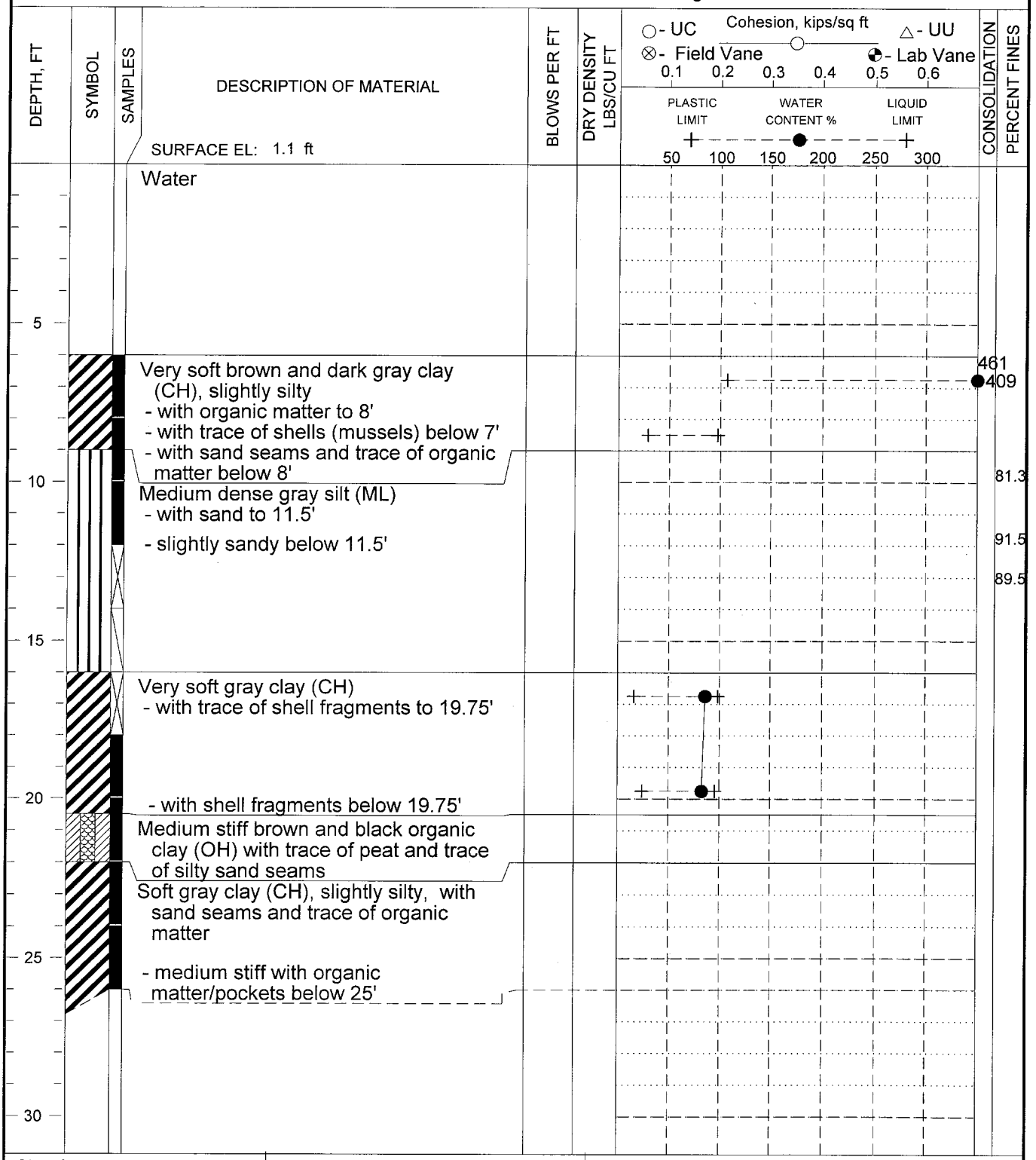
FIGURE A-26

LOG OF BORING NO. 27

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 26 ft

DATE: 03/12/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.Lar

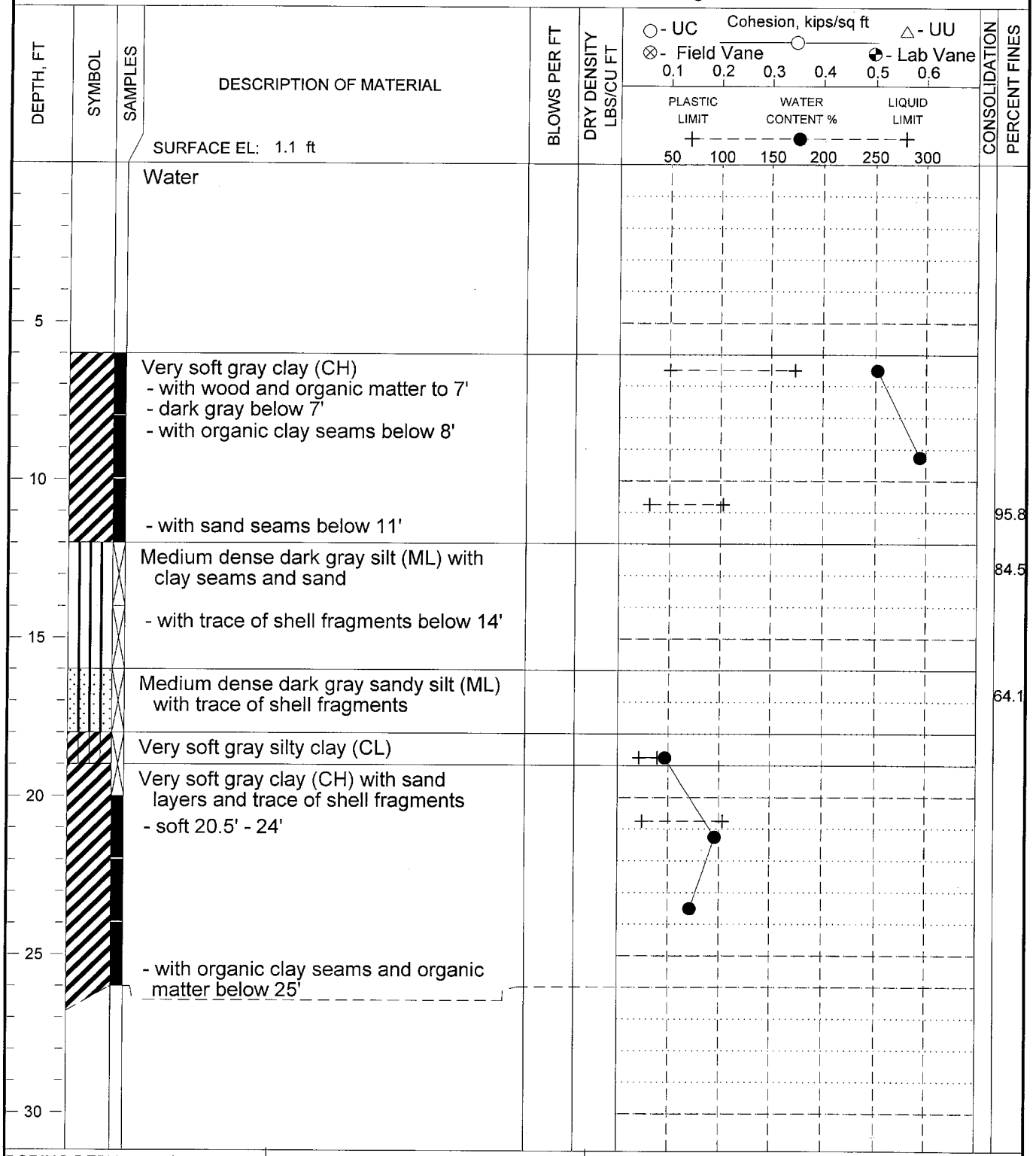
FIGURE A-27

LOG OF BORING NO. 28

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 26 ft

DATE: 03/12/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

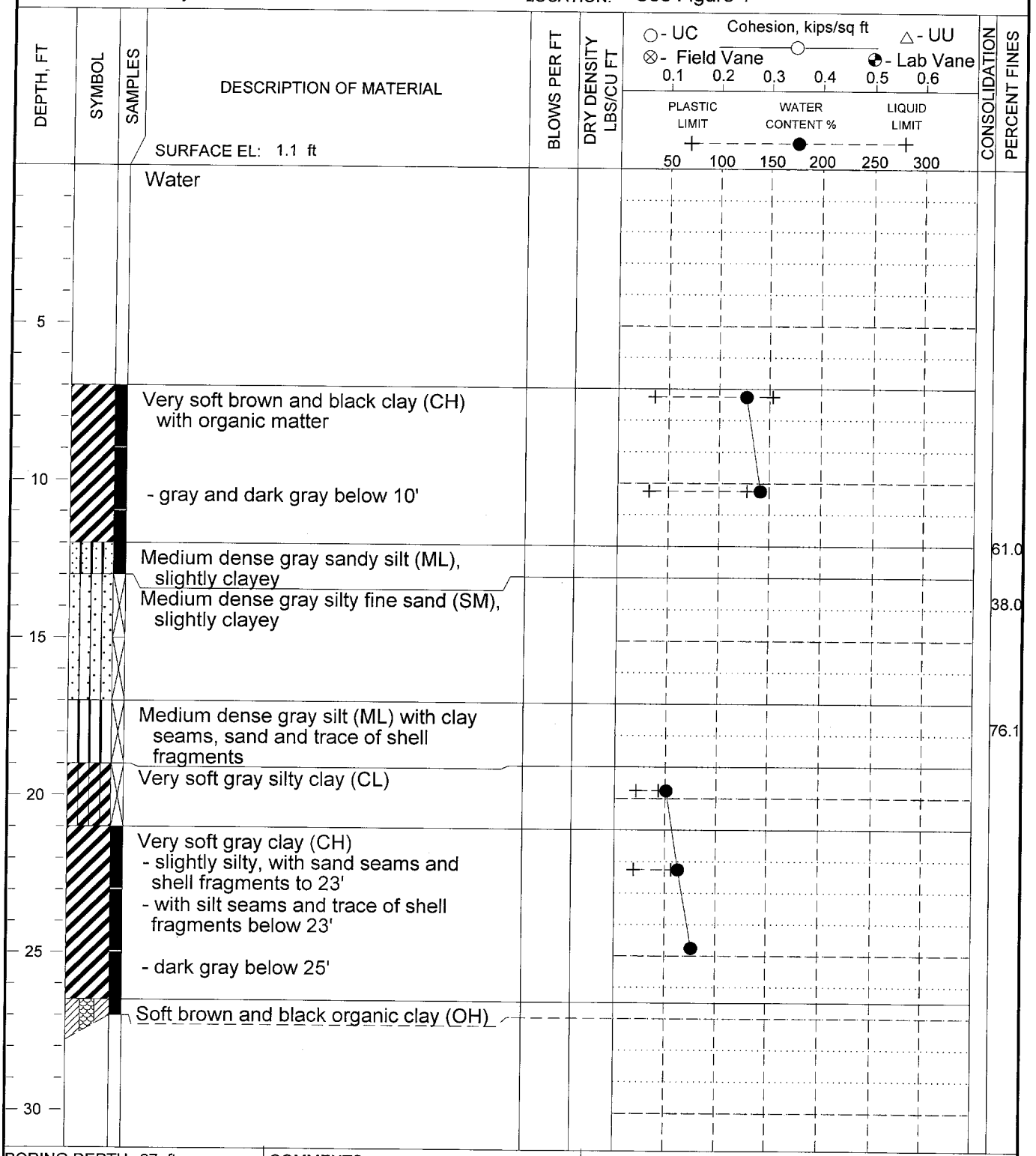
FIGURE A-28

LOG OF BORING NO. 29

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 27 ft

DATE: 03/12/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

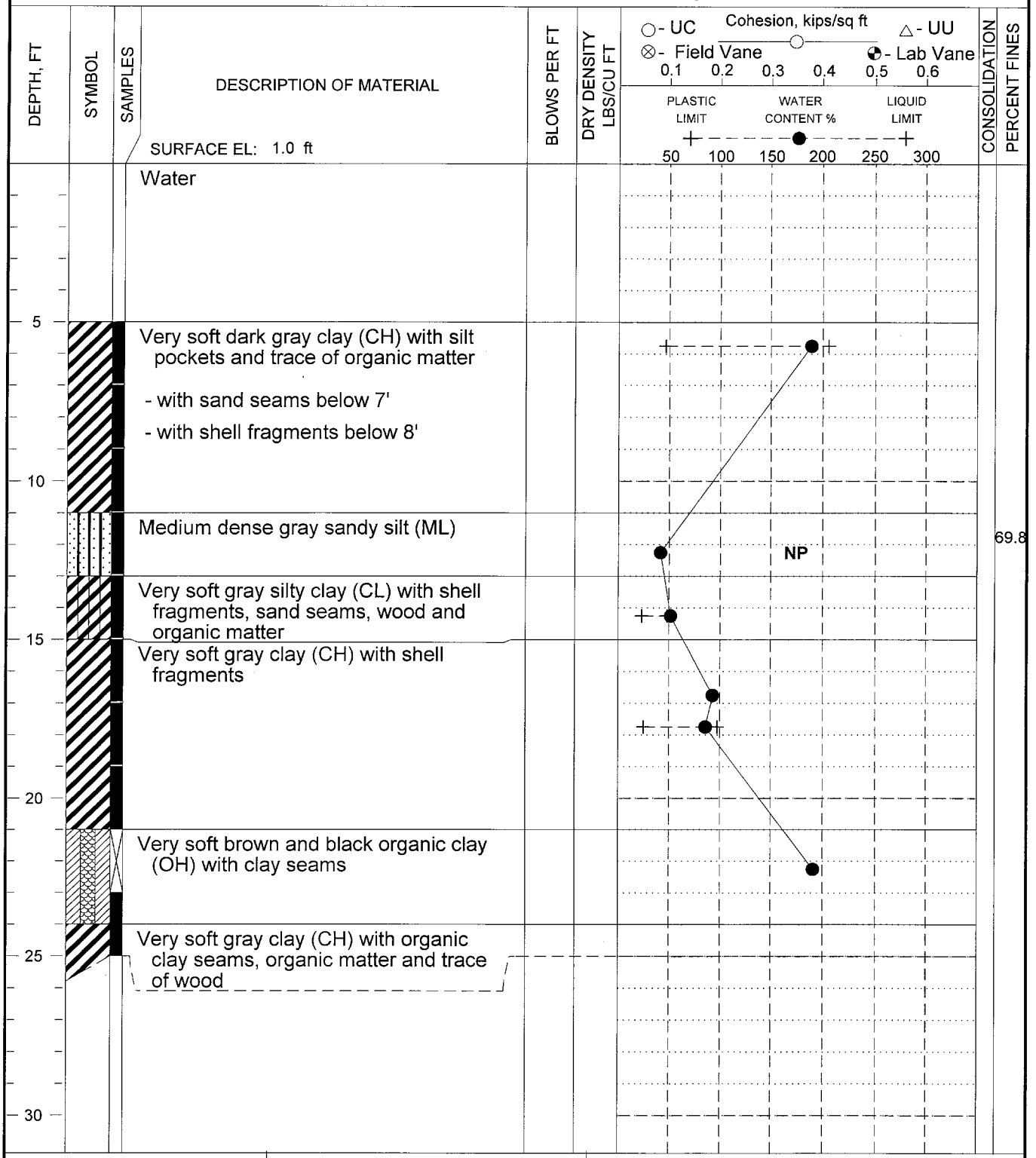
FIGURE A-29

LOG OF BORING NO. 30

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 25 ft

DATE: 03/13/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-1.GPJ.Lar

FIGURE A-30

LOG OF BORING NO. 31

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1

SURFACE EL: 1.0 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	CONSOLIDATION	PERCENT FINES
	Water		
5	Very soft dark gray silty clay (CL) with trace of shell fragments		
	Very soft gray and dark gray organic clay (OH) with silty clay seams and traces of wood and shell fragments		
10	Very soft gray clay (CH) with trace of organic matter		85.4
	Medium dense gray silt (ML), slightly clayey - slightly sandy to 13' - with sand below 13'		76.8
15	Very soft gray silty clay (CL) with shell fragments		
	Medium dense gray silty fine sand (SM) with shell fragments		37.9 57.1
	Medium dense gray sandy silt (ML) with shell fragments		55.0
20	Very soft gray clay (CH), slightly silty, with trace of shell fragments		
	Soft black organic clay (OH) with shell fragments		
	Very soft gray clay (CH) with trace of shell fragments		
25	Soft black organic clay (OH) with trace of shell fragments		
	Very soft gray clay (CH) with sand seams and organic matter		
30			

Cohesion, kips/sq ft: ○ - UC, △ - UU, ⊗ - Field Vane, ◐ - Lab Vane; 0.1 0.2 0.3 0.4 0.5 0.6

PLASTIC LIMIT / WATER CONTENT % / LIQUID LIMIT; 50 100 150 200 250 300

BLOWS PER FT

DRY DENSITY LBS/CU FT

BORING DEPTH: 26 ft

DATE: 03/13/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3 GP.Lar

FIGURE A-31

LOG OF BORING NO. 32

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash LOCATION: See Figure 1

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	DRY DENSITY LBS/CU FT	Cohesion, kips/sq ft: ○- UC, △- UU, ⊗- Field Vane, ◔- Lab Vane; 0.1 0.2 0.3 0.4 0.5 0.6; PLASTIC LIMIT, WATER CONTENT %, LIQUID LIMIT; 50 100 150 200 250 300	CONSOLIDATION	PERCENT FINES
			SURFACE EL: 1.1 ft					
			Water					
5								
			Very soft dark gray clay (CH) - with trace of organic matter to 8' - with organic matter below 8'					
10			Medium dense gray silt (ML) - with sand to 11' - slightly sandy 11' - 13' - with organic matter below 11.7'					82.1 86.3
			- with trace of sand below 13'					
			- slightly clayey below 14.2'					98.4
15			Medium dense gray sandy silt (ML), slightly clayey					68.5
			- with clay seams below 17'					
			- with trace of shell fragments below 18.3'					58.4
20			Soft gray silty clay (CL) with silt seams and pockets, and trace of shell fragments					
			Soft brown and black organic clay (OH) with sand seams					
25			Very soft gray clay (CH), slightly silty, with sand seams					
			Soft brown and black organic clay (OH) with trace of peat					
30								

BORING DEPTH: 27 ft

DATE: 03/14/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3 GP1.ai

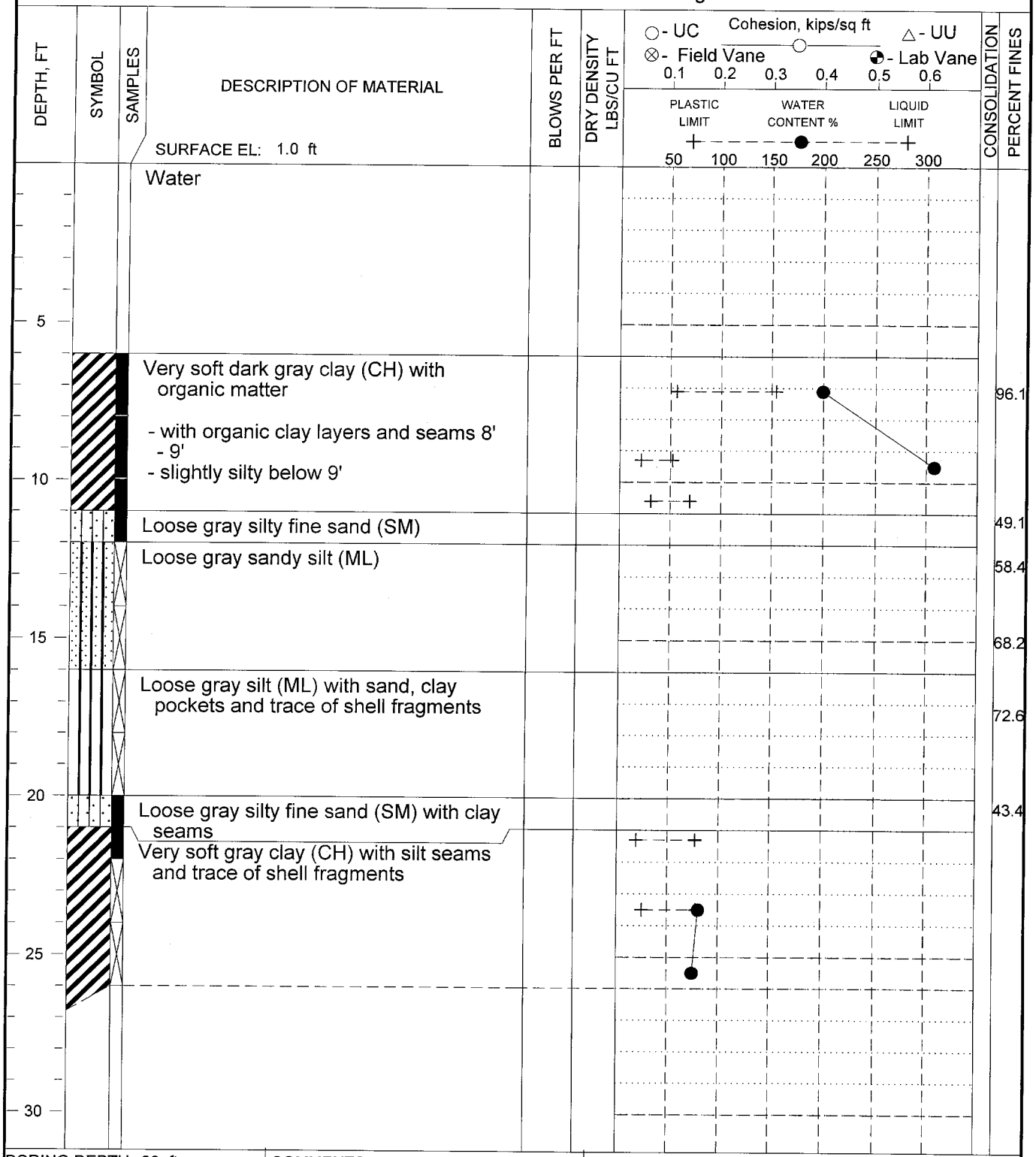
FIGURE A-32

LOG OF BORING NO. 33

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 26 ft

DATE: 03/26/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

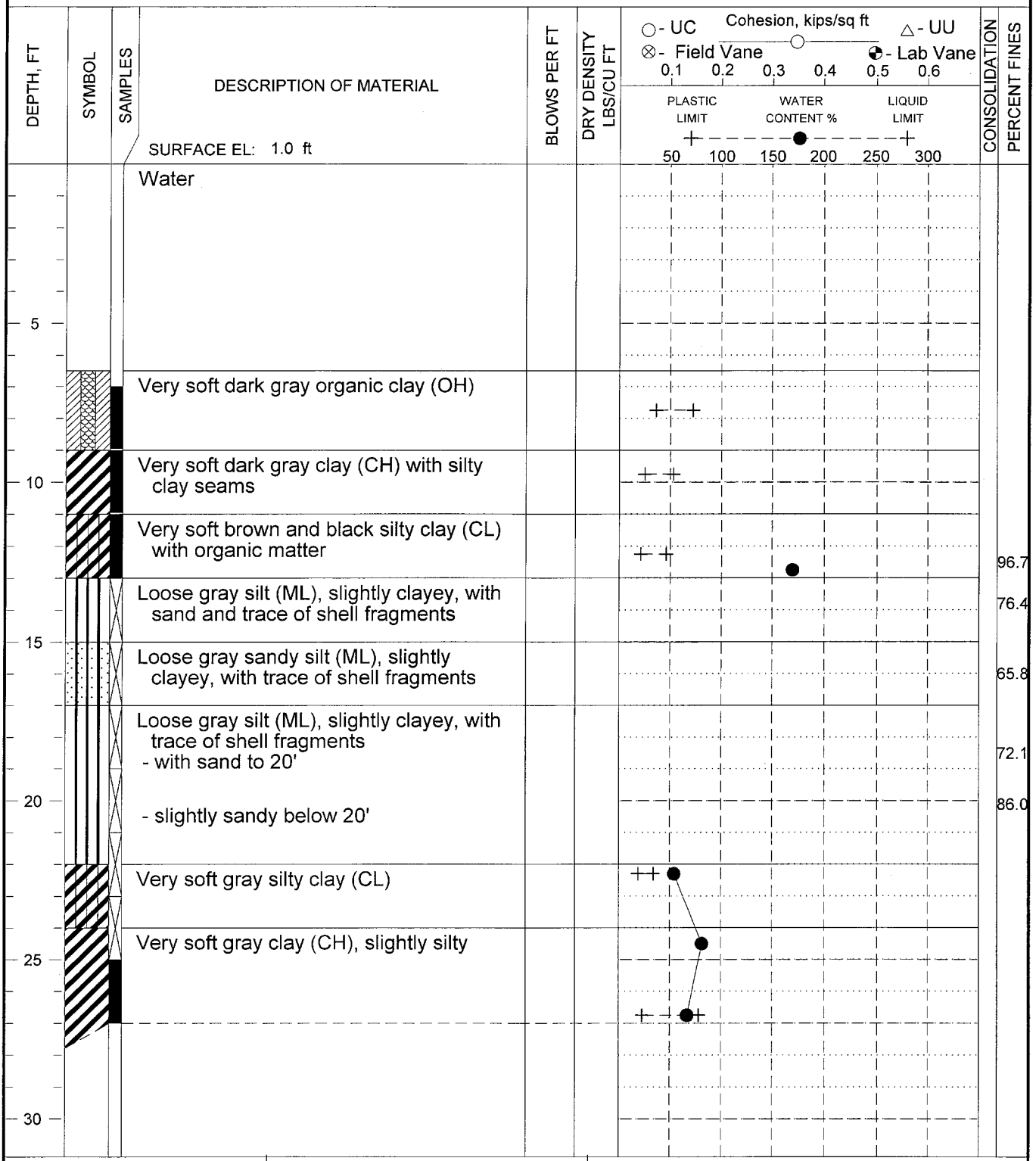
FIGURE A-33

LOG OF BORING NO. 34

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 27 ft

DATE: 03/26/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3 GP1.ai

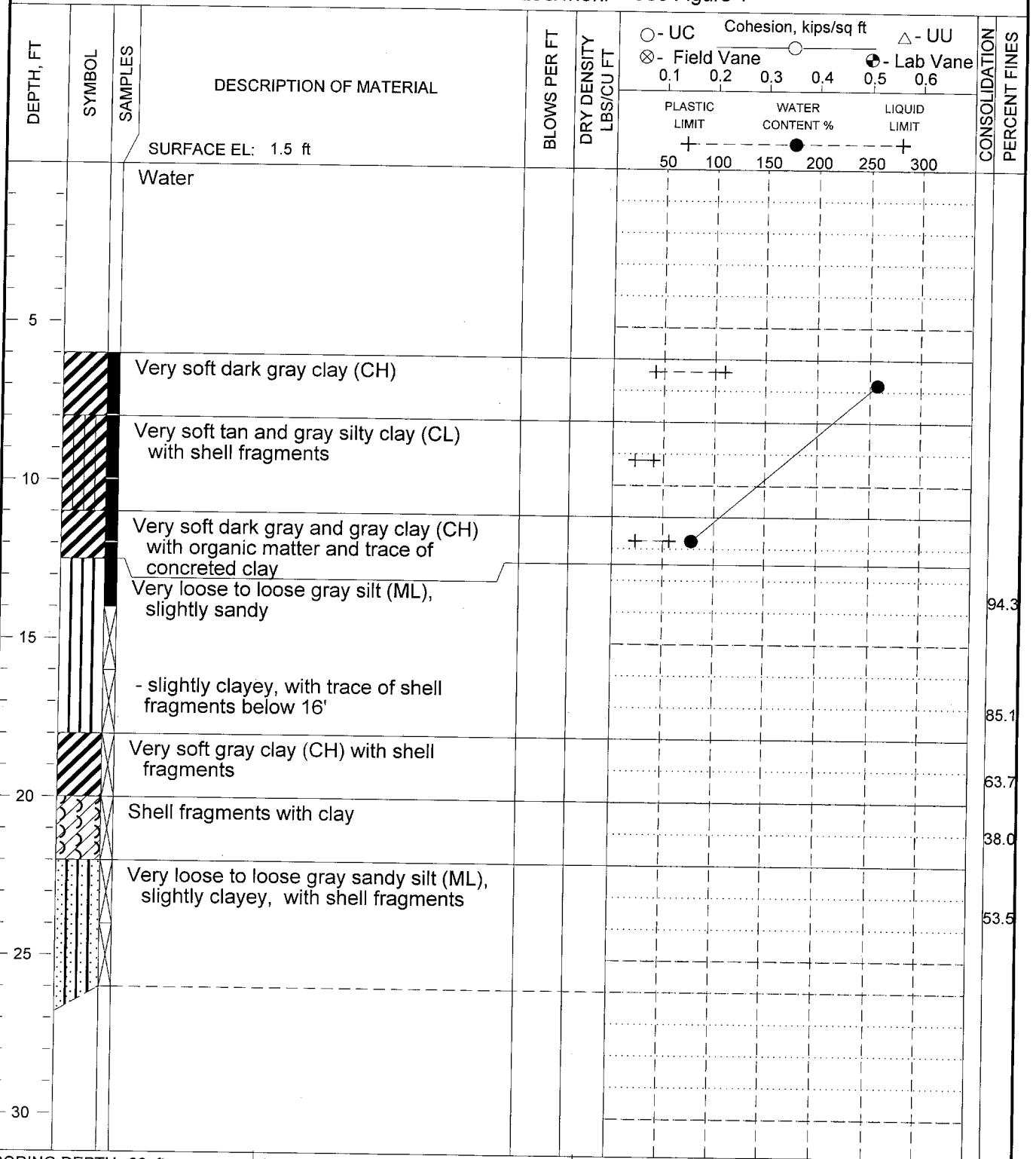
FIGURE A-34

LOG OF BORING NO. 35

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1



BORING DEPTH: 26 ft

DATE: 03/27/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

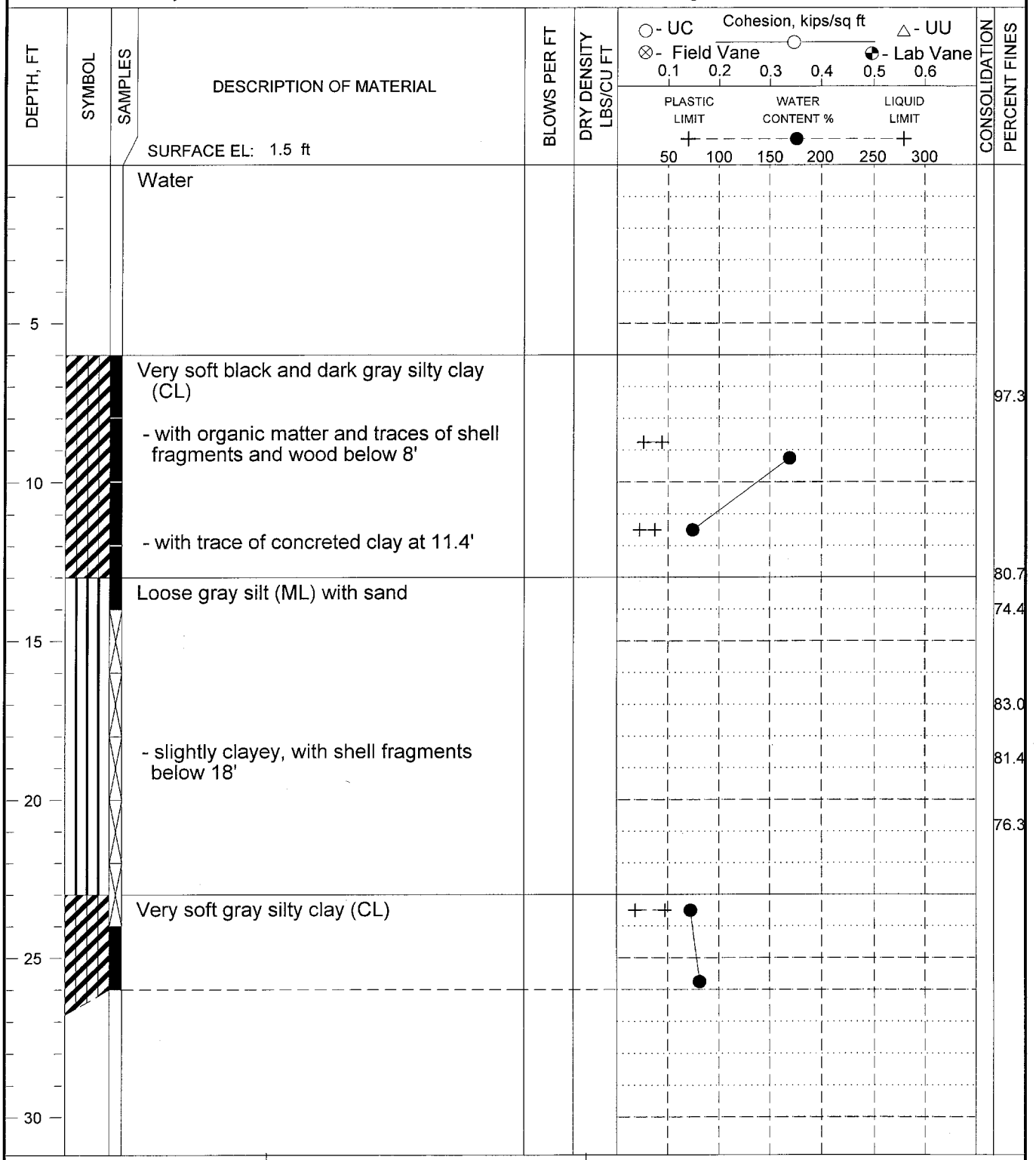
02485-3.GPJ.ar

FIGURE A-35

LOG OF BORING NO. 36

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash LOCATION: See Figure 1



BORING DEPTH: 26 ft

DATE: 03/27/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485.3.GPJ.ar

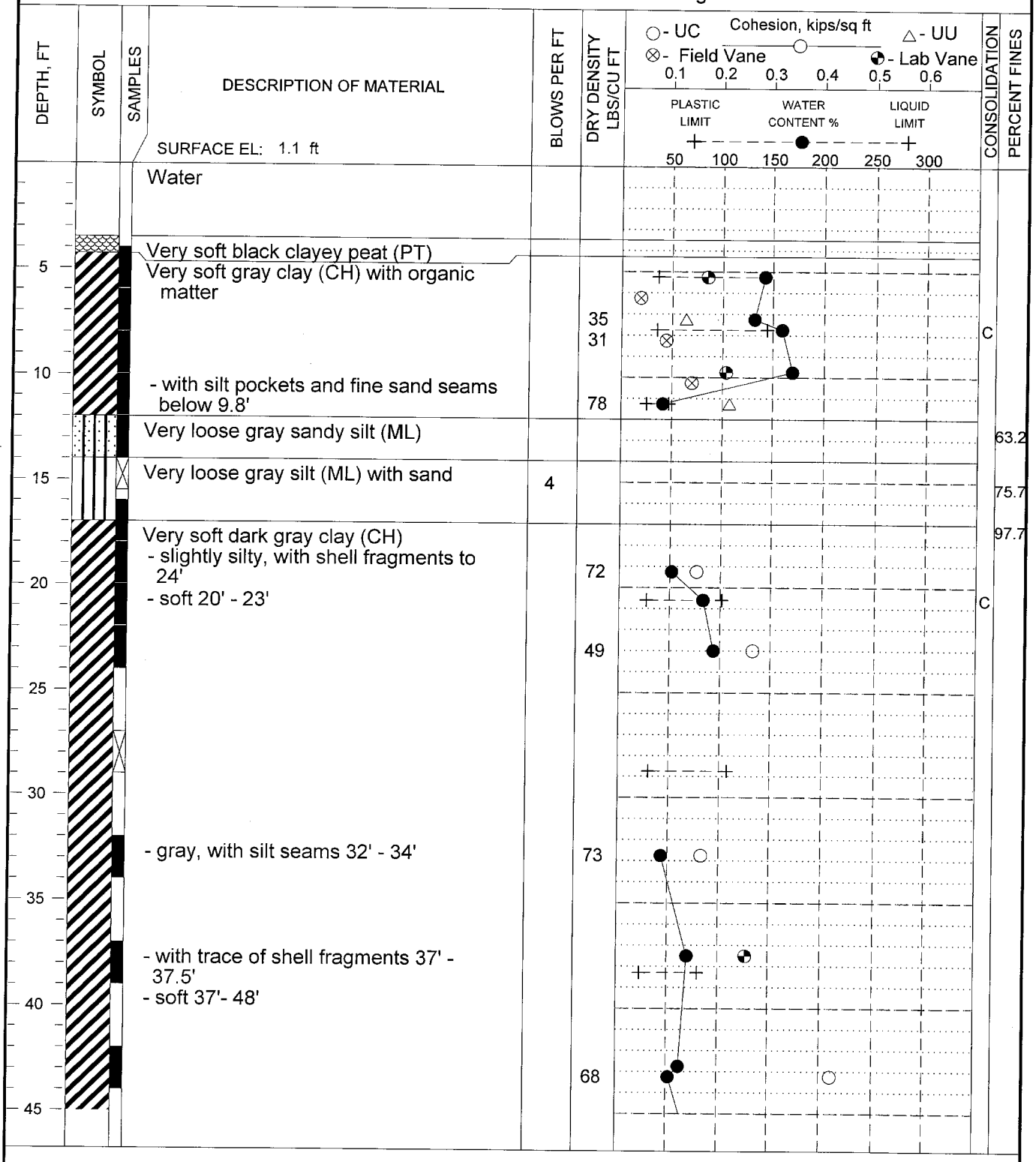
FIGURE A-36

LOG OF BORING NO. A

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

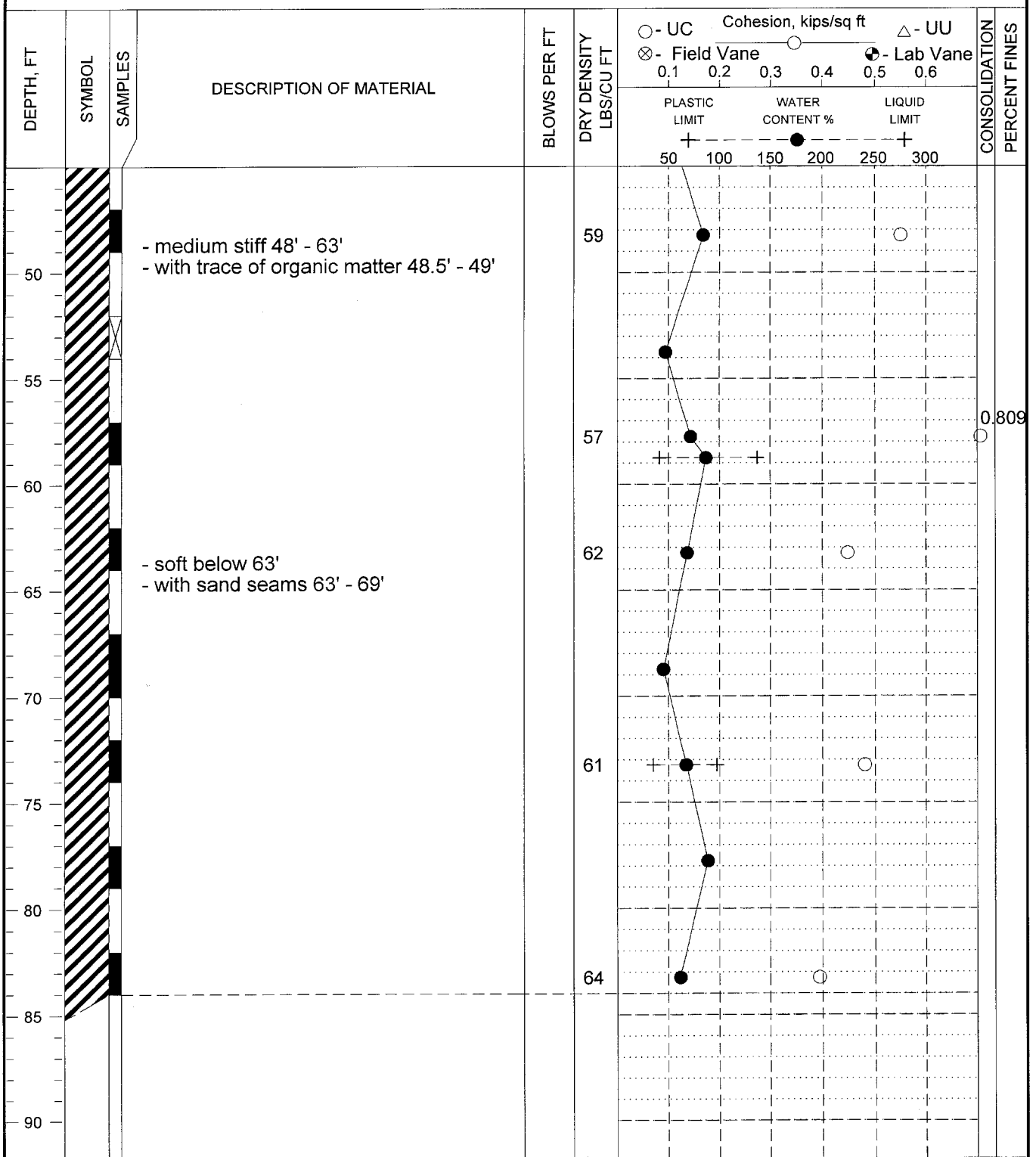
LOCATION: See Figure 1



02485-3.GPJ.ar

FIGURE A-37

LOG OF BORING NO. A (Continued)



BORING DEPTH: 84 ft

DATE: 3/15/2003
3/17/2003

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ ar

FIGURE A-38

LOG OF BORING NO. B

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

LOCATION: See Figure 1

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	DRY DENSITY LBS/CU FT	CONSOLIDATION	PERCENT FINES
			SURFACE EL: 1.5 ft				
			Water				
5			Very soft gray clay (CH) - with organic matter to 7'		48 47 49	C	
10			- with trace of organic matter below 7' - with silt seams below 11'		57 50		
15			Very soft gray silty clay (CL)				
			Very loose gray silt (ML), slightly clayey, with sand	4			72.9
20			Loose gray sandy silt (ML), slightly clayey	10			62.8
			Soft gray silty clay (CL) with silt partings, shell fragments and mica		81		
25			Loose gray silty fine sand (SM)				
30			Very soft gray clay (CH) - slightly silty, with fine sand, shells and shell fragments to 36'		75		
35			- dark gray 36' - 51' - soft 36' - 61'		57		
40			- with organic matter 41' - 42'		42		
45							

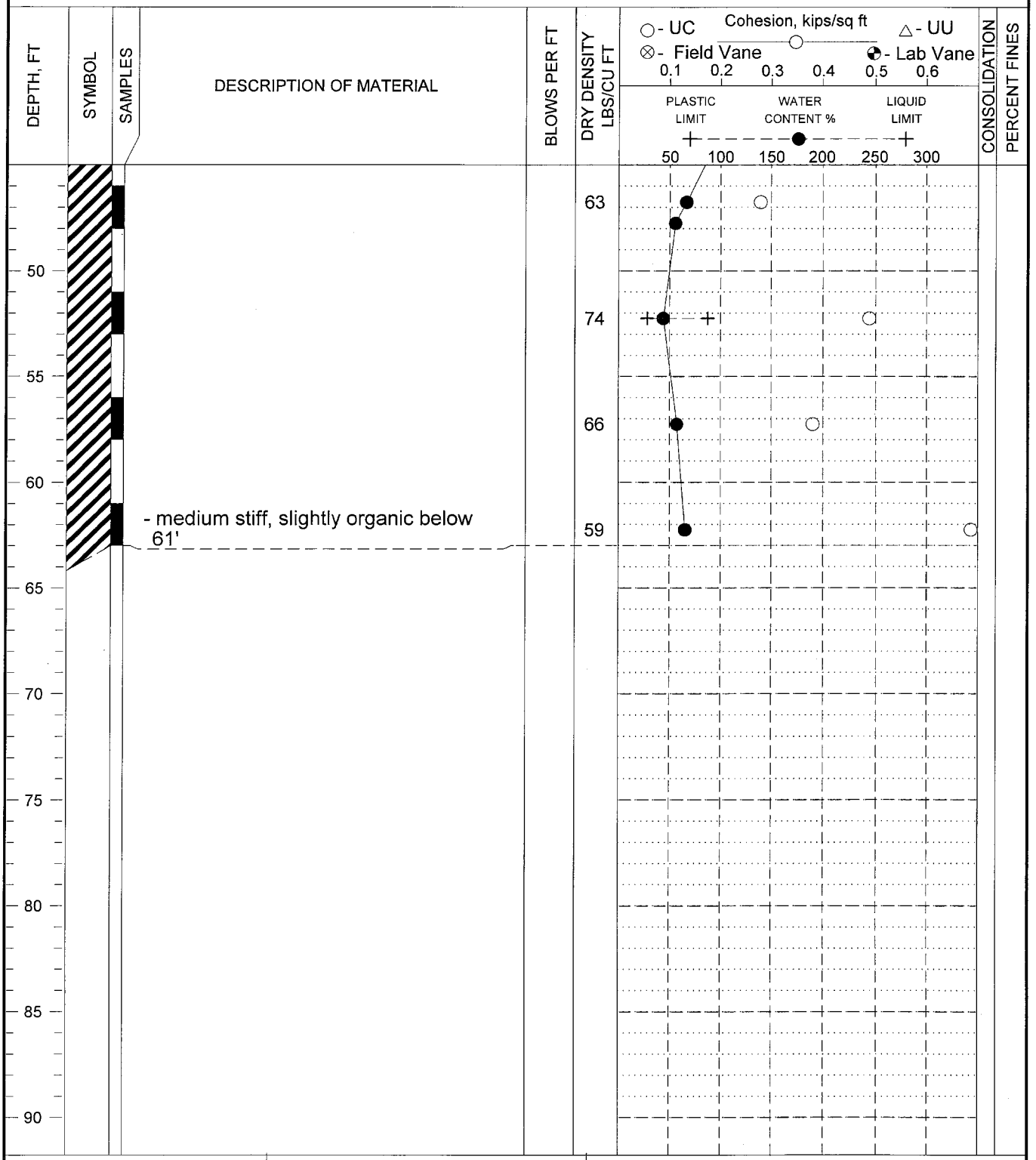
○ - UC Cohesion, kips/sq ft △ - UU
⊗ - Field Vane ◐ - Lab Vane
0.1 0.2 0.3 0.4 0.5 0.6

PLASTIC LIMIT WATER CONTENT % LIQUID LIMIT
50 100 150 200 250 300

02485-3.GPJ.ar

FIGURE A-39

LOG OF BORING NO. B (Continued)



BORING DEPTH: 63 ft

DATE: 03/17/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-1.GPJ.ar

FIGURE A-40

LOG OF BORING NO. C

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash LOCATION: See Figure 1

SURFACE EL: 1.7 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	DRY DENSITY LBS/CU FT	CONSOLIDATION	PERCENT FINES
	Water				
5	Soft gray clay (CH) with trace of organic matter - slickensided to 6' - blocky to 8'		71 64 70	C	
10	- very soft below 9' - with shell fragments below 11'		53 72		
	Loose gray silty fine sand (SM)	5			
15	Very soft gray clay (CH), slightly silty, with fine sand				
	Loose gray silty fine sand (SM), slightly clayey				
20	Very soft gray clay (CH) with shell fragments				97.1
	Shell fragments - with clay to 27'				21.9
25	- slightly clayey below 27'				9.7
30					
	Soft gray and dark gray organic clay (OH) with peat seams		44		
35	Soft gray clay (CH) - slightly silty, with silt pockets to 42'		63		
40					
45	- gray and dark gray, with trace of organic matter, silty fine sand pockets and shell fragments 42' - 47'		54		

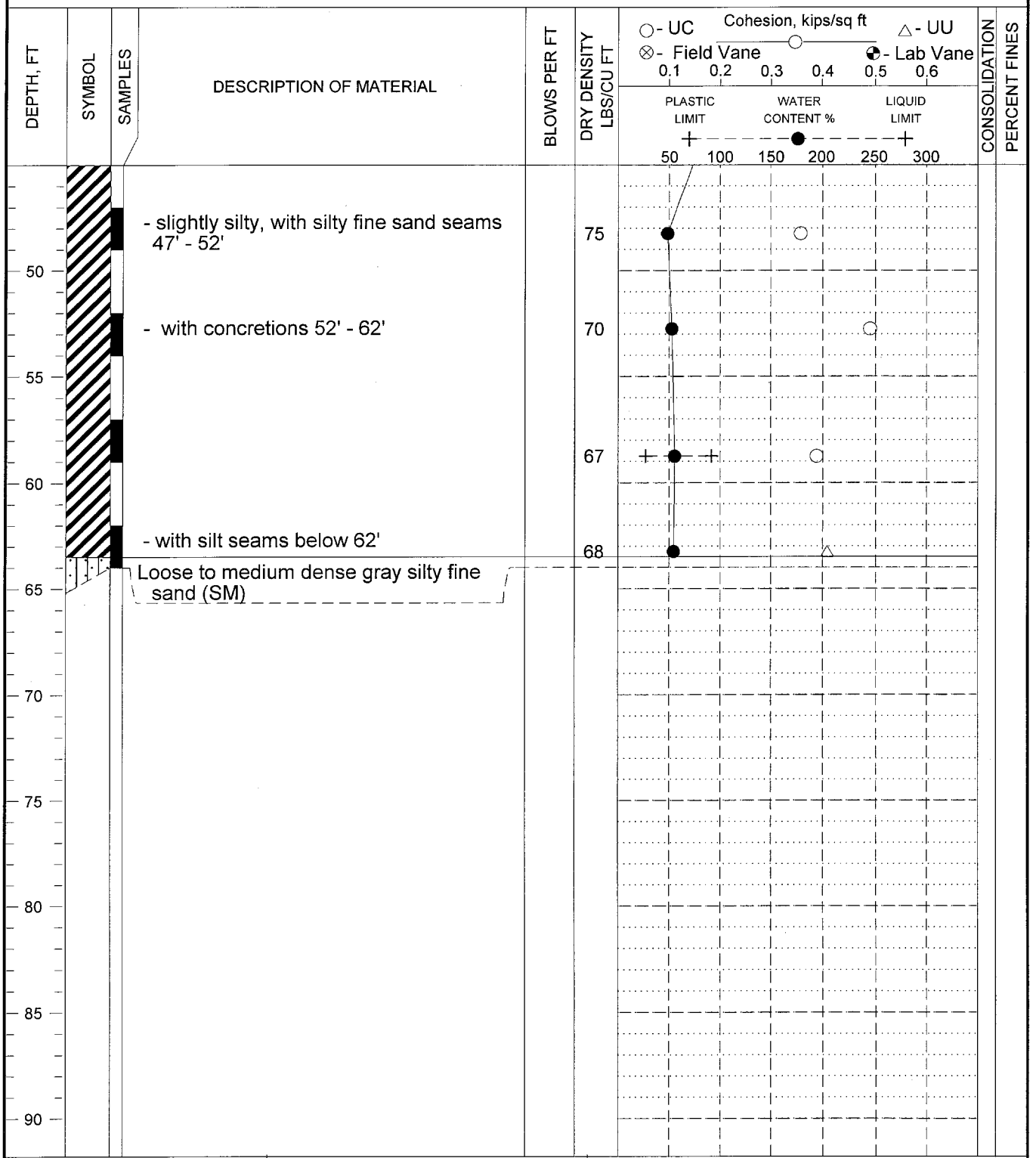
○ - UC ⊗ - Field Vane Cohesion, kips/sq ft △ - UU ◒ - Lab Vane
0.1 0.2 0.3 0.4 0.5 0.6

PLASTIC LIMIT + WATER CONTENT % ● LIQUID LIMIT +
50 100 150 200 250 300

02485-3.GPJ ar

FIGURE A-41

LOG OF BORING NO. C (Continued)



BORING DEPTH: 64 ft

DATE: 03/18/03

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485.3.GPJ.ar

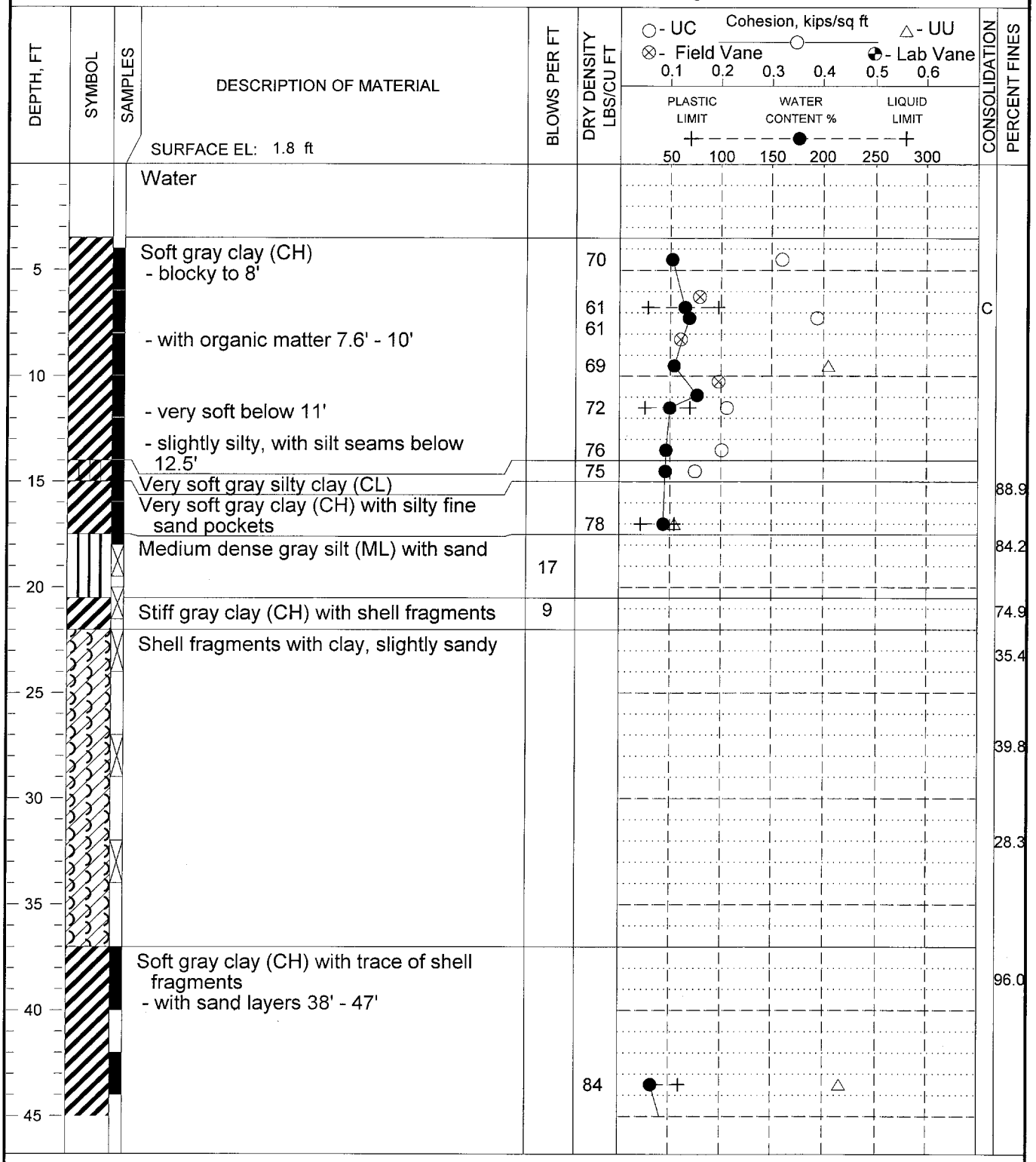
FIGURE A-42

LOG OF BORING NO. D

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash

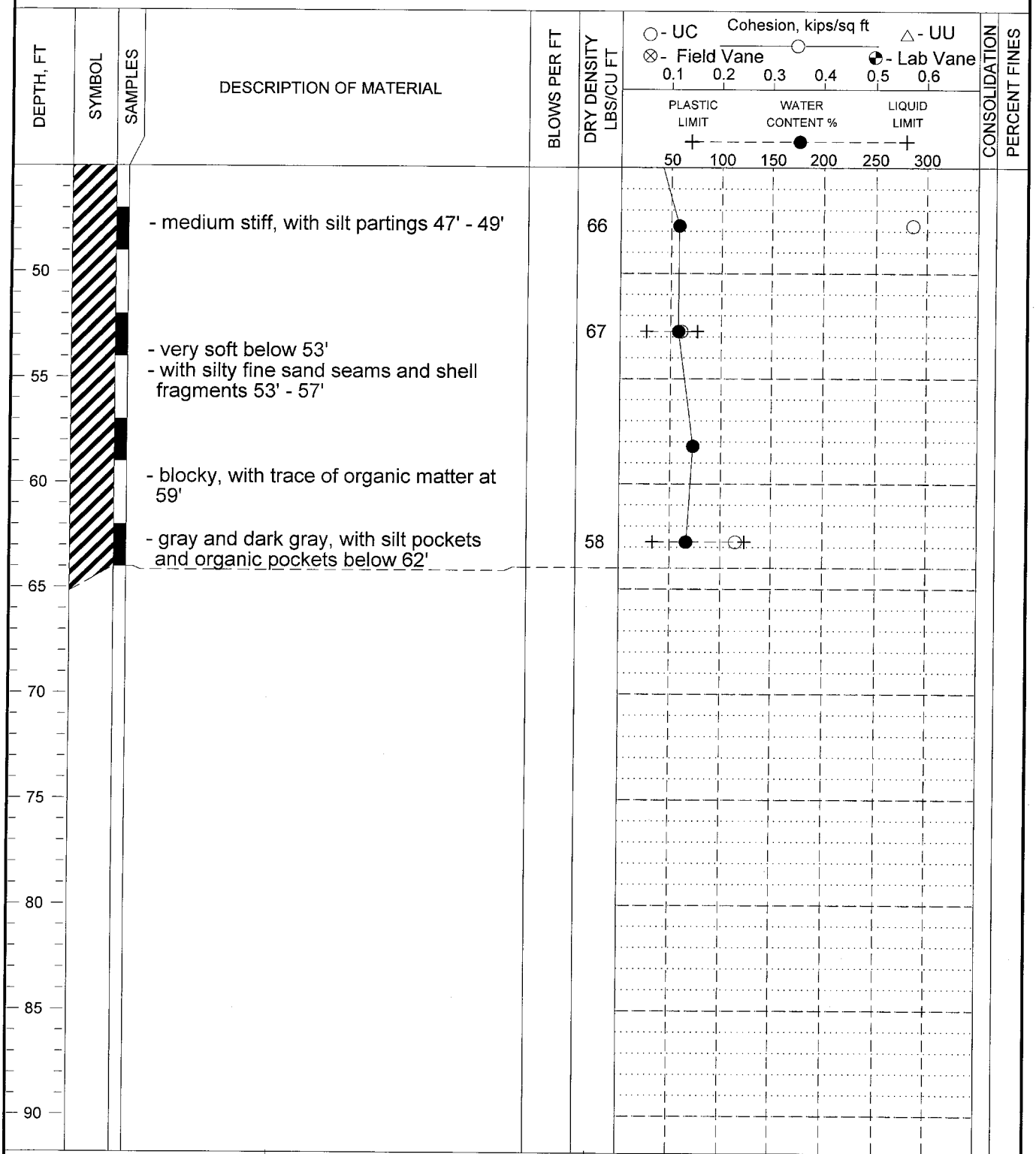
LOCATION: See Figure 1



02485-3.GPJ.ar

FIGURE A-43

LOG OF BORING NO. D (Continued)



BORING DEPTH: 64 ft

DATE: 3/18/2003
3/19/2003

COMMENTS:

GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

FIGURE A-44

LOG OF BORING NO. E

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

TYPE: Rotary wash LOCATION: See Figure 1

SURFACE EL: 0.7 ft

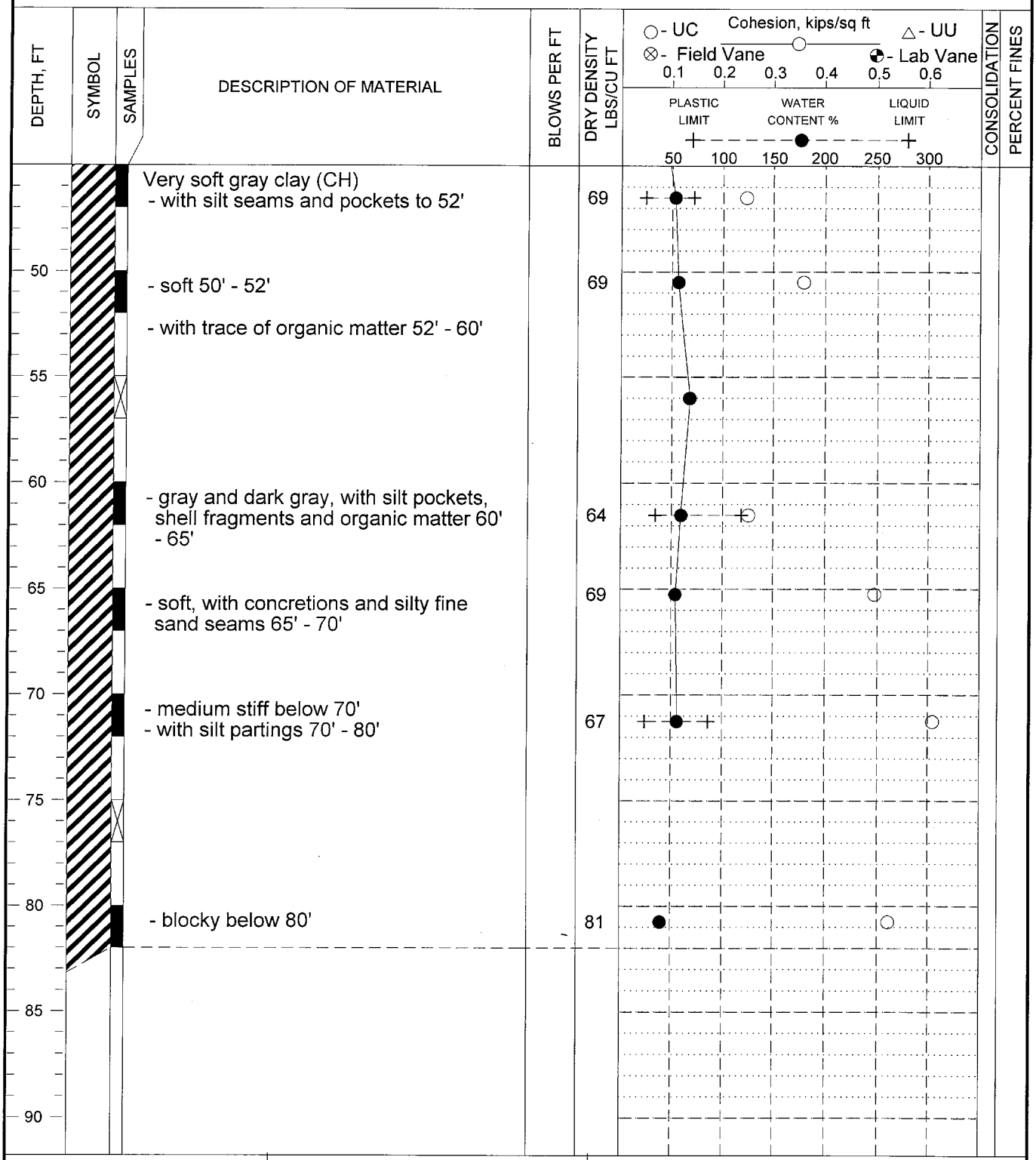
DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	DRY DENSITY LBS/CU FT	CONSOLIDATION	PERCENT FINES
	Water				
5	Soft gray clay (CH), blocky		75		
			86		
	- with silt pockets and seams and organic matter below 7'		72 77	C	
10	Loose gray silty fine sand (SM) - slightly clayey below 12'	9			47.7
15	- medium dense 14' - 16'	30			
	- dense 16' - 25.5'	35			35.7
		47			
20		38			22.1
25	- very dense below 25.5'	57			17.2
30	Soft gray clay (CH) - slickensided to 32' - with shell fragments to 37'		61		
35	- dark gray, with silt pockets 35' - 37'		66		
40	Medium dense gray clayey fine sand (SC) with clay seams and shell fragments		85	NP	
45					

○ - UC ⊗ - Field Vane △ - UU ◔ - Lab Vane
Cohesion, kips/sq ft: 0.1 0.2 0.3 0.4 0.5 0.6
PLASTIC LIMIT — WATER CONTENT % — LIQUID LIMIT
50 100 150 200 250 300

02485-3.GPJ.ar

FIGURE A-45

LOG OF BORING NO. E (Continued)



BORING DEPTH: 82 ft

DATE: 03/24/03

COMMENTS:

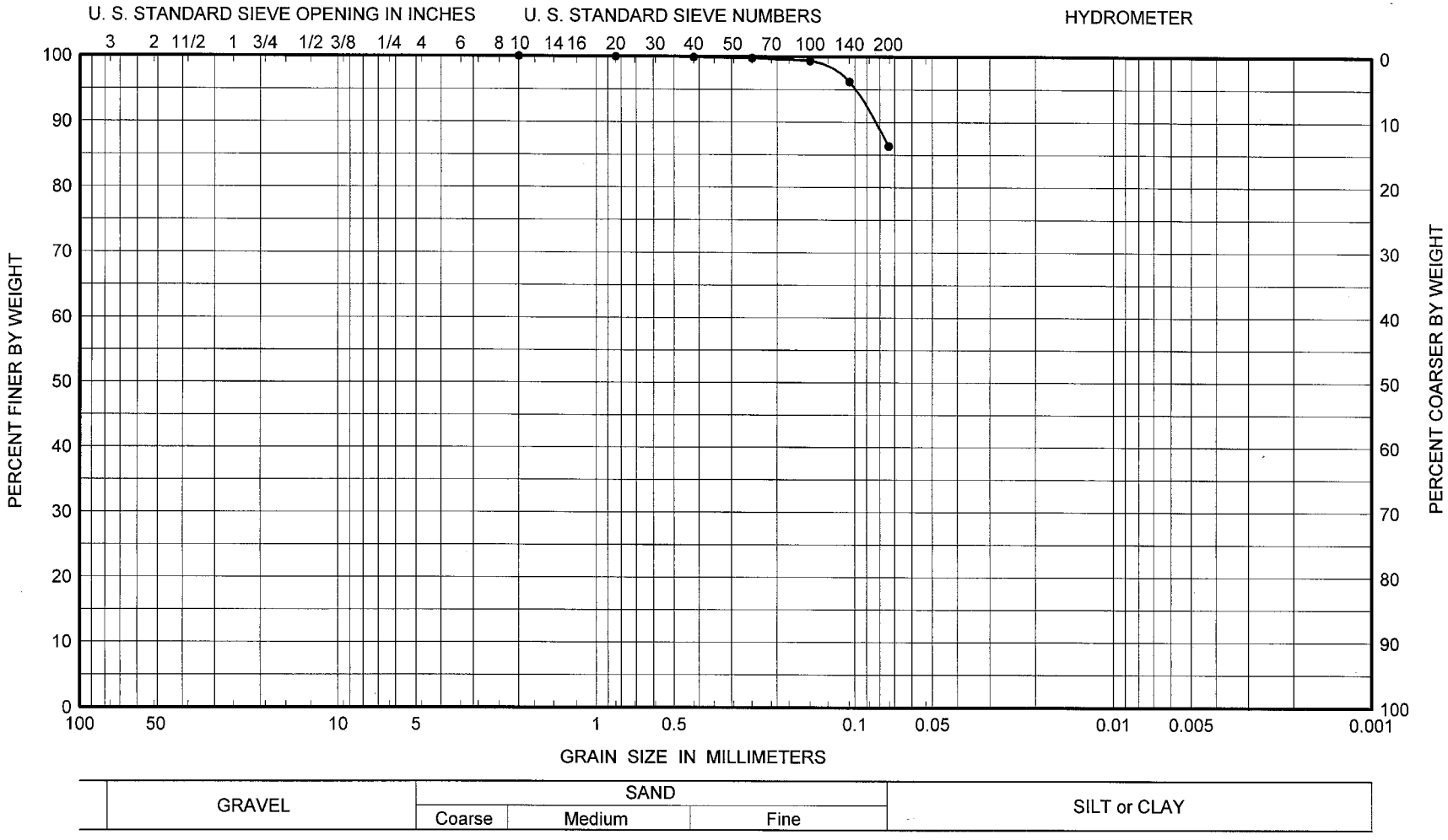
GROUNDWATER DATA: Surface Elevation is at water surface, NAVD 88

02485-3.GPJ.ar

FIGURE A-46

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
13	15.5	Gray silt (ML), slightly sandy, with				
		alternating clay seams				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

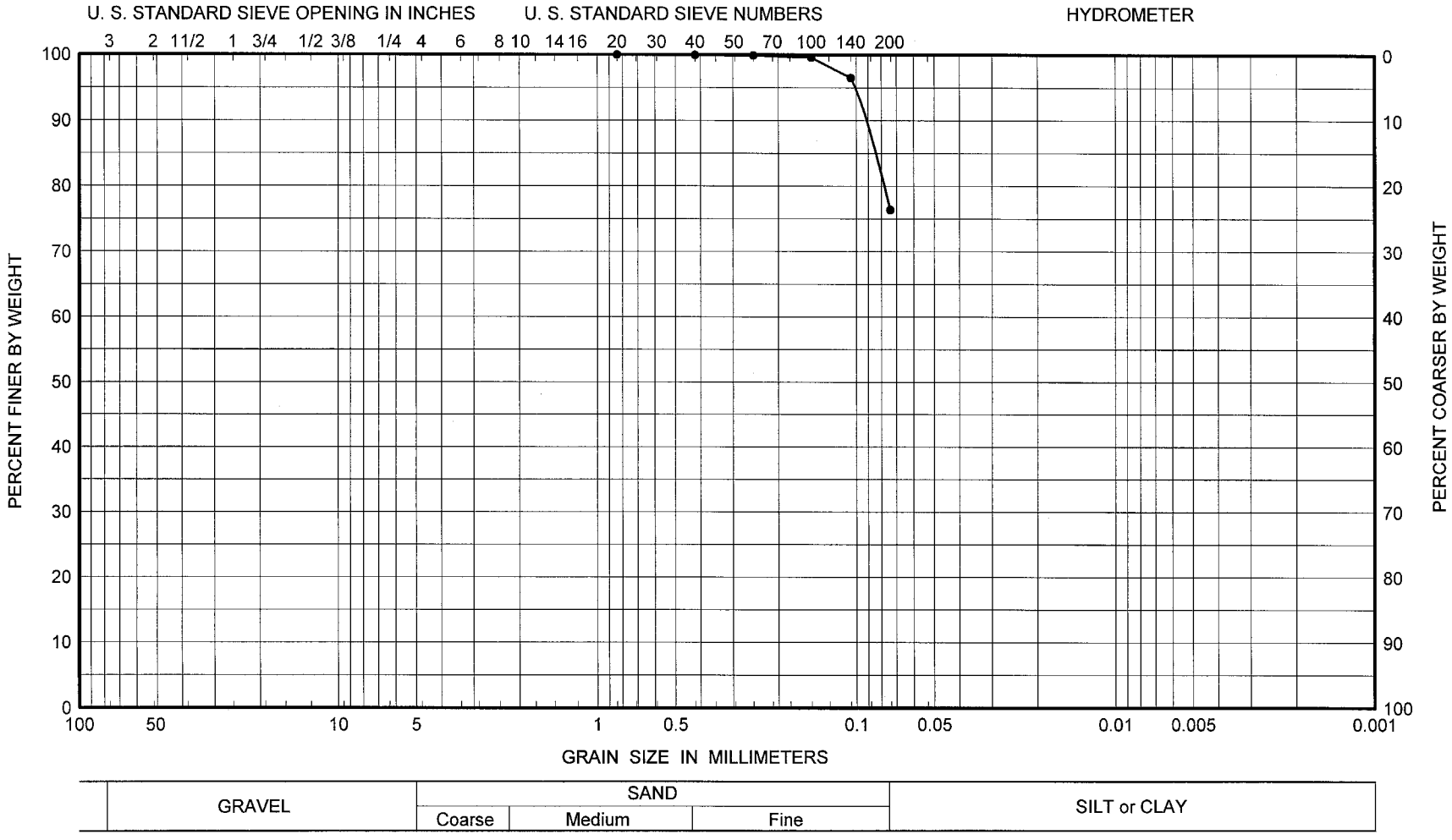
Boring No. 1

Date 3/14/2003 Job No. 02485-3

FIGURE A-47

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
9	13.7	Dark gray silt (ML) with clay seams and sand				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

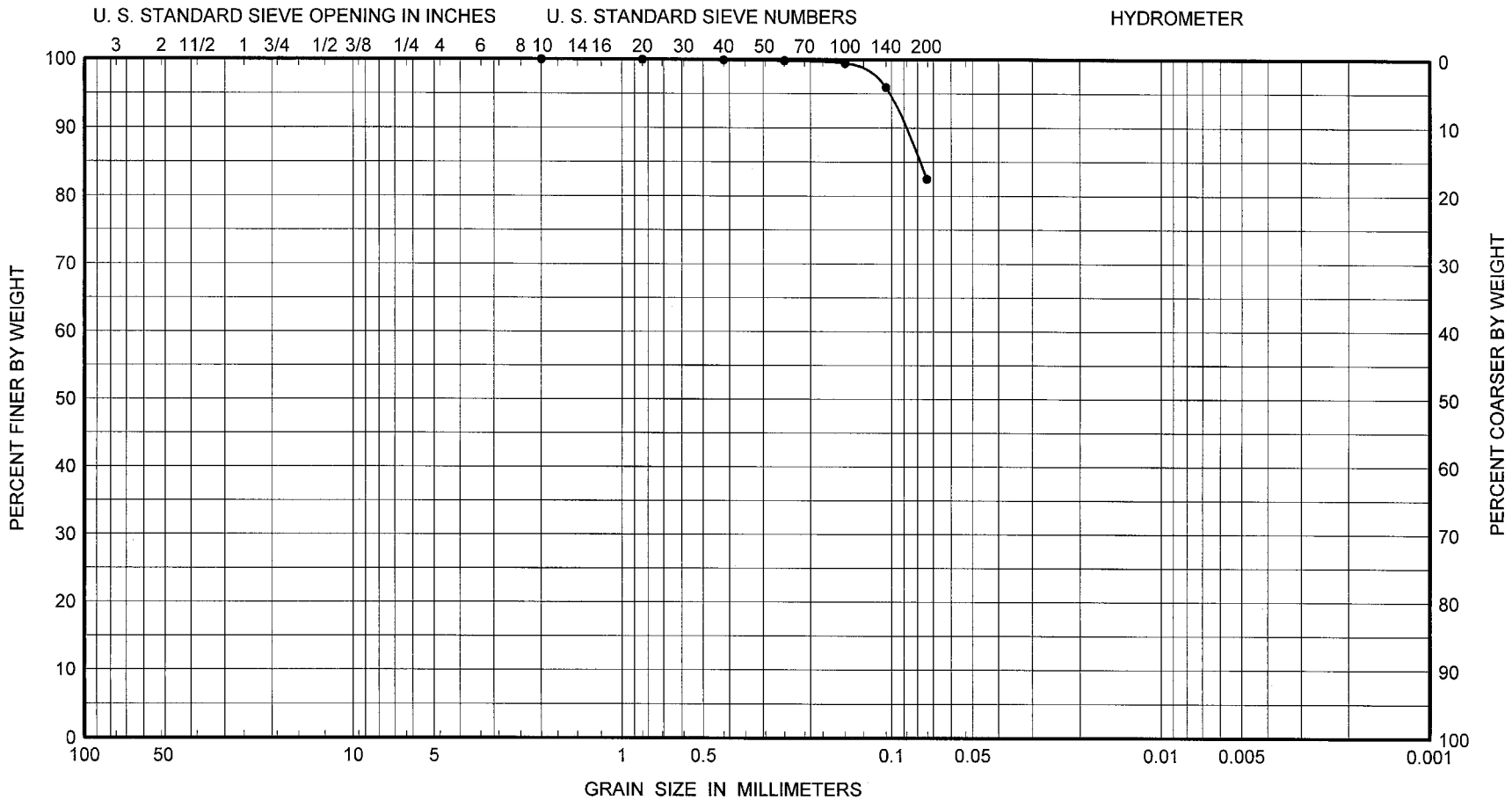
Boring No. 2

Date 3/14/2003 Job No. 02485-3

FIGURE A-48

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
7	14.5	Gray silt (ML) with sand and clay pockets				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

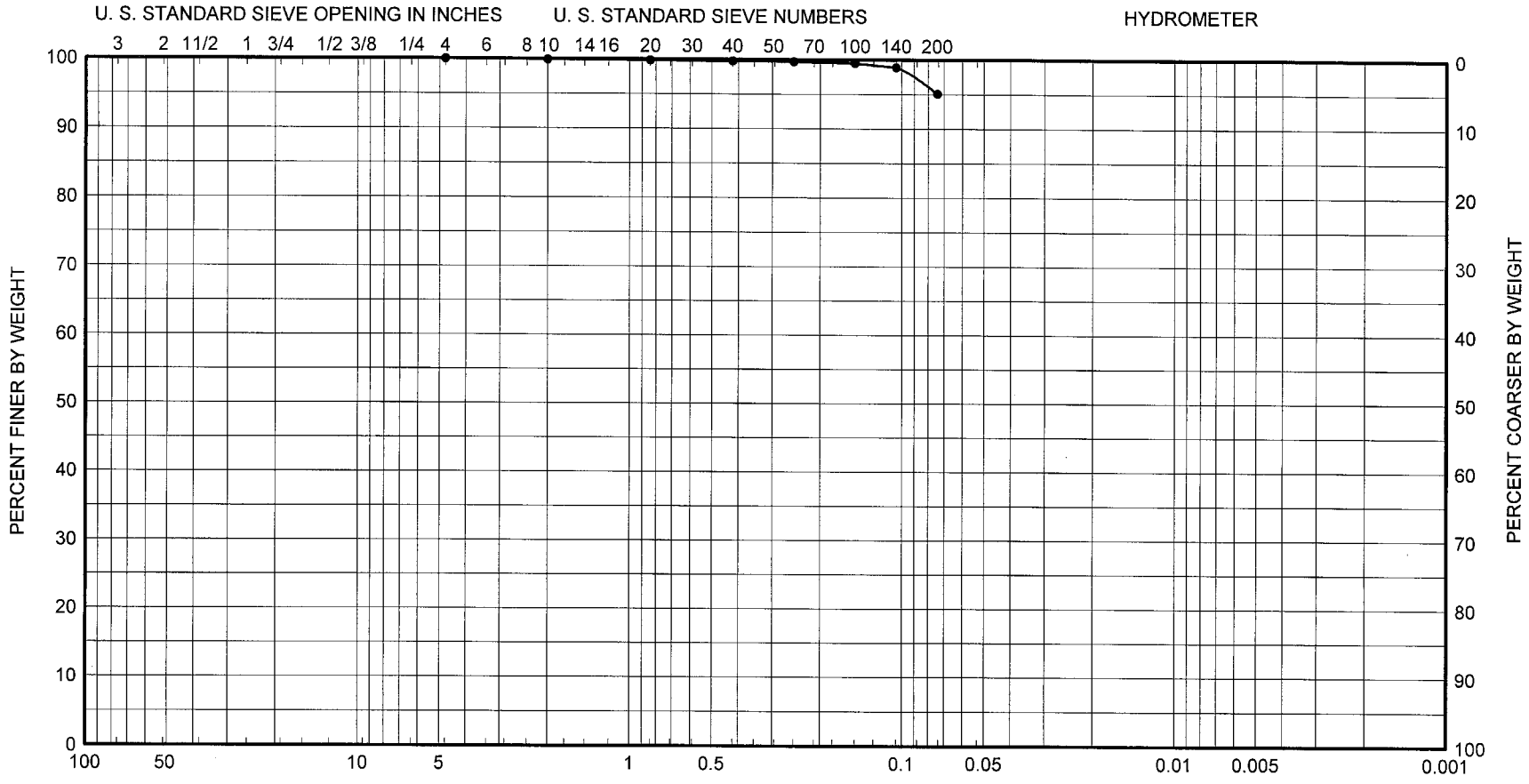
Boring No. 3

Date 4/9/2003 Job No. 02485-3

FIGURE A-49

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
8	19.2	Gray clayey silt (ML)				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

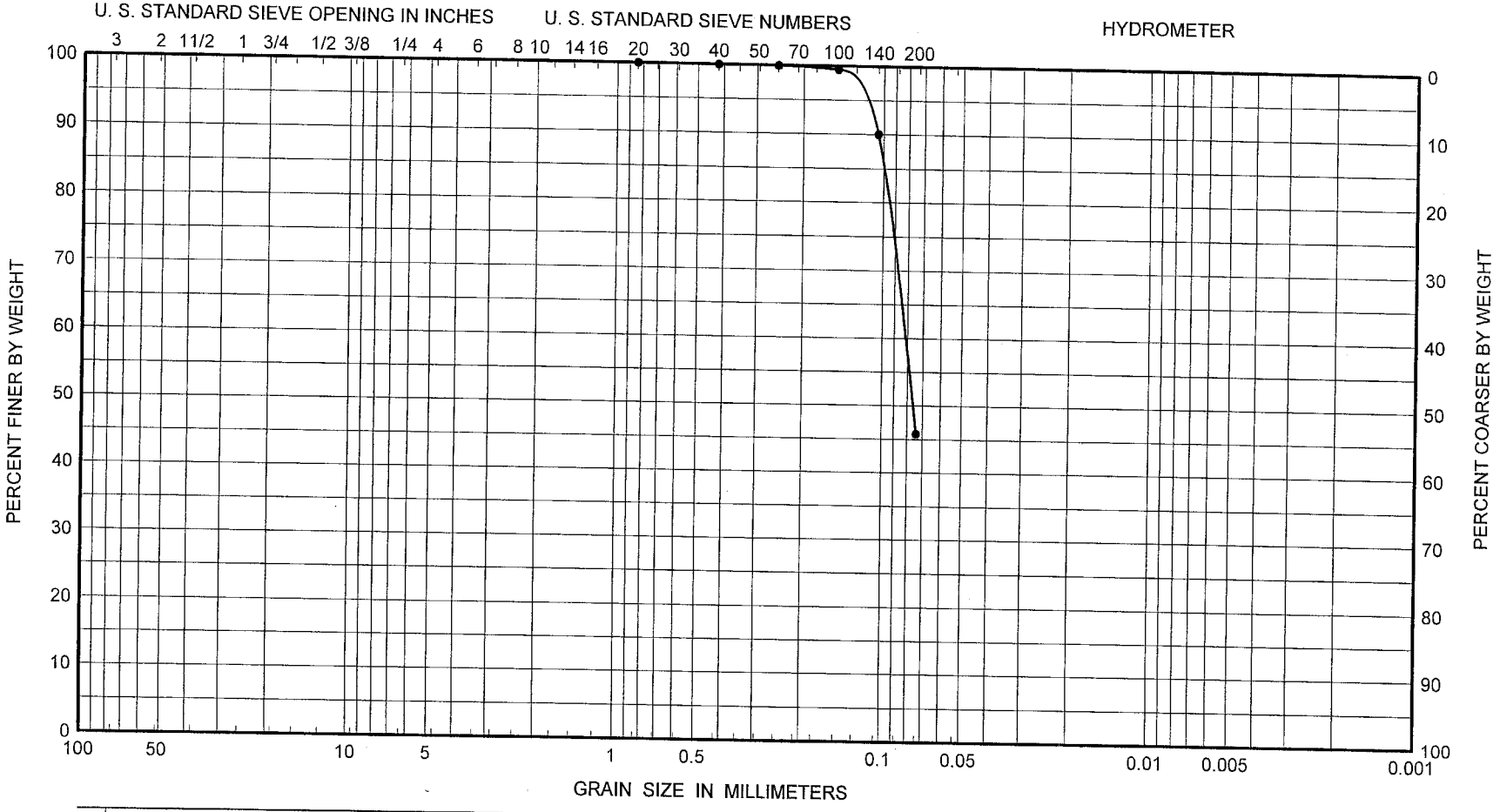
Boring No. 4

Date 4/9/2003 Job No. 02485-3

FIGURE A-50

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



GRAVEL	SAND			SILT or CLAY
	Coarse	Medium	Fine	

Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
8	16.1	Gray silty fine sand (SM)				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

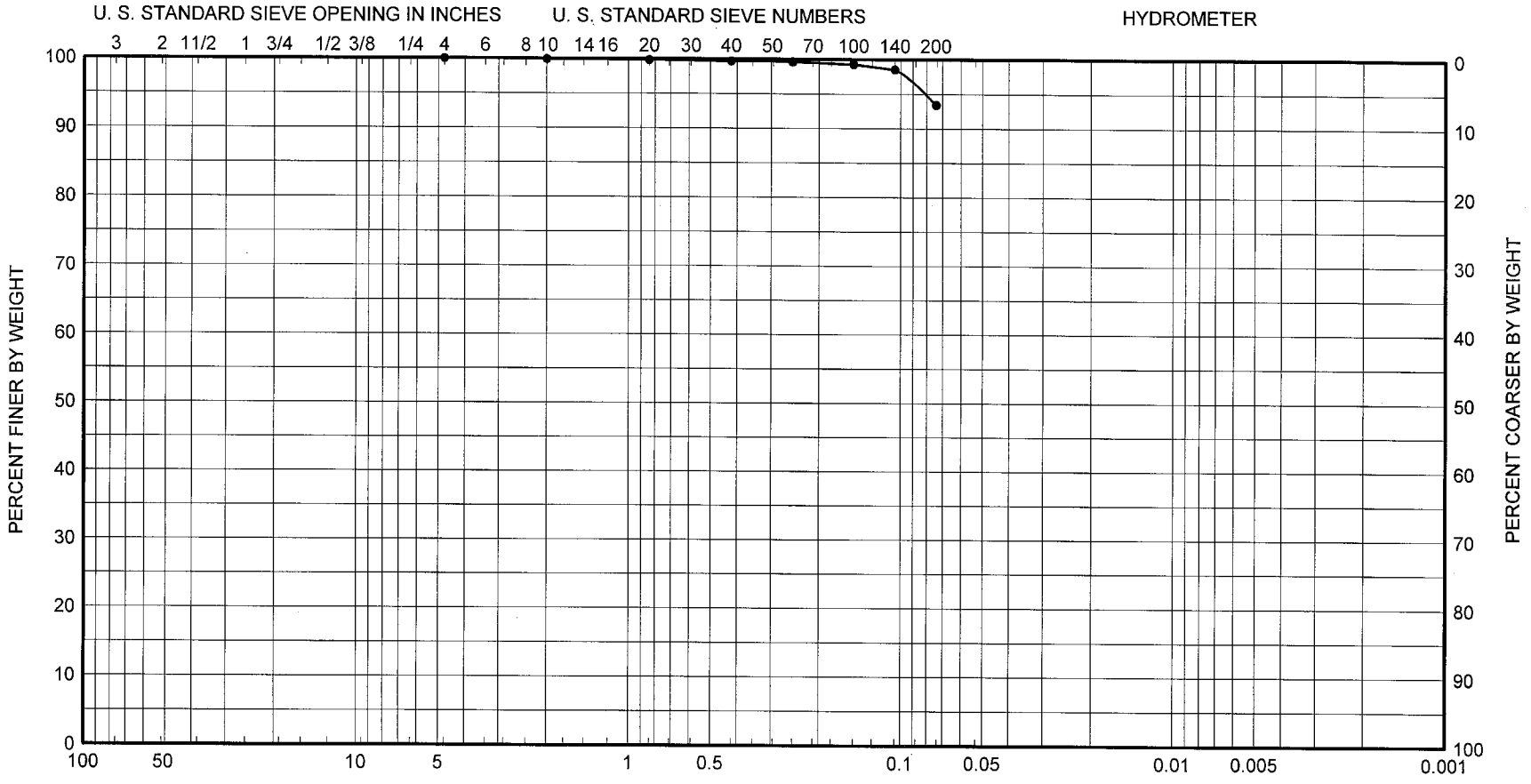
Boring No. 5

Date 4/9/2003 Job No. 02485-3

FIGURE A-51

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
12	15.5	Gray silt (ML), slightly sandy				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

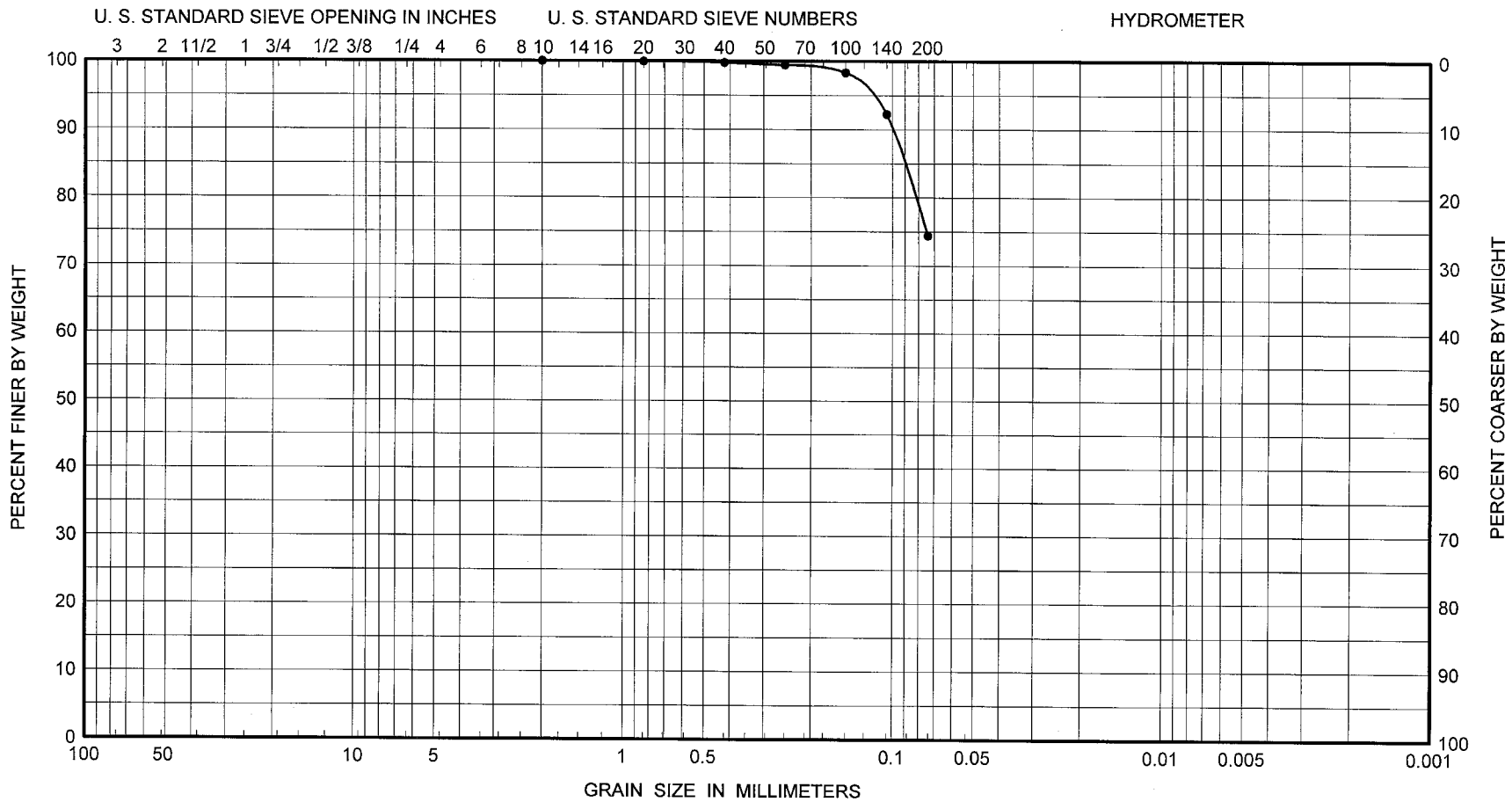
Boring No. 6

Date 3/15/2003 Job No. 02485-3

FIGURE A-52

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
11	25.1	Gray silt (ML) with sand, silty clay seams				
		and mica				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

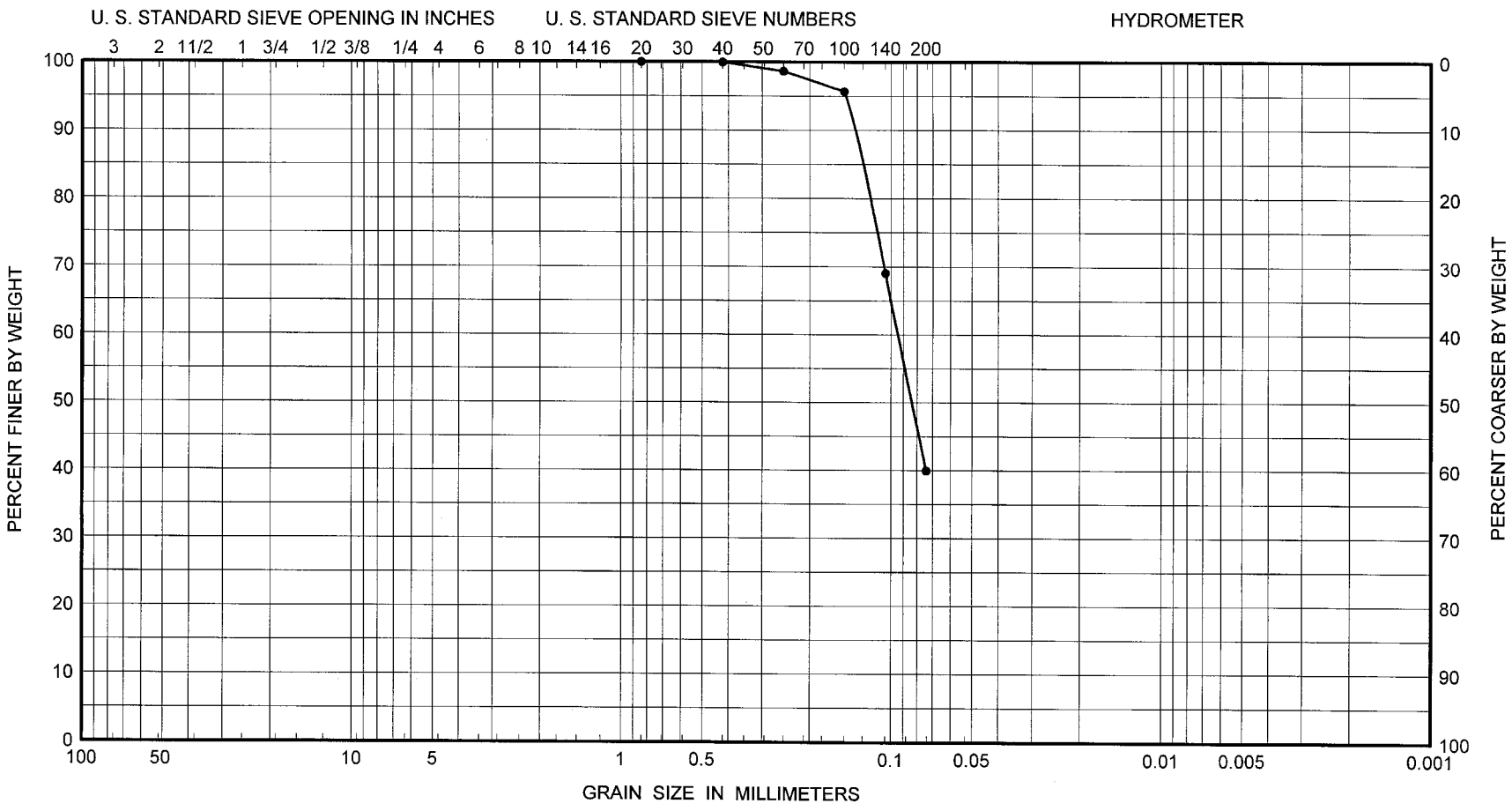
Boring No. 8

Date 4/9/2003 Job No. 02485-3

FIGURE A-53

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
12	30.2	Gray silty fine sand (SM) with clay seams				
		and trace of organic matter				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

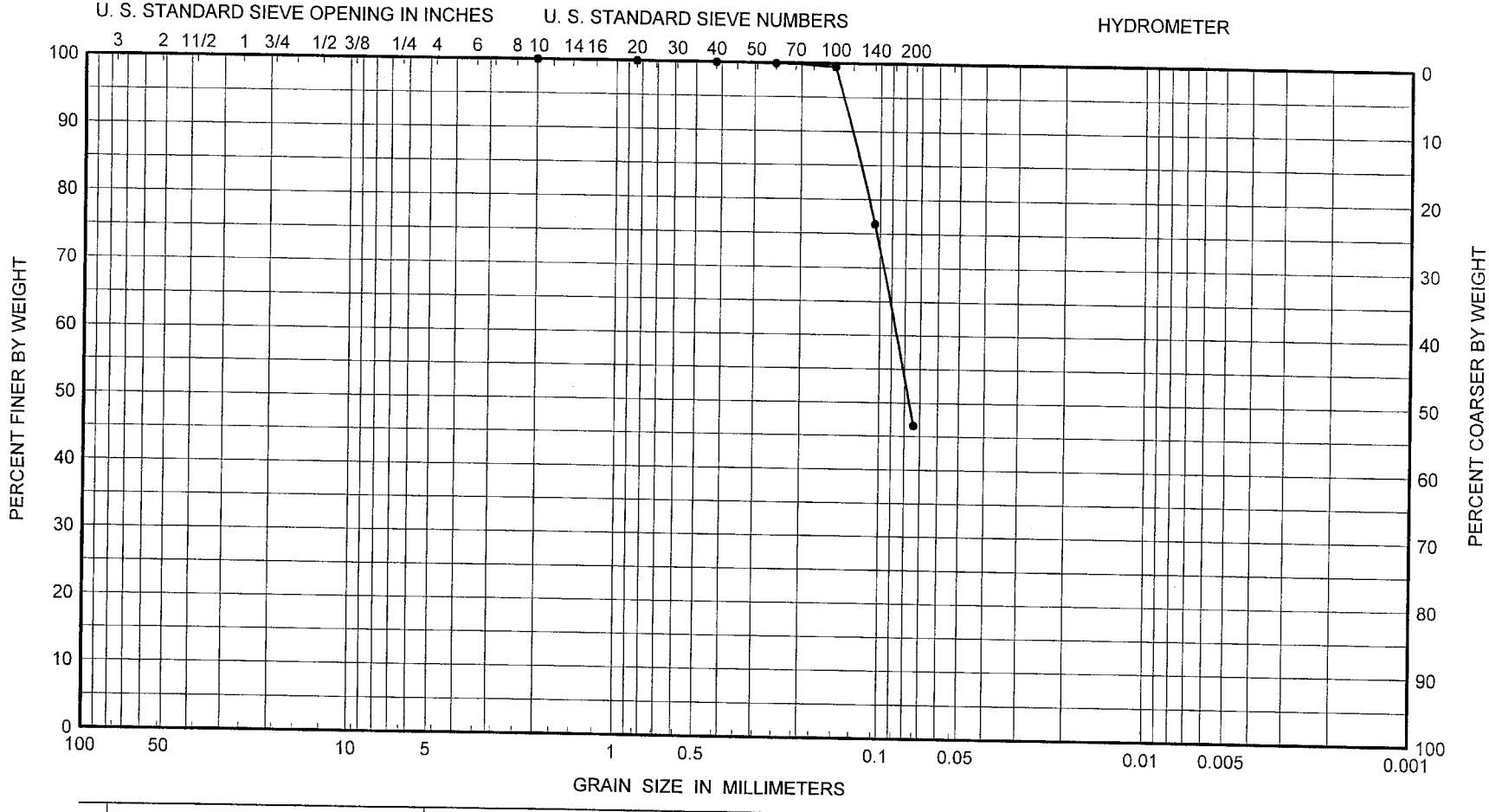
Boring No. 8

Date 4/9/2003 Job No. 02485-3

FIGURE A-54

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
8	20	Dark gray silty fine sand (SM)				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

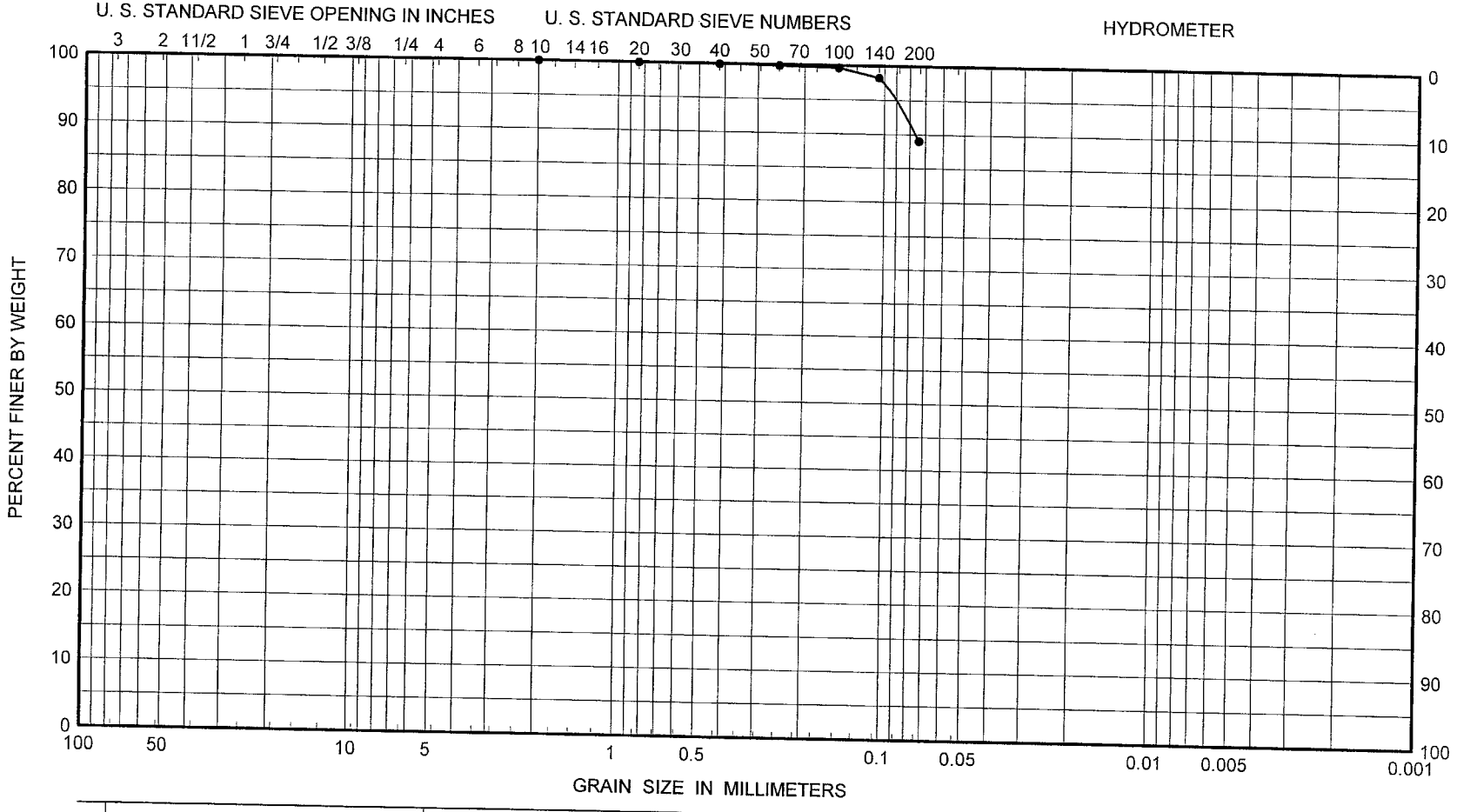
Boring No. 9

Date 4/9/2003 Job No. 02485-3

FIGURE A-55

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
13	17.3	Gray silty clay (CL) with silty fine sand				
		seams				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

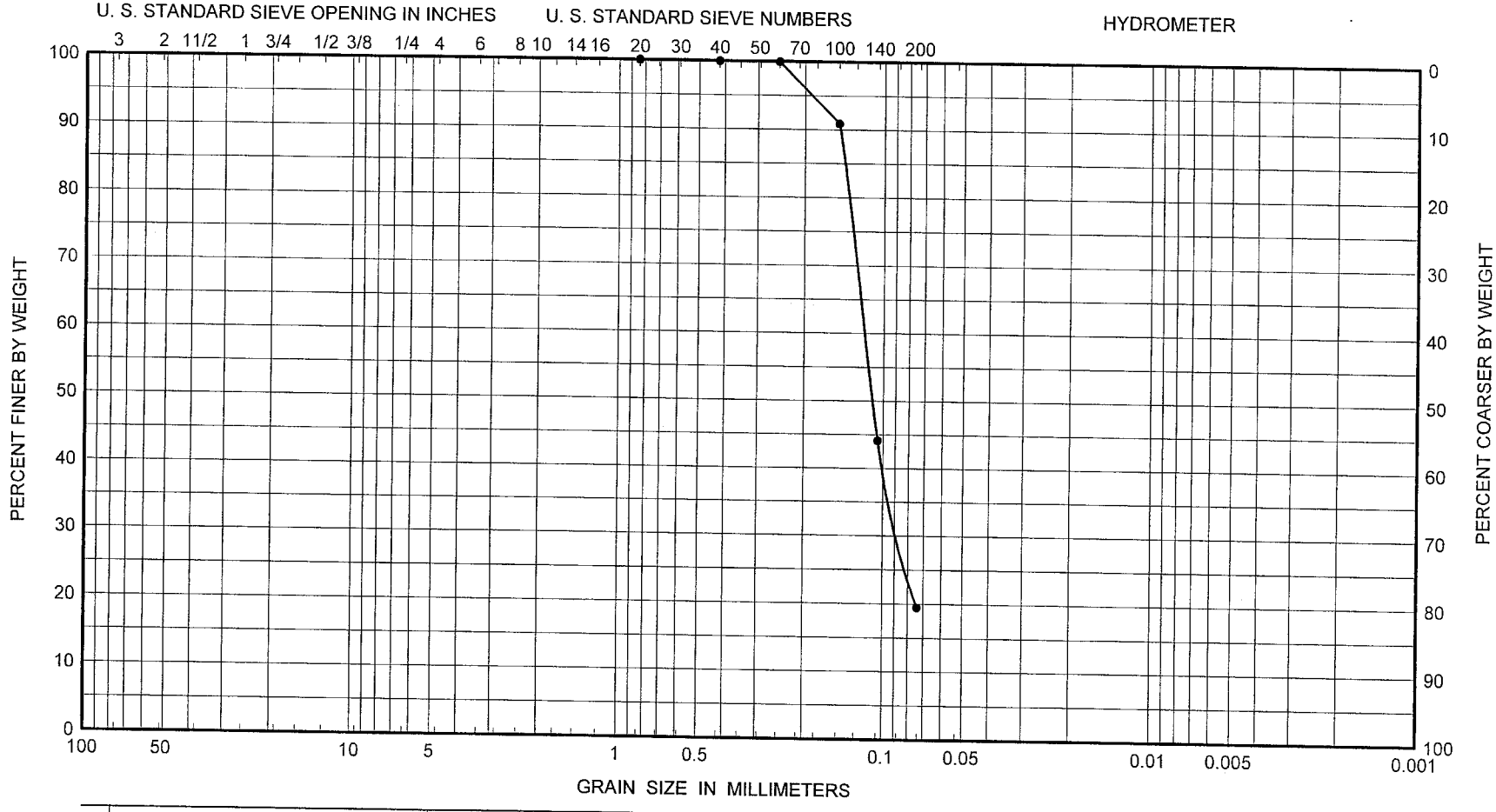
Boring No. 10

Date 3/18/2003 Job No. 02485-3

FIGURE A-56

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
17	21	Gray silty fine sand (SM), slightly clayey				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

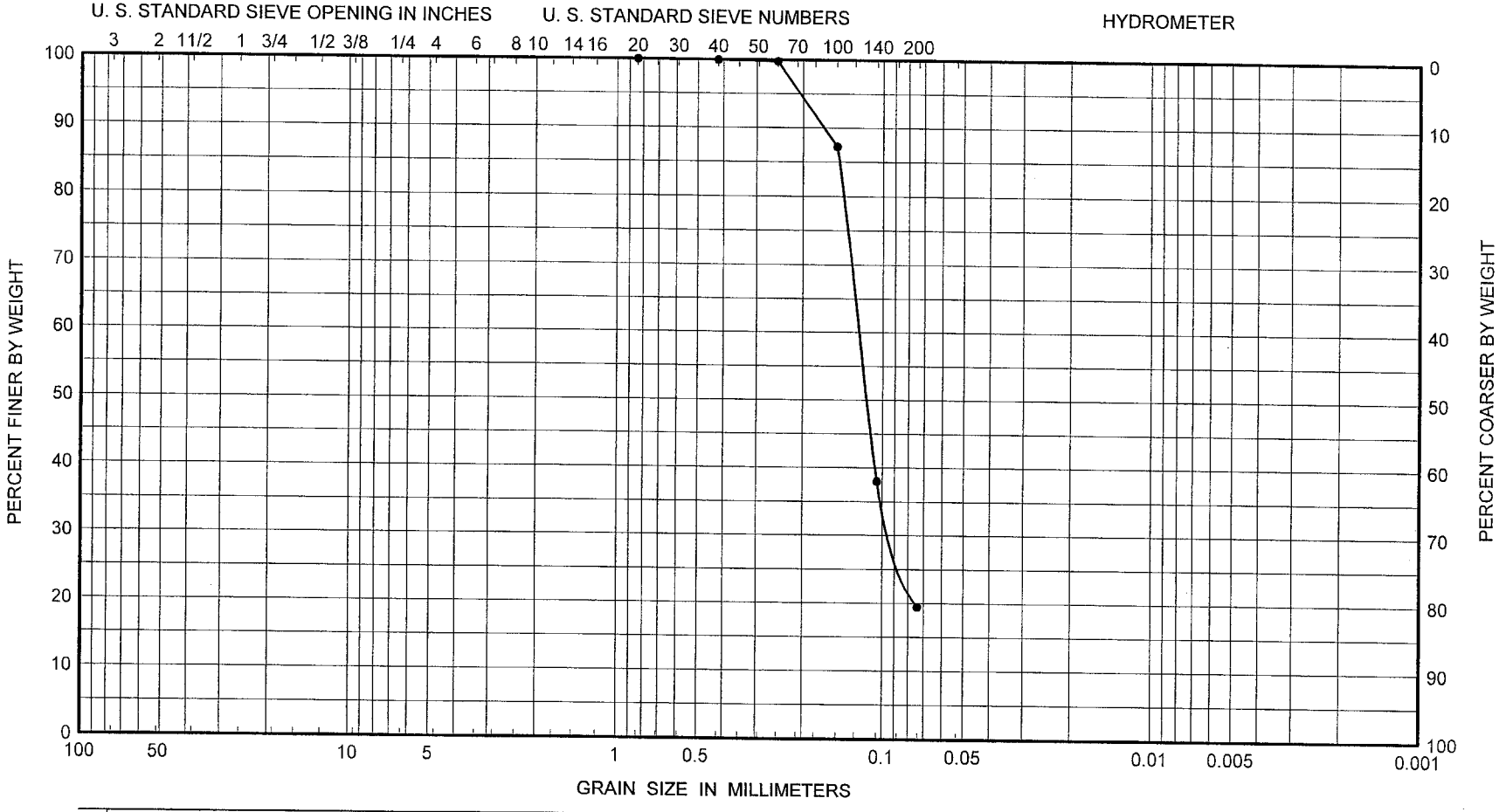
Boring No. 10

Date 3/18/2003 Job No. 02485-3

FIGURE A-57

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
18	23.2	Gray silty fine sand (SM), slightly clayey				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

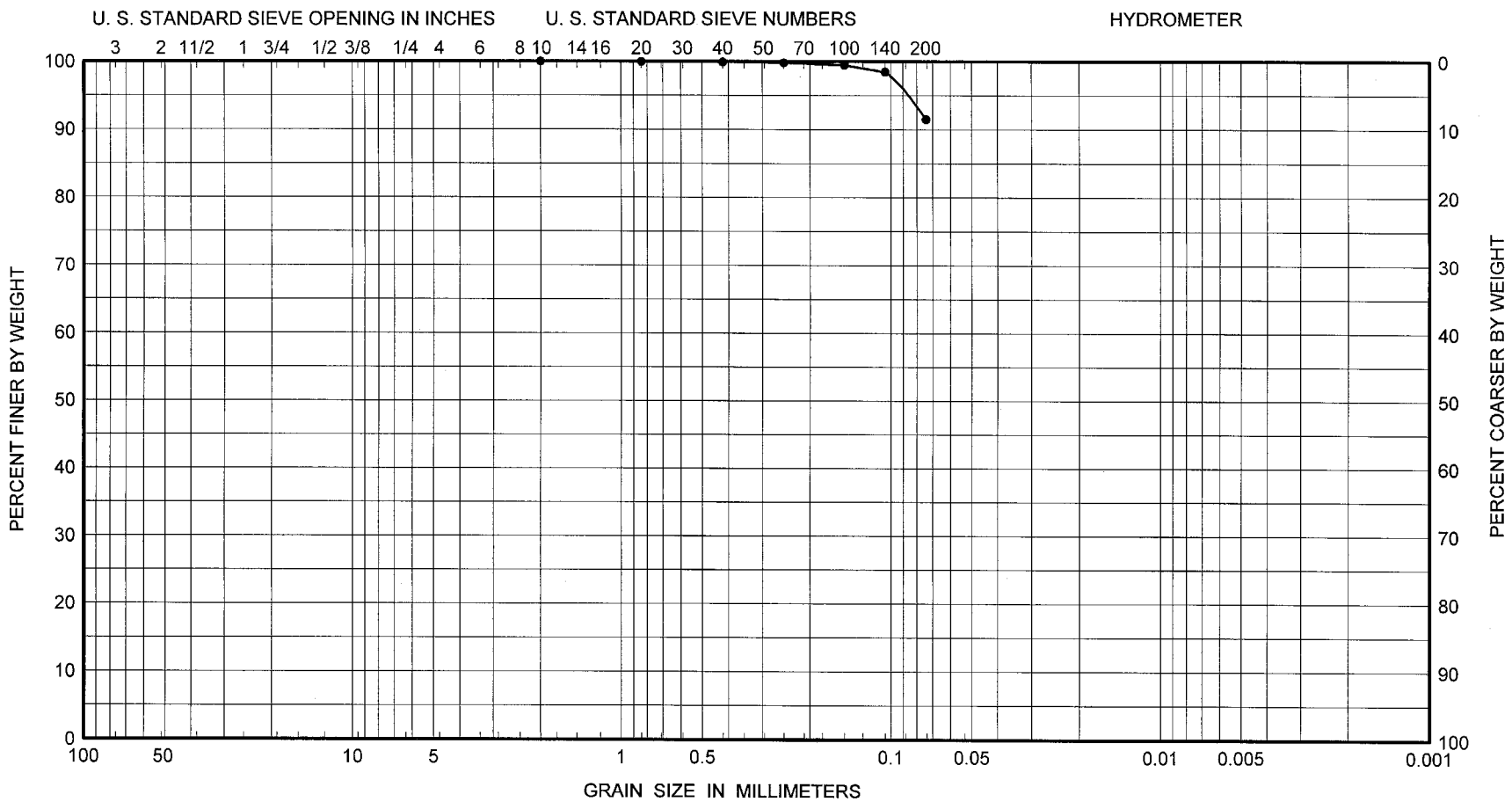
Boring No. 10

Date 3/18/2003 Job No. 02485-3

FIGURE A-58

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
10	23.9	Gray silt (ML), slightly sandy, with trace of				
		organic matter				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

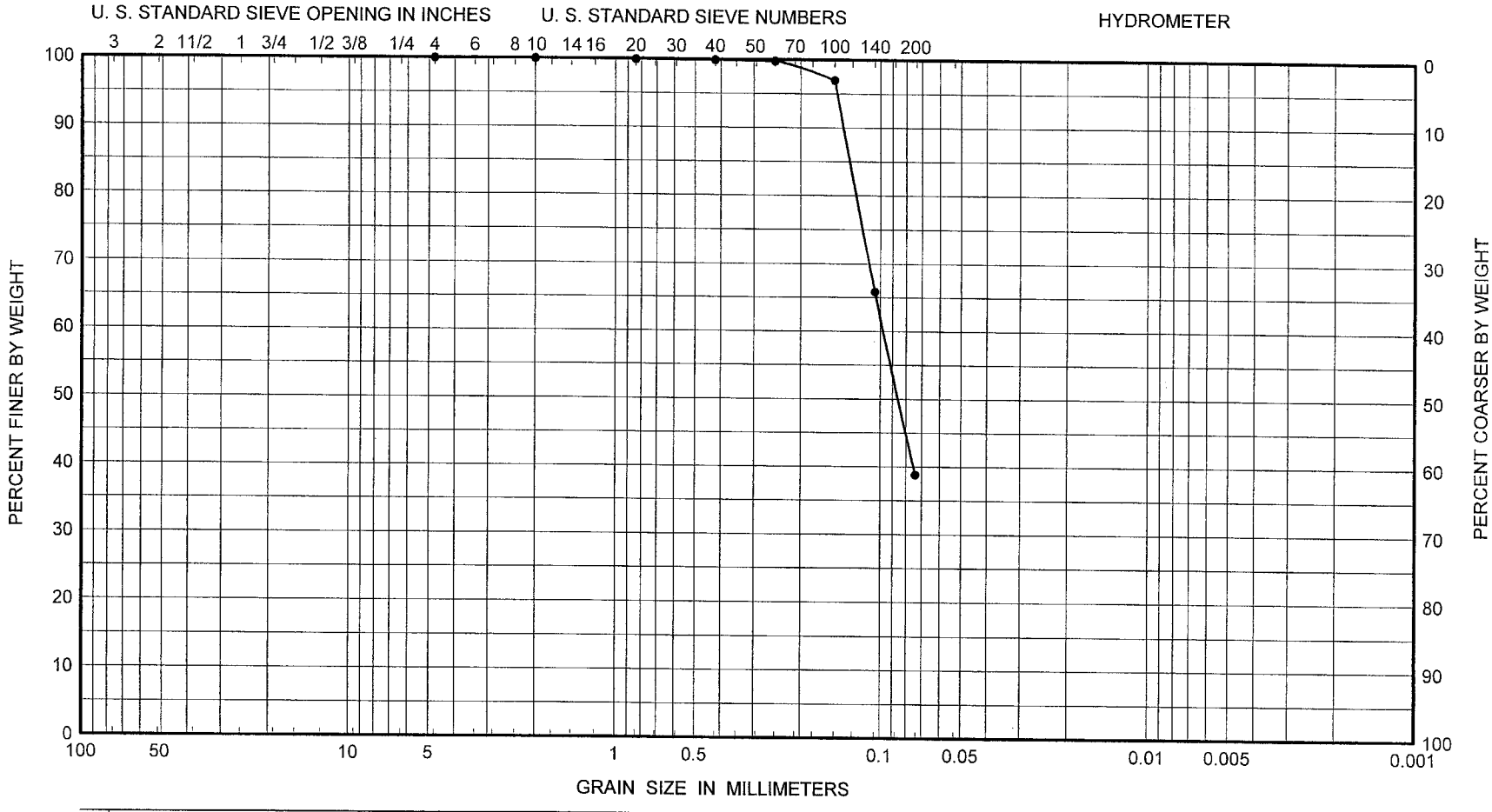
Boring No. 11

Date 4/10/2003 Job No. 02485-3

FIGURE A-59

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
13	16.1	Gray silty fine sand (SM)				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

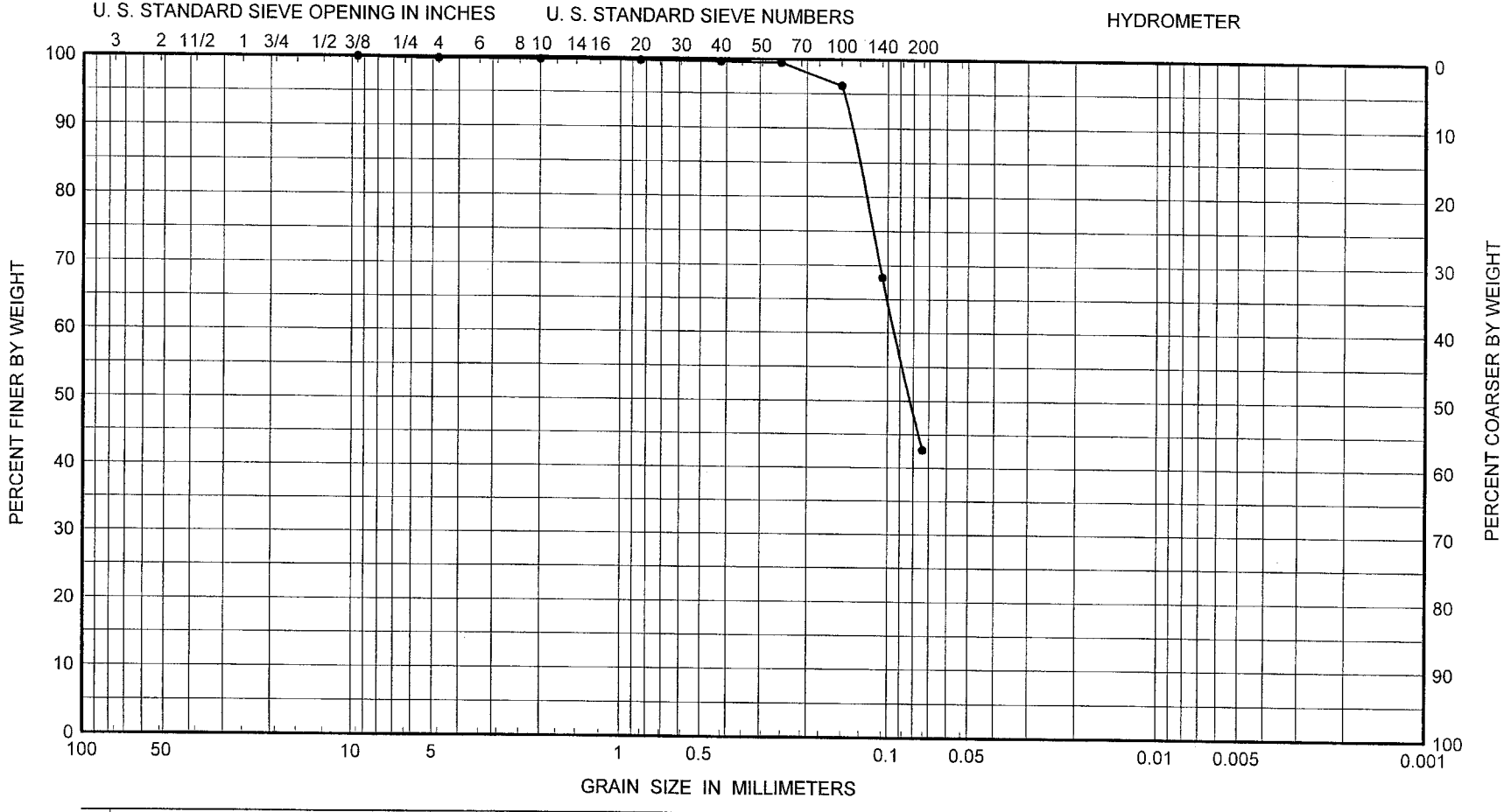
Boring No. 12

Date 3/24/2003 Job No. 02485-3

FIGURE A-60

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
15	20.1	Gray silty fine sand (SM)				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

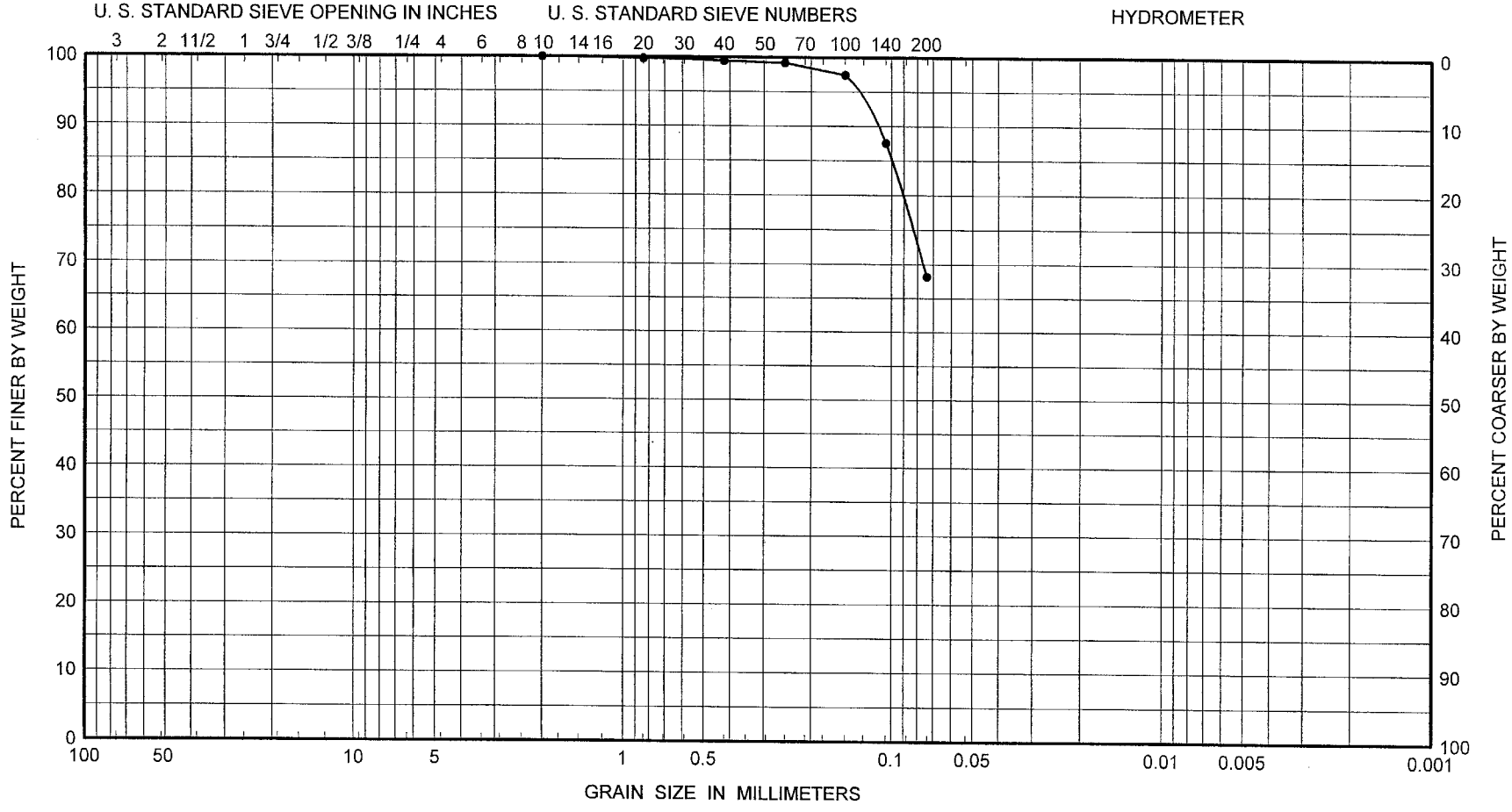
Boring No. 12

Date 3/24/2003 Job No. 02485-3

FIGURE A-61

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
10	13.6	Gray sandy silt (ML), slightly clayey, with clay seams				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

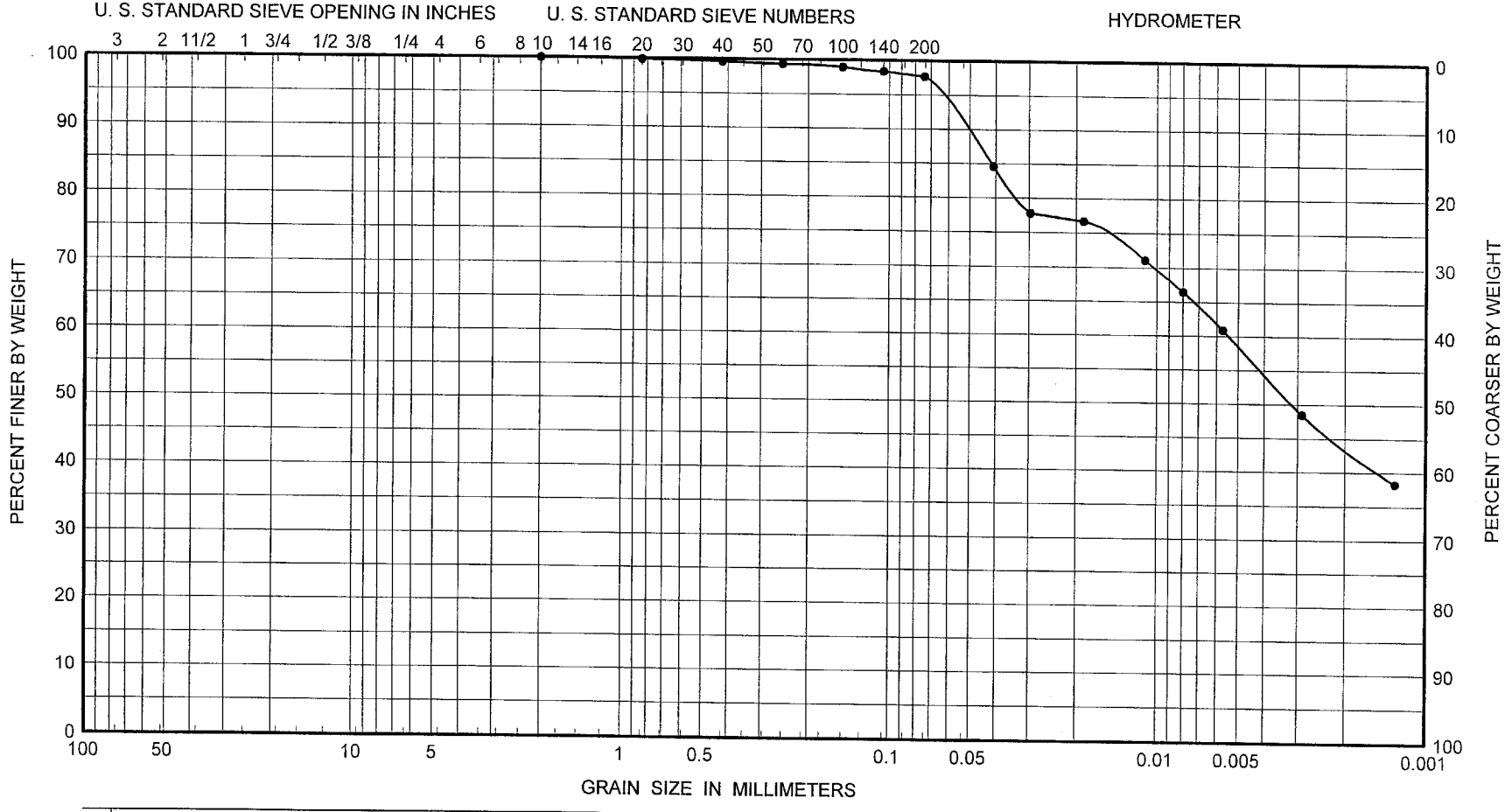
Boring No. 13

Date 3/25/2003 Job No. 02485-3

FIGURE A-62

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
1	6.5	Dark gray clay (CH)				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

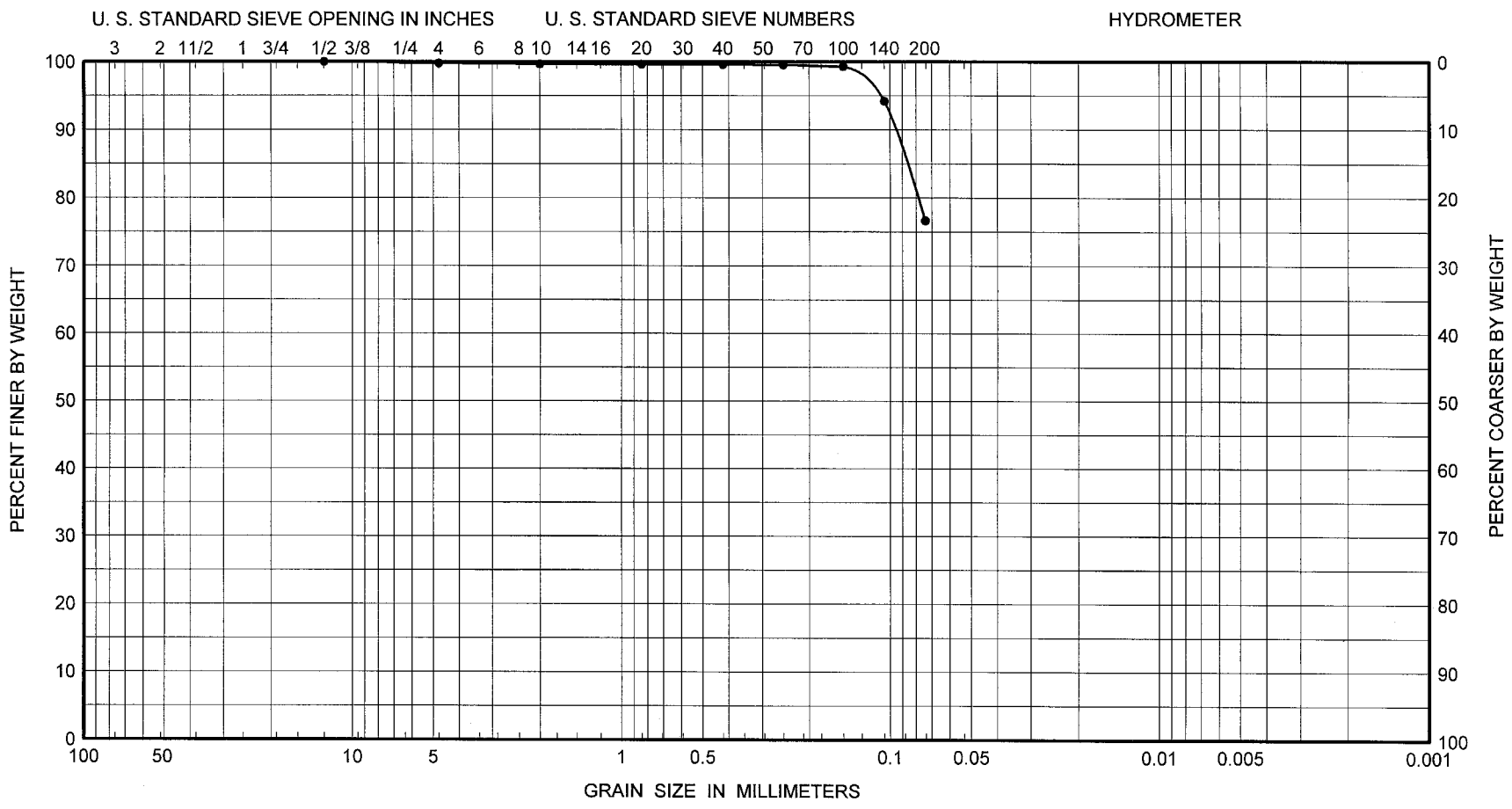
Boring No. 14

Date 3/27/2003 Job No. 02485-3

FIGURE A-63

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
7	15.2	Gray silt (ML) with sand				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

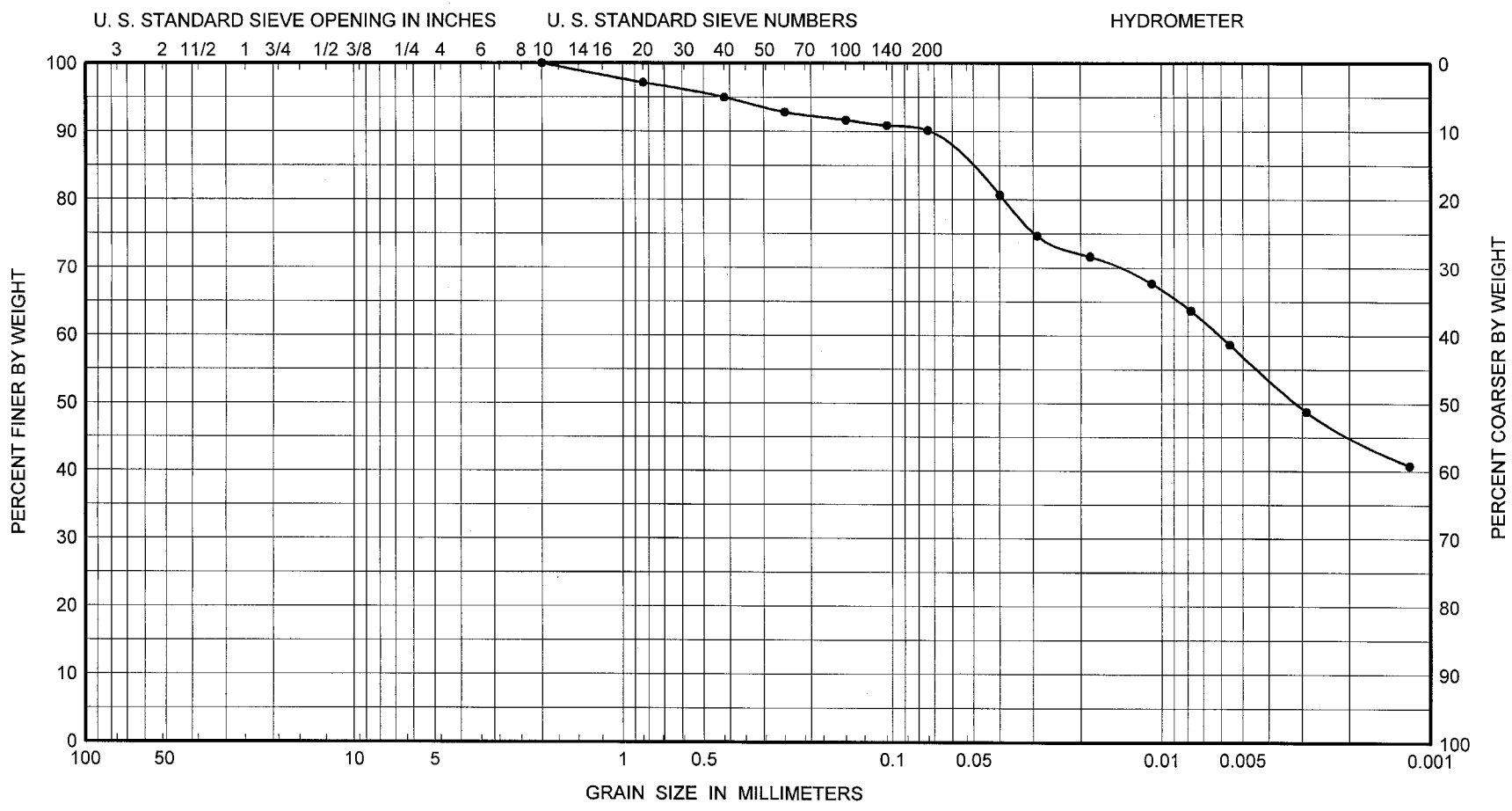
Boring No. 14

Date 3/27/2003 Job No. 02485-3

FIGURE A-64

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
5	11.5	Dark gray clay (CH) with organic matter and trace of wood (NOTE: Sand-sized particles on Grain Size Curve consisted of organic matter and wood.)				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

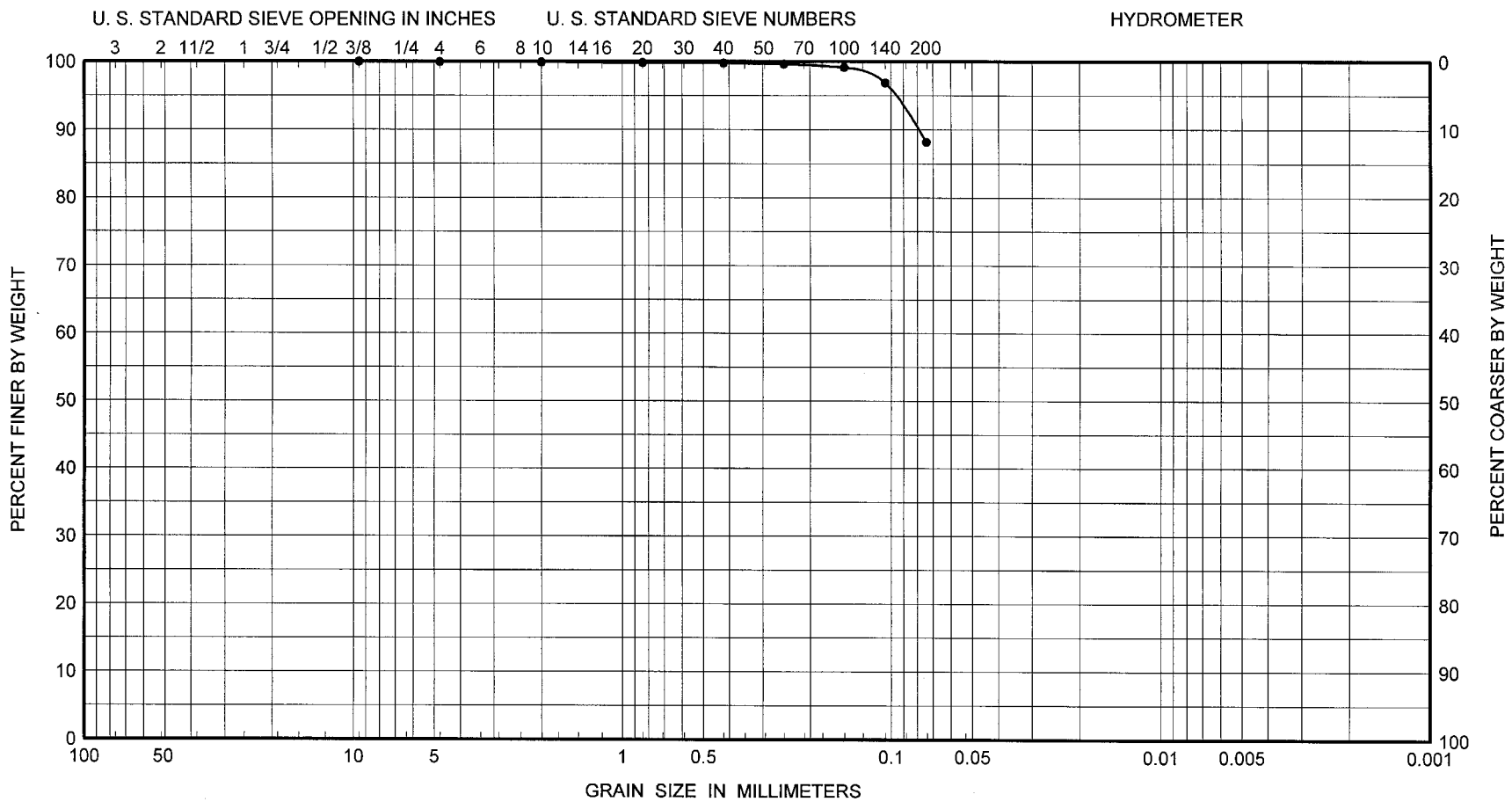
Boring No. 15

Date 3/27/2003 Job No. 02485-3

FIGURE A-65

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
10	17.2	Gray silt (ML), slightly sandy				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

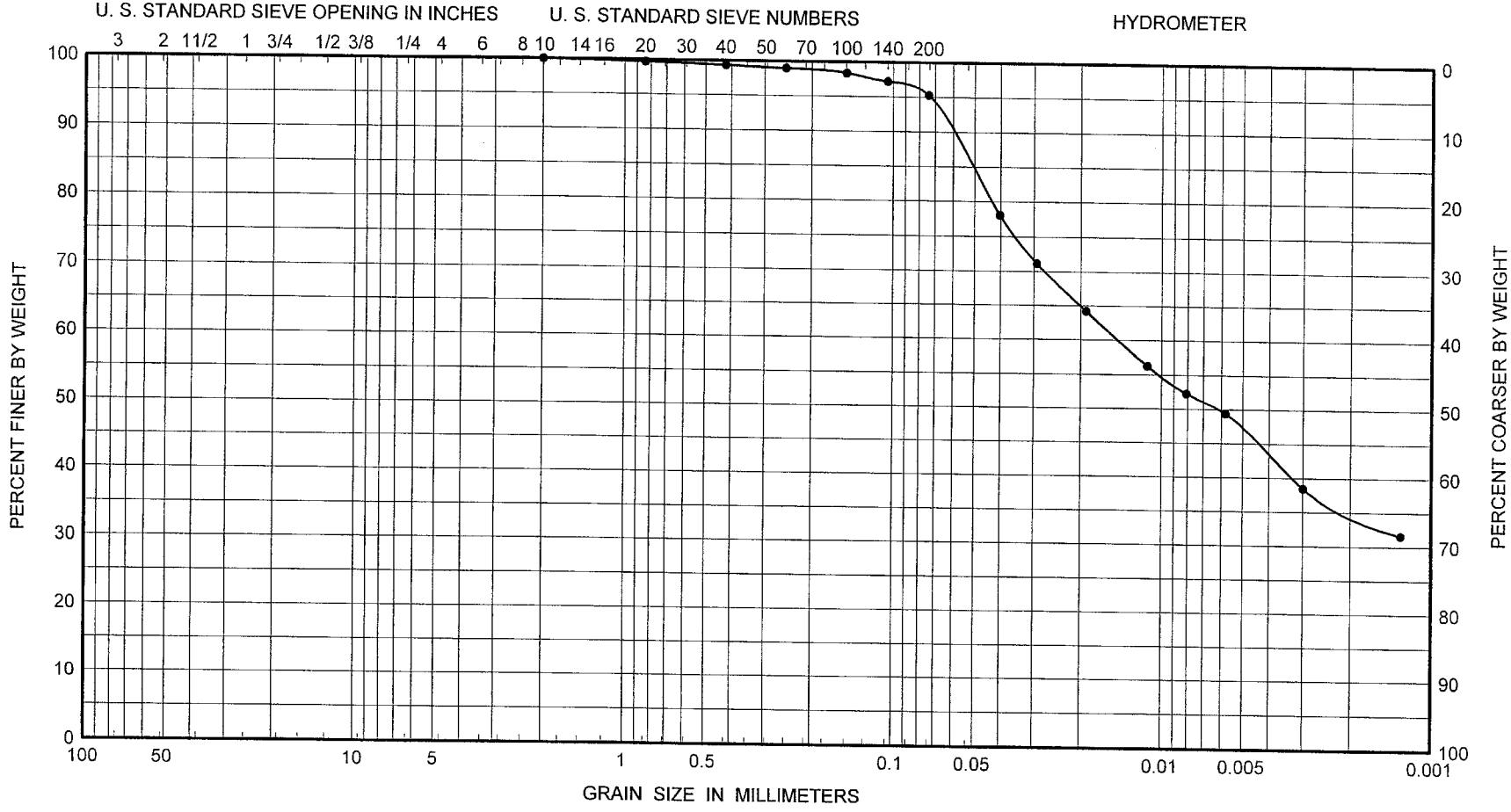
Boring No. 15

Date 3/27/2003 Job No. 02485-3

FIGURE A-66

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
1	6.3	Brown and black clay (CH)				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

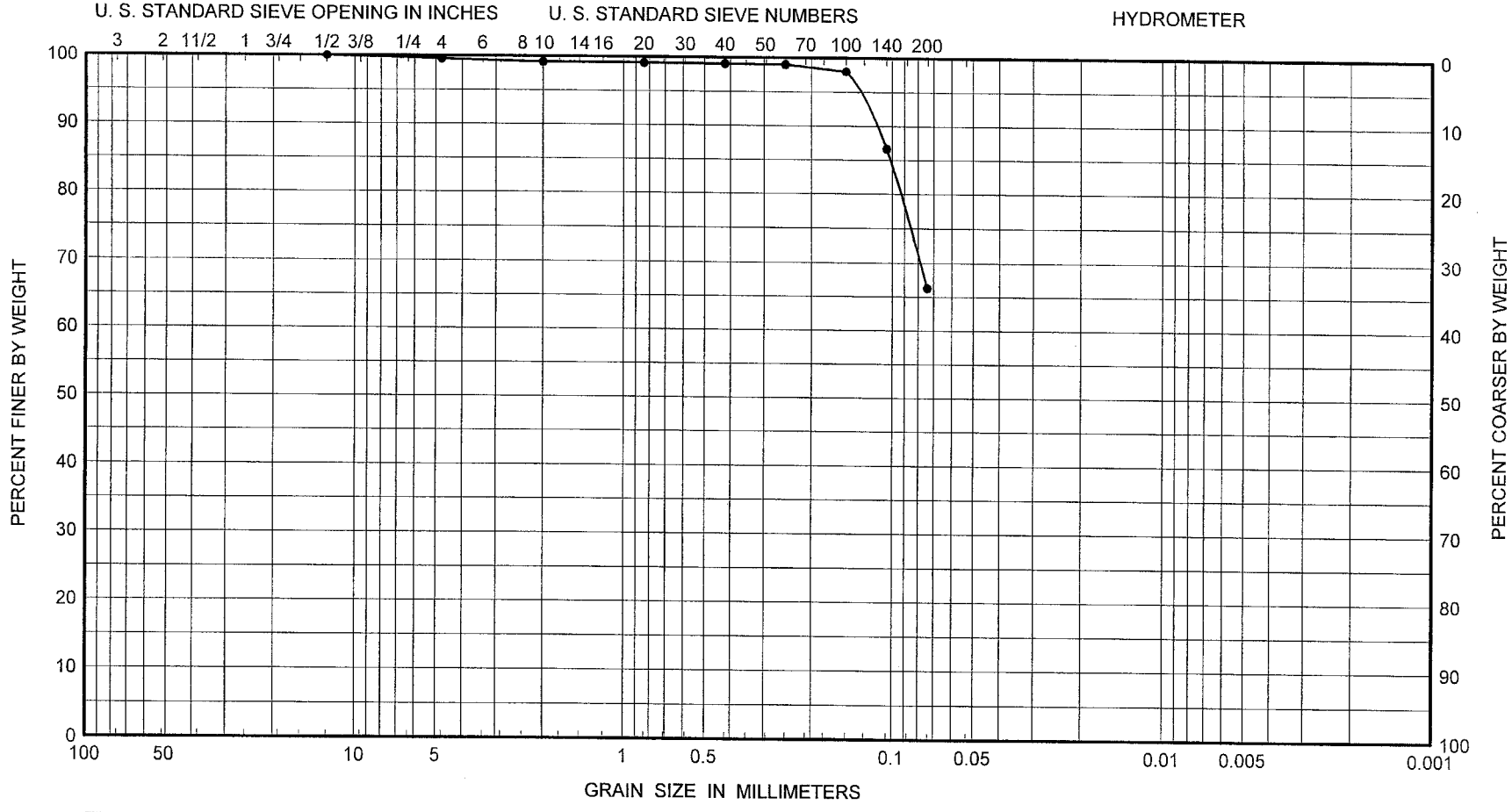
Boring No. 16

Date 3/27/2003 Job No. 02485-3

FIGURE A-67

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
9	17	Gray sandy silt (ML)				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

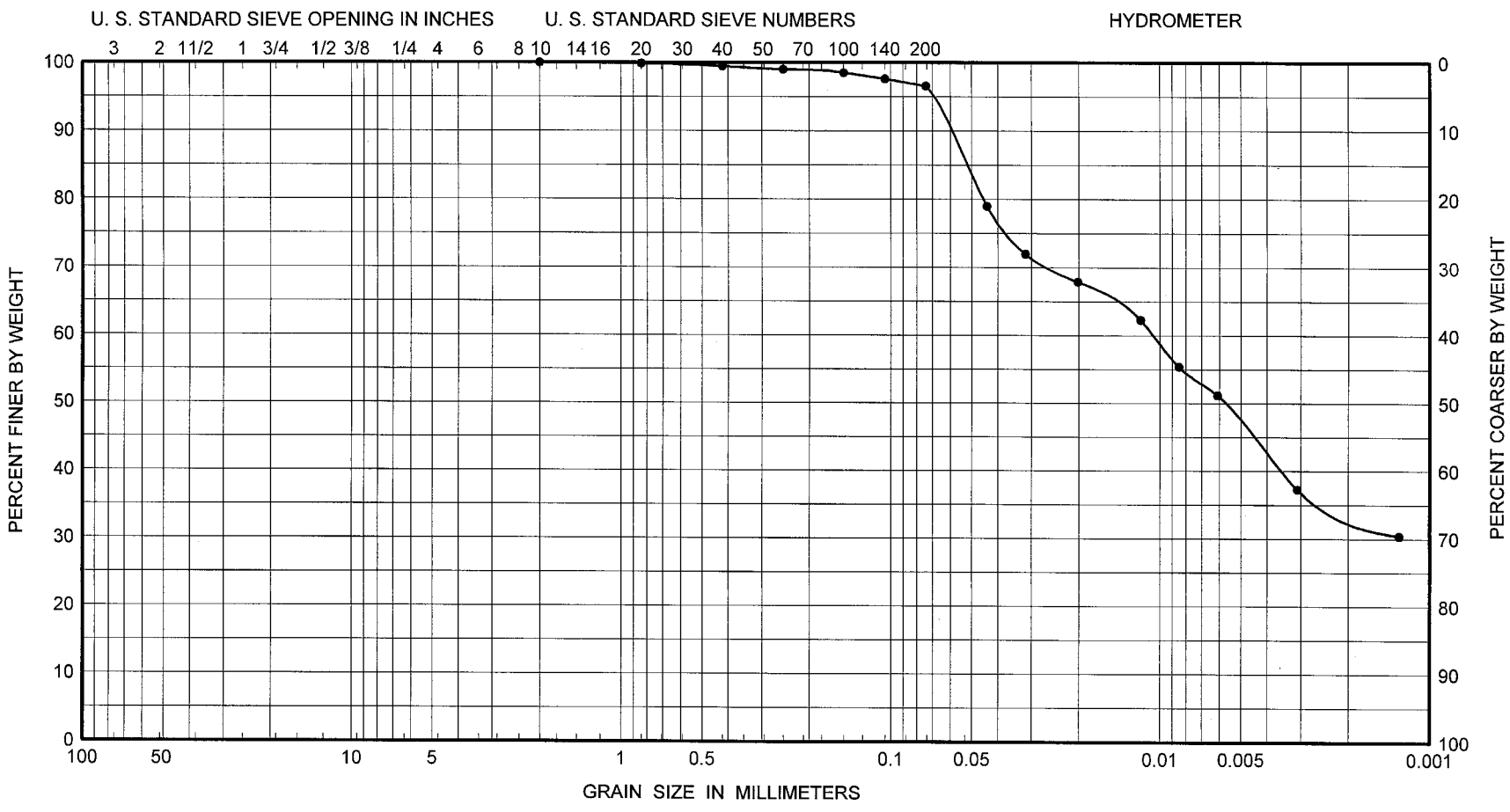
Boring No. 16

Date 3/27/2003 Job No. 02485-3

FIGURE A-68

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
1	7	Brown and black organic clay (OH) wiht				
		trace of shell fragments				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

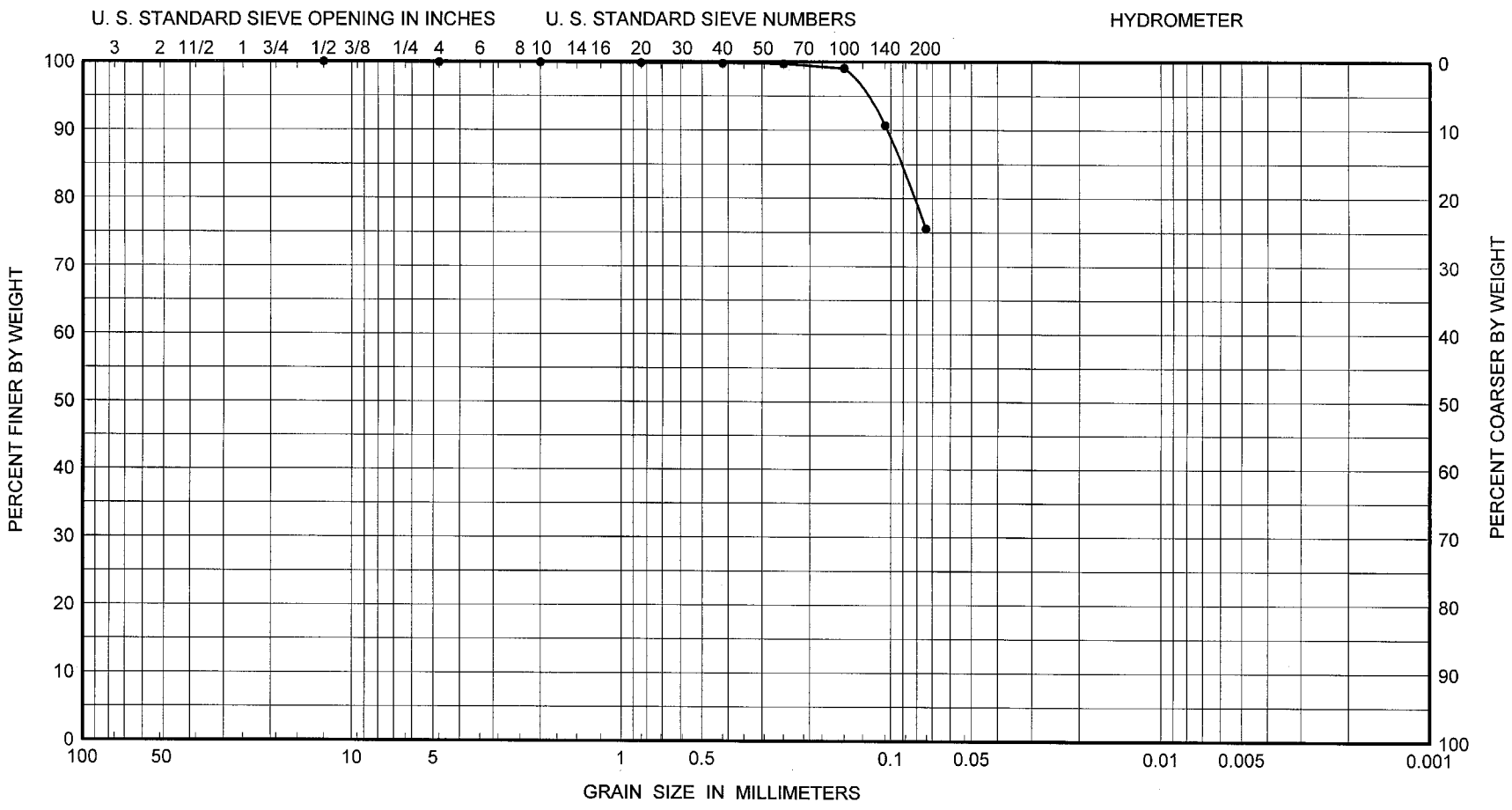
Boring No. 17

Date 3/27/2003 Job No. 02485-3

FIGURE A-69

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
7	15.4	Gray silt (ML) with sand and trace of shell				
		fragments				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

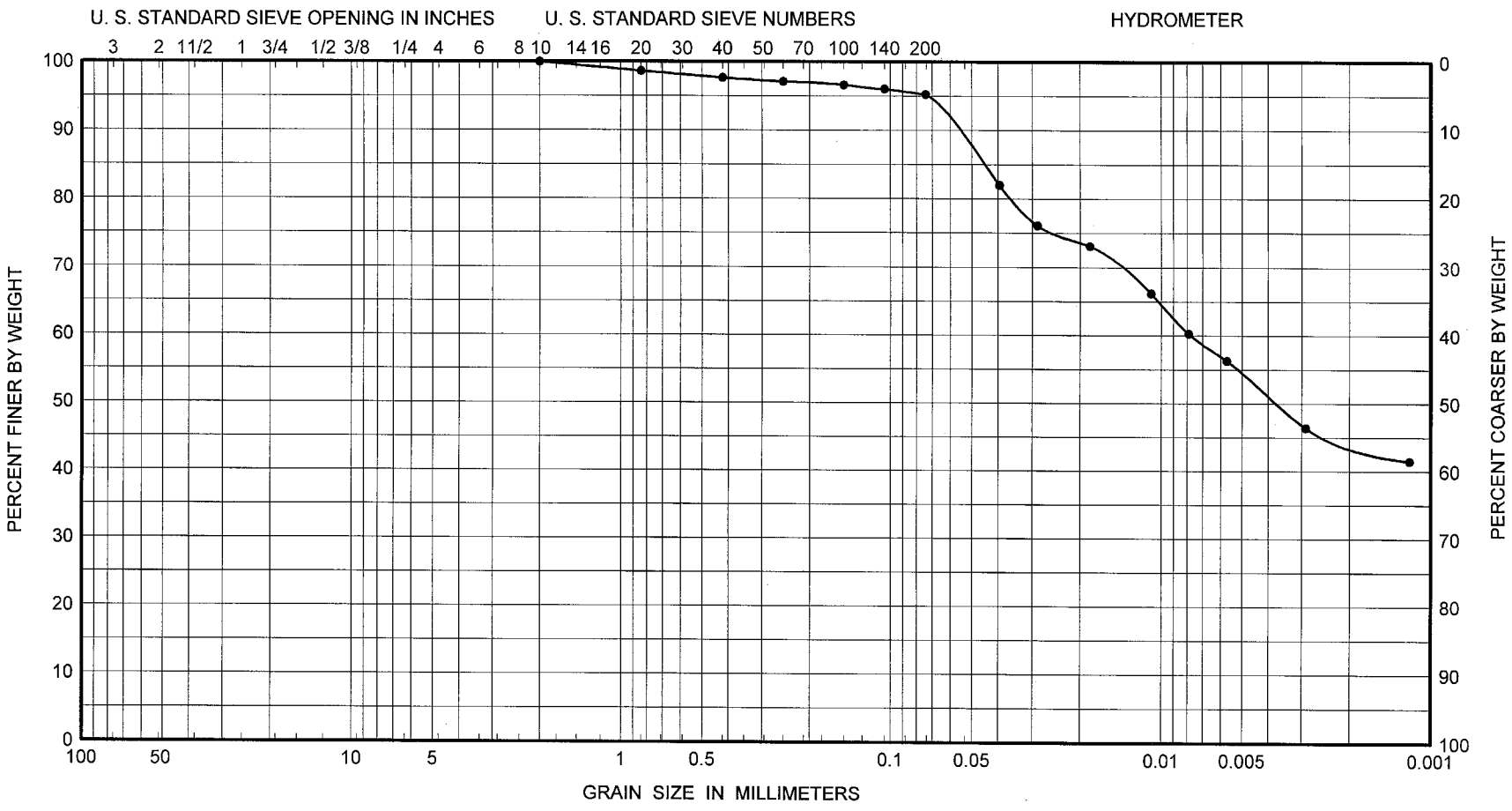
Boring No. 17

Date 3/27/2003 Job No. 02485-3

FIGURE A-70

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
1	7	Dark gray clay (CH) with trace of organic matter and trace of shell fragments				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

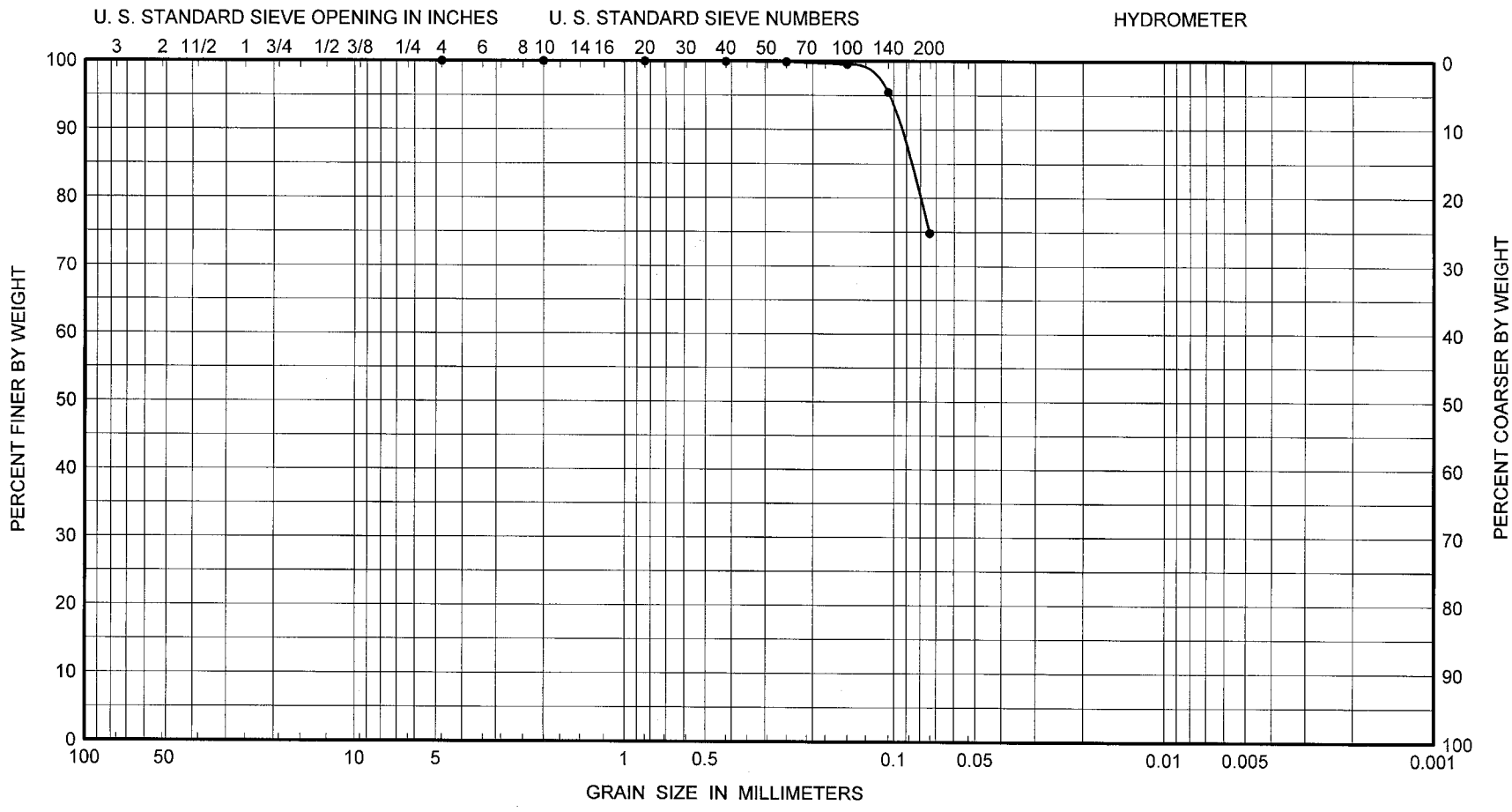
Boring No. 18

Date 3/27/2003 Job No. 02485-3

FIGURE A-71

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
9	15.5	Gray silt (ML) with sand				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

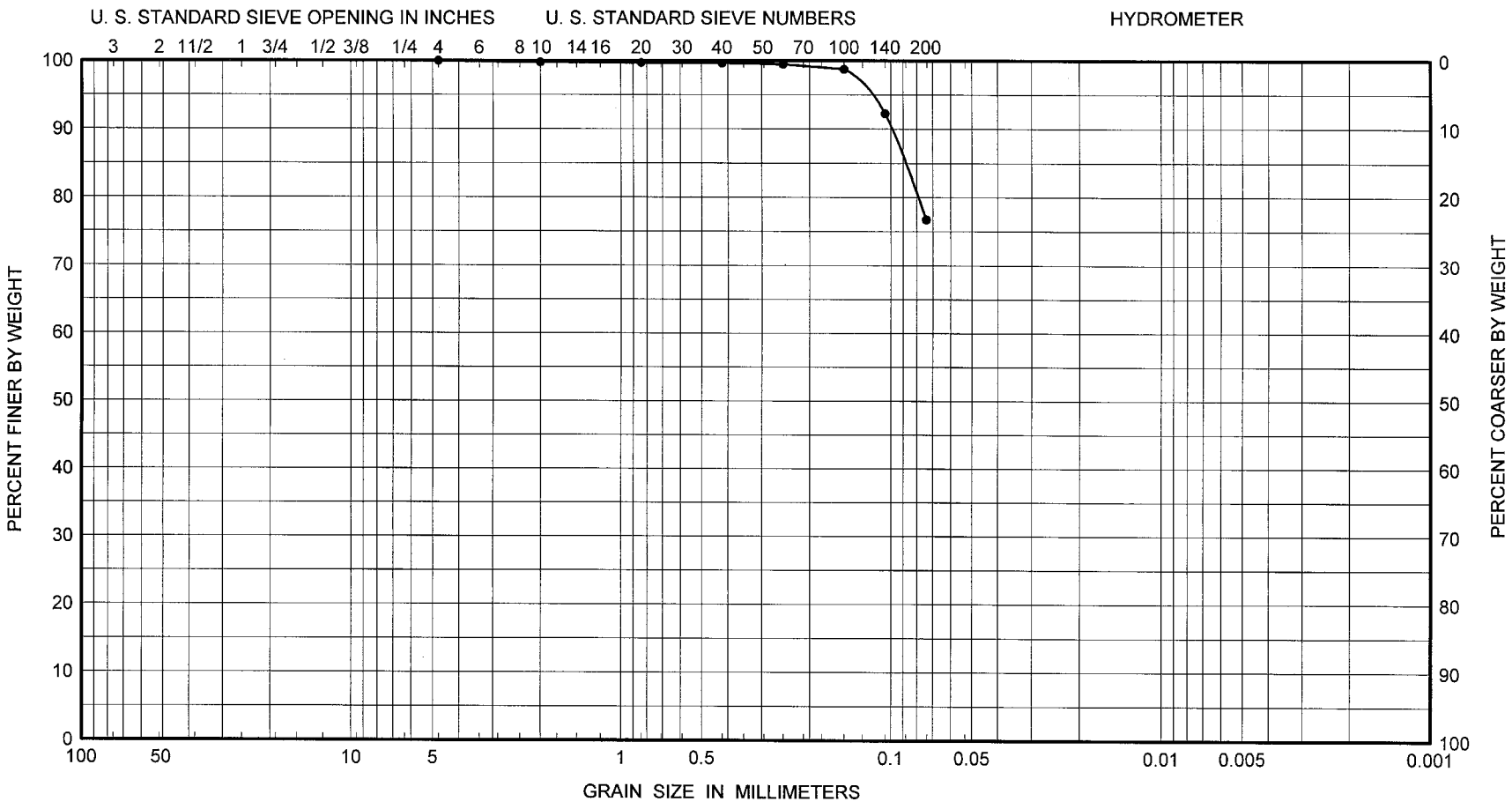
Boring No. 18

Date 3/27/2003 Job No. 02485-3

FIGURE A-72

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
11	17	Gray silt (ML) with sand				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

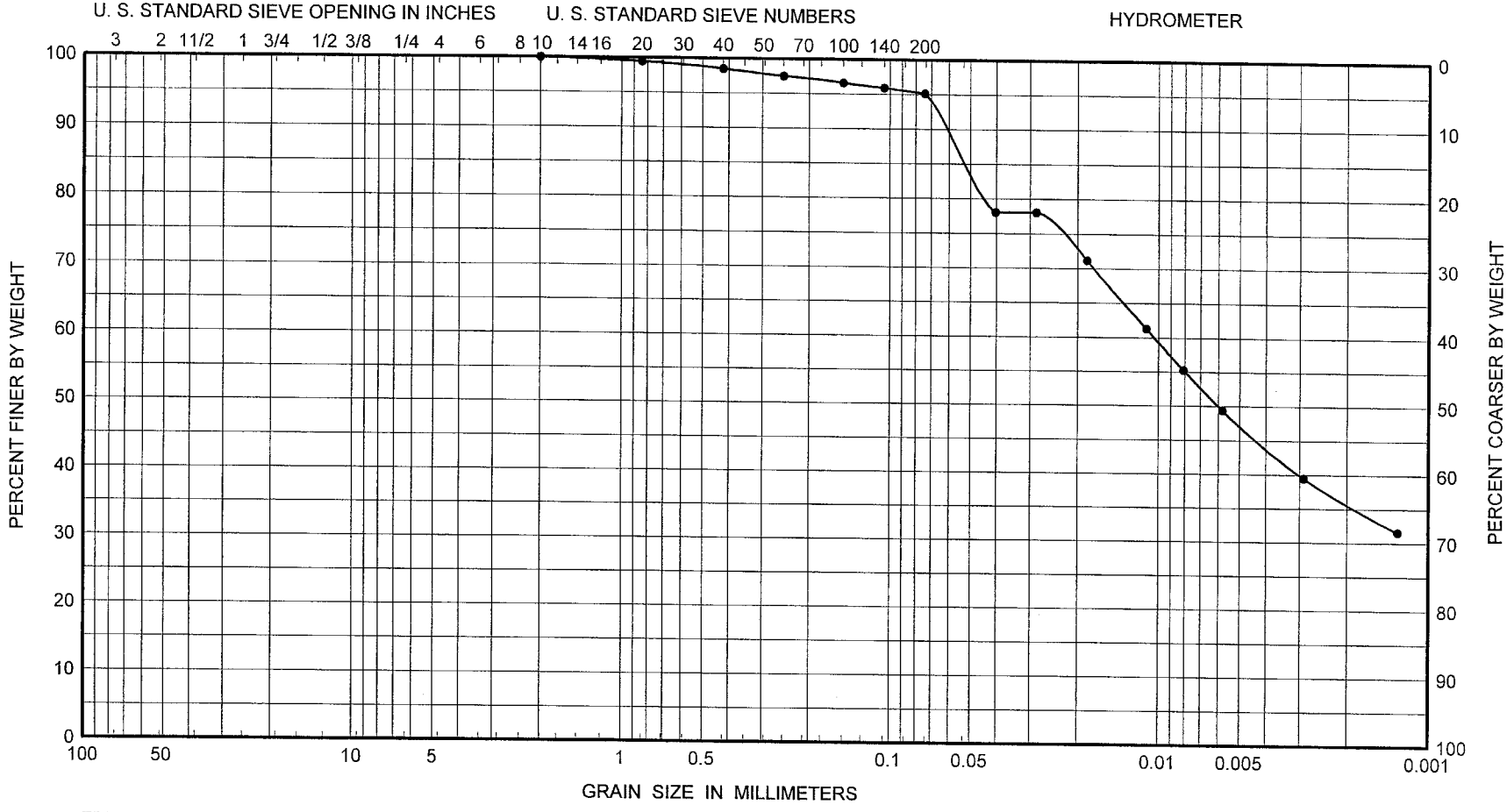
Boring No. 19

Date 3/27/2003 Job No. 02485-3

FIGURE A-73

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
3	8.2	Black organic clay (OH) with trace of wood		83	39	44

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

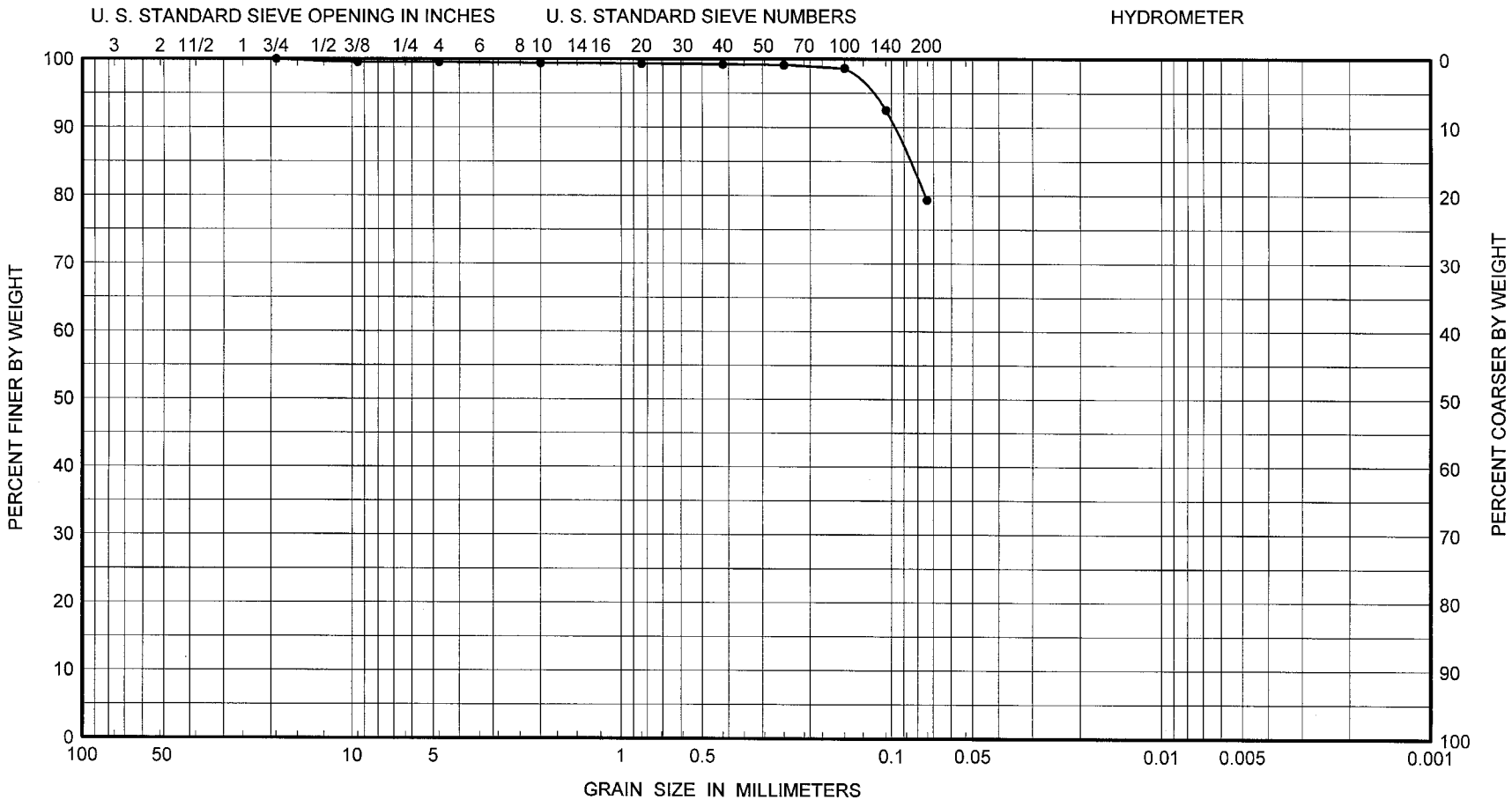
Boring No. 20

Date 3/27/2003 Job No. 02485-3

FIGURE A-74

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
10	17.2	Gray silt (ML) with sand				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

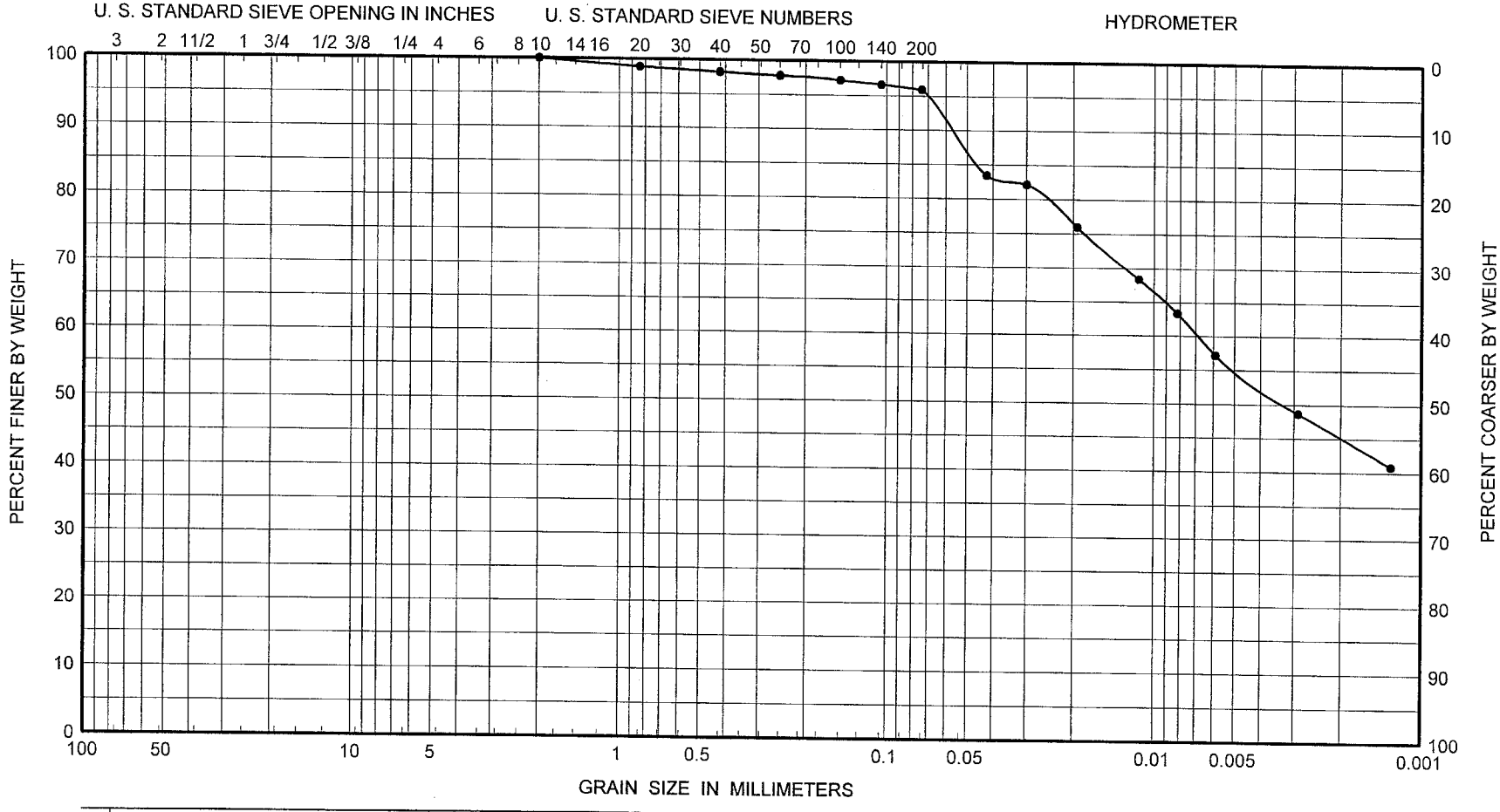
Boring No. 20

Date 3/27/2003 Job No. 02485-3

FIGURE A-75

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



GRAVEL	SAND			SILT or CLAY
	Coarse	Medium	Fine	

Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
1	7	Dark gray clay (CH) with organic matter		161	37	124

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

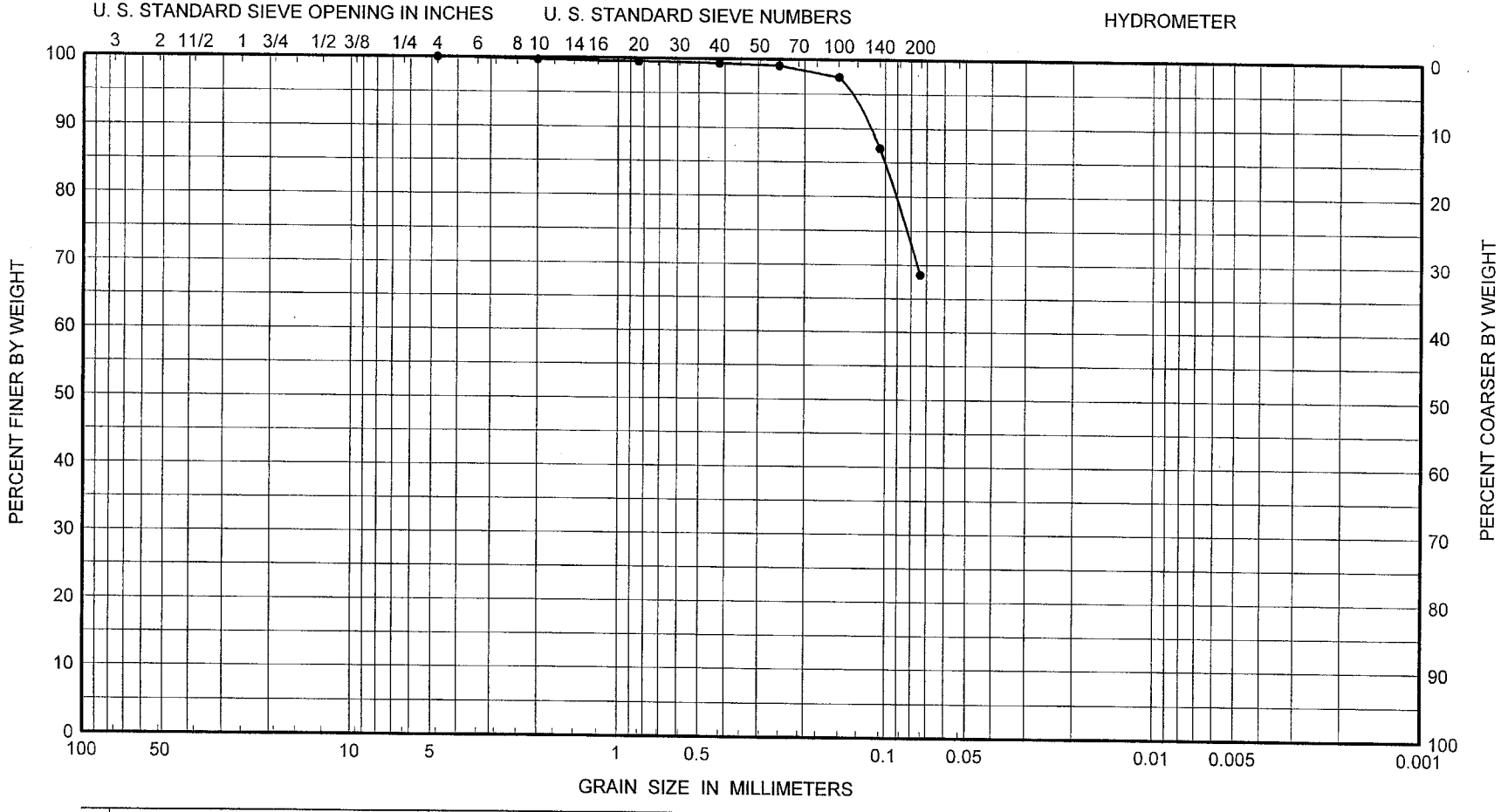
Boring No. 21

Date 3/27/2003 Job No. 02485-3

FIGURE A-76

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
11	17	Gray sandy silt (ML)				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

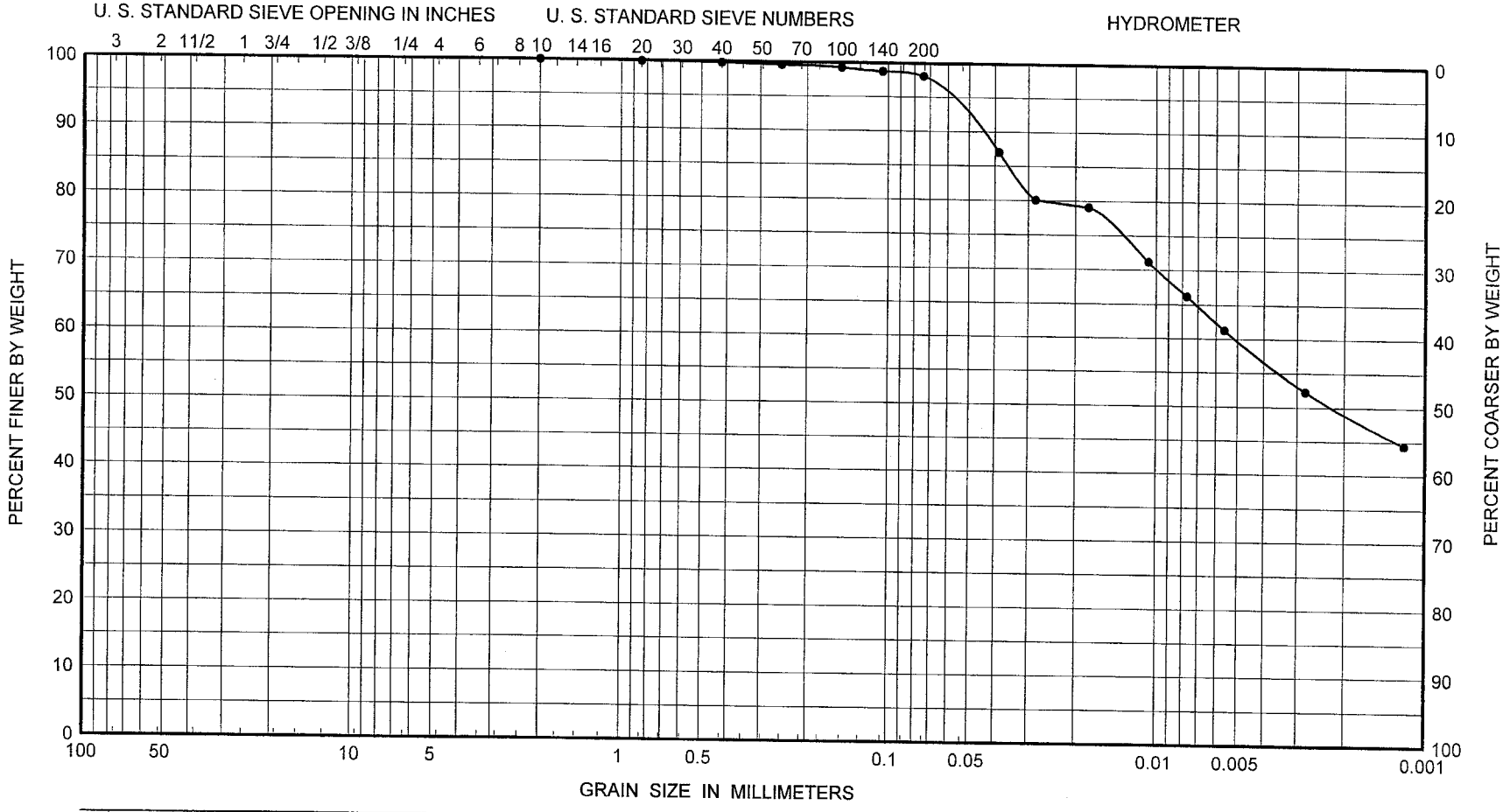
Boring No. 21

Date 3/27/2003 Job No. 02485-3

FIGURE A-77

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
1	6.8	Dark gray organic clay (OH)		93	41	52

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

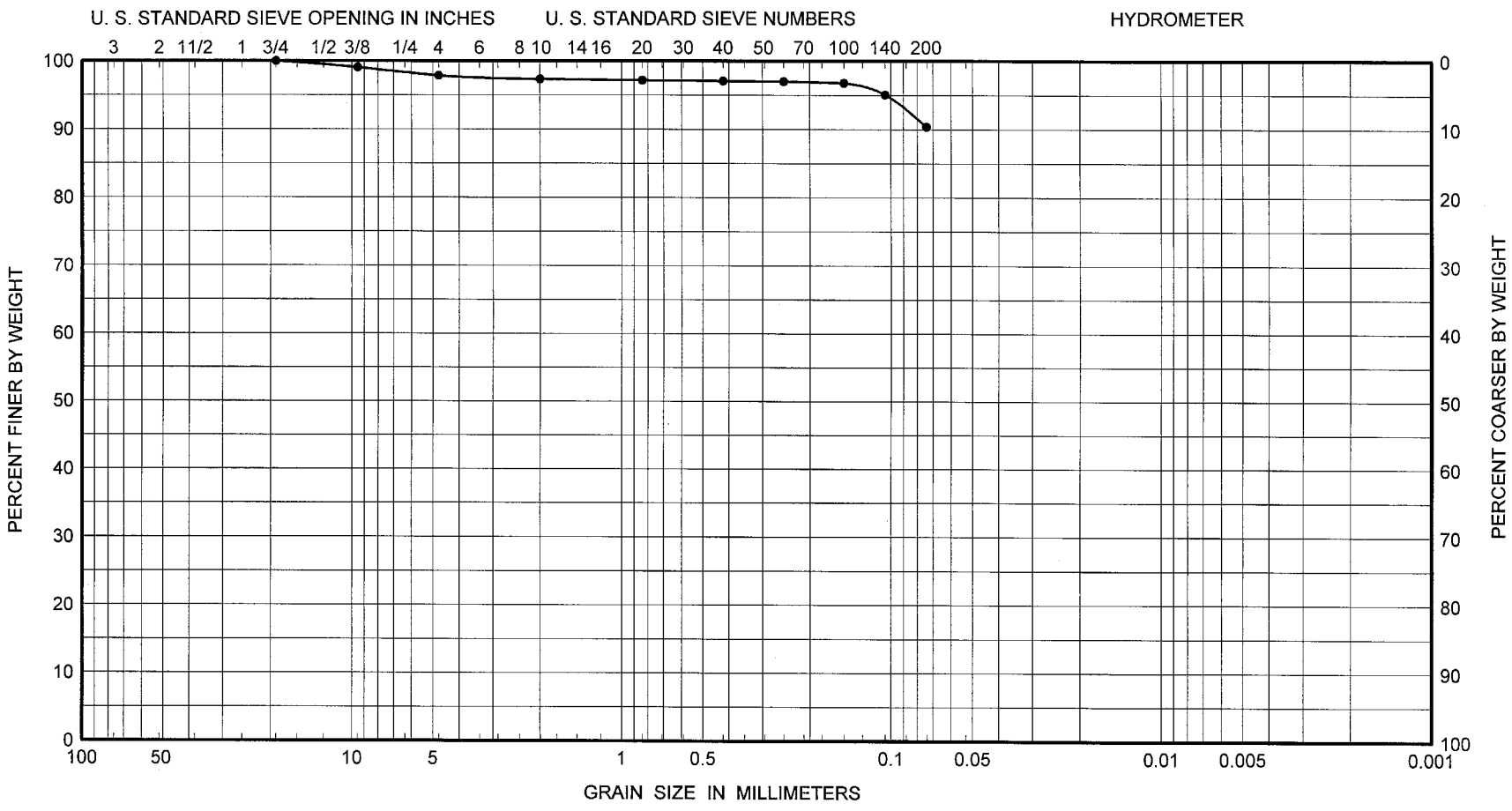
Boring No. 22

Date 3/27/2003 Job No. 02485-3

FIGURE A-78

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
8	16.9	Gray silt (ML), slightly sandy, with trace of shell fragments				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

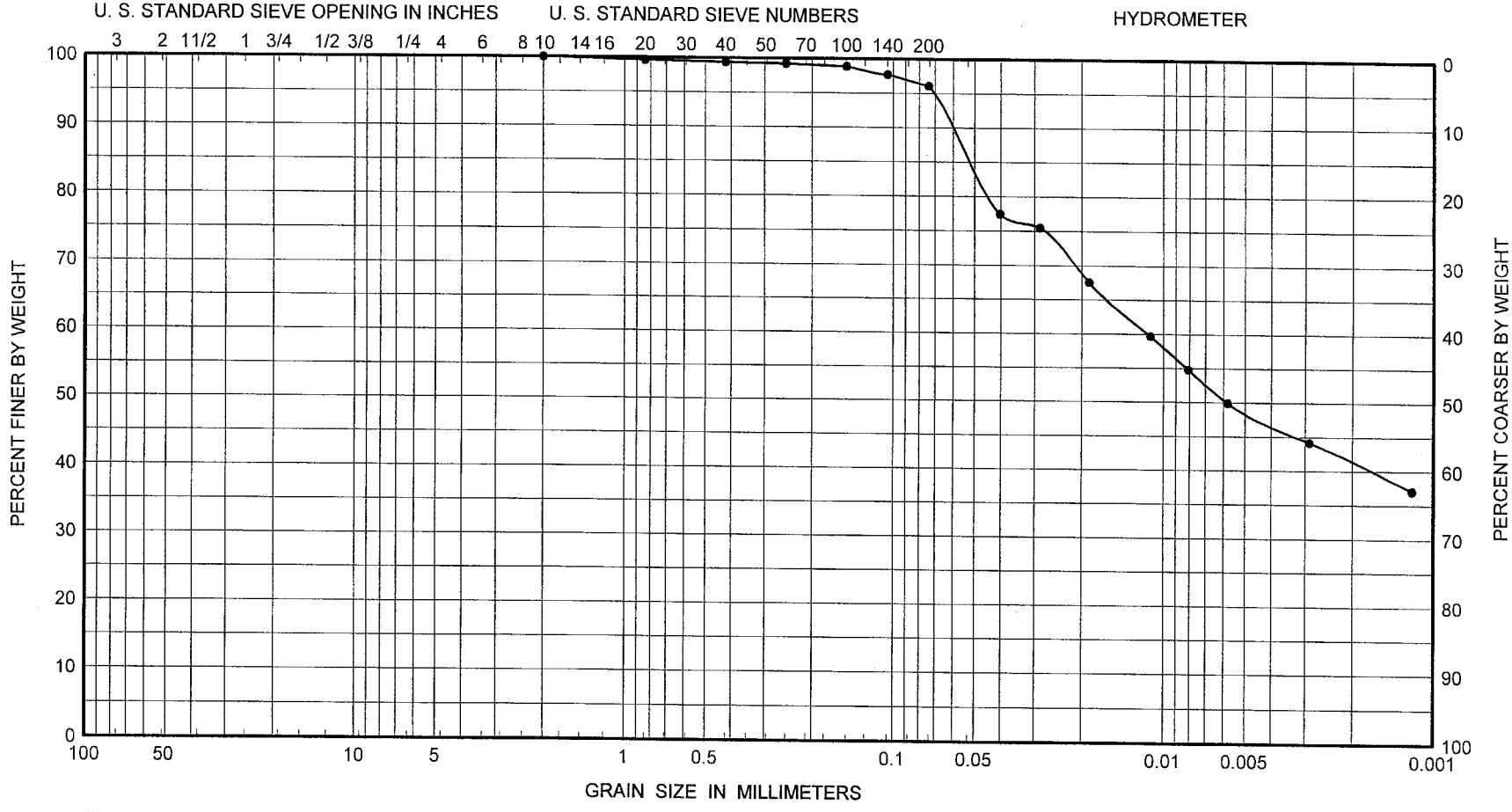
Boring No. 22

Date 3/27/2003 Job No. 02485-3

FIGURE A-79

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
1	7.1	Gray clay (CH) with organic matter	198.7	153	56	97

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

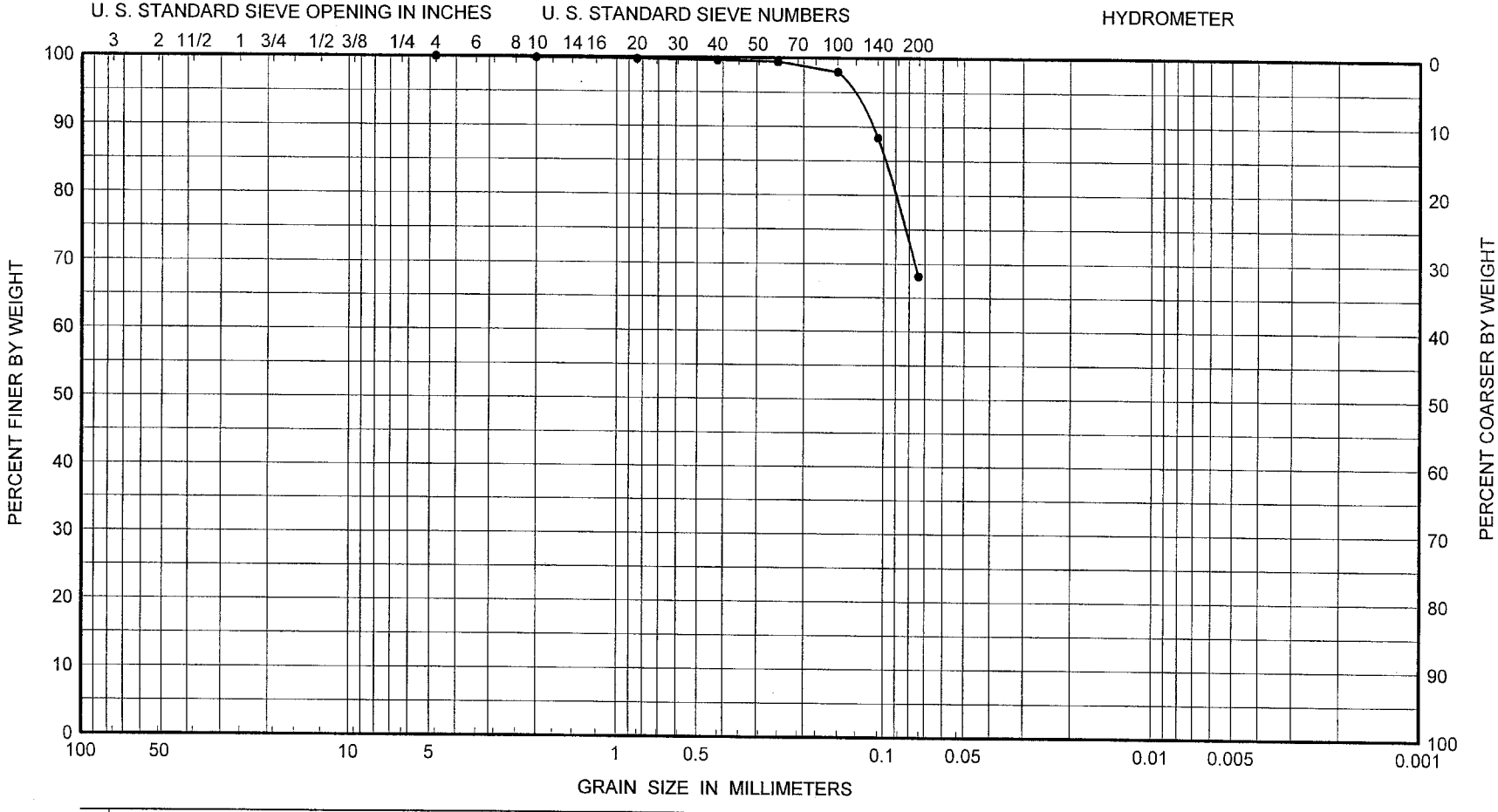
Boring No. 33

Date 3/26/2003 Job No. 02485-3

FIGURE A-80

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
9	15	Gray sandy silt (ML)				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

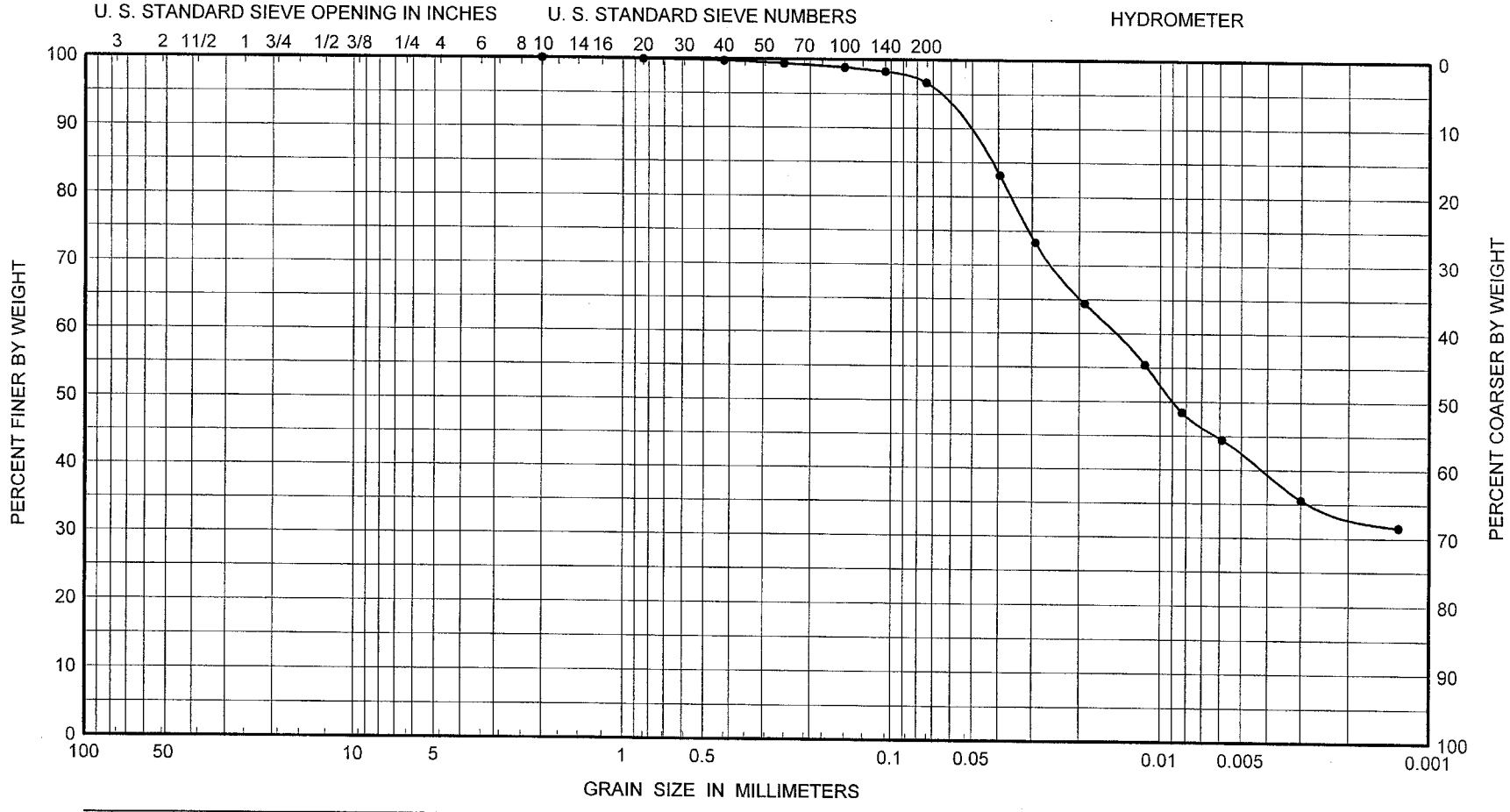
Boring No. 33

Date 3/26/2003 Job No. 02485-3

FIGURE A-81

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
3	12.5	Brown and black silty clay (CL) with organic matter				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

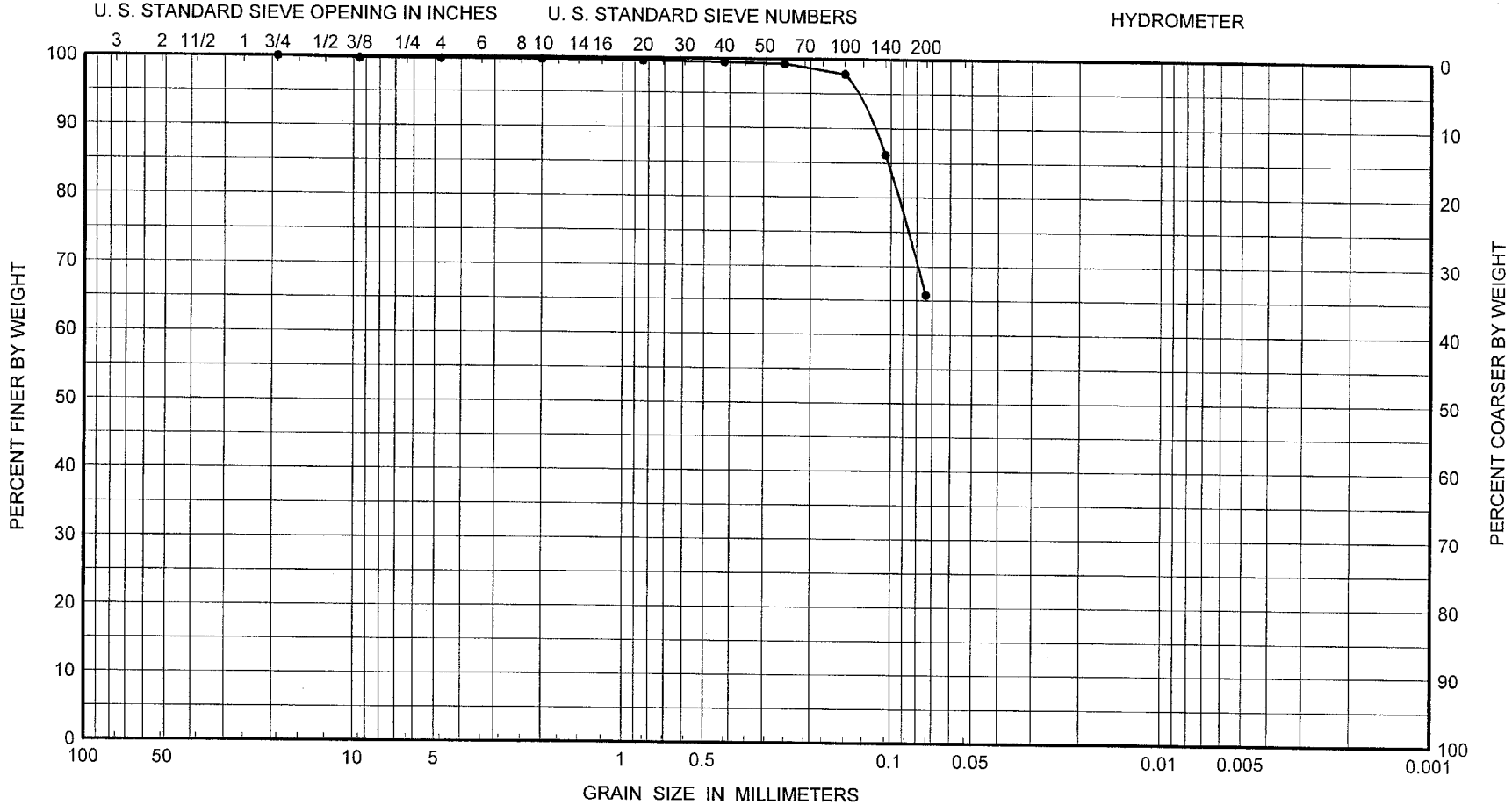
Boring No. 34

Date 3/26/2003 Job No. 02485-3

FIGURE A-82

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
6	16	Gray sandy silt (ML), slightly clayey, with trace of shell fragments				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

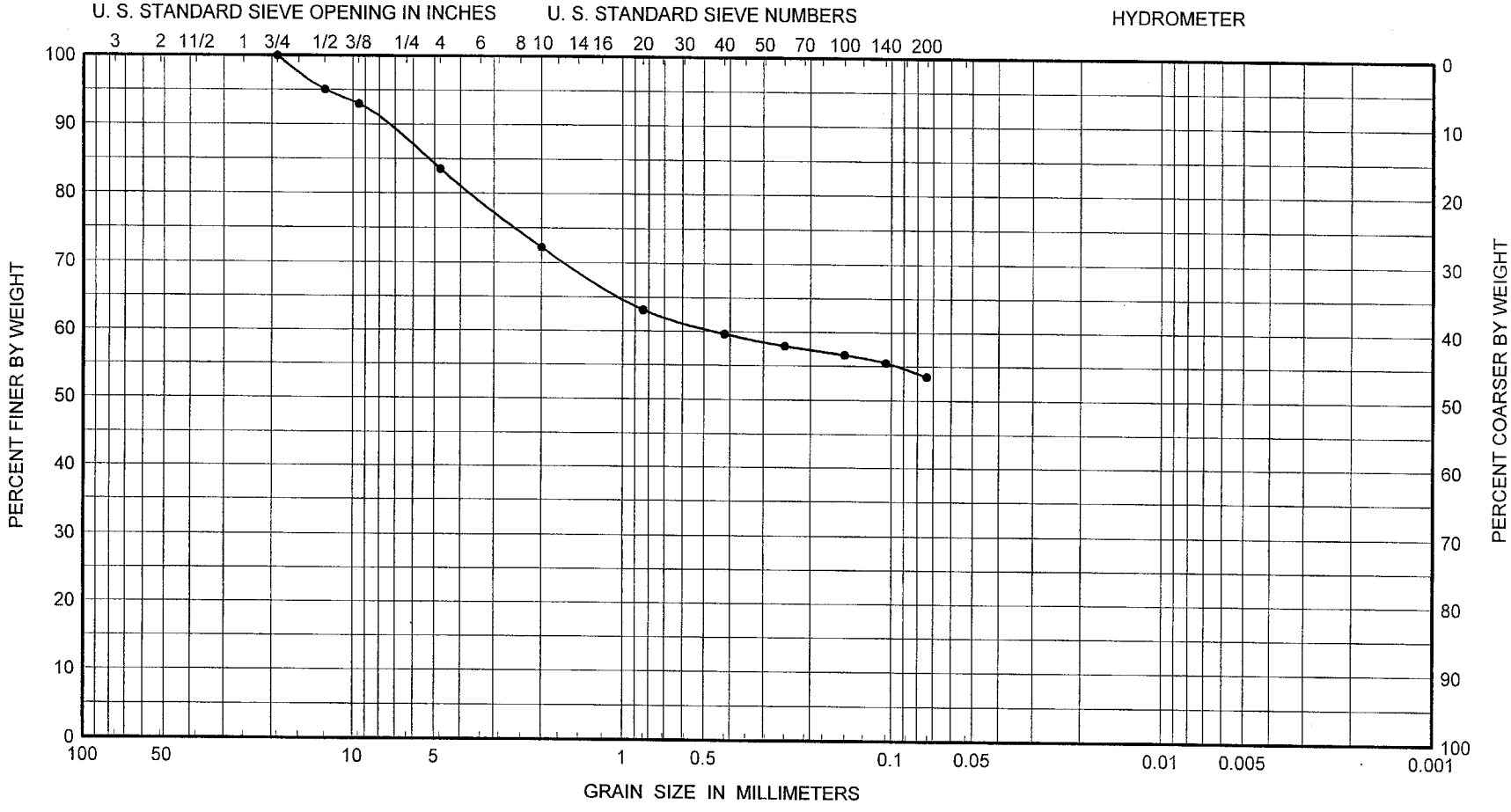
Boring No. 34

Date 3/26/2003 Job No. 02485-3

FIGURE A-83

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
13	23.5	Gray sandy silt (ML), slightly clayey, with shell fragments				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

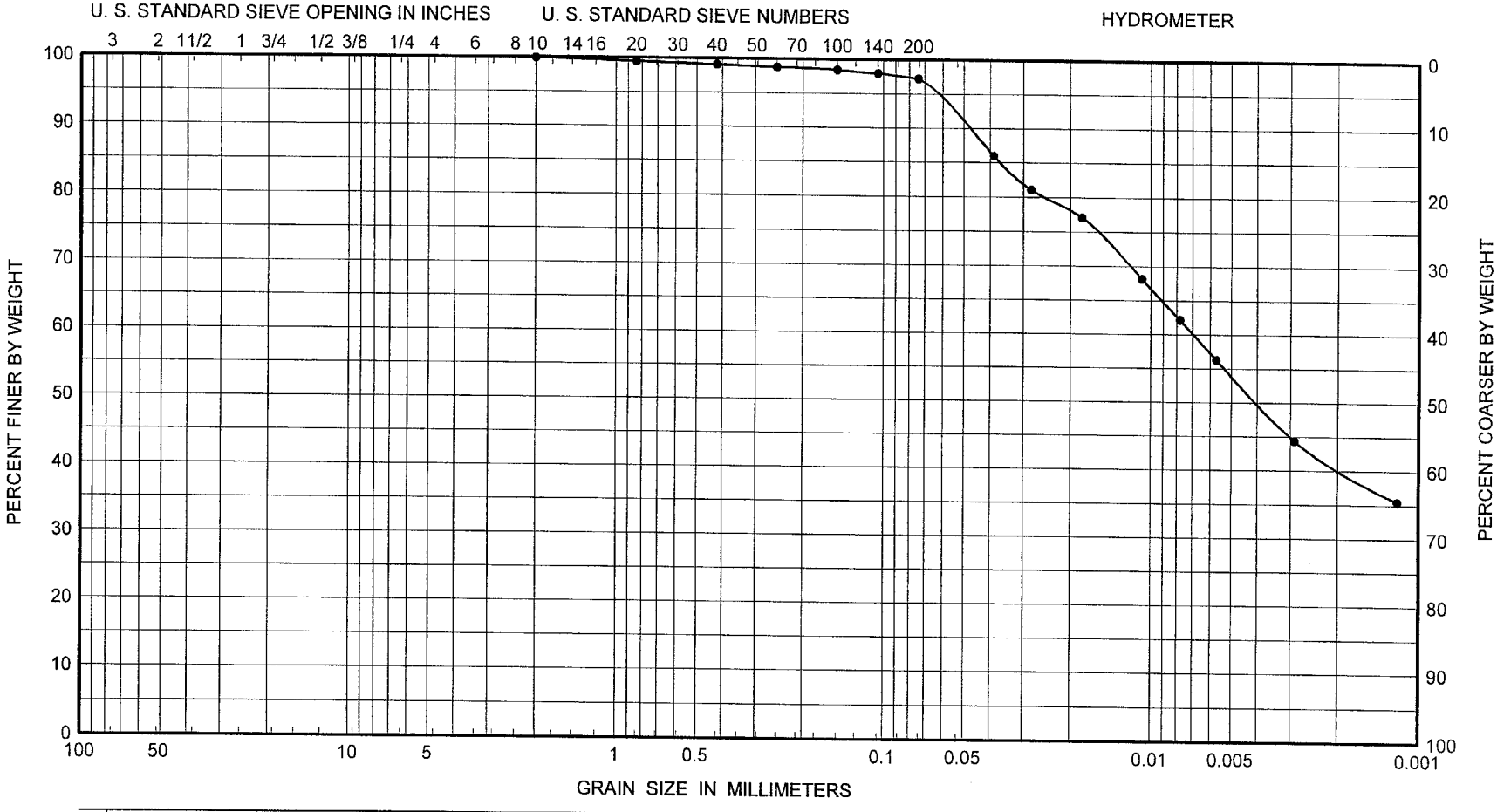
Boring No. 35

Date 3/27/2003 Job No. 02485-3

FIGURE A-84

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
1	7.3	Black and dark gray silty clay (CL)				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

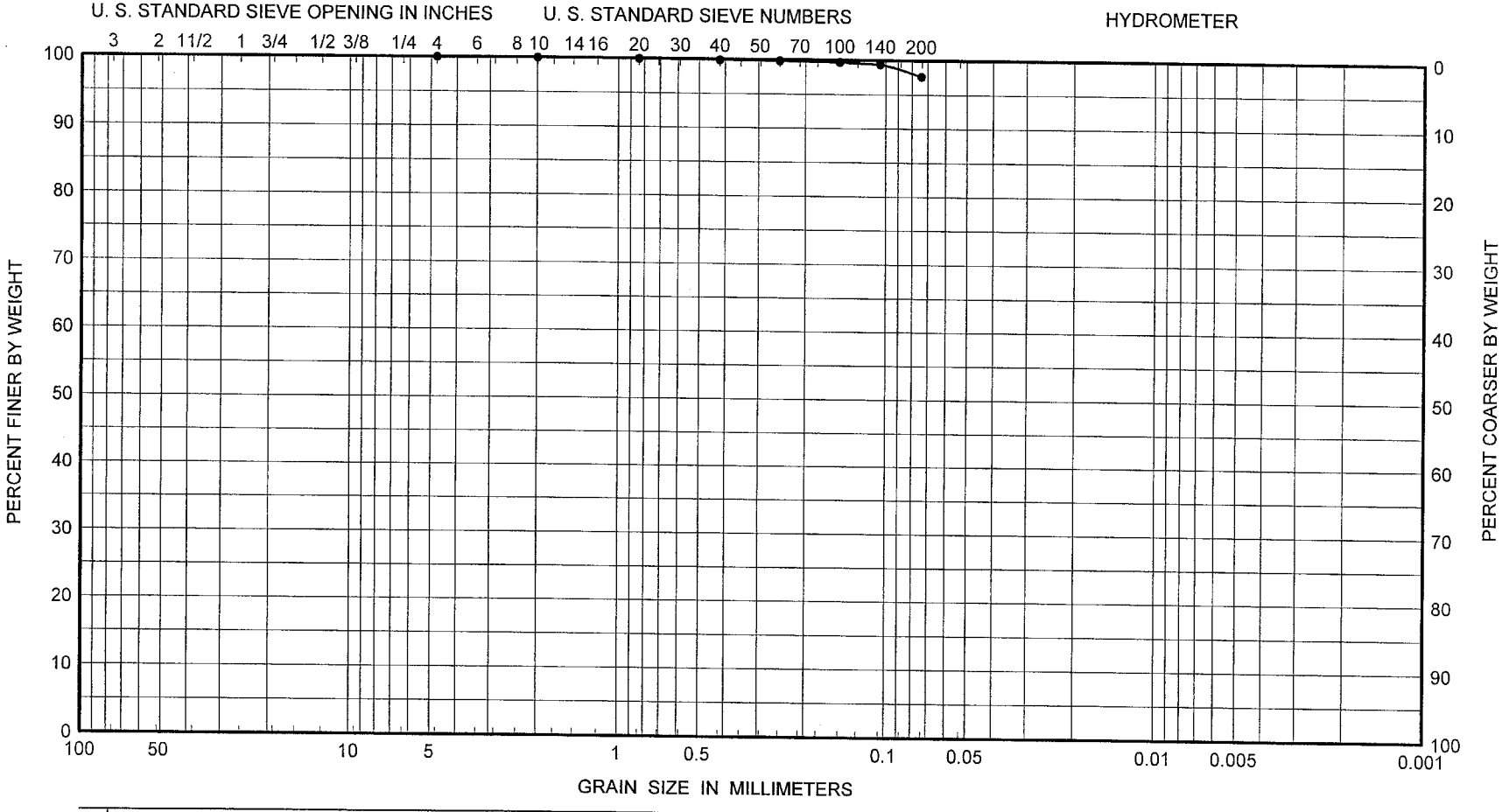
Boring No. 36

Date 3/27/2003 Job No. 02485-3

FIGURE A-85

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
12	17.3	Dark gray clay (CH), slightly silty, with shell fragments				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

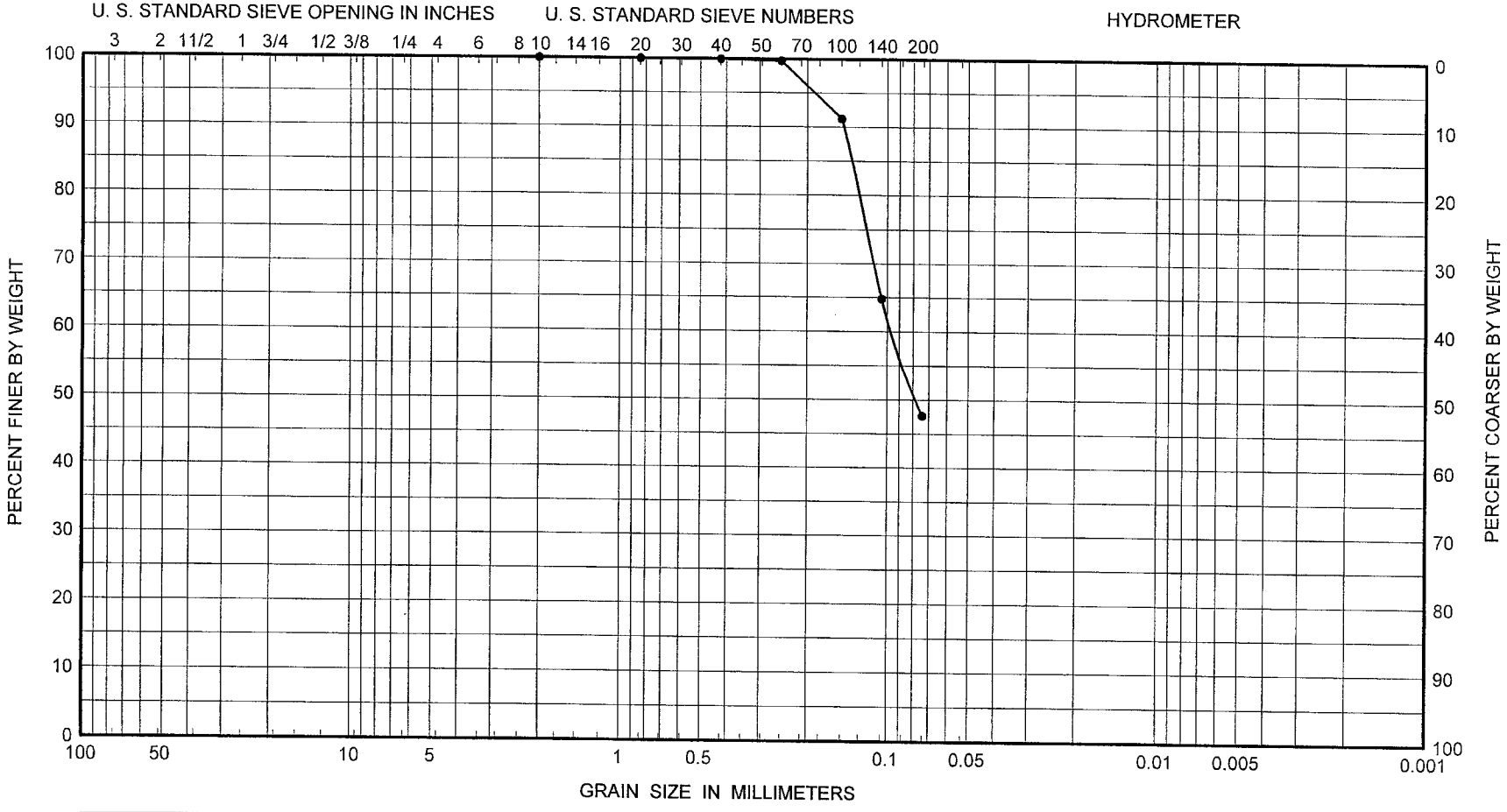
Boring No. A

Date 3/17/2003 Job No. 02485-3

FIGURE A-86

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
11	13.2	Gray silty fine sand (SM), slightly clayey				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

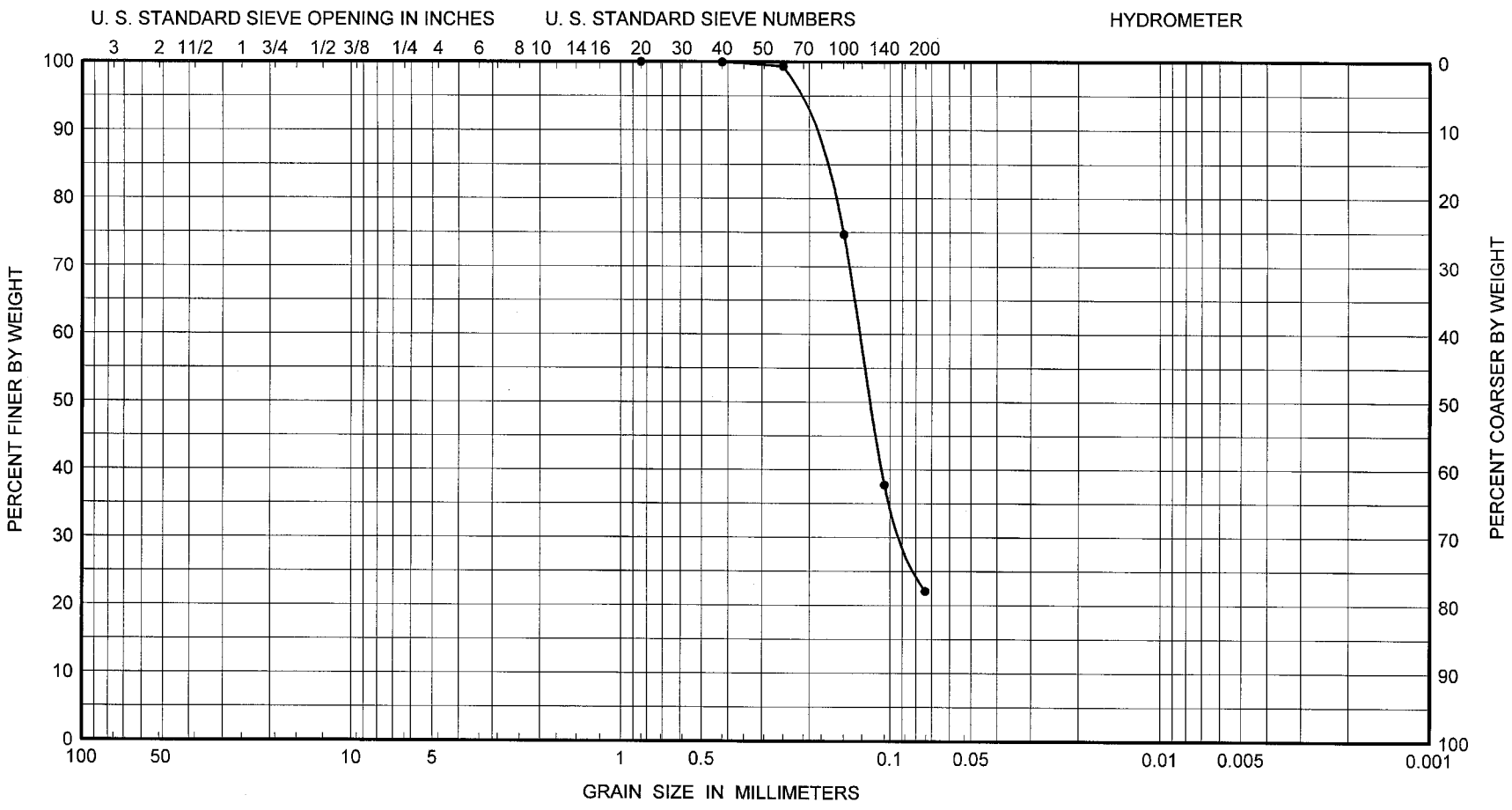
Boring No. E

Date 3/24/2003 Job No. 02485-3

FIGURE A-87

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
15	21.2	Gray silty fine sand (SM), slightly clayey				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

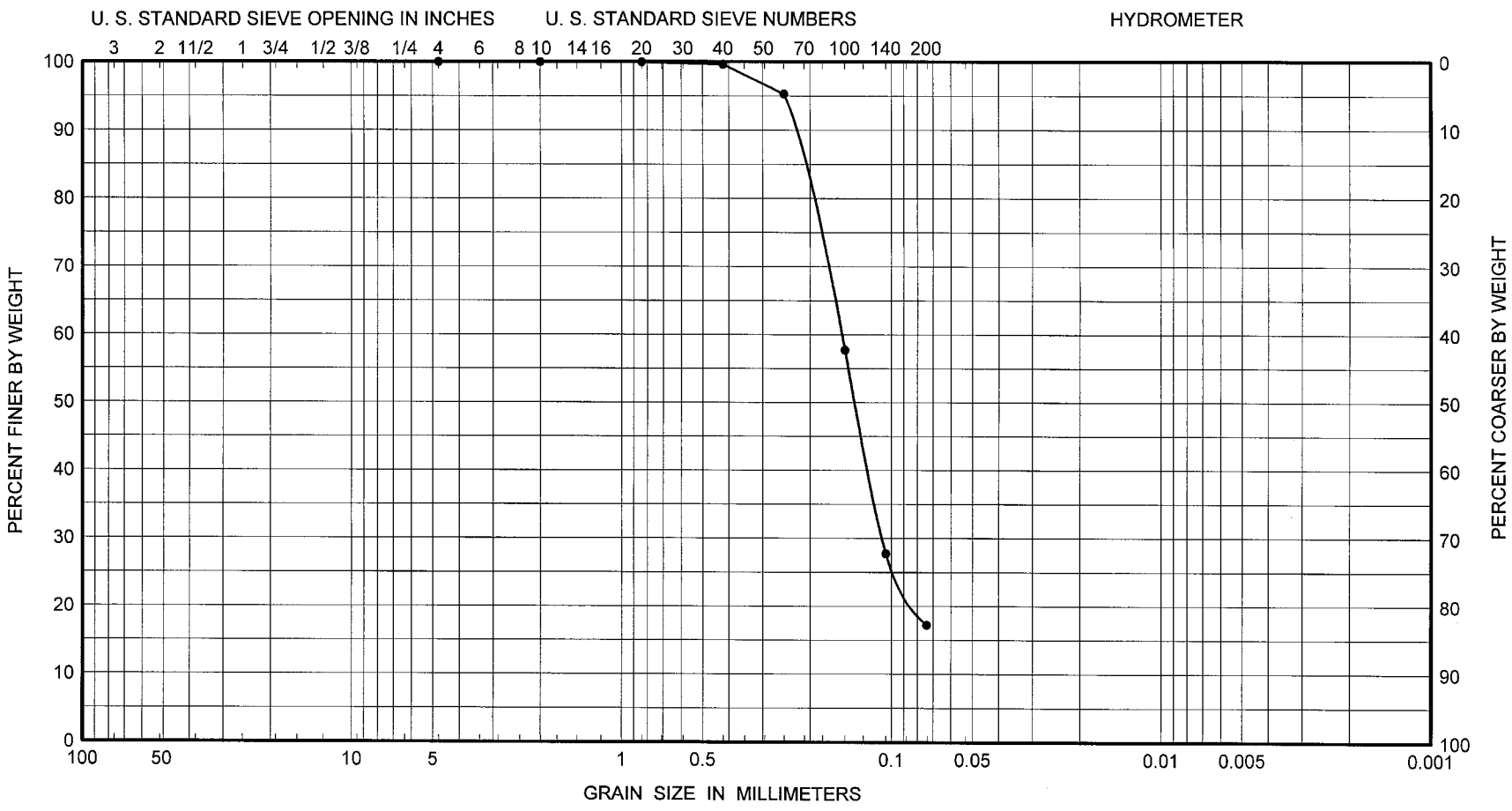
Boring No. E

Date 3/24/2003 Job No. 02485-3

FIGURE A-88

BURNS COOLEY DENNIS, INC.

GRAIN SIZE CURVES



Sample No.	Depth, Ft.	Classification	Nat W%	LL	PL	PI
16	27	Gray silty fine sand (SM), slightly clayey				

Project WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

Boring No. E

Date 3/24/2003 Job No. 02485-3

FIGURE A-89

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
1	1	3.3	Very soft gray clay (CH) with organic matter					133	28	105	2.60	132.10								
	3	5.25	Very soft gray clay (CH) with organic matter								2.60							0.074		
	3	6	Very soft gray clay (CH) with organic matter					120	29	91	2.60	64.16	60.7	99.6	1.675	UU	3.7			0.120
	5	7.25	Very soft gray clay (CH) with organic matter								2.60							0.148		
	5	7.75	Very soft gray clay (CH) with organic matter				C	183	31	152	2.60	301.80	17.5							
	5	8.25	Very soft gray clay (CH) with organic matter								2.60	149.01	30.5	89.8	4.315	UU	5.5			0.075
	7	9.25	Very soft gray clay (CH) with organic matter								2.60							0.222		
	8	10.8	Very soft gray clay (CH) with organic matter								2.60	150.10								
	9	12.25	Medium dense gray silty fine sand (SM)					Non-Plastic			2.66	25.73	99.6	102.7	0.667	UU	7.8			0.914
	11	13.5	Medium dense gray silty fine sand (SM) with clay layer					Non-Plastic			2.66	25.73							0.089	
	11	14.6	Medium dense gray silty fine sand (SM)		55.4	44.6					2.66									
	13	15.5	Loose to medium dense gray silt (ML), slightly sandy, with alternating clay seams		13.6	86.4					2.66									
	15	18.5	Loose to medium dense gray silt (ML), slightly sandy, with alternating clay seams					Non- Plastic			2.66	53.69	68.9	101.3	1.410	UC				0.220
	17	20.75	Very soft gray clay (CH), slightly silty, with shell fragments					55	20	35	2.72	65.72	62.5	104.0	1.718	UC				0.082
	19	22.25	Soft gray clay (CH), slickensided and slightly silty, with shell fragments								2.72	85.91	52.0	103.1	2.267	UC				0.284
	19	22.75	Soft gray clay (CH), slickensided and slightly silty, with shell fragments				C	105	29	76	2.72									
	22	27.6	Soft gray clay (CH), slightly silty, with shell fragments								2.72	85.77							0.119	
	23	32.75	Very soft gray clay (CH), slightly silty, with organic matter, fine sand seams and pockets					90	26	64	2.72	76.69	53.8	98.8	2.018	UC				0.115
2	1	5	Very soft gray clay (CH) with organic matter					164	34	130	2.60	131.70								
	3	6.25	Very soft gray clay (CH) with organic matter								2.60							0.046		
	3	6.75	Very soft gray clay (CH) with organic matter				C	156	34	122	2.60	162.10	30.4							
	3	7.25	Very soft gray clay (CH) with organic matter								2.60	119.51	35.2	85.9	3.616	UU	3.7			0.104

Figure A-90

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
2	5	8.25	Very soft gray clay (CH) with organic matter								2.60							0.102		
	5	9.5	Very soft gray clay (CH) with organic matter					54	25	29	2.60	121.58	35.3	87.9	3.596	UU	5.1			0.098
	7	10.25	Very soft gray clay (CH) with organic matter								2.60							0.083		
	7	11	Loose dark gray silt (ML) with clay seams and sand					Non-Plastic			2.66	34.15	82.7	90.2	1.008	UU	6.2			0.324
	9	12.6	Loose dark gray silt (ML) with clay seams and sand								2.66	106.20								
	9	13.7	Loose dark gray silt (ML) with clay seams and sand		23.6	76.4					2.66									
	11	14.8	Loose dark gray silt (ML), slightly sandy, with clay seams		10.5	89.5					2.66									
	13	16.5	Loose dark gray sandy silt (ML) with clay seams					Non-Plastic			2.66	40.20	77.9	94.4	1.133	UU	10.4			0.295
	15	18.2	Loose dark gray sandy silt (ML) with clay seams								2.66	47.00								
	17	20.25	Loose dark gray sandy silt (ML) with clay seams and clayey peat layer					50	24	26	2.66	80.20								
	19	22.75	Very soft gray clay (CH) with silt pockets				C	89	22	67	2.72	86.60	49.7							
	19	23.25	Very soft gray clay (CH) with silt pockets								2.72	73.37	57.2	101.3	1.969	UC				0.222
	21	28	Soft gray clay (CH), slightly silty, with trace of shell fragments					93	29	64	2.72	82.47	53.8	104.1	2.154	UC				0.257
	23	33.8	Soft gray clay (CH) with silt pockets								2.72	88.89							0.073	
3	1	2	Very soft gray clay (CH) with organic matter				C	123	33	90	2.60	89.50	48.1							
	1	2.5	Very soft gray clay (CH) with organic matter								2.60	78.74	54.7	103.9	1.970	UU	2.0			0.166
	2	3.25	Very soft gray clay (CH) with organic matter								2.60							0.083		
	2	4.3	Very soft gray clay (CH) with organic matter								2.60	93.10								
	3	5.25	Very soft gray clay (CH), blocky								2.72							0.102		
	3	6.5	Very soft gray clay (CH), blocky					112	32	80	2.72	60.08	60.7	91.0	1.796	UC				0.231
	4	7.25	Very soft gray clay (CH), blocky								2.72							0.139		
	4	8.5	Very soft gray clay (CH), blocky								2.72	59.00	65.9	101.7	1.578	UC				0.171

Figure A-90(continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
3	5	10.5	Very soft gray clay (CH), blocky, with organic matter					89	28	61	2.60	55.92	65.0	97.2	1.496	UU	8.0			0.193
	6	12.25	Soft gray clay (CH) with organic matter								2.60	118.22	42.7	109.7	2.802	UU	9.5			0.350
	7	14.5	Loose to medium dense gray silt (ML) with clay pockets and sand		17.5	82.5					2.66									
	8	20.5	Loose to medium dense gray silt (ML) with clay pockets, sand and trace of shell		20.1	79.9					2.66									
	9	26	Loose to medium dense gray sandy silt (ML) with shell fragments		42.1	57.9					2.66									
	10	30.5	Soft dark gray clay (CH) with silt pockets					67	21	46	2.72	44.95	76.4	100.0	1.223	UC				0.372
4	1	3	Very soft gray clay (CH) with organic matter				C	132	33	99	2.60	119.80	39.2							
	1	3.5	Very soft gray clay (CH) with organic matter								2.60	136.15	36.1	101.3	3.493	UU	2.0			0.132
	2	4.25	Very soft gray clay (CH) with organic matter								2.60							0.046		
	2	5.5	Very soft gray clay (CH) with organic matter								2.60	110.96	40.7	96.6	2.988	UC				0.100
	3	6.25	Very soft gray clay (CH) with organic matter								2.60							0.148		
	3	7.25	Very soft gray clay (CH) with organic matter					149	33	116	2.60	96.43	44.8	95.6	2.621	UU	4.7			0.076
	4	8.25	Very soft gray clay (CH) with organic matter								2.60							0.120		
	4	9.25	Very soft gray clay (CH) with organic matter								2.60	117.18	39.4	97.6	3.123	UC				0.079
	5	11.5	Very soft gray clay (CH) with organic matter					203	48	155	2.60	118.43	38.4	95.3	2.321	UU	8.0			0.108
	6	13	Very soft gray clay (CH) with organic matter					123	39	84	2.60	96.87	46.5	101.0	2.494	UC				0.077
	7	15.5	Very soft gray clay (CH) with organic matter								2.60	179.19	29.0	101.1	4.607	UC				0.107
	8	19.2	Loose to medium dense gray clayey silt (ML)		4.9	95.1					2.66									
	9	21.8	Loose to medium dense gray clayey silt (ML)		3.8	96.2					2.66									
	10	26	Soft gray clay (CH) with sand pockets, shell fragments and mica					67	22	45	2.72	54.76	70.2	105.0	1.419	UU	18.6			0.283
	11	30.75	Soft gray clay (CH), slickensided, with shell fragments				C	106	29	77	2.72	86.00	50.6							
	11	31.25	Soft gray clay (CH), slickensided, with shell fragments								2.72	87.29	52.0	104.8	2.266	UU	22.8			0.470

Figure A-90(continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
5	1	2.7	Soft gray clay (CH), blocky					101	26	75	2.72	60.30							0.451	
	2	3.25	Soft gray clay (CH), blocky								2.72							0.185		
	2	3.75	Soft gray clay (CH), blocky				C	84	24	60	2.72	61.50	62.5							
	2	4.5	Soft gray clay (CH), blocky								2.72	37.06	81.9	94.0	1.073	UC				0.337
	3	5.25	Soft gray clay (CH), blocky								2.72							0.148		
	3	6.5	Medium stiff gray clay (CH), blocky					84	28	56	2.72	43.07	78.7	101.2	1.158	UC				0.556
	4	7.25	Soft gray clay (CH) blocky, with wood								2.72							0.222		
	4	8	Soft gray clay (CH), blocky, with wood					78	24	54	2.72	47.18	61.8	73.4	1.749	UU	5.9			0.262
	5	10.75	Soft gray clay (CH), blocky, with wood					60	29	31	2.72	44.68							0.409	
	6	12.25	Medium stiff gray clay (CH), blocky, with silty fine sand pockets and seams, organic matter and wood					62	30	32	2.60	43.17	80.7	110.9	1.012	UU	8.4			0.525
	7	13.25	Medium stiff gray clay (CH), blocky, with silty fine sand pockets and seams, organic matter and wood					57	30	27	2.60									
	7	14	Medium dense dark gray silt (ML) with organic matter and mica								2.66	34.52	88.3	104.3	0.880	UU	9.8			0.681
	7	14.4	Medium dense dark gray silt (ML) with organic matter and mica		3.9	96.1					2.66									
	8	16.1	Medium dense dark gray silty fine sand (SM)		54.2	45.8					2.66									
6	3	5.25	Very soft gray clay (CH) with organic matter								2.60							0.111		
	3	6.25	Very soft gray clay (CH) with organic matter					161	53	108	2.60	80.84	51.7	98.3	2.138	UU	3.2			0.137
	3	6.75	Very soft gray clay (CH) with organic matter								2.60	123.40								
	5	7.25	Very soft gray clay (CH) with organic matter								2.60							0.167		
	5	8.5	Very soft gray clay (CH) with organic matter								2.60	95.10	47.1	104.3	2.620	UC				0.194
	5	8.75	Very soft gray clay (CH) with organic matter				C	101	31	70	2.60	128.10	46.5							
	6	9	Soft gray clay (CH) with organic matter								2.60	128.10								

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
6	7	9.25	Soft gray clay (CH) with organic matter								2.60							0.139		
	7	9.75	Soft gray clay (CH) with organic matter								2.60	80.08							0.345	
	7	10	Soft gray clay (CH) with organic matter		31.0	69.0					2.60									
	10	12.2	Very loose gray silty fine sand (SM)		55.3	44.7					2.66									
	11	13.8	Very loose gray sandy silt (ML)		34.6	65.4					2.66									
	12	15.5	Very loose gray silt (ML), slightly sandy		6.6	93.4					2.66									
	14	18	Very loose gray silt (ML) with sand		29.7	70.3					2.66									
	15	18.5	Very soft gray clay (CH) with shell fragments								2.72	39.40								
	16	19.4	Very soft gray clay (CH) with shell fragments					86	23	63	2.72	40.70								
	16	19.5	Very soft gray clay (CH) with shell fragments								2.72	45.60								
	18	21.5	Very soft gray clay (CH) with shell fragments					74	23	51	2.72	55.90								
	19	26.5	Very soft gray clay (CH) with shell fragments					68	21	47	2.72	48.61	69.1	90.8	1.457	UU	14.2			0.086
	19	26.75	Very soft gray clay (CH) with shell fragments								2.72	63.50								
7	1	5.5	Very soft gray clay (CH), blocky, with trace of organic matter					103	27	76	2.65	47.99	66.6	85.6	1.485	UU	3.0			0.233
	3	6.25	Very soft gray clay (CH), blocky, with trace of organic matter								2.65							0.120		
	3	7.25	Very soft gray clay (CH), blocky, with trace of organic matter								2.65	73.80	56.4	101.1	1.934	UC				0.242
	3	7.75	Very soft gray clay (CH), blocky, with trace of organic matter				C	138	35	103	2.65	75.60	54.9							
	5	8.25	Very soft gray clay (CH), blocky, with trace of organic matter								2.65							0.102		
	5	8.8	Very soft gray clay (CH), blocky, with trace of organic matter					83	27	56	2.65	58.70								
	7	10.25	Very soft gray clay (CH) with silt partings and mica								2.72							0.130		
	7	11.25	Very soft gray clay (CH) with silt partings and mica								2.72	75.26	61.9	117.5	1.742	UU	5.9			0.200
	9	13	Very loose gray silt (ML), slightly sandy					29	26	3	2.66	42.20								

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
7	10	14.75	Very soft gray clay (CH) with shells								2.72	46.40								
	12	18.3	Very soft gray clay (CH) with shells								2.72	76.90								
	15	28	Very soft gray clay (CH), slightly silty					55	20	35	2.72	71.40								
	16	33.5	Soft gray clay (CH), slightly silty, with organic pockets					127	39	88	2.72	94.20	48.5	102.4	2.503	UC				0.336
	16	33.75	Soft gray clay (CH), slightly silty, with organic pockets								2.72	82.60								
8	1	2.5	Soft gray clay (CH), blocky					66	22	44	2.72	54.52	68.1	99.2	1.495	UC				0.338
	2	3.25	Soft gray clay (CH), blocky								2.72							0.130		
	2	3.75	Soft gray clay (CH), blocky				C	104	31	73	2.72	65.20	59.8							
	2	4.5	Soft gray clay (CH), blocky, slightly silty, with limonite stains								2.72	38.10	81.2	95.0	1.091	UU	3.2			0.435
	3	5.25	Very soft gray clay (CH), blocky, slightly silty, with limonite stains								2.72							0.231		
	3	5.5	Very soft gray clay (CH), blocky, slightly silty, with limonite stains					50	27	23	2.72	42.67	73.6	88.9	1.306	UC				0.159
	3	6.5	Very soft gray silty clay (CL) with organic matter		3.2	96.8					2.60									
	7	7.25	Very soft gray silty clay (CL) with organic matter								2.60							0.194		
	4	7.5	Very soft gray silty clay (CL) with organic matter								2.60	35.34	104.5	165.9	0.554	UC				0.127
	4	8.7	Soft gray clay (CH) with silt pockets and organic matter					42	23	19	2.60									
	5	9	Soft gray clay (CH) with silt pockets and organic matter		2.7	97.3					2.60									
	5	9.5	Soft gray clay (CH) with silt pockets and organic matter					100	31	69	2.60	41.35	81.5	108.3	0.993	UU	7.6			0.277
	6	12.75	Loose gray silt (ML) with silty clay seams and mica		1.4	98.6					2.66	39.00								
	7	14.75	Loose gray silt (ML) with silty clay seams and mica					37	26	11	2.66	33.85	85.3	95.1	0.947	UU	10.6			0.398
	8	16.75	Loose gray silt (ML) with silty clay seams and mica								2.66	34.11	84.5	93.9	0.966	UU	12.1			0.316
	9	17.75	Loose gray silt (ML), slightly sandy, with silty clay seams and mica					42	27	15	2.66	38.03	97.7	144.7	0.699	UU	13.6			0.107
	9	18.3	Loose gray silt (ML), slightly sandy, with silty clay seams and mica		5.6	94.4					2.66									

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
8	10	20	Loose gray silt (ML) with silty clay seams and mica					Non-Plastic			2.66	38.83	86.0	110.9	0.931	UU	15			0.253
	10	20.4	Loose gray silt (ML) with silty clay seams, sand seams and mica		1.5	98.5					2.66									
	11	25.1	Loose gray silt (ML) with silty clay seams, sand seams and mica		25.6	74.4					2.66									
	12	30.2	Loose gray silty fine sand (SM) with clay seams and trace of organic matter		60.0	40.0					2.66									
9	1	1.2	Soft gray clay (CH) with organic pockets					343	109	234	2.65	380.90								
	2	2.25	Soft gray clay (CH) with organic pockets								2.65							0.130		
	2	3	Soft gray clay (CH) with trace of organic matter				C	92	30	62	2.65	54.10	68.9							
	2	3.5	Soft gray clay (CH) with trace of organic matter								2.65	59.12	66.4	105.1	1.490	UU	2.2			0.369
	3	4.25	Soft gray clay (CH) with trace of organic matter								2.65							0.204		
	3	5.5	Medium stiff gray clay (CH) with limonite stains					108	31	77	2.72	43.21	74.6	92.2	1.275	UU	3.5			0.505
	4	6.25	Medium stiff gray clay (CH) with limonite stains								2.72							0.185		
	4	7.5	Medium stiff gray clay (CH) with limonite stains					90	25	65	2.72	47.40	70.0	90.5	1.425	UC				0.297
	5	9.5	Very soft gray clay (CH) with organic matter					78	27	51	2.60	39.43	76.7	91.8	1.116	UC				0.231
	6	11.5	Very soft gray clay (CH) with silt pockets					83	27	56	2.72	45.93	73.5	95.3	1.311	UC				0.227
	7	14	Loose to medium dense gray sandy silt (ML)		49.8	50.2					2.66									
	8	20	Loose to medium dense dark gray silty fine sand (SM)		53.4	46.6					2.66									
	9	24.2	Loose to medium dense gray silt (ML), slightly sandy, with trace of shell fragments		6.5	93.5					2.66									
	10	28.75	Soft gray clay (CH) with trace of organic matter and shell fragments				C	78	25	53	2.65	42.30	77.2							
	10	29.5	Soft gray clay (CH) with trace of organic matter and shell fragments								2.65	46.48	70.8	92.2	1.336	UC				0.484
10	1	4.75	Soft gray clay (CH), slickensided, with organic matter					92	32	60	2.60	49.11	72.0	101.7	1.256	UU	2.0			0.389
	3	6.25	Soft gray clay (CH), slickensided, with organic matter								2.60							0.102		
	3	6.75	Soft gray clay (CH), slickensided, with organic matter				C	78	26	52	2.60	38.00	81.8							

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
10	3	7.25	Medium stiff dark gray clay (CH), blocky								2.72	44.26	76.7	99.2	1.213	UC				0.542
	5	8.25	Very soft gray clay (CH) with silt pockets and organic matter								2.60							0.194		
	5	8.5	Very soft gray clay (CH) with silt pockets and organic matter								2.60	55.04	65.7	97.4	1.469	UU	2.5			0.176
	7	10.25	Very soft gray clay (CH) with silt pockets and organic matter								2.60							0.241		
	7	11	Soft gray clay (CH), slickensided					80	26	54	2.72	52.51	70.6	101.8	1.403	UC				0.396
	9	13.25	Soft gray sandy clay (CL)								2.70	38.60	83.3	101.8	1.024	UU	7.5			0.399
	11	14.25	Soft gray clay (CH) with silty clay seams								2.72	45.12	74.6	96.1	1.276	UC				0.355
	12	15.25	Loose gray silt (ML), slightly clayey					32	28	4	2.66	35.40								
	13	17.3	Very soft gray silty clay (CL) with silty fine sand seams		10.9	89.1					2.68									
	15	18.75	Very soft gray silty clay (CL) with silty fine sand seams								2.68	40.65	81.5	103.5	1.053	UU	12.4			0.152
	17	21	Medium dense gray silty fine sand (SM), slightly clayey		80.5	19.5					2.66									
	18	23.2	Medium dense gray silty fine sand (SM), slightly clayey		80.5	19.5					2.66									
	19	28.25	Soft gray clay (CH)					85	29	56	2.72	36.80								
	20	33.5	Soft gray clay (CH) with trace of shell fragments					88	25	63	2.72	72.40	57.4	100.5	1.960	UC				0.326
11	1	0.75	Very soft gray clay (CH)					110	31	79	2.72	169.90								
	2	2.25	Soft gray clay (CH)								2.72							0.093		
	2	2.75	Soft gray clay (CH)				C	116	30	86	2.72	54.30	66.6							
	2	3.25	Soft gray clay (CH) with trace of organic matter								2.65	64.34	63.3	104.1	1.681	UU	2.5			0.250
	3	4.25	Soft gray clay (CH) with trace of organic matter								2.65							0.083		
	3	5.75	Soft gray clay (CH) with trace of organic matter								2.65	76.74	51.2	91.1	2.232	UC				0.312
	4	6.25	Soft gray clay (CH) with trace of organic matter								2.65							0.148		
	4	7.5	Soft gray clay (CH) with trace of organic matter								2.65	117.13	40.4	100.3	3.095	UU	4.9			0.252

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
11	5	9.75	Very soft gray and dark gray clay (CH) with trace of organic matter					135	38	97	2.65	118.21	38.9	96.2	3.256	UC				0.051
	6	11.75	Very soft gray and dark gray clay (CH) with organic clay seams and silt pockets								2.65	67.52	58.7	98.3	1.820	UC				0.150
	7	13.5	Soft gray and dark gray clay (CH), slickensided, with trace of organic matter								2.65	77.98	49.3	87.8	2.353	UC				0.294
	8	15	Very soft gray clay (CH) with organic pockets					81	28	53	2.65	77.39	53.6	98.3	2.086	UU	10.2			0.137
	8	16	Loose to medium dense gray sandy silt (ML)		48.4	51.6					2.66									
	9	18.5	Very soft gray clay (CH) with organic matter					156	33	123	2.60	78.13	55.3	104.9	1.936	UU	13.0			0.152
	9	19.8	Loose to medium dense gray silty fine sand (SM)		60.1	39.9					2.66									
	10	23.9	Loose to medium dense gray silt (ML), slightly sandy, with trace of organic matter		8.5	91.5					2.66									
	11	29.25	Soft gray clay (CH) with sandy silt pockets and shell fragments				C	87	26	61	2.72	41.90	77.0							
	11	29.5	Soft gray clay (CH) with sandy silt pockets and shell fragments								2.72	66.38	62.3	104.6	1.726	UU	21.0			0.298
12	1	4.2	Very soft gray clay (CH), slightly silty, with trace of organic matter								2.65	77.20							0.173	
	3	5.25	Very soft gray clay (CH), slightly silty, with trace of organic matter								2.65							0.204		
	3	6.25	Soft gray clay (CH), blocky				C	114	31	83	2.72	110.00	45.2							
	3	6.75	Soft gray clay (CH), blocky								2.72	87.35	50.8	101.4	2.344	UC				0.257
	5	7.25	Very soft gray clay (CH) with silt pockets and organic matter								2.60							0.185		
	5	8.25	Very soft gray clay (CH) with silt pockets and organic matter					99	25	74	2.60	92.86	48.4	102.5	2.356	UU	5.1			0.089
	7	9.25	Very soft gray clay (CH) with silt pockets and organic matter								2.60							0.222		
	7	9.5	Very soft gray clay (CH0 with silt pockets and organic matter					102	26	76	2.60	71.88	56.5	99.8	1.872	UC				0.115
	9	12.5	Soft gray clay (CH) with fine sand pockets and organic matter								2.60	52.87	67.8	98.7	1.393	UU	8.2			0.252
	10	12.9	Soft gray clay (CH) with fine sand pockets and organic matter		3.2	96.8					2.60									
	12	13.9	Loose gray silt (ML), slightly sandy		13.1	86.9		Non-Plastic			2.66									
	13	16.1	Loose gray silty fine sand (SM)		61.2	38.8					2.66									

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
12	15	20.1	Medium dense gray silty fine sand (SM)	0.2	57.3	42.7					2.66									
	16	21.75	Loose gray sandy silt (ML)		38.7	61.3					2.66									
	17	27	Very soft gray clay (CH) with shells					75	21	54	2.72									
	18	31.5	Very soft gray clay (CH) with shells					93	25	68	2.72	70.10							0.335	
13	3	5.25	Very soft black and dark gray clay (CH) with organic matter								2.60							0.111		
	3	5.7	Very soft black and dark gray clay (CH) with organic matter					287	80	207	2.60									
	3	5.75	Very soft black and dark gray clay (CH) with organic matter				C				2.60	282.40	18.9							
	4	6.2	Very soft black and dark gray clay (CH) with organic matter								2.60	274.26							0.079	
	5	7.25	Very soft black and dark gray clay (CH) with organic matter								2.60							0.093		
	5	8.1	Very soft black and dark gray clay (CH) with organic matter					125	35	90	2.60									
	6	8.6	Very soft black and dark gray clay (CH) with organic matter								2.60	51.02							0.093	
	7	9.25	Very soft gray clay (CH) with silty seams and pockets, and trace of organic matter								2.65	77.10						0.083		
	8	12.5	Loose gray sandy silt (ML)					Non-Plastic			2.66	34.05	83.0	90.6	1.000	UU	7.6			0.336
	10	13.6	Loose gray sandy silt (ML), slightly clayey, with clay seams		31.8	68.2					2.66									
	12	16	Loose gray silt (ML), slightly sandy								2.66	41.30								
	12	16.2	Loose gray silt (ML), slightly sandy		11.6	88.4					2.66									
	13	18.1	Loose gray silt (ML), slightly sandy		11.2	88.8					2.66									
	14	20	Soft gray clay (CH) with silt pockets and shell fragments								2.72	46.80								
	15	22.5	Soft gray clay (CH) with silt pockets and shell fragments					84	35	49	2.72	69.44	59.2	101.1	1.868	UC				0.255
	17	27.25	Soft gray clay (CH) with clayey peat seams and shell fragments					58	25	33	2.65	117.95	40.6	101.7	3.074	UC				0.333
	19	32	Very loose to loose gray silty fine sand (SM) with clay seams and organic lenses								2.66	48.60								
14	1	6.5	Very soft dark gray clay (CH)		2.3	97.7					2.72									

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
14	2	8.75	Very soft dark gray clay (CH)					87	9	78	2.39[1]									
	3	9.25	Very soft dark gray clay (CH) with organic matter and trace of shell fragments								2.60	256.60								
	5	11.25	Very soft dark gray clay (CH) with organic matter, trace of shell fragments, silt seams, and trace of fine sand					71	25	46	2.60	88.90								
	6	13	Loose gray silt (ML) with sand		15.1	84.9					2.66									
	7	15.2	Loose gray silt (ML) with sand	0.2	23.1	76.7					2.66									
	8	17	Loose gray silt (ML) with sand		23.1	76.9					2.66									
	9	19.3	Very soft gray silty clay (CL) with sand pockets and shell fragments					32	20	12	2.68	65.10								
	10	21	Very soft gray silty clay (CL) with sand pockets and shell fragments					35	20	15	2.68									
	12	22.5	Very soft gray silty clay (CL) with sand pockets and shell fragments					31	23	8	2.68	46.70								
	13	25.1	Very soft gray silty clay (CL) with sand pockets and shell fragments					36	18	18	2.68	48.10								
15	1	6.75	Very soft dark gray clay (CH) with trace of organic matter					71	36	35	2.65	232.60								
	3	8.2	Very soft dark gray clay (CH) with organic matter and trace of wood					83	42	41	2.60									
	4	8.5	Very soft dark gray clay (CH) with organic matter and trace of wood								2.41[1]	236.80								
	5	11.5	Very soft dark gray clay (CH) with organic matter and trace of wood		9.8	90.2					2.60									
	6	11.75	Very soft dark gray clay (CH) with organic matter and trace of wood								2.60	273.40								
	7	13.1	Soft gray silty clay (CL)					37	21	16	2.68									
	8	13.6	Very loose to loose gray silt (ML) with sand					32	24	8	2.66	51.20								
	9	15	Very loose to loose gray silt (ML) with sand		18.9	81.1					2.66									
	10	17.2	Very loose to loose gray silt (ML), slightly sandy		11.8	88.2					2.66									
	11	19.3	Very soft gray silty clay (CL) with trace of shell fragments					34	22	12	2.68	45.10								
	12	21	Very soft gray silty clay (CL) with shell fragments					30	22	8	2.68	38.30								
	13	23	Very soft gray silty clay (CL) with shell fragments					42	16	26	2.68	59.50								

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
15	14	24.4	Very soft gray silty clay (CL) with shell fragments and sand seams		32.6	67.4					2.68									
16	1	6.3	Very soft brown and black clay (CH)		4.7	95.3					2.72									
	2	8.75	Very soft brown and black clay (CH)					82	35	47	2.42[1]									
	3	9.25	Very soft brown and black clay (CH) with organic matter and trace of organic clay								2.60	283.90								
	5	12.5	Loose gray silt (ML) with sand					40	26	14	2.66									
	8	14.6	Loose gray silt (ML) with sand		18.1	81.9					2.66									
	9	17	Loose gray sandy silt (ML)	0.5	33.2	66.3					2.66									
	10	19	Loose gray silt (ML) with sand		23.0	77.0					2.66									
	11	20.9	Loose gray silt (ML), slightly clayey, with sand and shell fragments		24.4	75.6					2.66									
	12	22.6	Very soft gray silty clay (CL) with trace of shell fragments					43	17	26	2.68	78.00								
	15	25.75	Very soft gray clay (CH) with trace of shell fragments					80	24	56	2.72	76.30								
17	1	6.75	Very soft brown and black organic clay (OH) with trace of shell fragments					99	44	55	2.30									
	1	7	Very soft brown and black organic clay (OH) with trace of shell fragments		3.4	96.6					2.30									
	3	9.25	Very soft brown and black organic clay (OH) with trace of shell fragments								2.36[1]	357.20								
	4	10.75	Very soft dark gray silty clay (CL) with organic matter and fine sand seams					39	20	19	2.65									
	5	11.4	Very soft dark gray silty clay (CL) with organic matter and fine sand seams								2.65	64.90								
	6	13.2	Loose gray silt (ML), slightly sandy, with trace of shell fragments		14.9	85.1					2.66									
	7	15.4	Loose gray silt (ML) with sand and trace of shell fragments	0.1	24.4	75.5					2.66									
	8	17.1	Loose gray silt (ML), slightly clayey, with sand and trace of shell fragments					Non-Plastic			2.66	37.00								
	9	19	Loose gray silt (ML), slightly clayey, with sand and trace of shell fragments					28	24	4	2.66	40.90								
	10	21.3	Loose gray silt (ML), slightly clayey, with sand and trace of shell fragments					27	25	2	2.66	49.70								
	13	23.75	Very soft gray clay (CH) with fine sand seams								2.72	70.20								

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
17	16	25.75	Very soft gray clay (CH) with fine sand seams								2.72	80.50								
18	1	7	Very soft dark gray clay (CH) with trace of organic matter and trace of shell fragments		4.7	95.3					2.65									
	2	7.25	Very soft brown organic clay (OH) with trace of wood					64	25	39	2.30	213.70								
	3	9.4	Very soft brown organic clay (OH) with trace of wood								2.25[1]									
	4	9.6	Very soft brown organic clay (OH) with trace of wood					79	53	26	2.30	462.10								
	6	11.5	Very loose gray silt (ML)			96.8					2.66									
	9	15.5	Very loose gray silt (ML) with sand		25.2	74.8					2.66									
	11	19	Very loose gray silt (ML), slightly clayey, with sand			83.2					2.66									
	12	21	Very soft gray silty clay (CL), slightly sandy					34	20	14	2.68									
	13	21.5	Very soft gray silty clay (CL), slightly sandy		14.1	85.9					2.68									
	15	23.5	Very soft gray clay (CH), slightly silty					56	16	40	2.72	72.90								
	17	25.5	Very soft gray clay (CH), slightly silty								2.72	72.80								
19	2	7.4	Very soft brown clay (CH) with organic matter and traces of wood and shell fragments					224	58	166	2.60	212.70								
	3	9.3	Very soft brown organic clay (OH)					282	58	224	2.30									
	4	9.5	Very soft brown organic clay (OH)					330	93	237	2.30	419.40								
	6	11.4	Very soft gray clay (CH) with sand seams								2.72	78.10								
	7	12.9	Very loose to loose gray sandy silt (ML)					88	22	66	2.66									
	8	13.6	Very loose to loose gray silt (ML) with sand		27.1	72.9					2.66									
	10	14.7	Very loose to loose gray sandy silt (ML)		38.1	61.9					2.66									
	11	17	Very loose to loose gray silt (ML) with sand		23.3	76.7					2.66									
	12	19	Very soft gray silty clay (CL), slightly sandy					38	22	16	2.68	42.30								
	13	21.3	Very soft gray silty clay (CL), slightly sandy, with shell fragments		15.5	84.5					2.68									

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
19	15	22.5	Very loose gray sandy silt (ML), slightly clayey, with shell fragments					Non-Plastic			2.66									
	15	23.5	Very soft gray silty clay (CL) with trace of shell fragments					39	24	15	2.66	45.00								
	17	24.7	Very soft gray silty clay (CL) with trace of shell fragments								2.66	70.00								
20	1	6.75	Very soft dark gray clay (CH)								2.72	212.00								
	3	8.2	Very soft black organic clay (OH) with trace of wood		4.8	95.2		83	39	44	2.30									
	4	9.4	Very soft black organic clay (CH) with trace of wood and shell fragments					79	41	38	2.30	233.00								
	6	11.6	Very soft black organic clay (CH) with trace of wood and shell fragments								2.38[1]	288.90								
	7	12.4	Very soft black organic clay (CH) with trace of wood and shell fragments					140	51	89	2.30	144.00								
	9	15	Very loose to loose gray silt (ML) with sand		17.6	82.4					2.66									
	10	17.2	Very loose to loose gray silt (ML) with sand	0.5	20.1	79.4					2.66									
	11	18.5	Very loose to loose gray silt (ML), slightly sandy and slightly clayey					31	23	8	2.66									
	12	19.5	Very loose to loose gray silt (ML), slightly sandy and slightly clayey		5.7	94.3					2.66									
	13	21.2	Very loose to loose gray silt (ML), slightly sandy and slightly clayey		10.6	89.4					2.66									
	15	23.5	Very soft gray silty clay (CL)		29.7	70.3		35	19	16	2.68	54.80								
	18	25.75	Very soft gray silty clay (CL)								2.68	75.80								
21	1	7	Very soft dark gray clay (CH) with organic matter		4.0	96.0		161	37	124	2.60									
	2	7.3	Very soft dark gray clay (CH) with organic matter								2.60	276.40								
	3	9	Very soft dark gray clay (CH) with organic matter					233	63	170	2.60									
	4	9.4	Very soft dark gray clay (CH) with organic matter								2.60	234.00								
	6	11.5	Very soft dark gray clay (CH) with organic matter, trace of shell fragments and wood					79	25	54	2.60	112.10								
	7	12.6	Very loose to loose gray sandy silt (ML)		25.4	74.6					2.66									
	8	13.4	Very soft gray silty clay (CL), slightly sandy		10.3	89.7					2.68									

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
21	10	15.1	Very soft gray silty clay (CL), slightly sandy					38	23	15	2.68	46.70								
	11	17	Very loose to loose gray sandy silt (ML)		31.5	68.5					2.66									
	12	19.1	Very loose to loose gray silt (ML), slightly clayey, with shell fragments and sand		27.1	72.9					2.66									
	13	21.1	Very soft gray clay (CH) with shell fragments					67	22	45	2.72	75.40								
	14	22.5	Very soft gray silty clay (CL) with shell fragments					48	16	32	2.68									
	15	23.5	Very soft gray silty clay (CL) with shell fragments								2.68	79.90								
	17	25.5	Very soft gray silty clay (CL) with shell fragments								2.68	76.80								
22	1	6.8	Very soft dark gray organic clay (OH)		1.9	98.1		93	41	52	2.30									
	3	9.6	Very soft dark gray organic clay (OH)								2.30	295.10								
	4	10.75	Very soft dark gray silty clay (CL)					48	22	26	2.59[1]									
	5	11.7	Loose gray silt (ML), slightly sandy								2.66	80.00								
	6	12.4	Loose gray silt (ML), slightly sandy		10.7	89.3					2.66									
	7	15.4	Loose gray silt (ML) with sand		19.7	80.3					2.66									
	8	16.9	Loose gray silt (ML), slightly sandy, with trace of shell fragments	2.1	9.6	90.4					2.66									
	9	19	Very soft gray silty clay (CL), slightly sandy					34	23	11	2.68	59.60								
	12	22	Loose gray silt (ML), slightly clayey, with sand		23.0	77.0					2.66									
	13	22.5	Loose gray silt (ML), slightly clayey, with sand					29	25	4	2.66									
	15	23.75	Very soft gray clay (CH) with sand seams, shell fragments and trace of concreted clay with sand layers					59	18	41	2.72	65.10								
	17	25.25	Very soft gray silty clay (CL-ML)					28	22	6	2.68	43.80								
23	2	6.75	Very soft gray clay (CH) with organic matter and shell fragments					409	95	314	2.60									
	3	7.25	Very soft gray clay (CH) with organic matter and shell fragments					78	26	52	2.60	146.90								

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
23	5	8.75	Loose to medium dense gray silt (ML) with sand and trace of shell fragments		18.8	81.2					2.66									
	7	12.75	Loose to medium dense gray sandy silt (ML) with trace of shell fragments		46.5	53.5					2.66									
	9	15.25	Loose to medium dense gray sandy silt (ML) with trace of shell fragments and clay seams					Non-Plastic			2.66	42.90								
	12	17.25	Medium dense gray silty fine sand (SM) with shell fragments		57.0	43.0					2.66									
	13	19.75	Very soft gray clay (CH)					99	27	72	2.72	83.40								
	16	21.3	Very soft gray clay (CH)								2.72	71.00								
	18	23.75	Very soft gray clay (CH) with shell fragments								2.72	69.30								
24	2	6.25	Very soft gray and black silty clay (CL) with organic matter and shell fragments					40	23	17	2.60	358.90								
	3	8.25	Medium dense gray silt (ML), slightly sandy, with shell fragments		5.6	94.4					2.66	38.10								
	4	10.6	Medium dense gray sandy silt (ML) with shell fragments		37.8	62.2					2.66									
	5	12.5	Medium dense gray sandy silt (ML) with shell fragments		42.9	57.1					2.66									
	6	14.25	Medium dense gray sandy silt (ML) with shell fragments and clay layer					298	71	227	2.66	45.70								
	7	16.25	Very soft gray silty clay (CL), slightly sandy, with shell fragments		8.9	91.1					2.68									
	8	17.25	Very soft gray silty clay (CL), slightly sandy, with shell fragments					40	19	21	2.68									
	10	19.75	Very soft gray silty clay (CL), slightly sandy, with shell fragments					102	29	73	2.68	89.40								
	14	21.75	Very soft gray clay (CH)								2.72	77.00								
25	1	6.25	Very soft brown clay (CH) with organic matter and shell fragments					338	15	323	2.60	443.80								
	2	8.25	Very soft gray clay (CH) with trace of organic matter					85	26	59	2.65	108.30								
	4	11.25	Medium dense gray silty fine sand (SM), slightly clayey		53.9	46.1					2.66									
	7	13.25	Medium dense gray silt (ML), slightly clayey, with sand		27.8	72.2					2.66									
	9	15.25	Medium dense gray silt (ML), slightly clayey, with sand					35	27	8	2.66	41.90								

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
25	12	17.5	Very soft gray clay (CH), slightly silty, with trace of shell fragments					63	19	44	2.72	57.00								
	15	19.75	Very soft gray clay (CH), slightly silty, with trace of shell fragments								2.72	76.00								
	18	21.75	Very soft gray clay (CH), slightly silty, with sand layers and shell fragments								2.72	74.50								
	21	23.25	Very soft gray clay (CH), slightly silty, with sand layers and shell fragments								2.72	74.10								
26	1	5.75	Very soft dark gray clay (CH) with trace of organic matter					177	39	138	2.65									
	2	6.25	Very soft dark gray clay (CH) with trace of organic matter								2.65	364.70								
	4	8.5	Very soft gray silty clay (CL) with sand seams and pockets, and trace of shell		4.0	96.0					2.68									
	5	9.5	Very soft gray silty clay (CL) with sand seams and pockets, and trace of shell					37	21	16	2.68	52.80								
	9	14.5	Very soft gray clay (CH) with sand seams and pockets, and shell fragments					57	23	34	2.72	58.80								
	13	16.75	Very soft gray clay (CH) with sand seams and pockets, and shell fragments								2.72	97.20								
	15	18.5	Very soft gray clay (CH) with sand seams and pockets, and shell fragments					84	21	63	2.72									
	19	20.25	Medium stiff brown and black organic clay (OH) with trace of peat					372	144	228	2.30	291.70								
27	1	6.75	Very soft brown and dark gray clay (CH), slightly silty, with organic matter					409	106	303	2.60	461.00								
	3	8.5	Very soft brown and dark gray clay (CH), slightly silty, with sand seams, trace of					97	29	68	2.65									
	4	9.75	Medium dense gray silt (ML) with sand		18.7	81.3					2.66									
	5	10.75	Medium dense gray silt (ML) with sand		8.5	91.5					2.66									
	7	11.75	Medium dense gray silt (ML), slightly sandy		10.5	89.5					2.66									
	10	16.75	Very soft gray clay (CH) with trace of shell fragments					98	16	82	2.72	85.40								
	12	19.75	Very soft gray clay (CH) with shell fragments					95	24	71	2.72	82.40								
28	1	6.5	Very soft gray clay (CH) with wood and organic matter					172	50	122	2.60	252.40								
	4	9.25	Very soft dark gray clay (CH) with organic clay seams								2.60	293.90								
	5	10.75	Very soft dark gray clay (CH) with organic clay seams					102	30	.72	2.60									

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
28	6	11	Very soft dark gray clay (CH) with organic clay seams and sand seams		4.2	95.8					2.60									
	7	12.75	Medium dense dark gray silt (ML) with clay seams and sand		15.5	84.5					2.66									
	9	16.75	Medium dense dark gray sandy silt (ML) with trace of shell fragments		35.9	64.1					2.66									
	10	18.75	Very soft gray silty clay (CL)					39	21	18	2.68	46.30								
	12	20.75	Soft gray clay (CH) with sand layers and trace of shell fragments					103	24	79	2.72									
	13	21.25	Soft gray clay (CH) with sand layers and trace of shell fragments								2.72	95.30								
	15	23.5	Soft gray clay (CH) with sand layers and trace of shell fragments								2.72	71.40								
29	1	7.25	Very soft brown and black clay (CH) with organic matter					152	36	116	2.60	126.00								
	4	10.25	Very soft gray and dark gray clay (CH) with organic matter					127	31	96	2.60	140.10								
	5	12	Medium dense gray sandy silt (ML), slightly clayey		39.0	61.0					2.66									
	7	13.75	Medium dense gray silty fine sand (SM), slightly clayey		62.0	38.0					2.66									
	9	17.75	Medium dense gray silt (ML) with clay seams, sand and trace of shell fragments		23.9	76.1					2.66									
	10	19.75	Very soft gray silty clay (CL)					43	21	22	2.68	50.60								
	12	22.25	Very soft gray clay (CH), slightly silty, with sand seams and shell fragments					56	19	37	2.72	62.70								
	16	24.75	Very soft gray clay (CH) with silt seams and trace of shell fragments								2.72	76.10								
30	1	5.75	Very soft dark gray clay (CH) with silt pockets and trace of organic matter					205	46	159	2.65	188.10								
	6	11.75	Medium dense gray sandy silt (ML)		30.2	69.8					2.66									
	7	12.25	Very soft gray silty clay (CL) with shell fragments, sand seams, wood and organic matter					Non-Plastic			2.60	41.20								
	9	14.25	Very soft gray silty clay (CL) with shell fragments, sand seams, wood and organic matter					48	23	25	2.60	51.30								
	12	16.75	Very soft gray clay (CL) with shell fragments								2.72	92.40								
	14	17.75	Very soft gray clay (CL) with shell fragments					97	25	72	2.72	85.40								
	16	22.25	Very soft brown and black organic clay (OH) with clay seams								2.30	190.00								

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
31	6	11.25	Medium dense gray silt (ML), slightly sandy					98	32	66	2.66									
	6	11.5	Medium dense gray silt (ML), slightly sandy		14.6	85.4					2.66									
	8	13.25	Medium dense gray silt (ML) with sand		23.2	76.8					2.66									
	10	16.75	Very soft gray silty clay (CL) with shell fragments					44	24	20	2.68									
	11	17.5	Medium dense gray silty fine sand (SM) with shell fragments		62.1	37.9					2.66									
	12	17.75	Medium dense gray silty fine sand (SM) with shell fragments		42.9	57.1					2.66									
	13	18.5	Medium dense gray sandy silt (ML) with shell fragments		45.0	55.0					2.66									
	16	20.75	Very soft gray clay (CH), slightly silty, with trace of shell fragments					94	27	67	2.72									
32	4	9.75	Very soft dark gray clay (CH) with organic matter					350	93	257	2.60									
	5	10.75	Medium dense gray silt (ML) with sand		17.9	82.1					2.66									
	7	11.75	Medium dense gray silt (ML), slightly sandy		13.7	86.3					2.66									
	9	14.25	Medium dense gray silt (ML), slightly sandy, with trace of sand		1.6	98.4					2.66									
	10	16	Medium dense dark gray sandy silt (ML), slightly clayey		31.5	68.5					2.66									
	12	18.25	Medium dense dark gray sandy silt (ML), slightly clayey and clay seams		41.6	58.4					2.66									
	14	19.75	Soft gray silty clay (CL) with silt seams and pockets, and trace of shell fragments					44	22	22	2.68									
33	1	7.1	Very soft dark gray clay (CH) with organic matter		3.9	96.1		153	56	97	2.60	198.70								
	4	9.3	Very soft dark gray clay (CH), slightly silty, with organic matter					52	21	31	2.60									
	5	9.5	Very soft dark gray clay (CH), slightly silty, with organic matter								2.60	307.80								
	6	10.6	Very soft dark gray clay (CH), slightly silty, with organic matter					69	31	38	2.60									
	7	11.2	Loose gray silty fine sand (SM)		50.9	49.1					2.66									

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
33	8	12.6	Loose gray sandy silt (ML)		41.6	58.4					2.66									
	9	15	Loose gray sandy silt (ML)		31.8	68.2					2.66									
	10	17.3	Loose gray silt (ML) with sand, clay pockets and trace of shell fragments		27.4	72.6					2.66									
	12	20.3	Loose gray silty fine sand (SM) with clay seams		56.6	43.4					2.66									
	13	21.3	Very soft gray clay (CH) with silt seams and trace of shell fragments					77	19	58	2.72									
	16	23.5	Very soft gray clay (CH) with silt seams and trace of shell fragments					78	25	53	2.72	80.20								
	18	25.5	Very soft gray clay (CH) with silt seams and trace of shell fragments								2.72	74.50								
34	1	7.75	Very soft dark gray organic clay (OH)					72	36	36	2.30									
	2	9.75	Very soft dark gray clay (CH) with silty clay seams					53	25	28	2.72									
	3	12.25	Very soft brown and black silty clay (CL) with organic matter					46	21	25	2.60									
	3	12.5	Very soft brown and black silty clay (CL) with organic matter		3.3	96.7					2.60									
	4	12.75	Very soft brown and black silty clay (CL) with organic matter								2.60	168.40								
	5	13.8	Loose gray silt (ML), slightly clayey, with sand and trace of shell fragments		23.6	76.4					2.66									
	6	16	Loose gray sandy silt (ML), slightly clayey, with trace of shell fragments	0.3	34.2	65.8					2.66									
	7	18.5	Loose gray silt (ML), slightly clayey, with trace of shell fragments		27.9	72.1					2.66									
	8	20.1	Loose gray sandy silt (ML), slightly clayey, with sand and trace of shell fragments		14.0	86.0					2.66									
	9	22.3	Very soft gray silty clay (CL)					34	19	15	2.68	54.20								
	10	24.5	Very soft gray clay (CH), slightly silty								2.72	81.10								
	14	26.75	Very soft gray clay (CH), slightly silty					78	23	55	2.72	66.70								
35	1	6.4	Very soft dark gray clay (CH)					109	41	68	2.72									
	2	6.8	Very soft dark gray clay (CH)								2.72	257.60								
	4	9.2	Very soft tan and gray silty clay (CL) with shell fragments					40	22	18	2.51[(1)]									

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
35	6	11.75	Very soft dark gray and gray clay (CH) with organic matter and trace of concreted clay					56	23	33	2.60	77.50								
	8	13.6	Very loose to loose gray silt (ML), slightly sandy		5.7	94.3					2.66									
	10	17.1	Very loose to loose gray silt (ML), slightly sandy and slightly clayey, with trace of shell fragments		14.9	85.1					2.66									
	11	19.2	Very soft gray clay (CH) with shell fragments		36.3	63.7					2.72									
	12	21	Shell fragments with clay		62.0	38.0														
	13	23.5	Very loose to loose gray sandy silt (ML), slightly clayey, with shell fragments	16.4	46.5	53.5					2.66									
36	1	7.3	Very soft black and dark gray silty clay (CL)		2.7	97.3					2.68									
	2	8.75	Very soft black and dark gray silty clay (CL) with organic matter and traces of shell fragments and wood					44	26	18	2.42[1]									
	3	9.25	Very soft black and dark gray silty clay (CL) with organic matter and traces of shell fragments and wood								2.60	168.10								
	5	11.5	Very soft black and dark gray silty clay (CL) with organic matter and traces of shell fragments, wood and concreted clay					37	22	15	2.60	73.60								
	6	12.9	Very soft black and dark gray silty clay (CL) with organic matter and traces of shell fragments, wood and concreted clay		19.3	80.7					2.60									
	8	14	Loose gray silt (ML) with sand		25.6	74.4					2.66									
	10	17	Loose gray silt (ML) with sand		17.0	83.0					2.66									
	11	18.7	Loose gray silt (ML), slightly clayey, with sand and shell fragments		18.6	81.4					2.66									
	12	20.8	Loose gray sandy silt (ML), slightly clayey, with shell fragments		23.7	76.3					2.66									
	14	23.5	Very soft gray silty clay (CL)					47	18	29	2.68	71.80								
	16	25.75	Very soft gray silty clay (CL)								2.68	80.70								
A	1	5.25	Very soft gray clay (CH) with organic matter					141	36	105	2.60	140.78							0.169	
	3	6.25	Very soft gray clay (CH) with organic matter								2.60							0.037		
	3	7.25	Very soft gray clay (CH) with organic matter								2.60	130.72	35.3	94.4	3.599	UU	3.4			
	4	7.75	Very soft gray clay (CH) with organic matter				C	143	35	108	2.60	157.70	31.2							0.127
	5	8.25	Very soft gray clay (CH) with organic matter								2.60							0.088		
	5	9.75	Very soft gray clay (CH) with organic matter, silt pockets and fine sand seams								2.60	168.04							0.206	

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
A	7	10.25	Very soft gray clay (CH) with organic matter, silt pockets and fine sand seams								2.60							0.139		
	7	11.25	Very soft gray clay (CH) with organic matter, silt pockets and fine sand seams					47	25	22	2.60	40.87	77.6	97.3	1.092	UU	5.9			0.213
	9	12.7	Very loose gray sandy silt (ML)		36.8	63.2					2.66									
	11	15.3	Very loose gray silt (ML) with sand		24.3	75.7					2.66									
	12	17.3	Very soft dark gray clay (CH), slightly silty, with shell fragments		2.3	97.7					2.72									
	14	19.25	Very soft dark gray clay (CH), slightly silty, with shell fragments								2.72	51.65	71.6	102.4	1.371	UC				0.146
	16	20.6	Soft dark gray clay (CH), slightly silty, with shell fragments				C	101	27	74	2.72	82.70								
	18	23	Soft dark gray clay (CH), slightly silty, with shell fragments								2.72	93.18	48.6	101.7	2.491	UC				0.257
	20	28.75	Very soft dark gray clay (CH)					107	30	77	2.72									
	21	32.75	Very soft gray clay (CH) with silt seams								2.72	43.22	72.5	87.6	1.341	UC				0.159
	23	37.5	Very soft dark gray clay (CH) with trace of shell fragments								2.72	69.74							0.253	
	24	38.3	Soft dark gray clay (CH)					80	23	57	2.72									
	25	42.75	Soft dark gray clay (CH)								2.72	62.10								
	26	43.25	Soft dark gray clay (CH)								2.72	52.14	67.7	94.0	1.508	UC				0.414
	29	48.25	Medium stiff dark gray clay (CH)								2.72	83.70	59.0	121.3	1.877	UC				0.544
	31	53.75	Medium stiff dark gray clay (CH) with trace of organic matter								2.65	46.90								
	32	57.75	Medium stiff dark gray clay (CH)								2.72	71.46	56.5	97.0	2.003	UC				0.809
	34	58.75	Medium stiff dark gray clay (CH)					136	41	95	2.72	86.20								
	36	63.25	Soft dark gray clay (CH) with sand seams								2.72	68.07	61.9	106.2	1.743	UC				0.441
	40	68.75	Soft dark gray clay (CH) with sand seams								2.72	45.00								
	42	73.25	Soft dark gray clay (CH)					97	35	62	2.72	67.33	60.5	101.4	1.806	UC				0.474
	45	77.75	Soft dark gray clay (CH)								2.72	88.20								
	49	83.25	Soft dark gray clay (CH)								2.72	61.50	63.6	100.2	1.670	UC				0.386
B	1	3.8	Very soft gray clay (CH) with organic matter								2.60	103.30								
	3	5.25	Very soft gray clay (CH) with organic matter								2.60							0.130		
	3	6.25	Very soft gray clay (CH) with organic matter								2.60	92.44	48.1	101.1	2.378	UU	3.2			0.092
	3	6.75	Very soft gray clay (CH) with organic matter				C	101	30	71	2.60	95.50	47.1							
	5	7.25	Very soft gray clay (CH) with trace of organic matter								2.65							0.111		
	5	8.25	Very soft gray clay (CH) with trace of organic matter					137	43	94	2.65	90.89	49.0	101.3	2.377	UC				0.208
	7	9.25	Very soft gray clay (CH) with trace of organic matter								2.65							0.157		
	7	10.25	Very soft gray clay (CH) with trace of organic matter								2.65	70.87	56.7	97.5	1.920	UC				0.165

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
B	9	12.25	Very soft gray clay (CH) with trace of organic matter and silt seams								2.65	87.36	50.4	101.4	2.283	UC				0.238
	11	13.75	Very soft gray silty clay (CL)					42	20	22	2.68	40.20								
	12	16.1	Very loose gray silt (ML), slightly clayey, with sand		27.1	72.9					2.66									
	13	18.2	Loose gray sandy silt (ML), slightly clayey		37.2	62.8					2.66									
	16	22	Soft gray silty clay (CL) with silt partings, shell fragments and mica								2.68	36.23	80.8	90.6	1.072	UU	14.3			0.414
	18	27.25	Very soft gray clay (CH), slightly silty, with fine sand, shells, and shell fragments					58	21	37	2.72	50.03	75.4	108.7	1.252	UC				0.152
	22	32.75	Very soft gray clay (CH), slightly silty, with fine sand, shells, and shell fragments								2.72	82.00								
	25	37.75	Soft dark gray clay (CH)					102	32	70	2.72	72.05	57.1	99.3	1.973	UC				0.405
	27	41.75	Soft dark gray clay (CH) with organic matter								2.60	117.68	41.8	106.2	2.881	UC				0.385
	29	46.75	Soft dark gray clay (CH)								2.72	66.18	63.3	107.0	1.683	UC				0.270
	31	47.75	Soft dark gray clay (CH)								2.72	55.30								
	32	52.25	Soft gray clay (CH) with silt seams and partings					87	28	59	2.72	43.60	74.3	98.0	1.285	UC				0.482
	34	57.25	Soft gray clay (CH) with silt seams and partings								2.72	56.92	66.3	99.2	1.560	UC				0.372
	36	62.25	Medium stiff gray clay (CH), slightly organic								2.65	64.87	59.3	96.0	1.791	UC				0.680
C	1	4.75	Soft gray clay (CH), slickensided and blocky, with trace of organic matter					109	34	75	2.65	44.22	71.2	88.5	1.324	UU	2			0.273
	3	6.25	Soft gray clay (CH), blocky, with trace of organic matter								2.65							0.139		
	3	7	Soft gray clay (CH), blocky, with trace of organic matter								2.65	62.17	63.8	103.5	1.591	UC				0.253
	3	7.5	Soft gray clay (CH), blocky, with trace of organic matter				C	107	30	77	2.65	50.80	69.5							
	5	8.25	Soft gray clay (CH) with trace of organic matter								2.65							0.157		
	5	9.5	Very soft gray clay (CH) with trace of organic matter								2.65	84.68	52.7	104.9	2.139	UC				0.209
	7	10.25	Very soft gray clay (CH) with trace of organic matter								2.65							0.157		
	8	11.5	Very soft gray clay (CH) with shell fragments and trace of organic matter								2.65	45.01	72.1	92.2	1.294	UU	6.9			0.190
	11	14.75	Very soft gray clay (CH), slightly silty, with fine sand					51	22	29	2.72									
	11	14.9	Very soft gray clay (CH), slightly silty, with fine sand								2.72	64.25							0.073	
	13	19.7	Very soft gray clay (CH) with shell fragments		2.9	97.1					2.72									
	14	20	Shell fragments with clay		78.1	21.9														
	19	28.5	Shell fragments, slightly clayey		90.3	9.7														

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity (est.)	Water Content %	Dry Density	Saturation %	Void Ratio	Type Test	Confining Stress psi	Field Vane ksf	Lab Vane ksf	Cohesion ksf
				Gravel %	Sand %	Fines %		LL	PL	PI										
C	20	33.75	Soft gray and dark gray organic clay (OH) with peat seams					262	113	149	2.30	99.77	44.1	101.8	2.255	UU	22.3			0.302
	22	38.5	Soft gray clay (CH), slightly silty, with silt pockets								2.72	62.74	63.2	101.1	1.688	UC				0.320
	24	43.75	Soft gray and dark gray clay (CH) with trace of organic matter, silty fine sand pockets and shell fragments					132	37	95	2.65	82.30	53.8	105.1	2.074	UC				0.355
	26	48.25	Soft gray clay (CH), slightly silty, with silty fine sand seams								2.72	48.13	75.0	103.6	1.263	UC				0.349
	28	52.75	Soft gray clay (CH) with concretions								2.72	52.43	70.4	101.1	1.411	UC				0.484
	30	58.75	Soft gray clay (CH) with concretions					91	27	64	2.72	55.25	67.2	98.4	1.527	UC				0.380
	32	63.25	Soft gray clay (CH) with silt seams								2.72	54.28	68.1	98.9	1.492	UU	43			0.407
D	1	4.5	Soft gray clay (CH), blocky								2.72	51.61	70.2	99.0	1.418	UC				0.311
	3	6.25	Soft gray clay (CH), blocky								2.72							0.157		
	3	6.75	Soft gray clay (CH), blocky				C	97	28	69	2.72	64.20	60.8							
	3	7.25	Soft gray clay (CH), blocky								2.72	68.33	61.3	105.0	1.771	UC				0.380
	5	8.25	Soft gray clay (CH) with organic matter								2.60							0.120		
	5	9.5	Soft gray clay (CH) with organic matter								2.60	53.66	69.1	103.4	1.349	UU	5.6			0.408
	7	10.25	Soft gray clay (CH)								2.72							0.194		
	7	10.9	Soft gray clay (CH)								2.72	76.00								
	7	11.5	Very soft gray clay (CH)					69	25	44	2.72	49.37	72.2	99.2	1.353	UC				0.204
	9	13.5	Very soft gray clay (CH), slightly silty, with silt seams								2.72	45.75	75.9	100.6	1.236	UC				0.194
	11	14.5	Very soft gray silty clay (CL)								2.68	45.10	75.3	98.9	1.222	UC				0.142
	13	17	Very soft gray clay (CH) with silty fine sand pockets					54	21	33	2.72	43.23	77.5	98.7	1.192	UU	11.4			0.108
	14	18	Medium dense gray silt (ML) with sand		15.8	84.2					2.66									
	16	21.1	Stiff gray clay (CH) with shell fragments		25.1	74.9					2.72									
	17	23.2	Shell fragments with clay, slightly sandy		64.6	35.4					2.72									
	18	27.5	Shell fragments with clay, slightly sandy		60.2	39.8					2.72									
	19	32	Shell fragments with clay, slightly sandy		71.7	28.3					2.72									
	21	38.5	Soft gray clay (CH) with trace of shell fragments and sand layers		4.0	96.0					2.72									
	22	43.5	Soft gray clay (CH) with trace of shell fragments and sand layers					60	34	26	2.72	32.40	83.8	85.9	1.026	UU	37.6			0.431
	24	47.75	Medium stiff gray clay (CH) with silt partings, sand layers and trace of shell fragments								2.72	57.61	66.3	100.4	1.560	UC				0.566
	26	52.75	Very soft gray clay (CH) with silty fine sand seams, sand layers and shell fragments					76	26	50	2.72	57.59	67.4	103.0	1.521	UC				0.114
	29	58.2	Very soft gray clay (CH) with trace of shell fragments and sand layers								2.72	72.20								
	30	62.75	Very soft gray and dark gray clay (CH) with trace of shell fragments, sand layers, silt pockets and organic pockets					123	33	90	2.72	66.08	58.2	93.7	1.917	UC				0.222

Figure A-90 (continued)

WEST LAKE BOUDREAUX (TE-46)

TERREBONNE PARISH, LOUISIANA

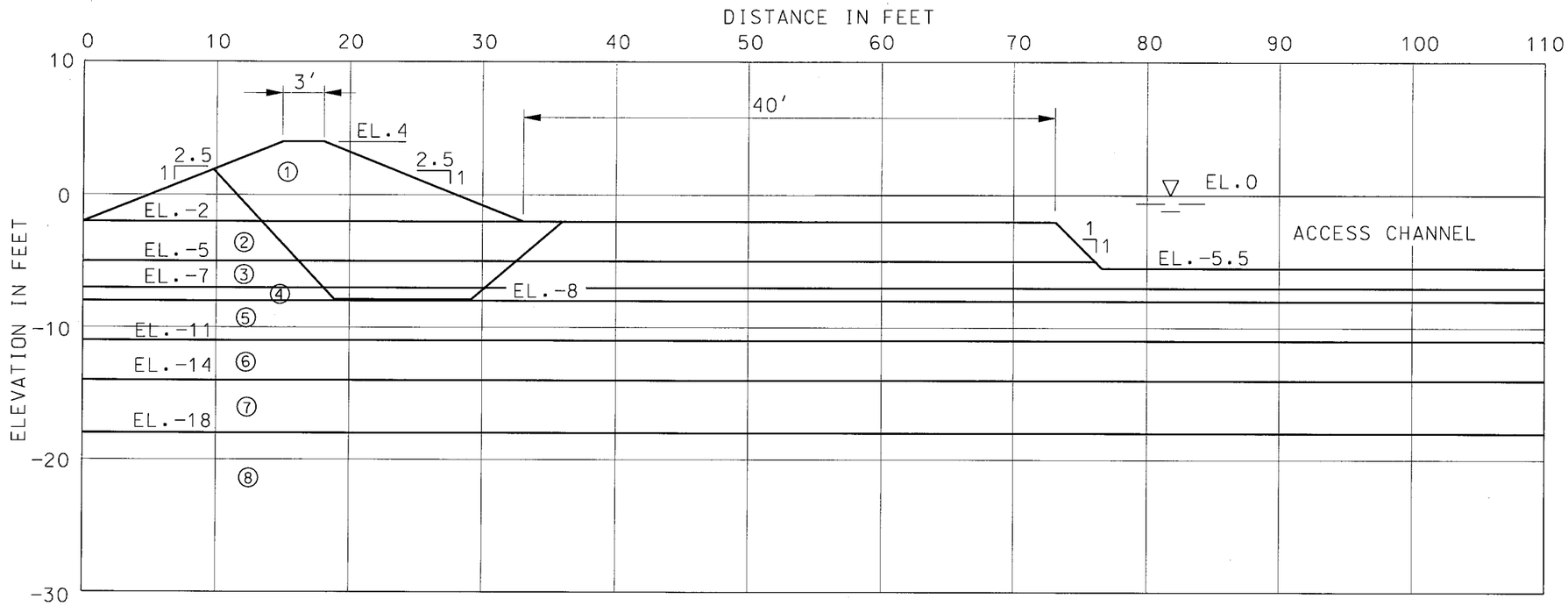
TEST DATA SUMMARY

Boring No.	Sample No.	Depth of Sample	Classification	Percent			C*	Atterberg Limits			Specific Gravity	Water Content	Dry Density	Saturation	Void Ratio	Type Test	Confining Stress	Field Vane	Lab Vane	Cohesion
				Gravel %	Sand %	Fines %		LL	PL	PI	(est.)	%		%			psi	ksf	ksf	ksf
E	1	2.75	Soft gray clay (CH), blocky					77	26	51	2.72	48.77	75.3	105.8	1.254	UC				0.333
	3	4.25	Soft gray clay (CH), blocky								2.72							0.278		
	3	5	Soft gray clay (CH), blocky								2.72	43.59	86.3	122.6	0.967	UC				0.428
	5	6.25	Soft gray clay (CH), blocky								2.72							0.287		
	7	8.25	Soft gray clay (CH), blocky, with silt pockets, seams and organic matter				C	62	26	36	2.60	48.20	71.8					0.111		
	7	8.75	Soft gray clay (CH), blocky, with silt pockets, seams and organic matter								2.60	45.83	76.9	107.3	1.110	UU	7.1			0.325
	9	10.5	Soft gray clay (CH), blocky, with silt pockets, seams and organic matter					69	27	42	2.60	53.62							0.409	
	11	13.2	Loose gray silty fine sand (SM), slightly clayey		52.3	47.7					2.66									
	13	17.3	Dense gray silty fine sand (SM), slightly clayey		64.3	35.7					2.66									
	15	21.2	Dense gray silty fine sand (SM), slightly clayey		77.9	22.1					2.66									
	16	27	Very dense gray silty fine sand (SM), slightly clayey		82.8	17.2					2.66									
	17	31.25	Soft gray clay (CH), slickensided, with shell fragments					89	26	63	2.72	67.54	61.3	103.8	1.771	UU	22.7			0.463
	19	35.75	Soft dark gray clay (CH) with silt pockets and shell fragments					87	27	60	2.72	59.04	66.3	102.8	1.563	UC				0.306
	21	41	Medium dense gray clayey fine sand (SC) with clay seams and shell fragments					Non-Plastic			2.65	35.00	84.6	96.8	0.956	UU	30.3			0.546
	23	46.5	Very soft gray clay (CH) with silt seams and pockets					71	24	47	2.72	52.93	69.0	98.5	1.462	UC				0.238
	25	50.5	Soft gray clay (CH) with silt seams and pockets								2.72	56.13	68.7	103.8	1.471	UC				0.350
	27	56	Very soft gray clay (CH) with trace of organic matter								2.65	67.30								
	28	61.5	Very soft gray and dark gray clay (CH) with silt pockets, shell fragments and organic matter					118	34	84	2.60	59.07	63.9	99.8	1.538	UC				0.243
	30	65.25	Soft gray clay (CH) with concretions and silty fine sand seams								2.72	53.85	69.1	100.5	1.457	UC				0.489
	32	71.25	Medium stiff gray clay (CH) with silt partings					86	24	62	2.72	55.89	67.1	99.4	1.530	UC				0.603
	35	80.75	Medium stiff gray clay (CH), blocky								2.72	39.69	80.8	97.9	1.102	UC				0.516

* C = Consolidation Test

Note: (1) Specific Gravity of Soils laboratory test performed; data not estimated.

Figure A-90 (continued)



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-2	0
5	-2	347
11	-2	1200
20	-2	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	98	75	0
3	98	120	0
4	75	75	0
5	98	220	0
6	120	0	30
7	110	200	20
8	98	120	0

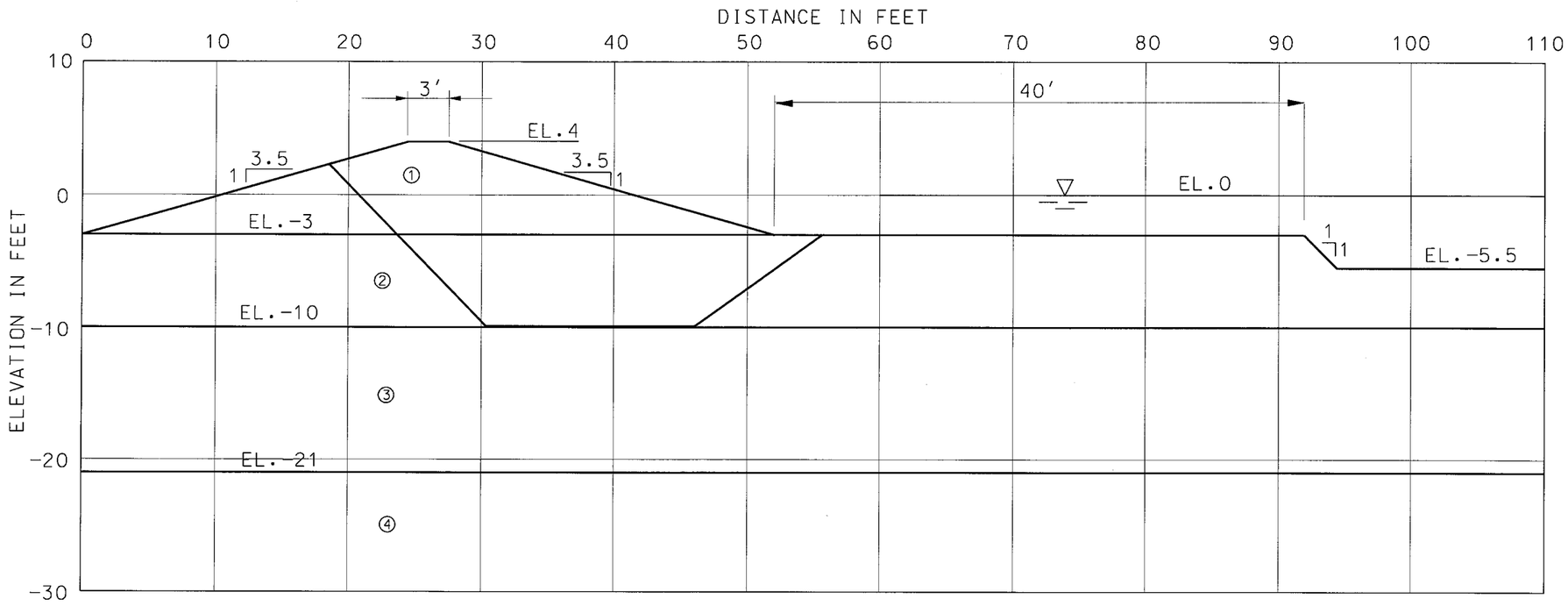
X	Y	FS
9.76	1.91	1.31
18.88	-7.90	
29.17	-7.90	
36.00	-2.00	

Stability Analysis

ROCK DIKE - BORING 1
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-1



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-3	0
10.5	-3	940
13	-3	1200
35	-3	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	77	85	0
3	110	200	20
4	100	230	0

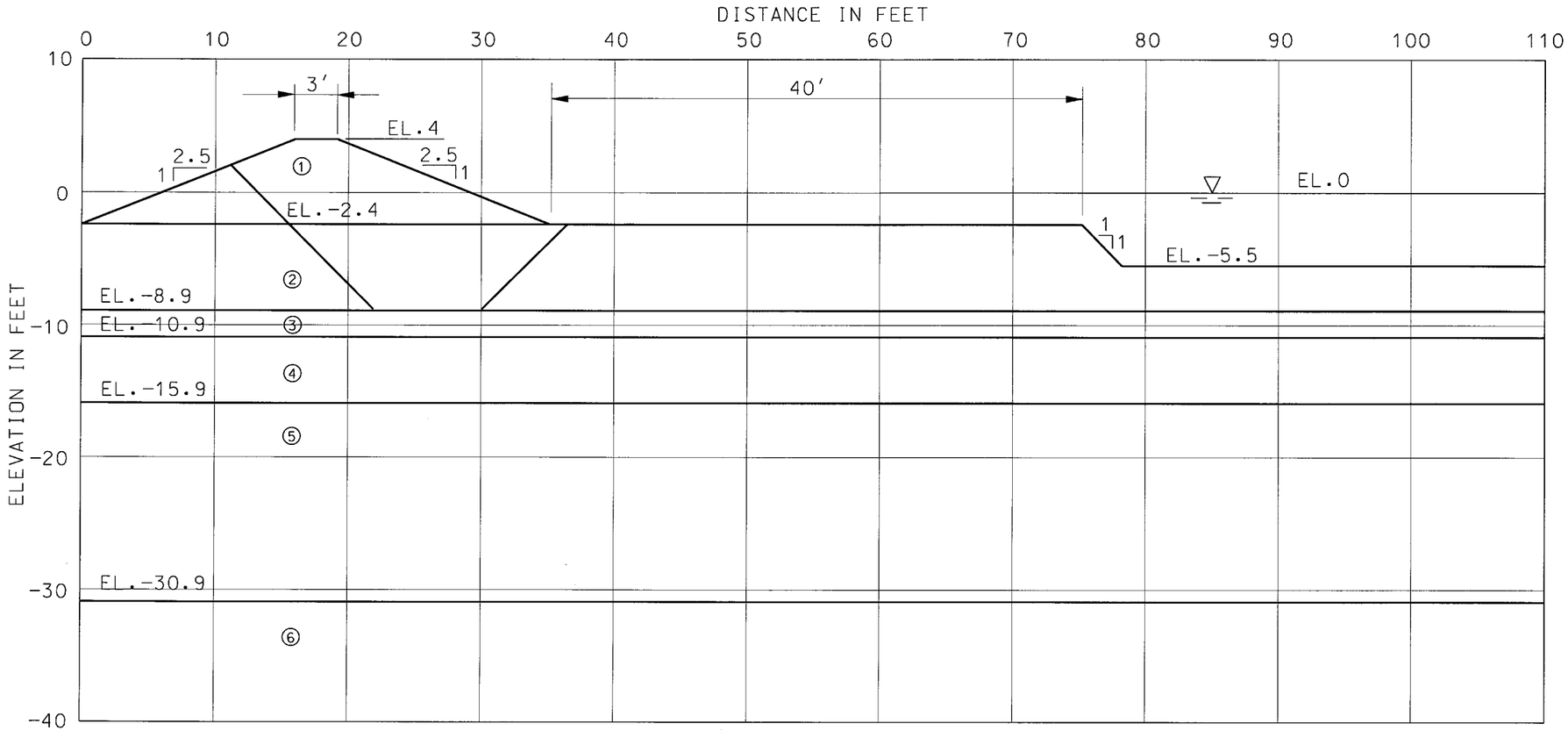
X	Y	FS
18.56	2.30	1.33
30.34	-9.90	
46.07	-9.90	
55.66	-3.0	

Stability Analysis

ROCK DIKE - BORING 2
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-2



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-2.4	0
6	-2.4	500
11	-2.4	1200
25	-2.4	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	84	90	0
3	110	150	0
4	110	200	20
5	105	150	0
6	105	250	0

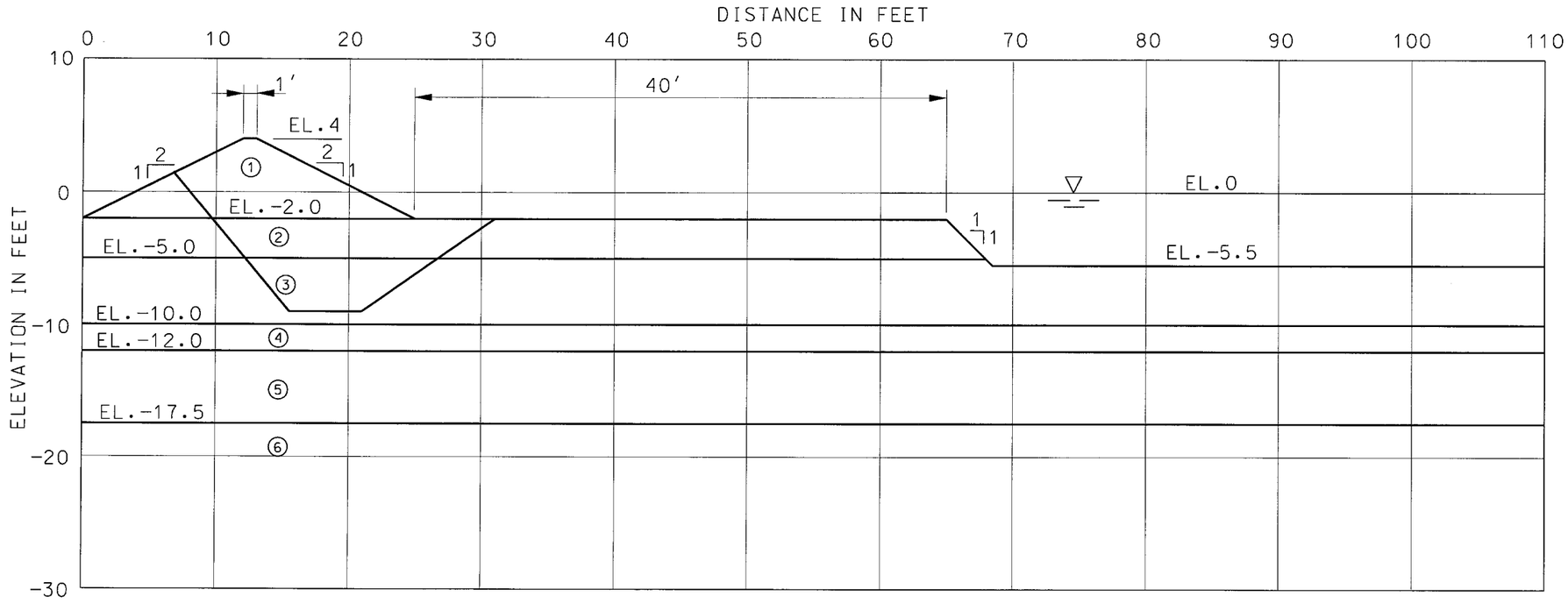
X	Y	FS
11.16	2.06	1.28
21.90	-8.80	
30.05	-8.80	
36.50	-2.40	

Stability Analysis

ROCK DIKE - BORING A
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-3



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-2.0	0
4	-2.0	352
8	-2.0	1200
20	-2.0	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	94	110	0
3	92	140	0
4	120	0	30
5	110	200	20
6	104	86	0

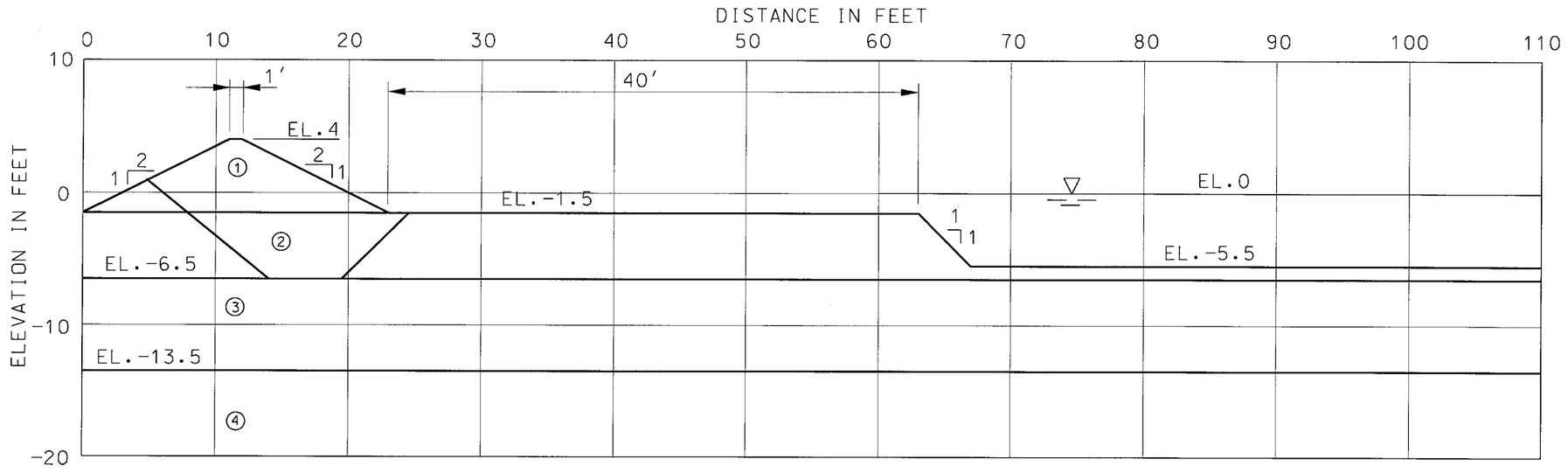
X	Y	FS
6.66	1.33	1.74
15.33	-9.0	
20.80	-9.0	
31.06	-2.0	

Stability Analysis

ROCK DIKE - BORING 6
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-4



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-1.5	0
3	-1.5	226
9	-1.5	1200
18	-1.5	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	92	100	0
3	94	160	0
4	110	200	20

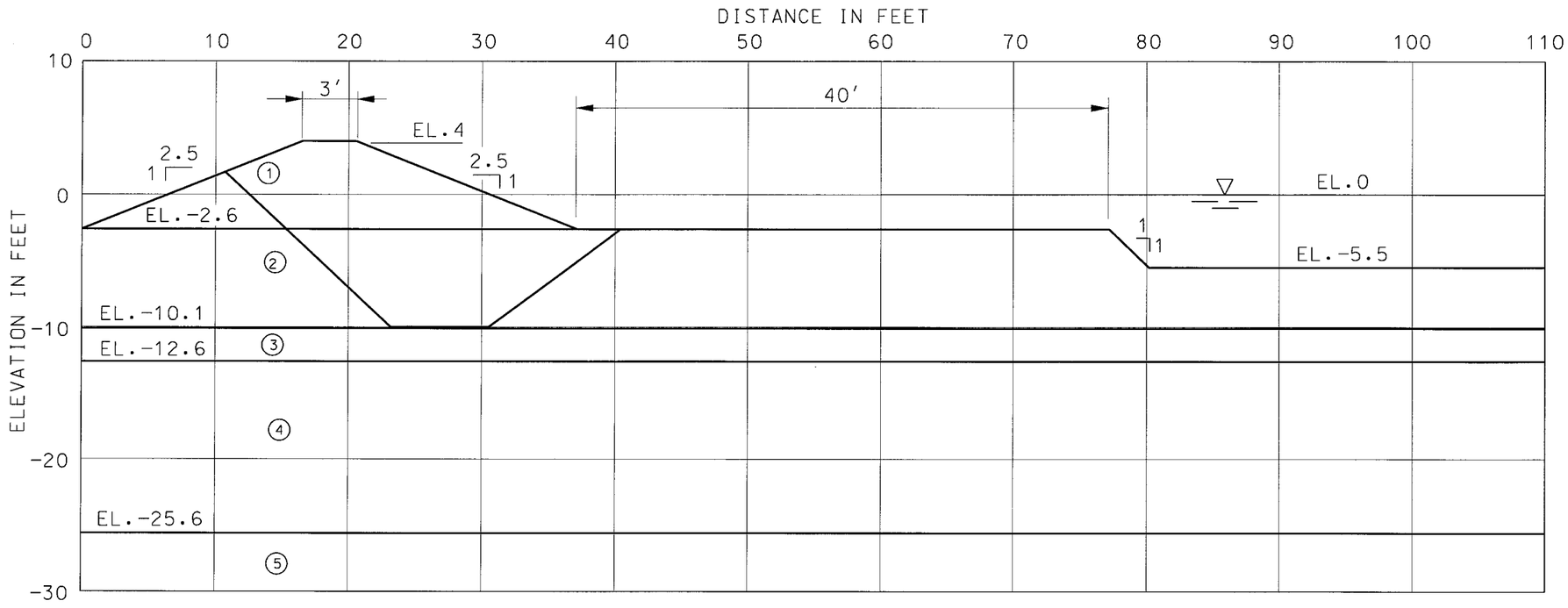
X	Y	FS
4.91	0.96	1.60
13.9	-6.4	
19.6	-6.4	
25.43	-1.5	

Stability Analysis

ROCK DIKE - BORING B
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-5



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-2.6	0
6.5	-2.6	613
10	-2.6	1200
20	-2.6	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	102	105	0
3	110	200	20
4	94	200	0
5	94	330	0

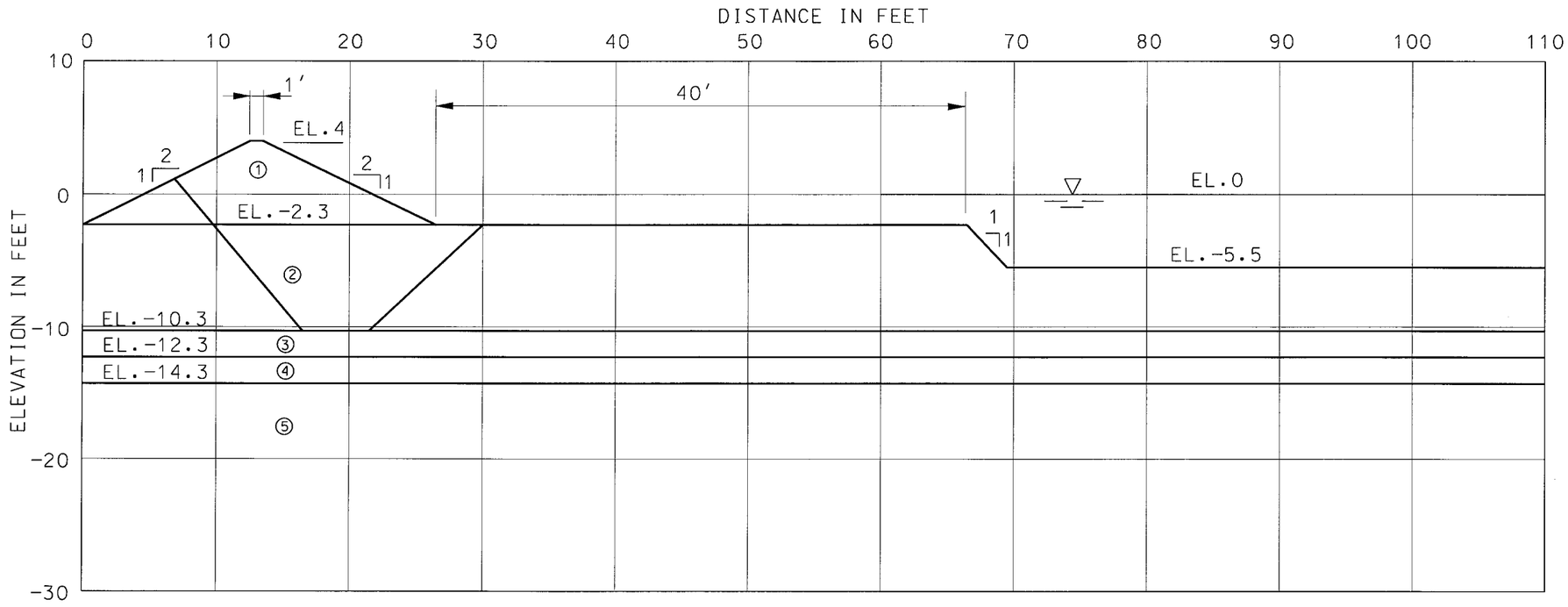
X	Y	FS
10.72	1.69	1.35
23.21	-10.0	
30.54	-10.0	
40.43	-2.6	

Stability Analysis

ROCK DIKE - BORING 7
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-6



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-2.3	0
4.6	-2.3	524
8	-2.3	1200
20	-2.3	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	100	150	0
3	120	0	30
4	100	70	0
5	120	0	30

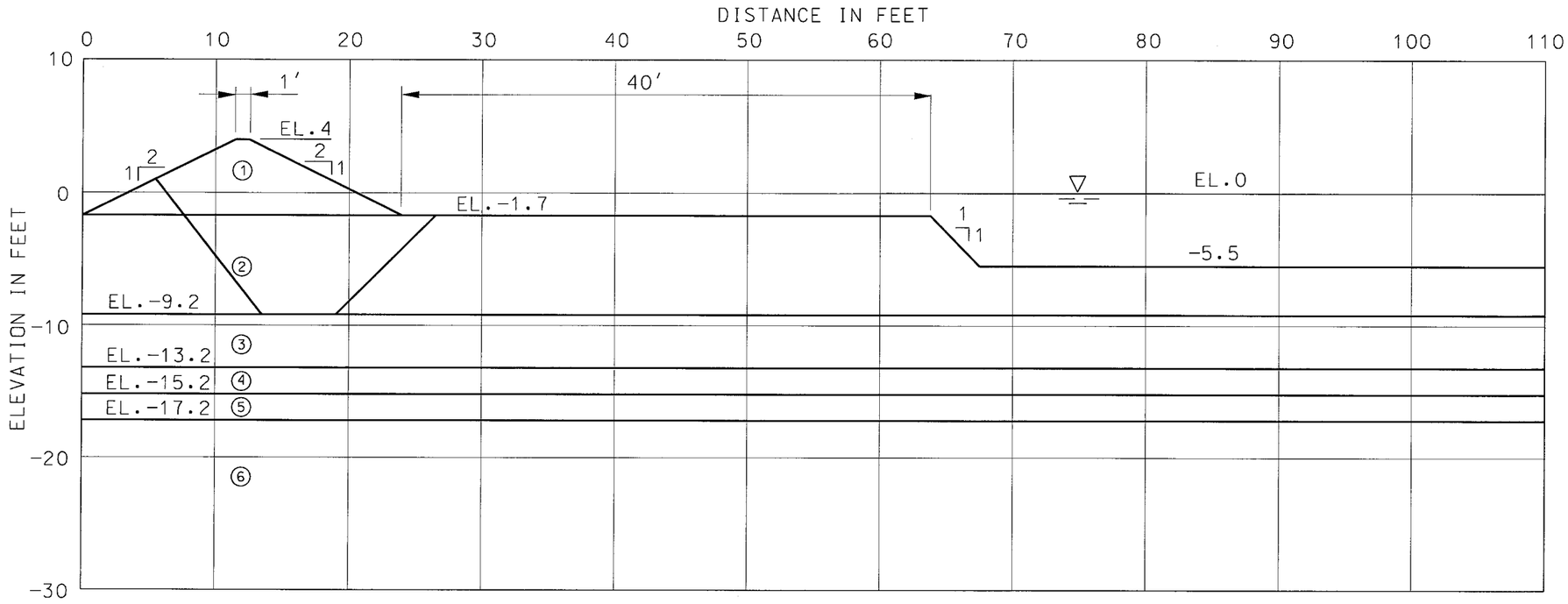
X	Y	FS
6.94	1.17	1.80
16.53	-10.20	
21.40	-10.20	
30.50	-2.30	

Stability Analysis

ROCK DIKE - BORING C
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-7



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-1.7	0
3.4	-1.7	402
8	-1.7	1200
20	-1.7	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	108	175	0
3	110	350	0
4	110	200	20
5	115	150	0
6	120	0	30

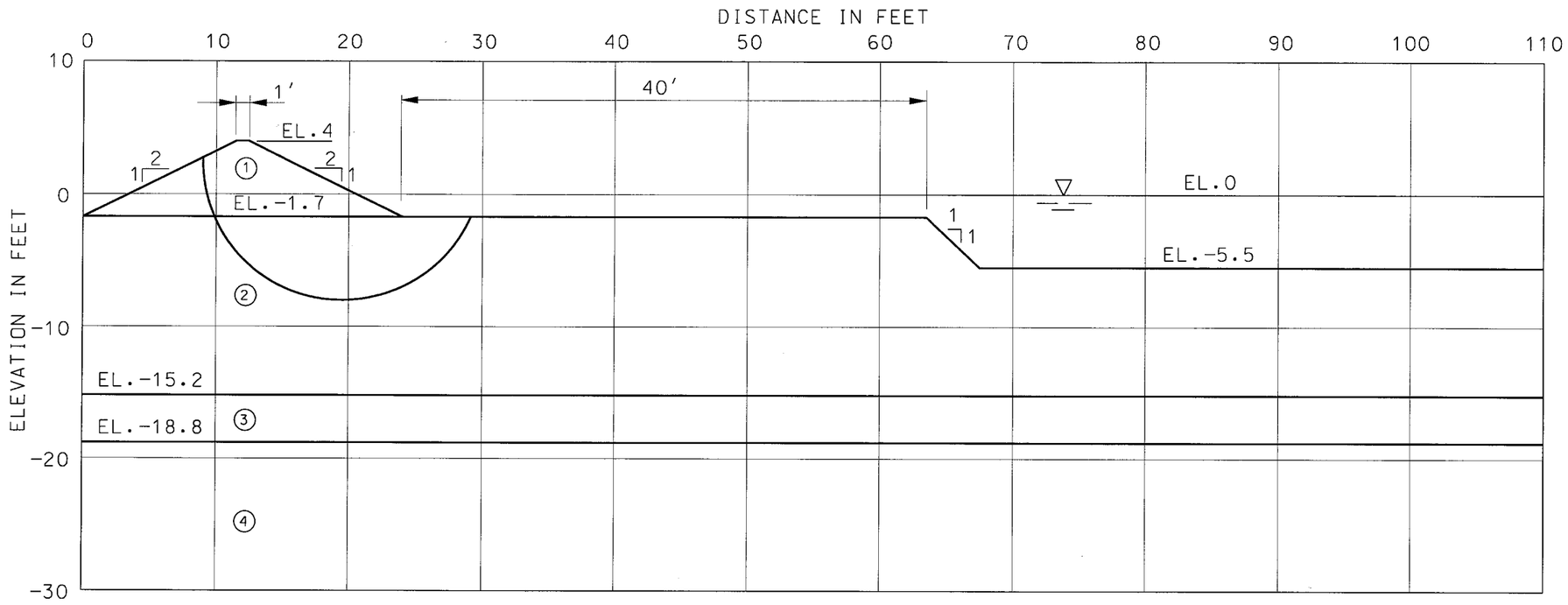
X	Y	FS
5.41	1.0	2.11
15.36	-9.1	
19.12	-9.1	
26.27	-1.7	

Stability Analysis

ROCK DIKE - BORING 10
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-8



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-1.7	0
3.4	-1.7	357
8	-1.7	1200
20	-1.7	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	105	150	0
3	110	200	20
4	90	0	30

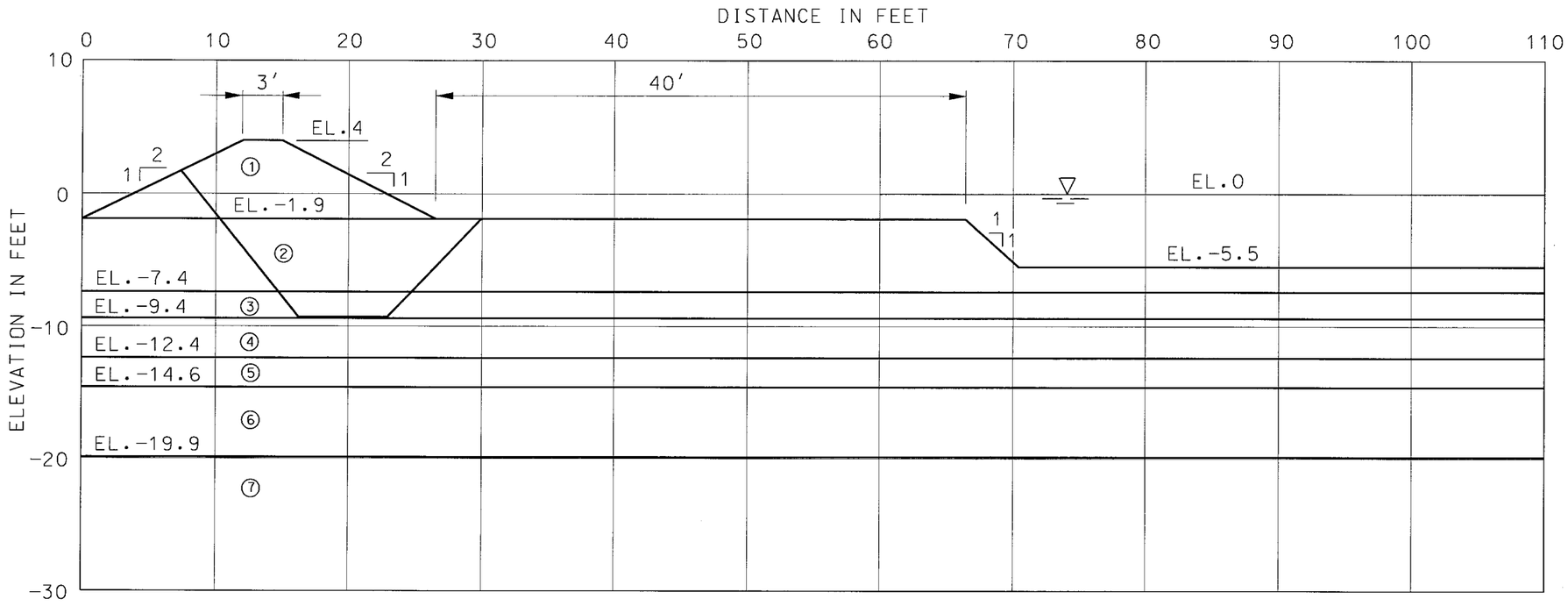
X	Y	R	FS
19.5	2.5	10.5	2.65

Stability Analysis

ROCK DIKE - BORING D
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-9



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-1.9	0
3.8	-1.9	461
8.0	-1.9	1200
20	-1.9	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	96	175	0
3	95	90	0
4	104	250	0
5	110	200	20
6	120	0	30
7	110	200	20

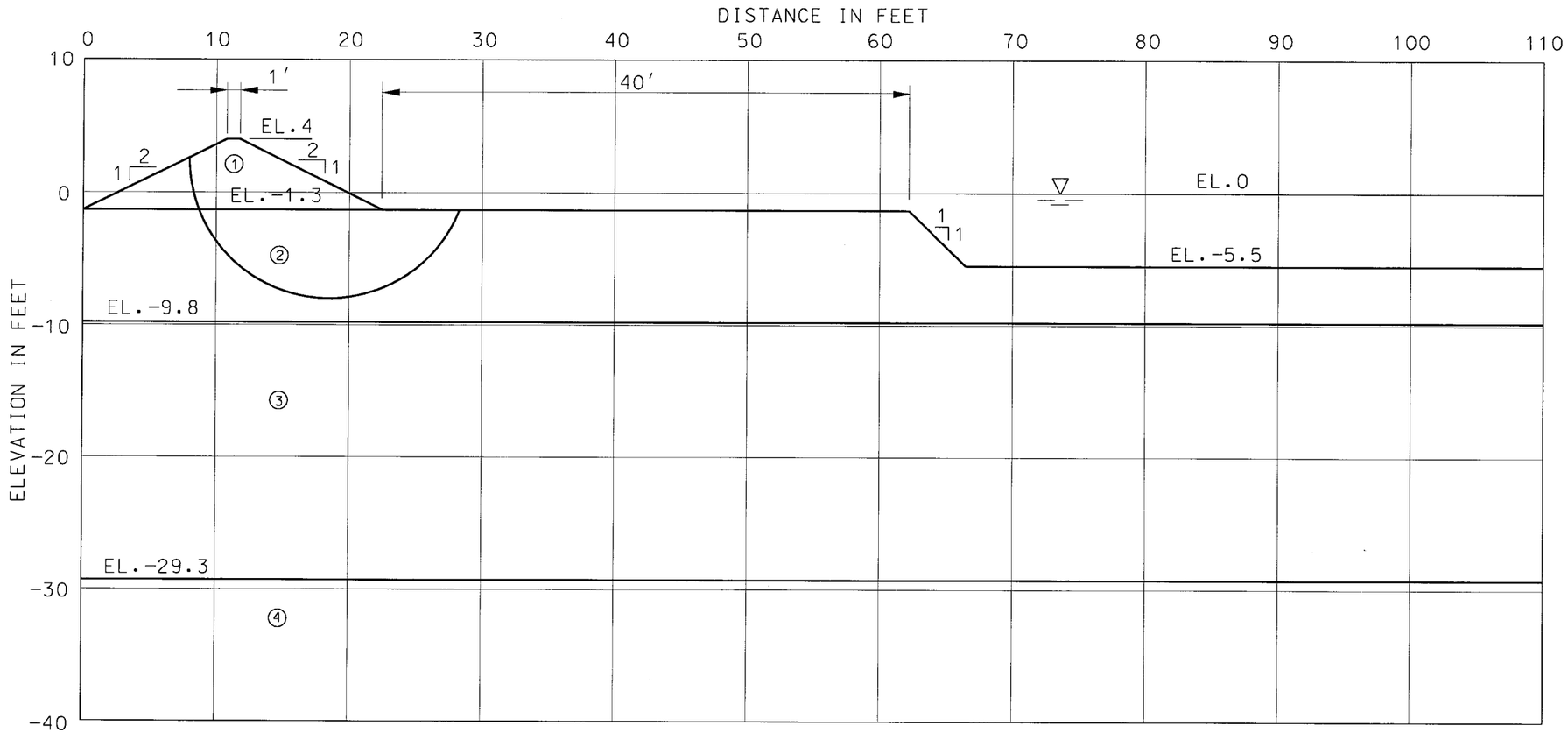
X	Y	FS
7.33	1.77	1.50
16.27	-9.3	
22.91	-9.3	
29.61	-1.9	

Stability Analysis

ROCK DIKE - BORING 12
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-10



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-1.3	0
2.6	-1.3	438
6	-1.3	1200
20	-1.3	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	115	280	0
3	120	0	30
4	105	300	0

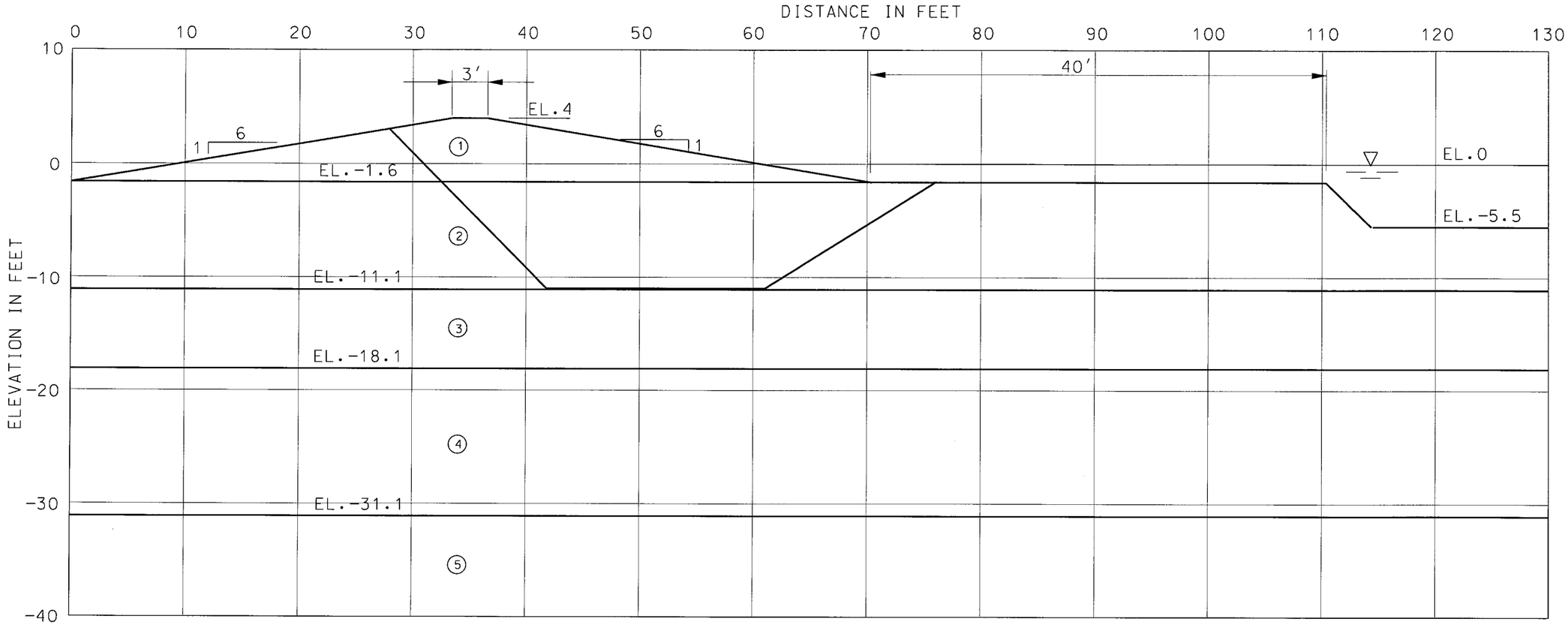
X	Y	R	FS
18.5	2.5	10.5	5.02

Stability Analysis

ROCK DIKE - BORING E
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-11



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-1.6	0
9.6	-1.6	636
15	-1.6	1200
50	-1.6	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	80	80	0
3	110	200	20
4	95	250	0
5	120	0	30

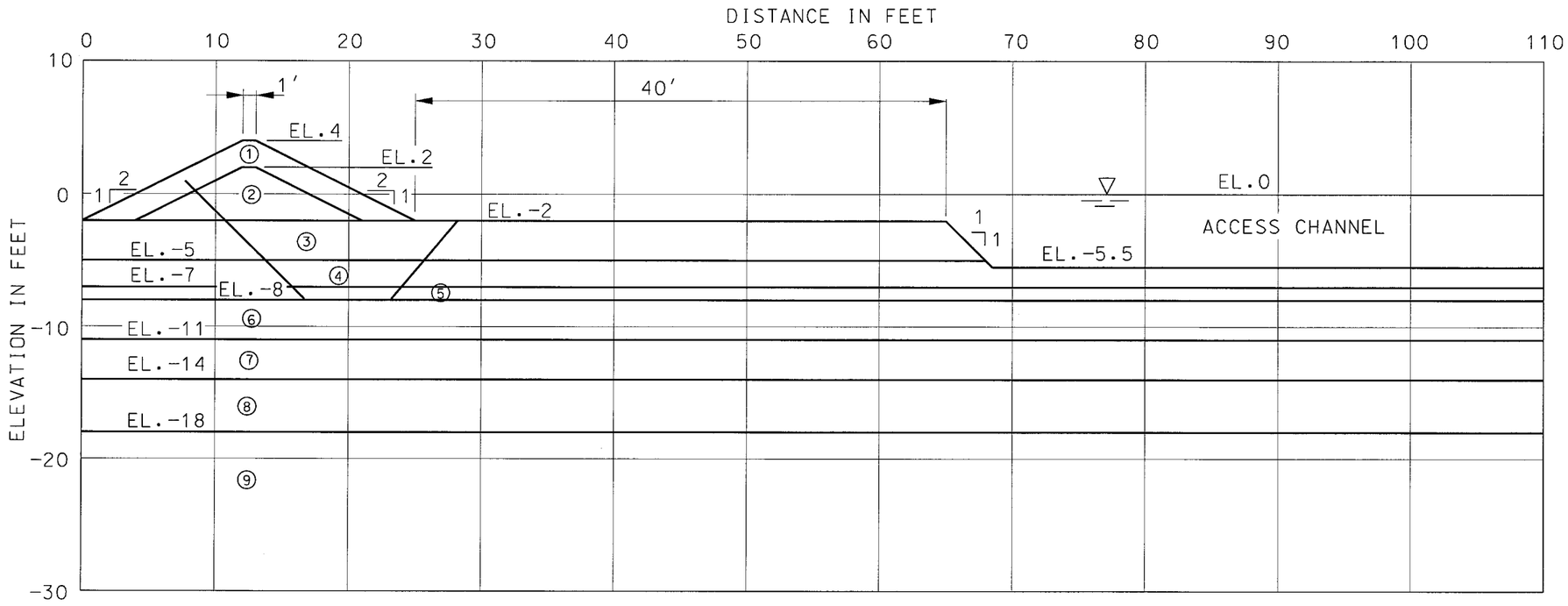
X	Y	FS
27.94	3.06	1.33
41.83	-11.0	
61.00	-11.0	
76.00	-1.60	

Stability Analysis

ROCK DIKE - BORING 13
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-12



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-2	0
4	-2	278
10	-2	1200
17	-2	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	75	0	35
3	98	75	0
4	98	120	0
5	75	75	0
6	98	220	0
7	120	0	30
8	110	200	20
9	98	120	0

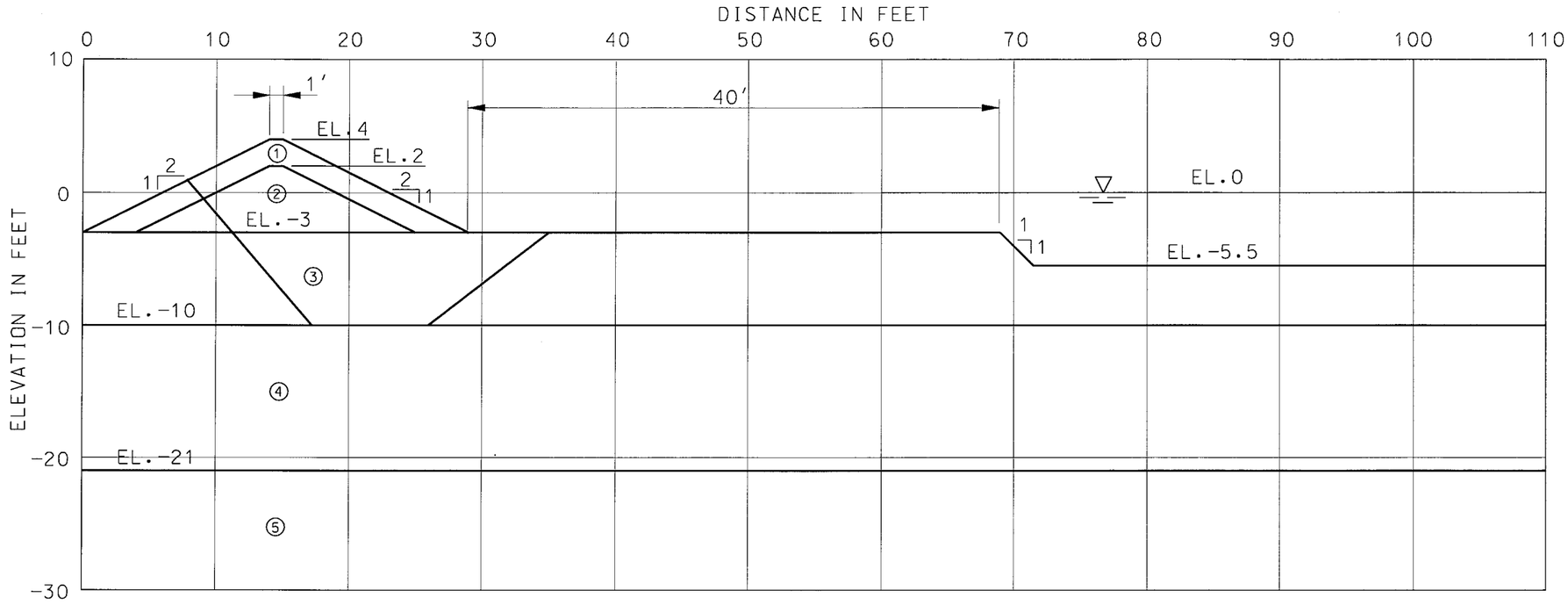
X	Y	FS
7.71	0.98	1.92
16.69	-7.90	
23.23	-7.90	
28.20	-2.00	

Stability Analysis

COMPOSITE DIKE - BORING 1
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-13



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-3	0
4	-3	299
10	-3	1200
20	-3	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	75	0	35
3	77	85	0
4	110	200	20
5	100	230	0

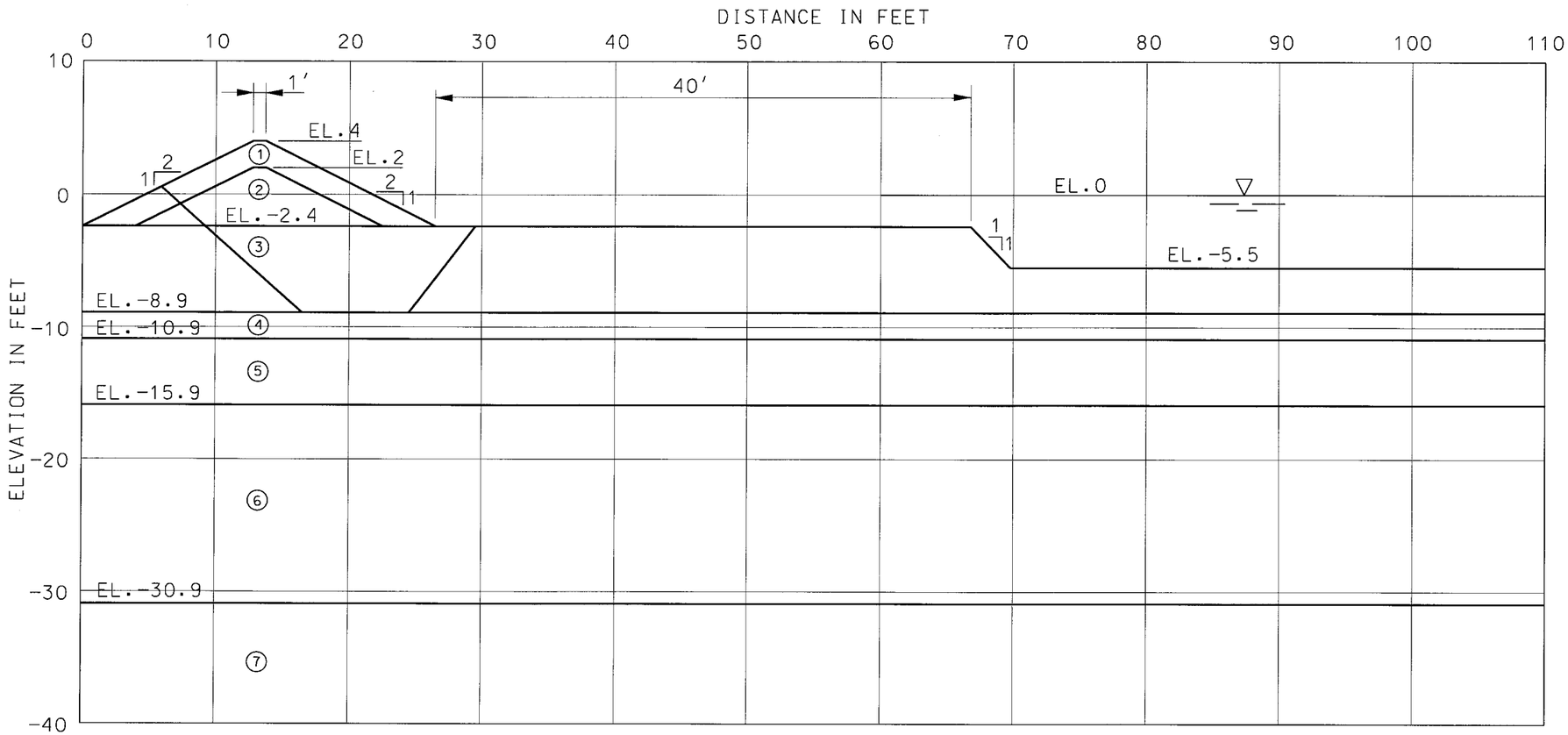
X	Y	FS
7.71	0.85	1.79
17.14	-9.90	
26.29	-9.90	
35	-3.00	

Stability Analysis

COMPOSITE DIKE - BORING 2
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-14



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-2.4	0
4	-2.4	310
10	-2.4	1200
20	-2.4	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	75	0	35
3	84	90	0
4	110	150	0
5	110	200	20
6	105	150	0
7	105	250	0

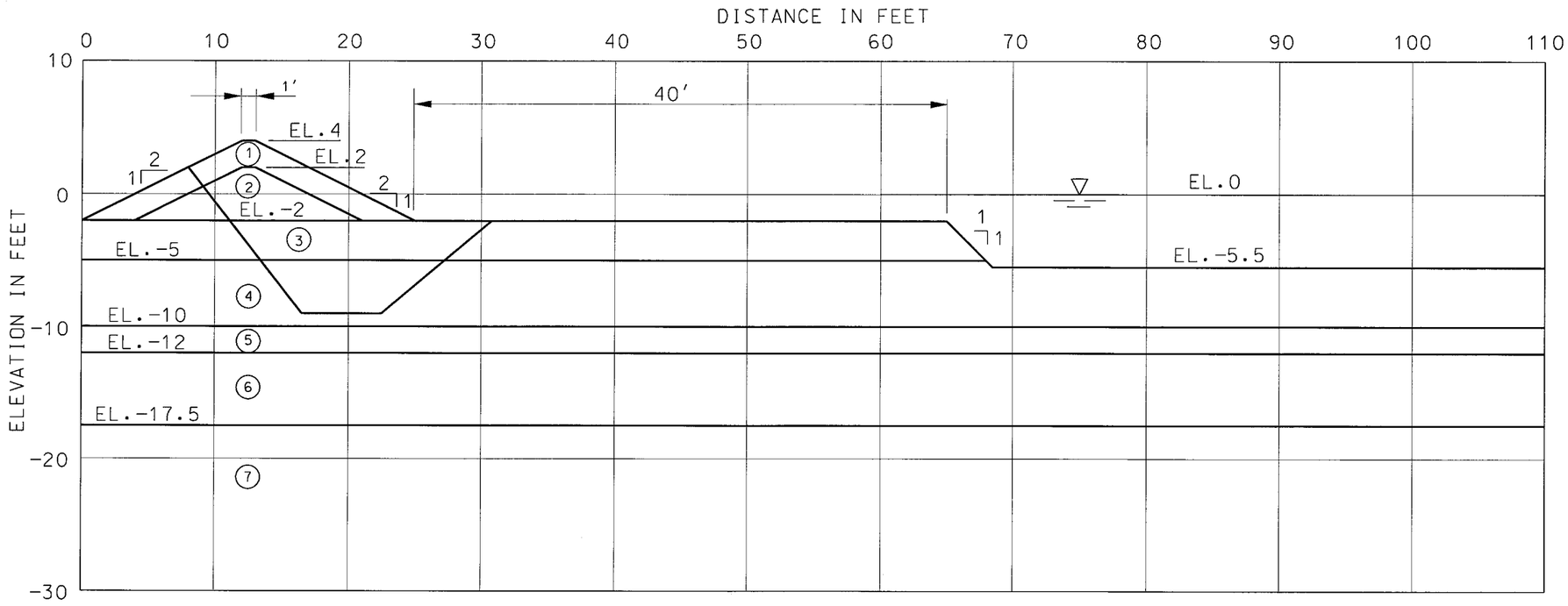
X	Y	FS
5.84	0.52	1.90
16.81	-8.80	
24.15	-8.80	
29.66	-2.40	

Stability Analysis

COMPOSITE DIKE - BORING A
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-15



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-2	0
4	-2	352
9	-2	1200
20	-2	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	75	0	35
3	94	110	0
4	92	140	0
5	120	0	30
6	110	200	20
7	104	86	0

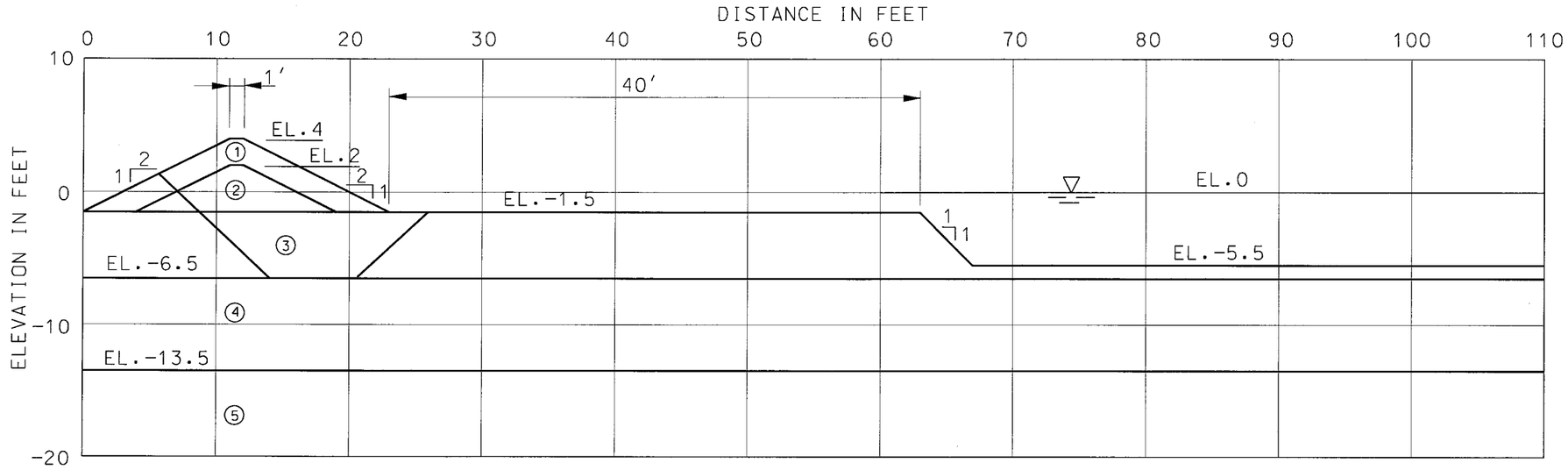
X	Y	FS
8	2	2.73
16.37	-9	
22.24	-9	
30.91	-2	

Stability Analysis

COMPOSITE DIKE - BORING 6
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-16



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-1.5	0
4	-1.5	366
9	-1.5	1200
20	-1.5	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	75	0	35
3	92	100	0
4	94	160	0
5	110	200	20

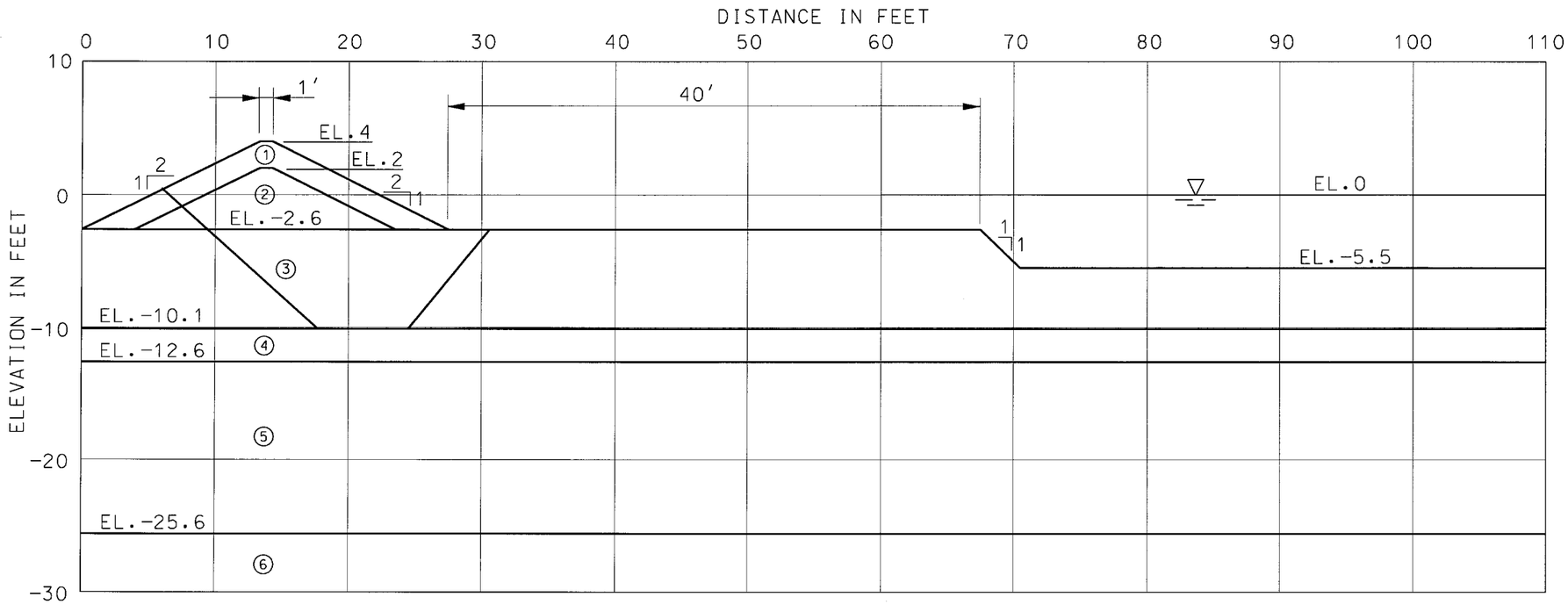
X	Y	FS
5.53	1.26	2.36
13.72	-6.40	
20.63	-6.40	
25.98	-1.50	

Stability Analysis

COMPOSITE DIKE - BORING B
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-17



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-2.6	0
5.2	-2.6	455
10	-2.6	1200
20	-2.6	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	75	0	35
3	102	105	0
4	110	200	20
5	94	200	0
6	94	330	0

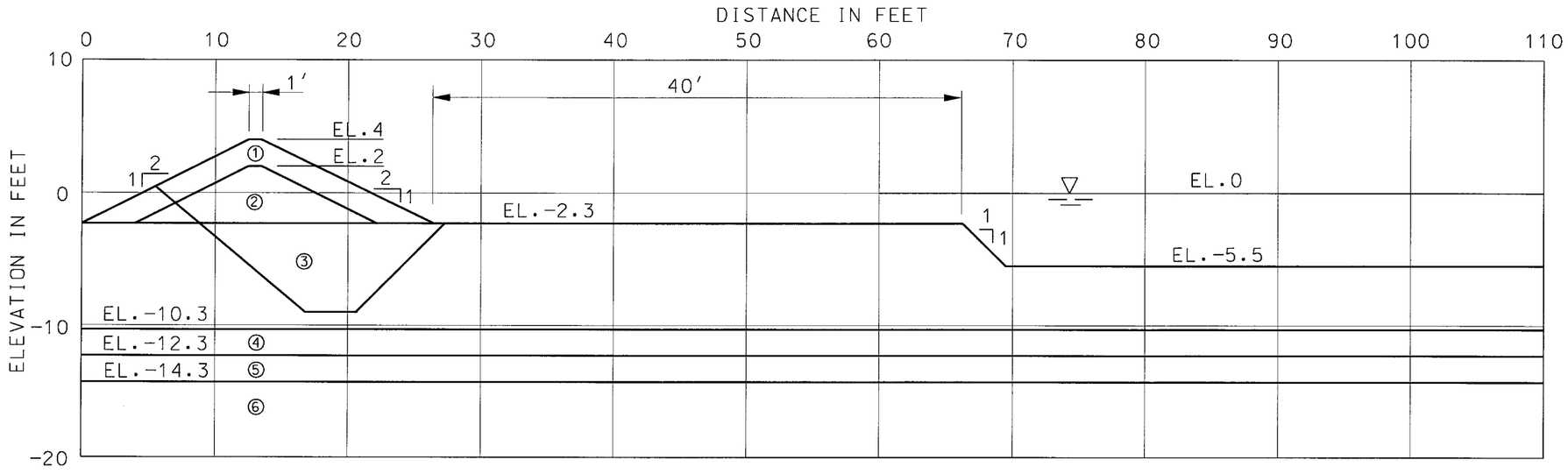
X	Y	FS
6.10	0.45	2.03
17.65	-10.0	
24.66	-10.0	
30.89	-2.60	

Stability Analysis

COMPOSITE DIKE - BORING 7
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-18



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-2.3	0
4	-2.3	438
9	-2.3	1200
20	-2.3	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	75	0	35
3	100	150	0
4	120	0	30
5	100	70	0
6	120	0	30

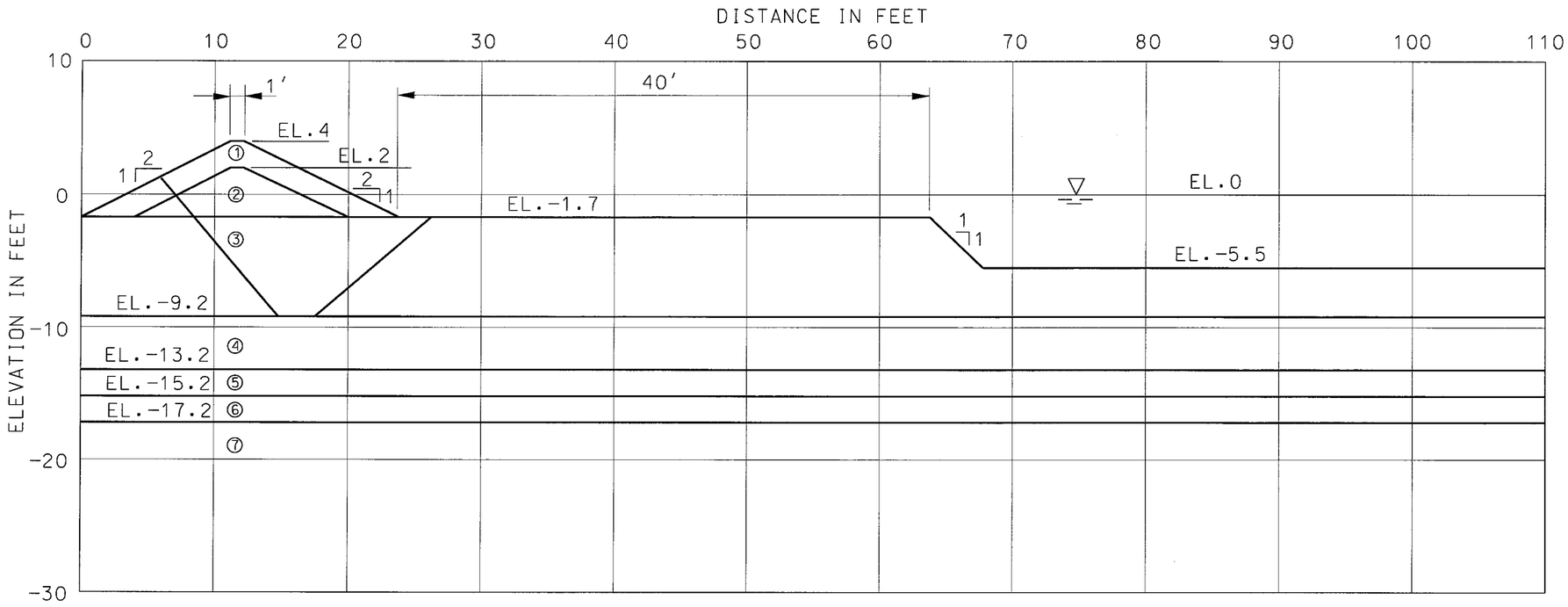
X	Y	FS
5.23	0.32	2.75
16.78	-9.0	0
20.62	-9.0	
27.29	-2.30	

Stability Analysis

COMPOSITE DIKE - BORING C
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-19



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-1.7	0
3.4	-1.7	402
8	-1.7	1200
20	-1.7	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	75	0	35
3	108	175	0
4	110	350	0
5	110	200	20
6	115	150	0
7	120	0	30

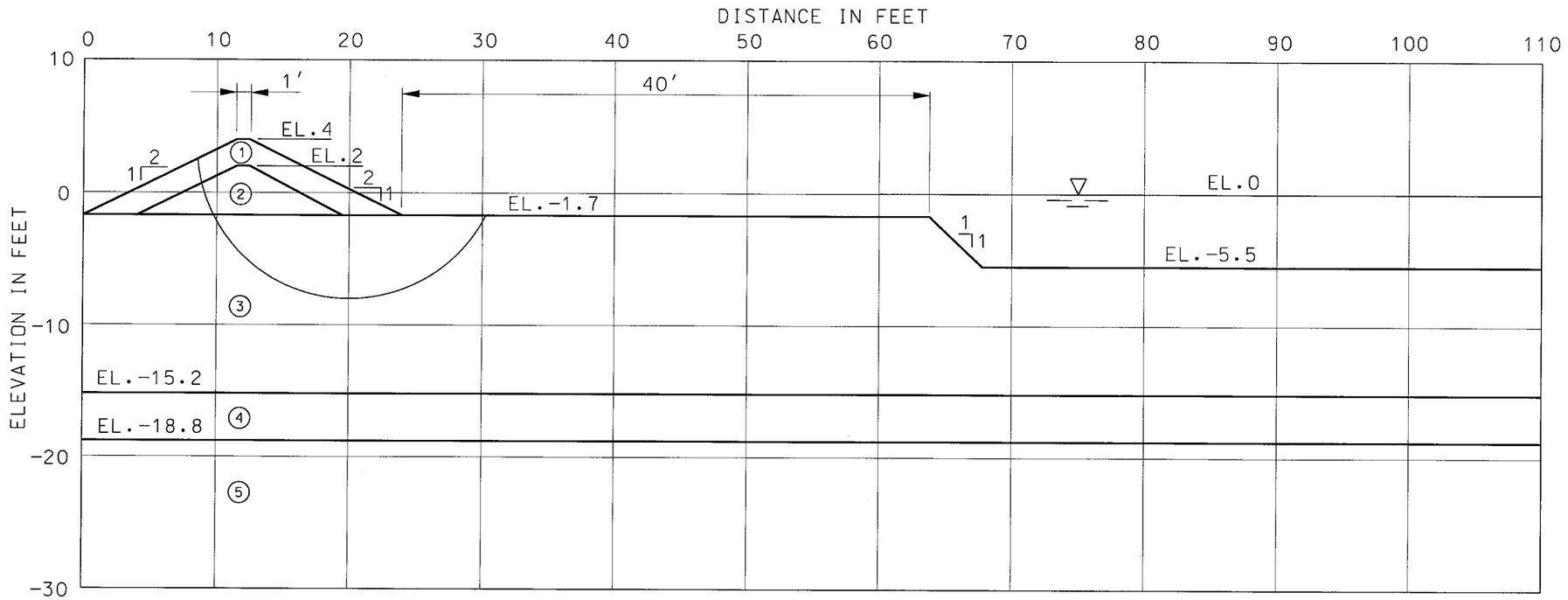
X	Y	FS
5.88	1.24	2.48
14.75	-9.10	
17.32	-9.10	
26.15	-1.70	

Stability Analysis

COMPOSITE DIKE - BORING 10
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-20



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-1.7	0
34	-1.7	357
8	-1.7	1200
20	-1.7	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	75	0	35
3	105	150	0
4	110	200	20
5	90	0	30

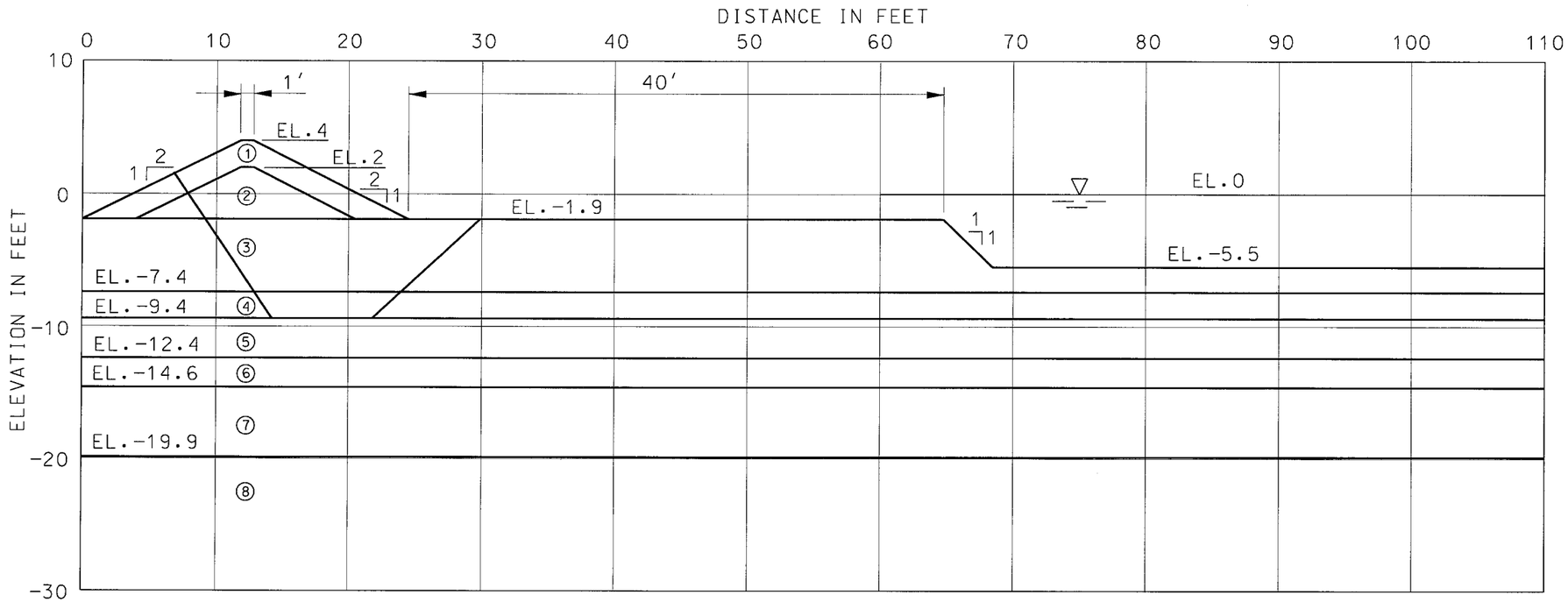
X	Y	R	FS
2.0	3.5	11.5	4.19

Stability Analysis

COMPOSITE DIKE - BORING D
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-21



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-1.9	0
3.8	-1.9	461
8	-1.9	1200
20	-1.9	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	75	0	35
3	96	175	0
4	95	90	0
5	104	250	0
6	110	200	20
7	120	0	30
8	110	200	20

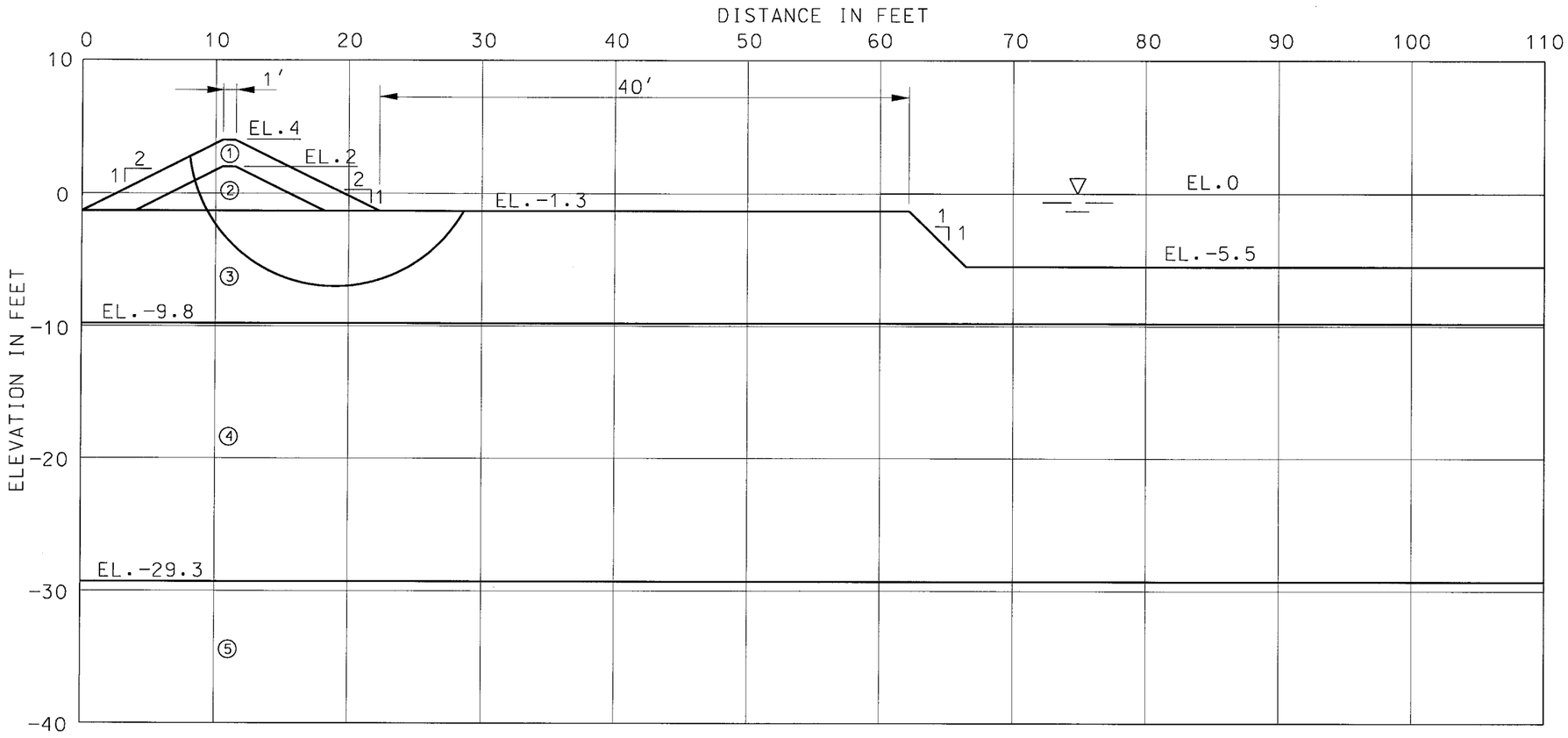
X	Y	FS
6.95	1.58	2.10
14.07	-9.30	
21.93	-9.30	
28.35	-1.90	

Stability Analysis

COMPOSITE DIKE - BORING 12
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-22



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-1.3	0
2.6	-1.3	438
6	-1.3	1200
20	-1.3	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	75	0	35
3	115	280	0
4	120	0	30
5	105	300	0

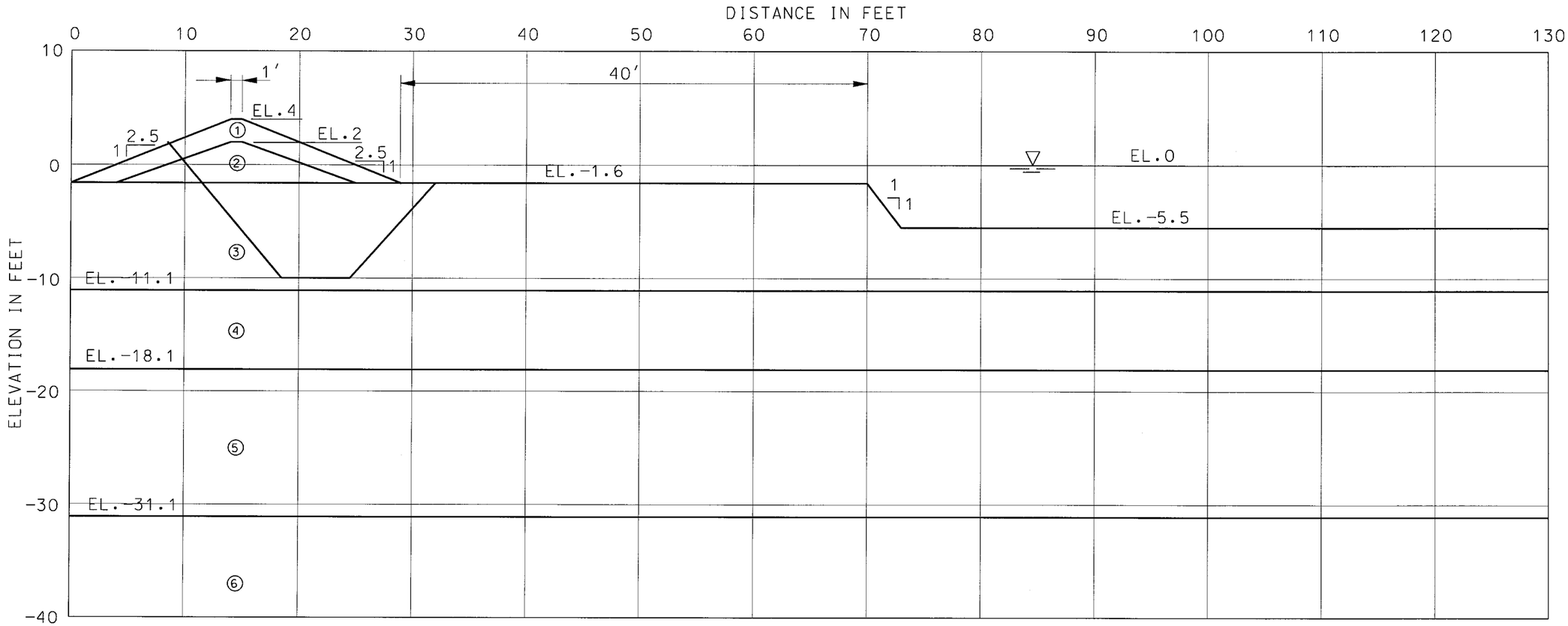
X	Y	R	FS
19	4	11	8.09

Stability Analysis

COMPOSITE DIKE - BORING E
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-23



GEOTEXTILE PULLOUT RESISTANCE		
X	Y	P, LBS/FT
0	-1.6	0
4	-1.6	265
11	-1.6	1200
20	-1.6	1200

SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	115	0	35
2	75	0	35
3	80	80	0
4	110	200	20
5	95	250	0
6	120	0	30

X	Y	FS
8.73	1.89	1.40
18.27	-10	
24.38	-10	
32	-1.60	

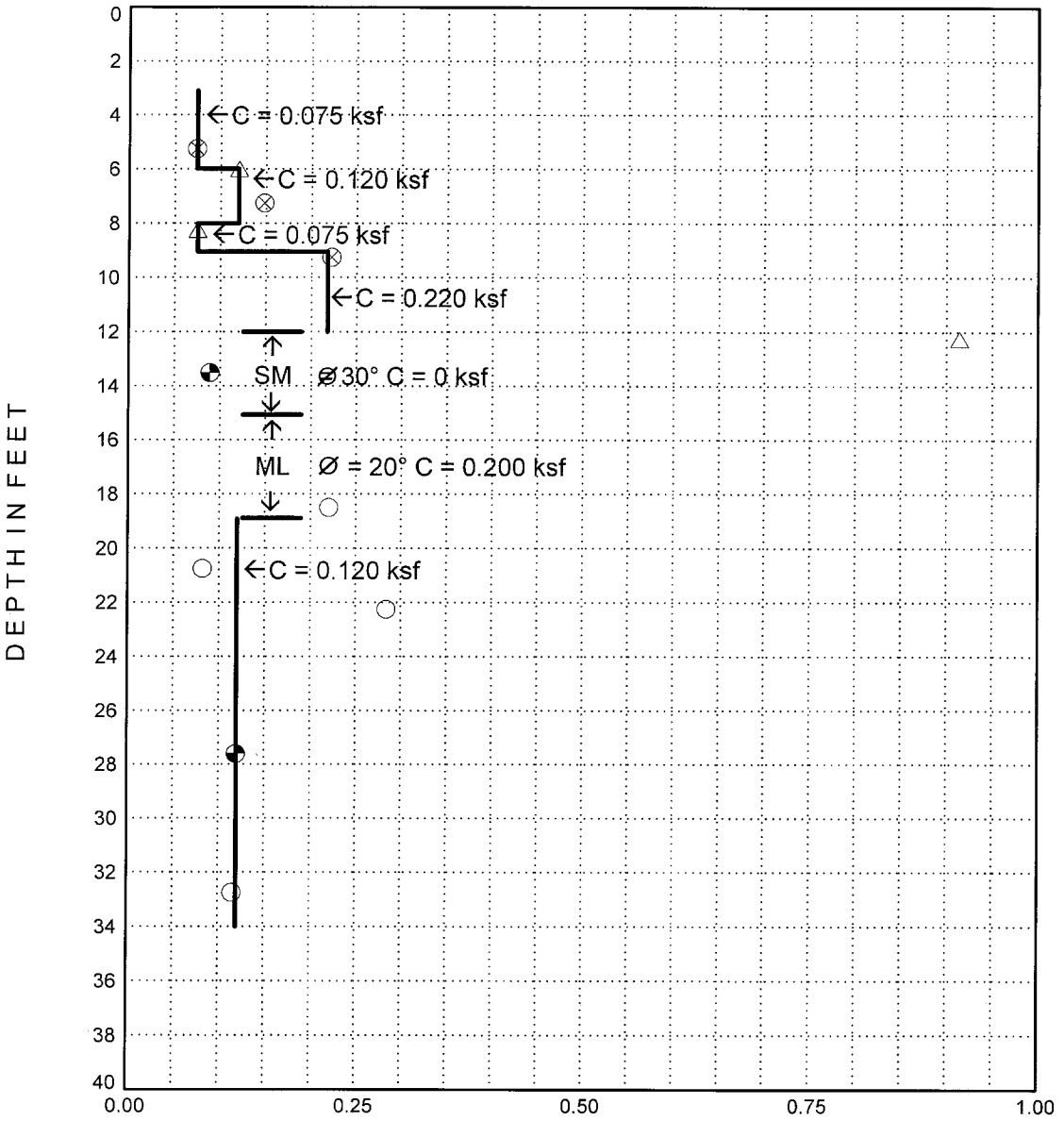
Stability Analysis

COMPOSITE DIKE - BORING 13
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"= 10' | FIGURE B-24

BORING NO. 1



LEGEND:

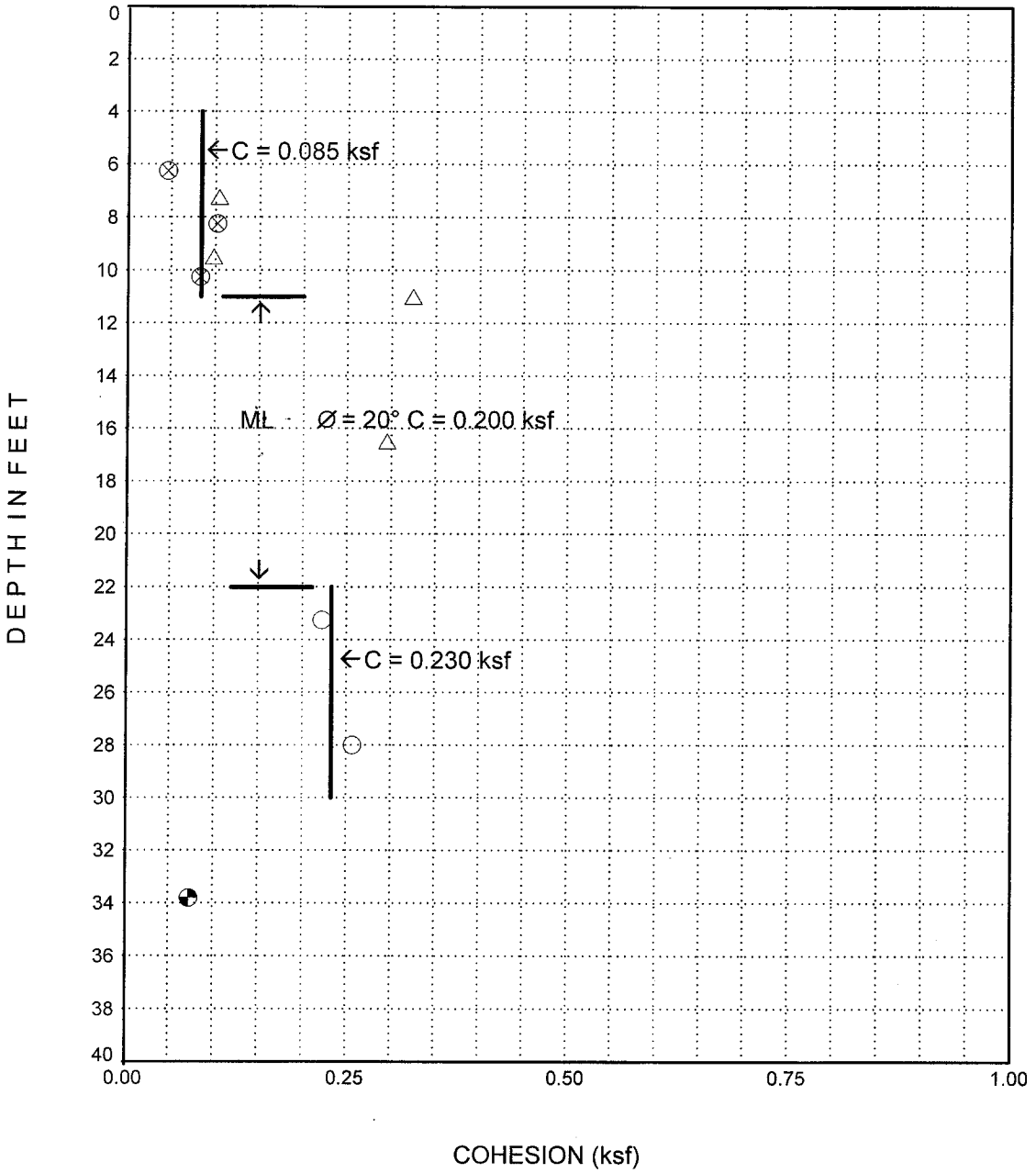
- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◔ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

Job No. 02485-3	Date 4/30/03	Figure B-25

BORING NO. 2



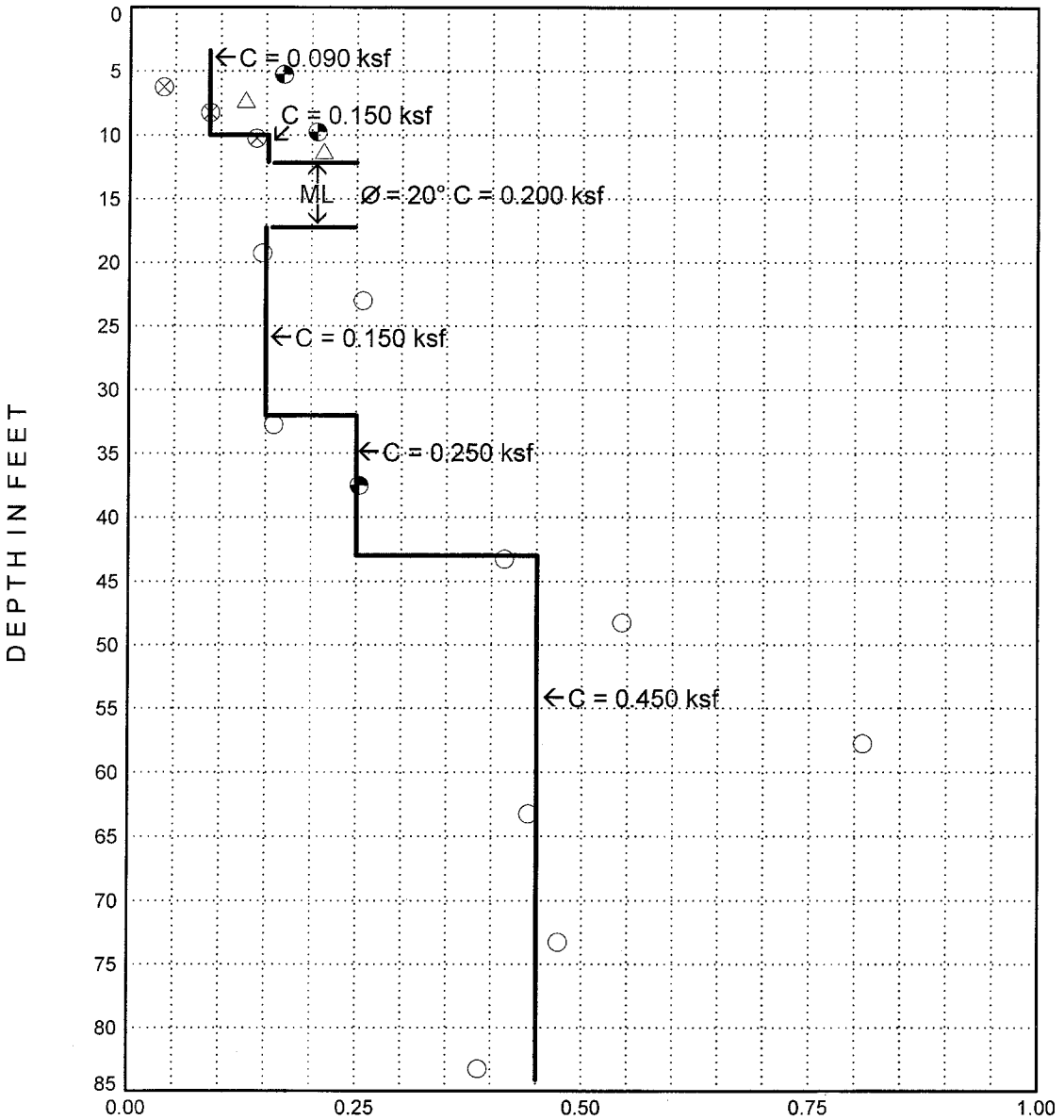
LEGEND:

- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◔ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 4/30/03	Figure B-26

BORING NO. A



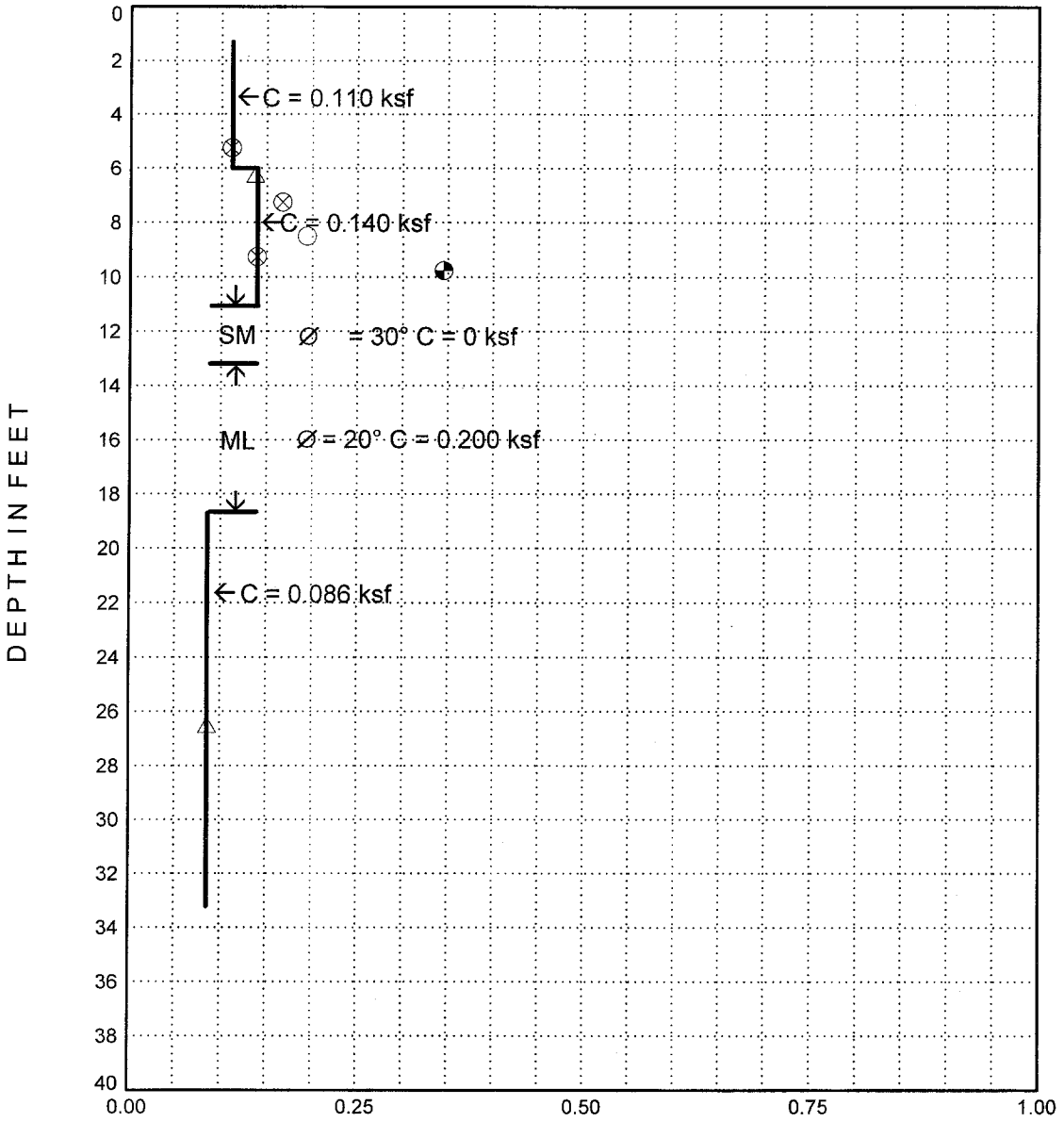
LEGEND:

- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◒ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/1/03	Figure B-27

BORING NO. 6



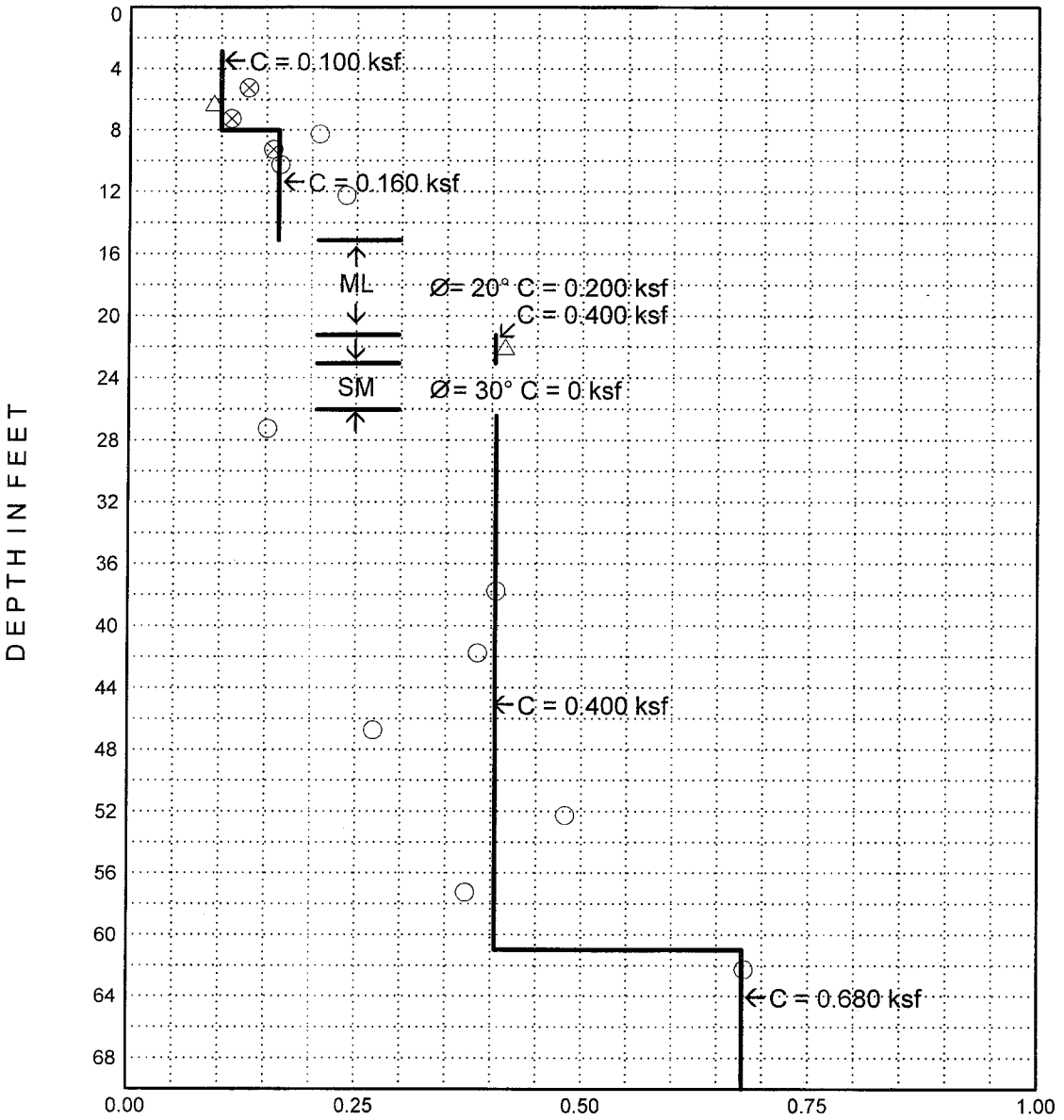
LEGEND:

- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◒ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/1/03	Figure B-28

BORING NO. B



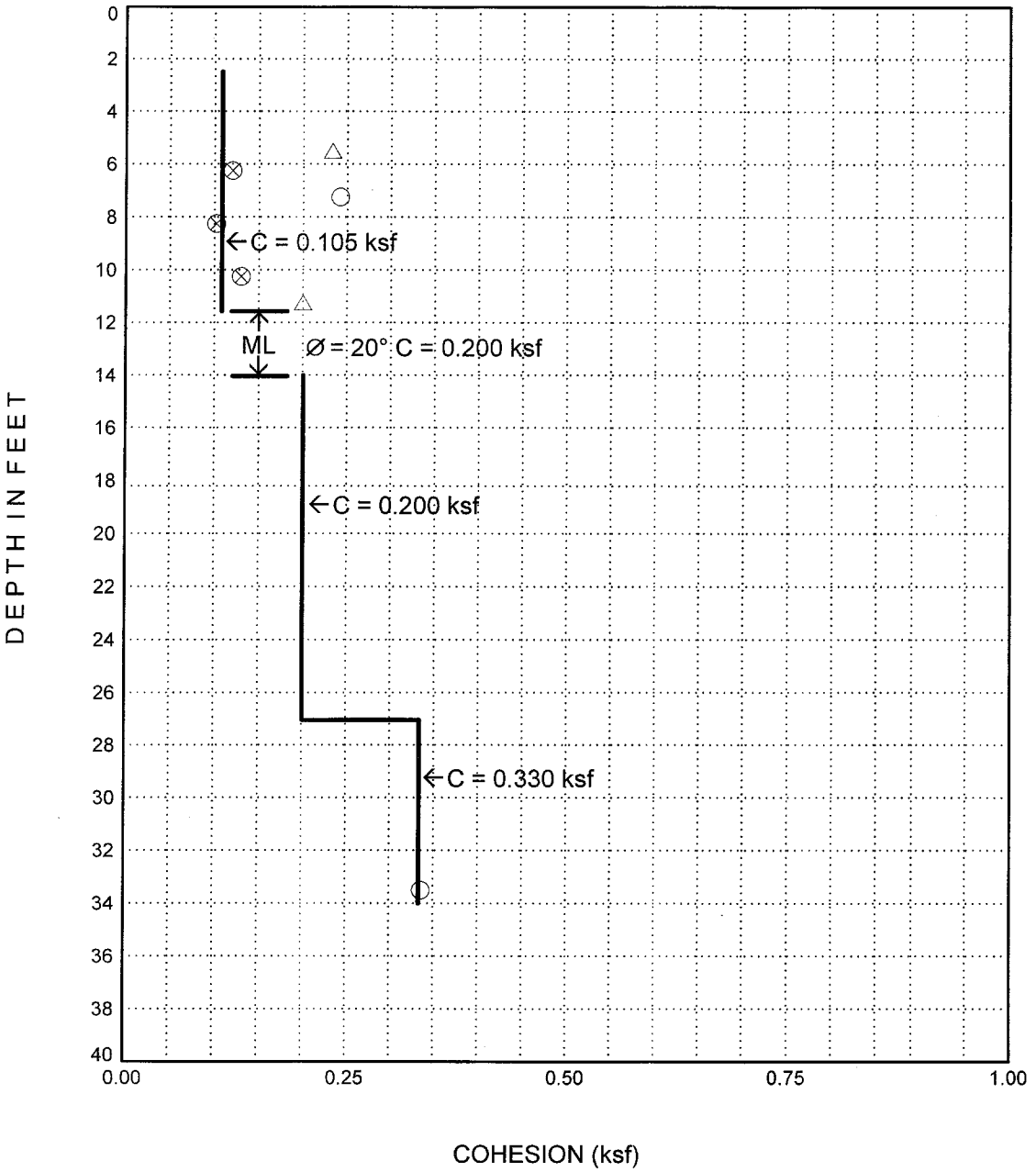
LEGEND:

- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◕ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/1/03	Figure B-29

BORING NO. 7



LEGEND:

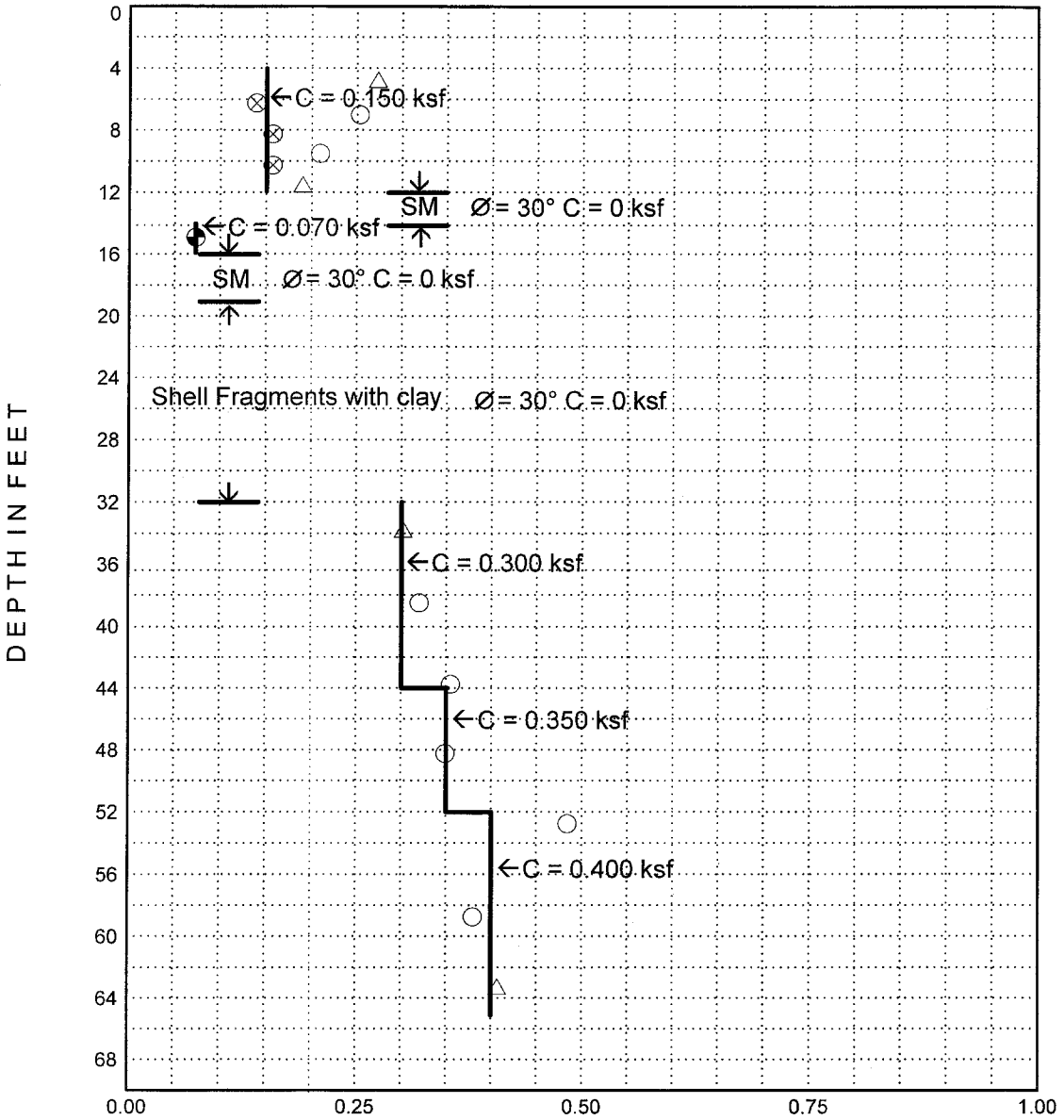
- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◔ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

Job No. 02485-3	Date 5/1/03	Figure B-30

BORING NO. C



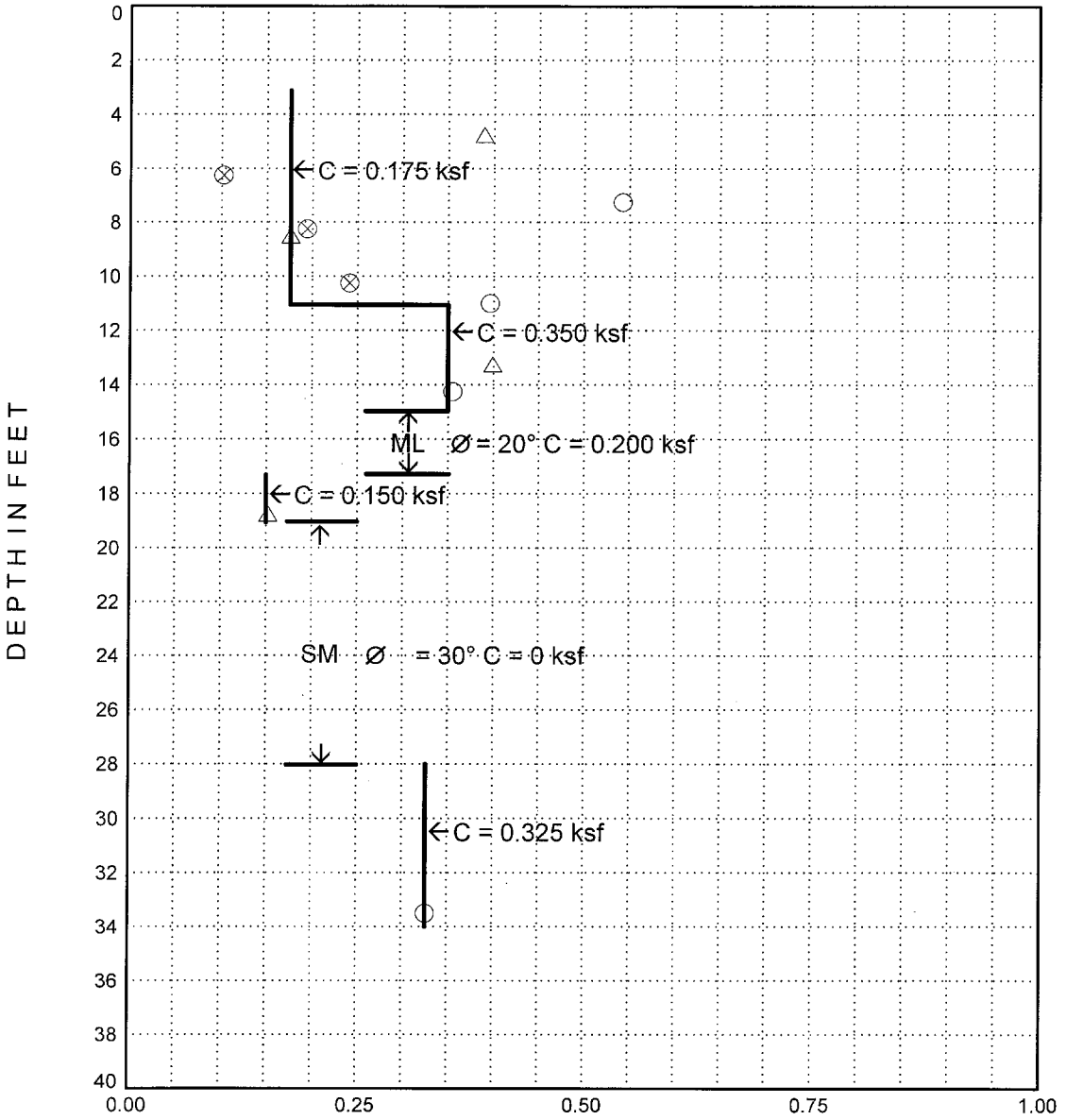
LEGEND:

- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◓ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/1/03	Figure B-31

BORING NO. 10



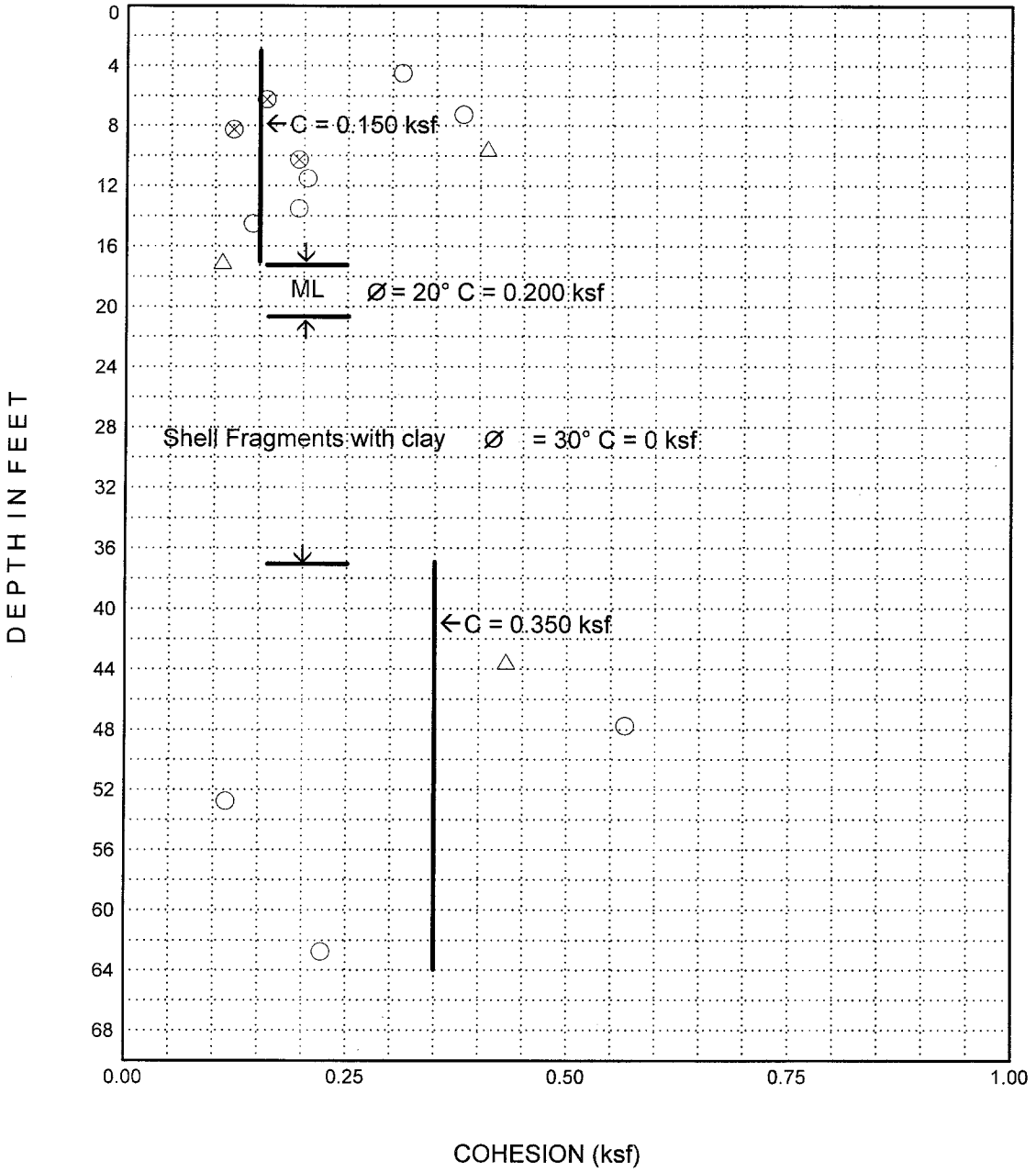
LEGEND:

- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◔ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/1/03	Figure B-32

BORING NO. D



LEGEND:

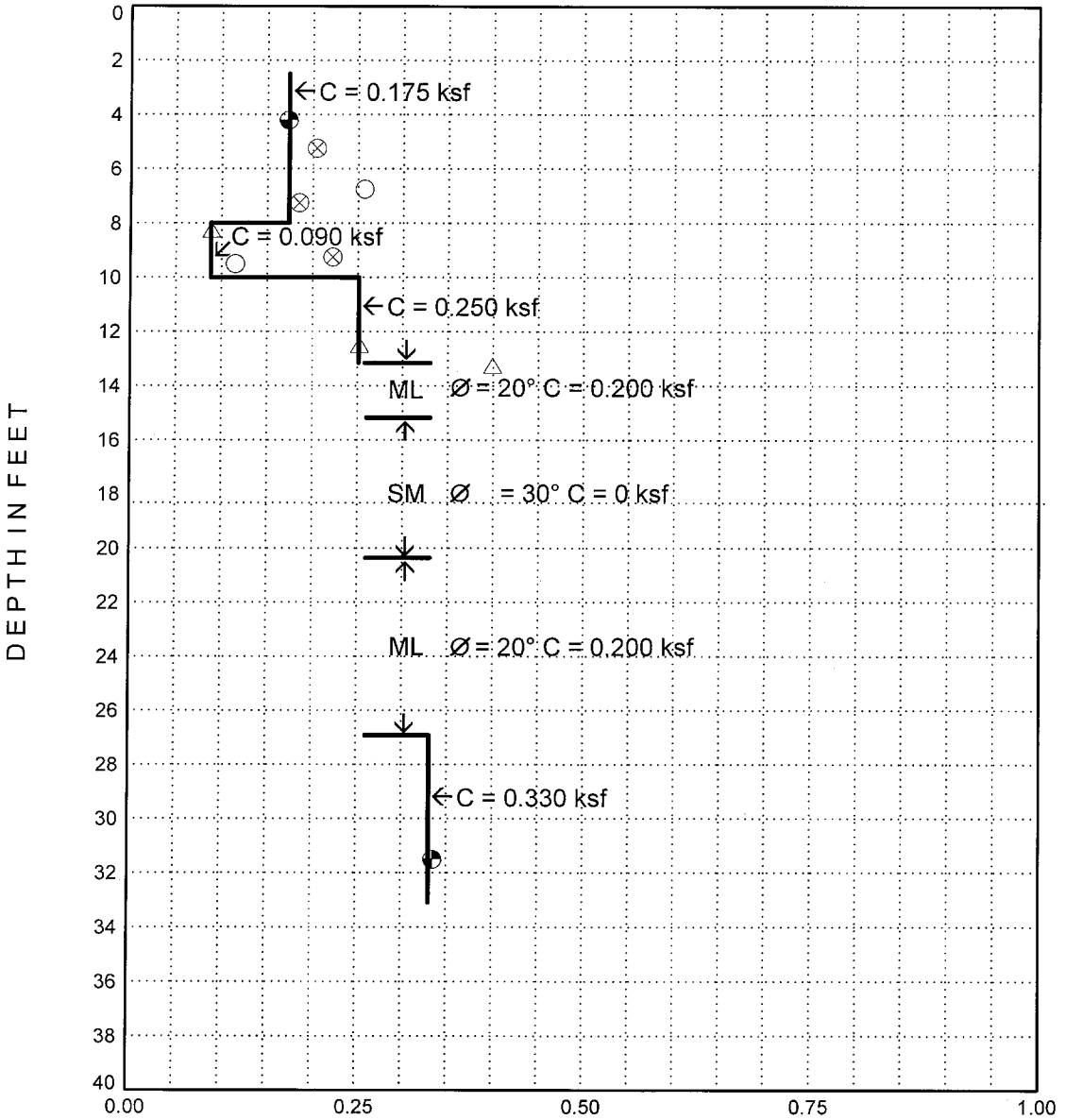
- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◔ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

Job No. 02485-3	Date 5/2/03	Figure B-33

BORING NO. 12



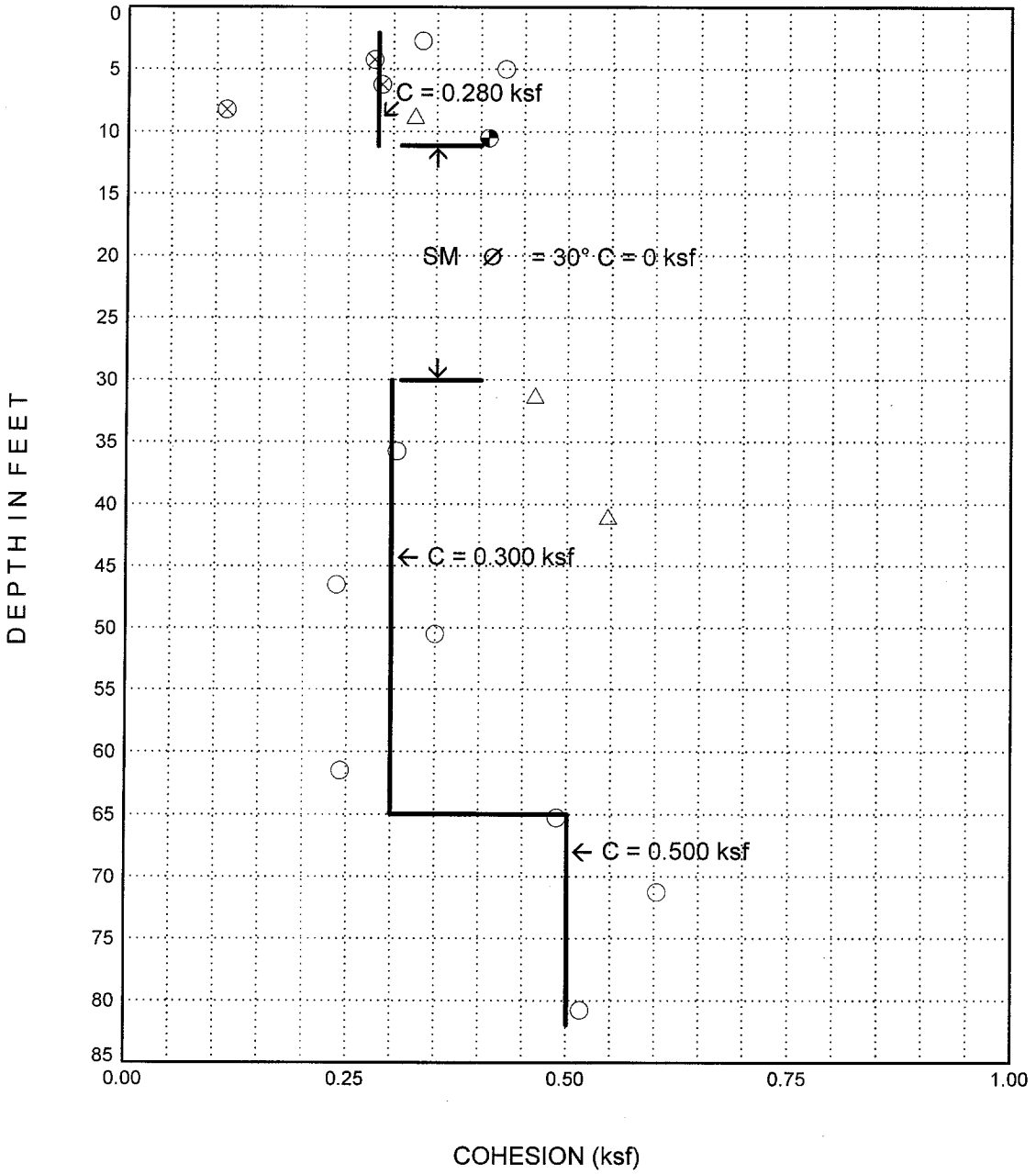
LEGEND:

- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◔ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/2/03	Figure B-34

BORING NO. E



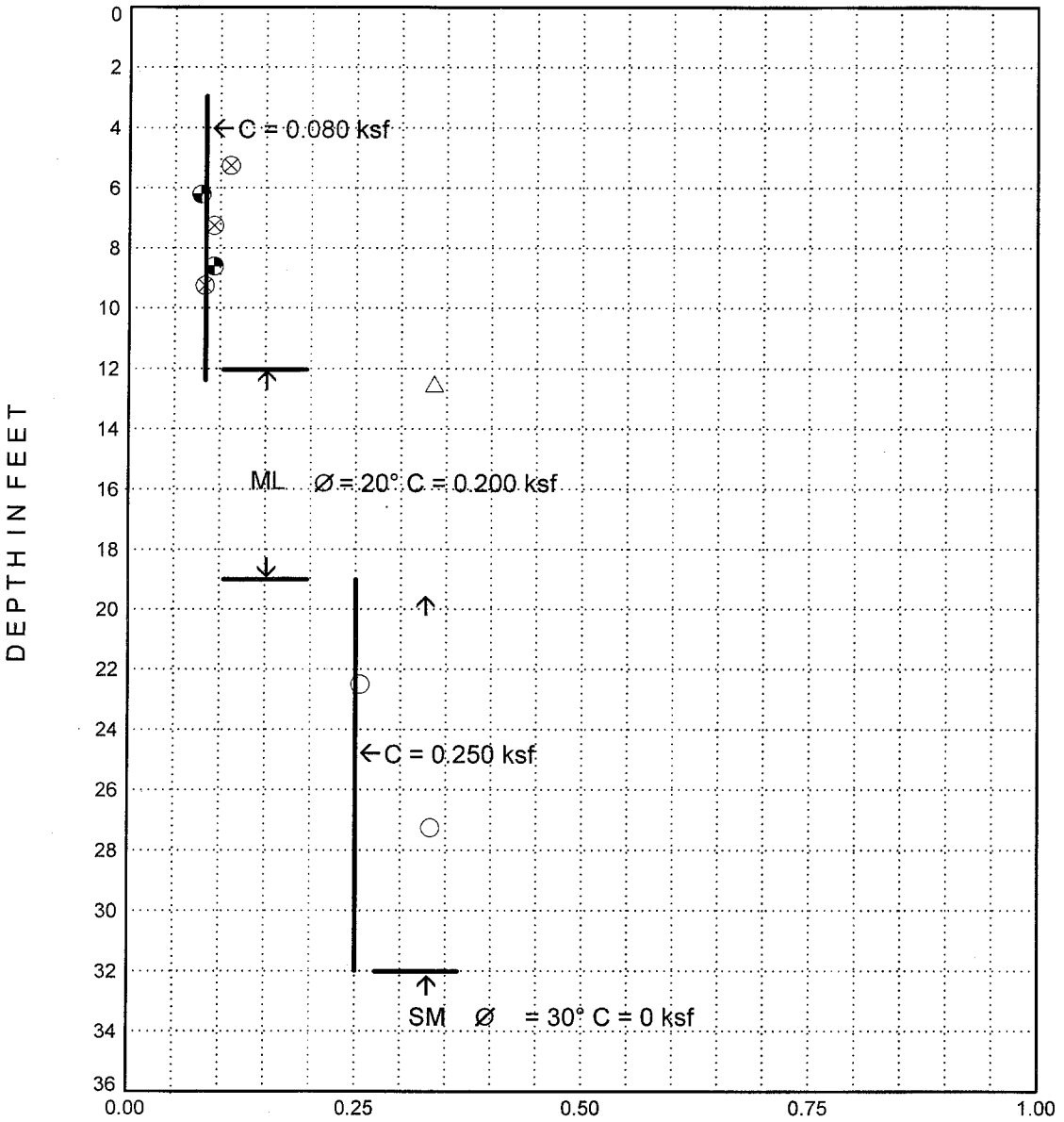
LEGEND:

- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◔ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/2/03	Figure B-35

BORING NO. 13



LEGEND:

- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◔ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/2/03	Figure B-36

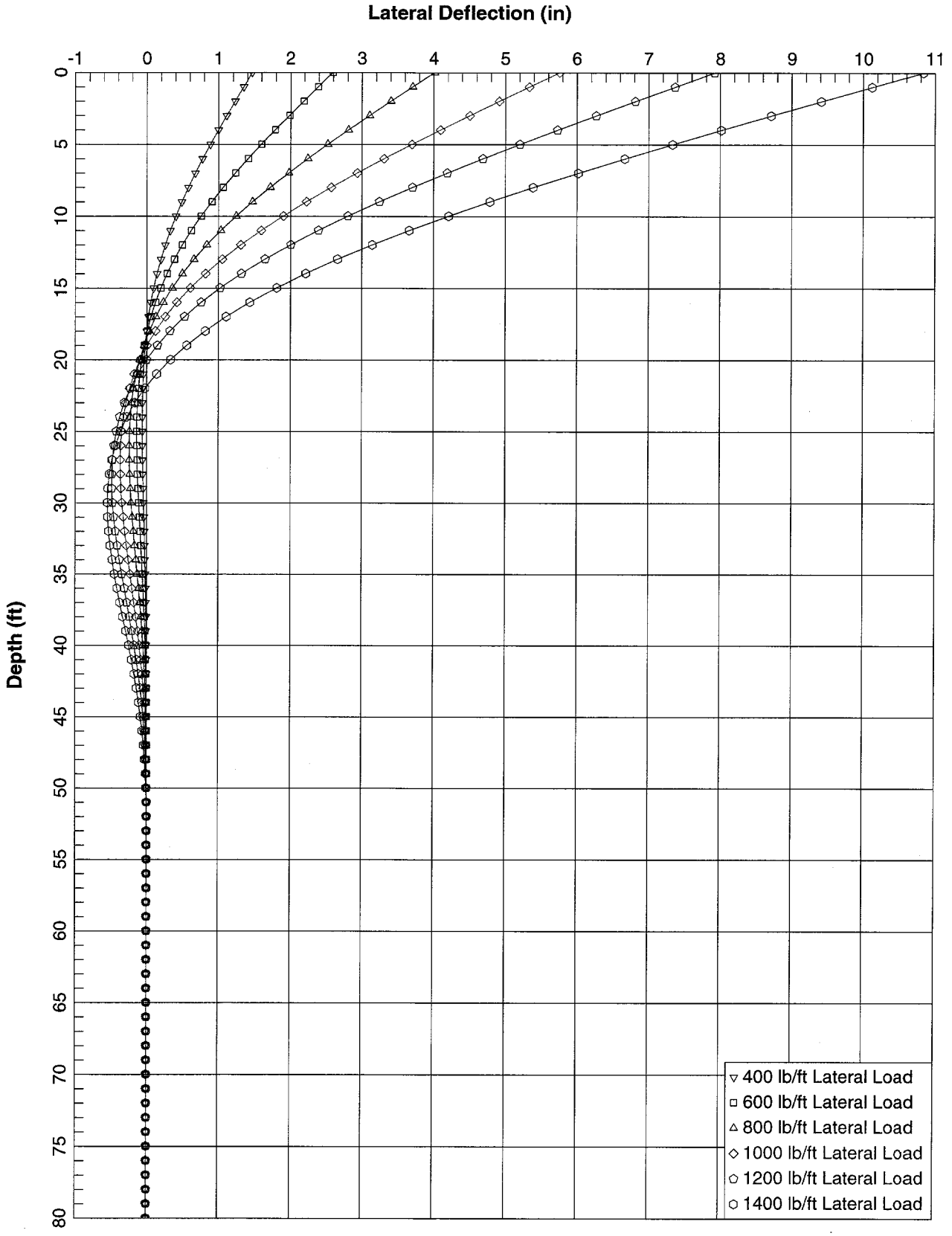


Figure C-1 - Boring 1 - 20-ft Panel - West Lake Boudreaux (TE-46) Terrebonne Parish, Louisiana

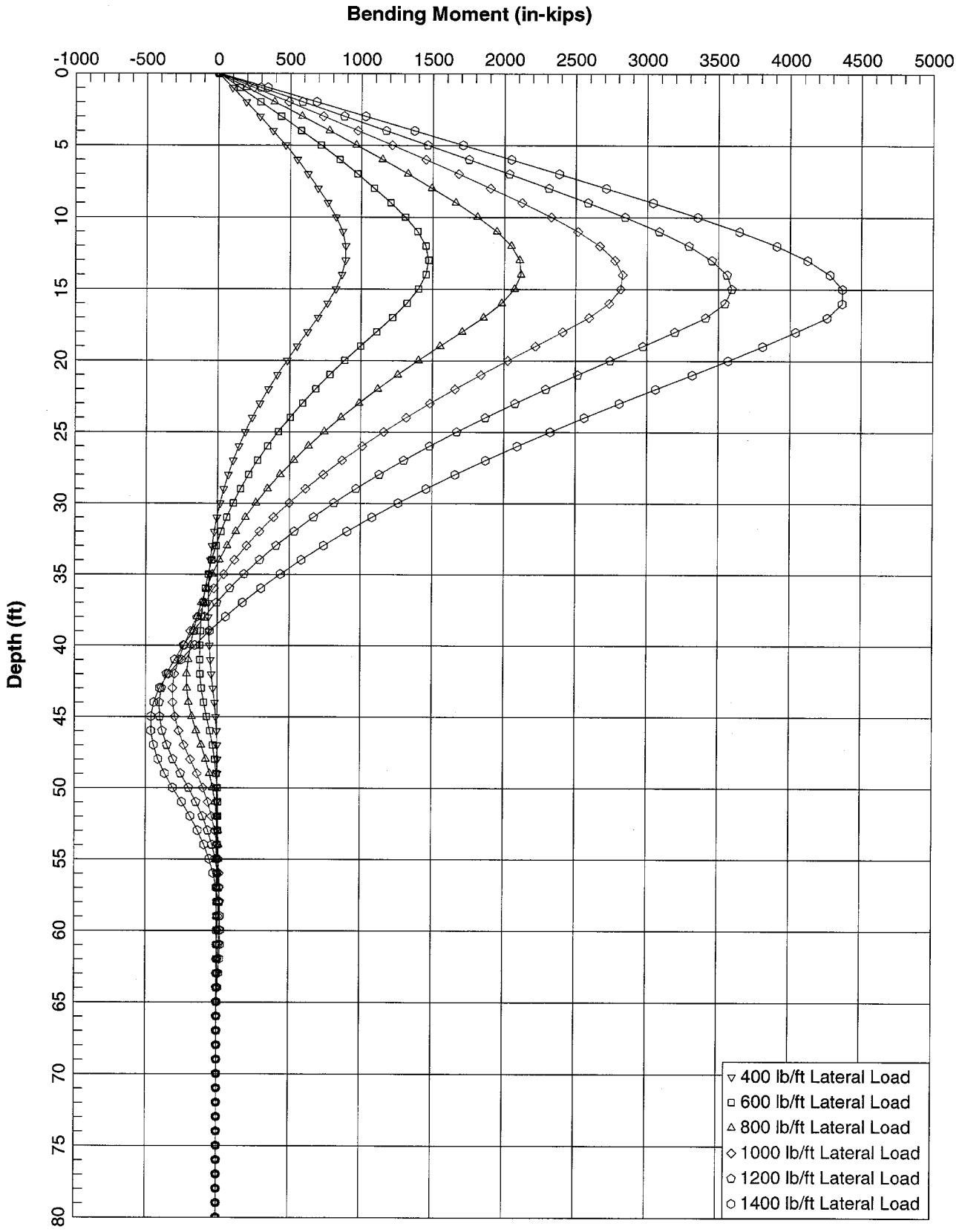


Figure C-2 - Boring 1 - 20-ft Panel - West Lake Boudreaux (TE-46) Terrebonne Parish, Louisiana

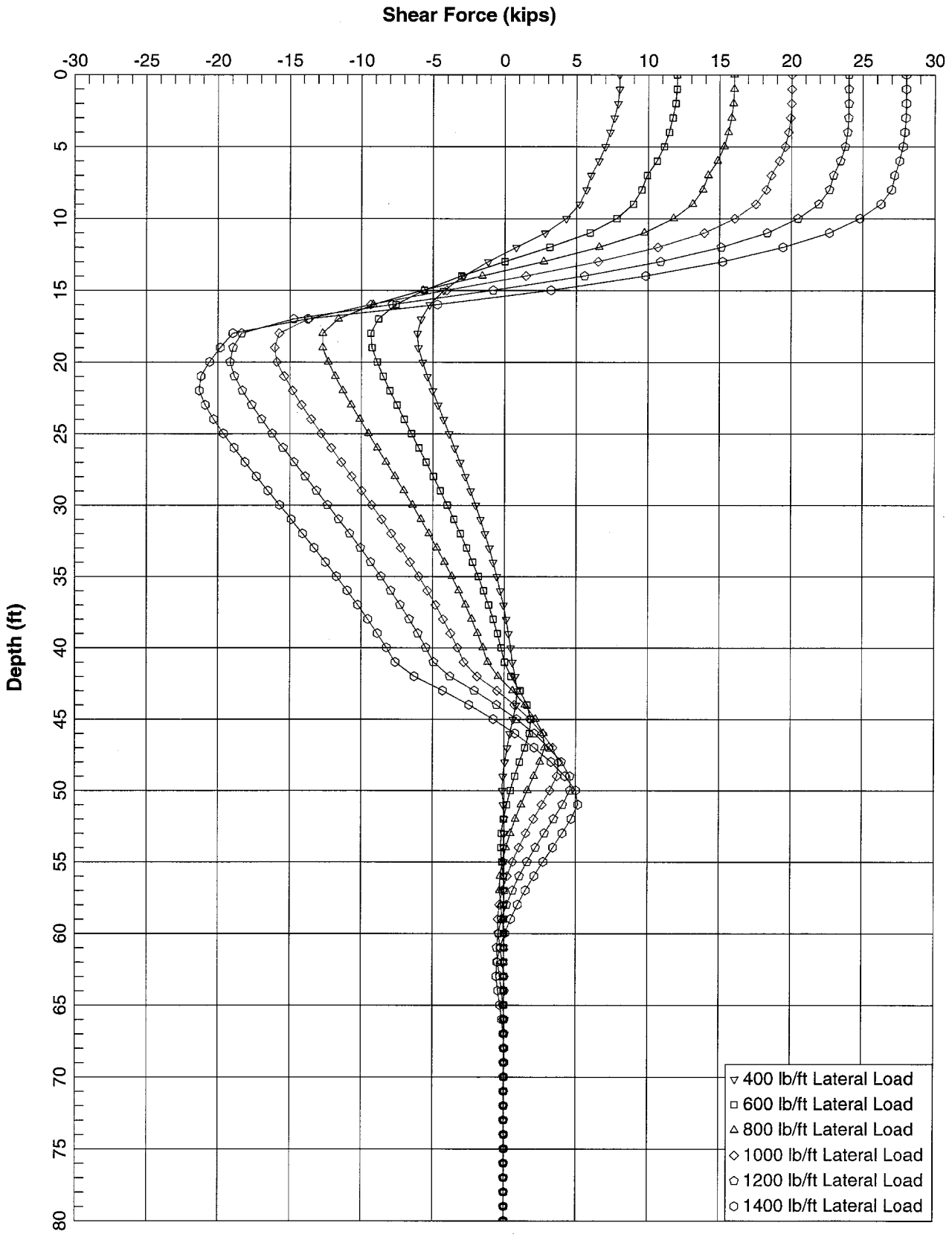


Figure C-3 - Boring 1 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

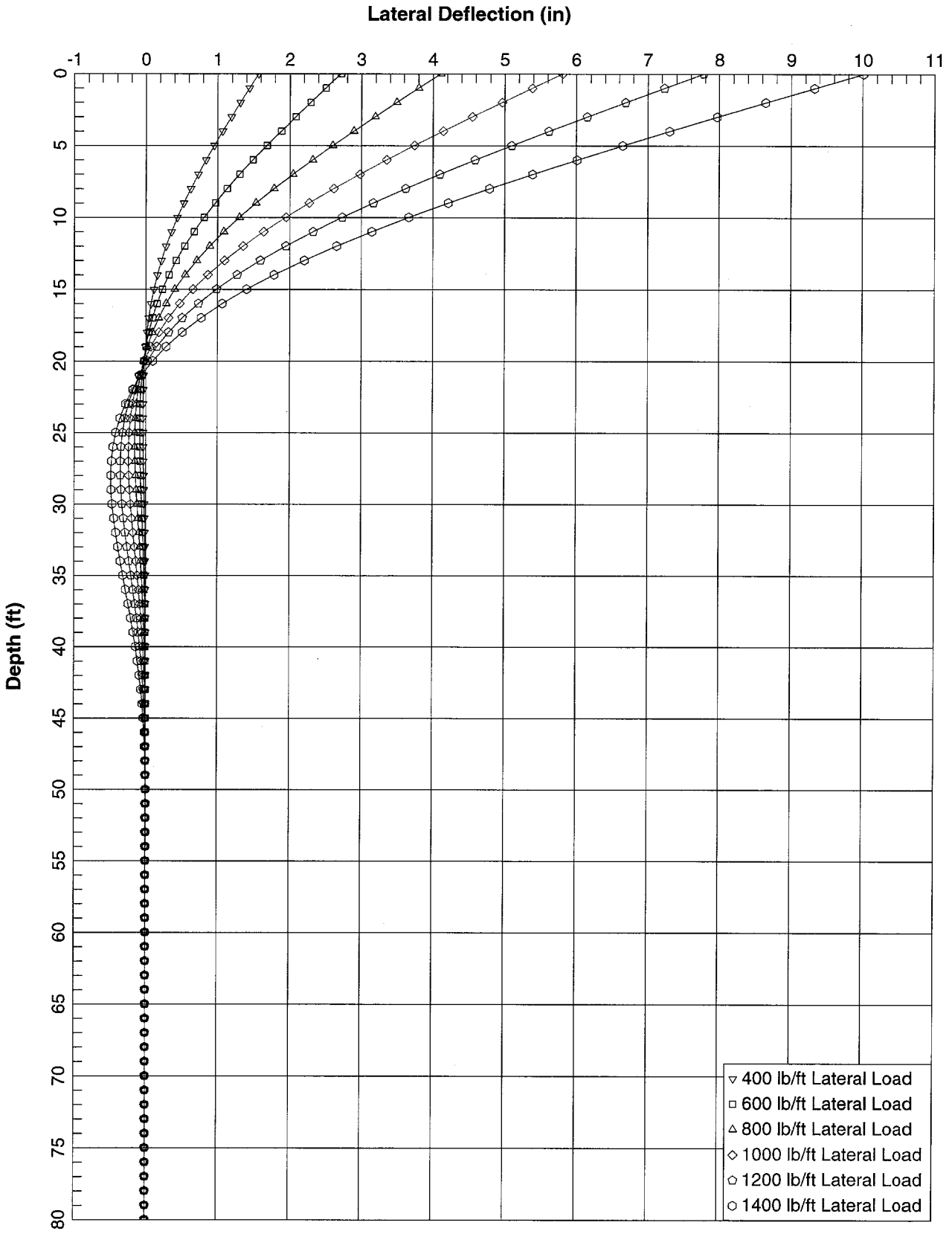


Figure C-4 - Boring 2 - 20-ft Panel - West Lake Boudreaux (TE-46) Terrebonne Parish, Louisiana

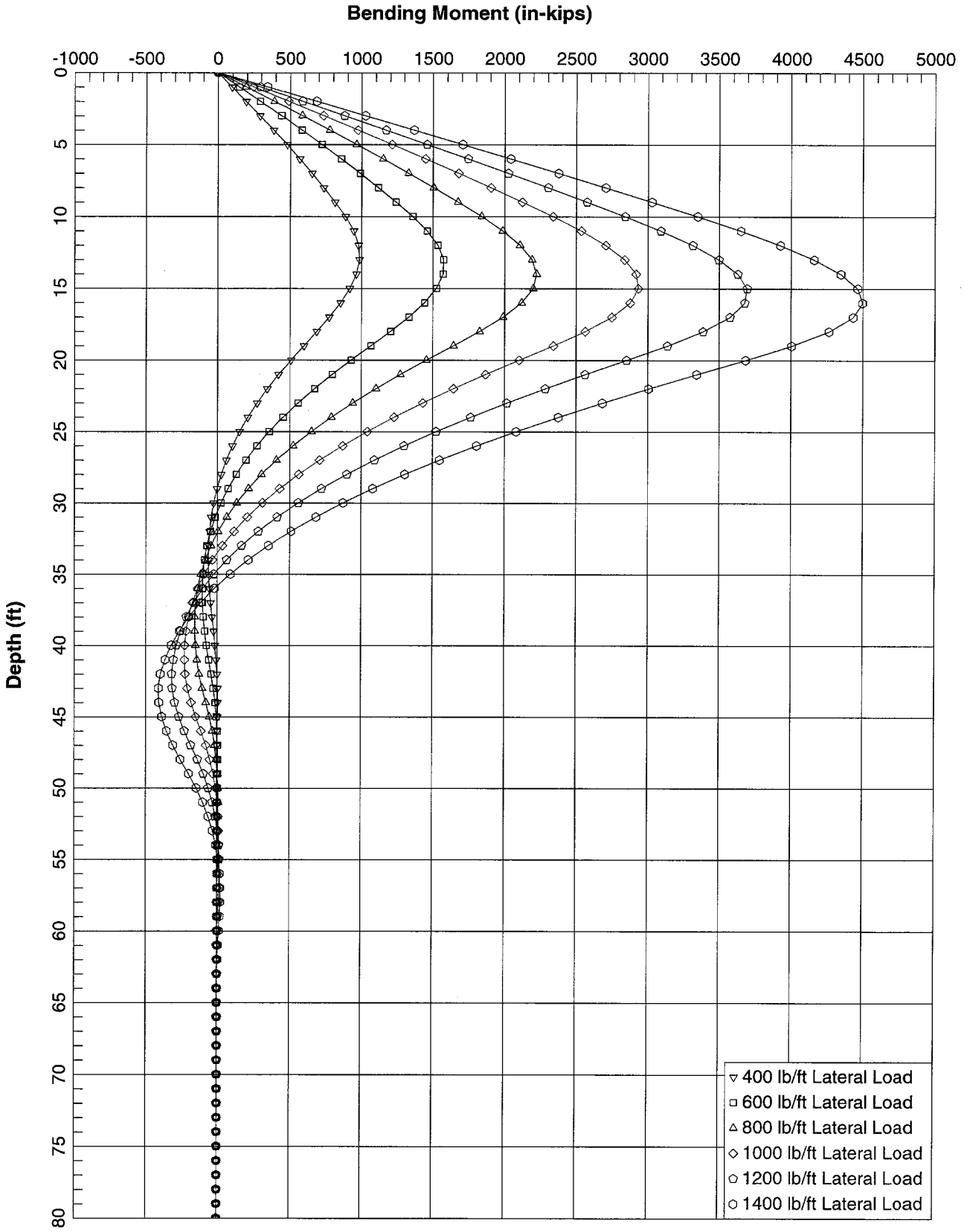


Figure C-5 - Boring 2 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

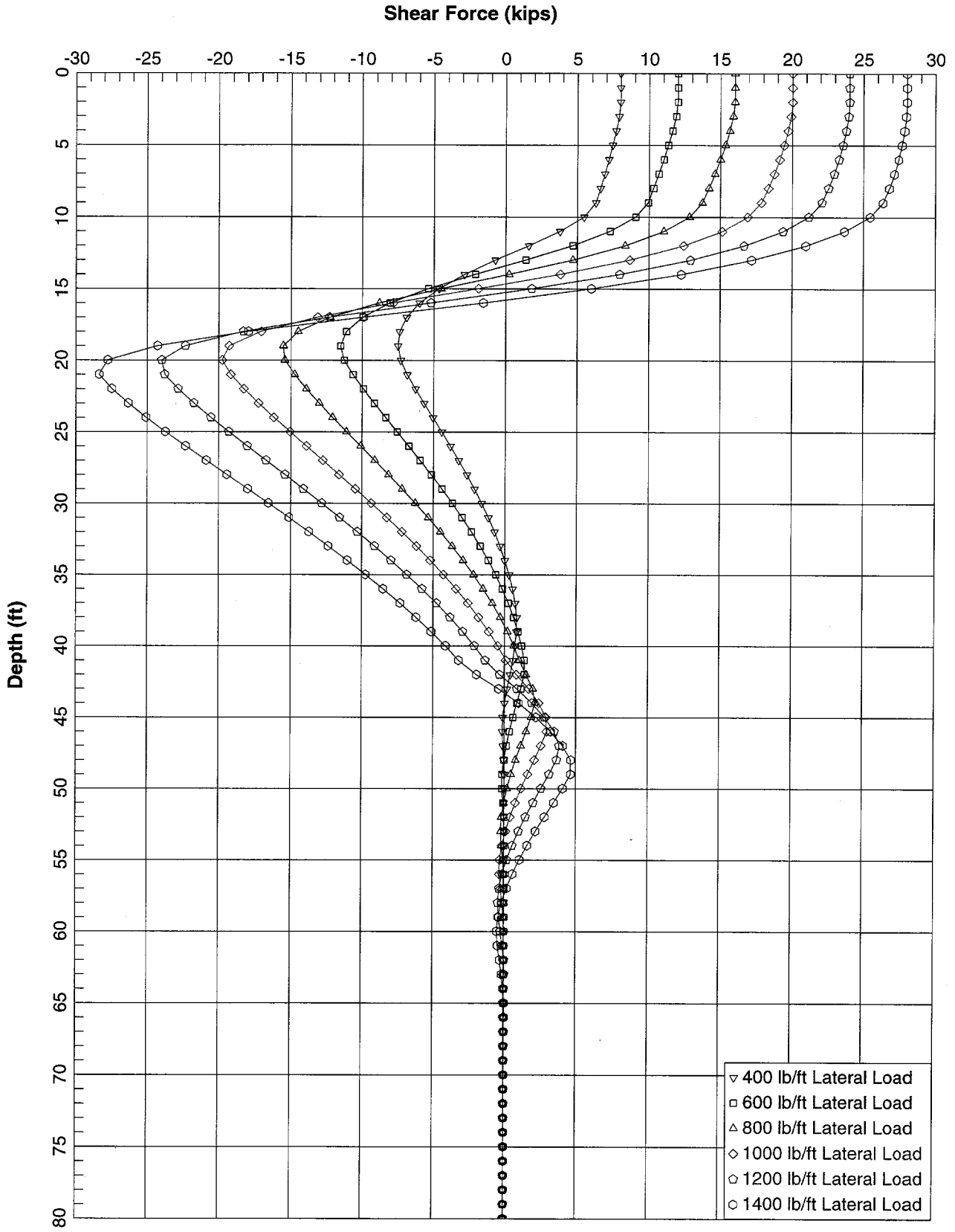


Figure C-6 - Boring 2 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

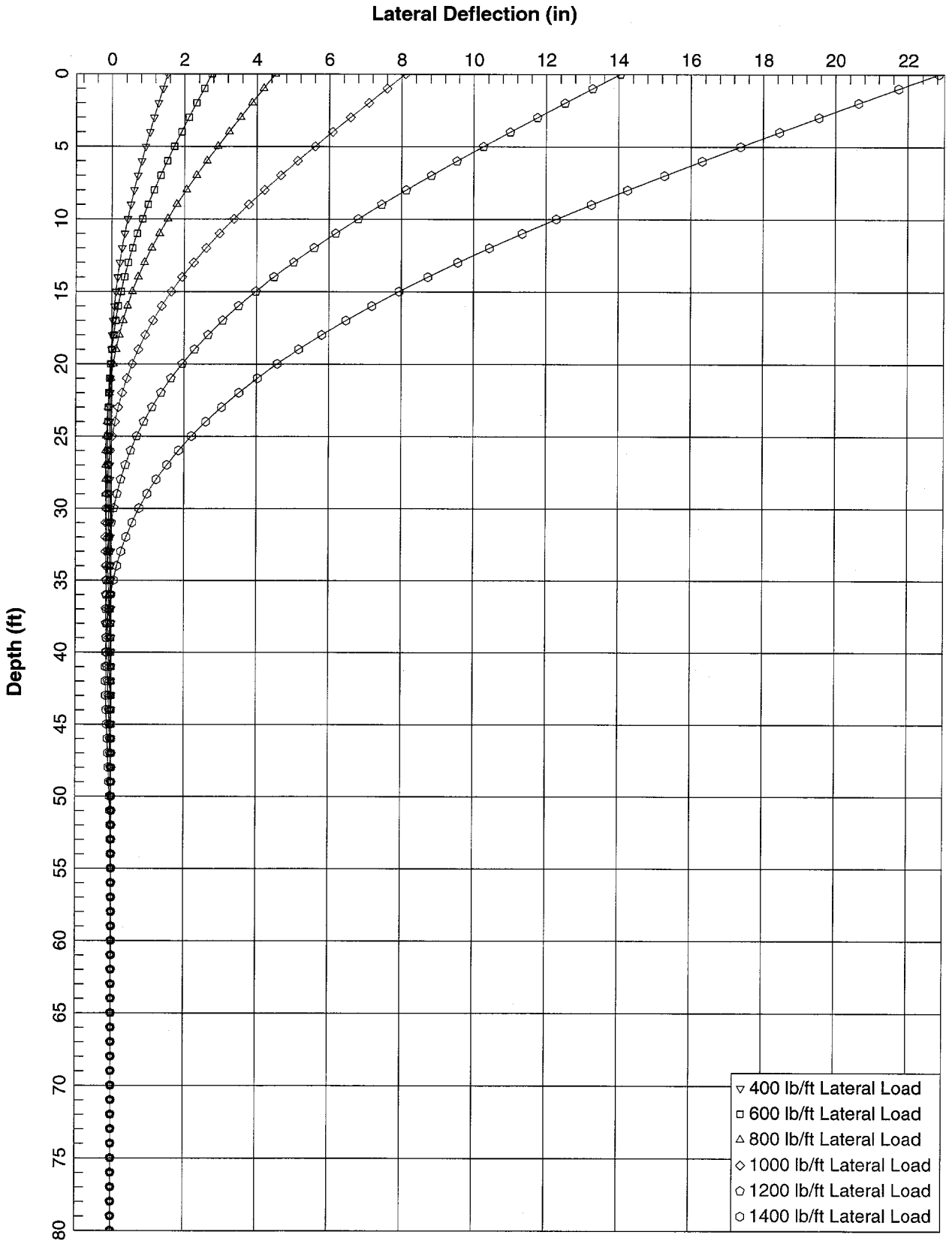


Figure C-7 - Boring A - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

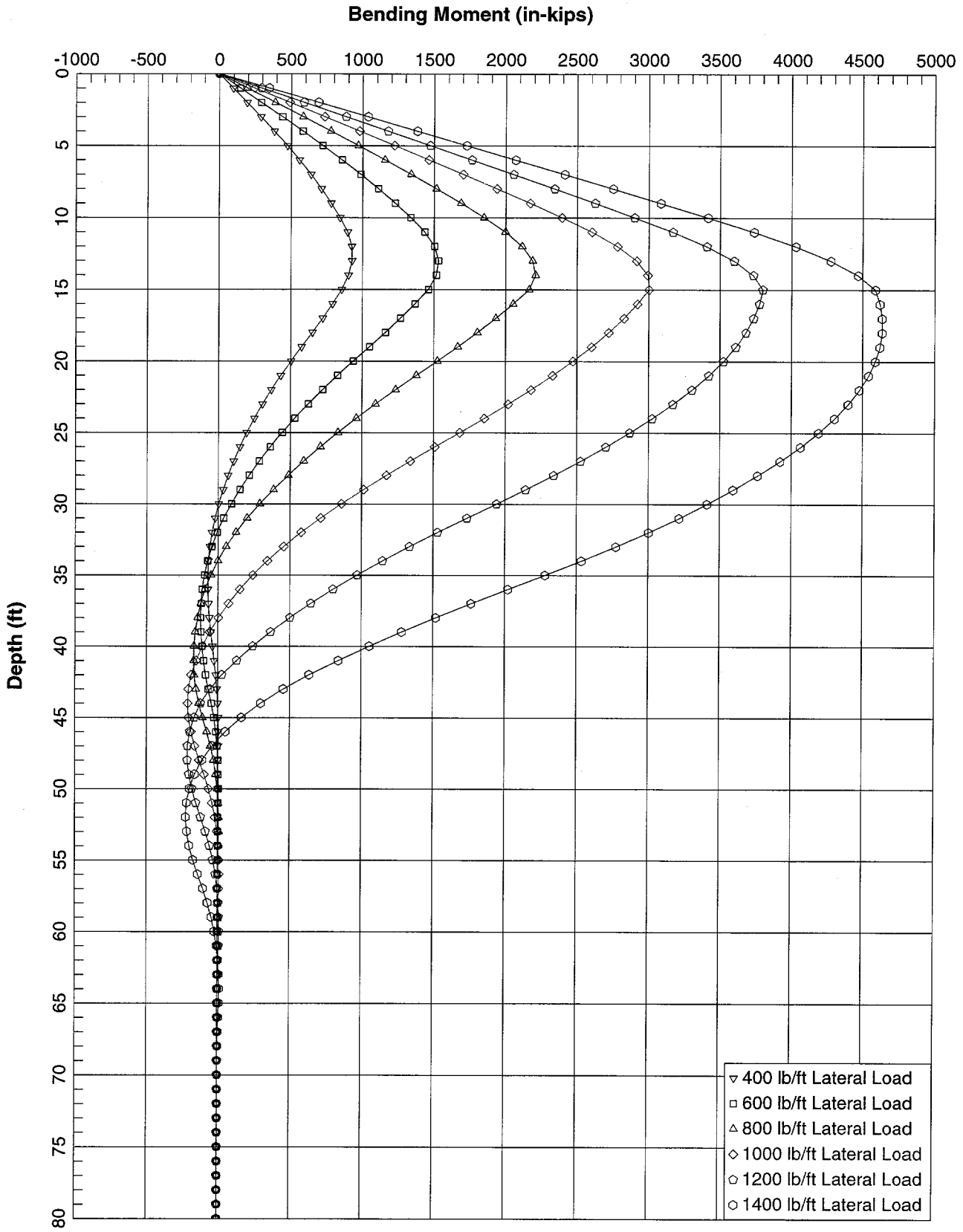


Figure C-8 - Boring A - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

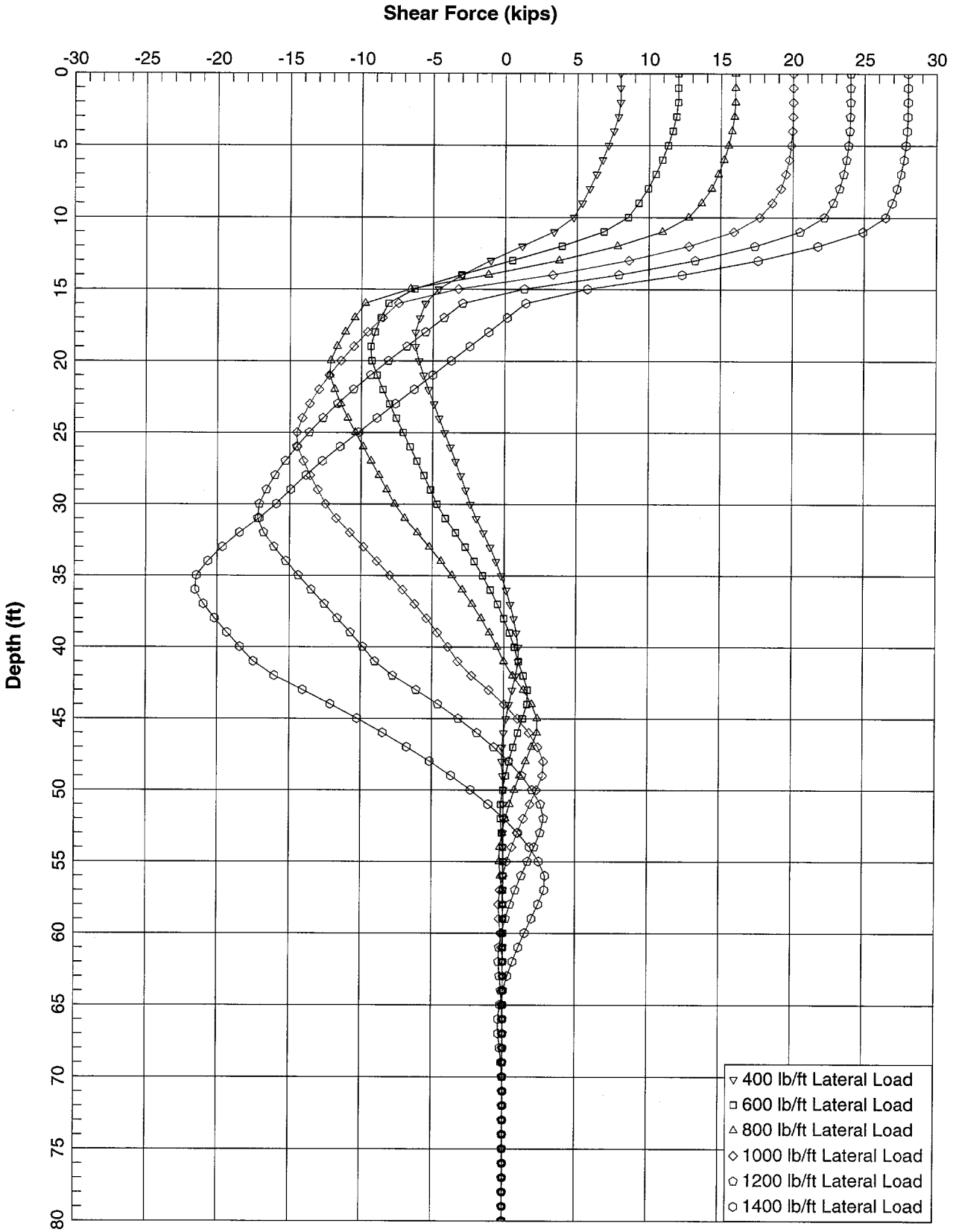


Figure C-9 - Boring A - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

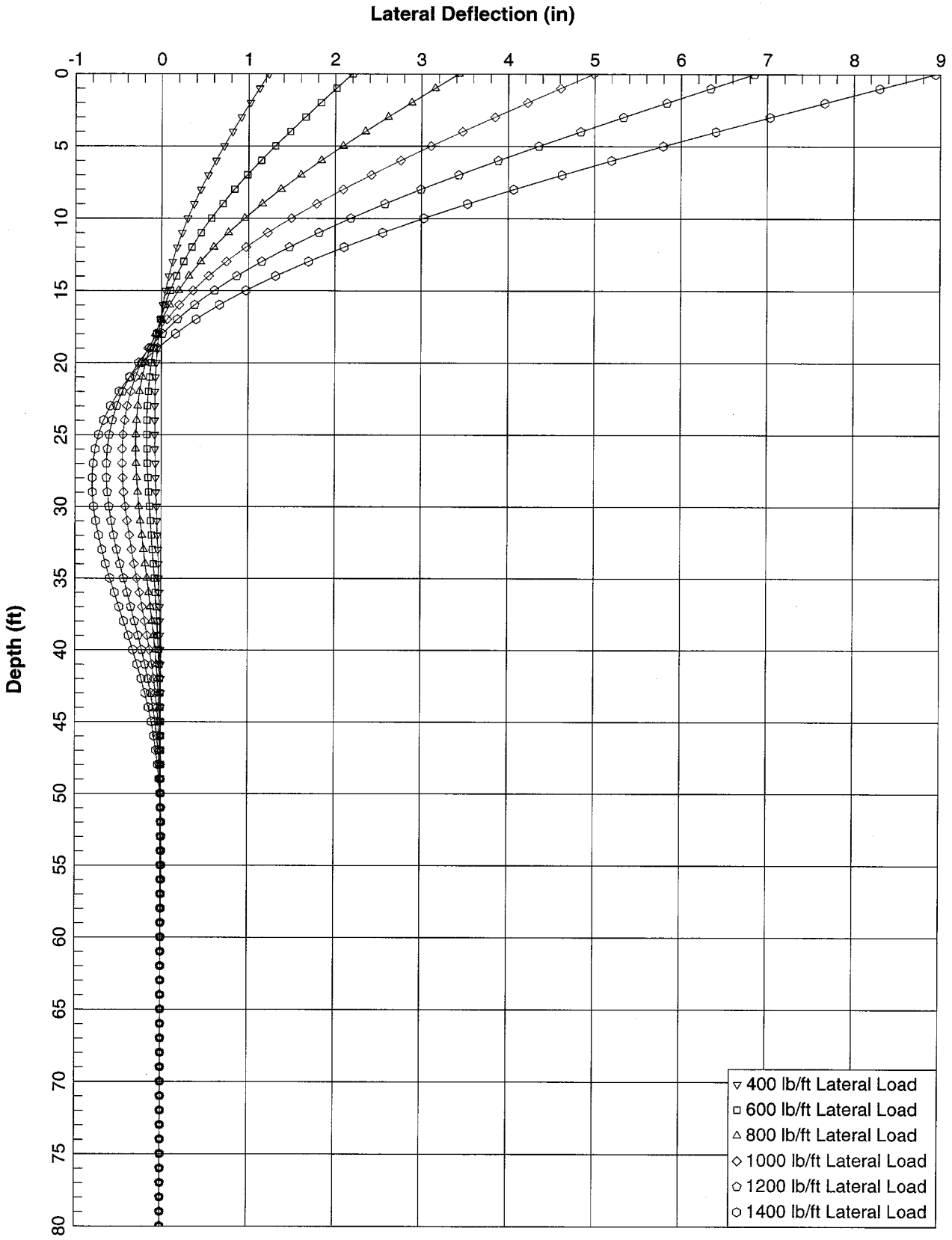


Figure C-10 - Boring 6 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

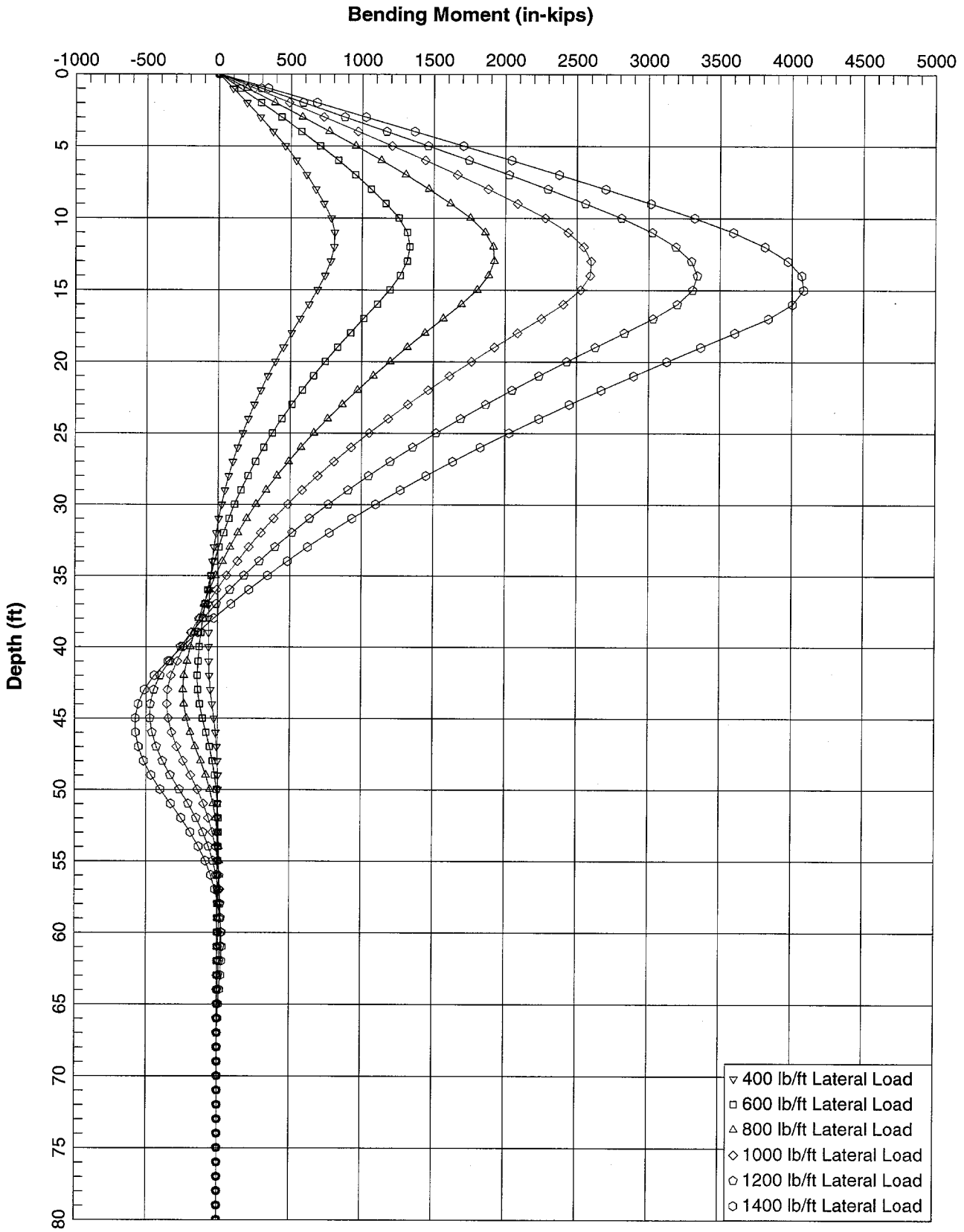


Figure C-11 - Boring 6 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

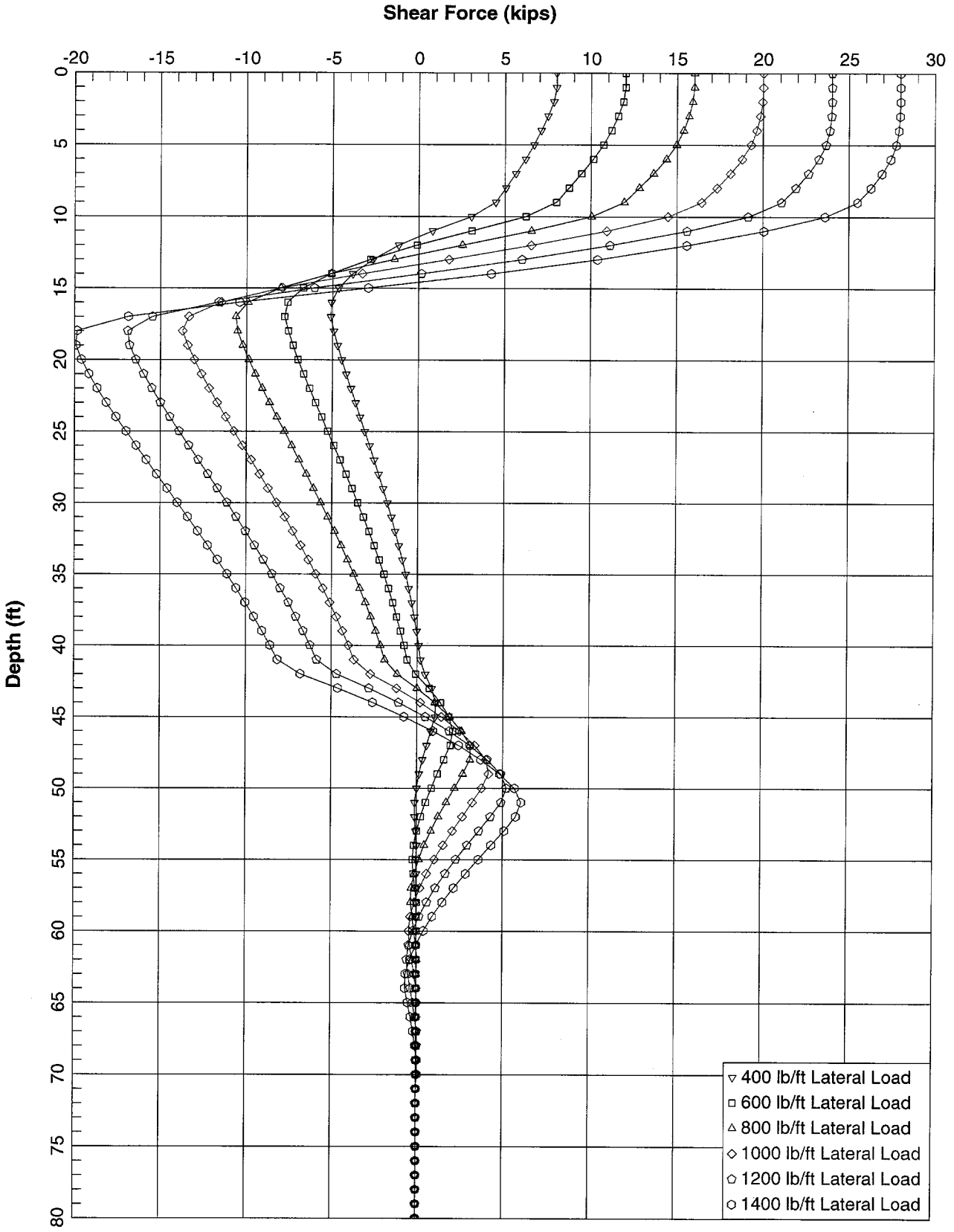


Figure C-12 - Boring 6 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

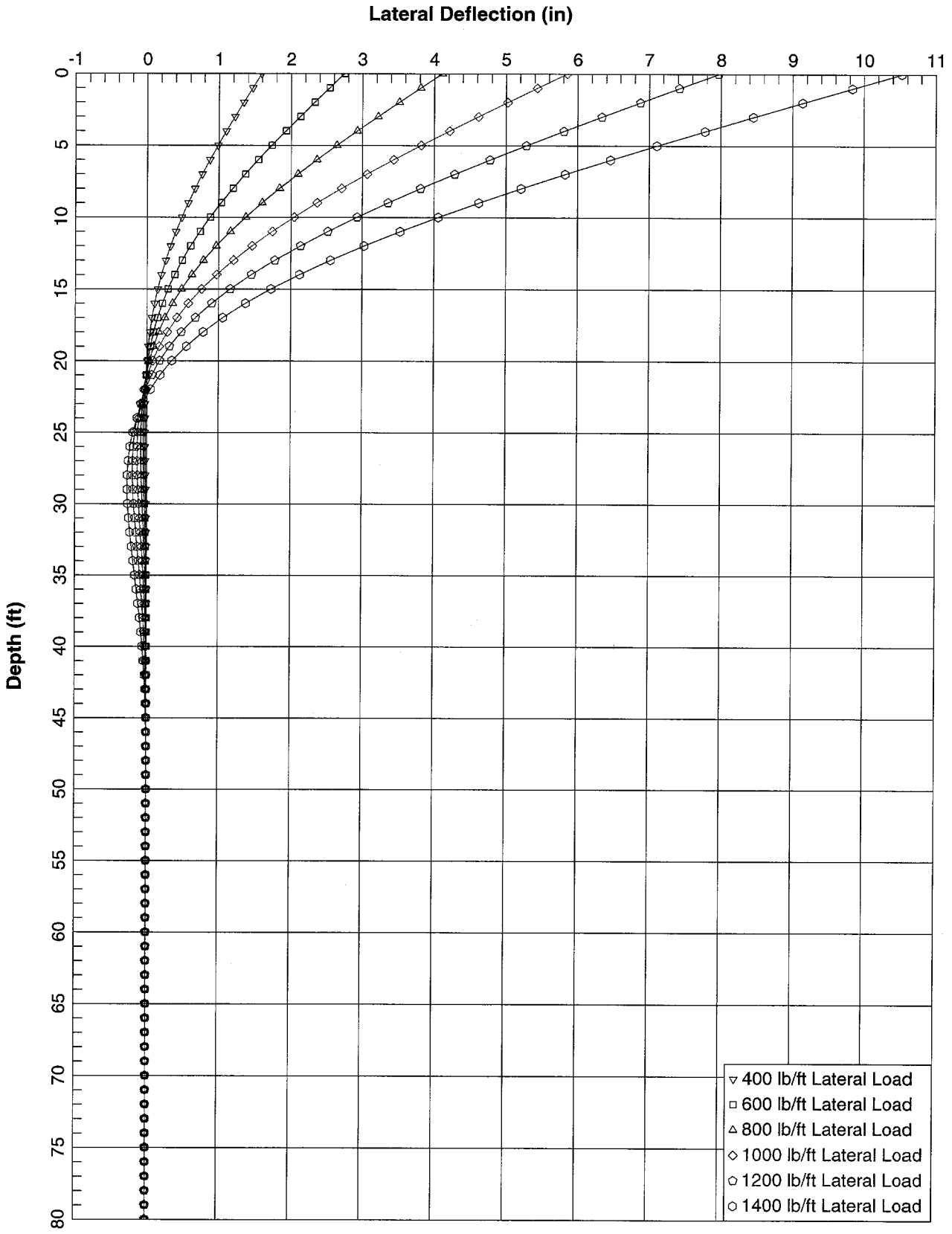


Figure C-13 - Boring B - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

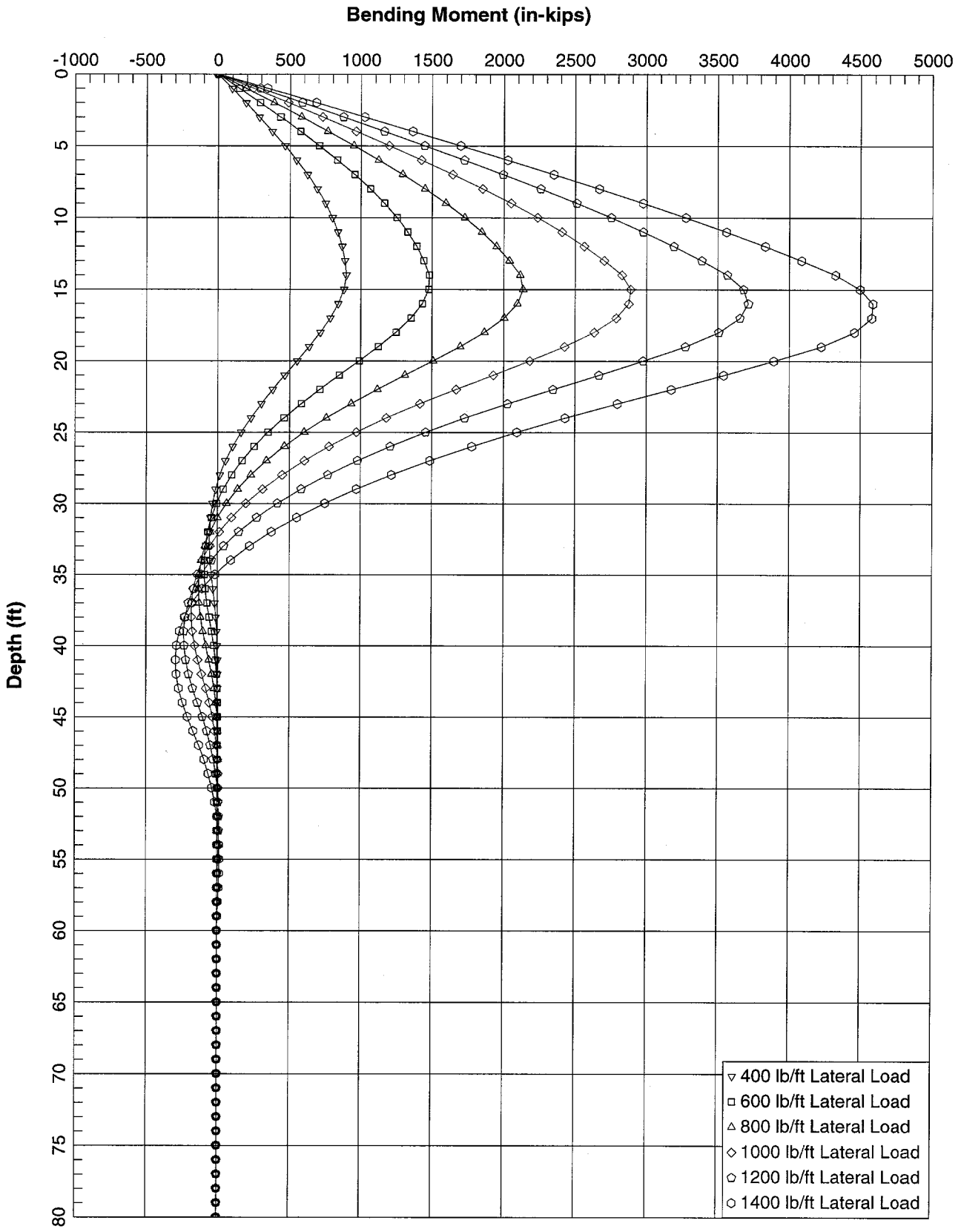


Figure C-14 - Boring B - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

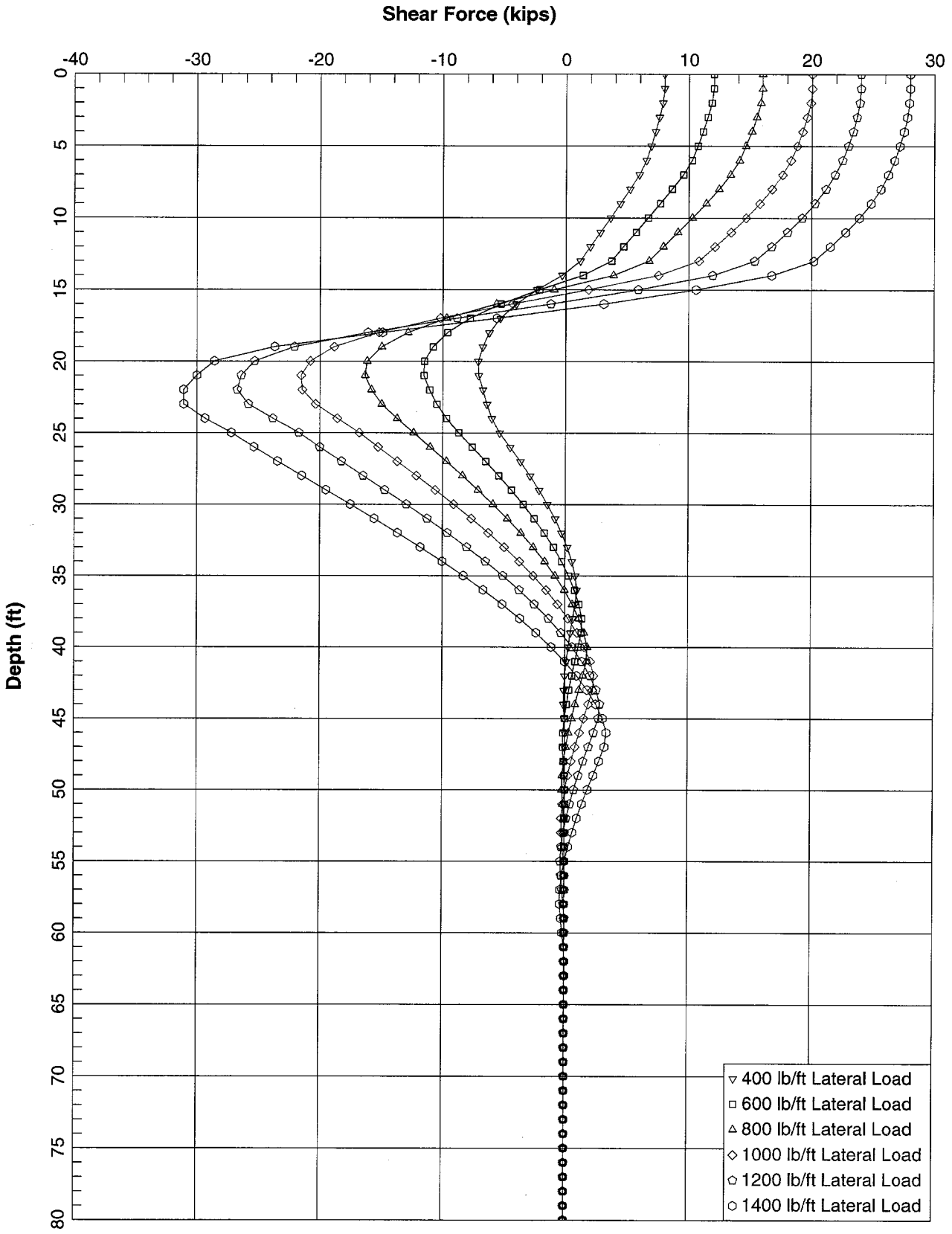


Figure C-15 - Boring B - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

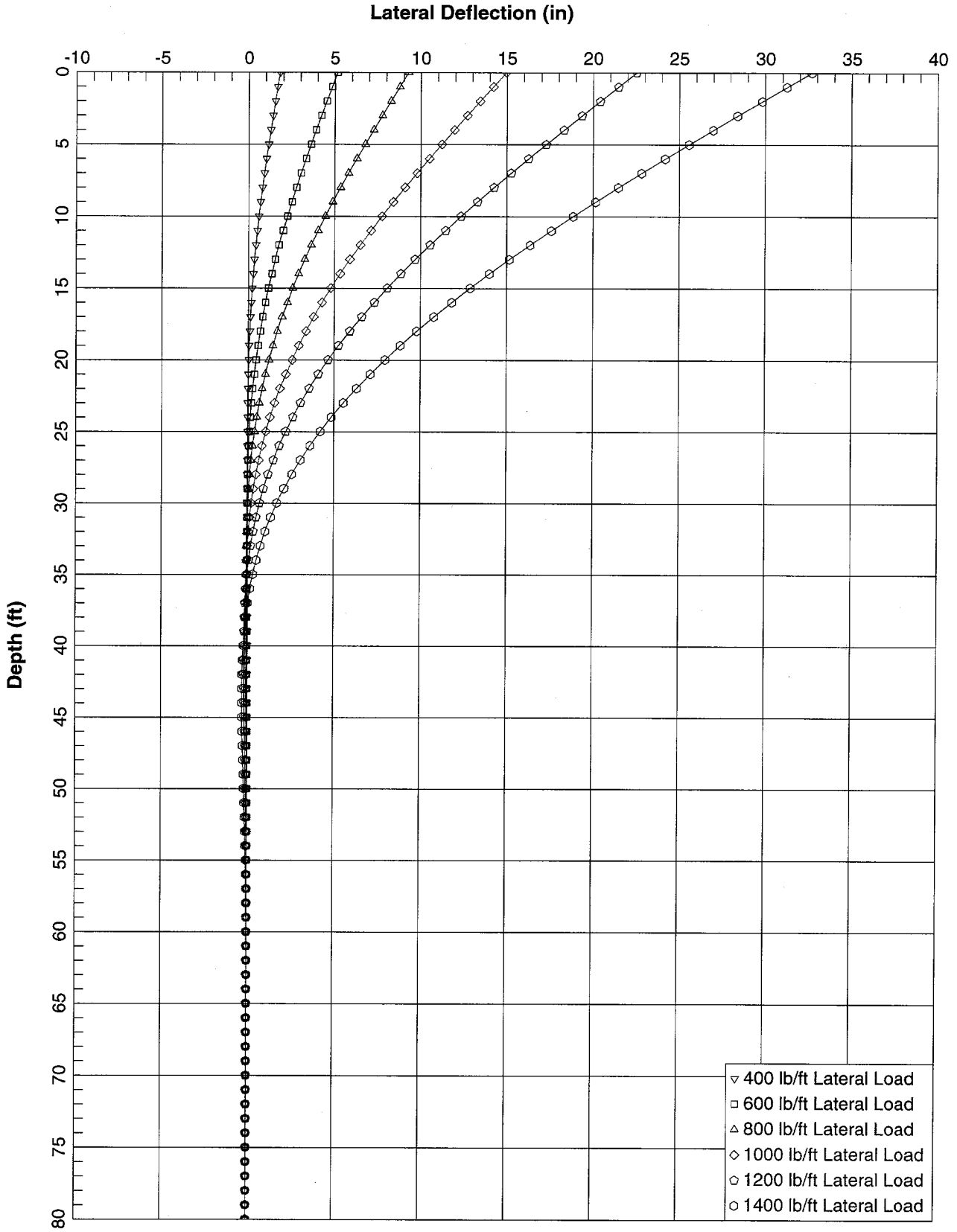


Figure C-16 - Boring 7 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

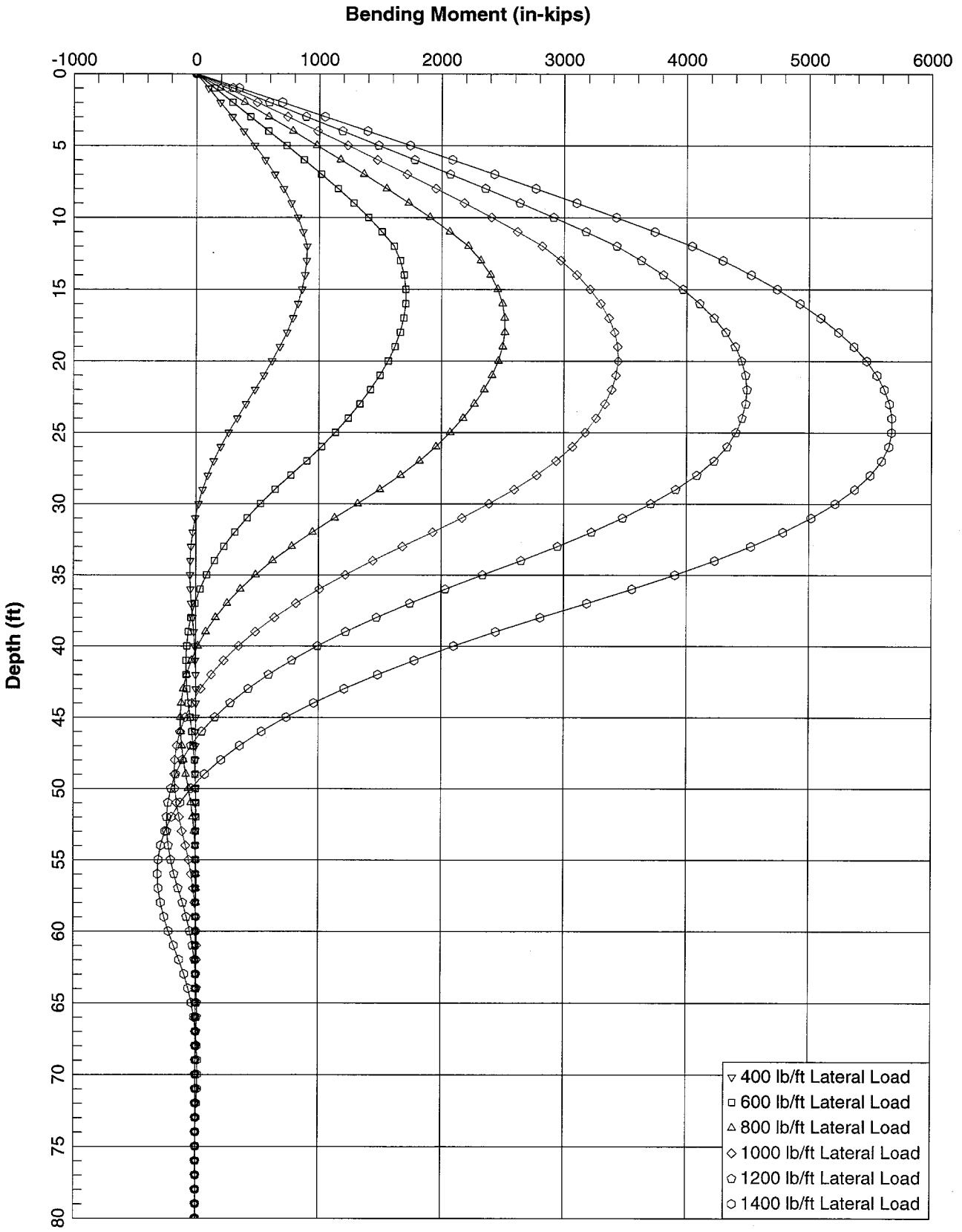


Figure C-17 - Boring 7 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

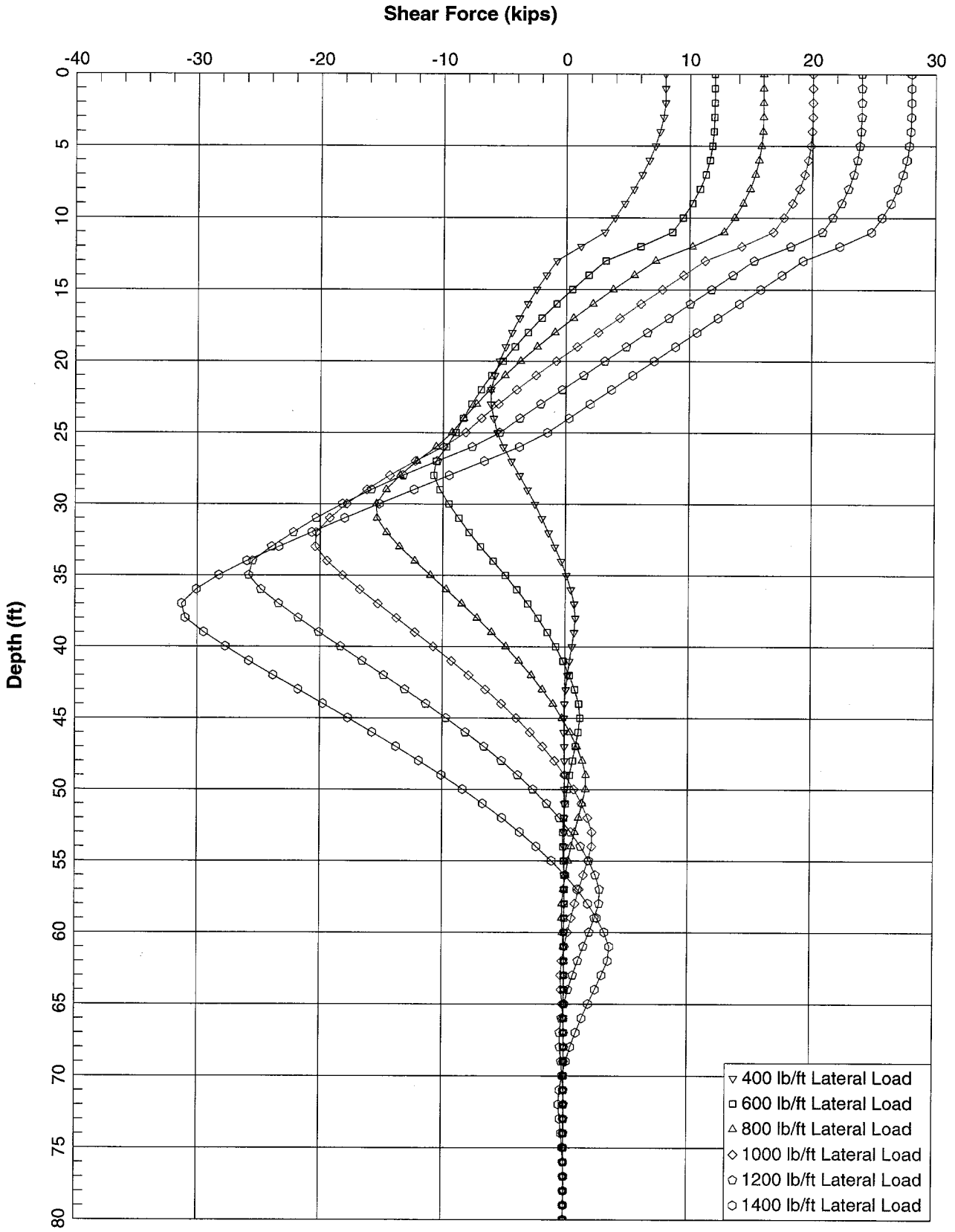


Figure C-18 - Boring 7 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

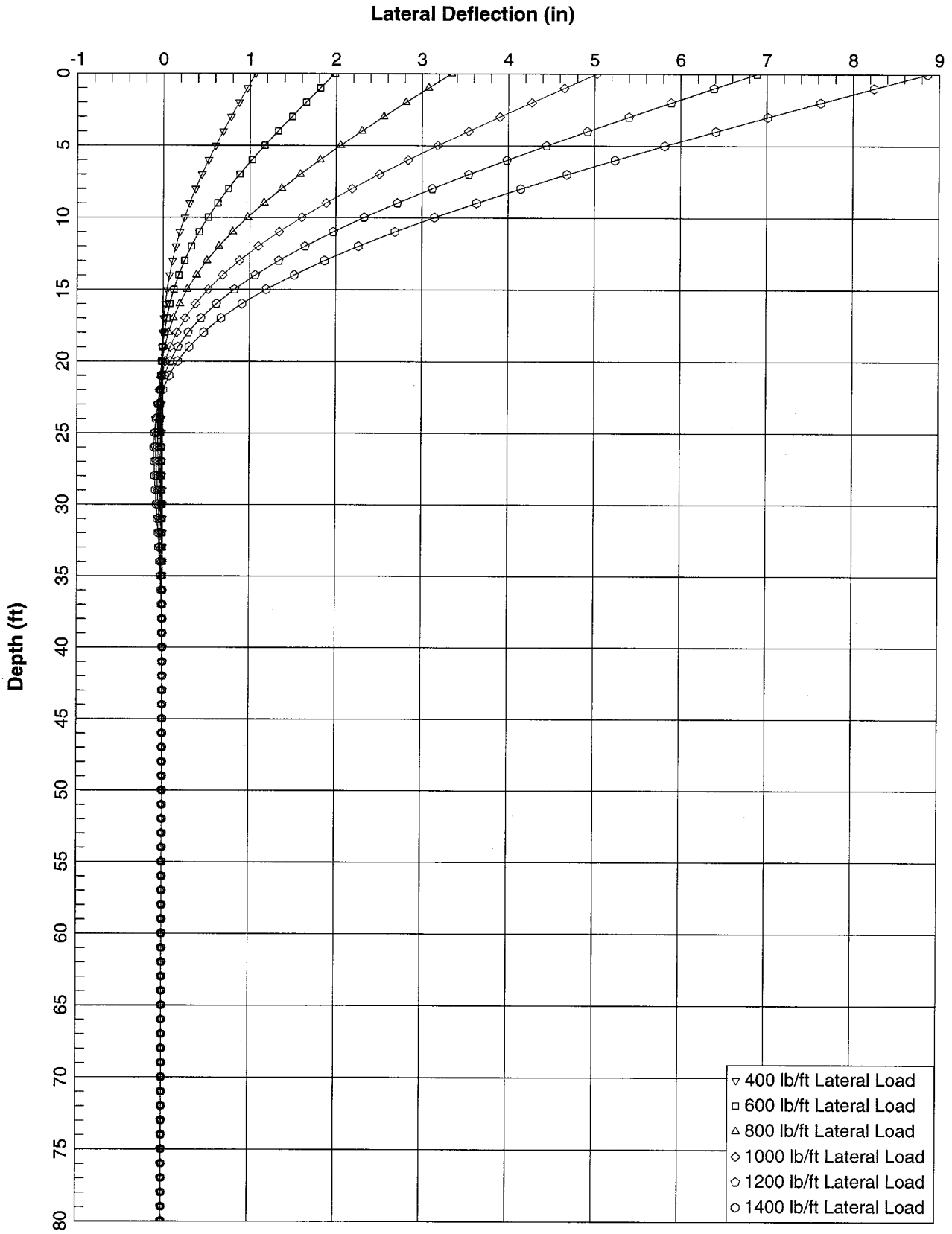


Figure C-19 - Boring C - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

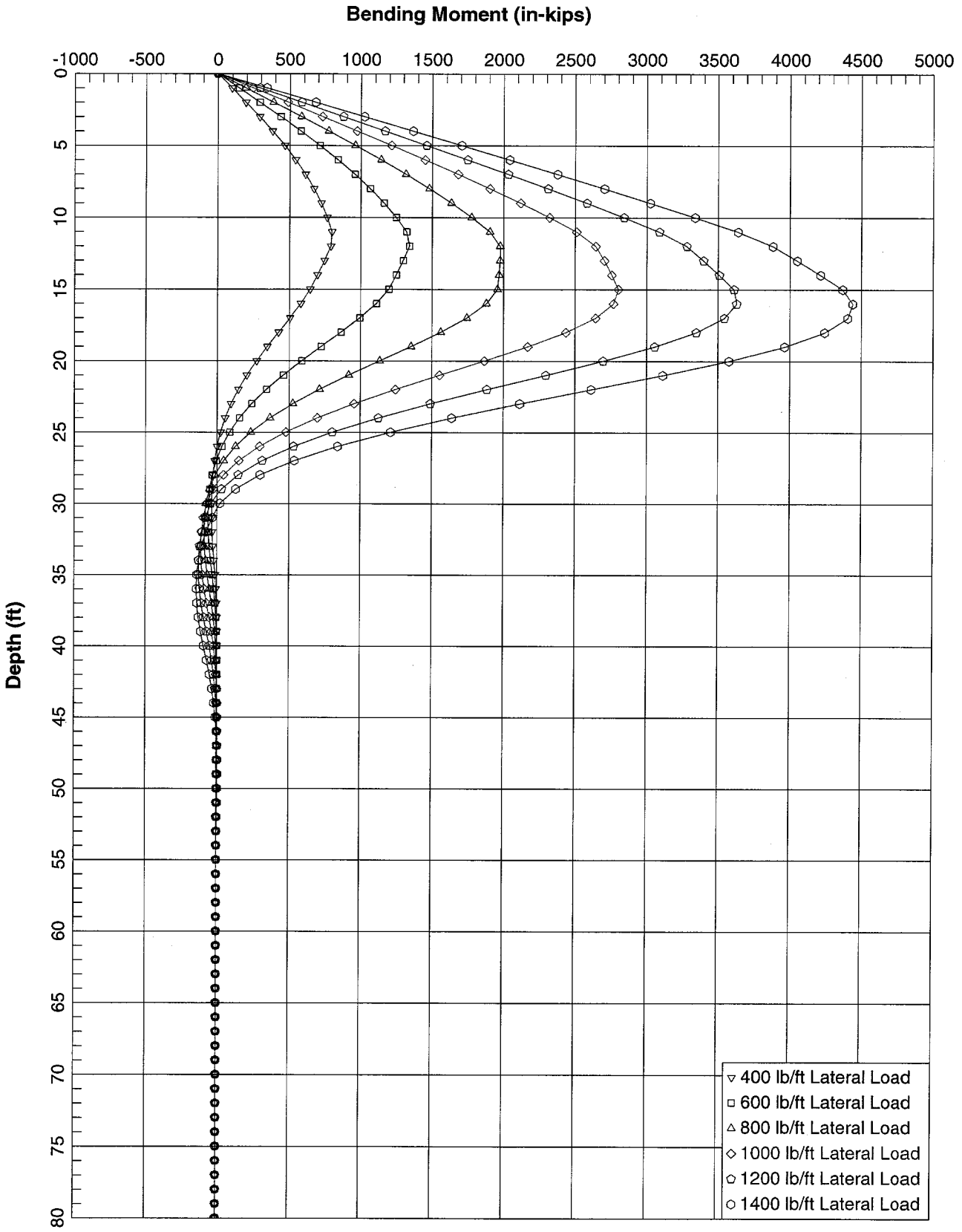


Figure C-20 - Boring C - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

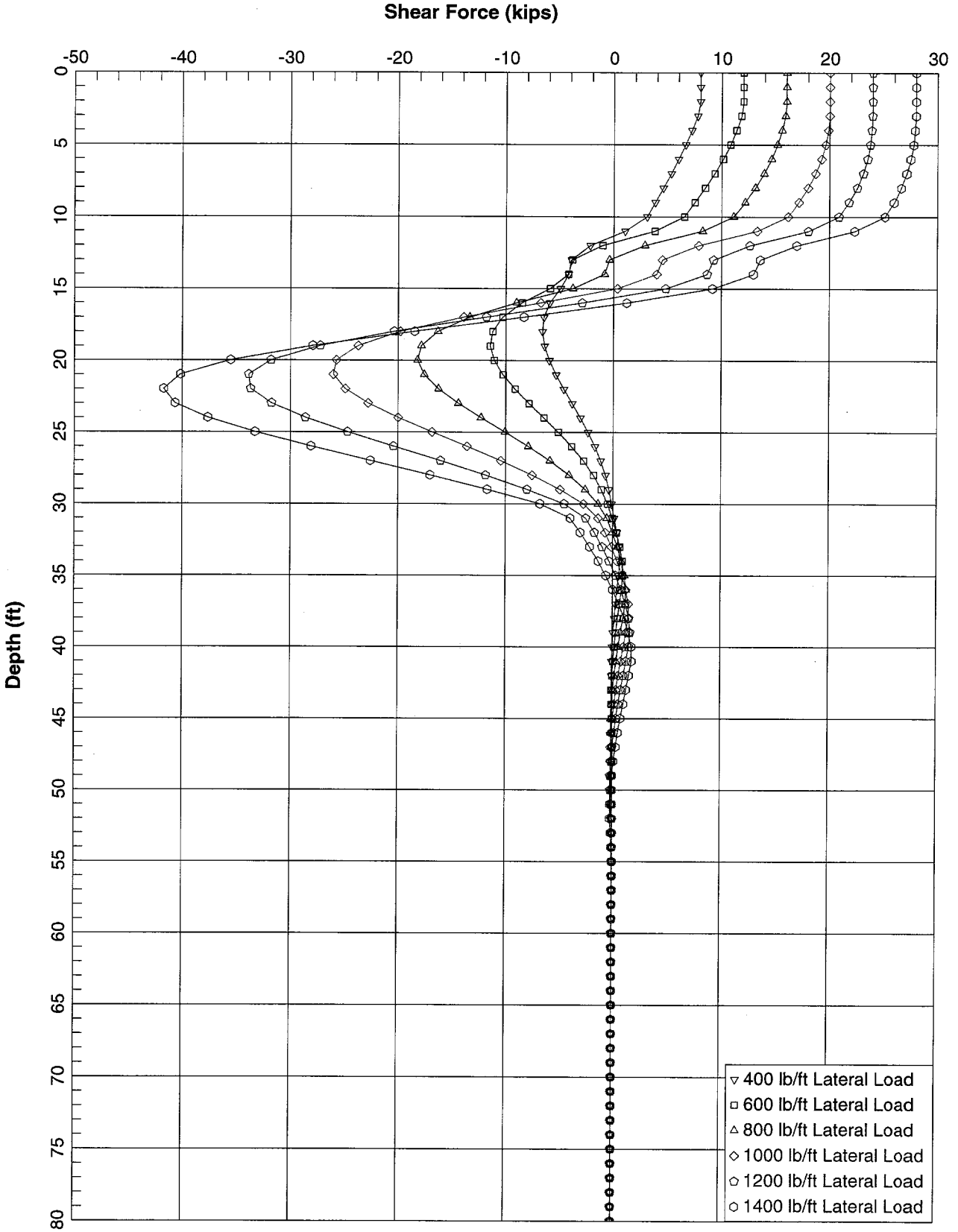


Figure C-21 - Boring C - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

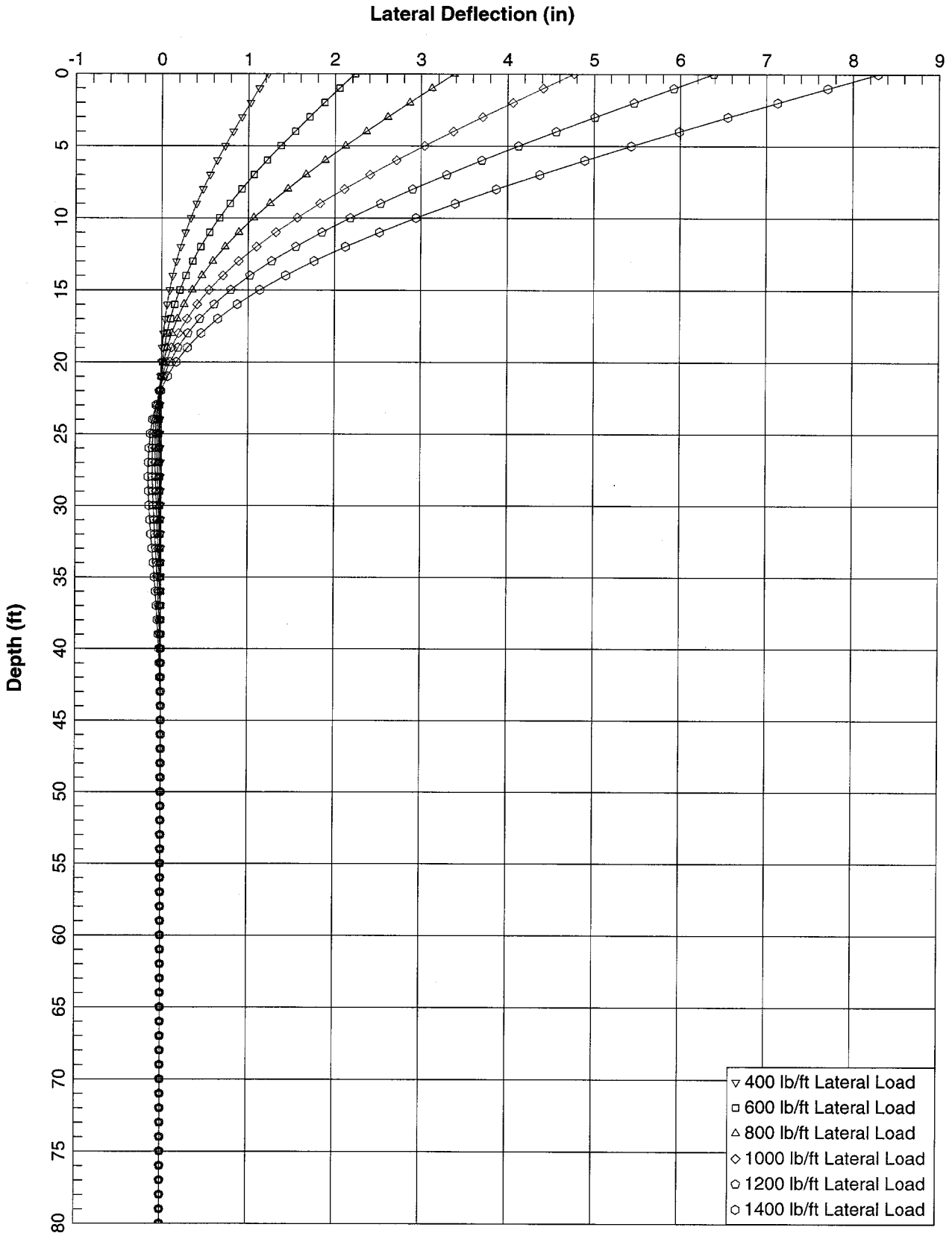


Figure C-22 - Boring 10 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

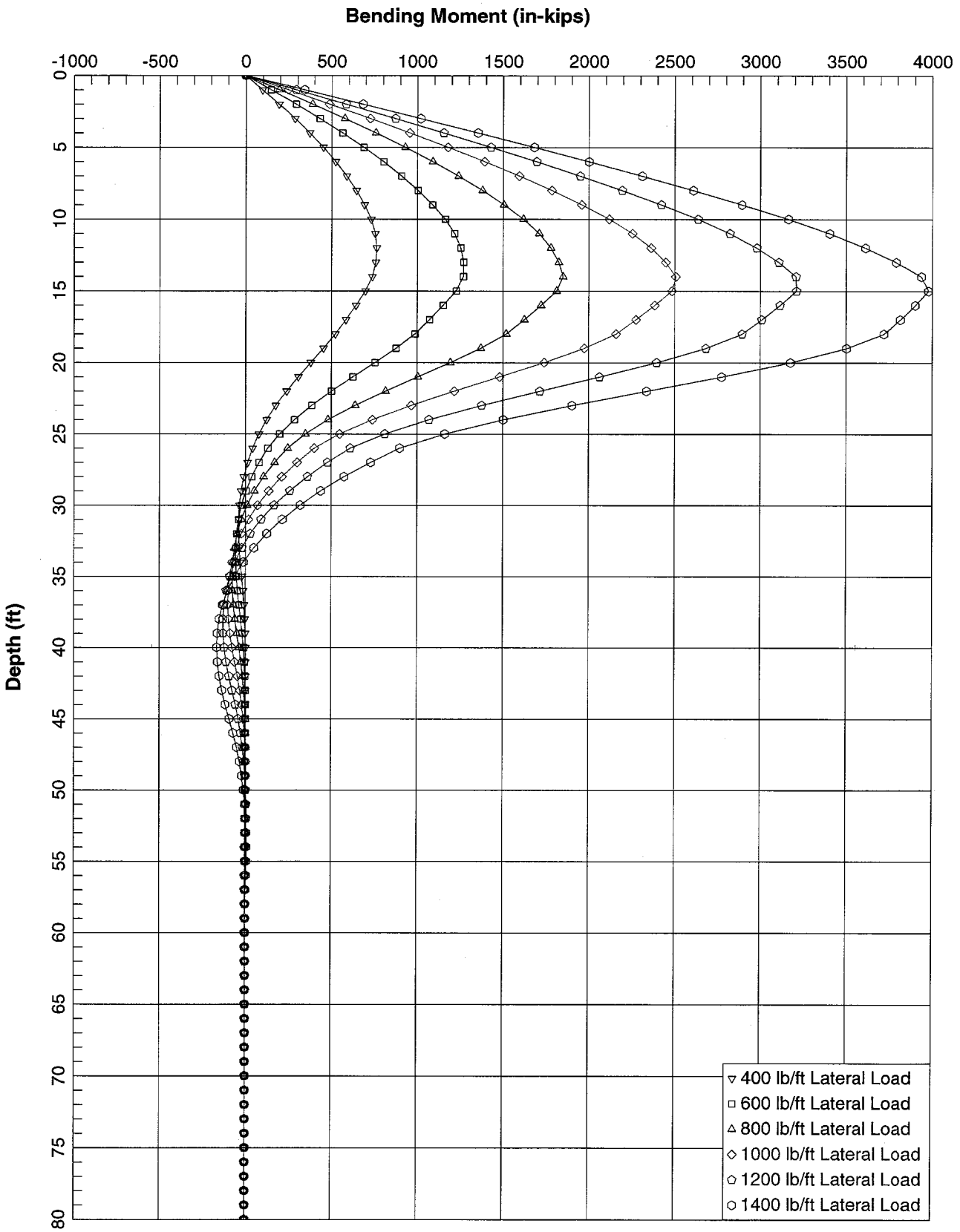


Figure C-23 - Boring 10 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

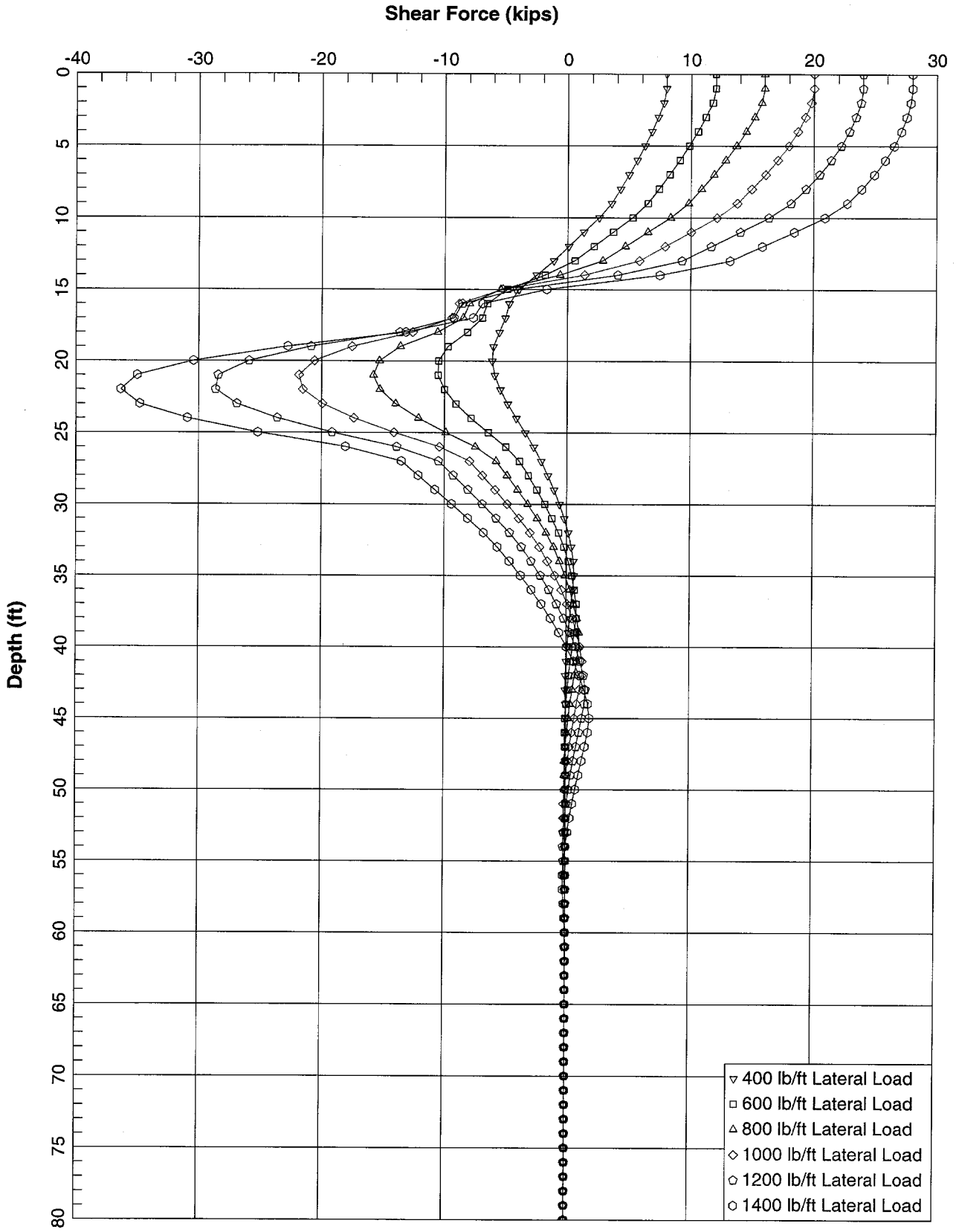


Figure C-24 - Boring 10 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

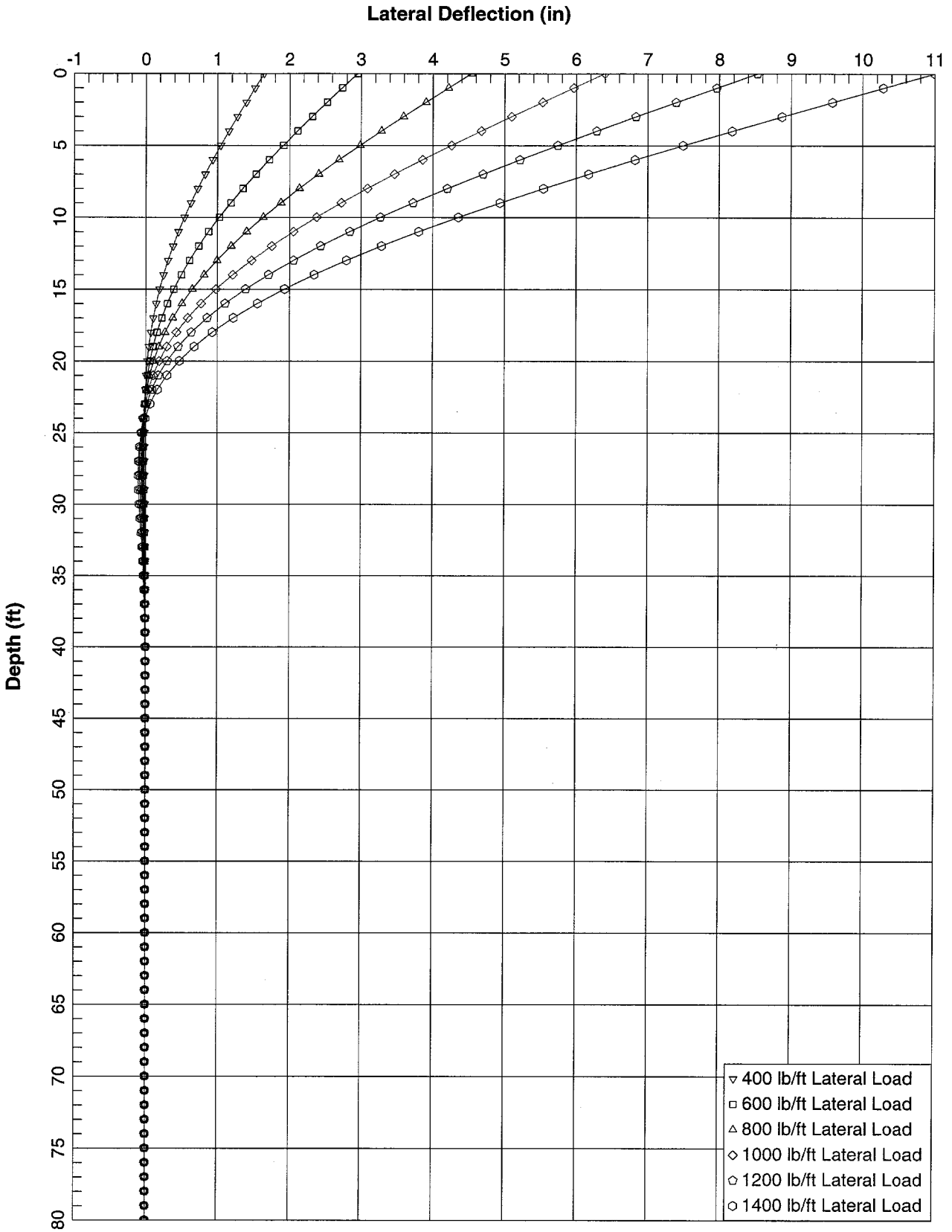


Figure C-25 - Boring D - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

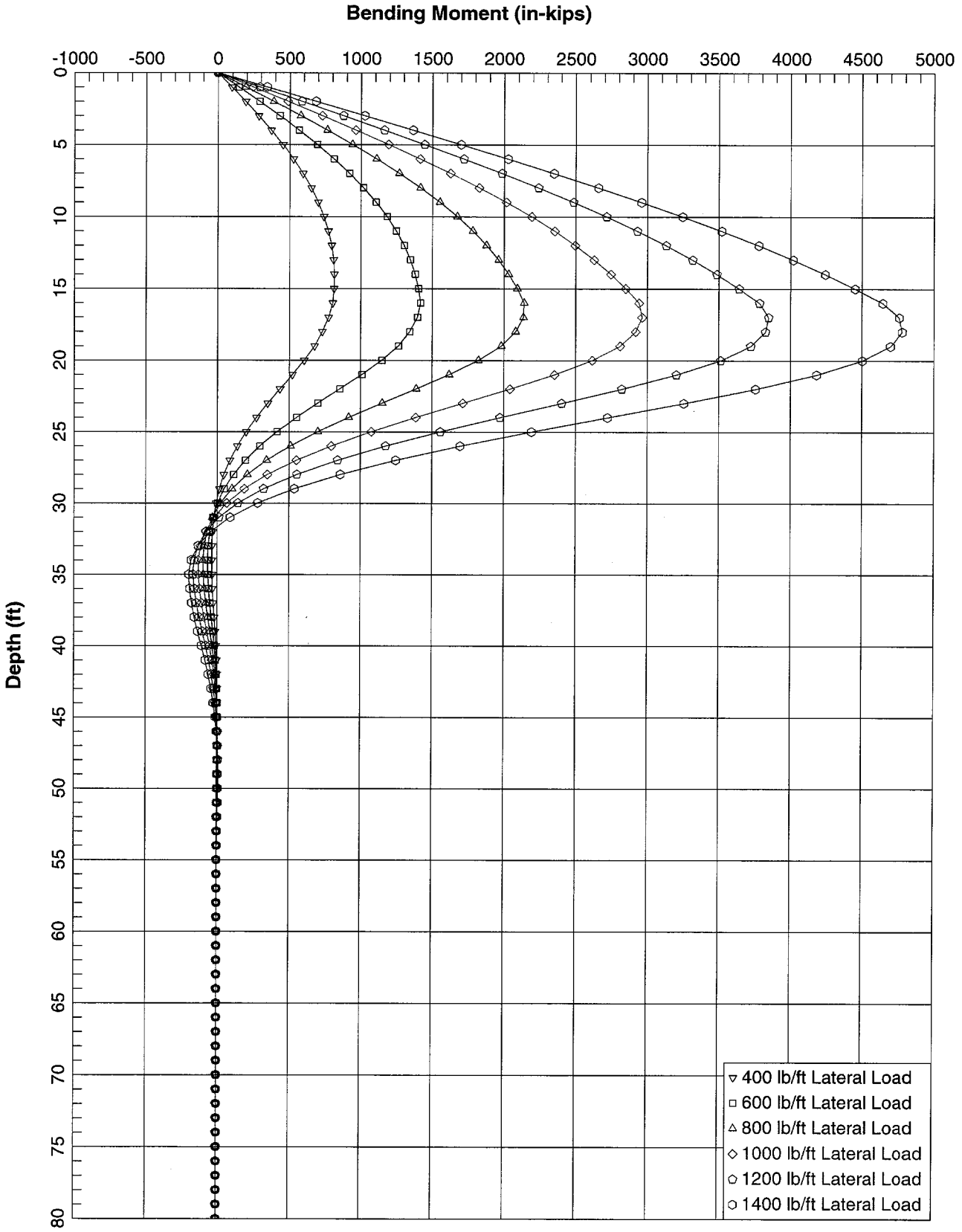


Figure C-26 - Boring D - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

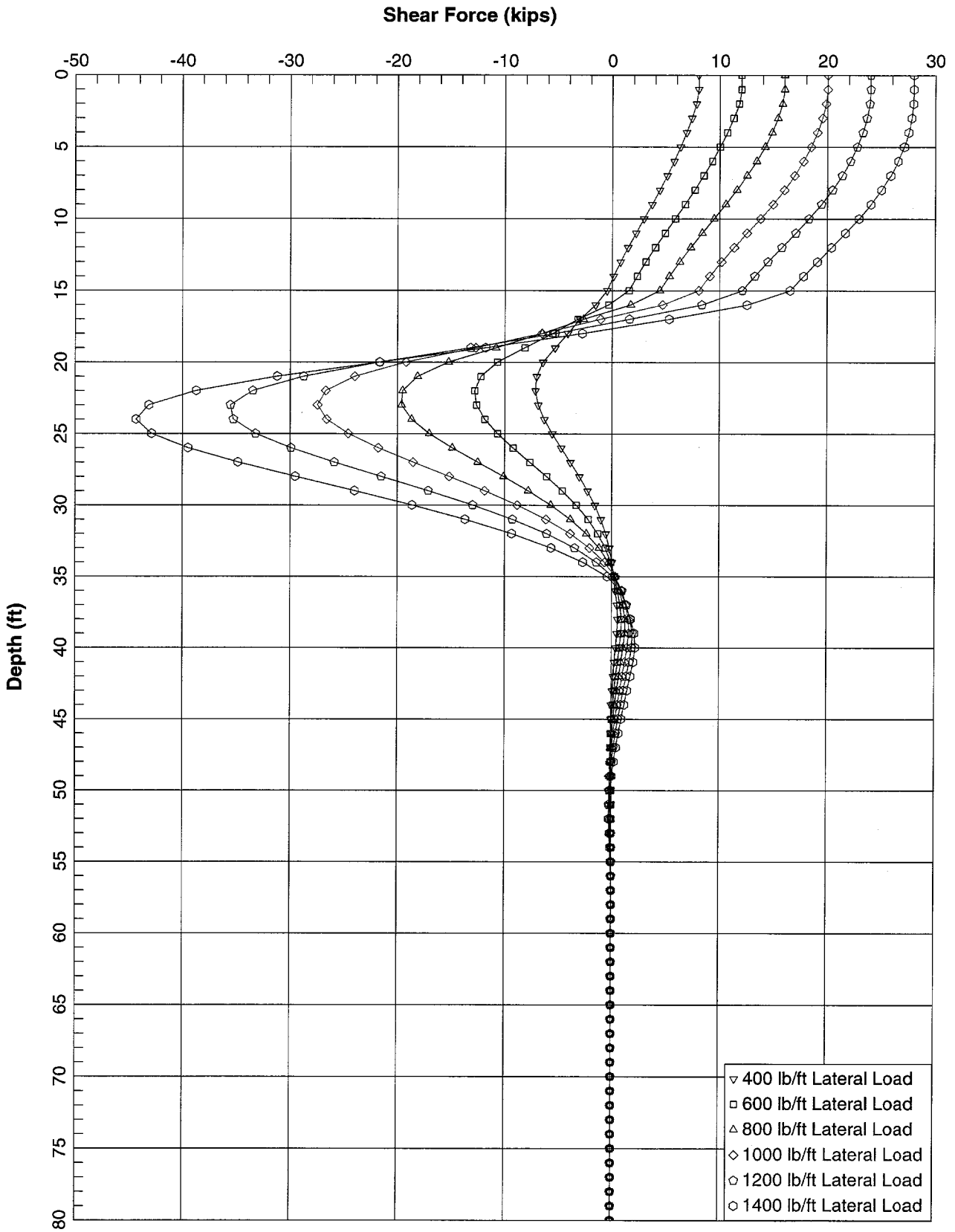


Figure C-27 - Boring D - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

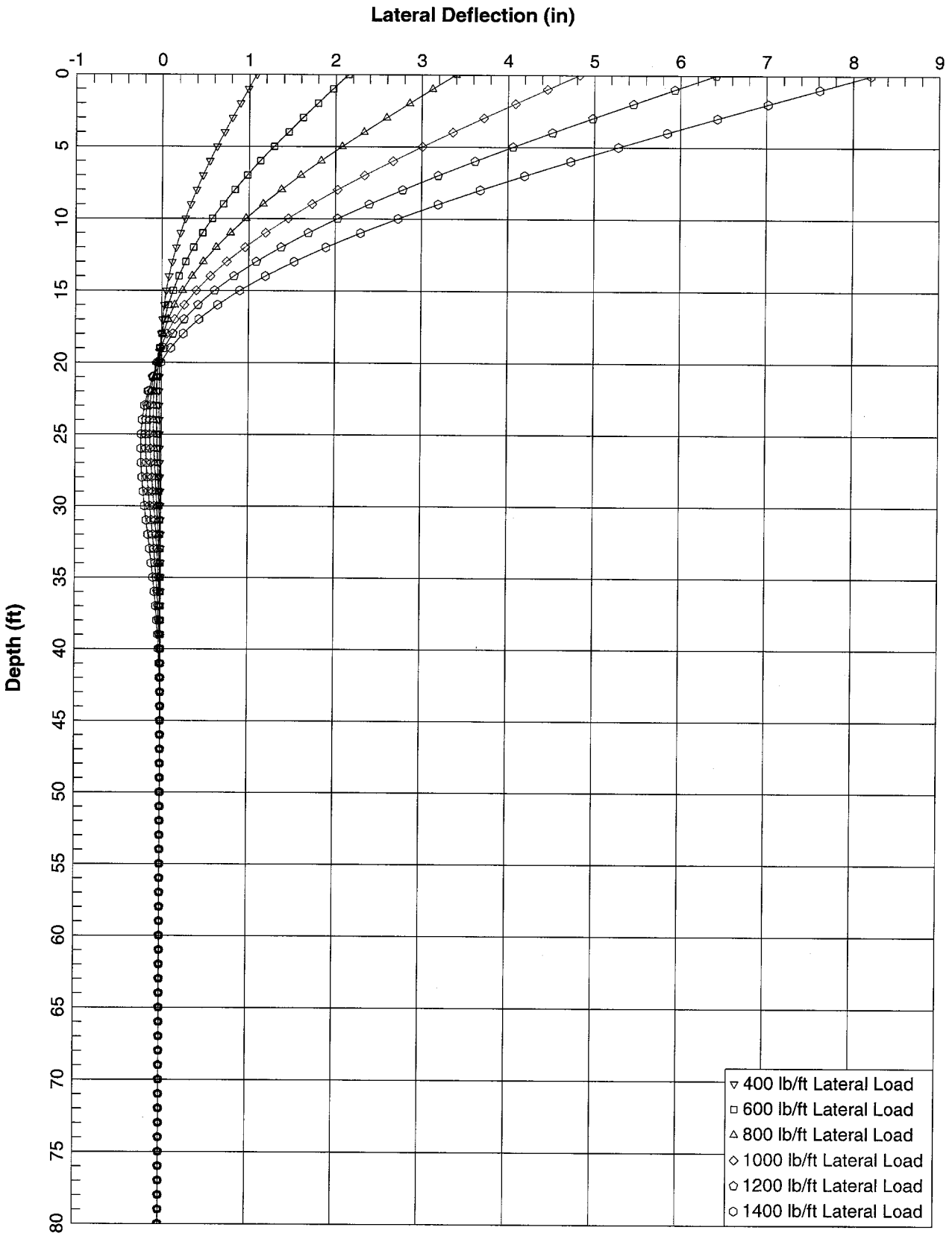


Figure C-28 - Boring 12 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

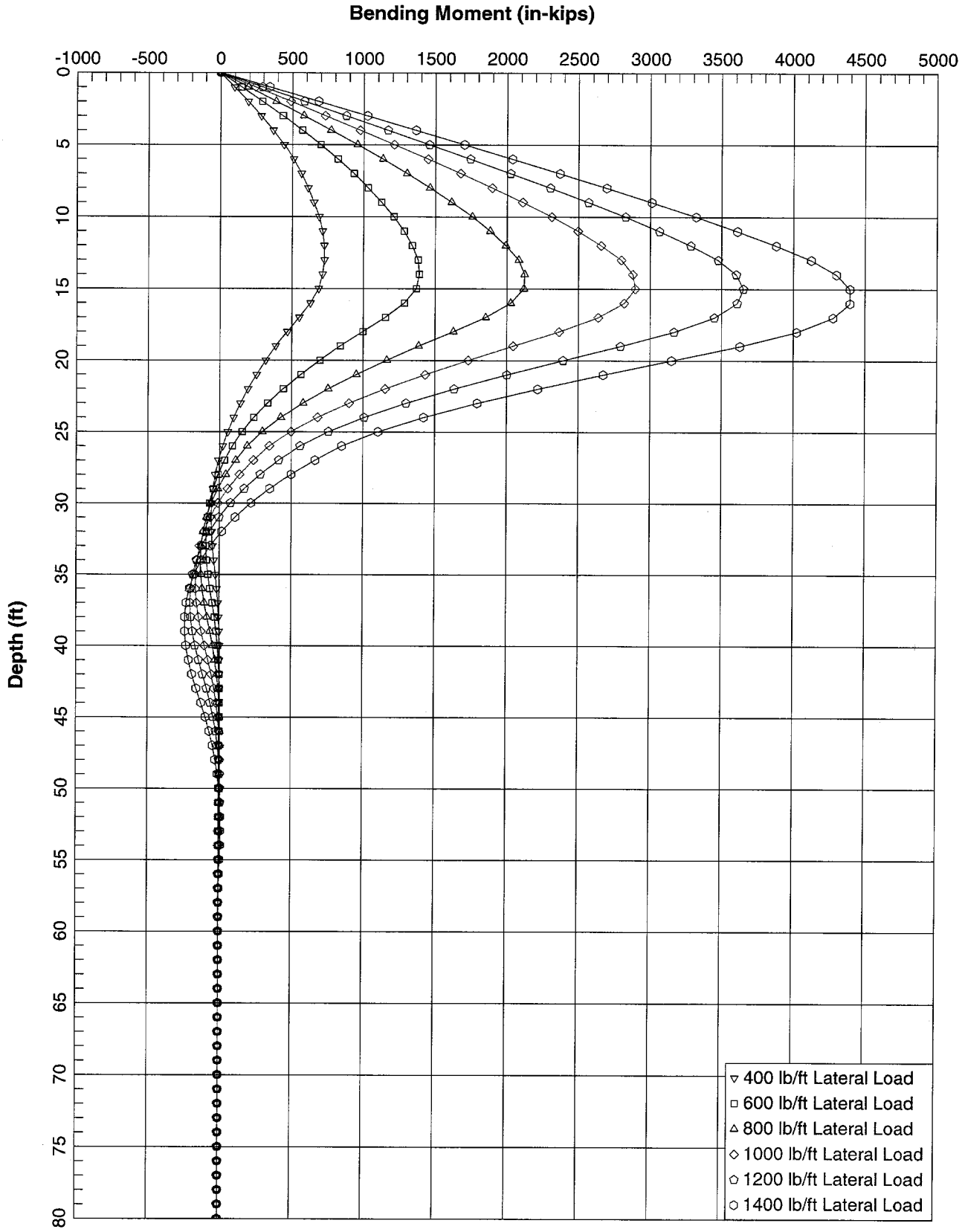


Figure C-29 - Boring 12 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

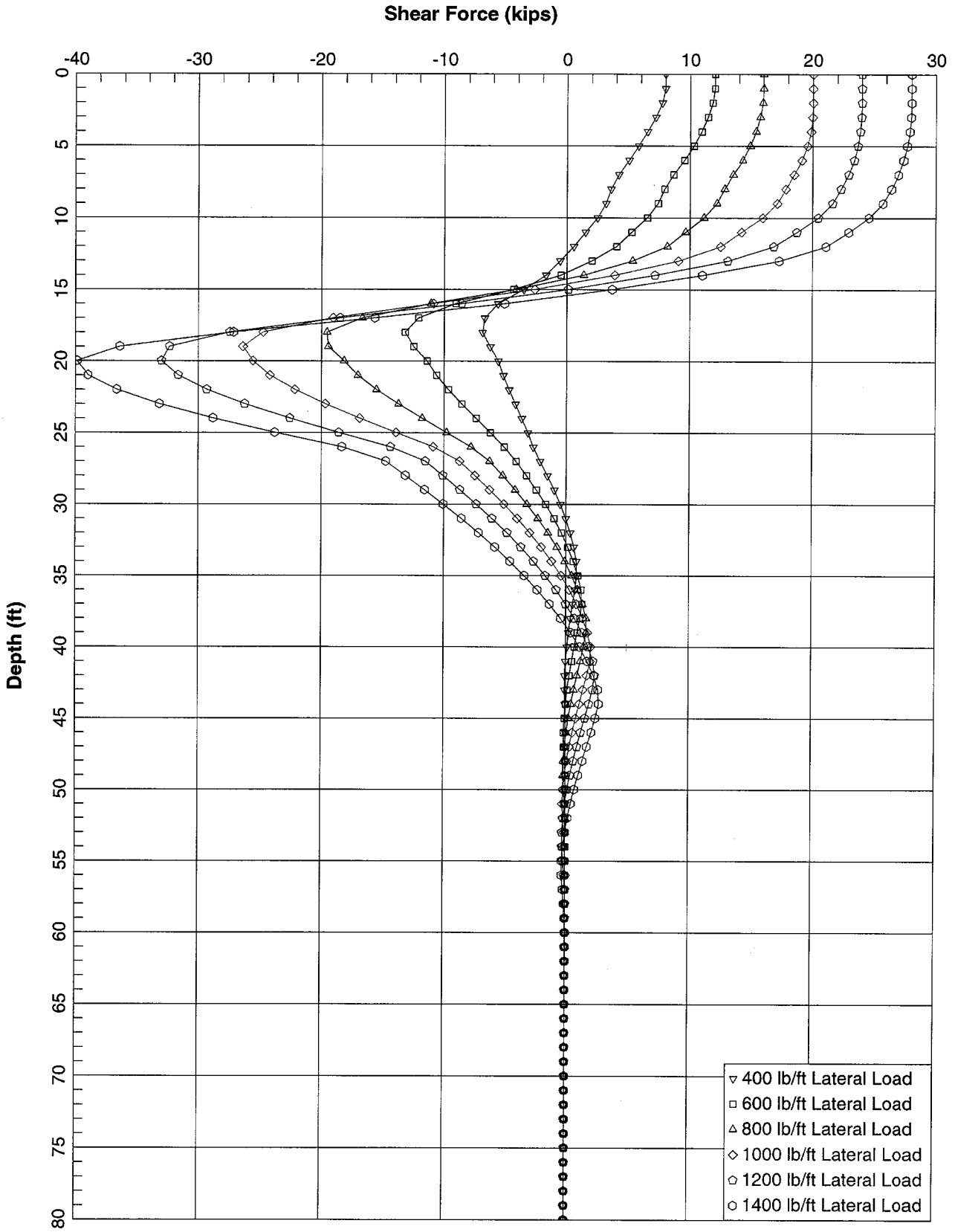


Figure C-30 - Boring 12 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

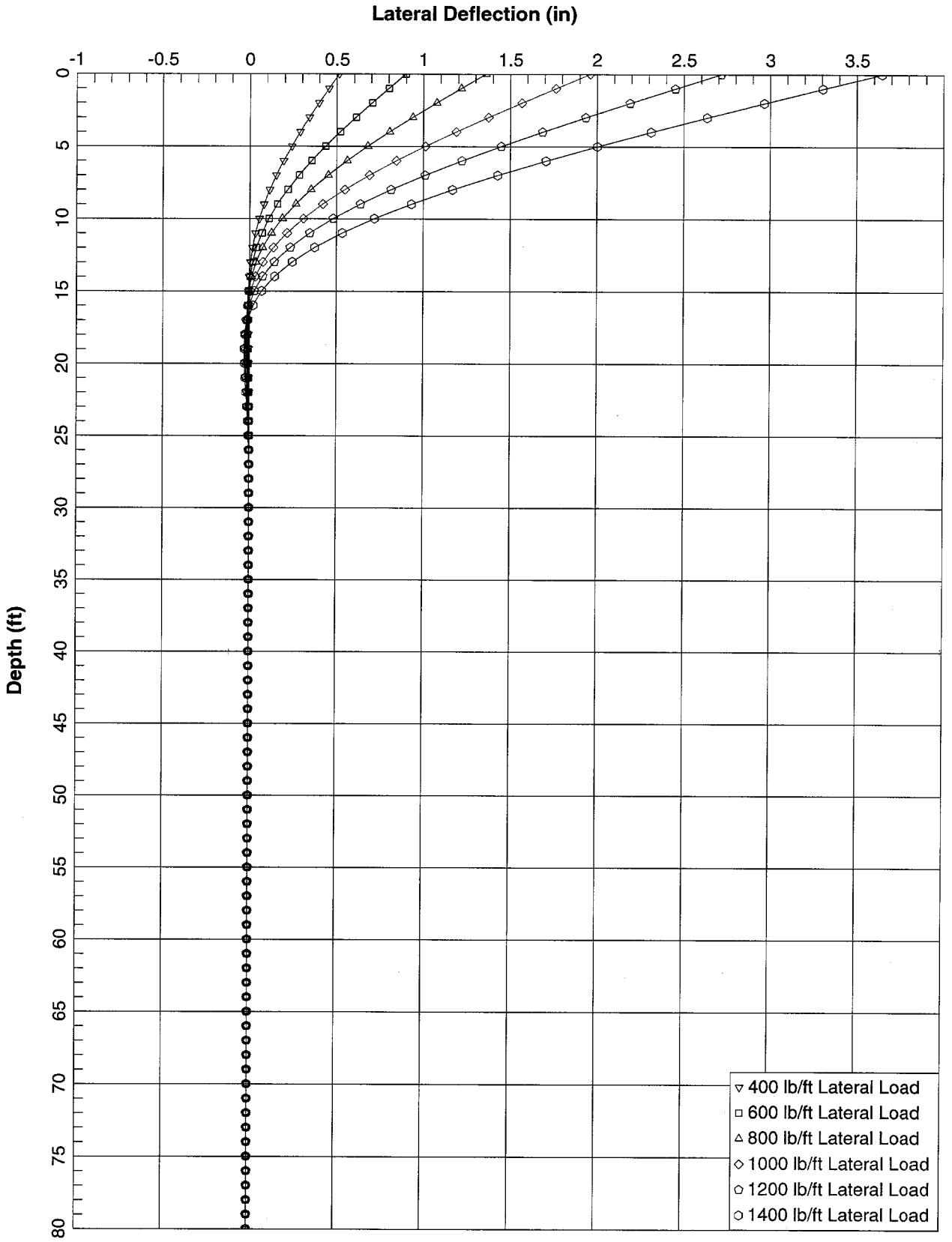


Figure C-31 - Boring E - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

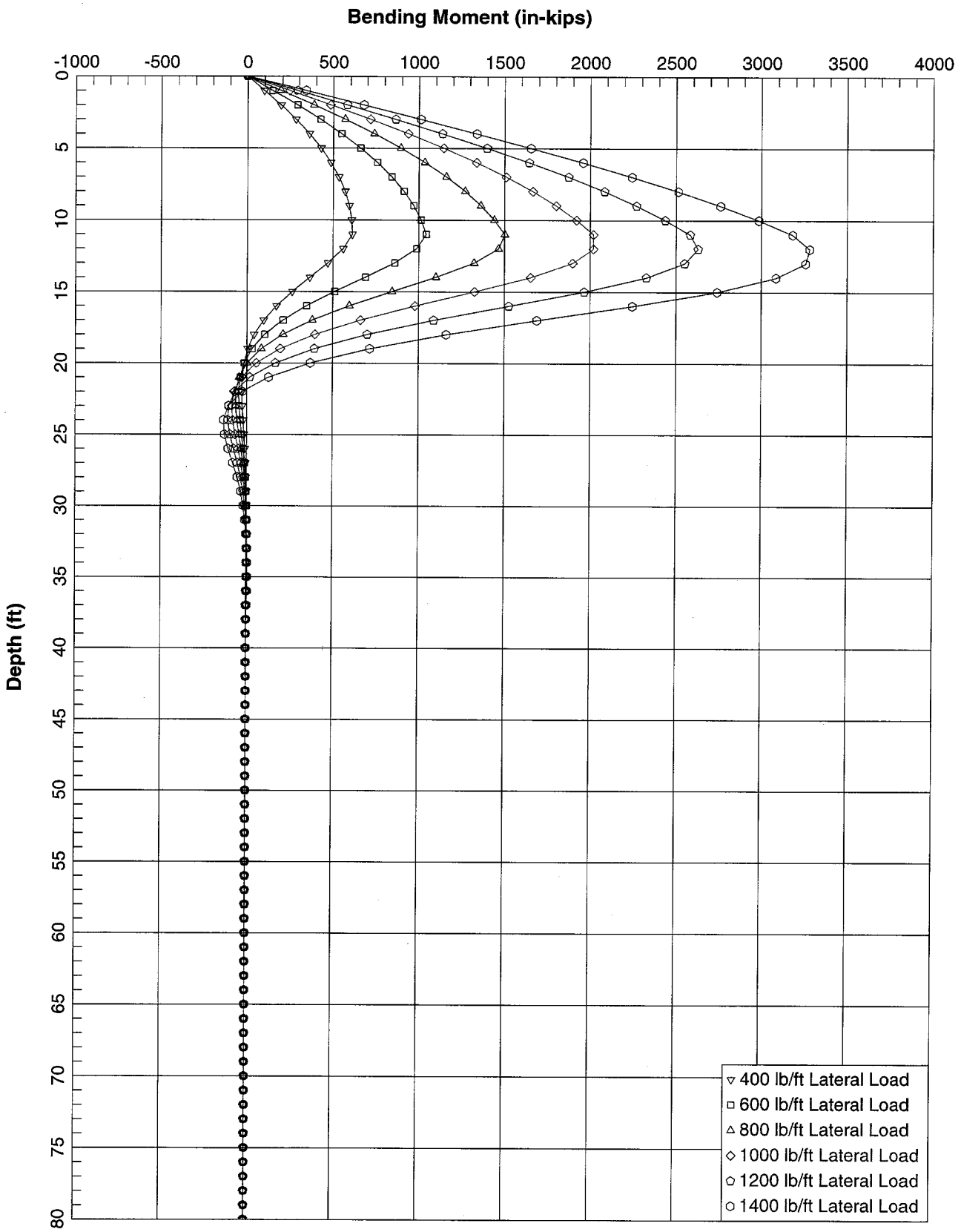


Figure C-32 - Boring E - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

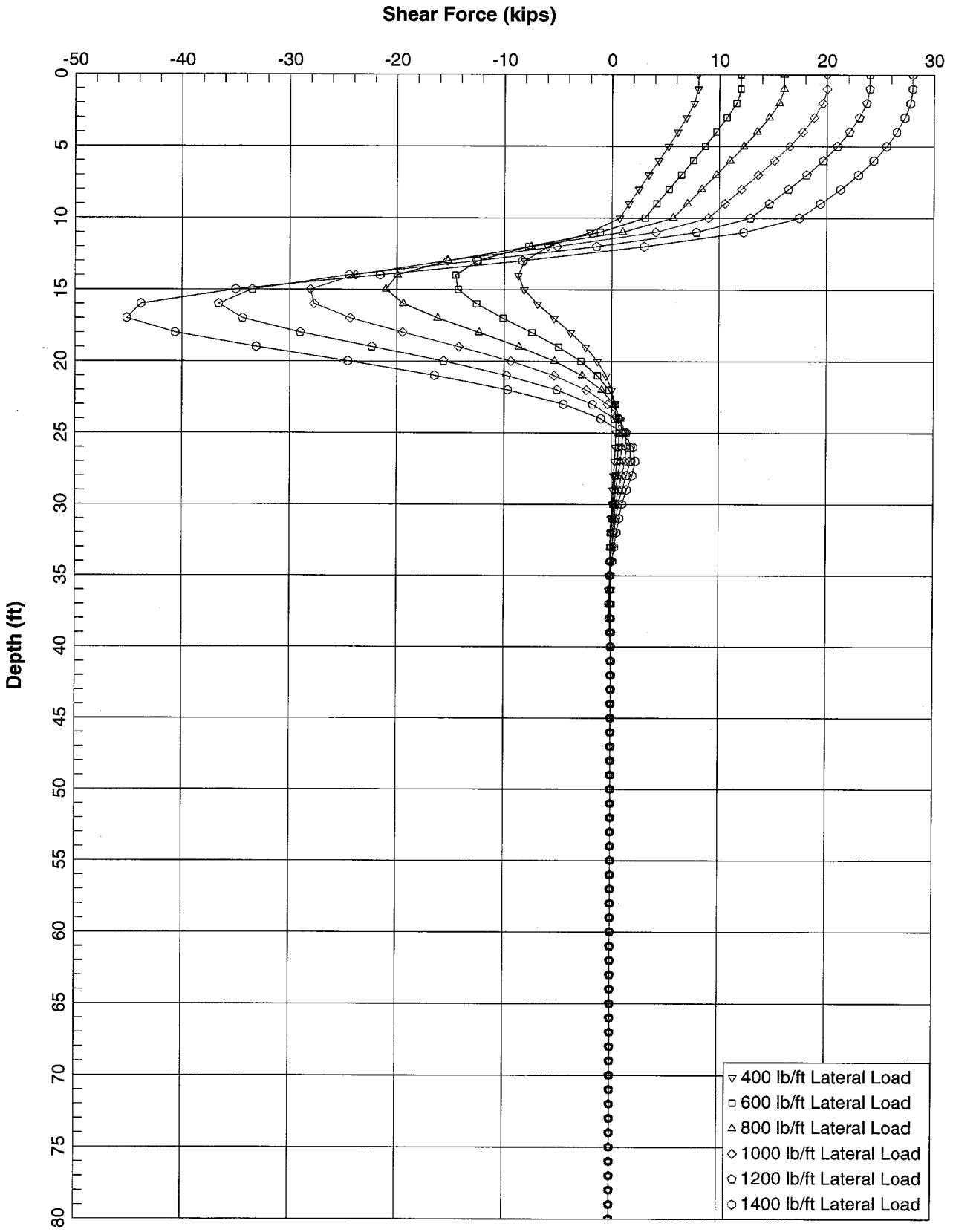


Figure C-33 - Boring E - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

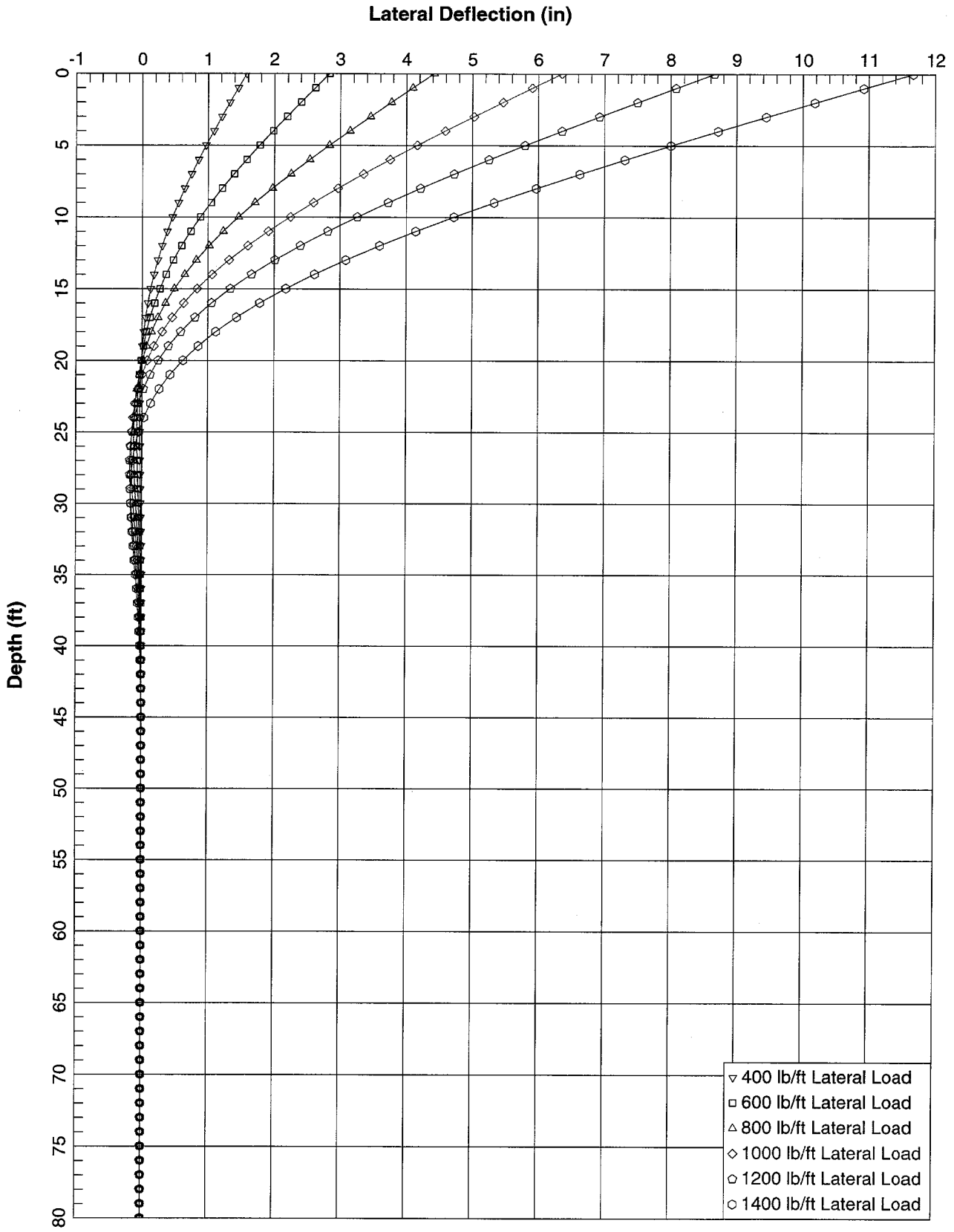


Figure C-34 - Boring 13 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

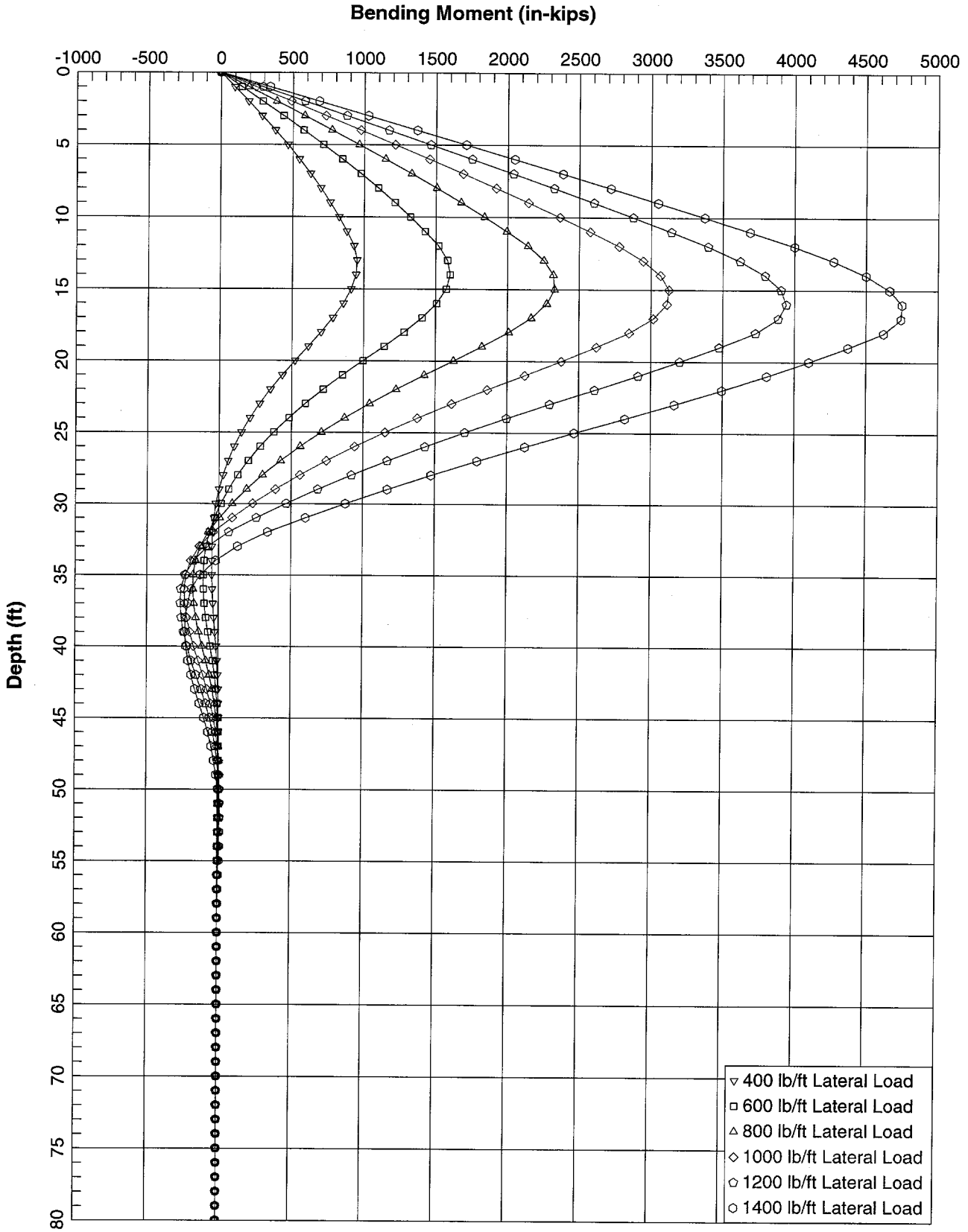


Figure C-35 - Boring 13 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

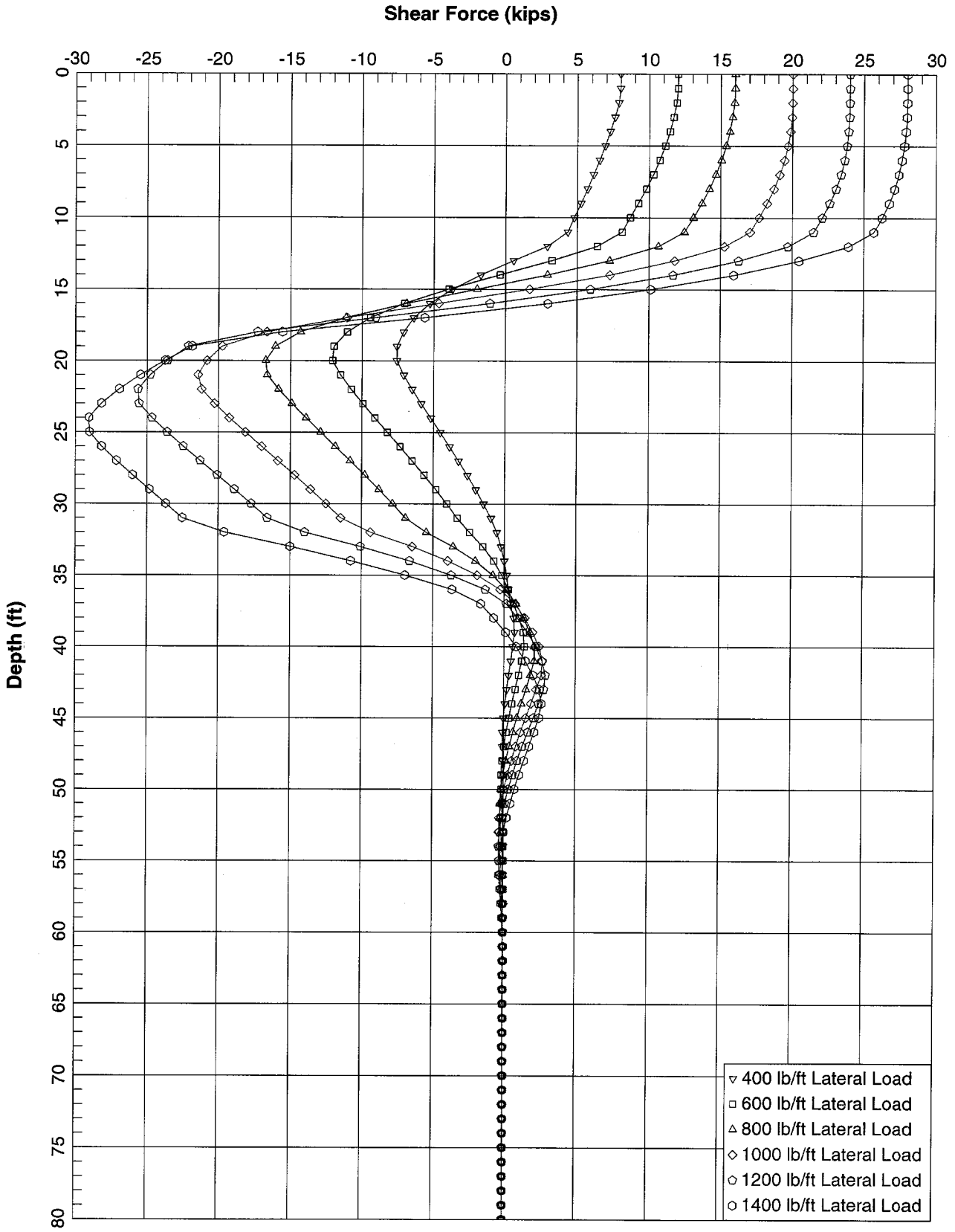


Figure C-36 - Boring 13 - 20-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

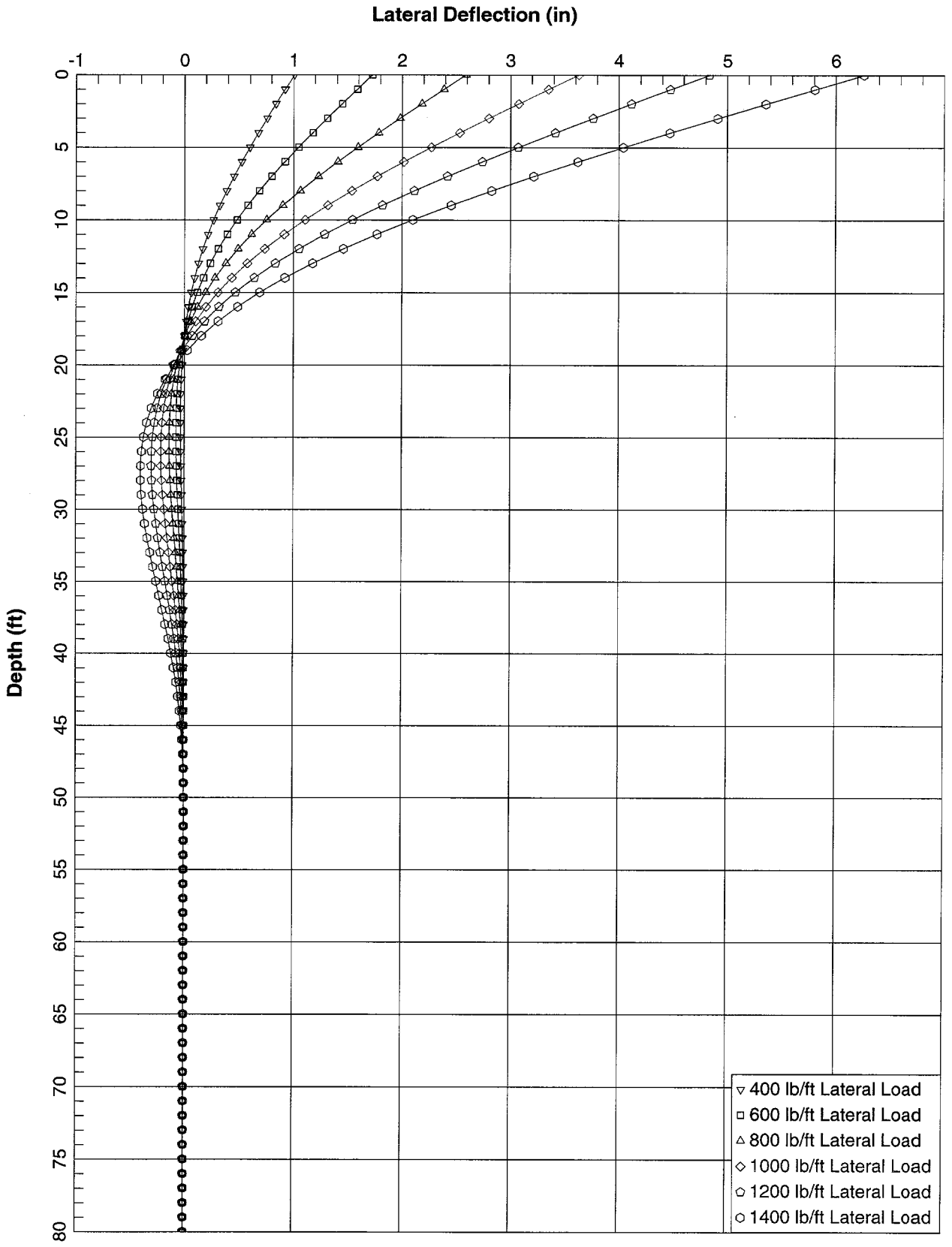


Figure C-37 - Boring 1 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

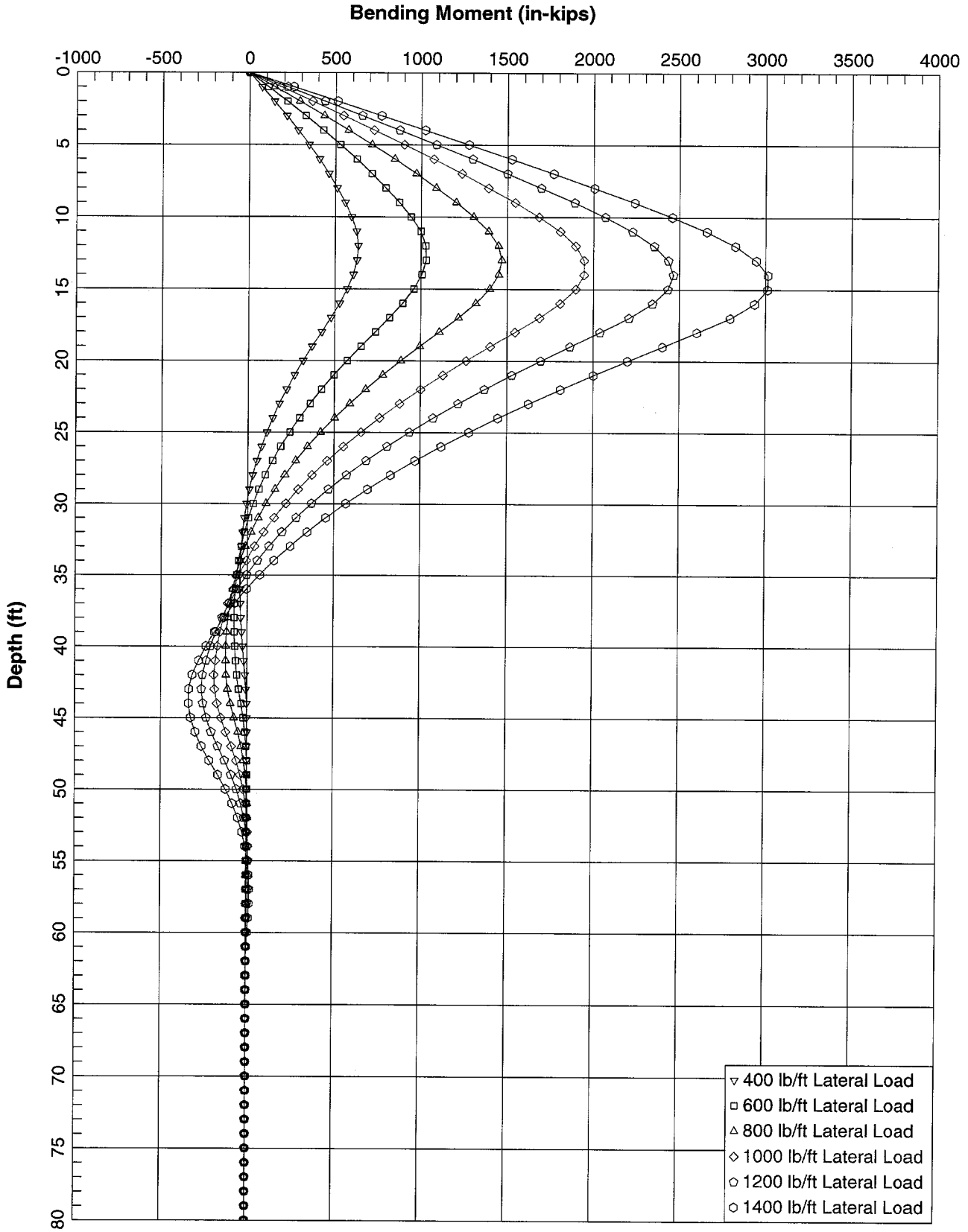


Figure C-38 - Boring 1 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

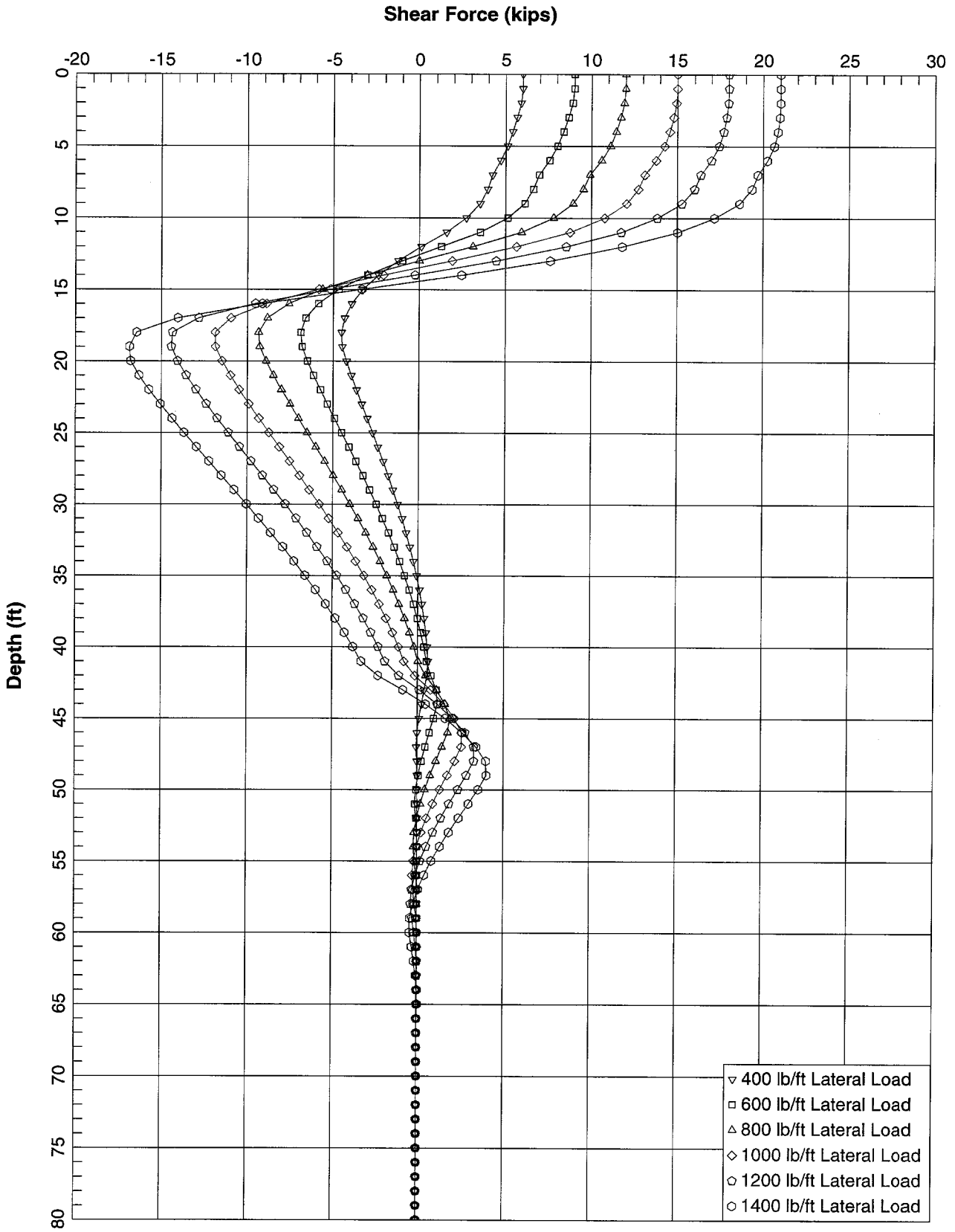


Figure C-39 - Boring 1 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

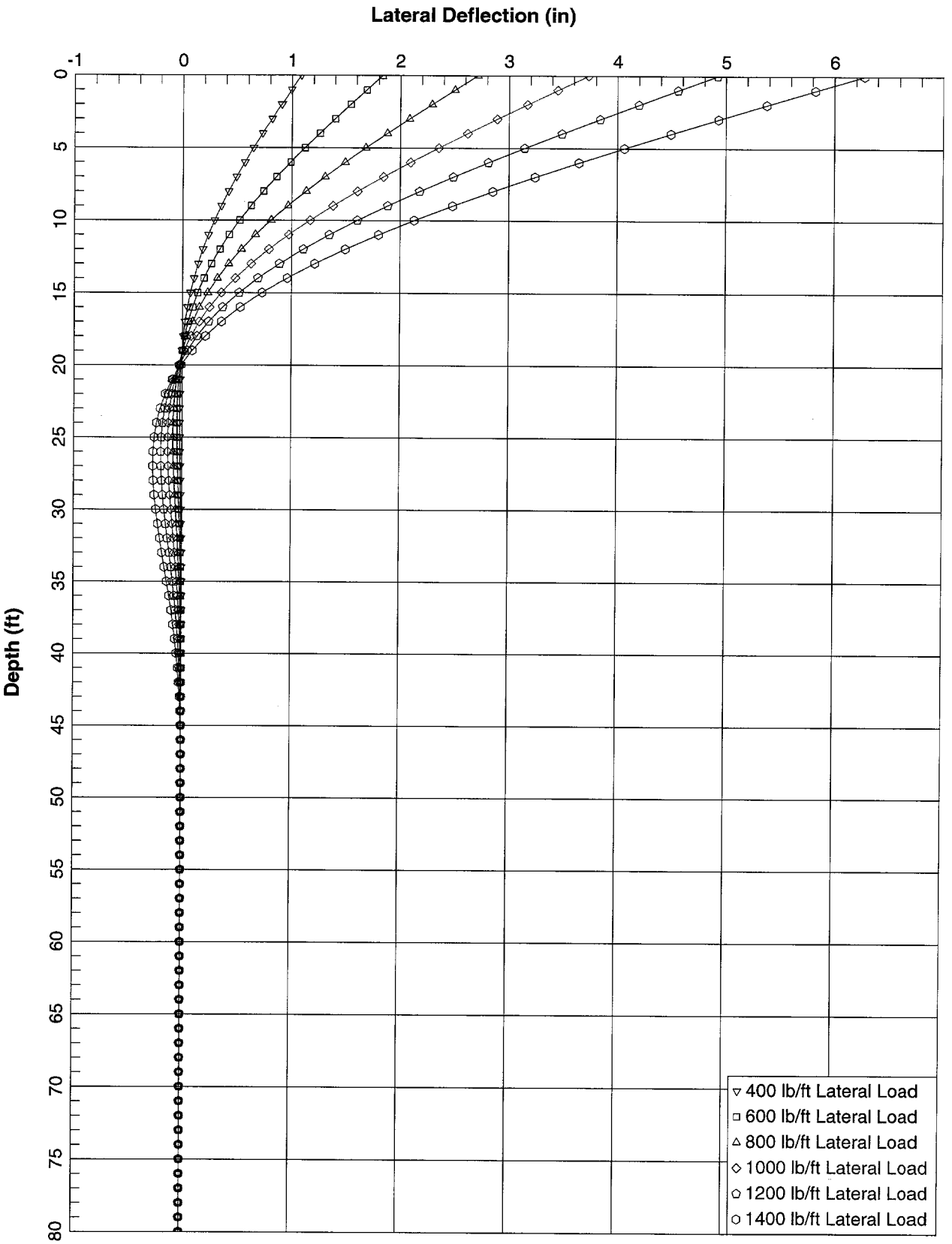


Figure C-40 - Boring 2 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

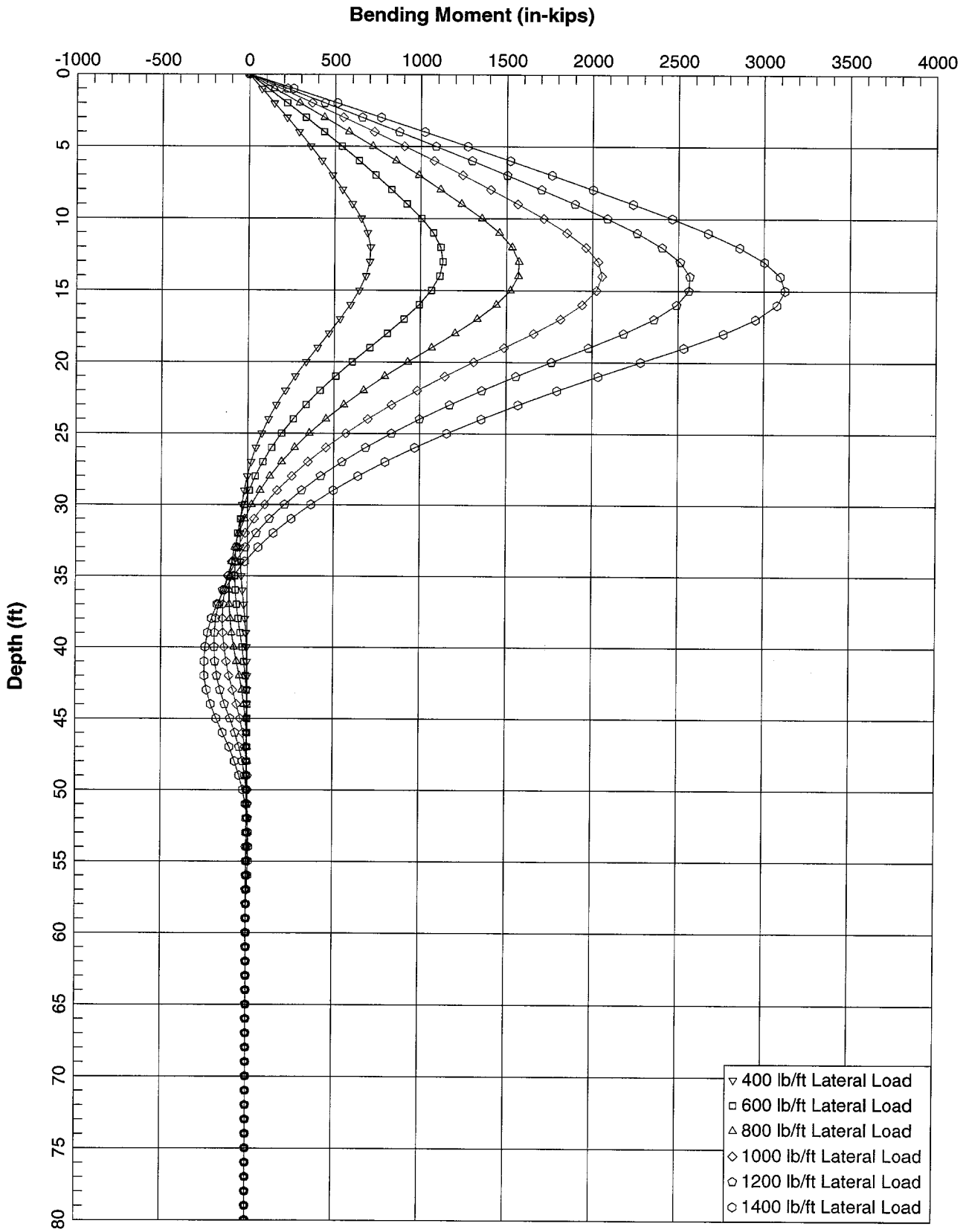


Figure C-41 - Boring 2 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

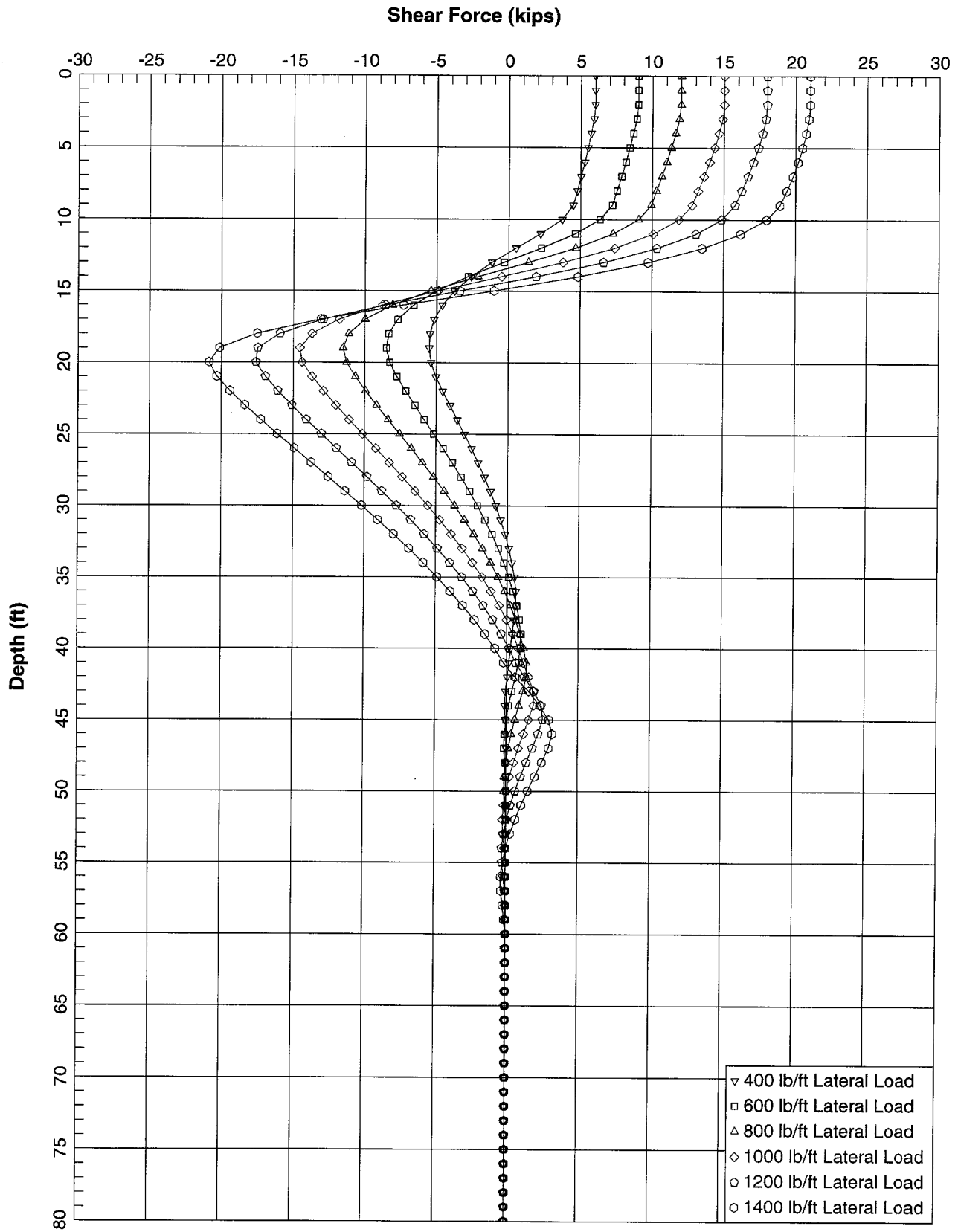


Figure C-42 - Boring 2 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

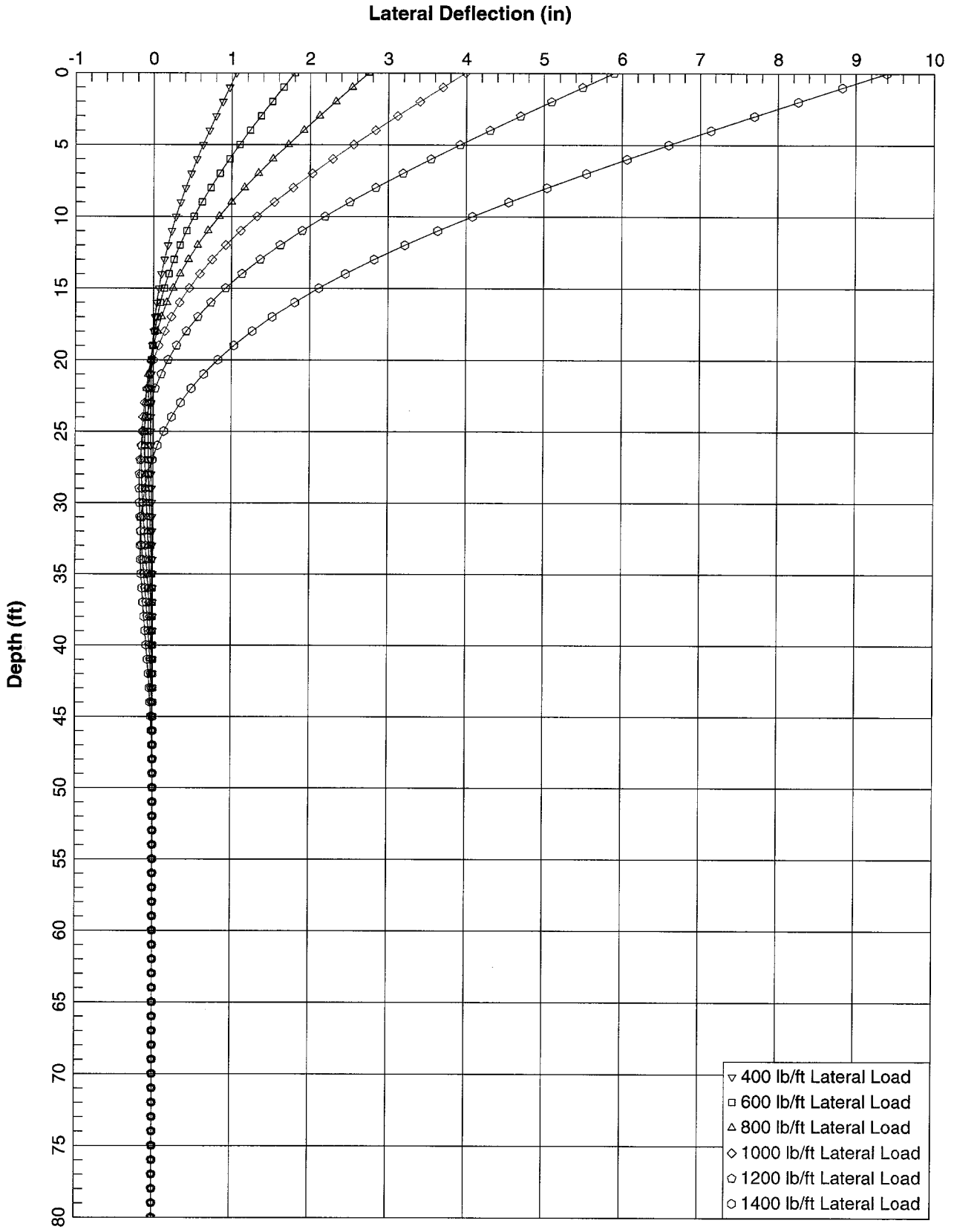


Figure C-43 - Boring A - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

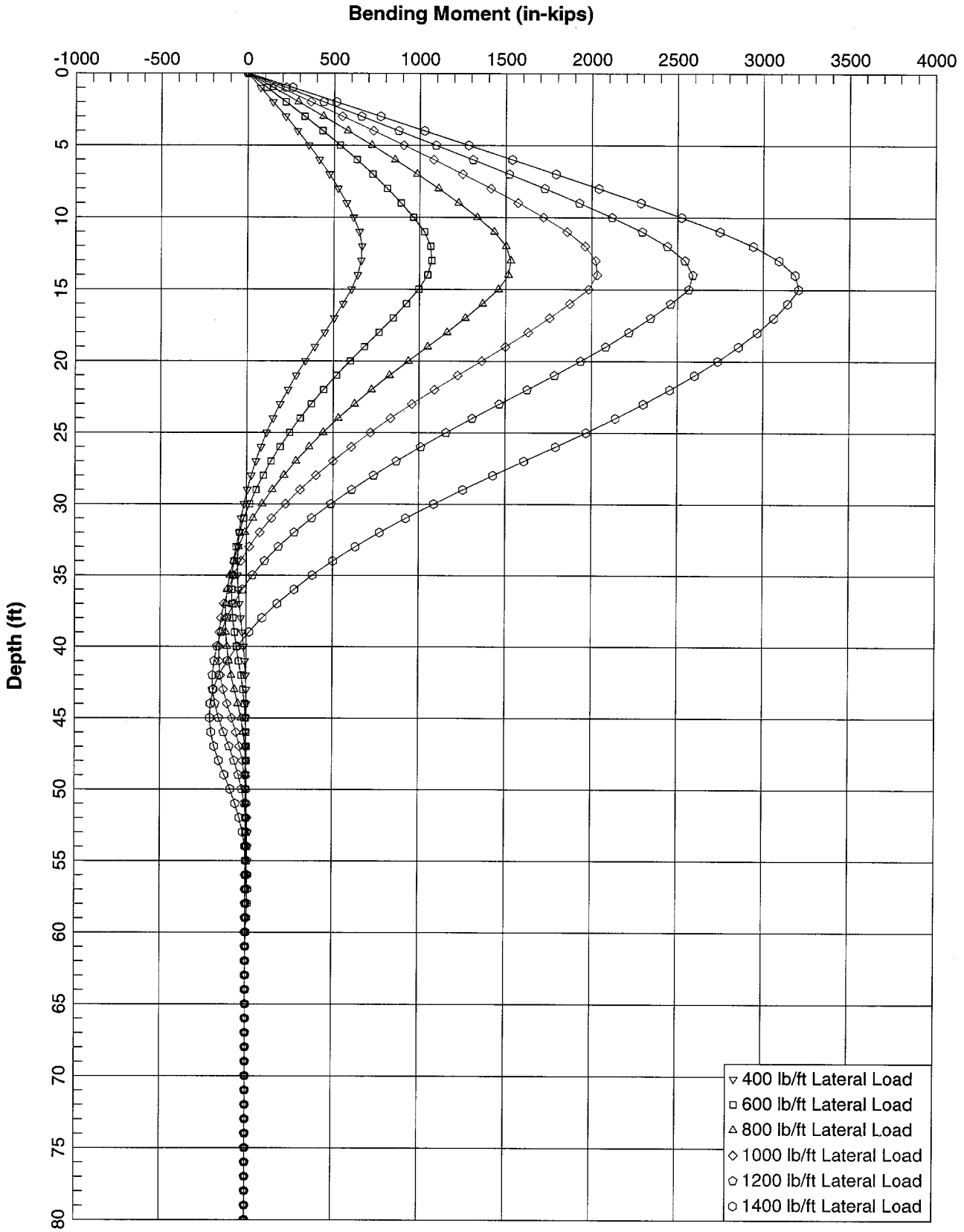


Figure C-44 - Boring A - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

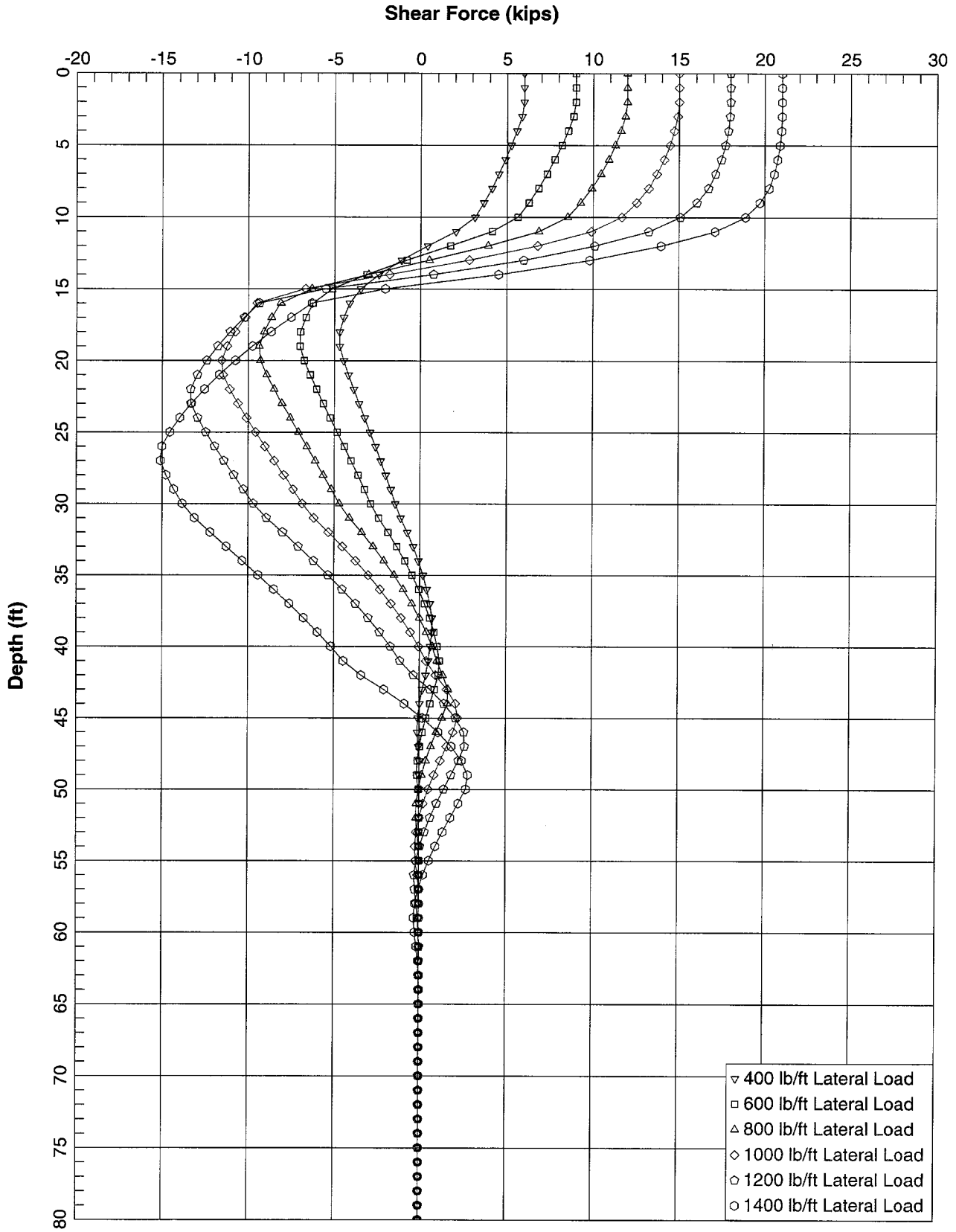


Figure C-45 - Boring A - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

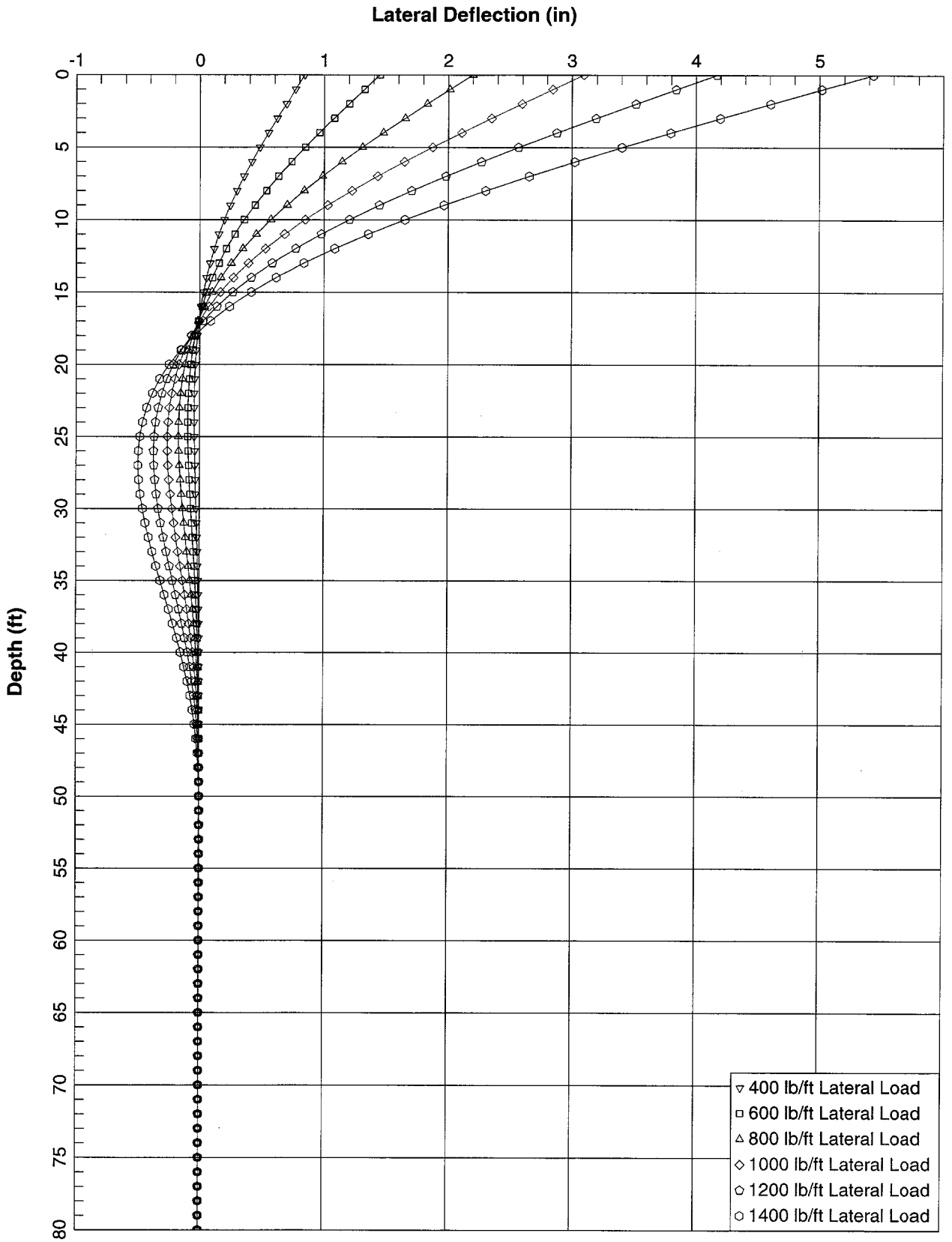


Figure C-46 - Boring 6 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

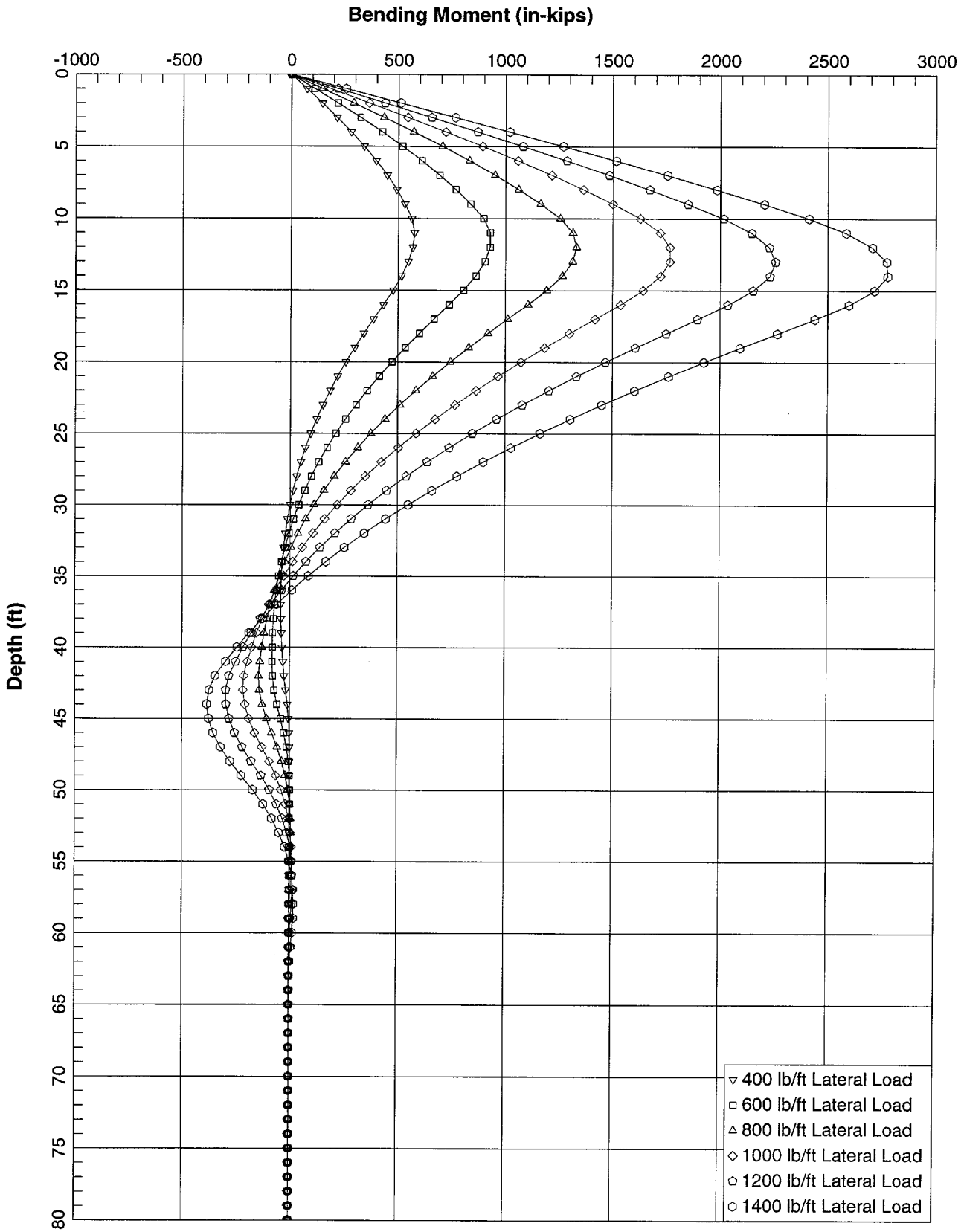


Figure C-47 - Boring 6 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

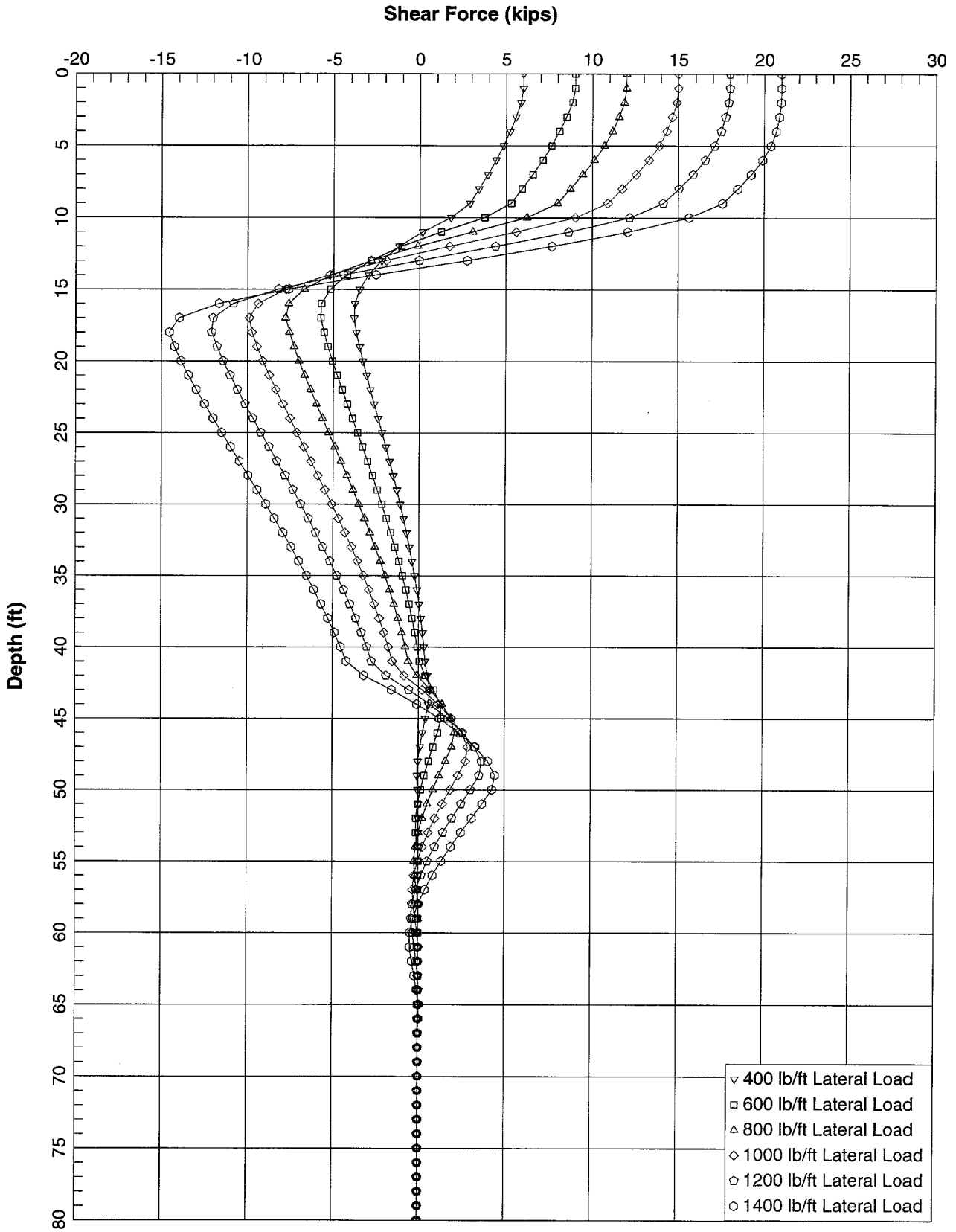


Figure C-48 - Boring 6 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

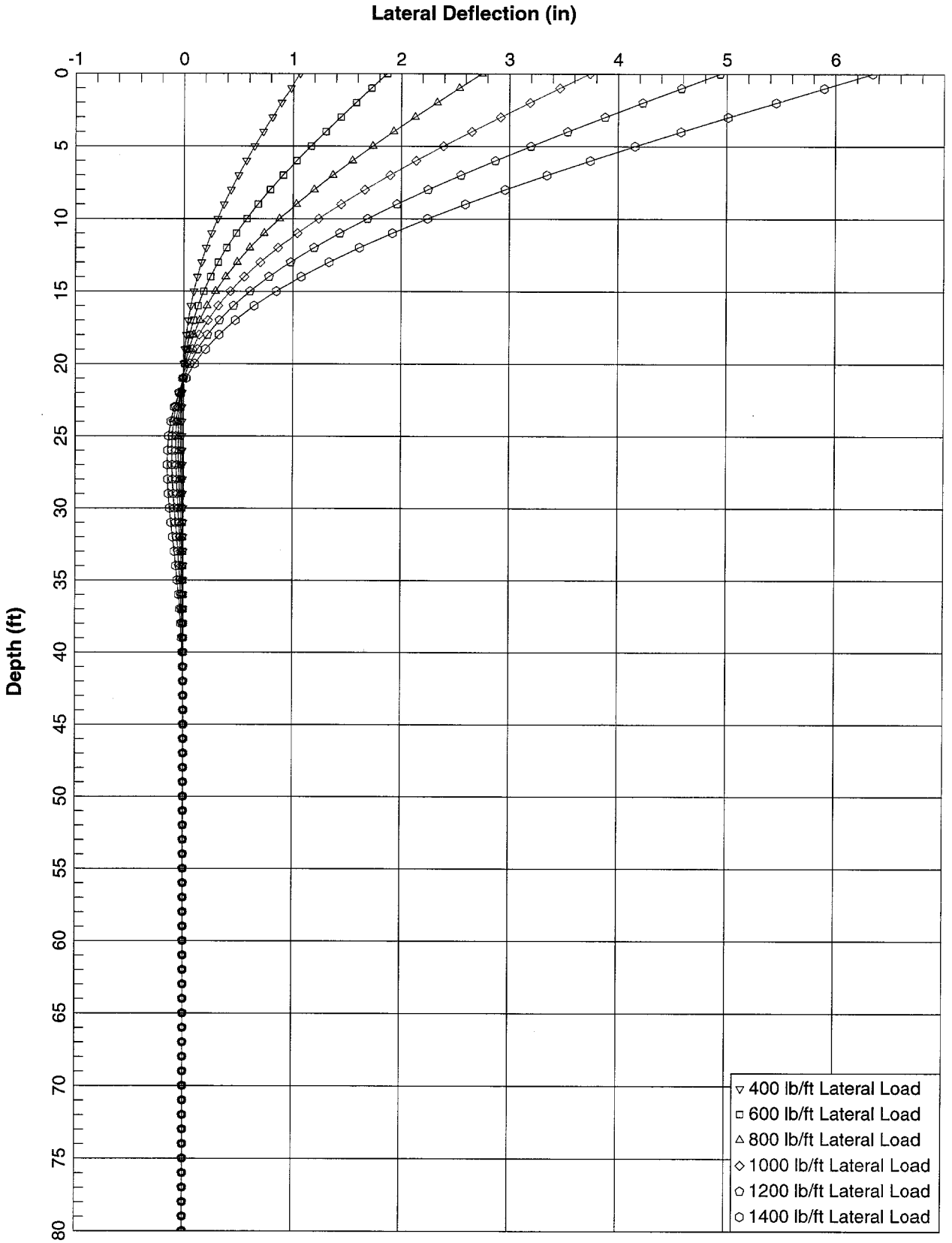


Figure C-49 - Boring B - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

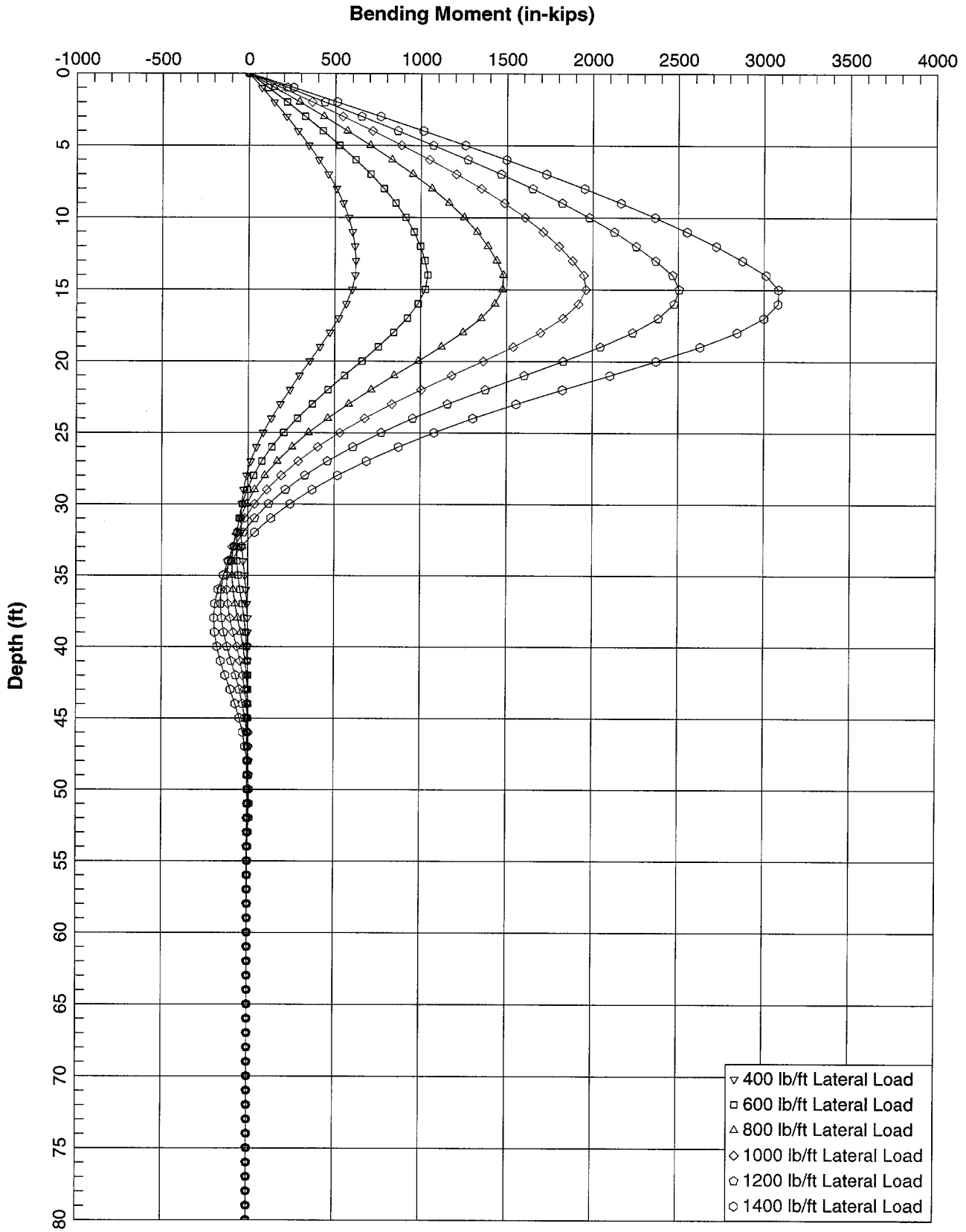


Figure C-50 - Boring B - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

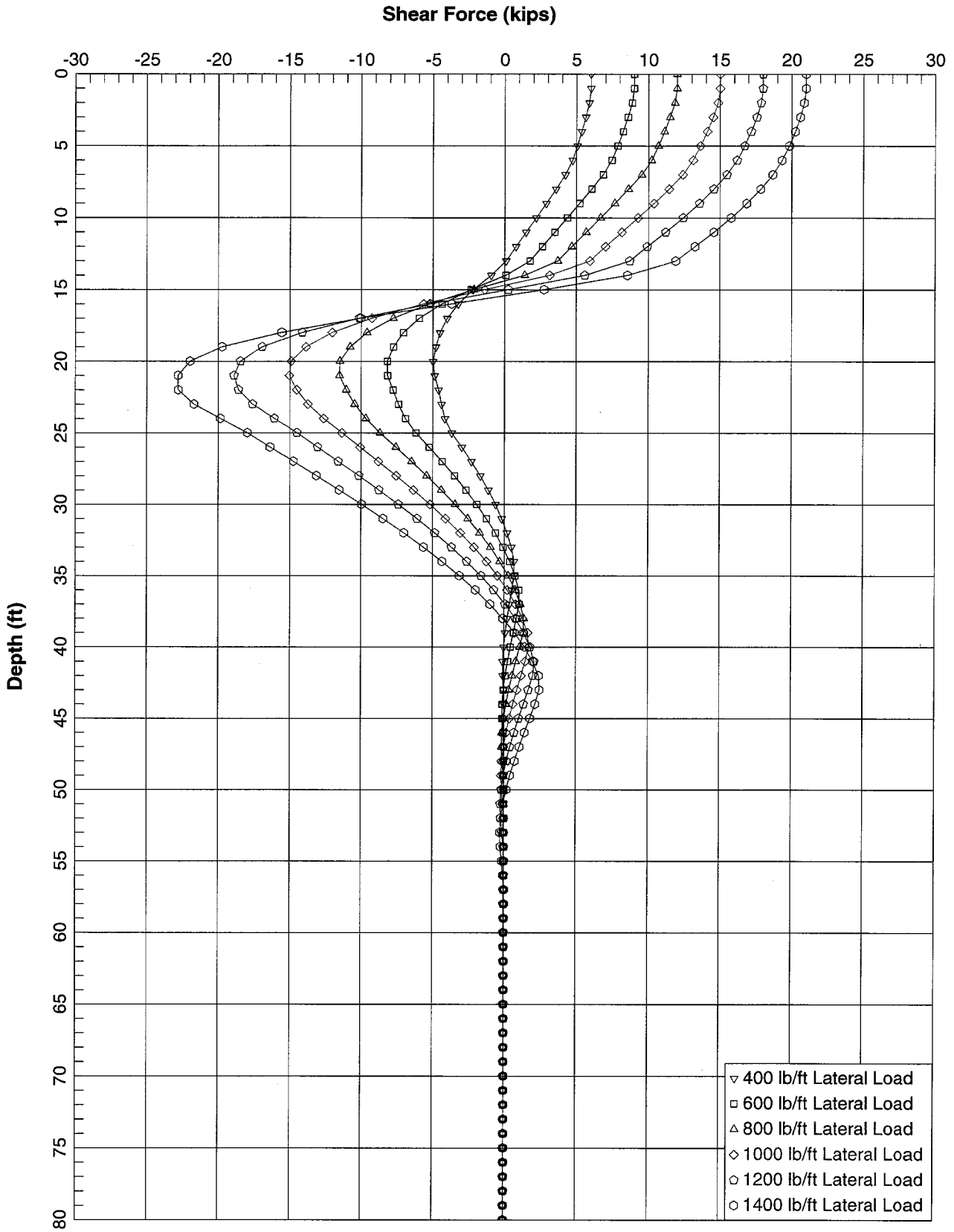


Figure C-51 - Boring B - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

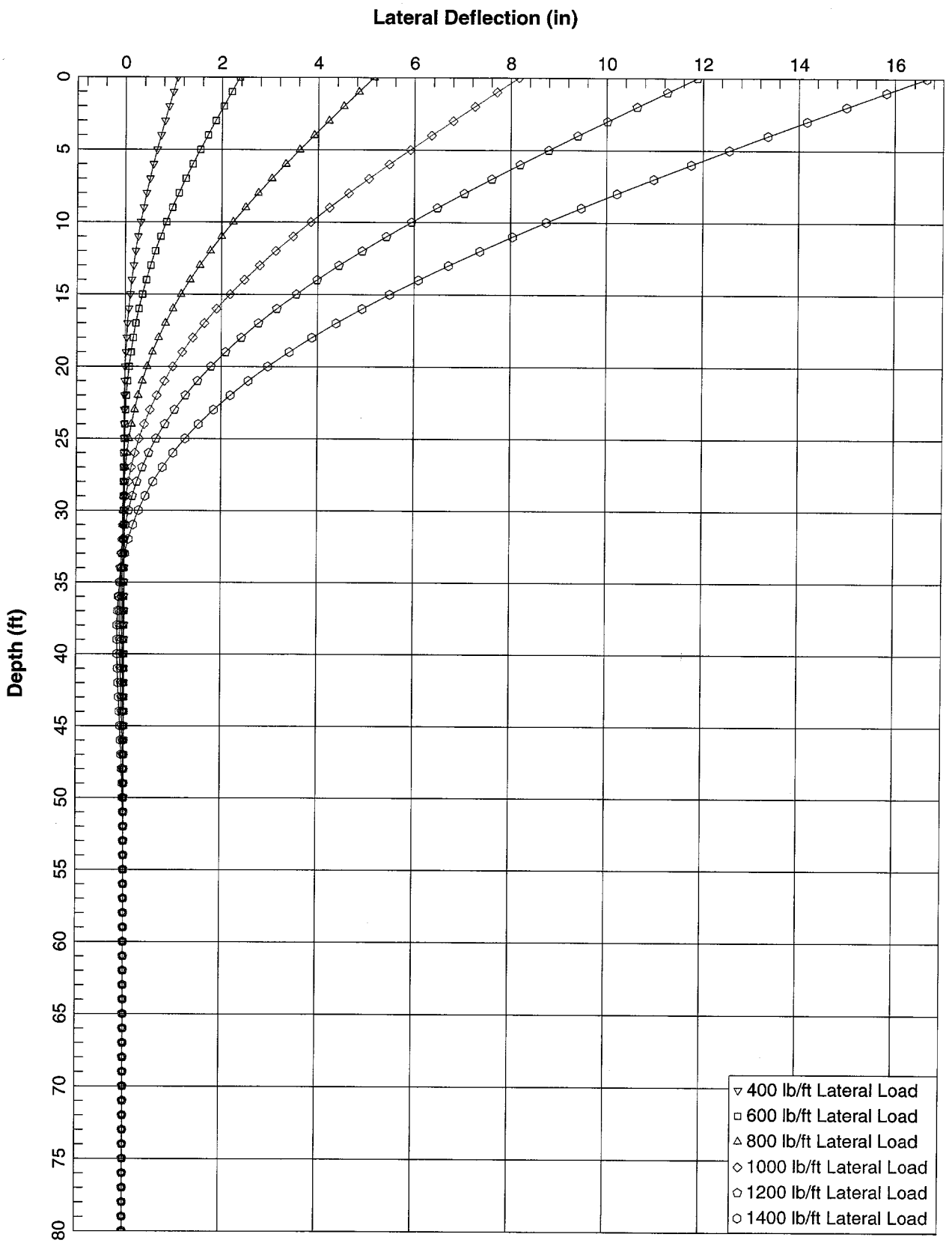


Figure C-52 - Boring 7 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

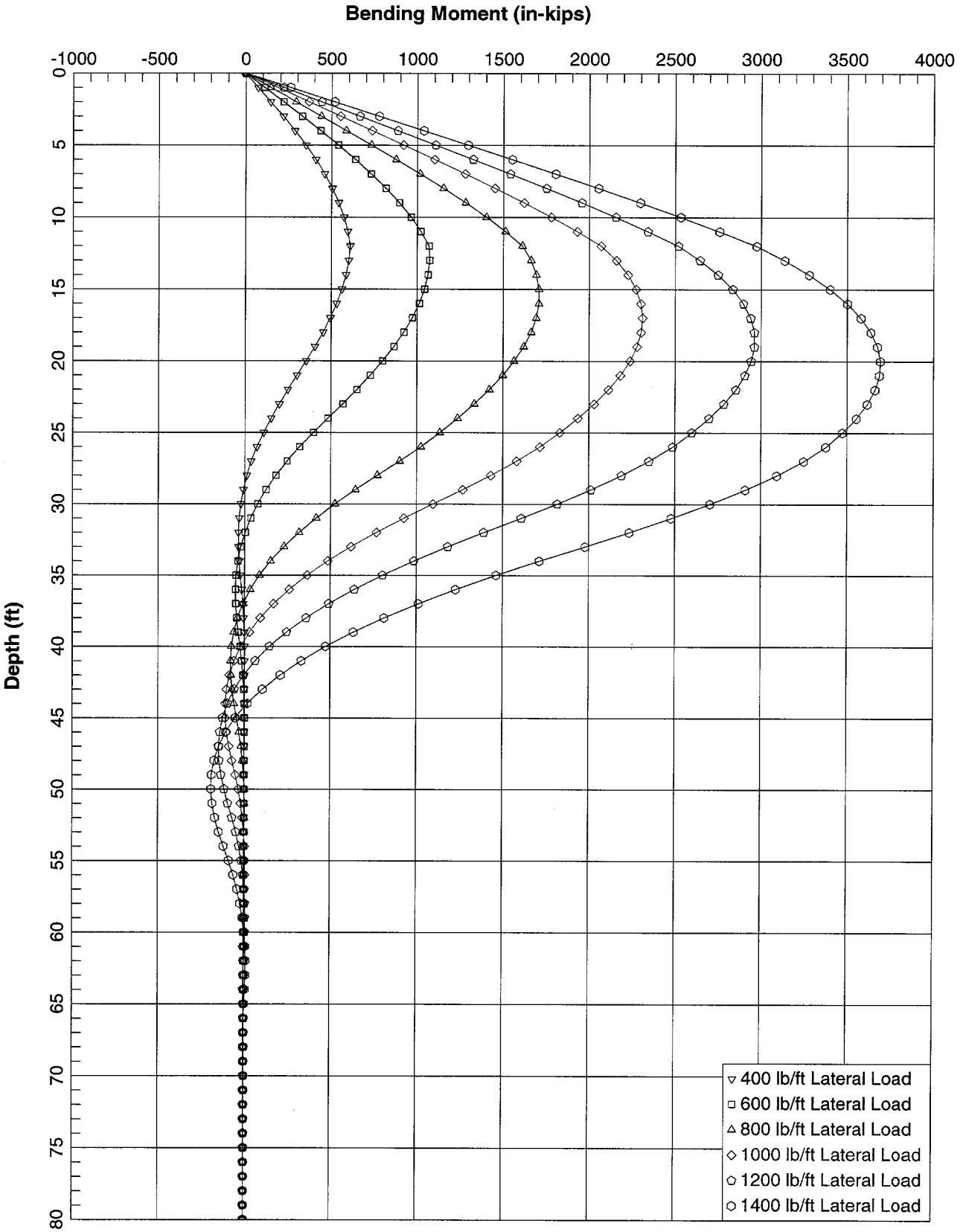


Figure C-53 - Boring 7 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

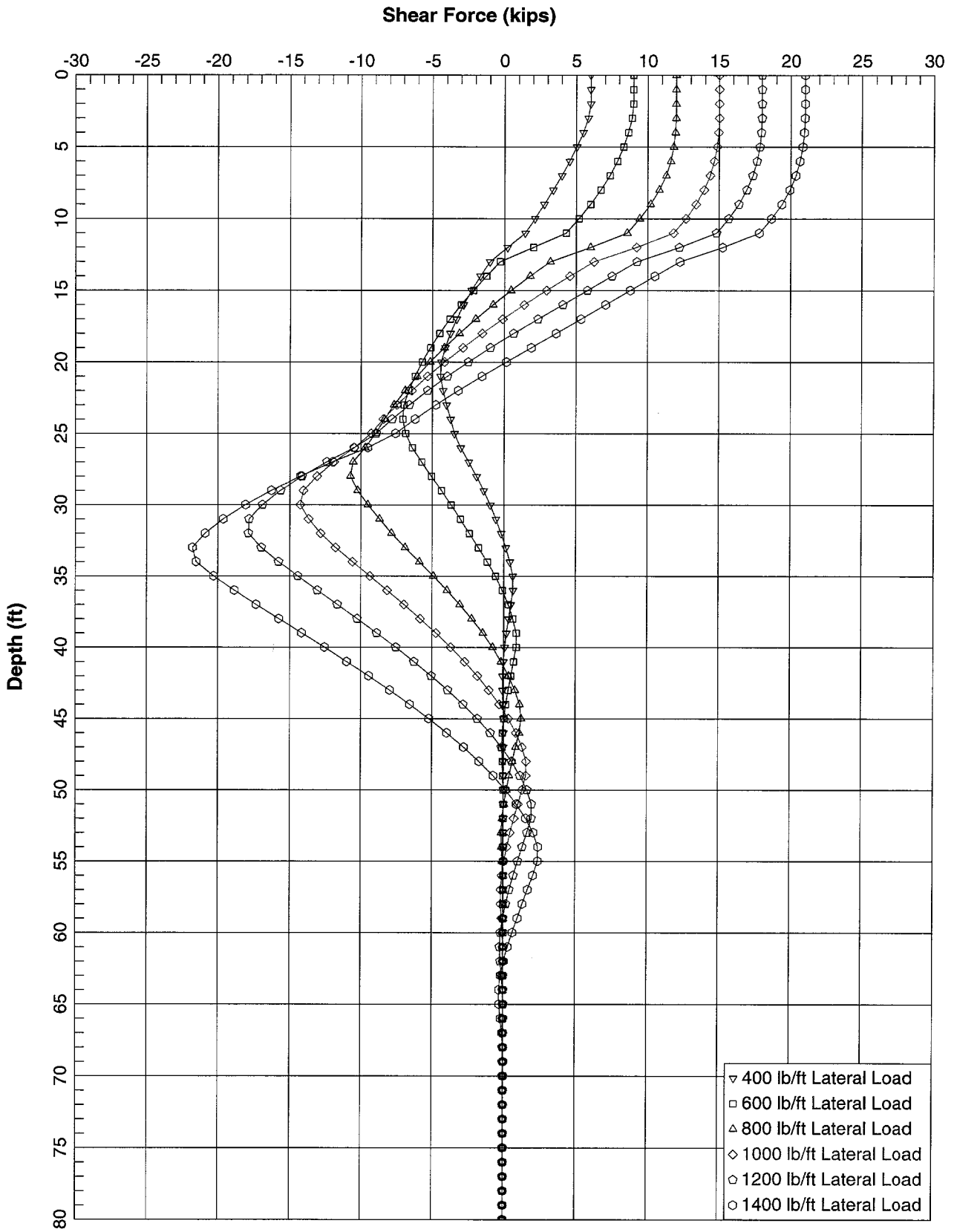


Figure C-54 - Boring 7 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

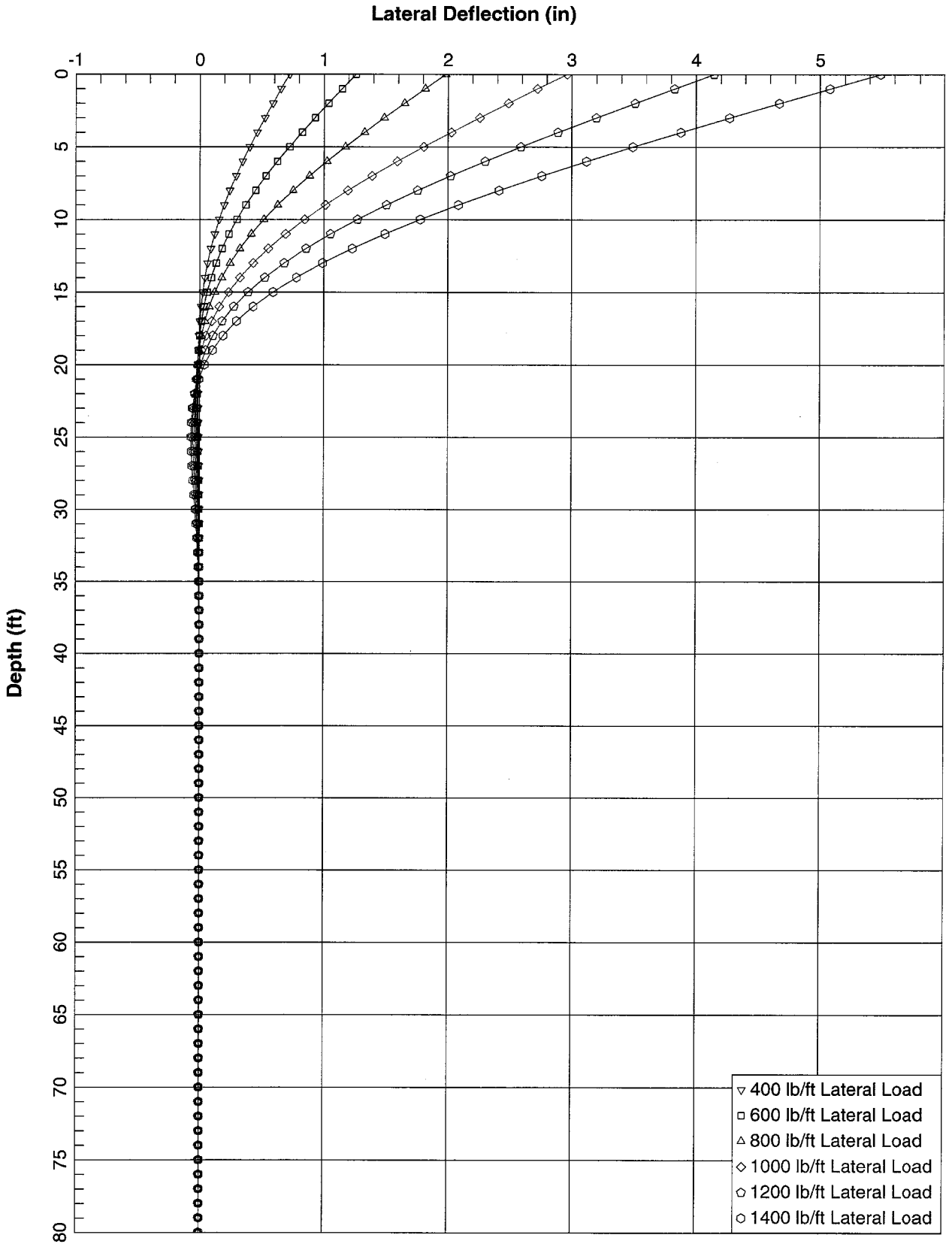


Figure C-55 - Boring C - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

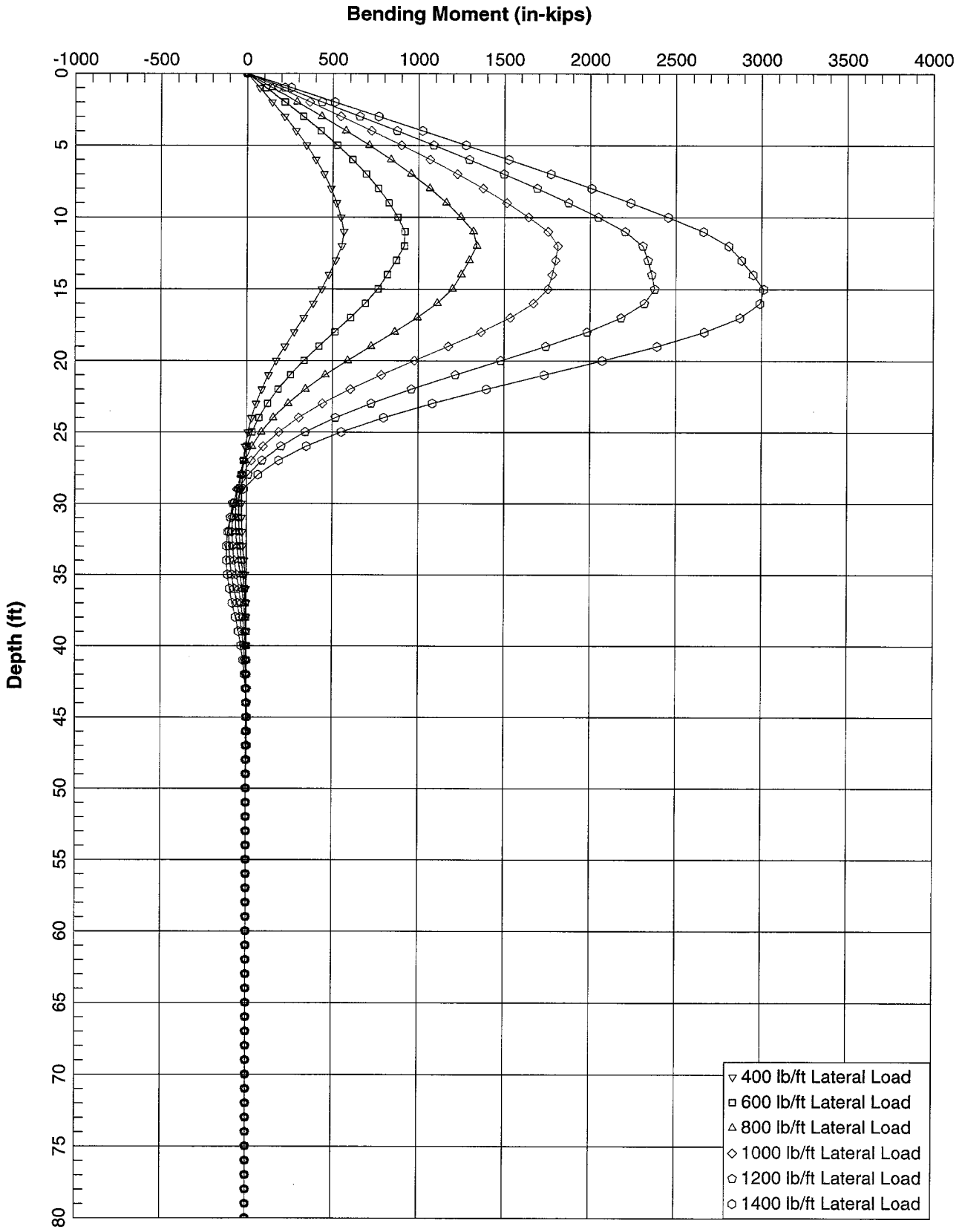


Figure C-56 - Boring C - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

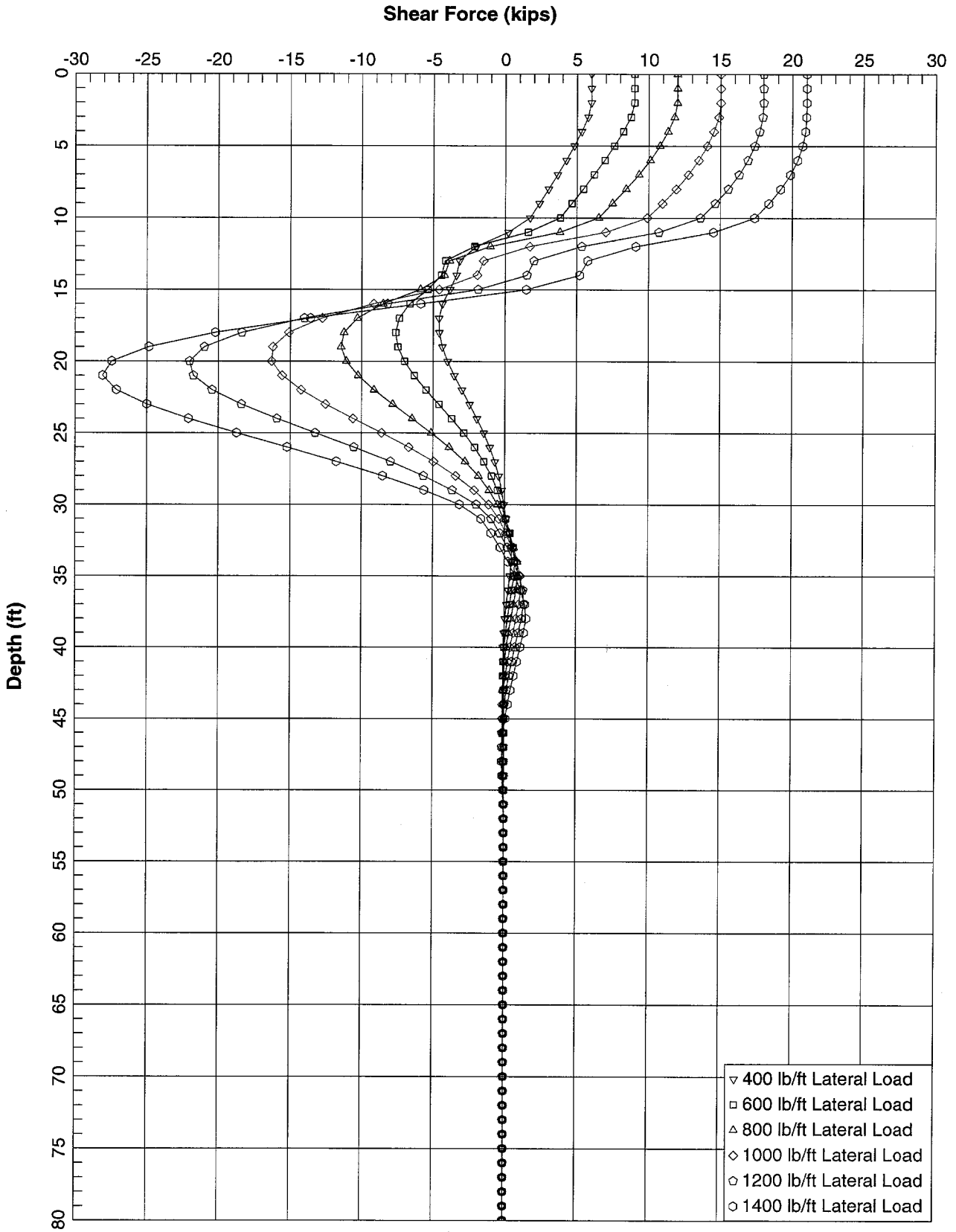


Figure C-57 - Boring C - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

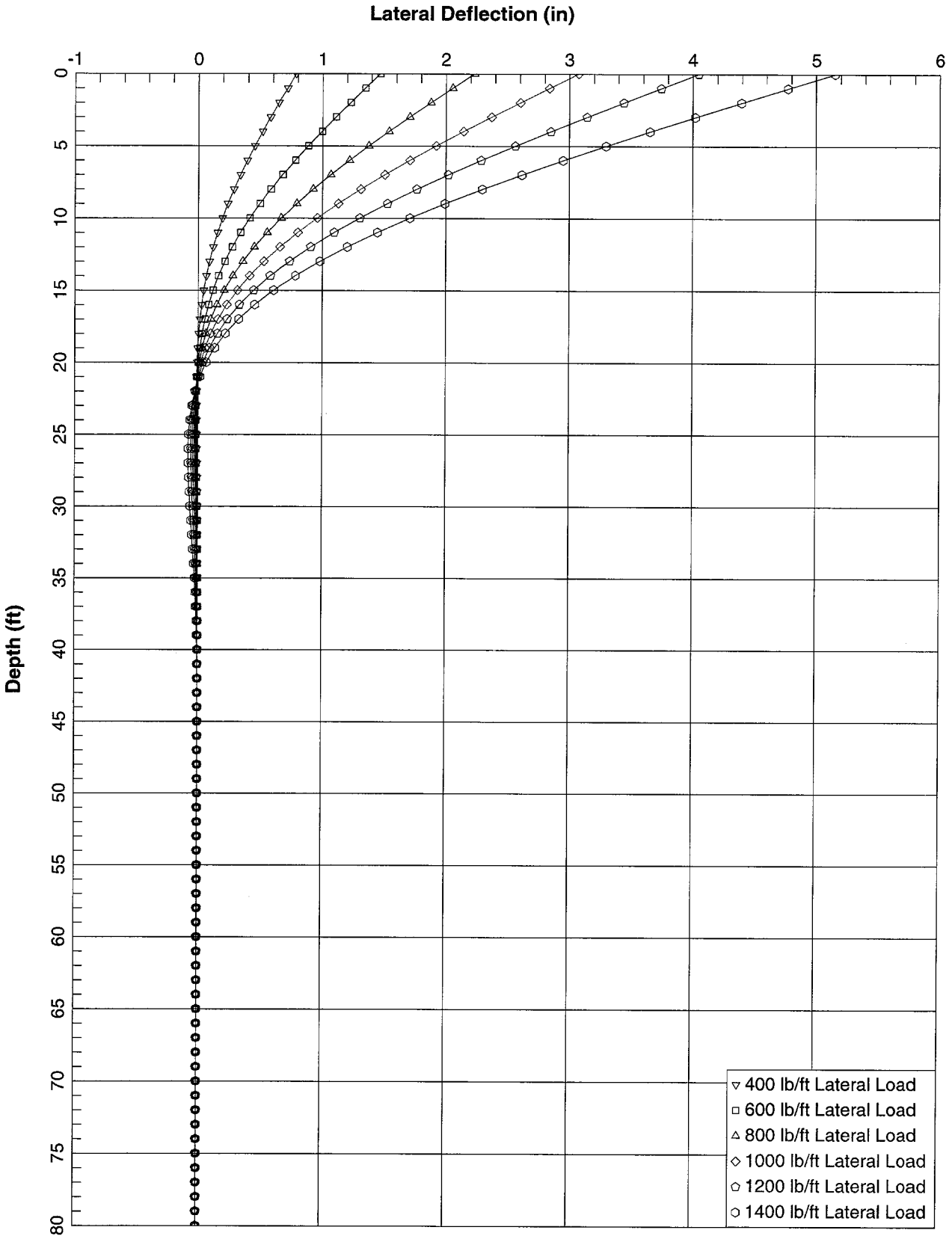


Figure C-58 - Boring 10 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

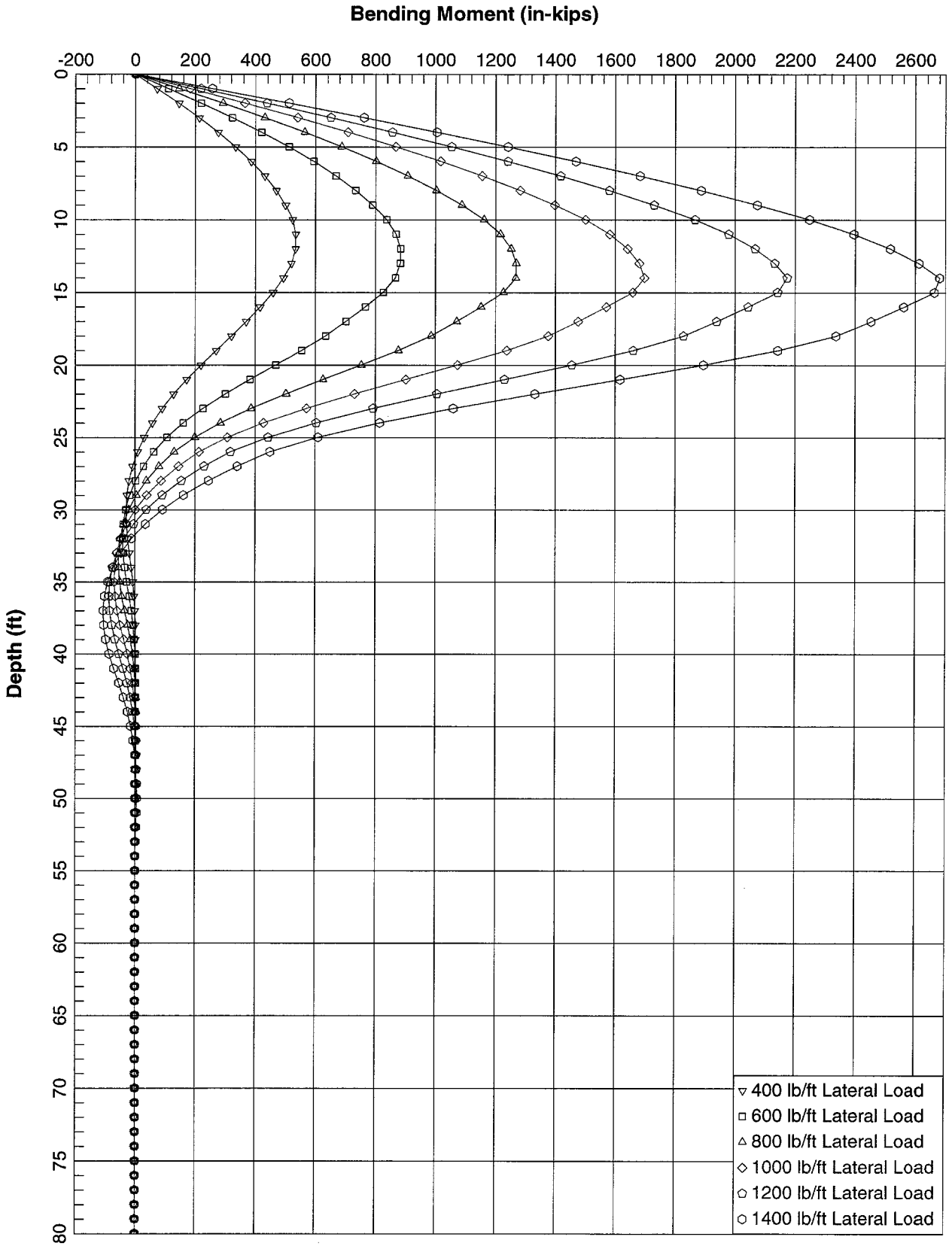


Figure C-59 - Boring 10 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

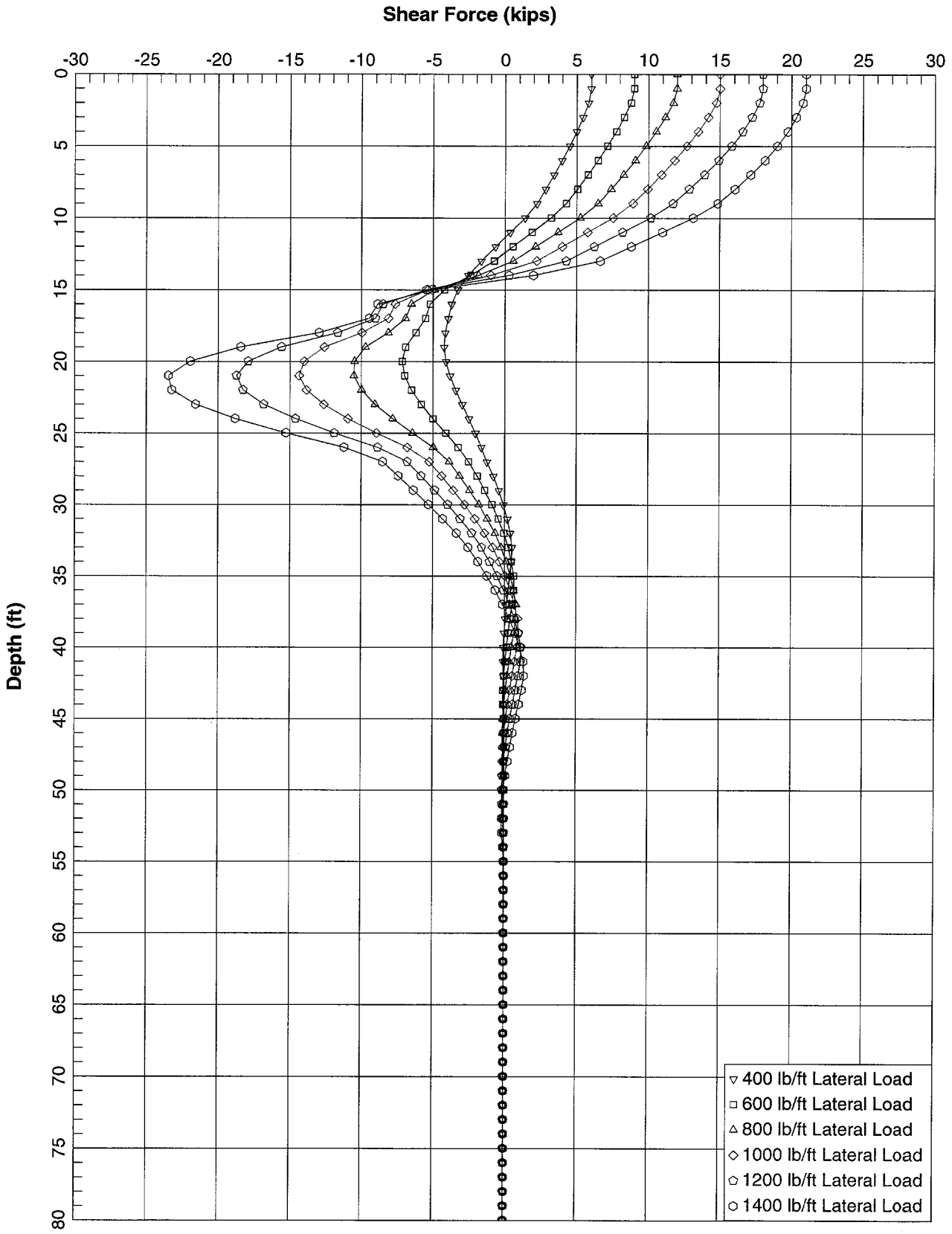


Figure C-60 - Boring 10 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

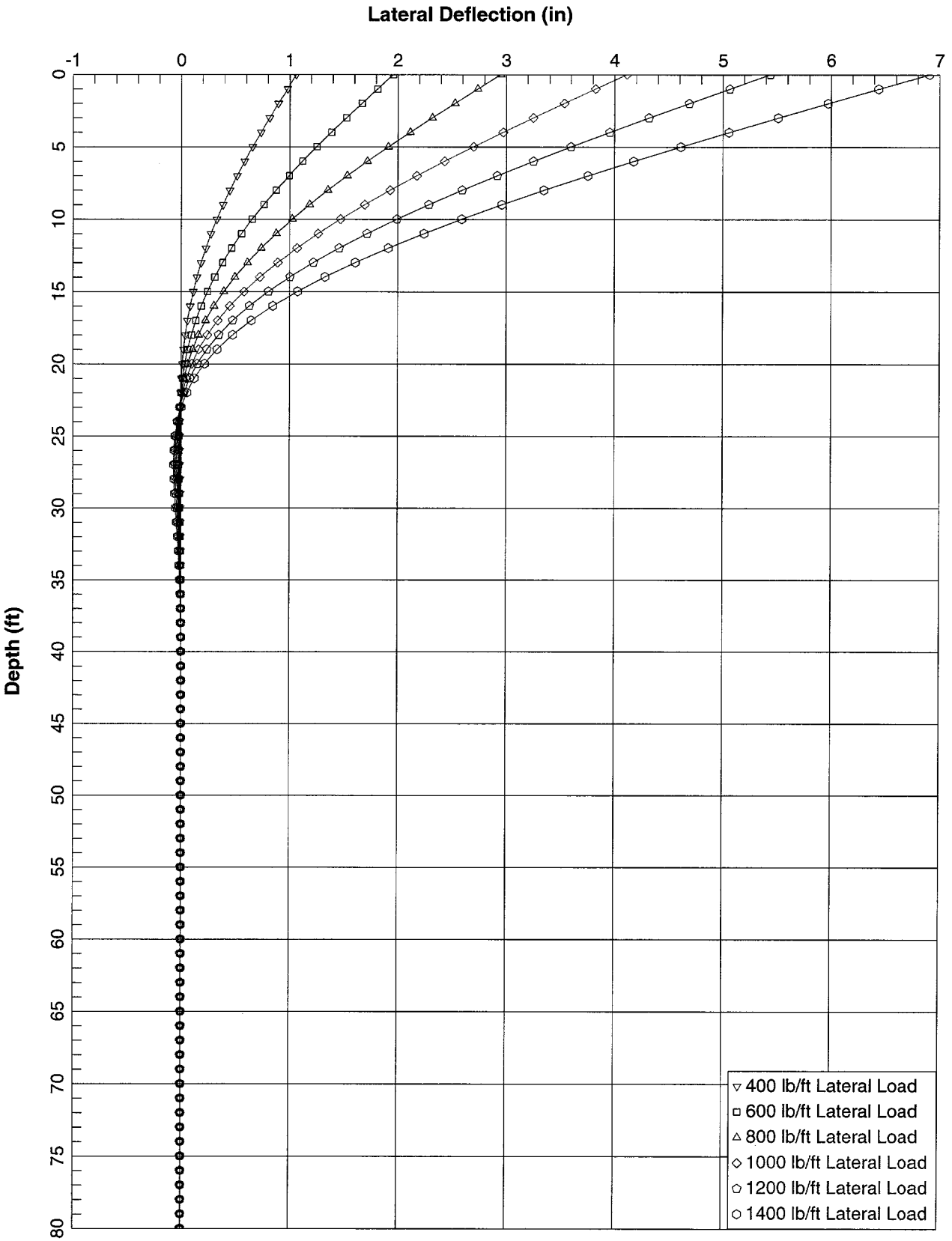


Figure C-61 - Boring D - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

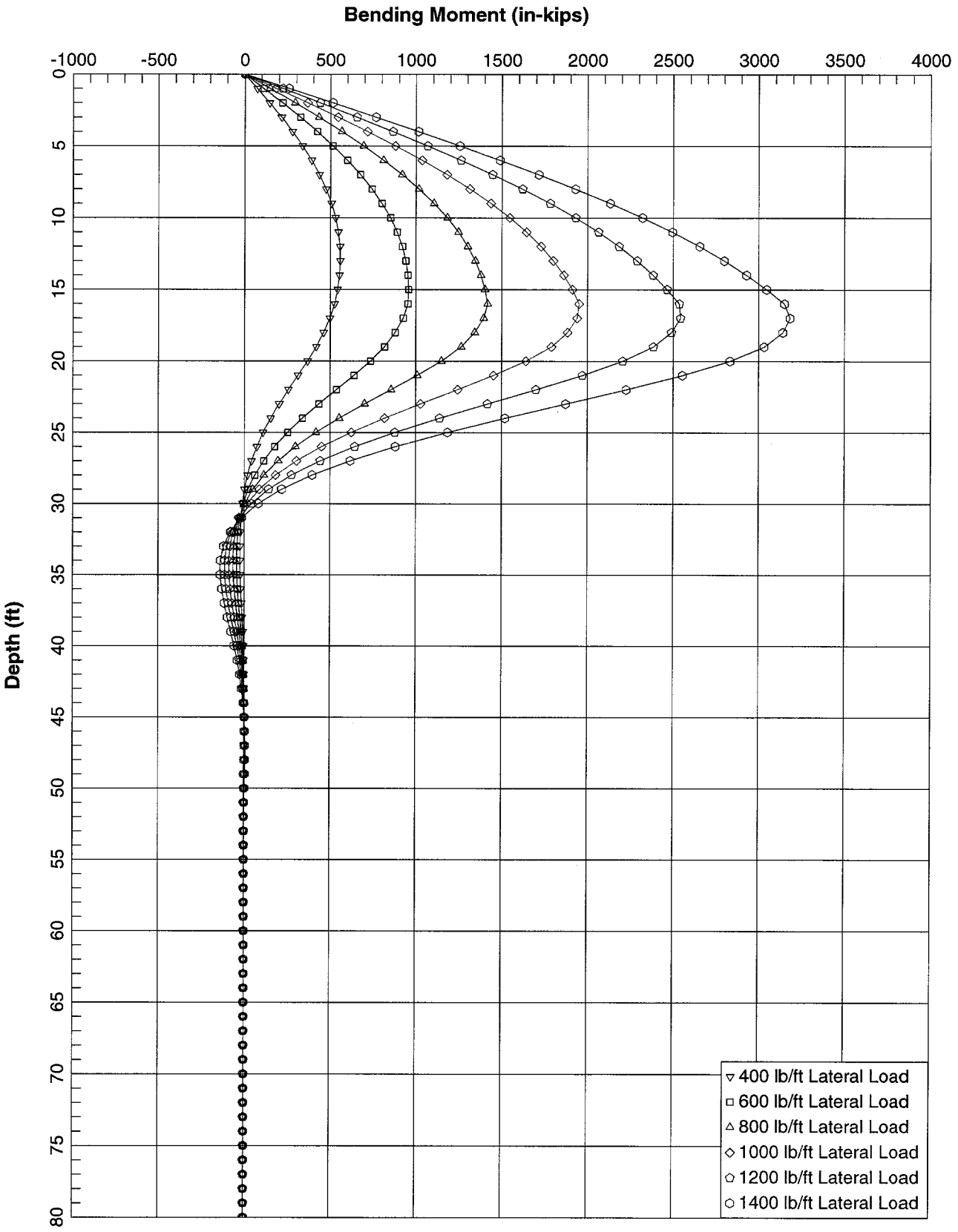


Figure C-62 - Boring D - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

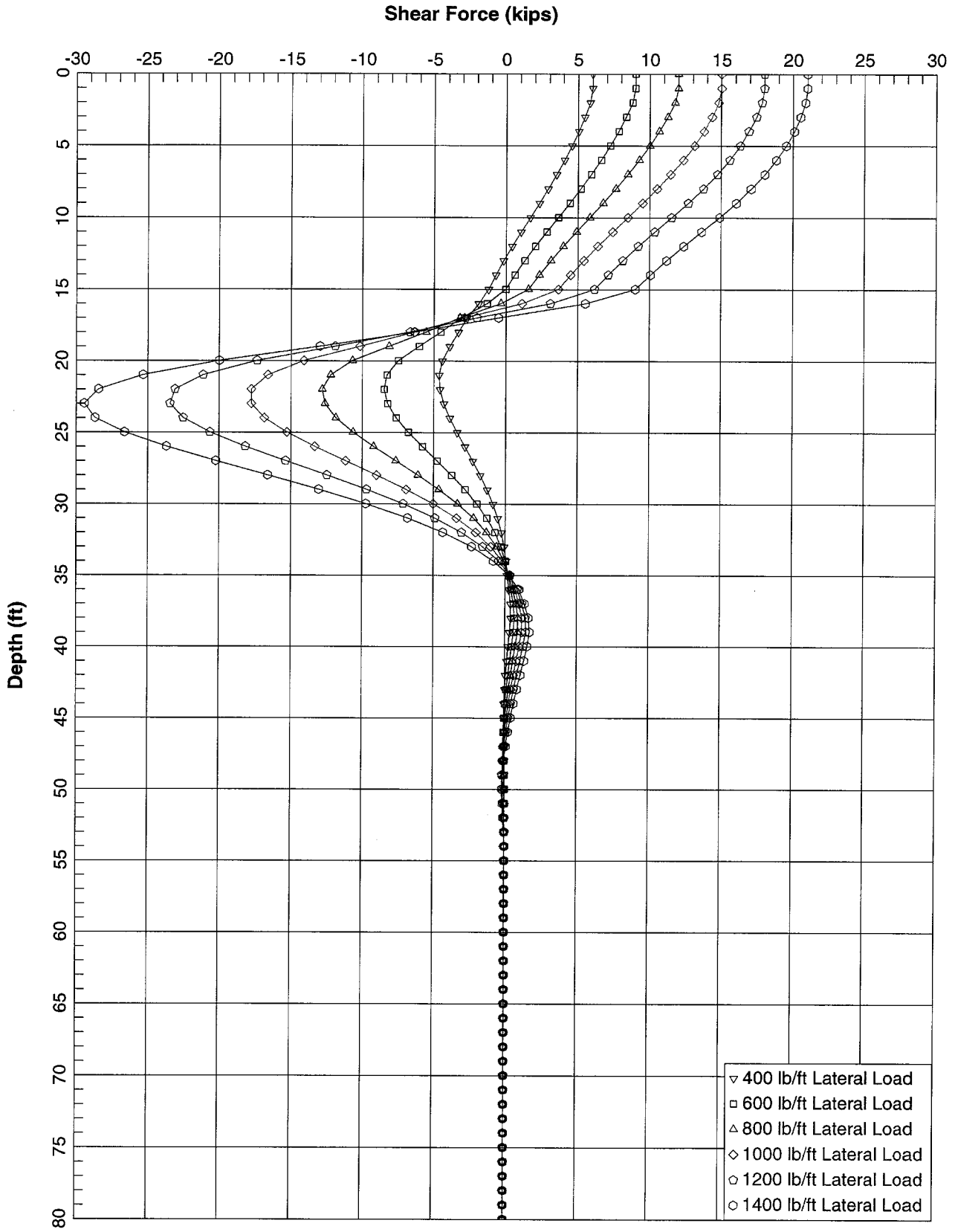


Figure C-63 - Boring D - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

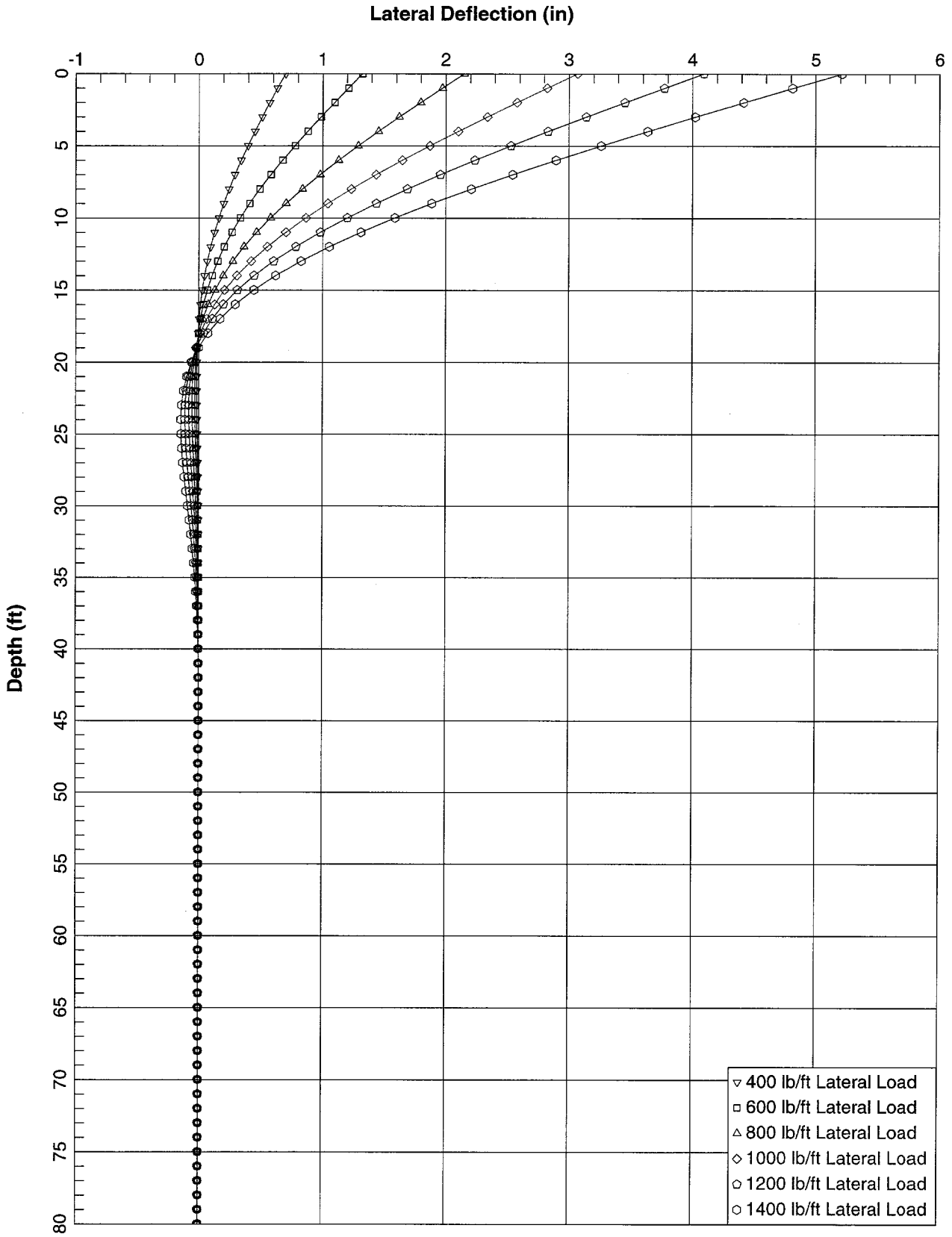


Figure C-64 - Boring 12 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

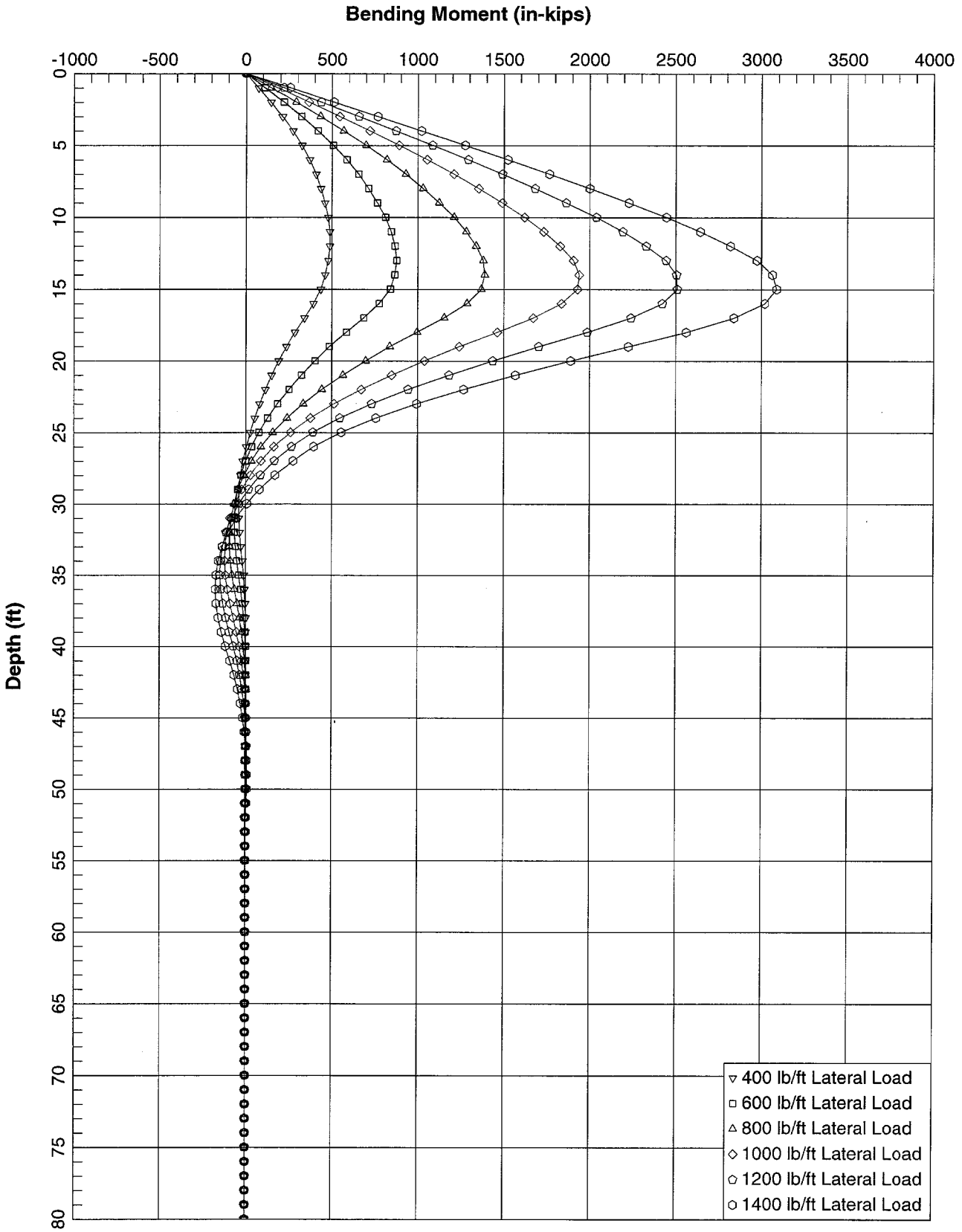


Figure C-65 - Boring 12 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

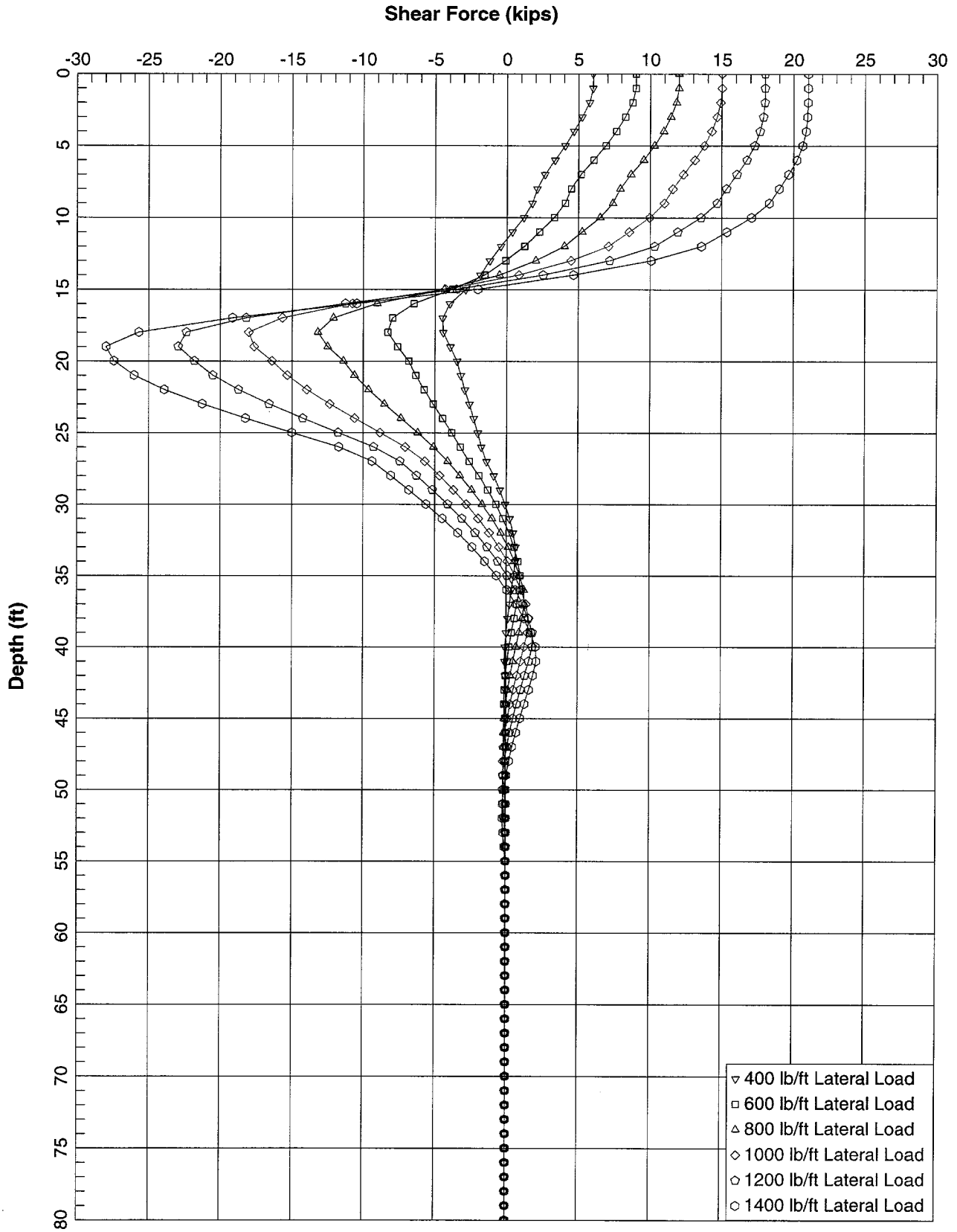


Figure C-66 - Boring 12 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

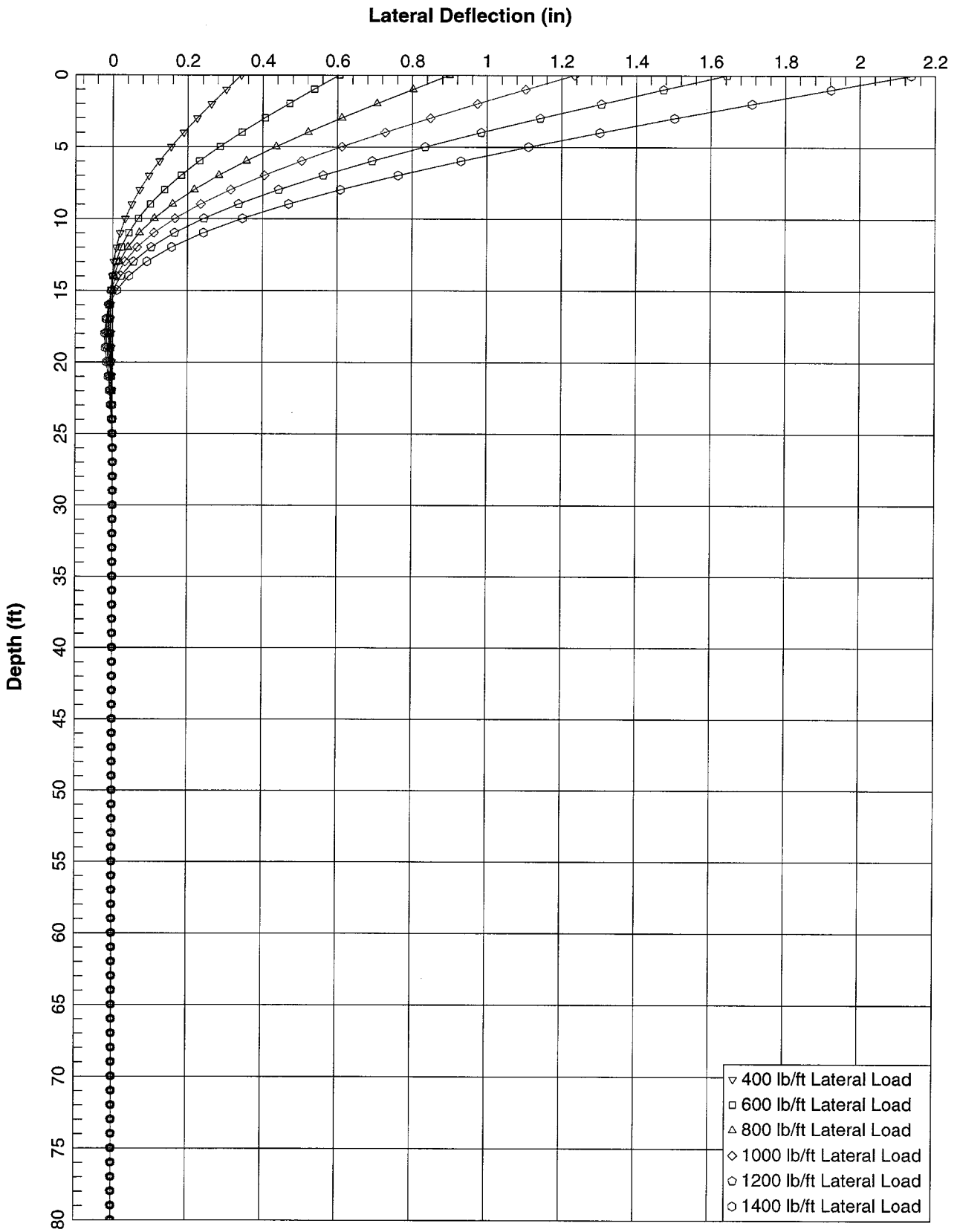


Figure C-67 - Boring E - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

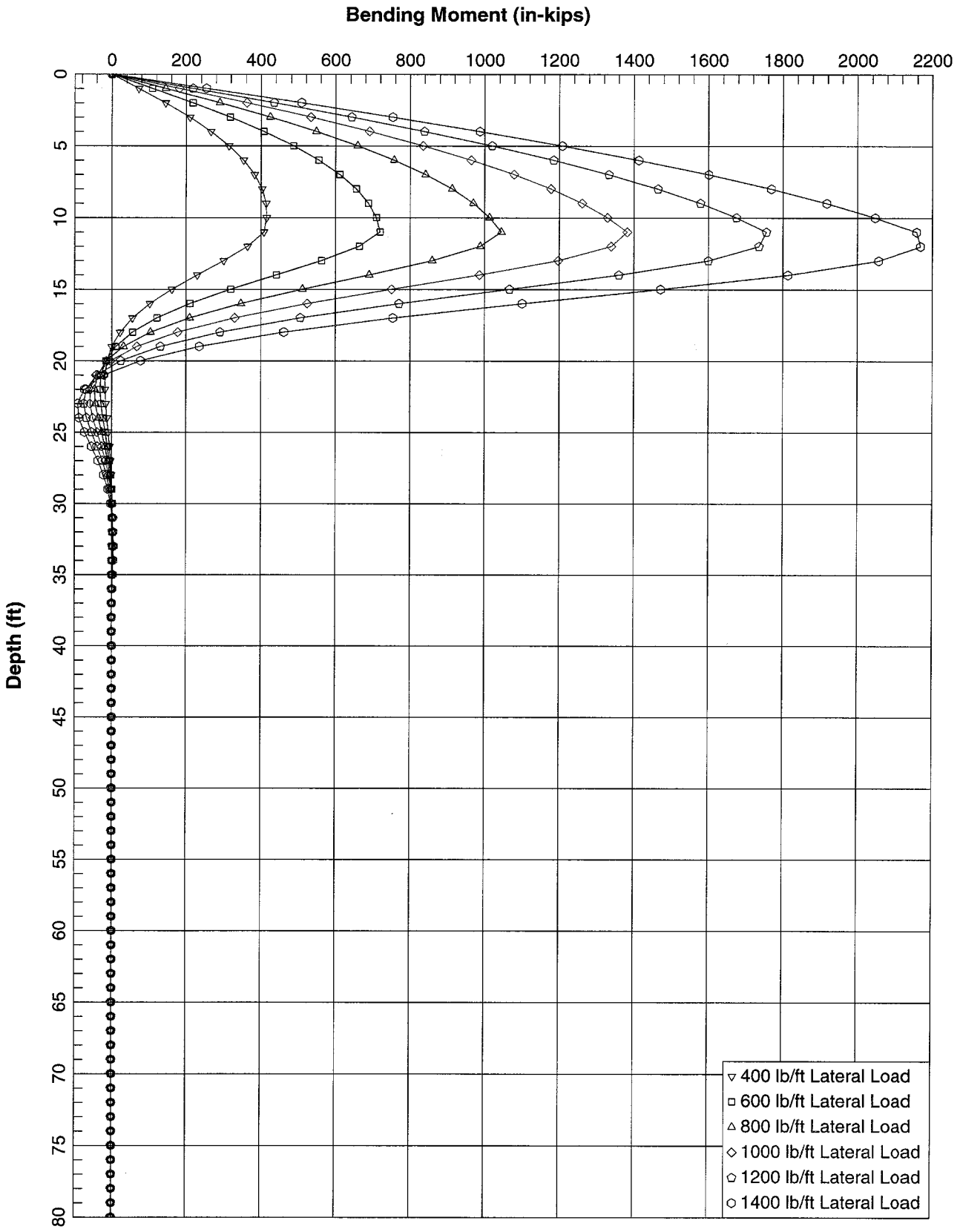


Figure C-68 - Boring E - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

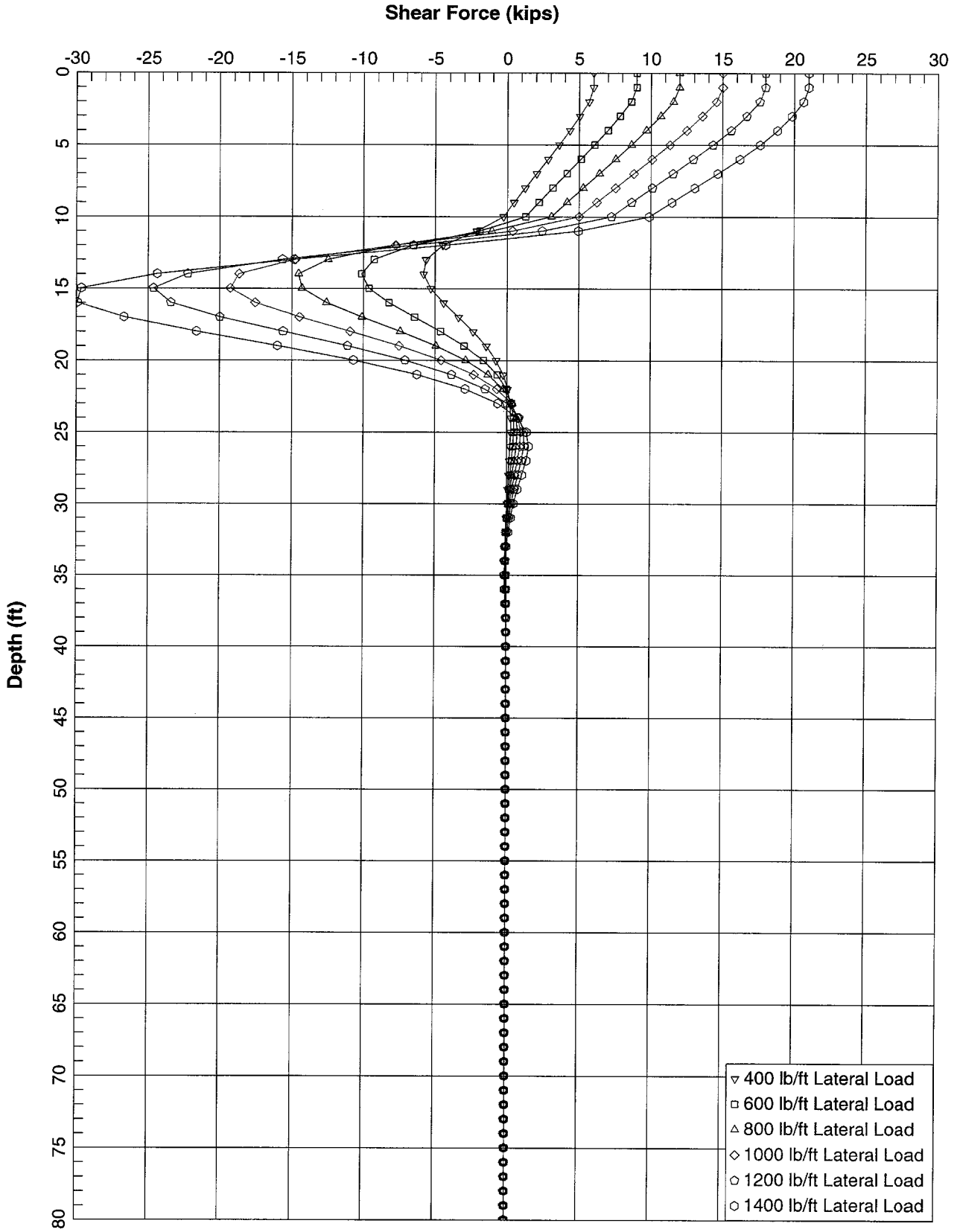


Figure C-69 - Boring E - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

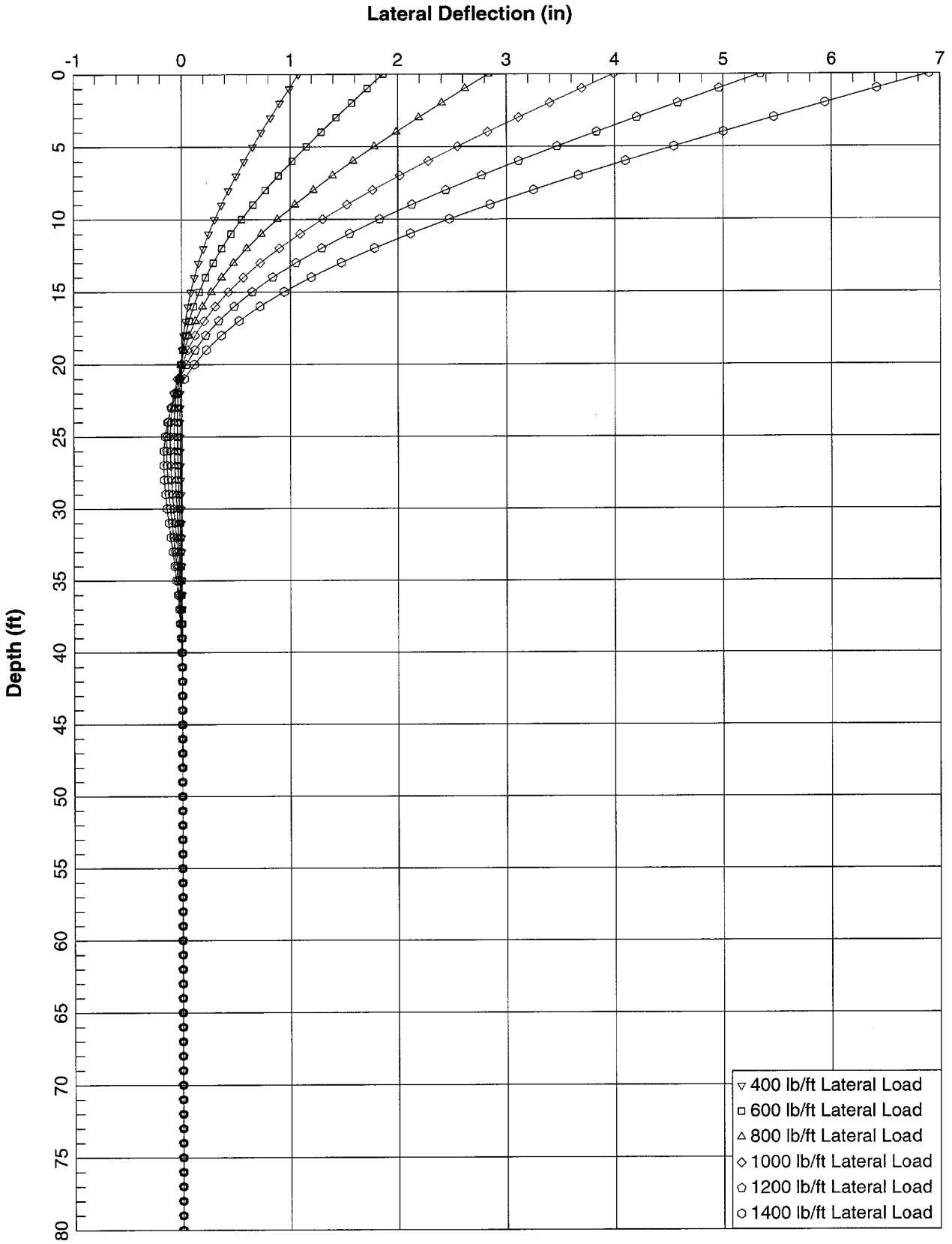


Figure C-70 - Boring 13 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

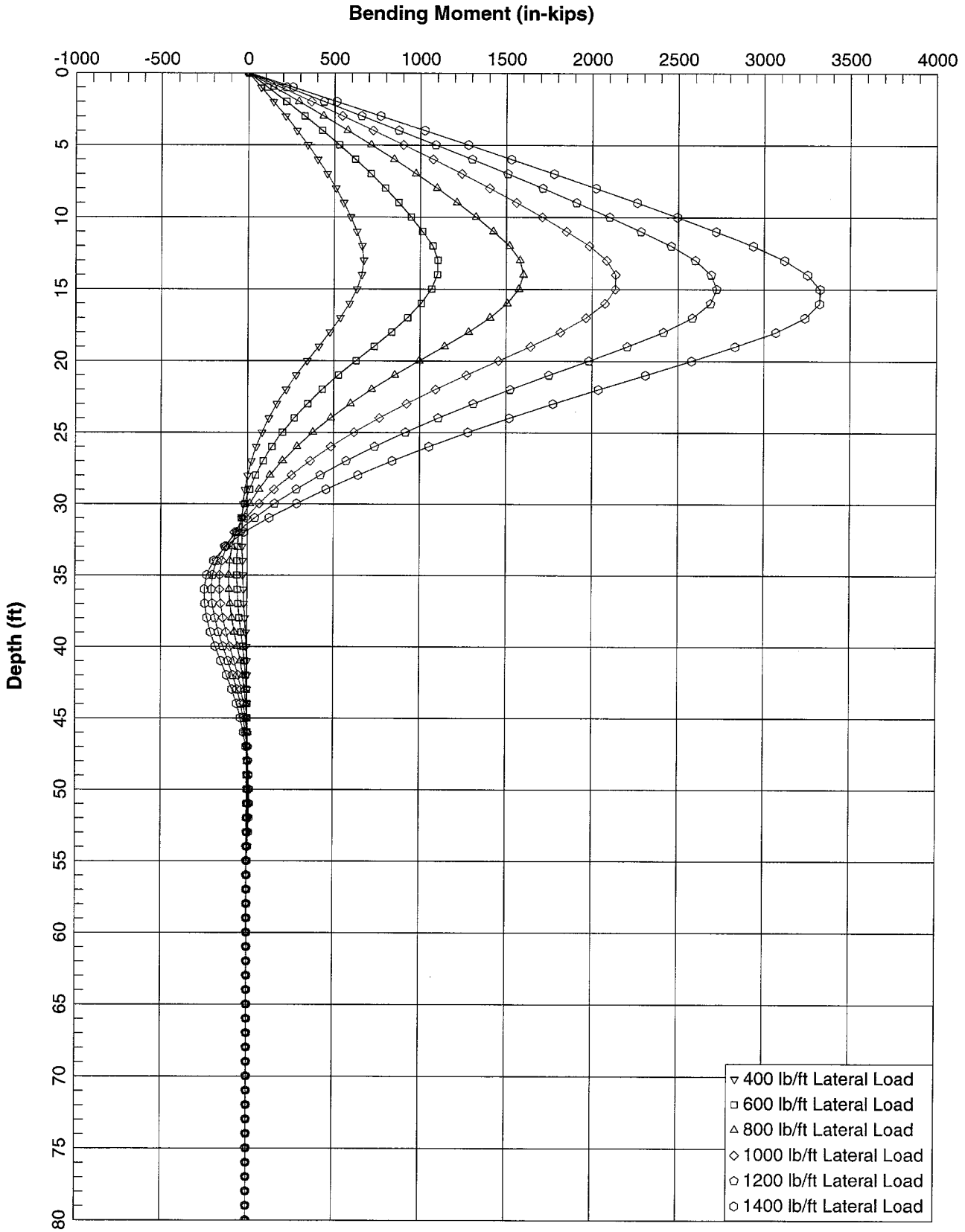


Figure C-71 - Boring 13 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

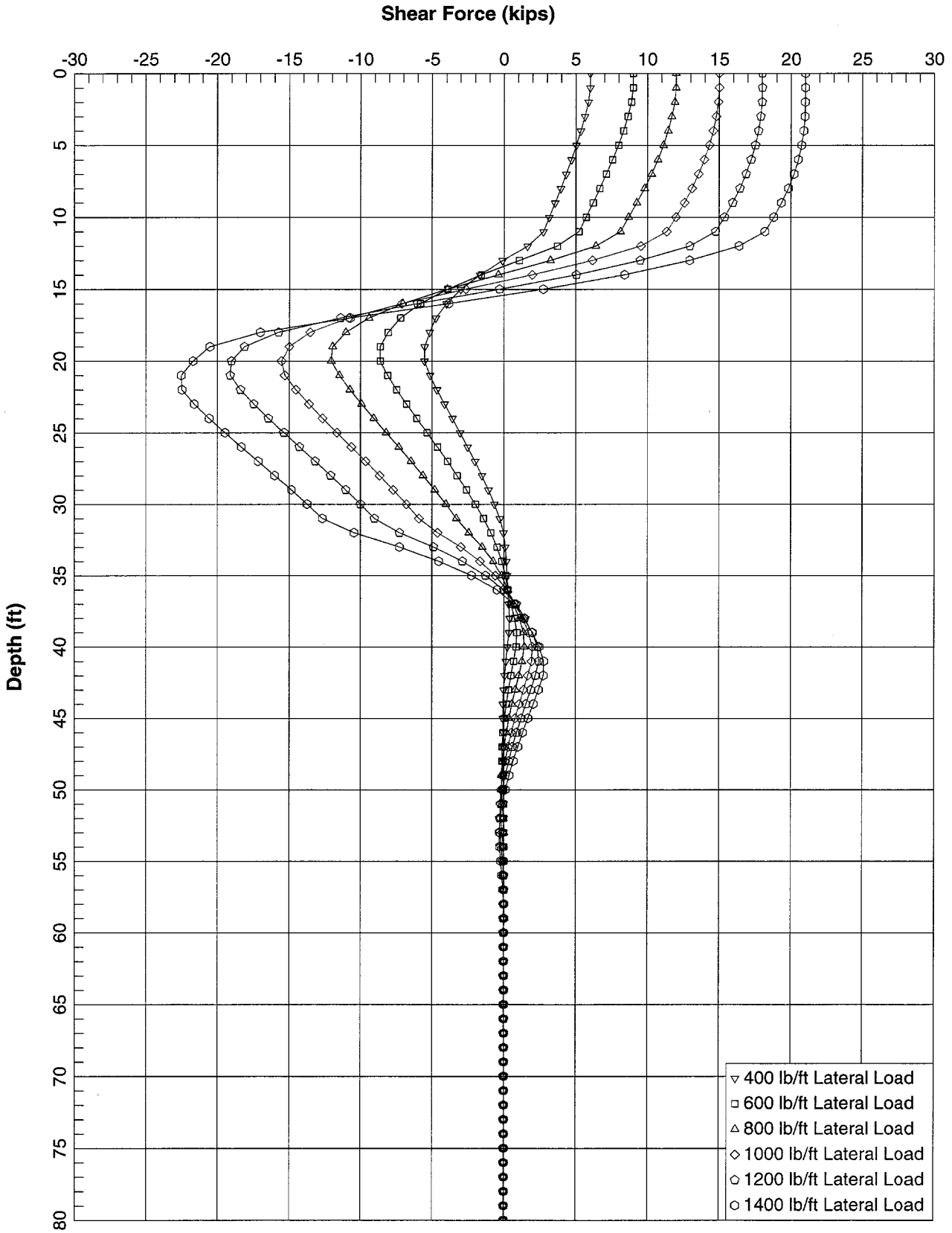


Figure C-72 - Boring 13 - 15-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

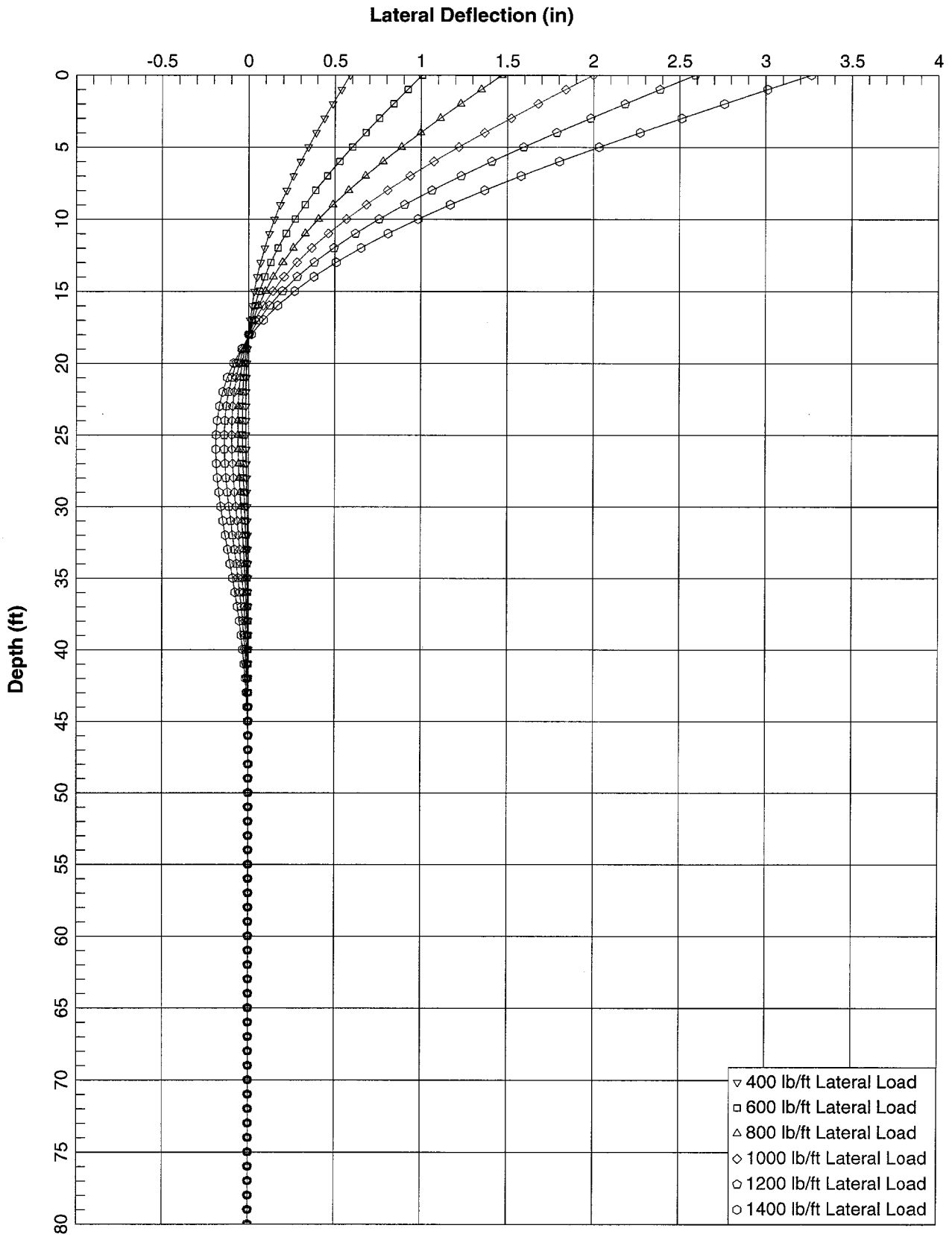


Figure C-73 - Boring 1 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

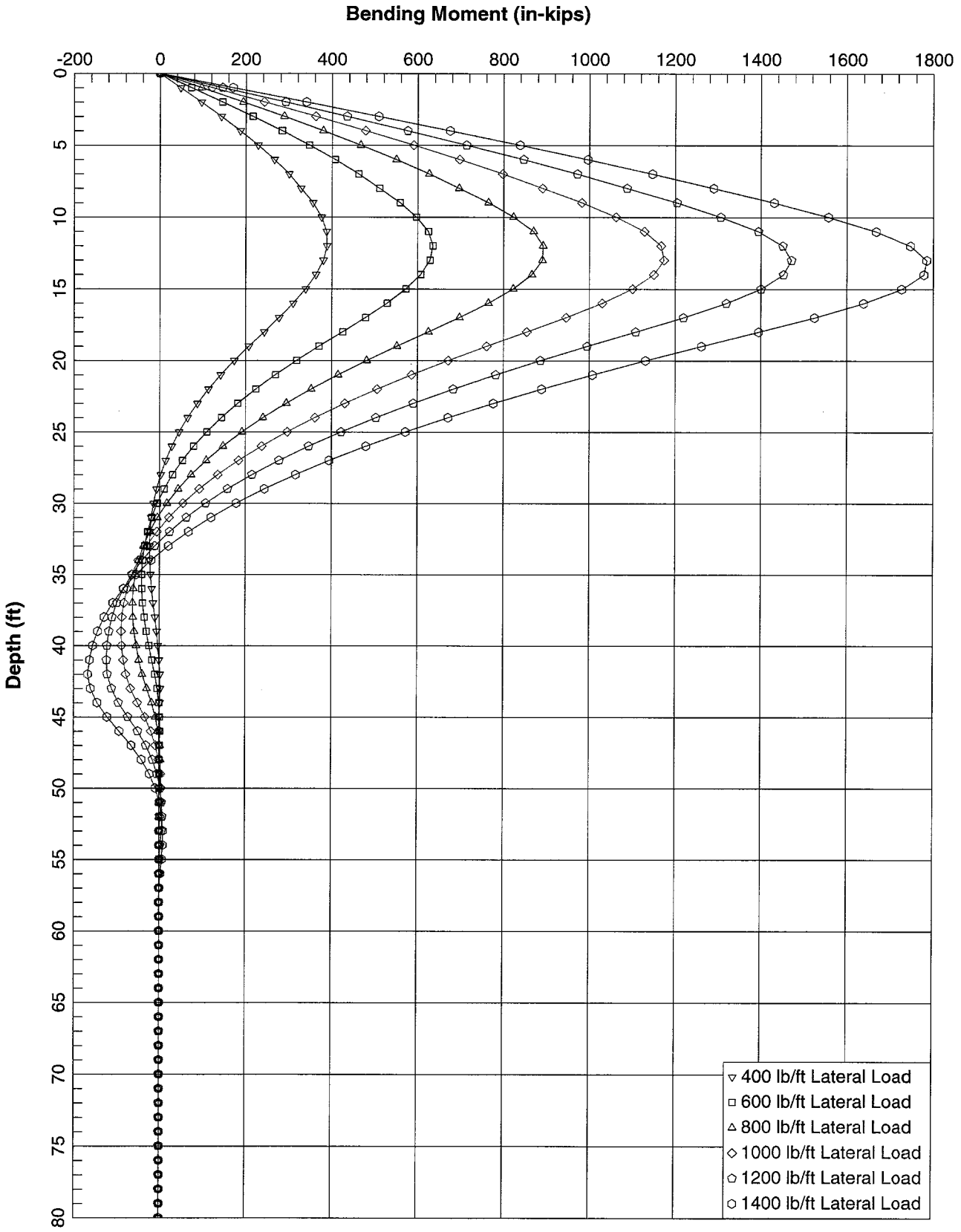


Figure C-74 - Boring 1 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

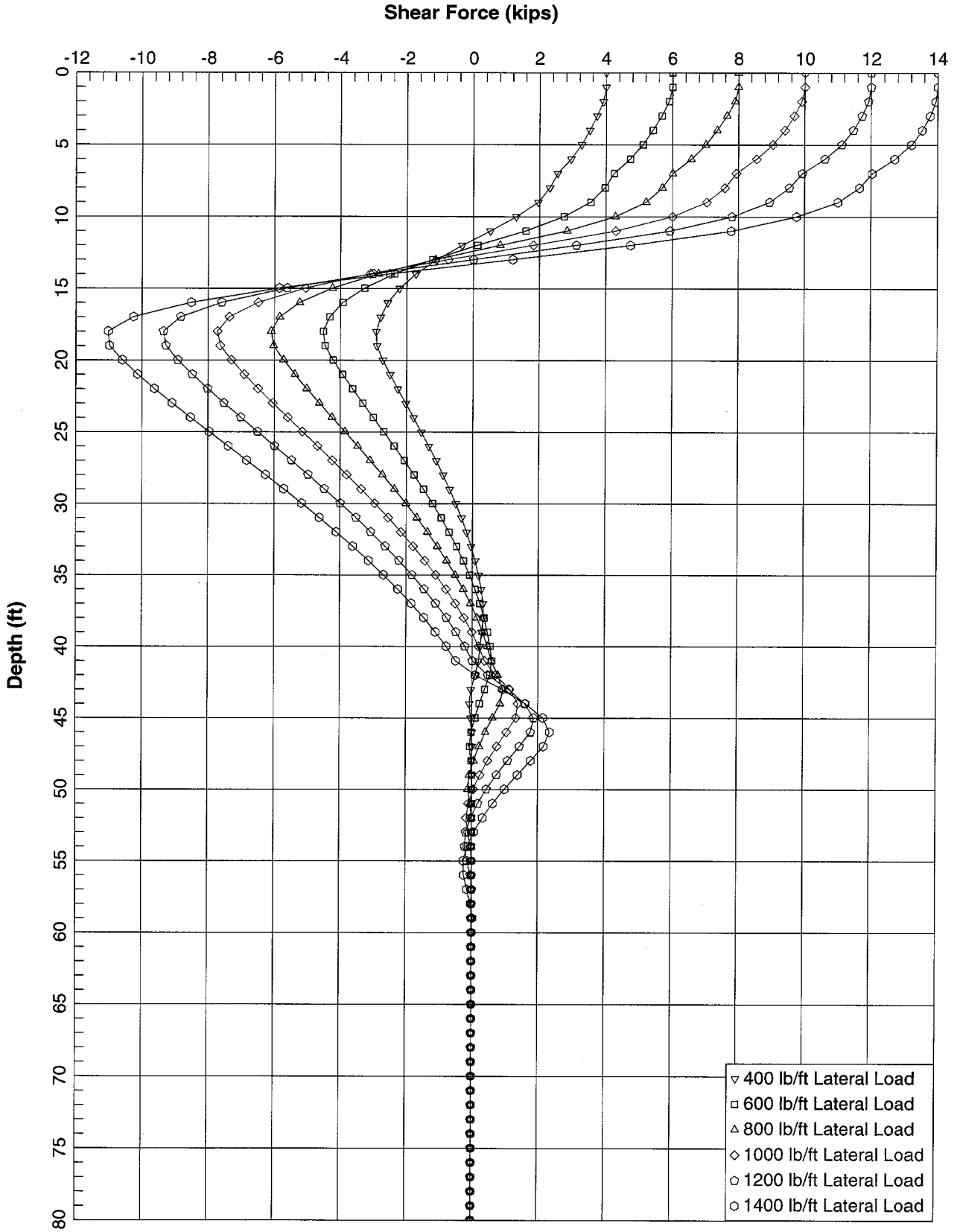


Figure C-75 - Boring 1 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

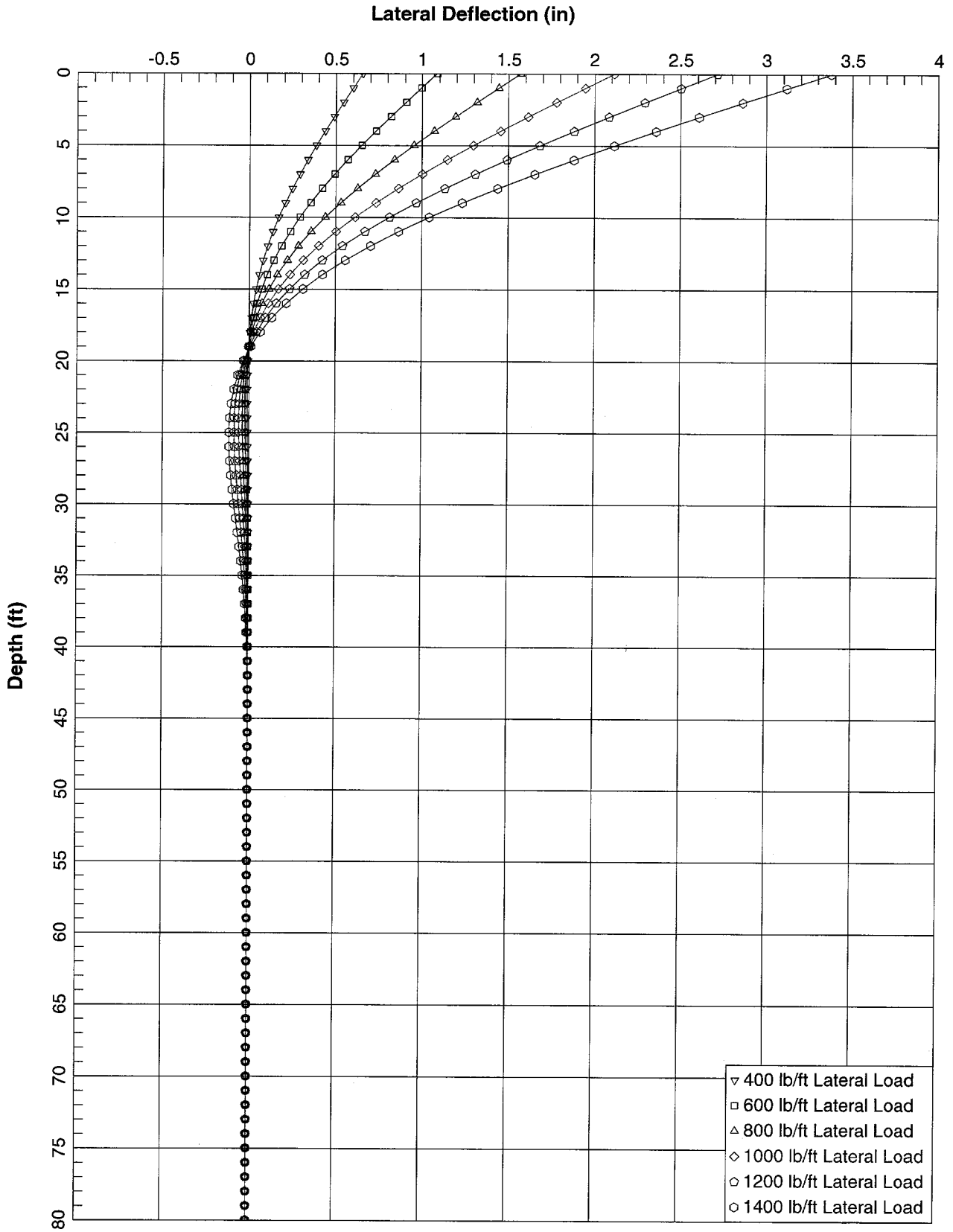


Figure C-76 - Boring 2 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

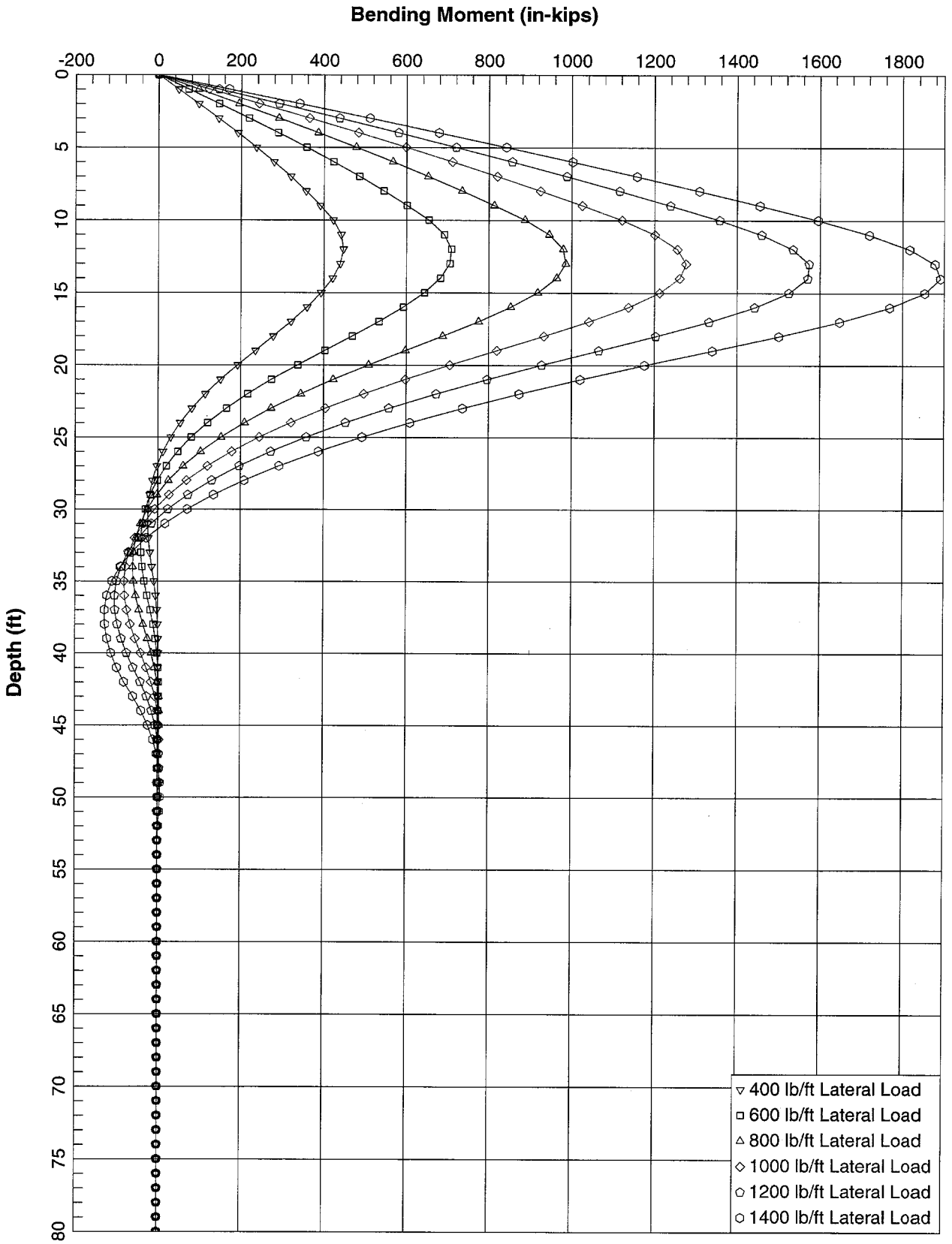


Figure C-77 - Boring 2 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

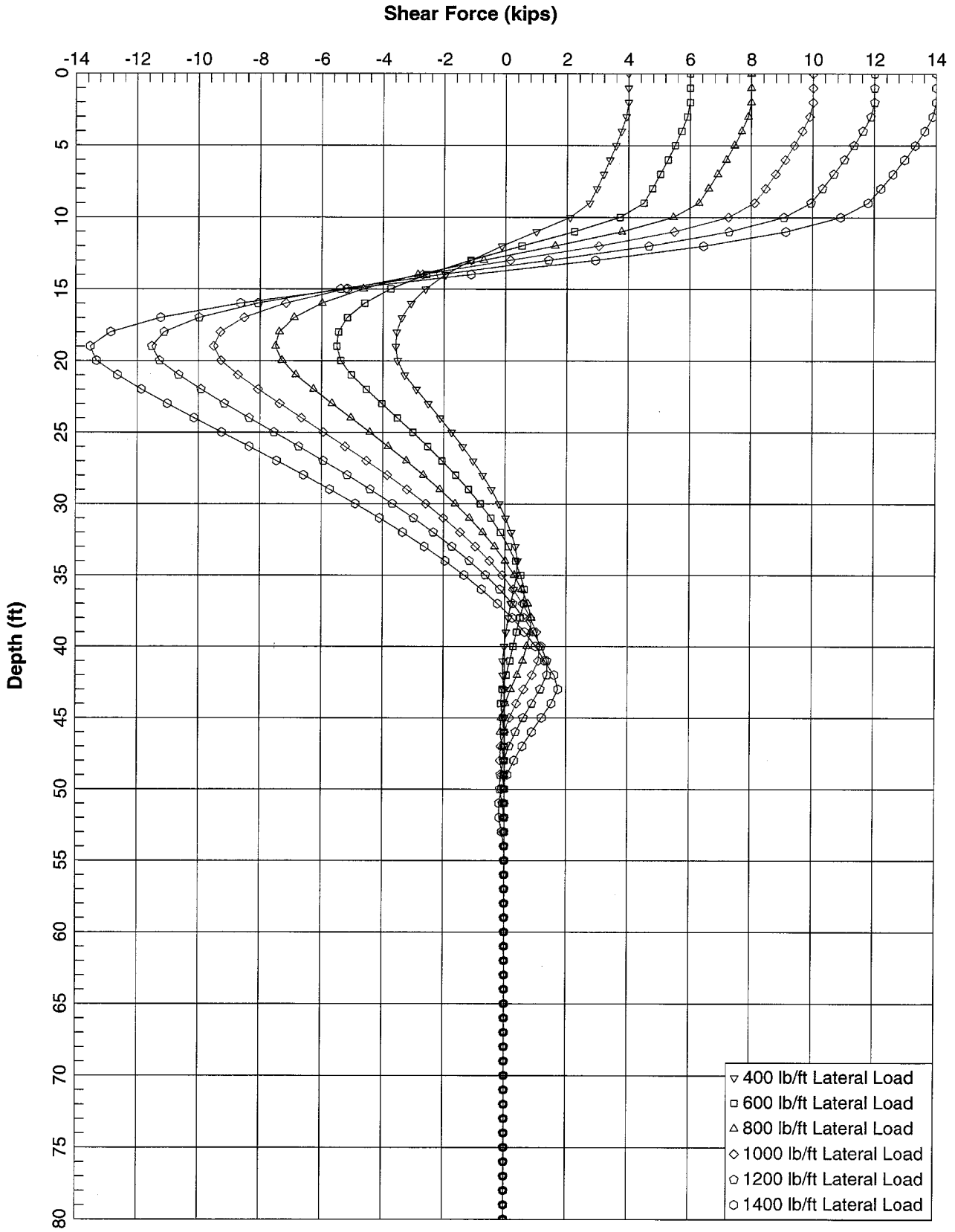


Figure C-78 - Boring 2 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

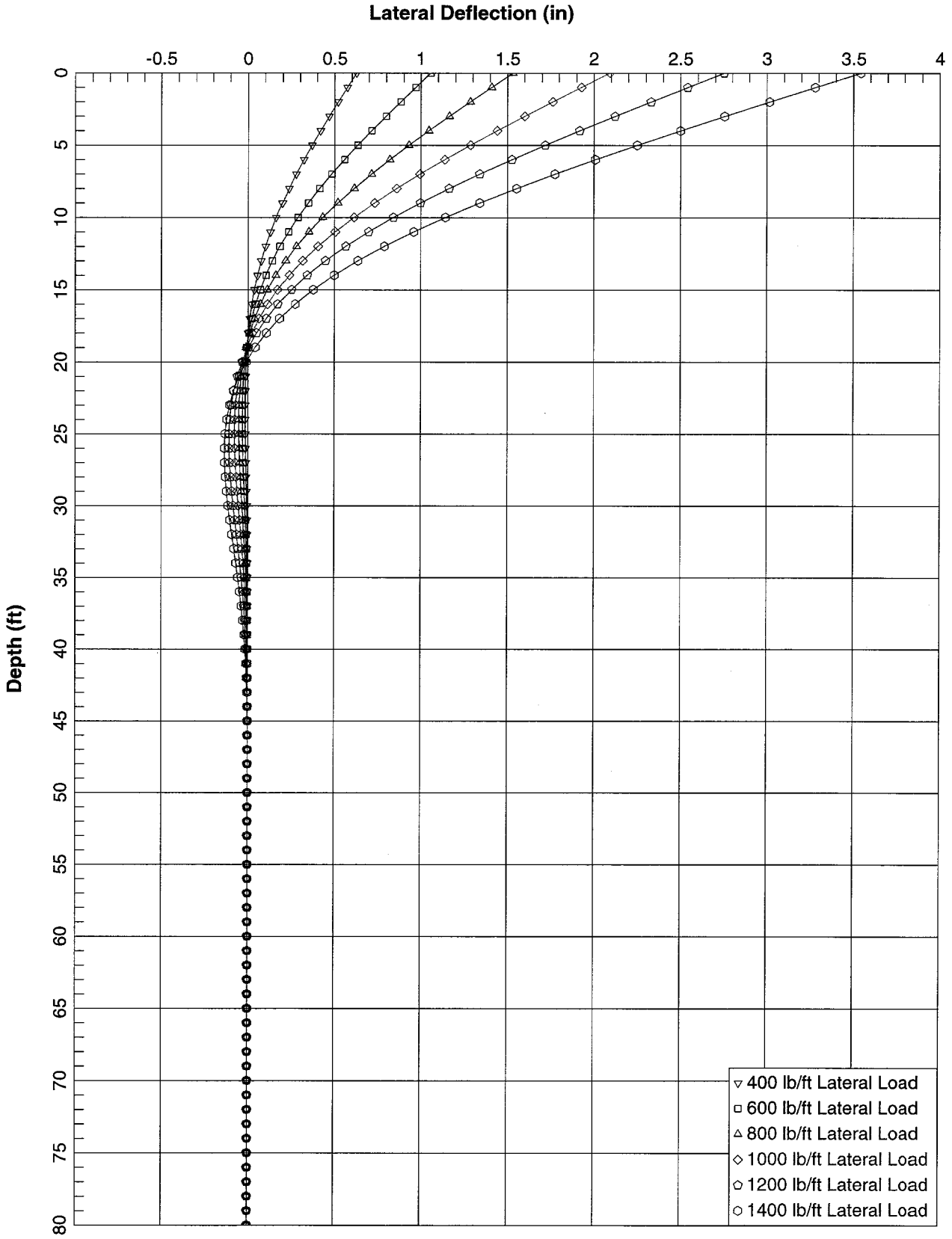


Figure C-79 - Boring A - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

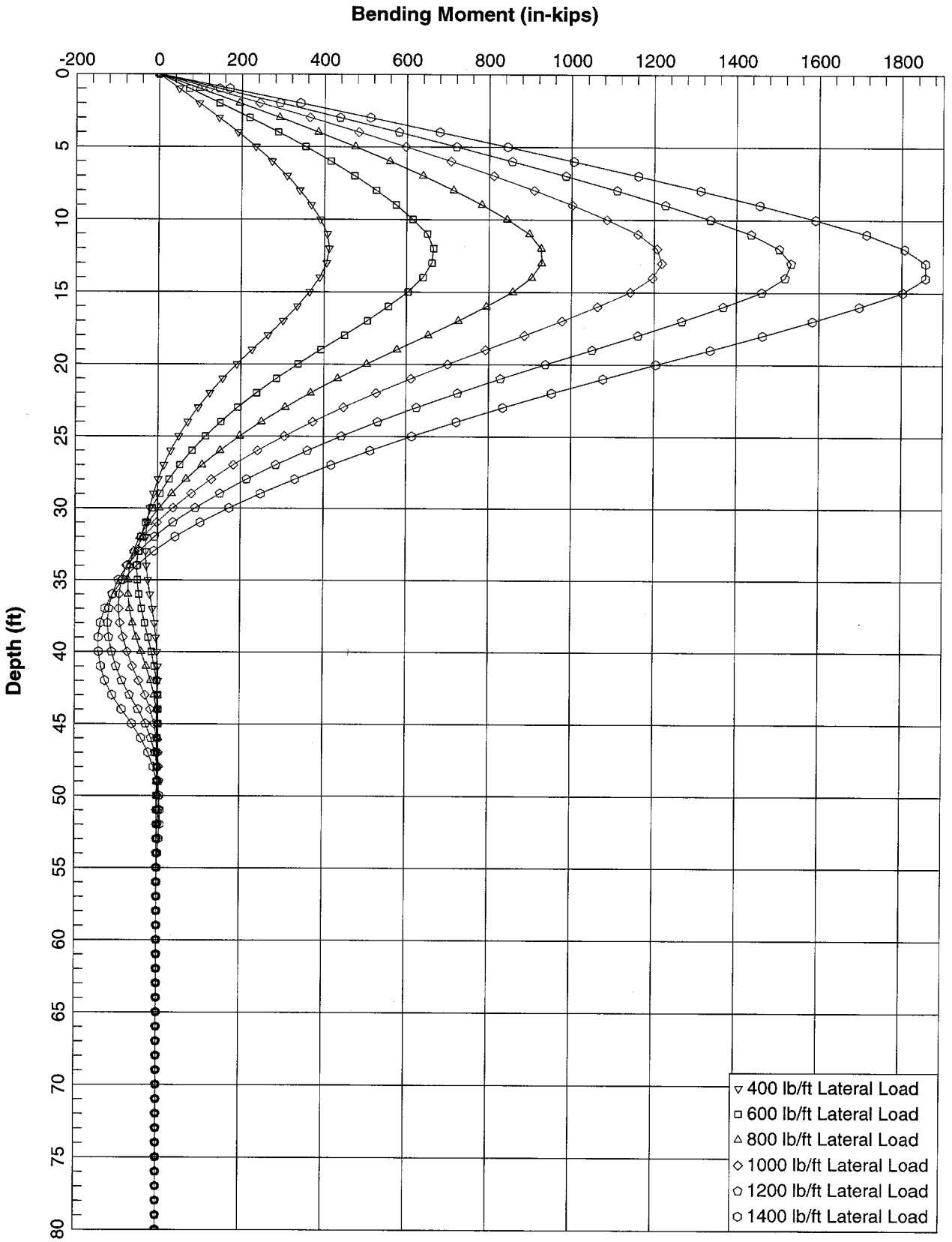


Figure C-80 - Boring A - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

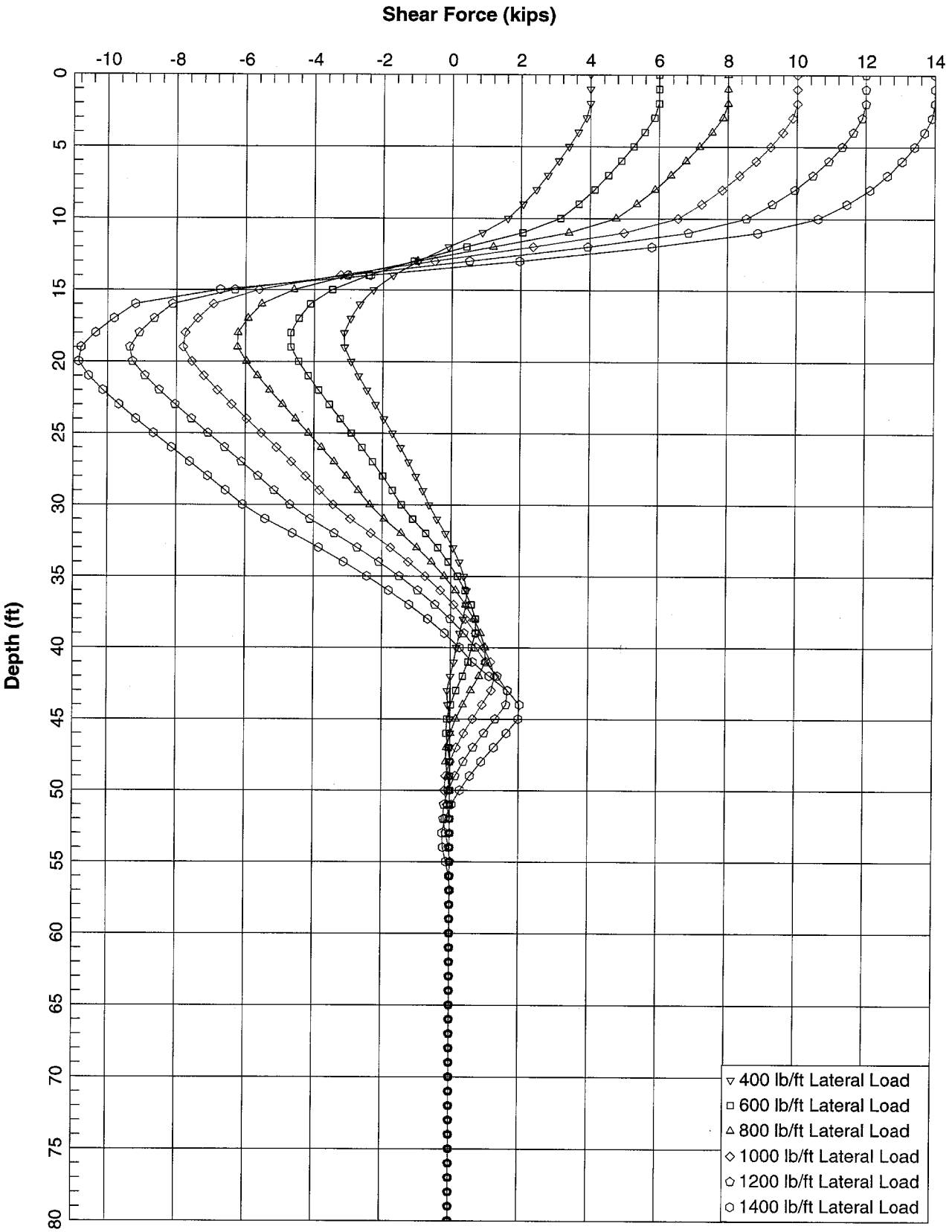


Figure C-81 - Boring A - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

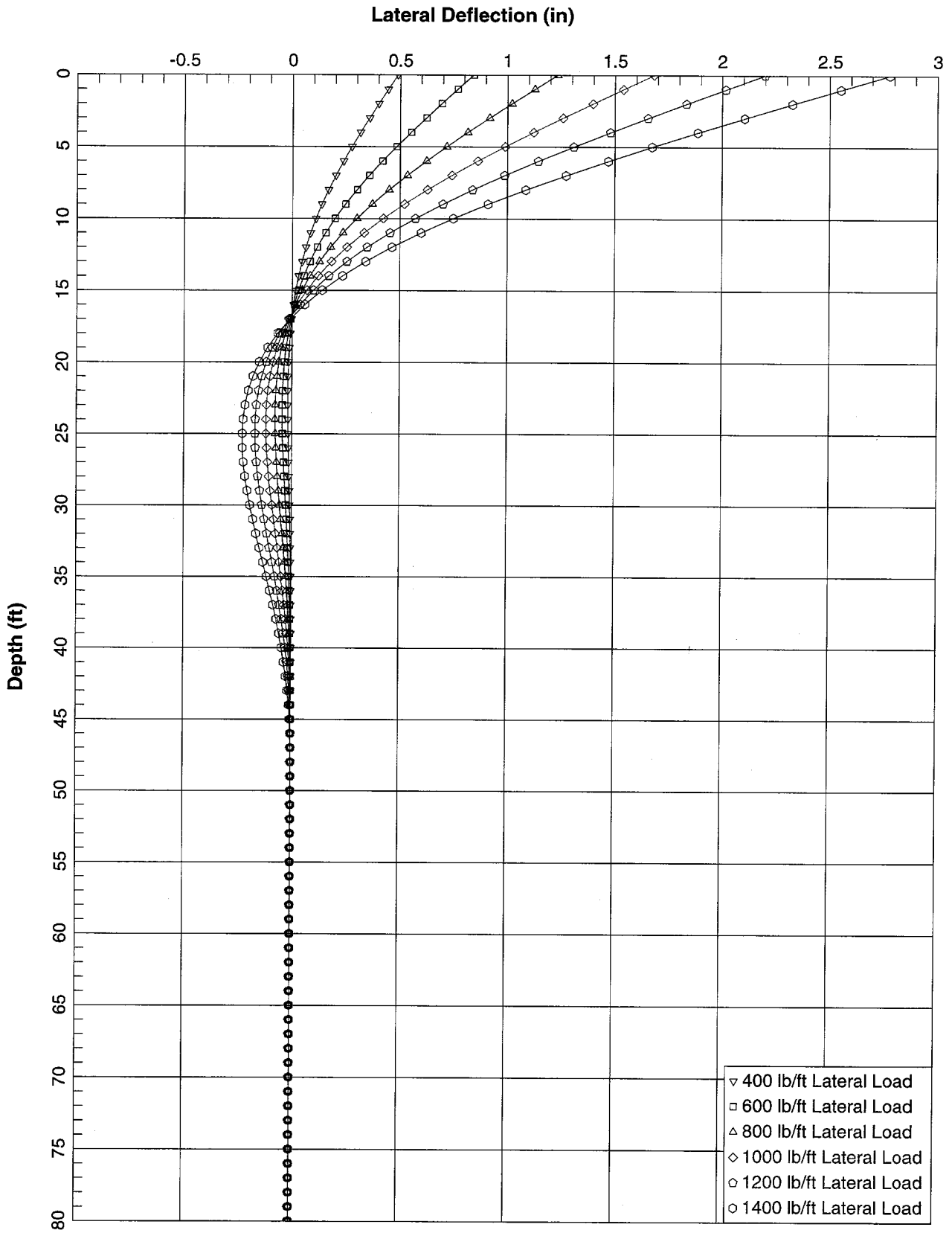


Figure C-82 - Boring 6 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

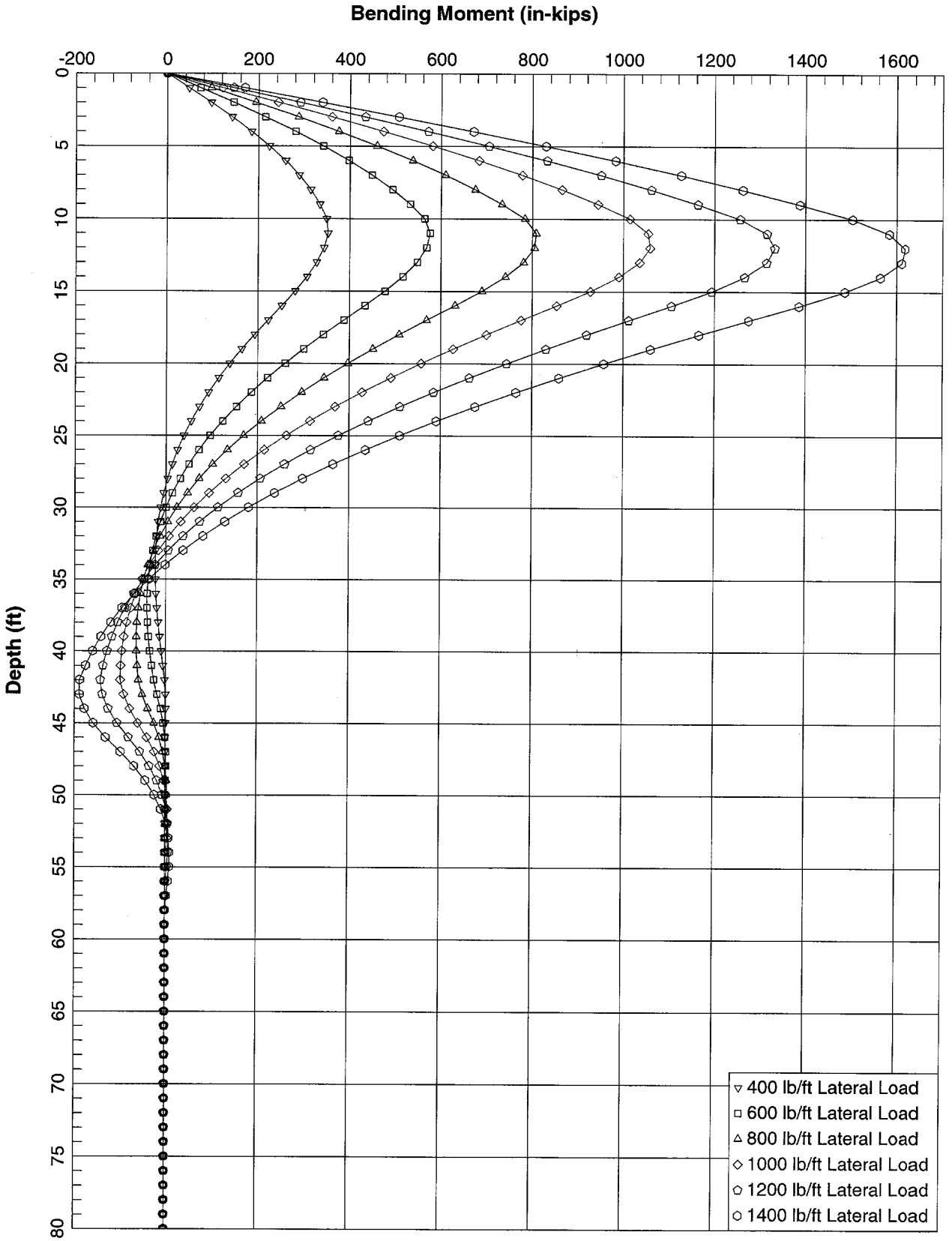


Figure C-83 - Boring 6 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

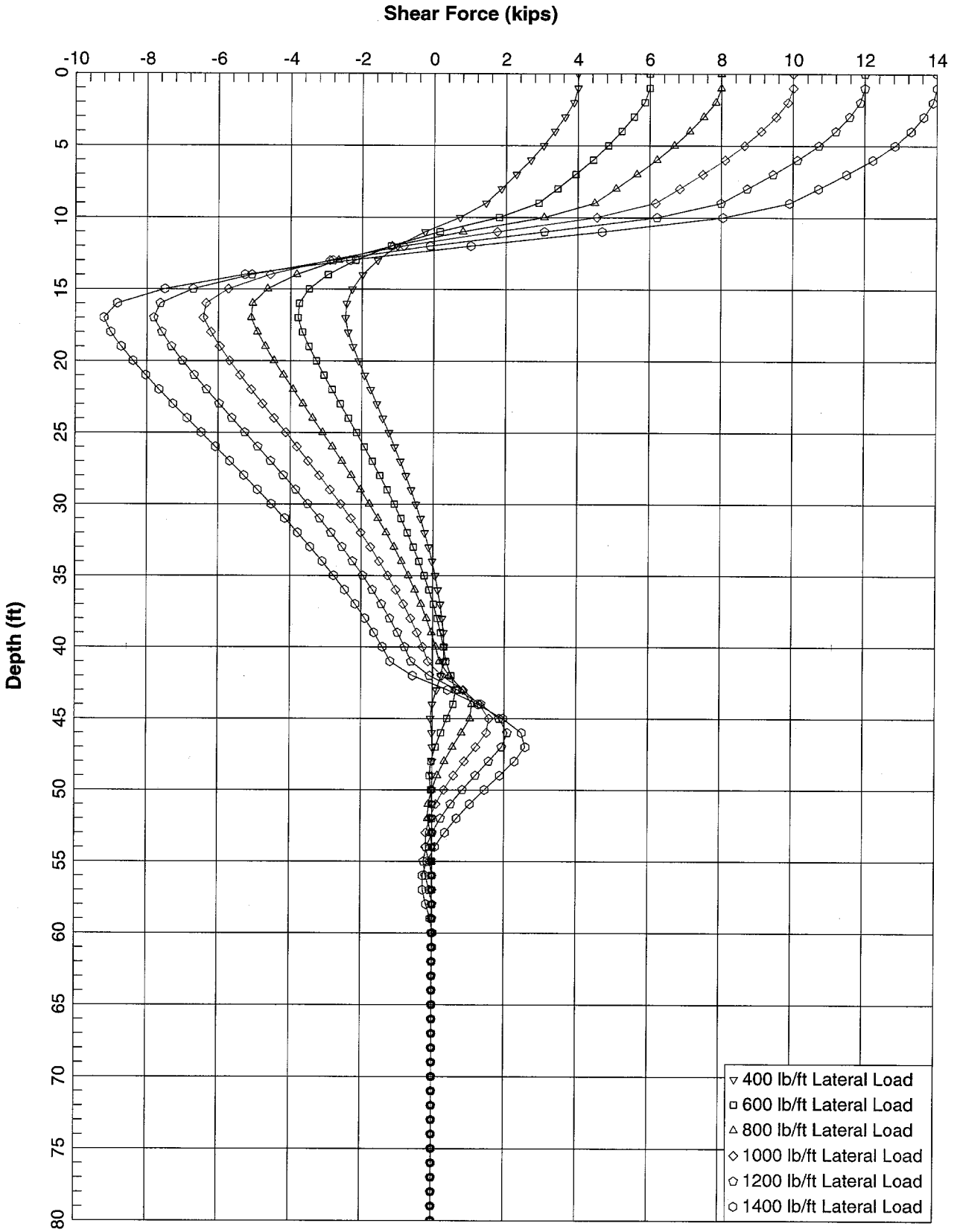


Figure C-84 - Boring 6 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

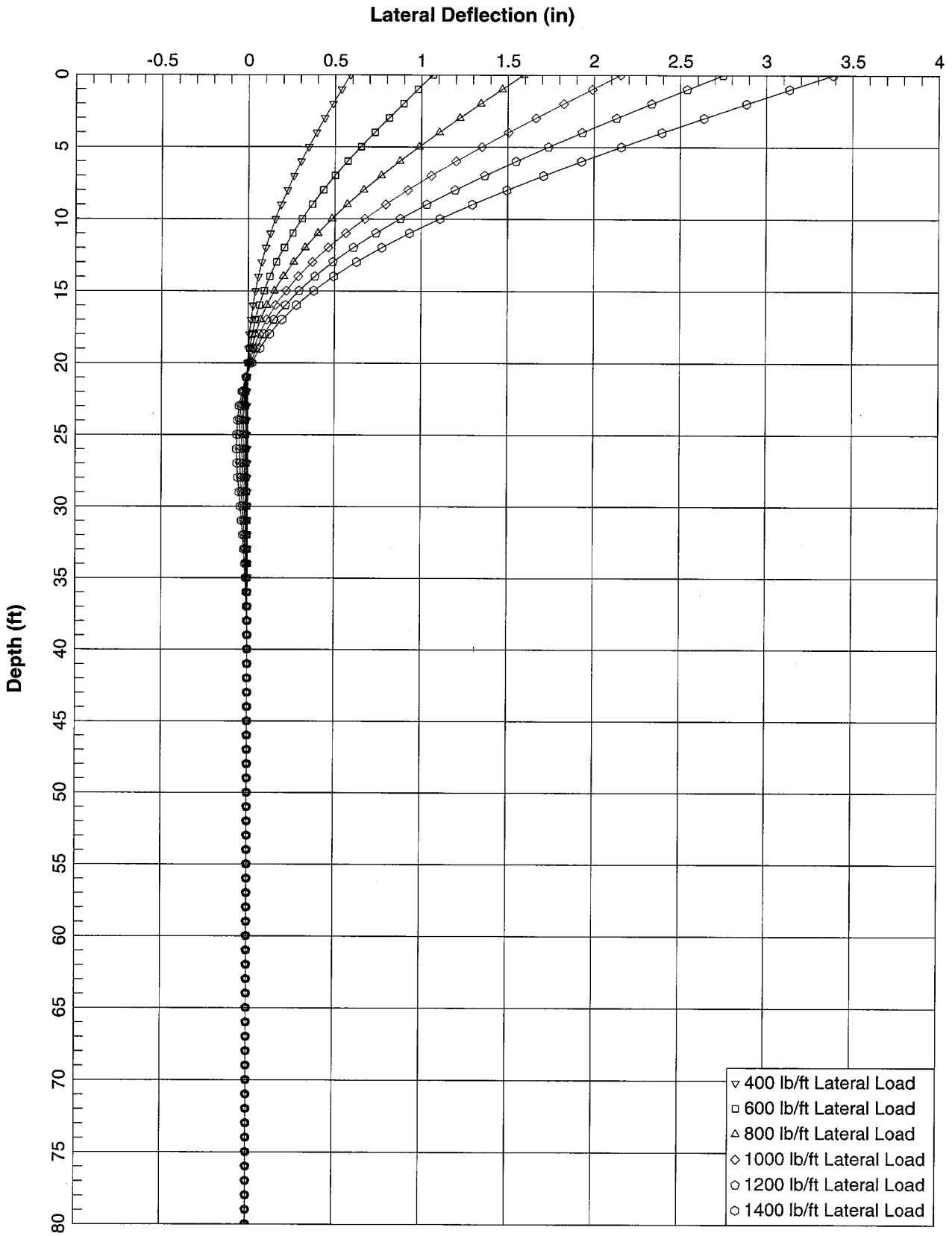


Figure C-85 - Boring B - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

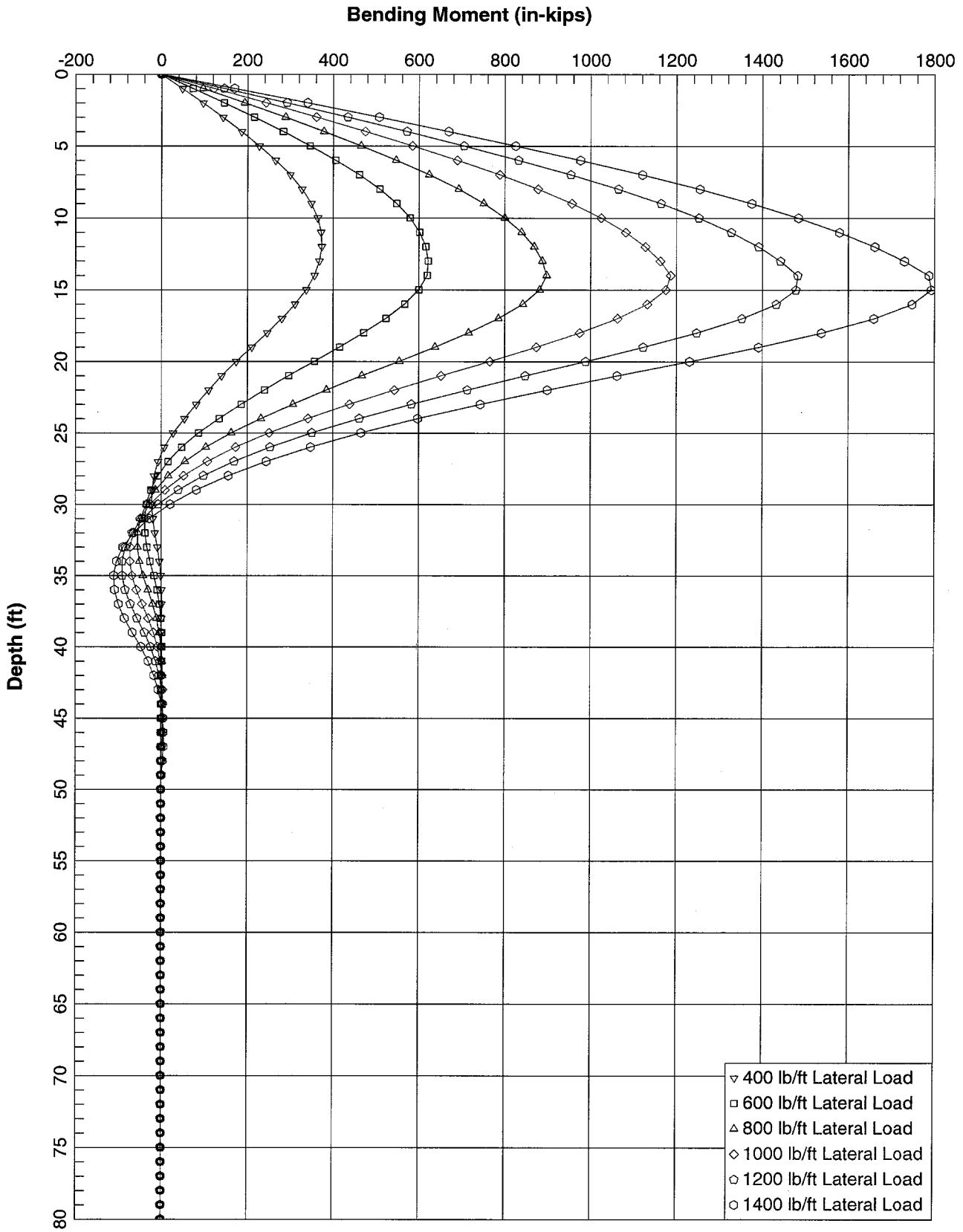


Figure C-86 - Boring B - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

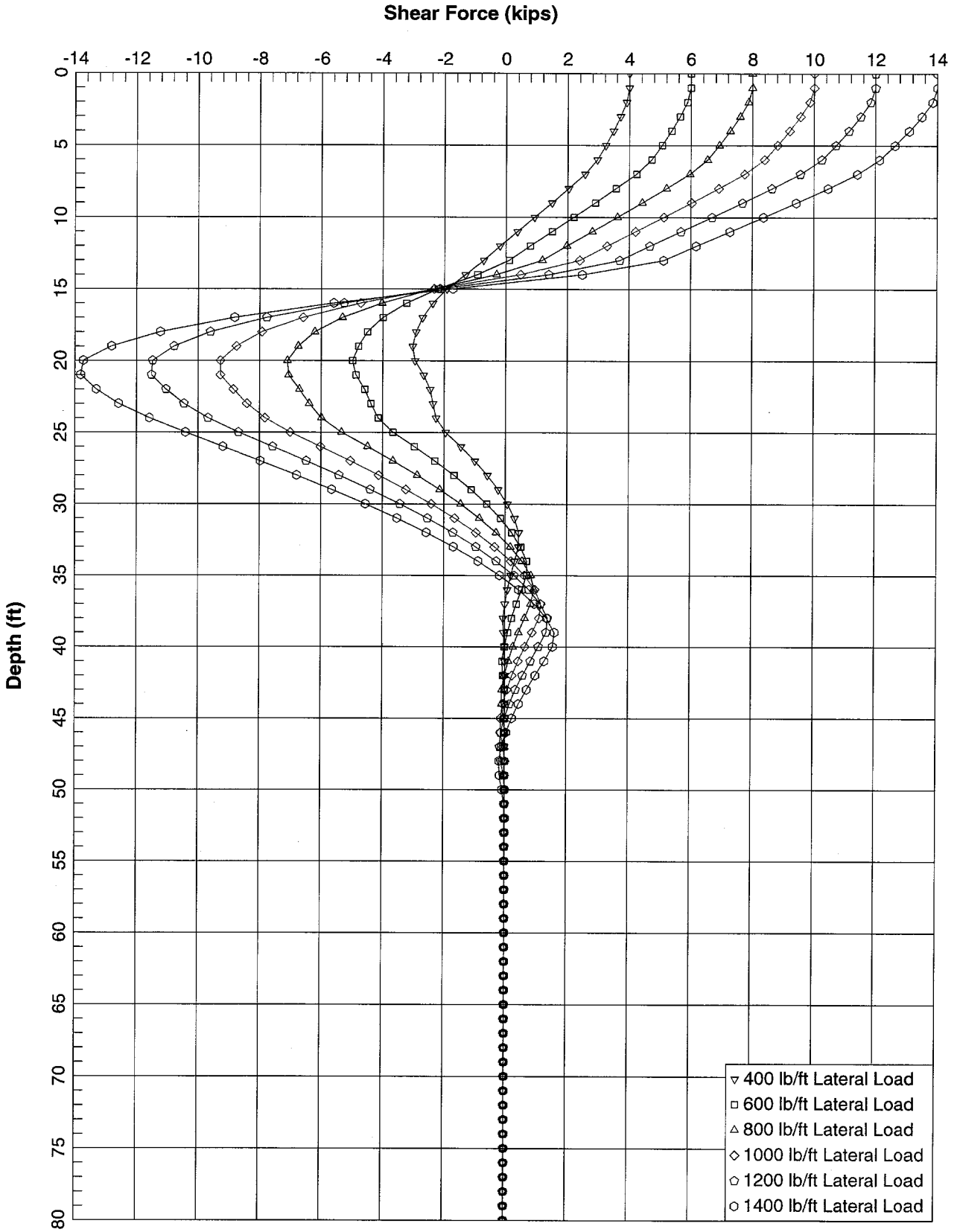


Figure C-87 - Boring B - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

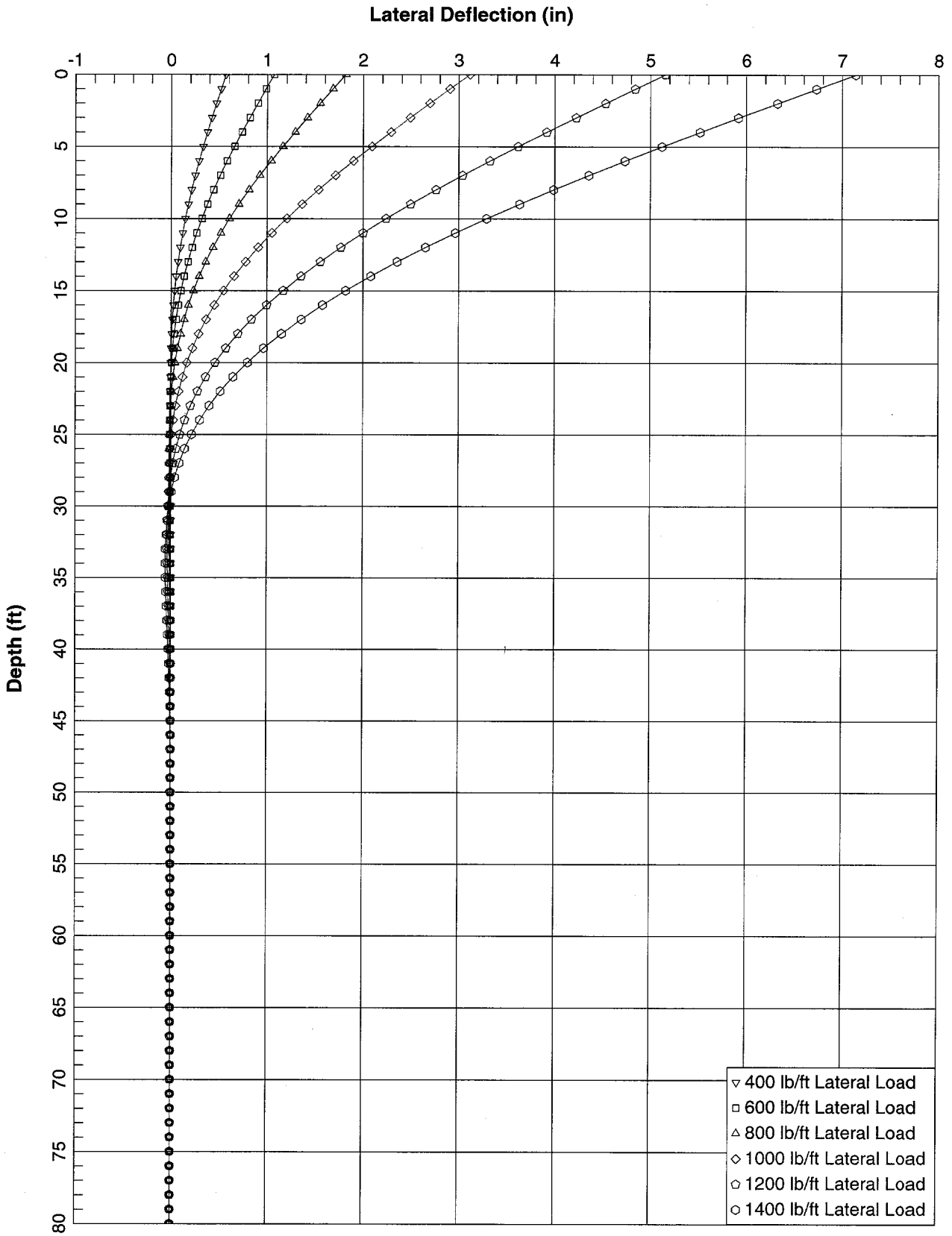


Figure C-88 - Boring 7 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

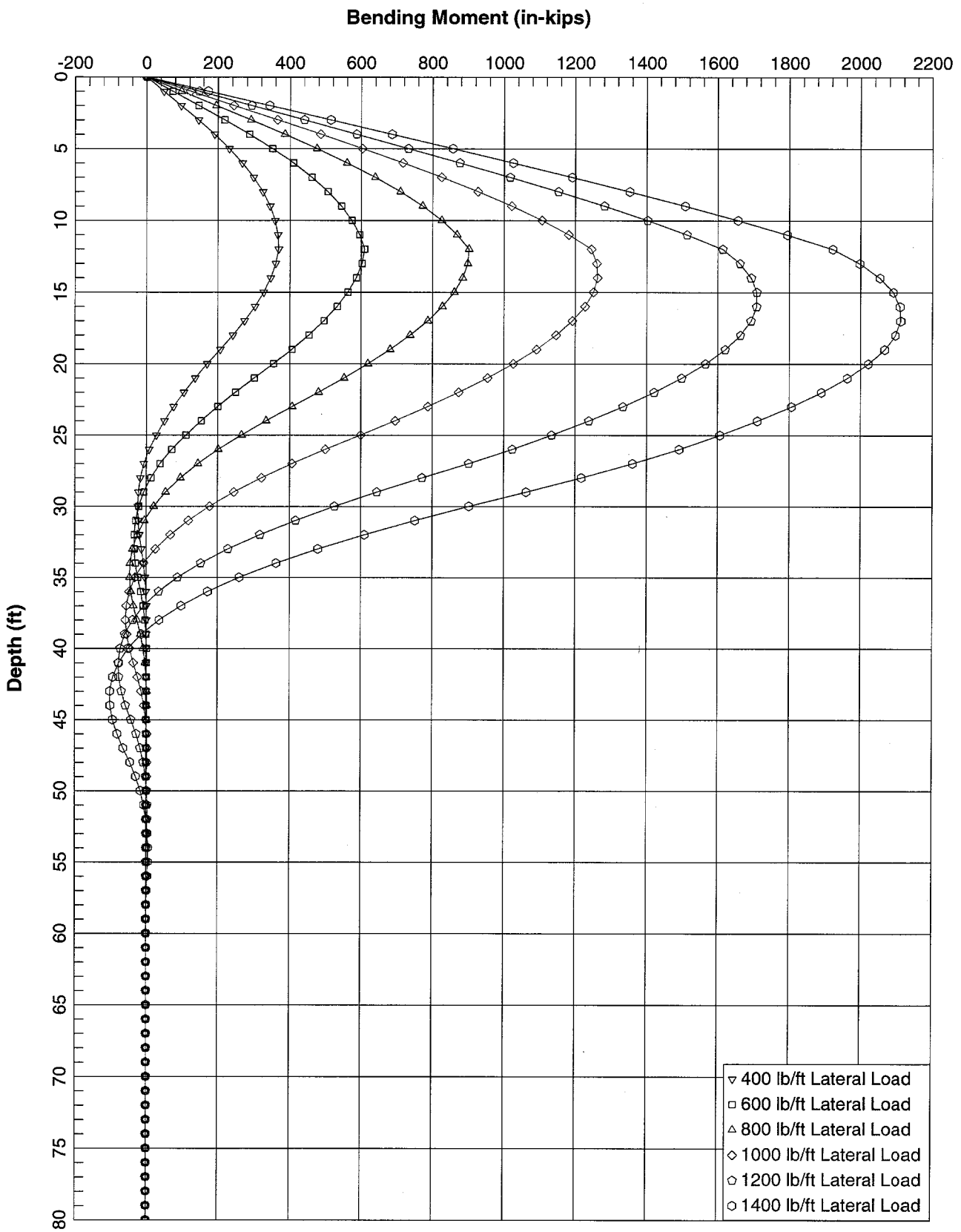


Figure C-89 - Boring 7 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

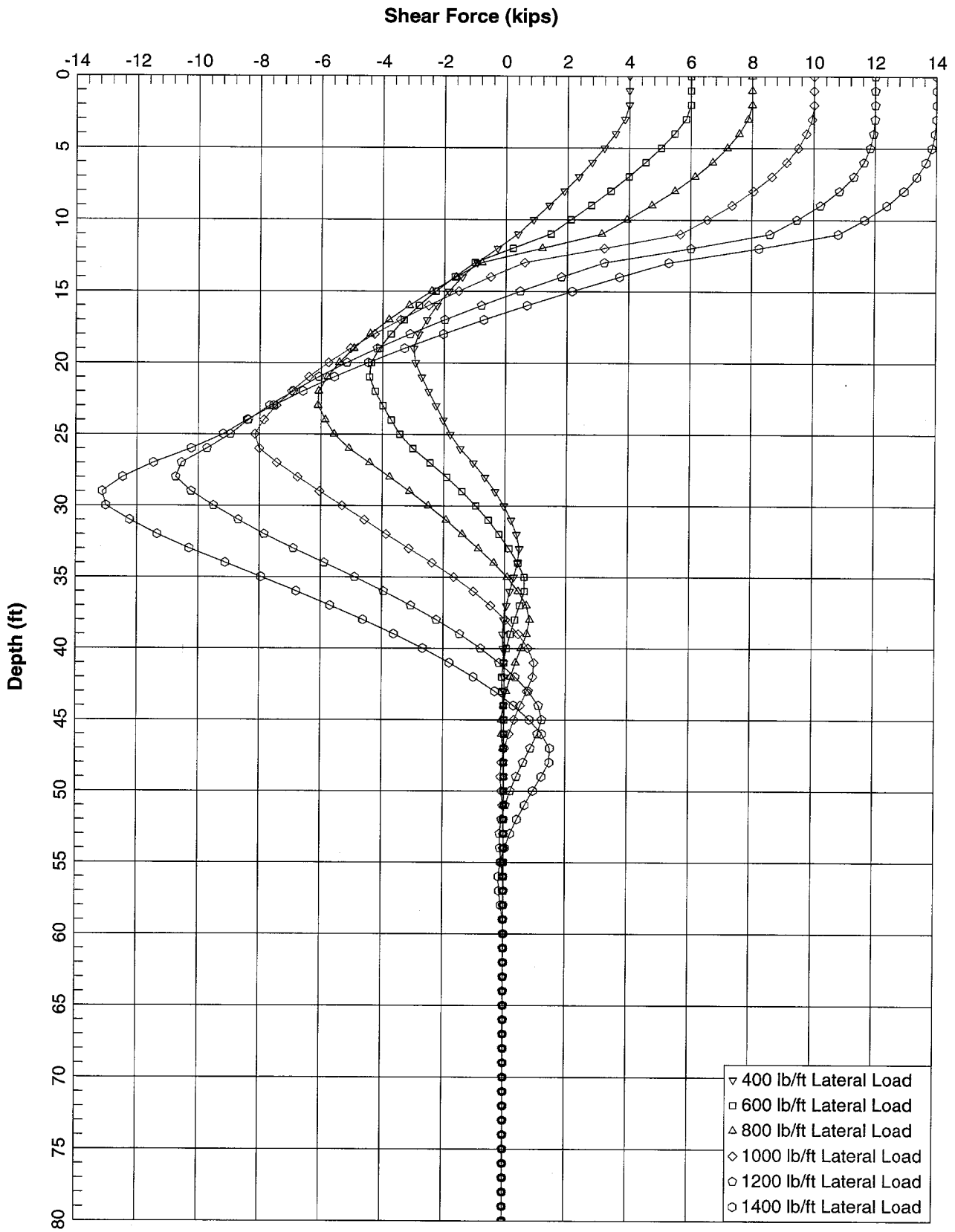


Figure C-90 - Boring 7 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

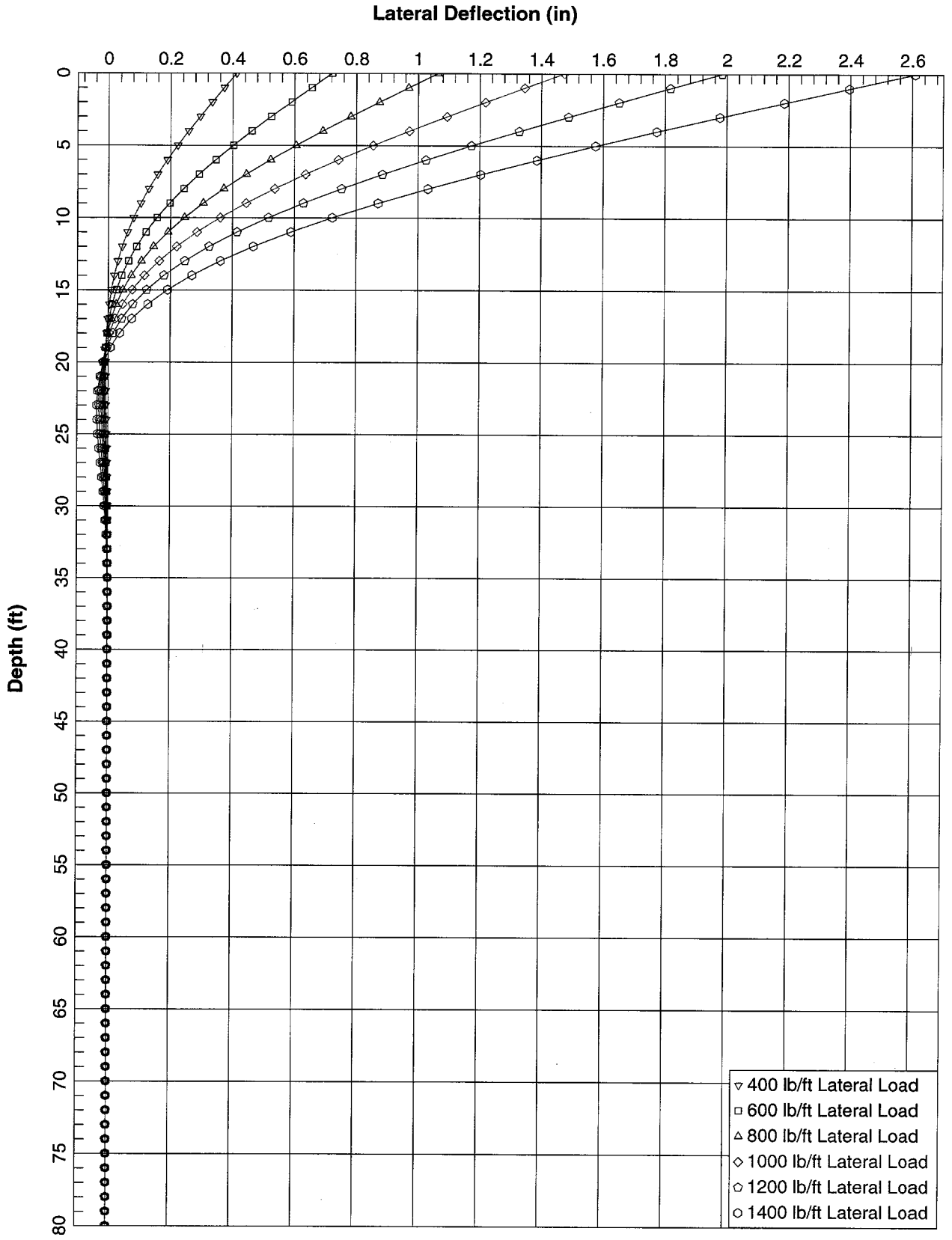


Figure C-91 - Boring C - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

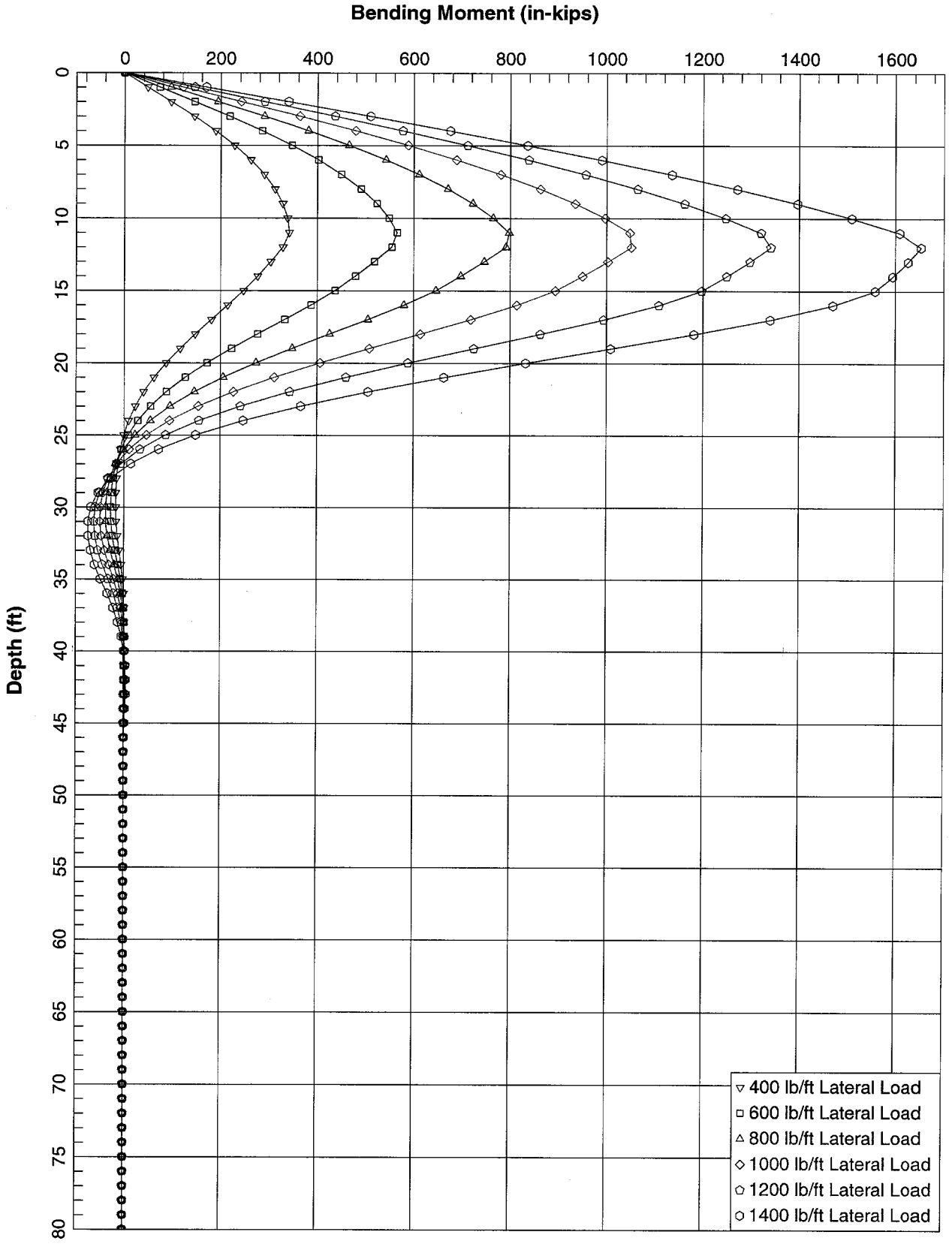


Figure C-92 - Boring C - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

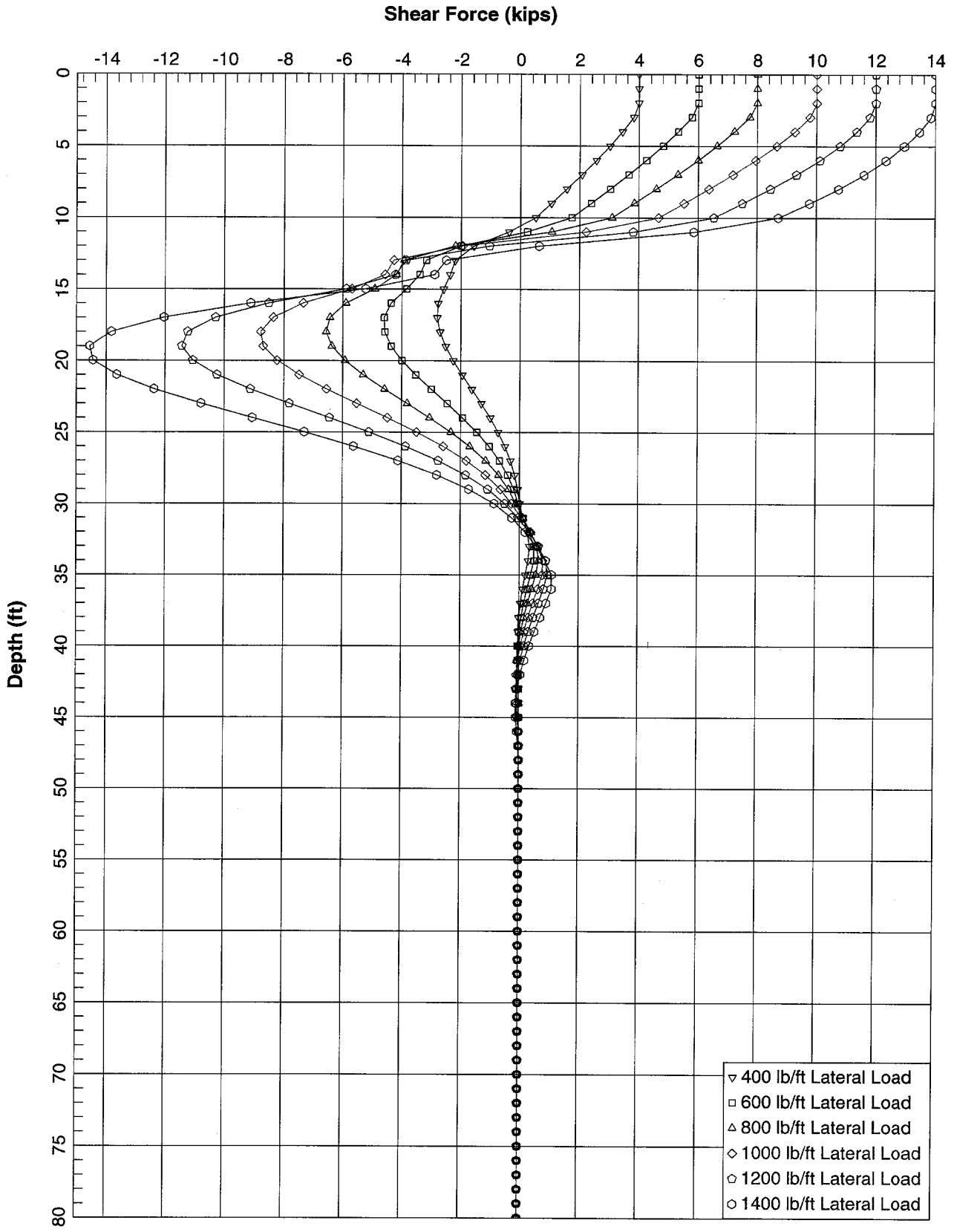


Figure C-93 - Boring C - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

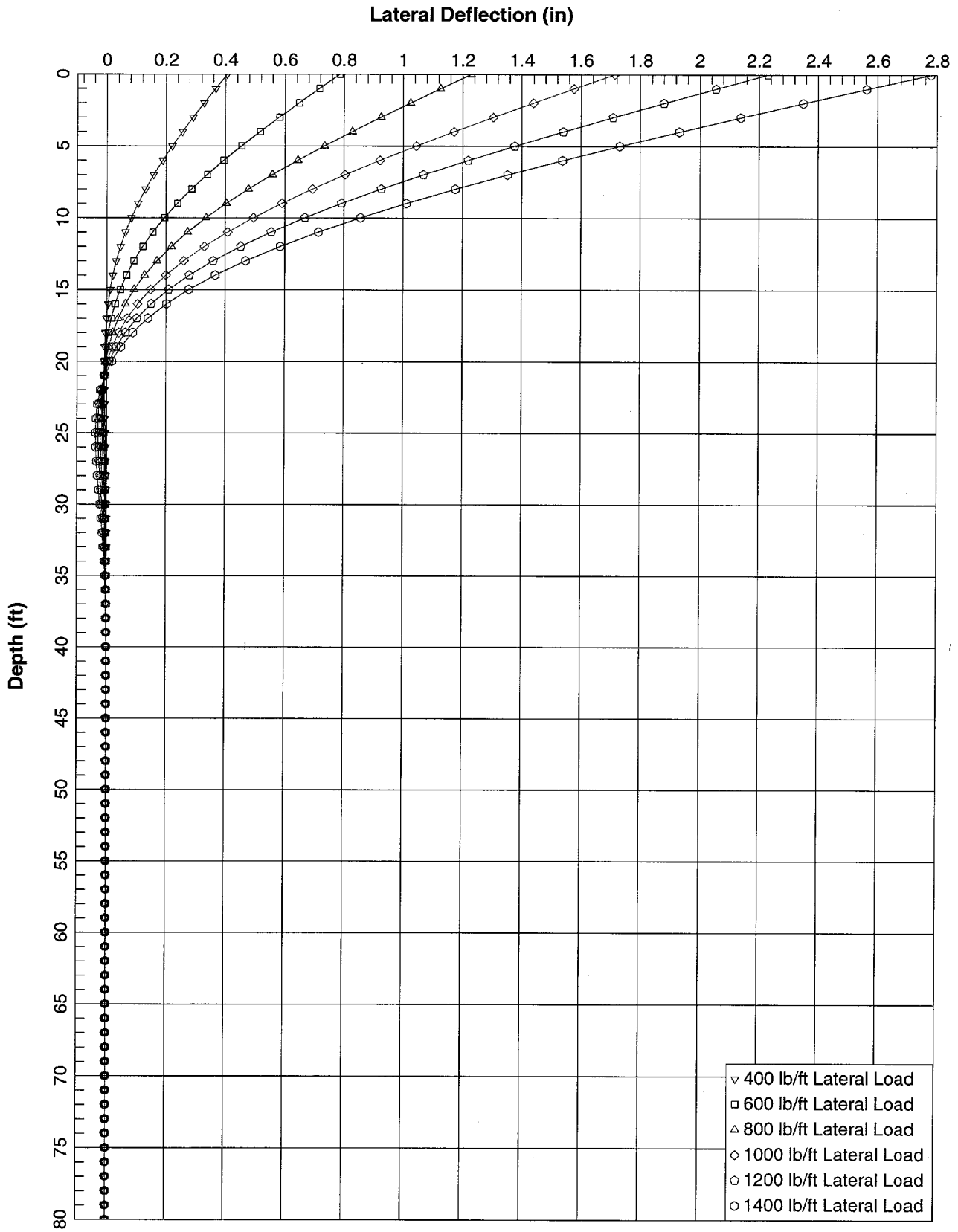


Figure C-94 - Boring 10 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

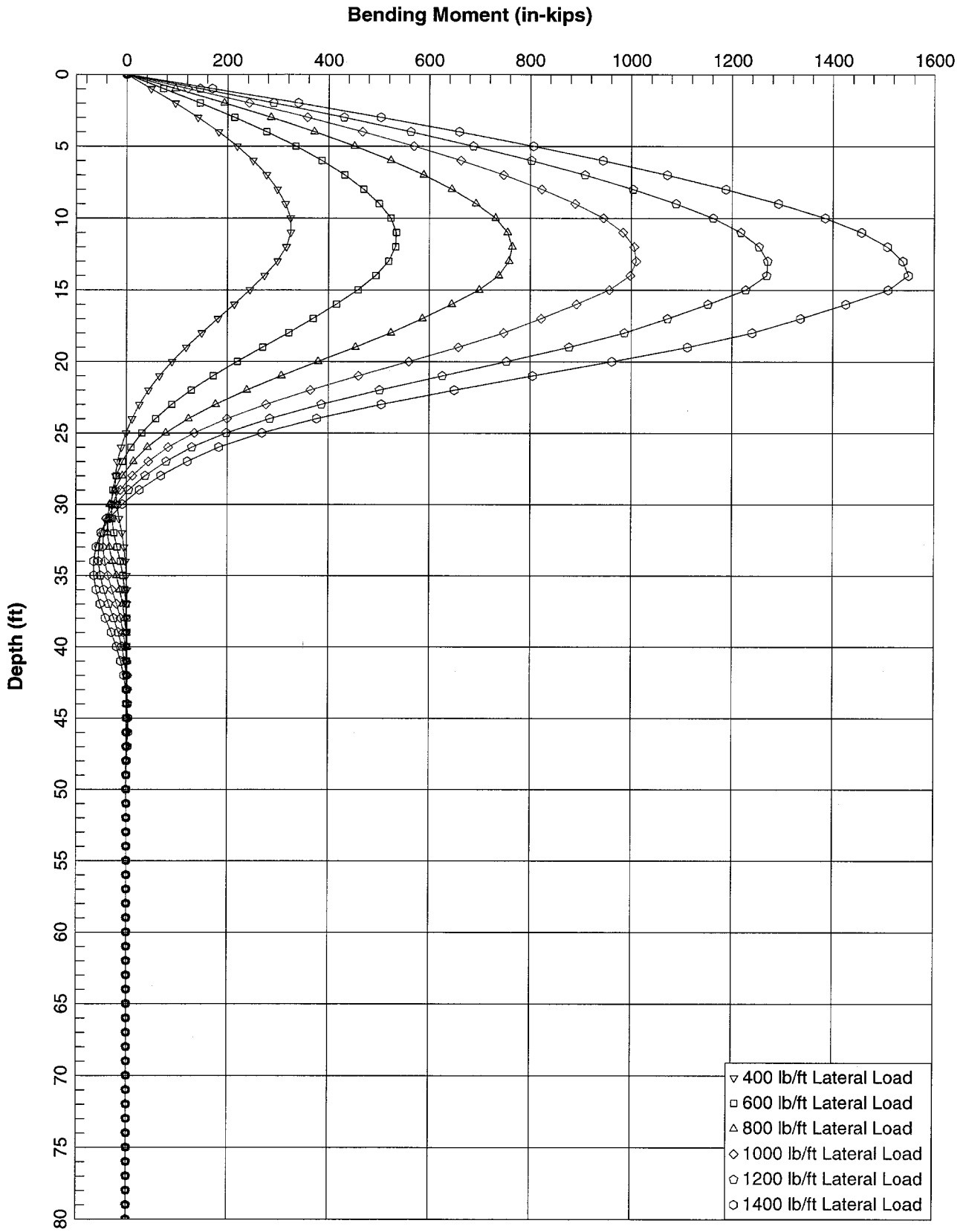


Figure C-95 - Boring 10 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

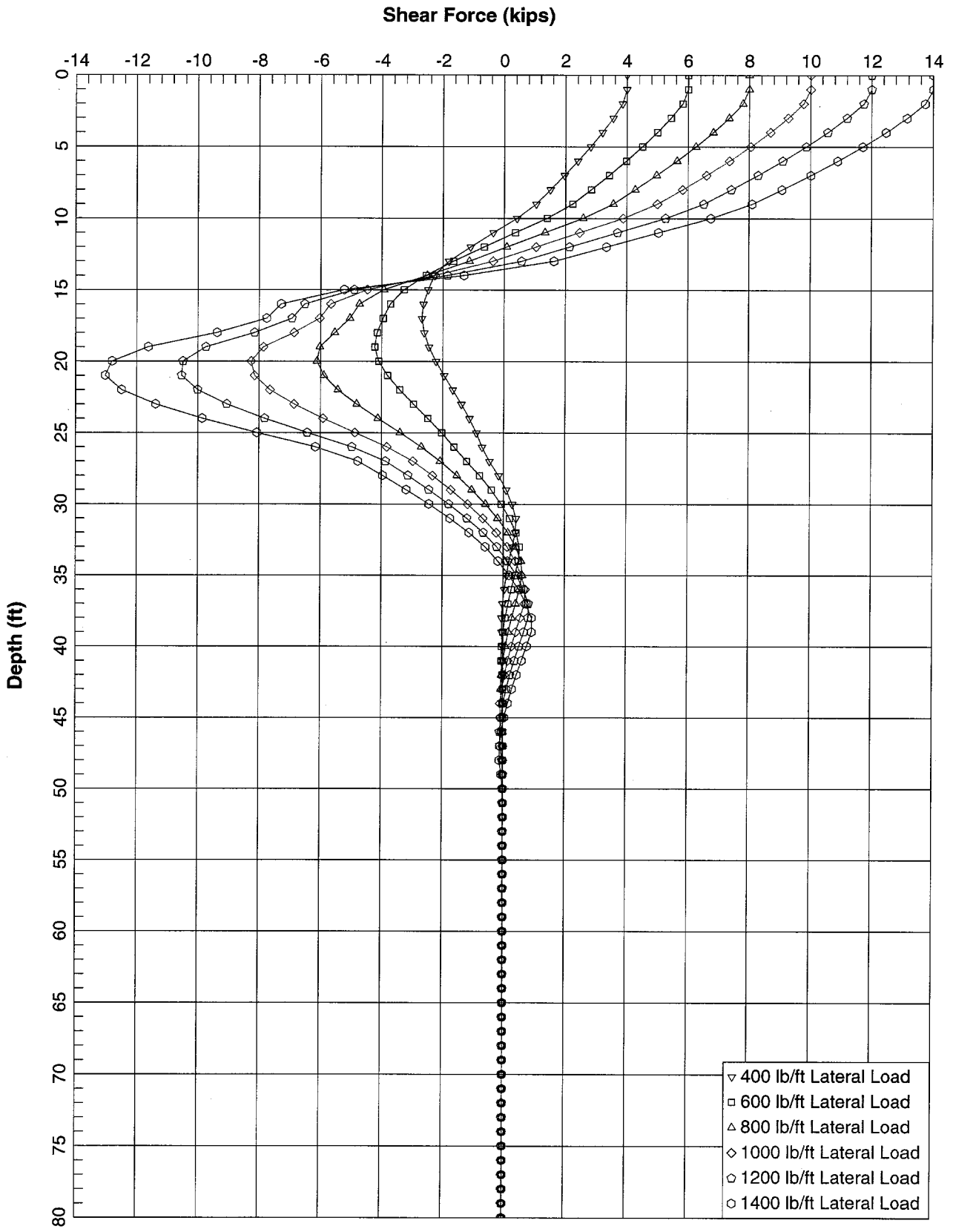


Figure C-96 - Boring 10 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

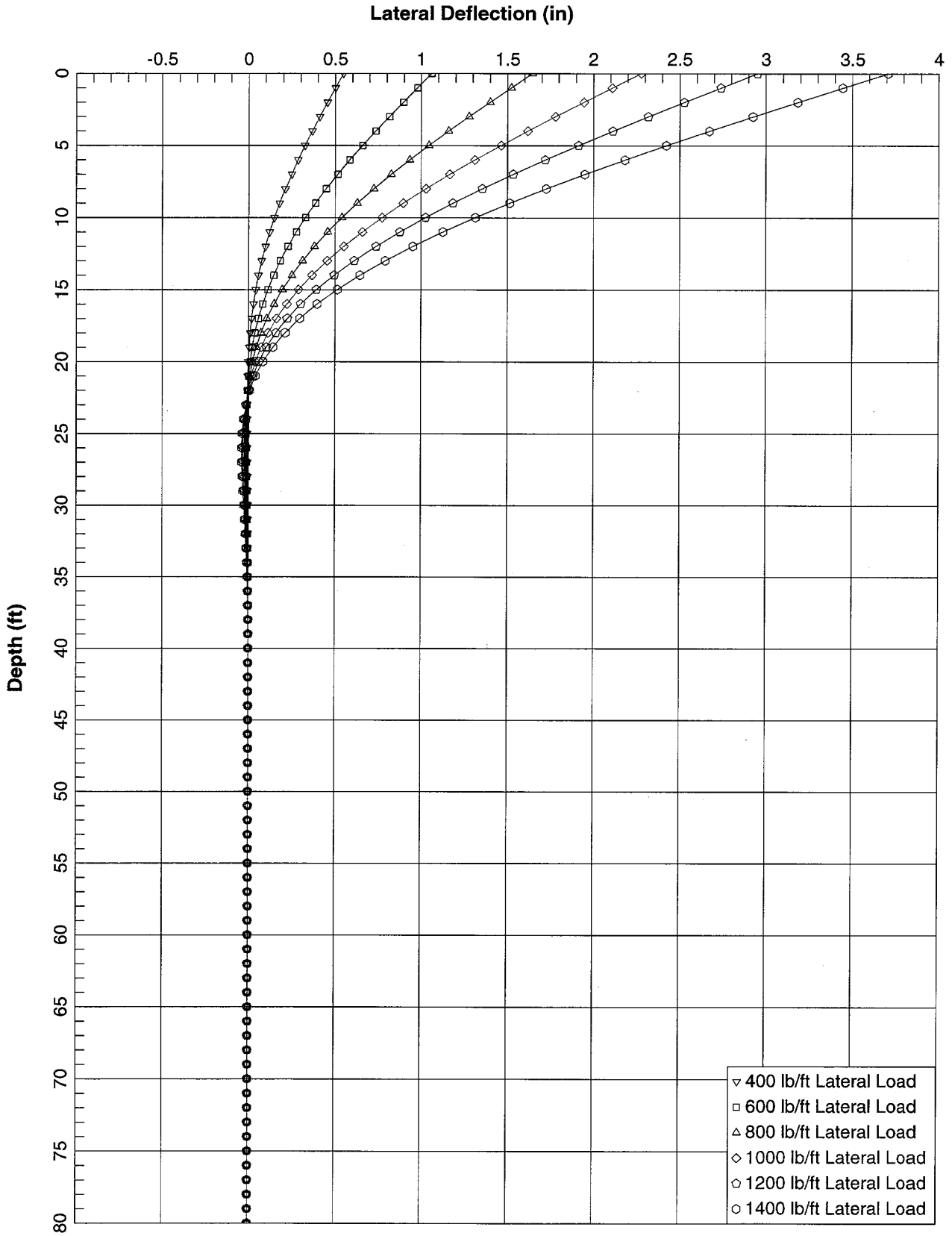


Figure C-97 - Boring D - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

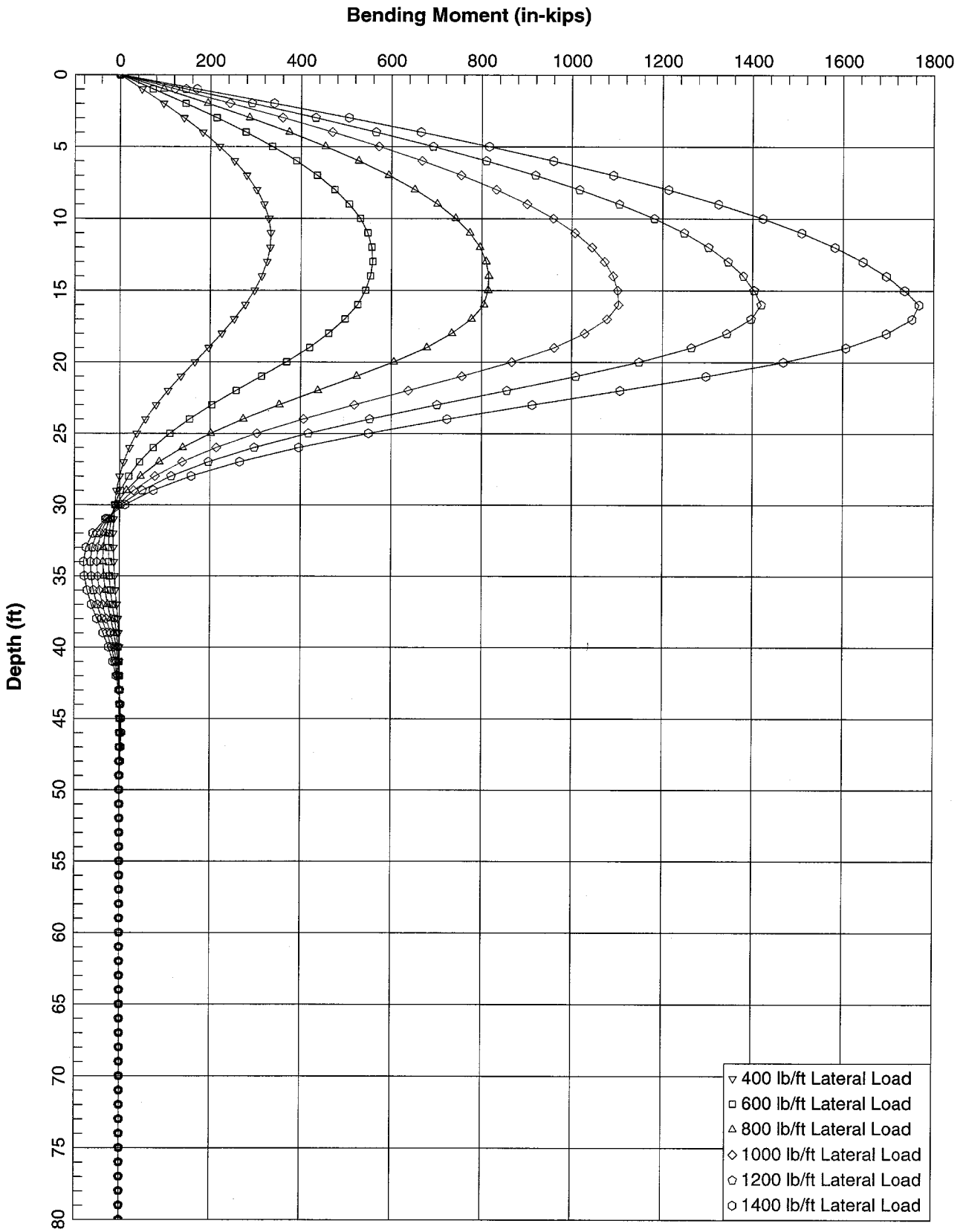


Figure C-98 - Boring D - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

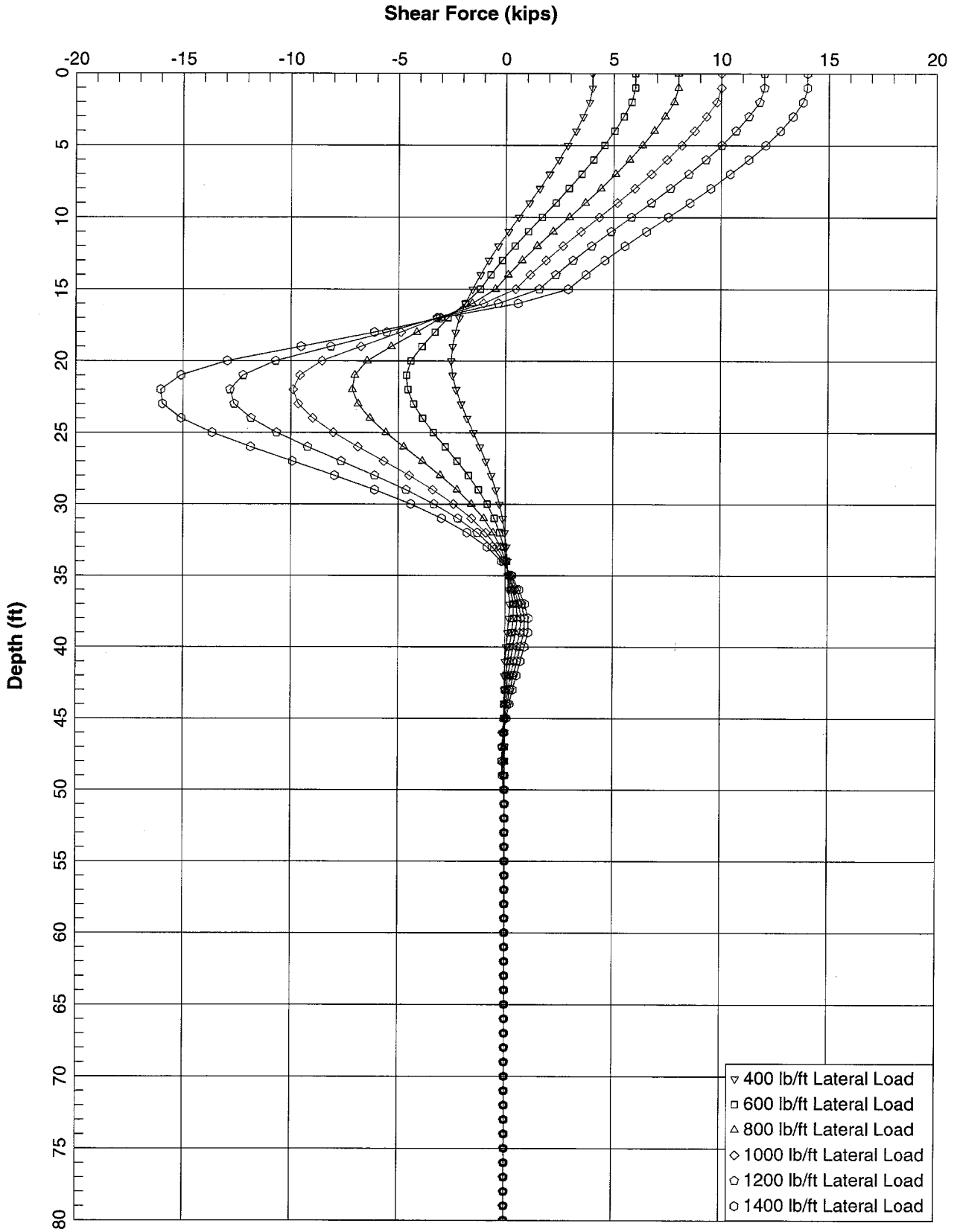


Figure C-99 - Boring D - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

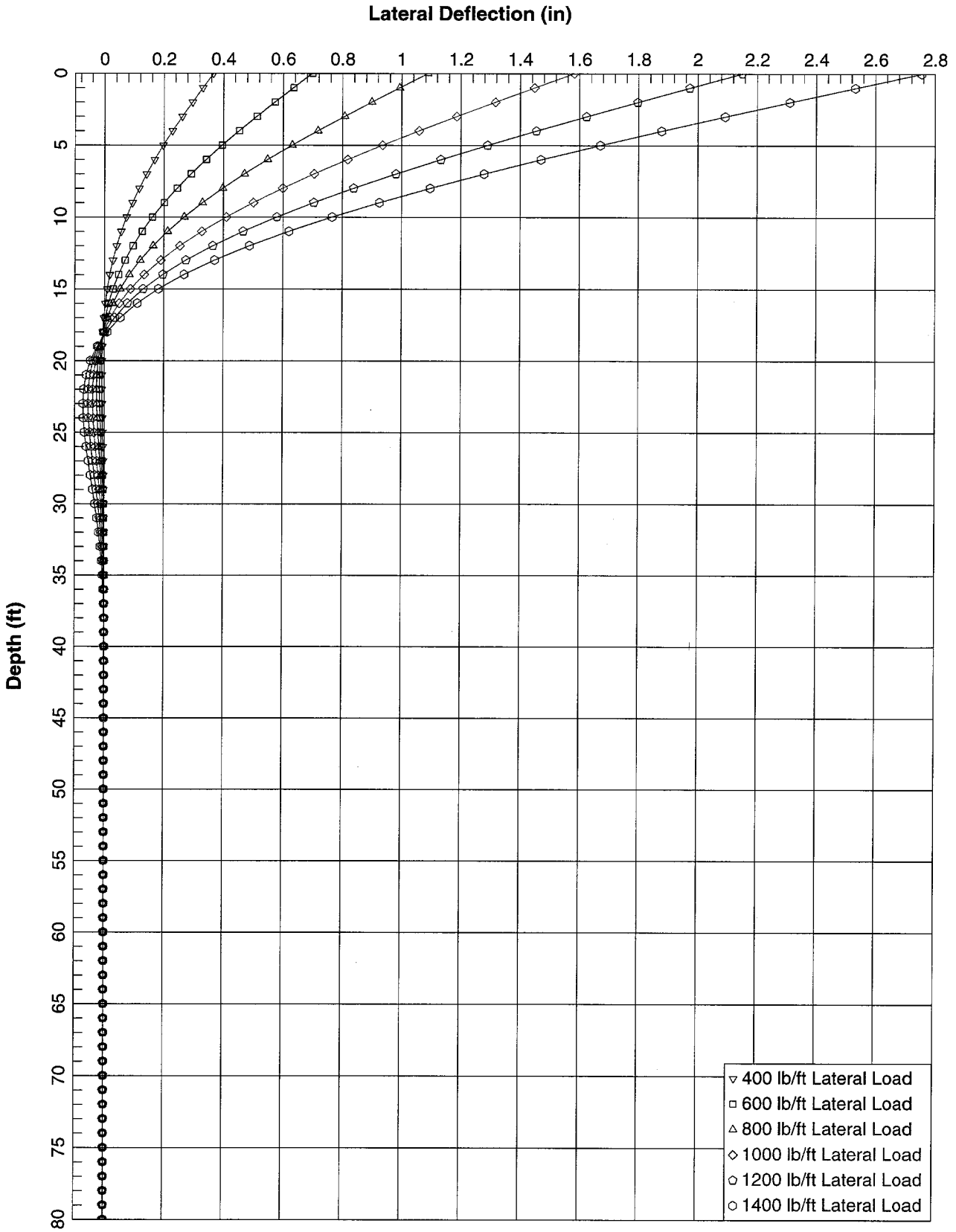


Figure C-100 - Boring 12 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

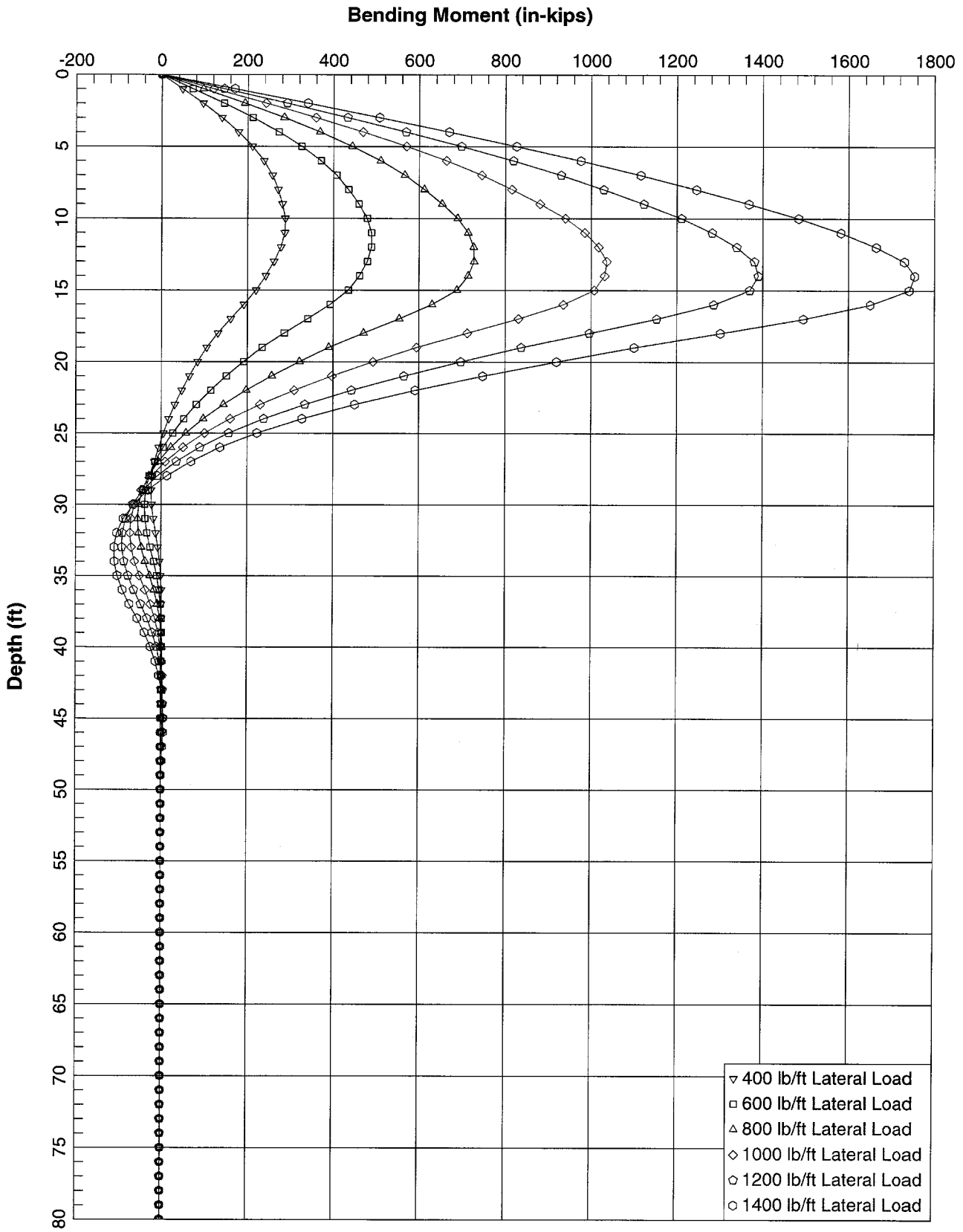


Figure C-101 - Boring 12 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

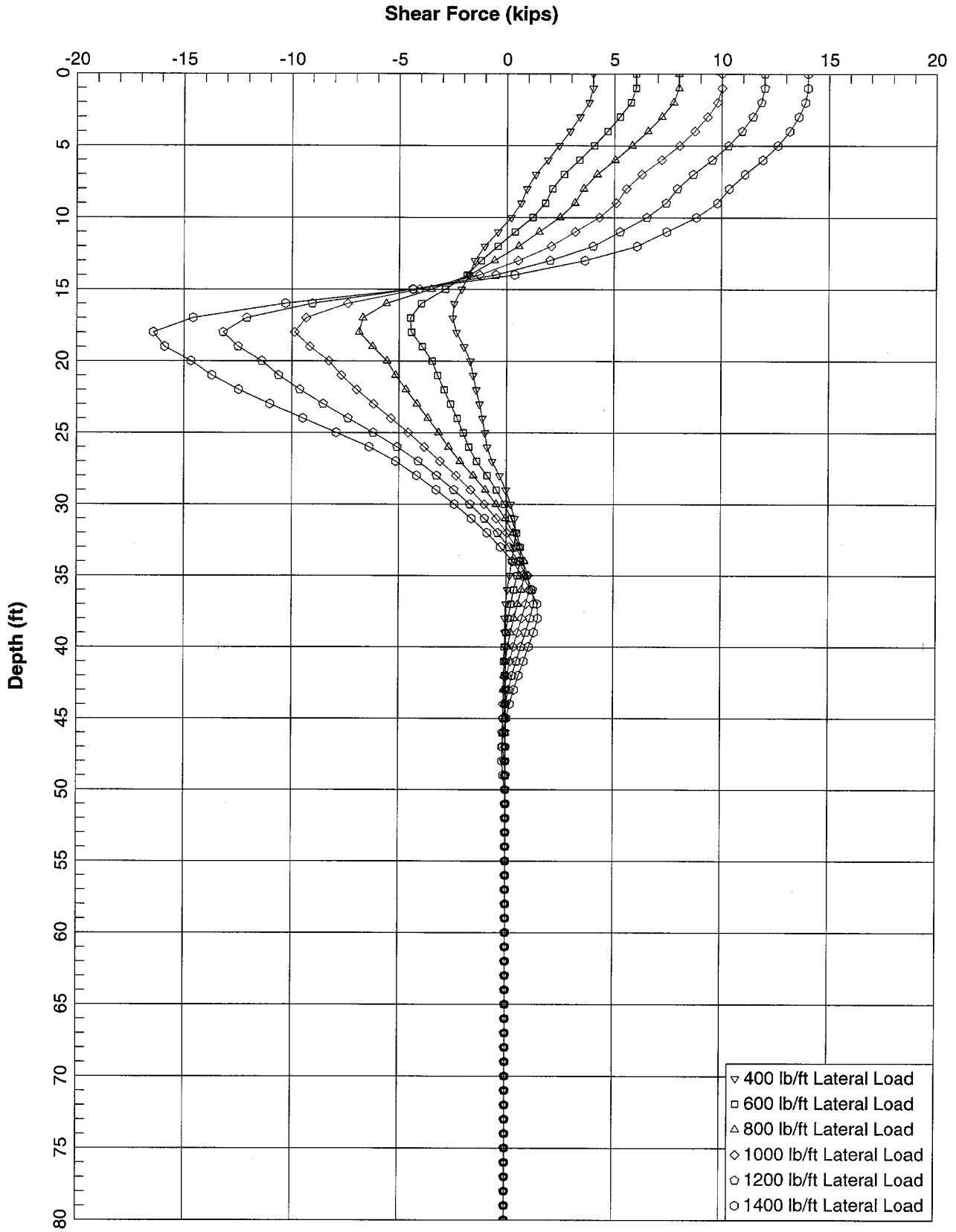


Figure C-102 - Boring 12 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

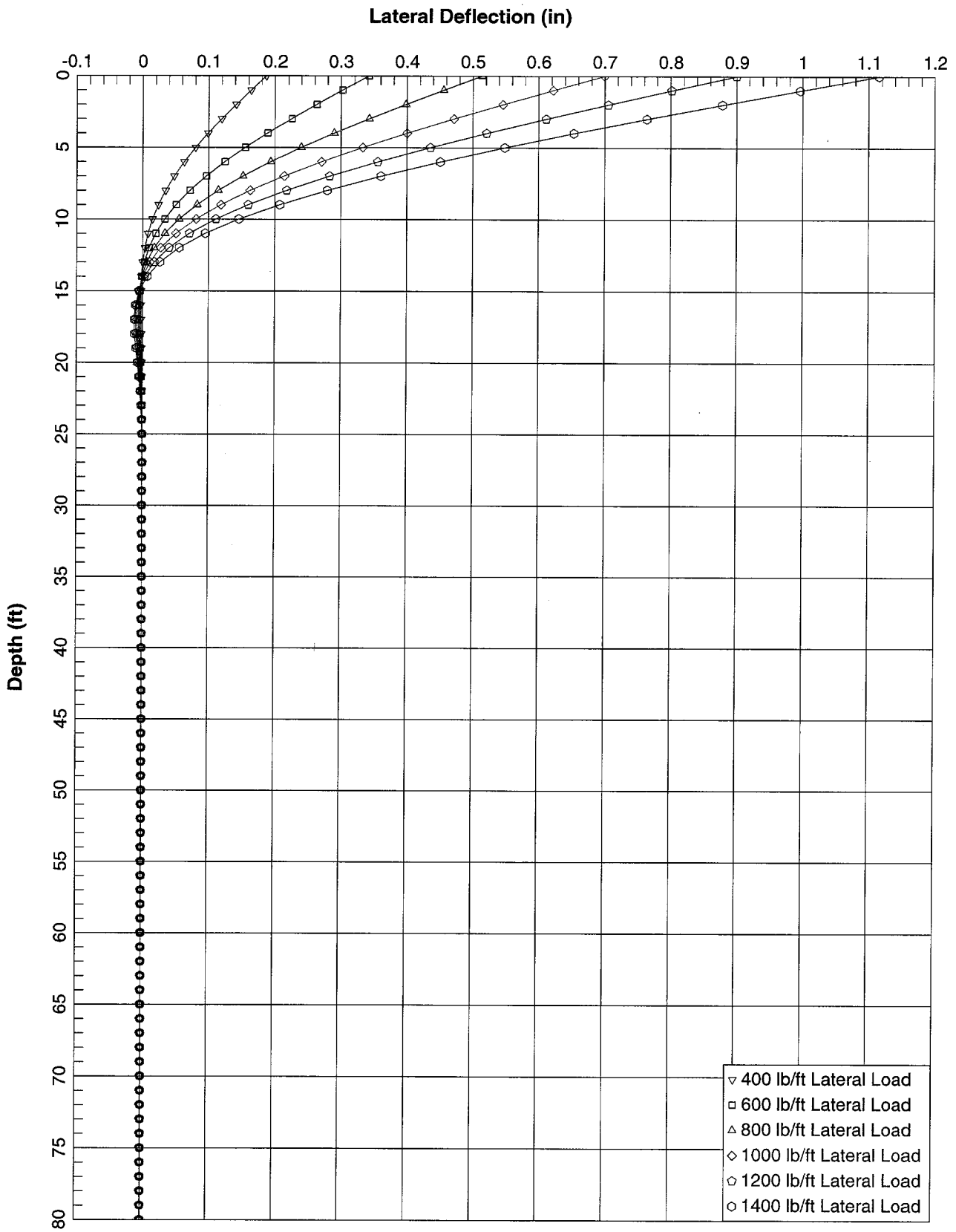


Figure C-103 - Boring E - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

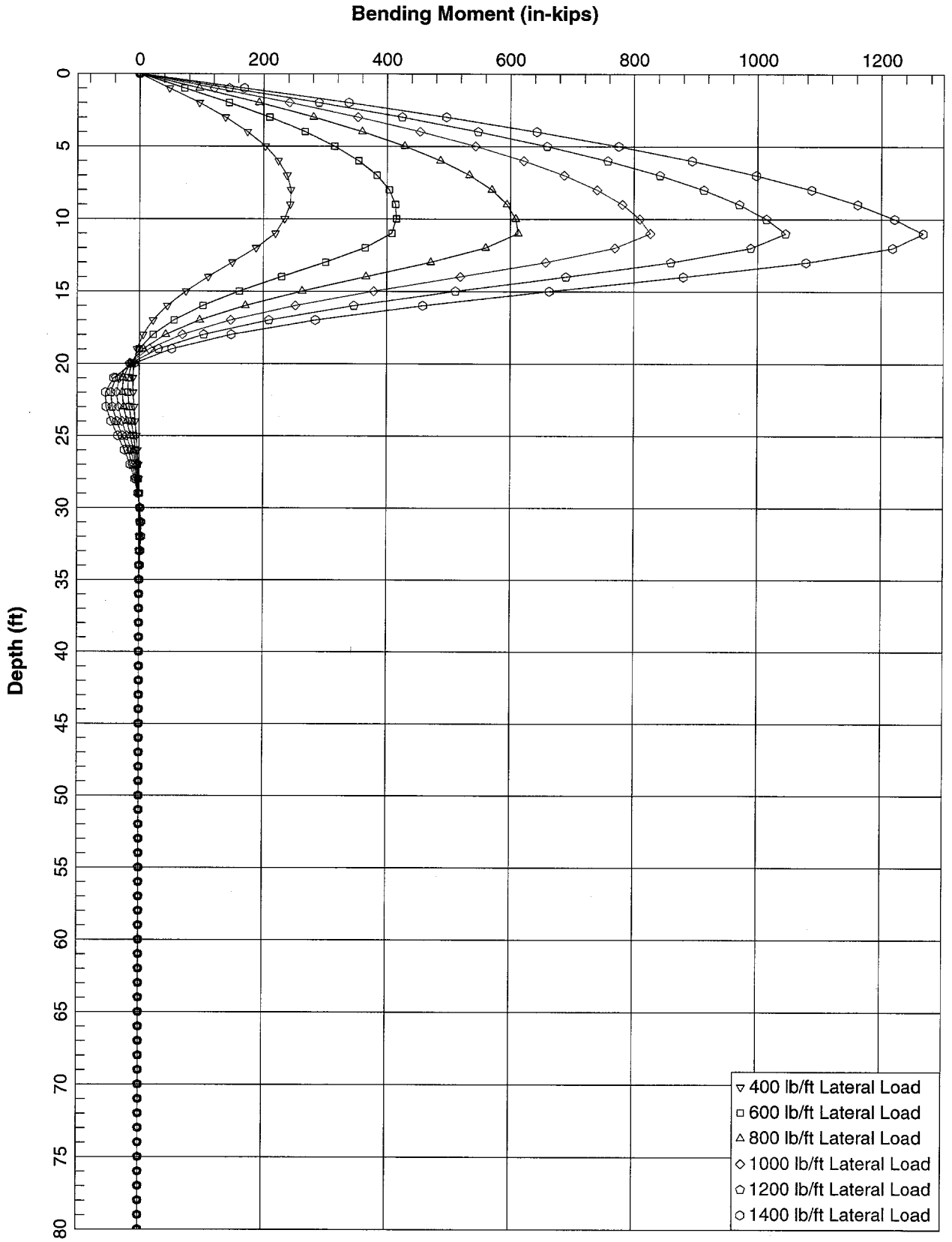


Figure C-104 - Boring E - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

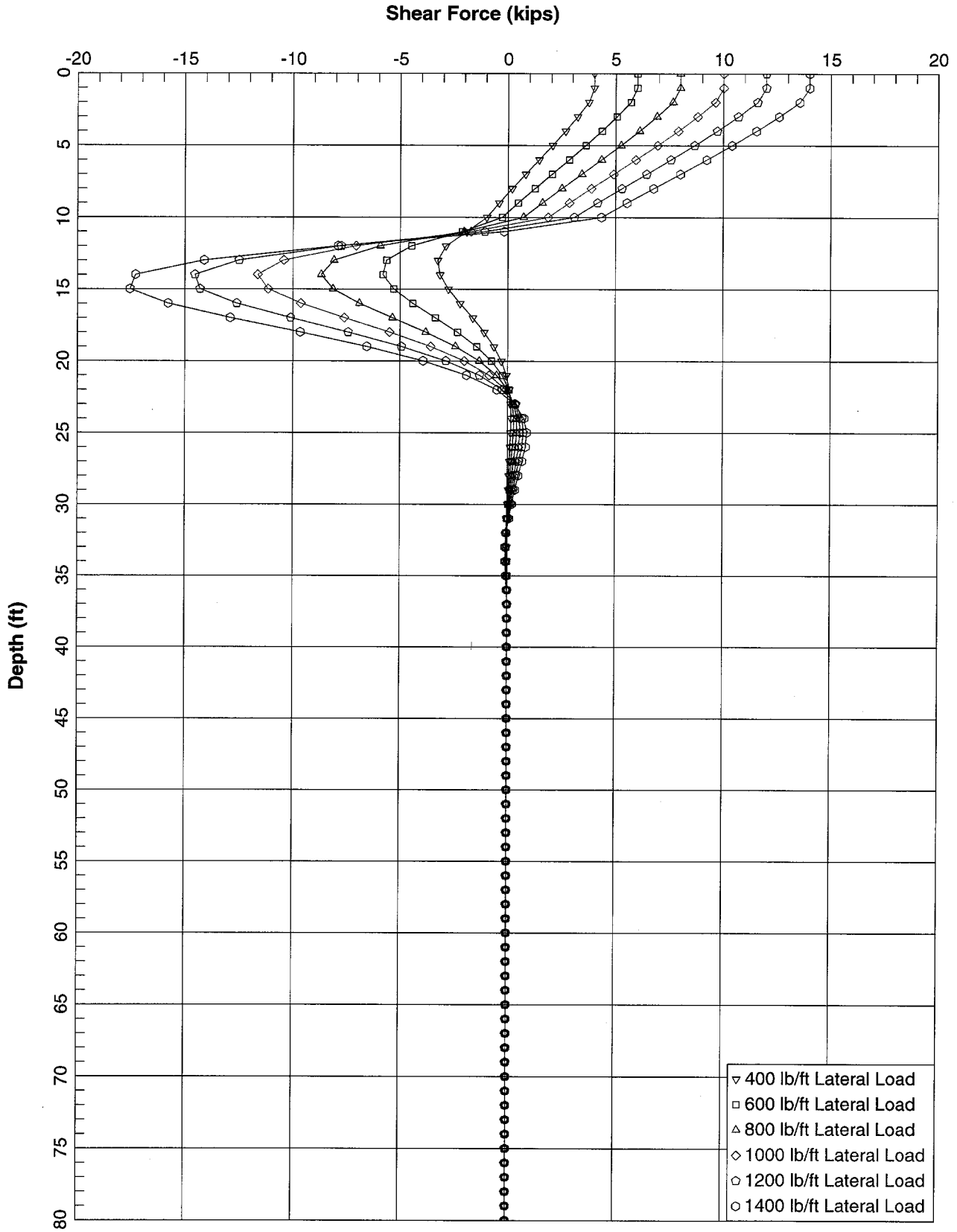


Figure C-105 - Boring E - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

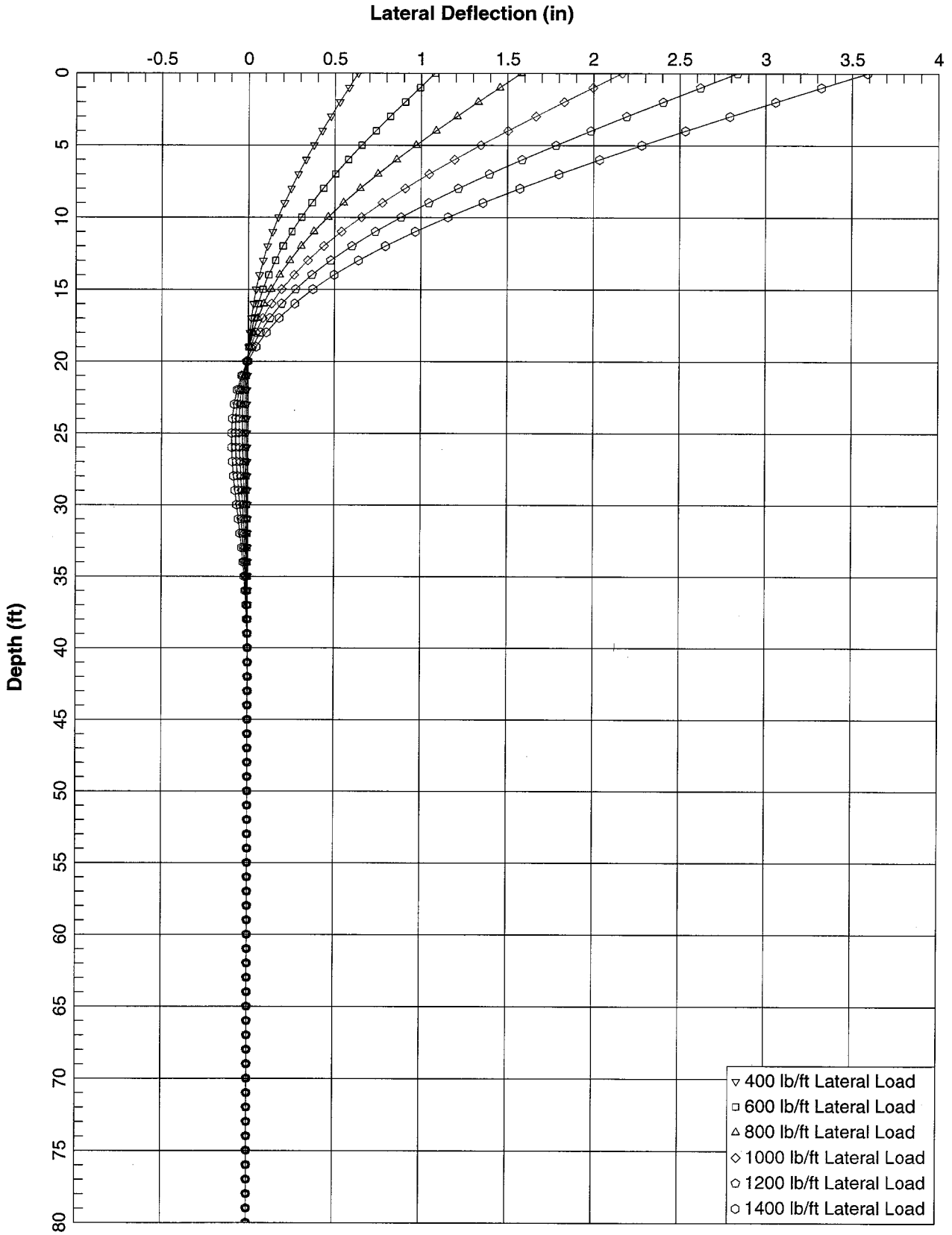


Figure C-106 - Boring 13 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

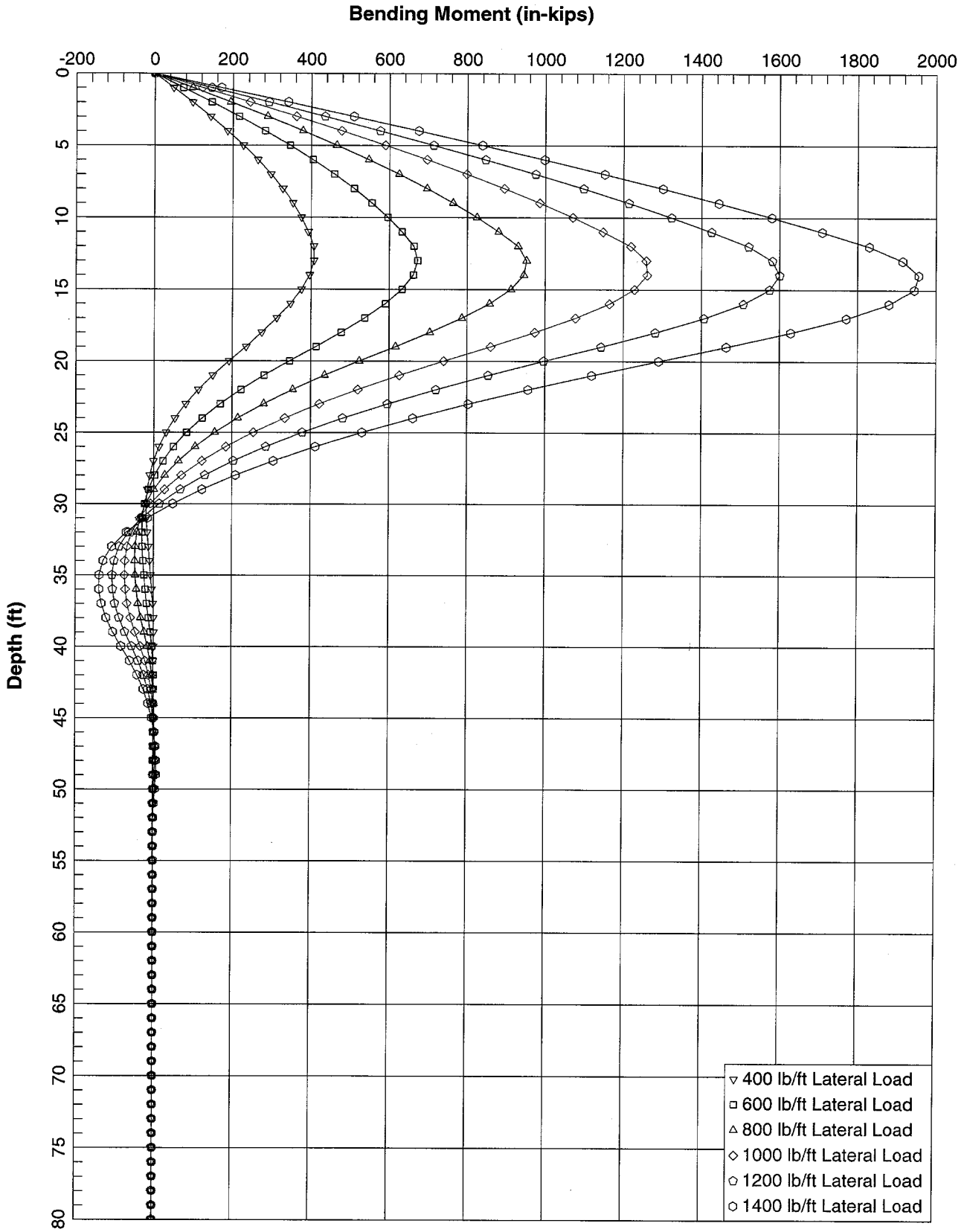


Figure C-107 - Boring 13 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana

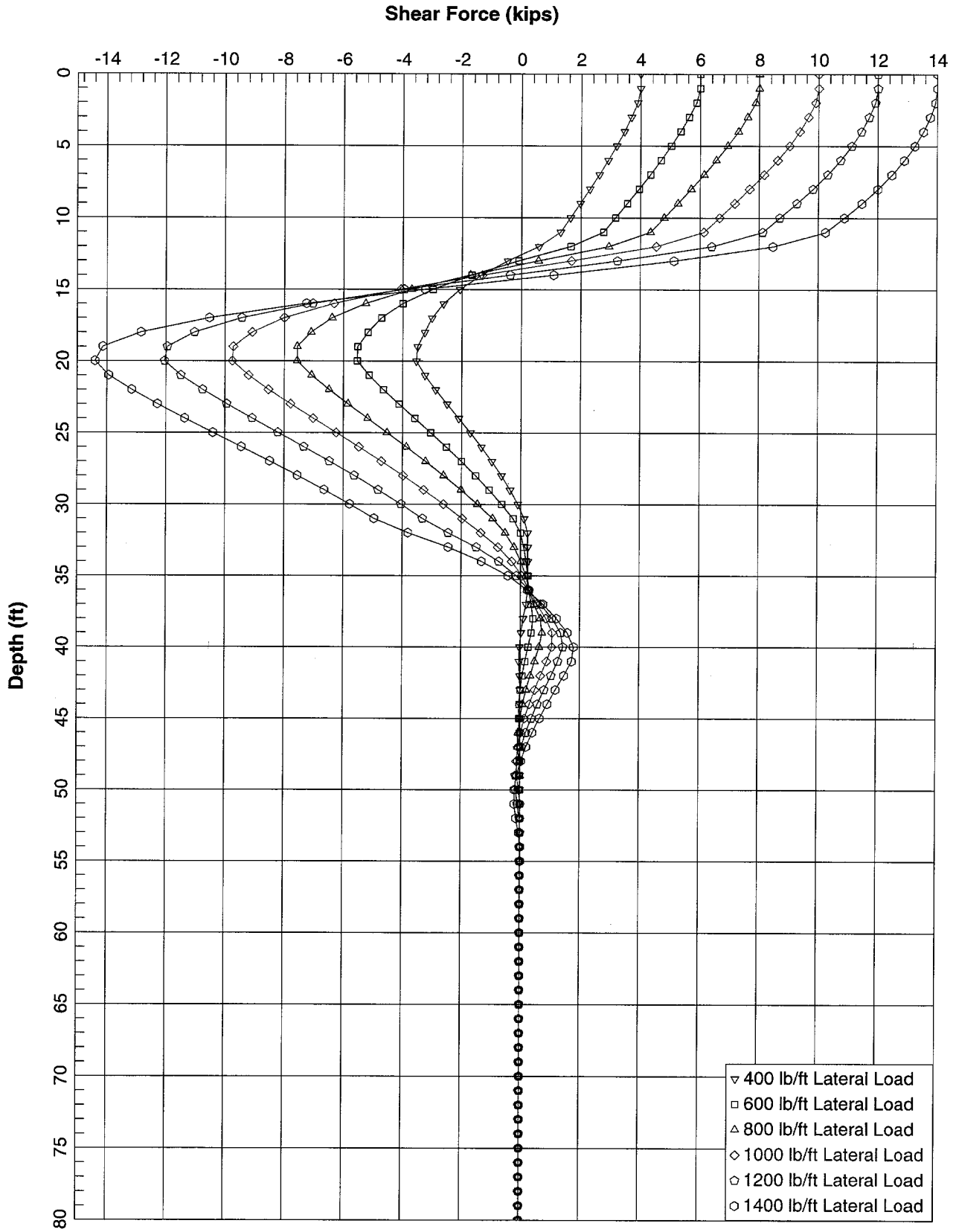
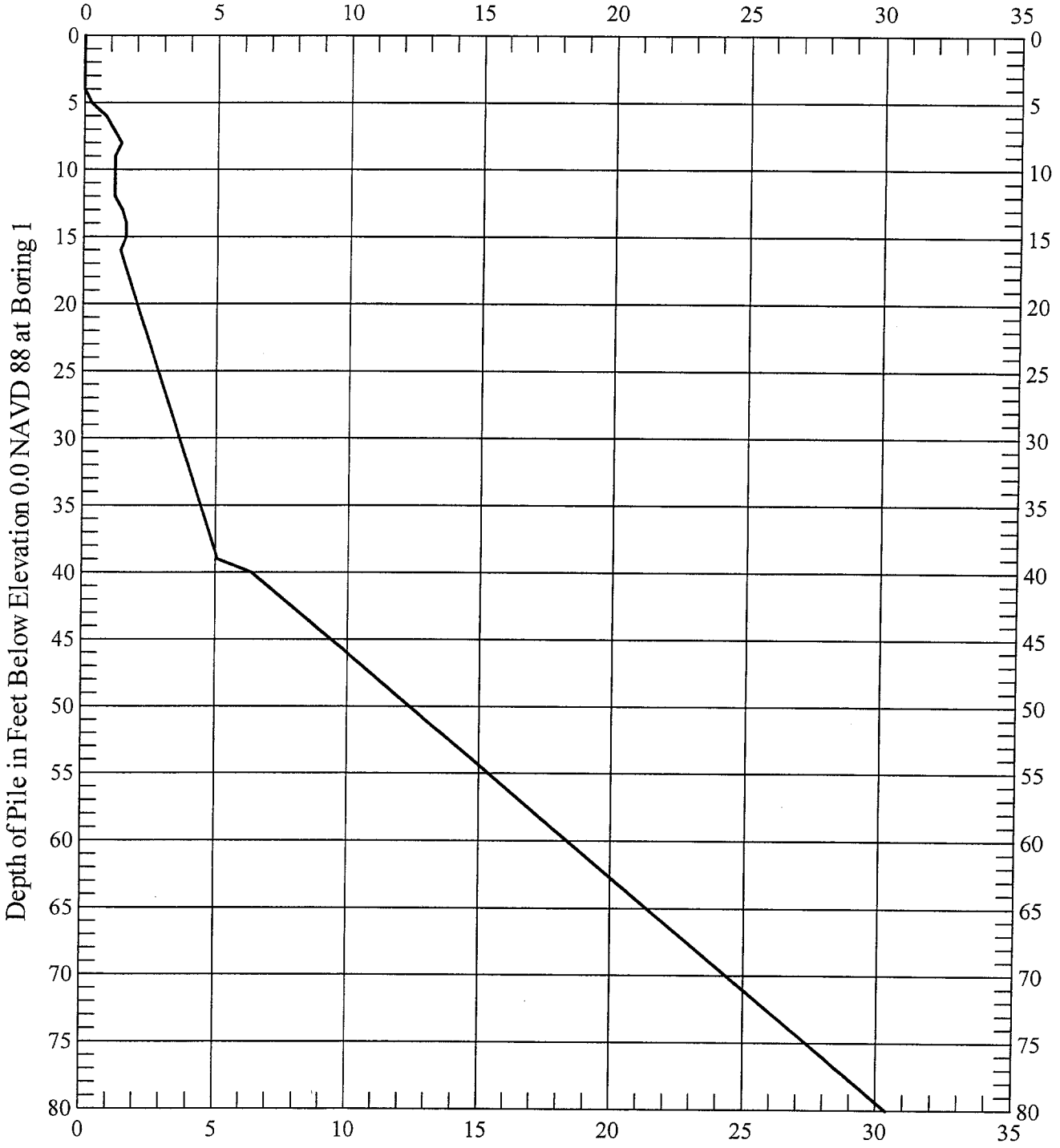
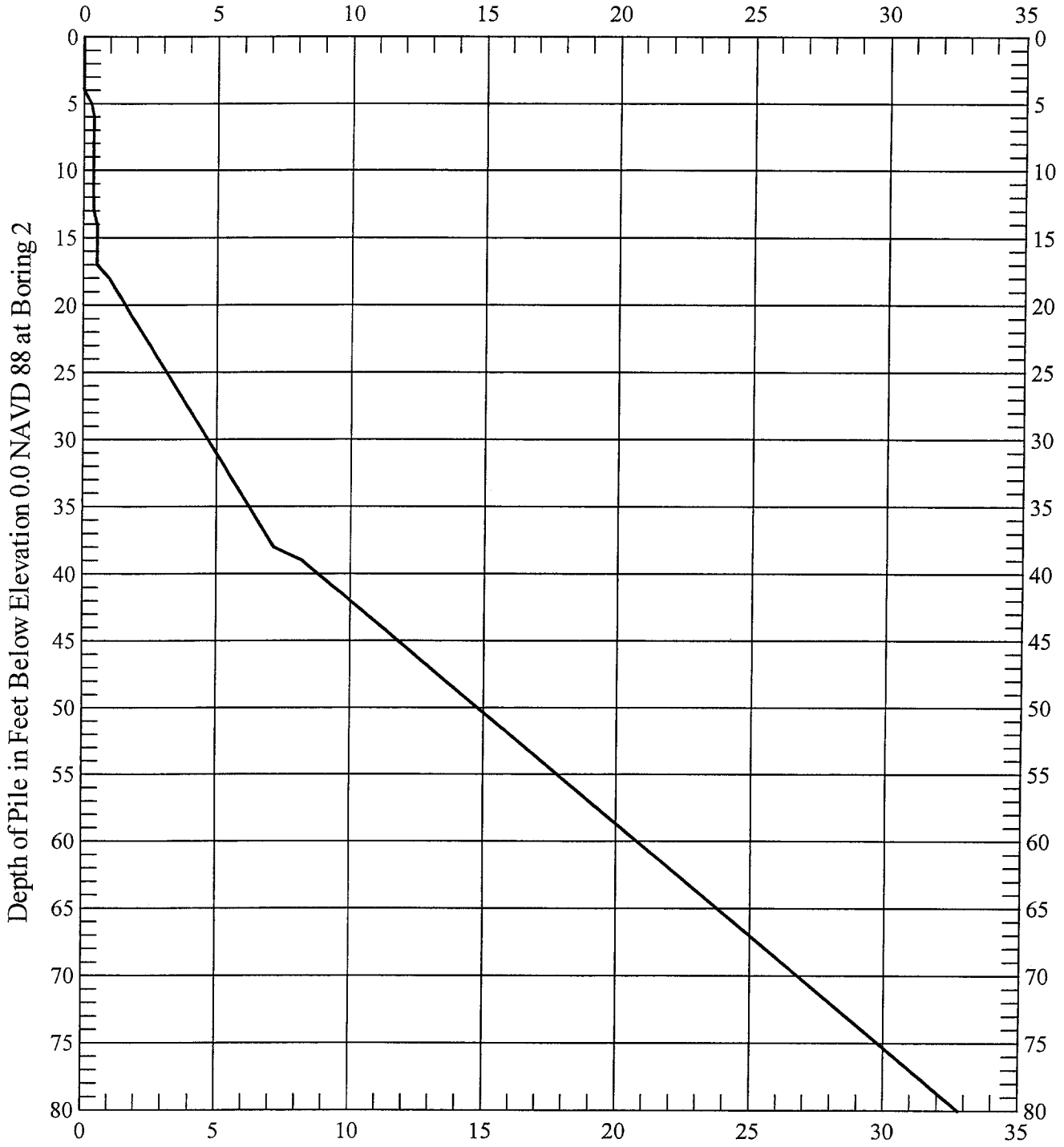


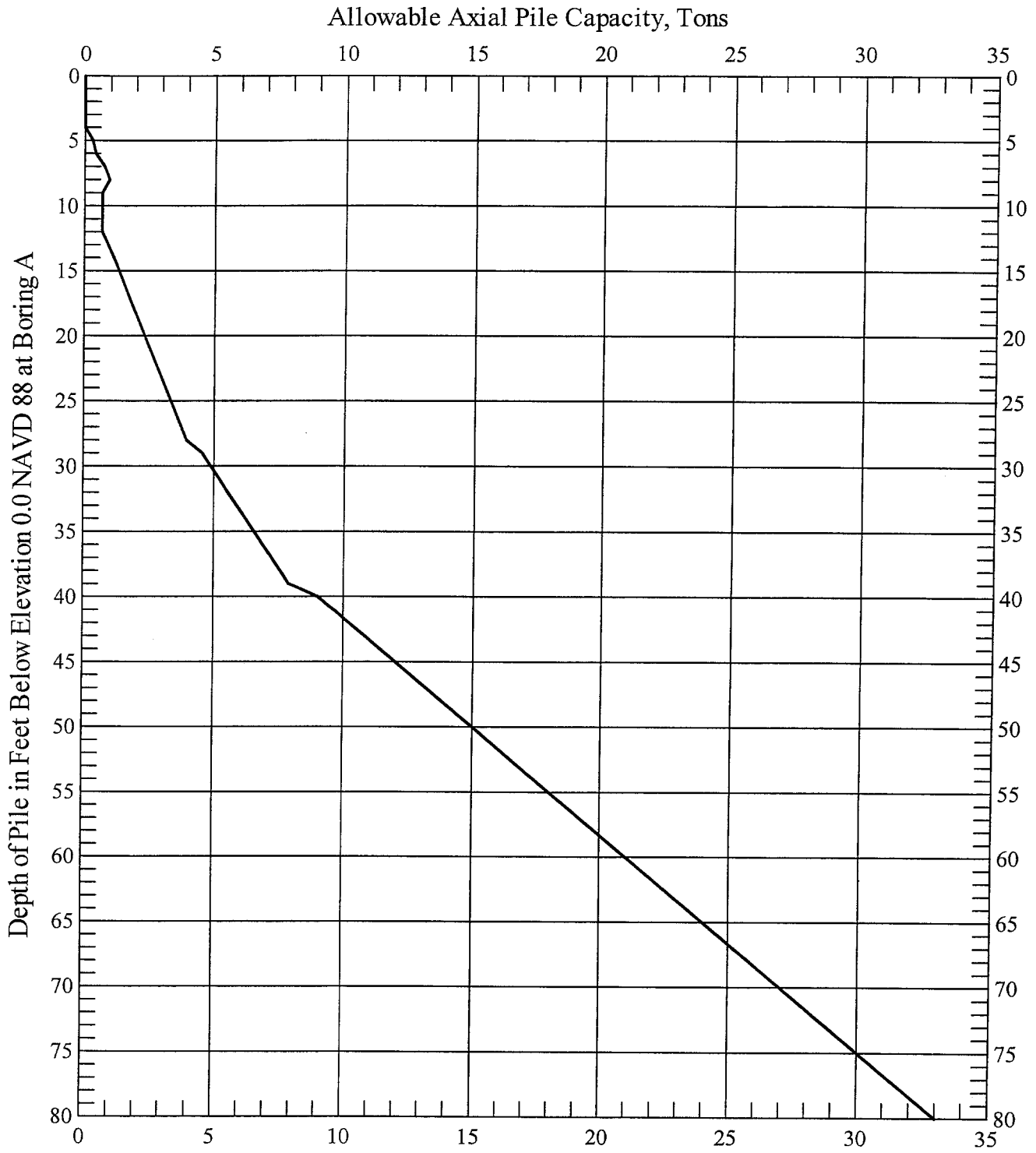
Figure C-108 - Boring 13 - 10-ft Panel - West Lake Boudreaux (TE-46) - Terrebonne Parish, Louisiana



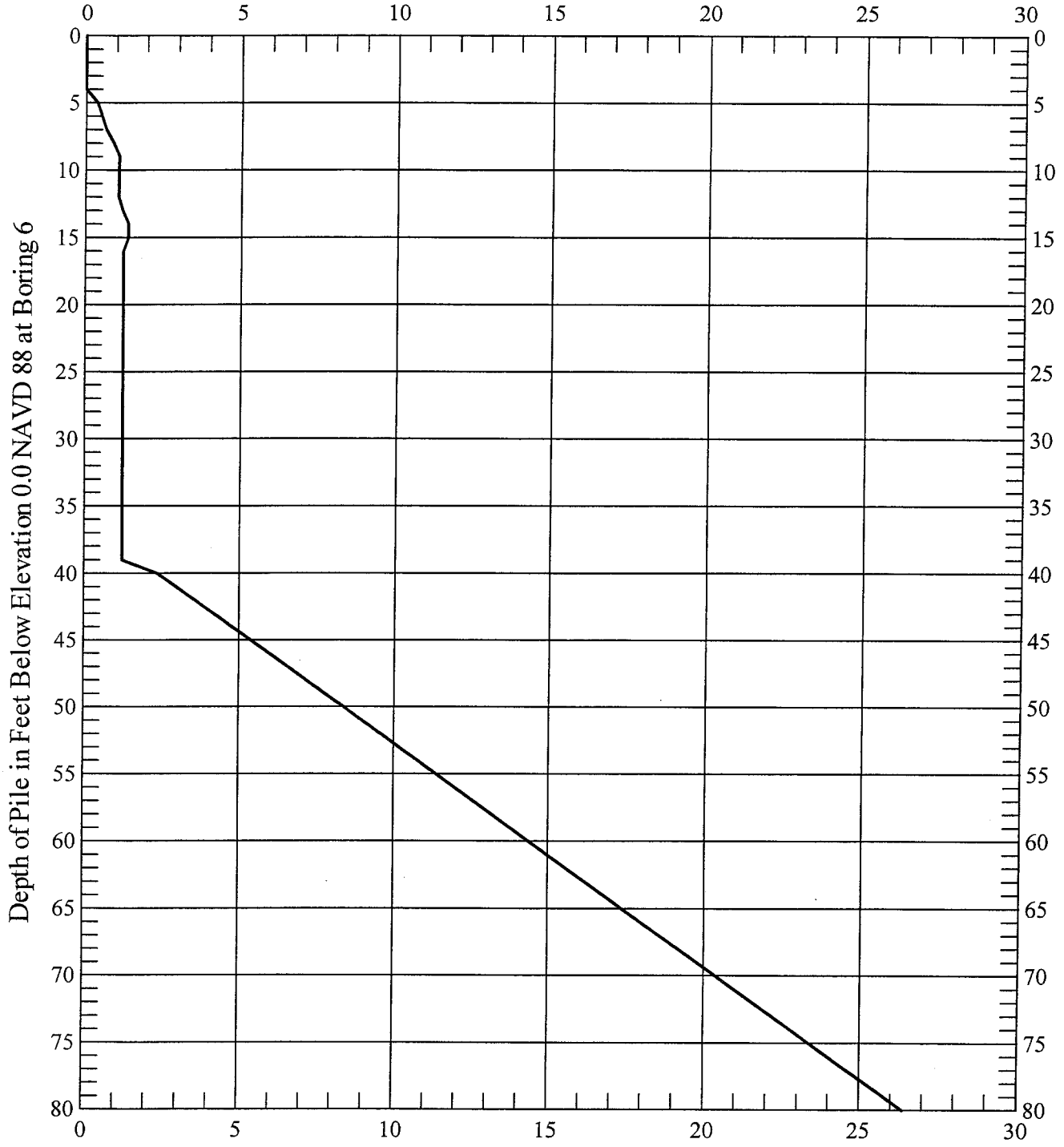
ALLOWABLE AXIAL PILE CAPACITIES (FS = 2.0)
16-in. SQUARE CONCRETE PILE
BORING 1 - WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA



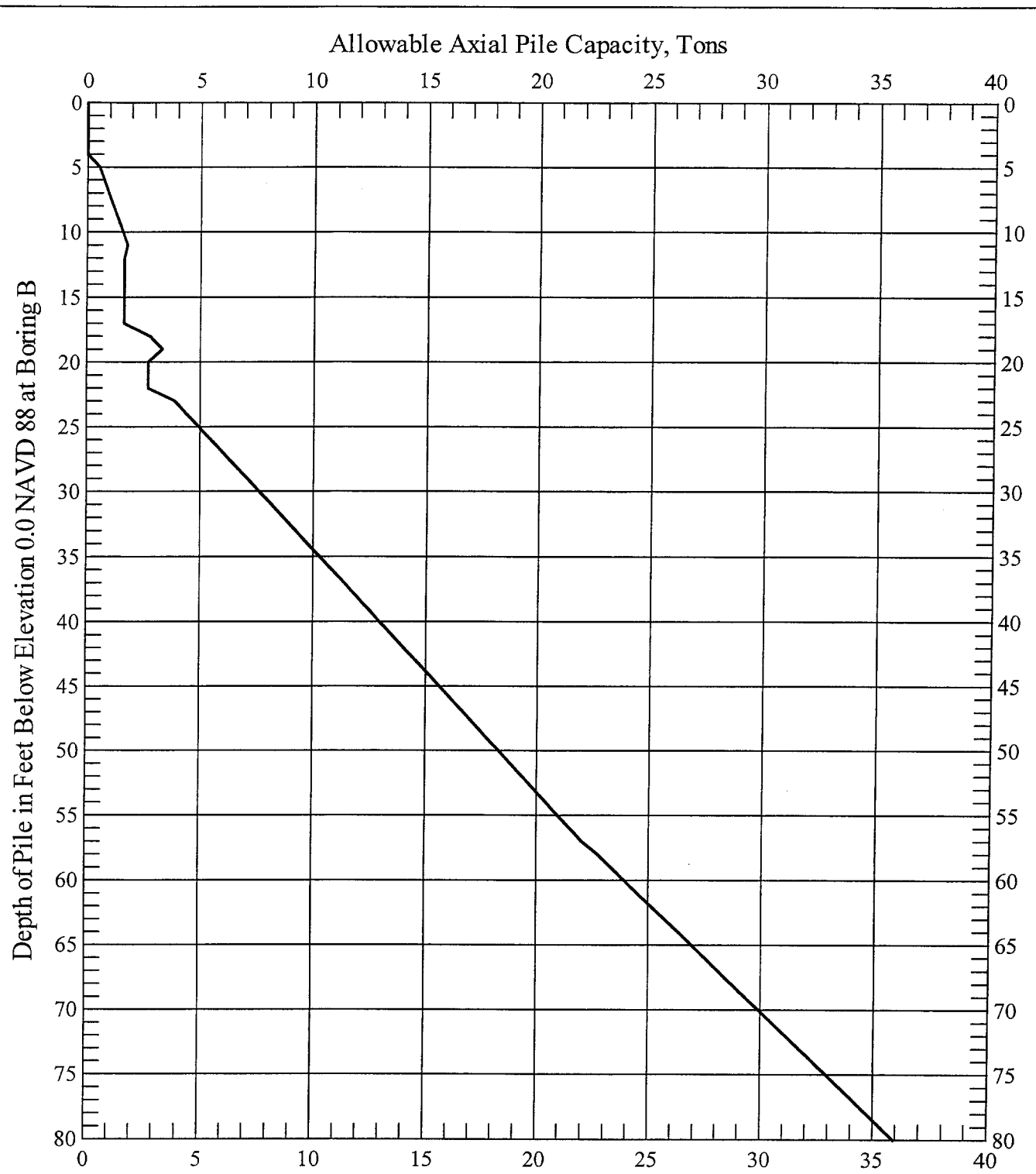
ALLOWABLE AXIAL PILE CAPACITIES (FS = 2.0)
16-in. SQUARE CONCRETE PILE
BORING 2 - WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA



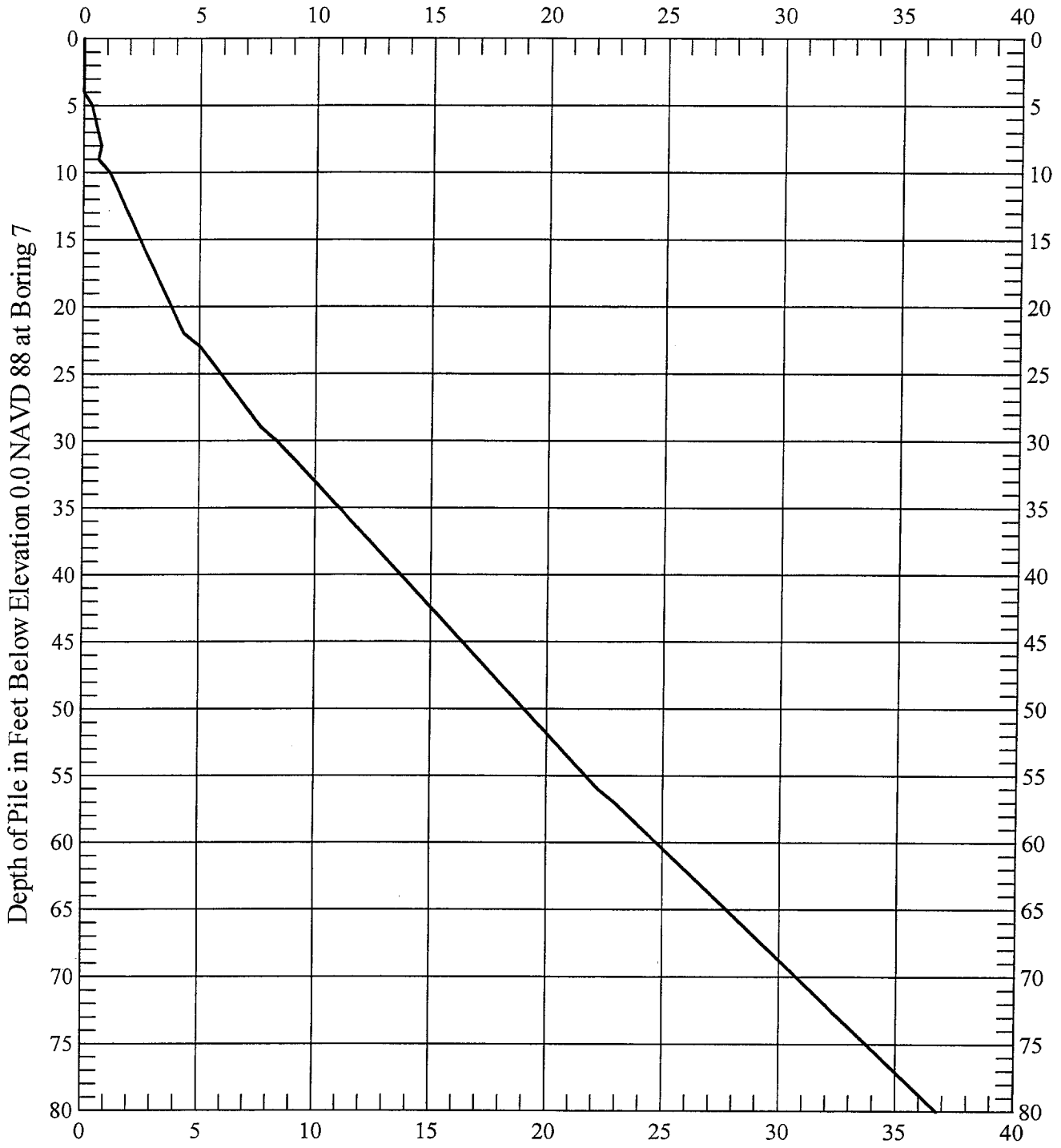
ALLOWABLE AXIAL PILE CAPACITIES (FS = 2.0)
16-in. SQUARE CONCRETE PILE
BORING A - WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA



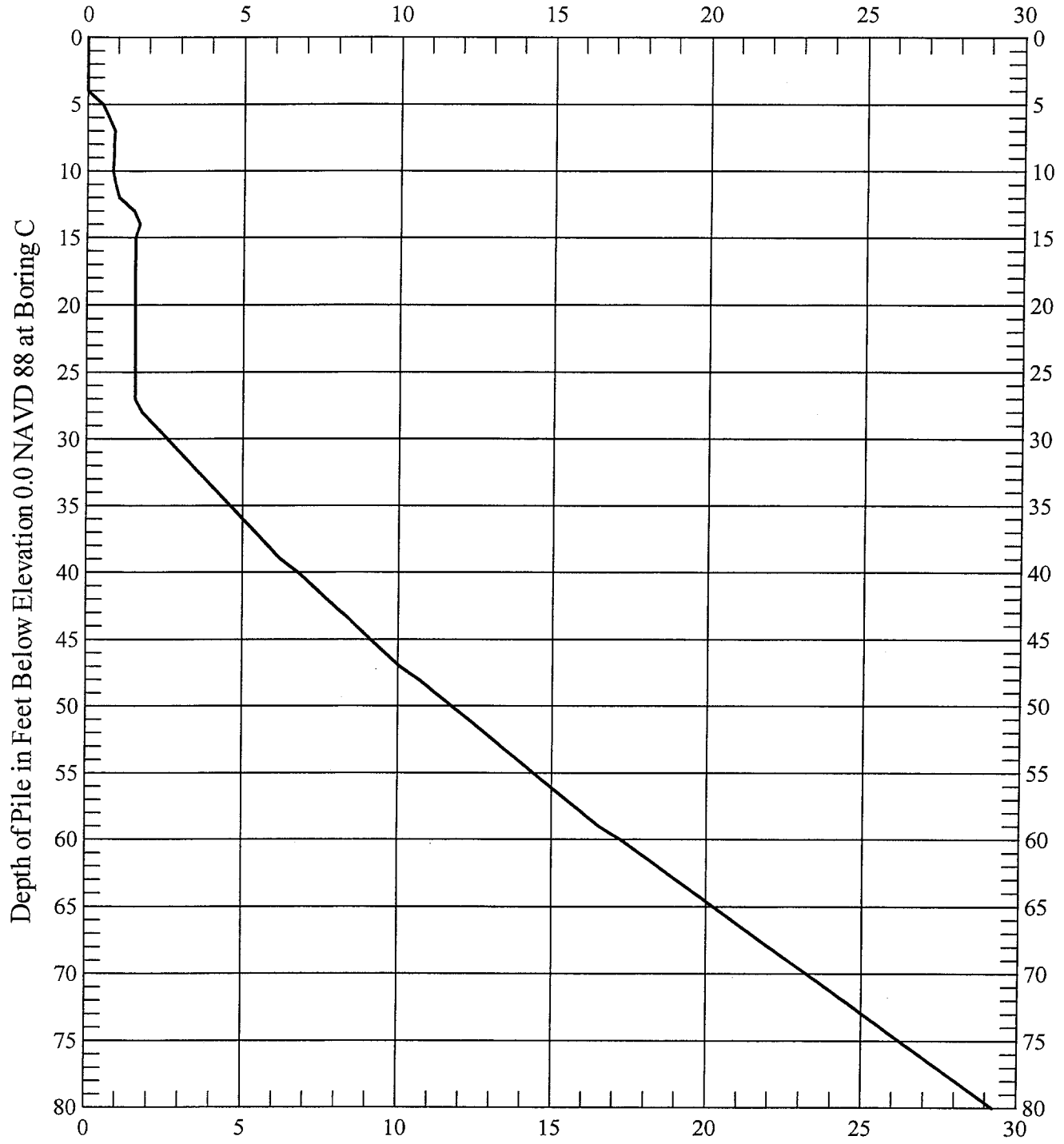
ALLOWABLE AXIAL PILE CAPACITIES (FS = 2.0)
16-in. SQUARE CONCRETE PILE
BORING 6 - WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA



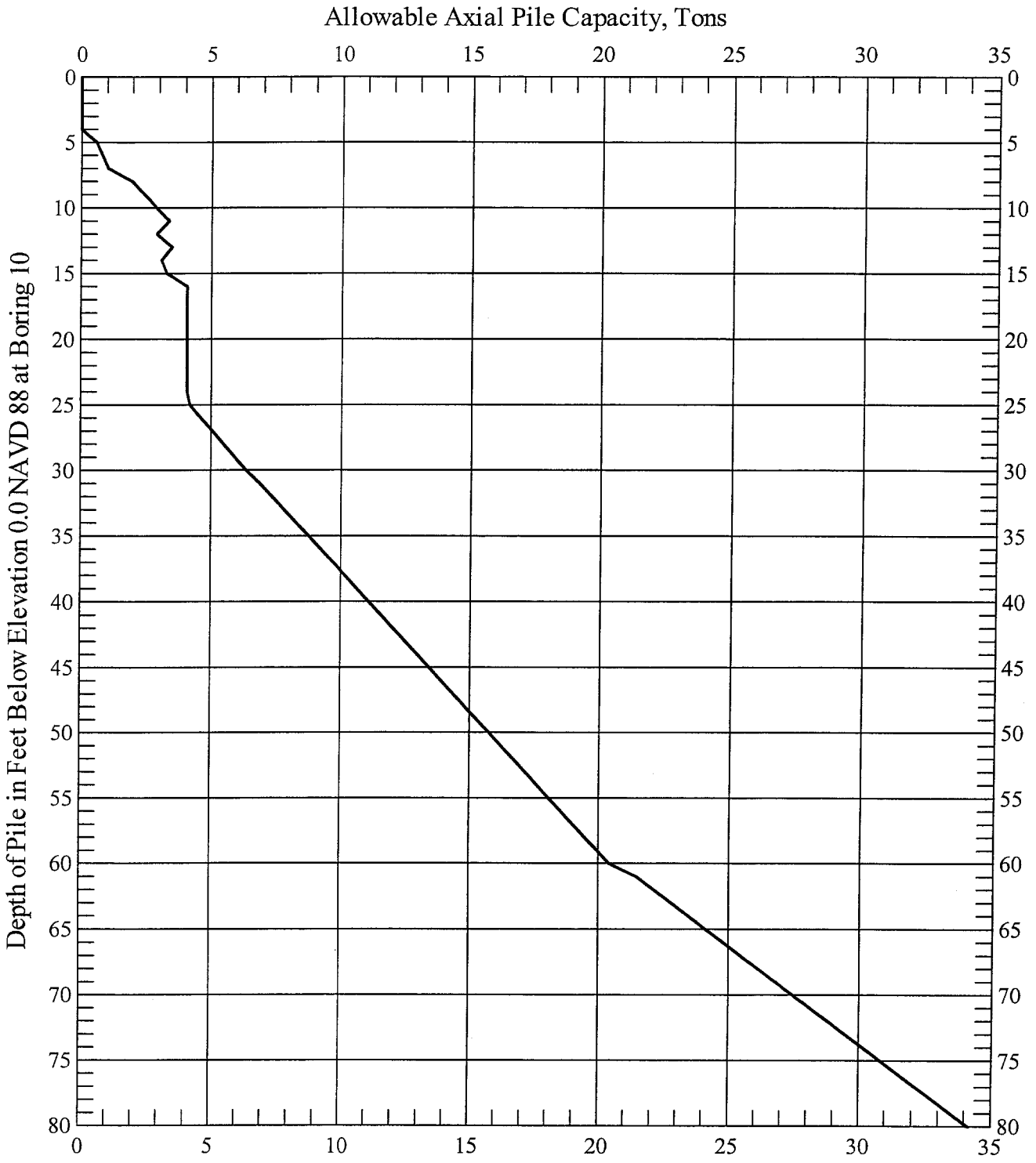
ALLOWABLE AXIAL PILE CAPACITIES (FS = 2.0)
16-in. SQUARE CONCRETE PILE
BORING B - WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA



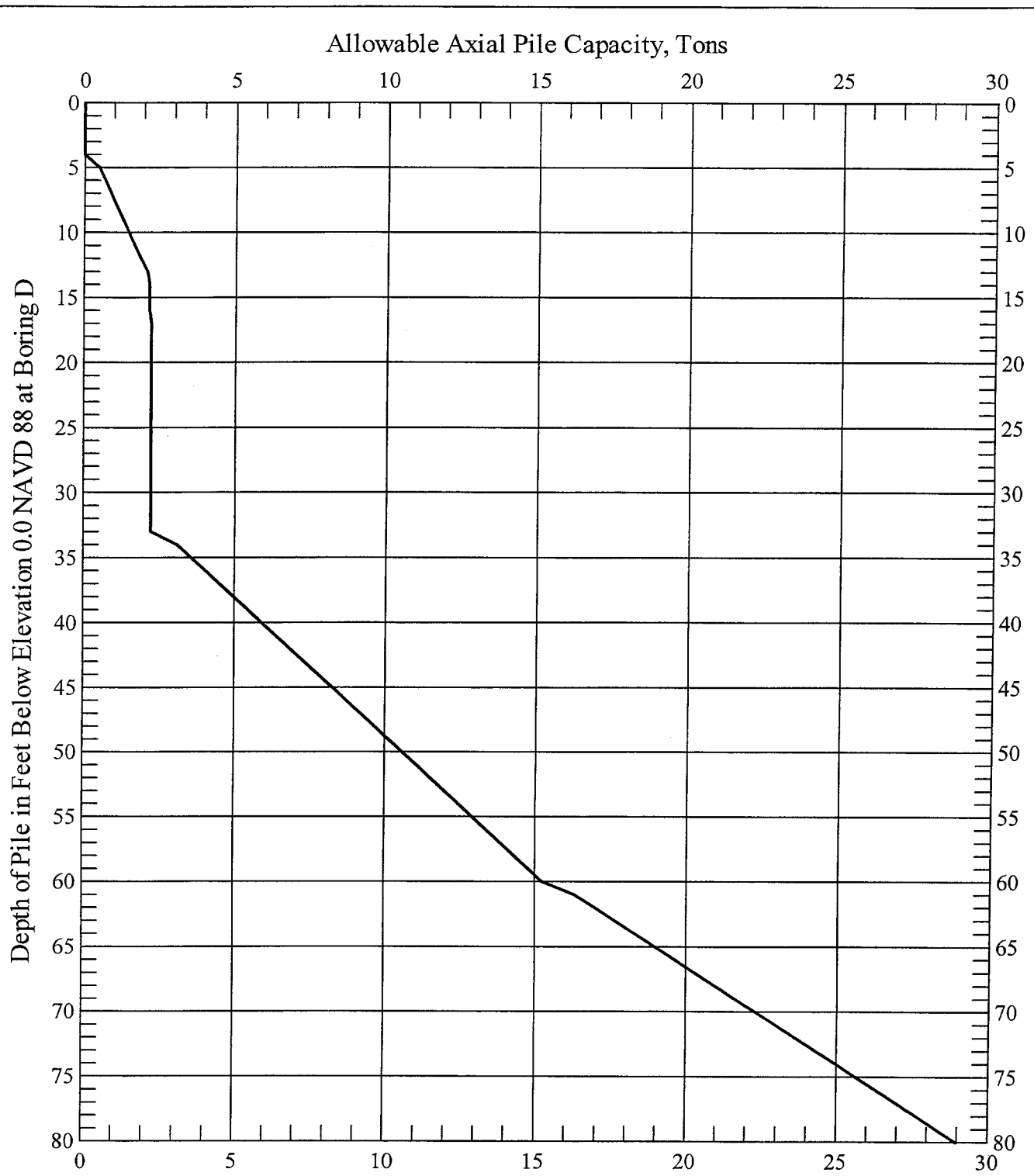
ALLOWABLE AXIAL PILE CAPACITIES (FS = 2.0)
16-in. SQUARE CONCRETE PILE
BORING 7 - WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA



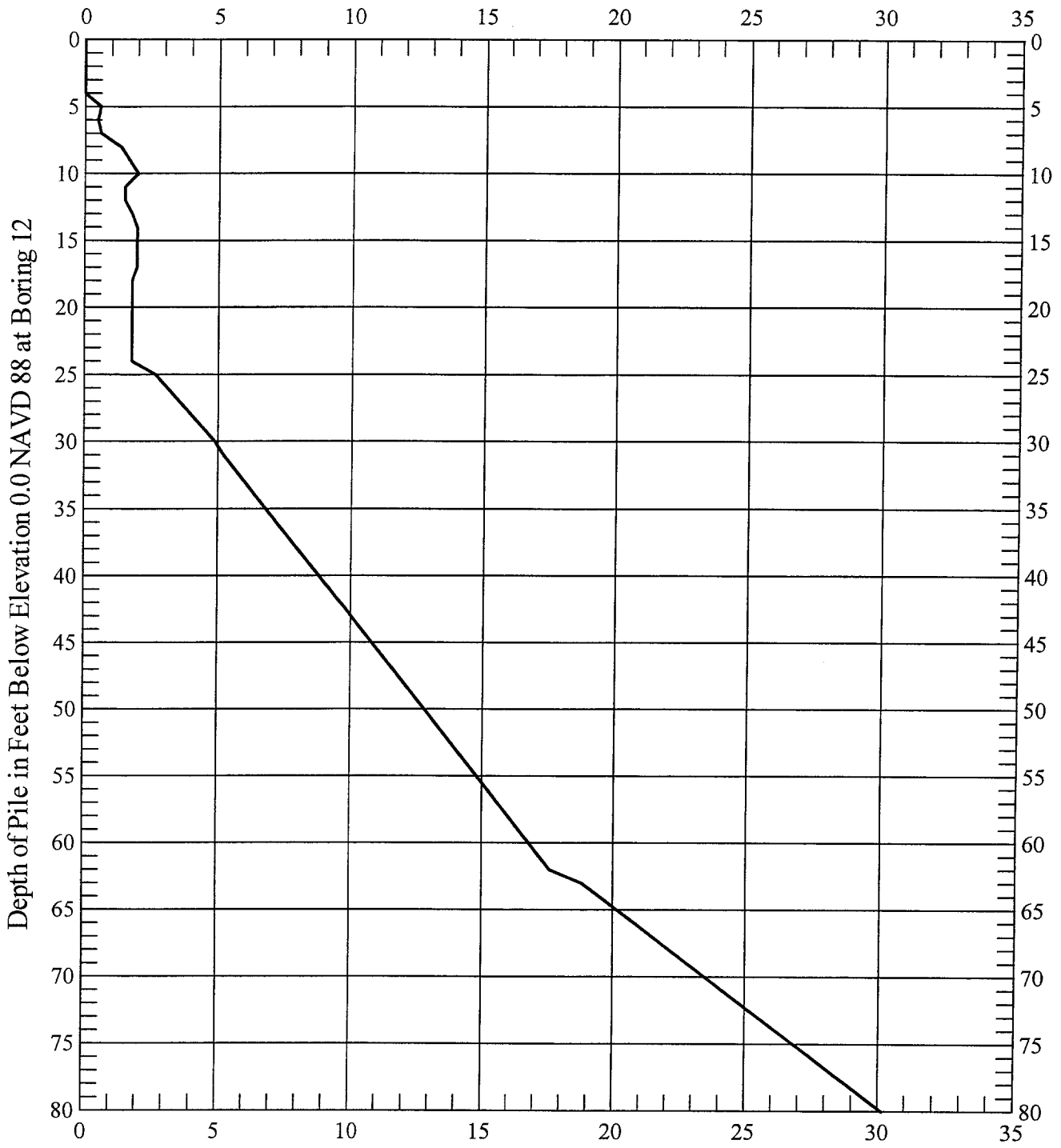
ALLOWABLE AXIAL PILE CAPACITIES (FS = 2.0)
16-in. SQUARE CONCRETE PILE
BORING C - WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA



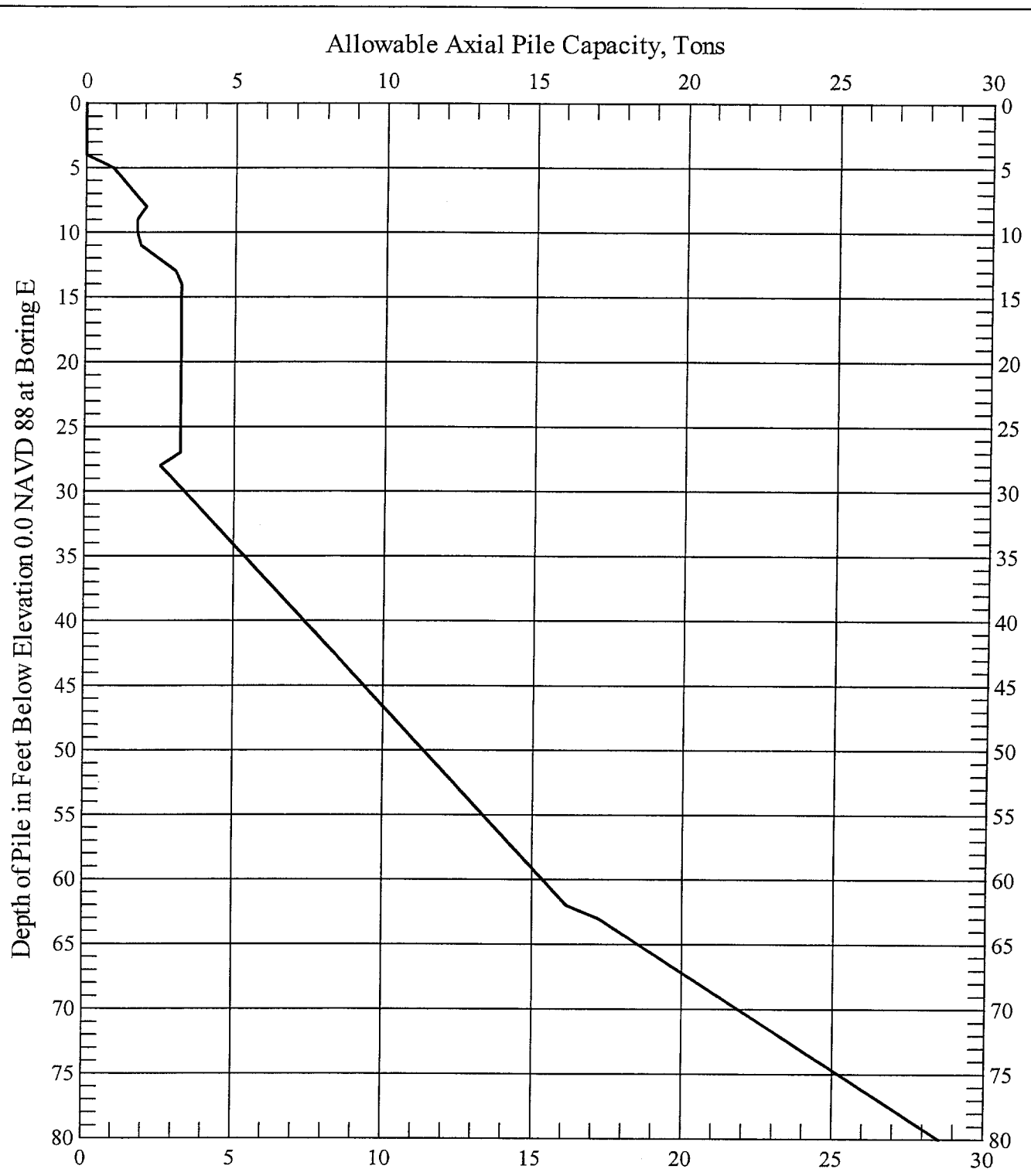
ALLOWABLE AXIAL PILE CAPACITIES (FS = 2.0)
16-in. SQUARE CONCRETE PILE
BORING 10 - WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA



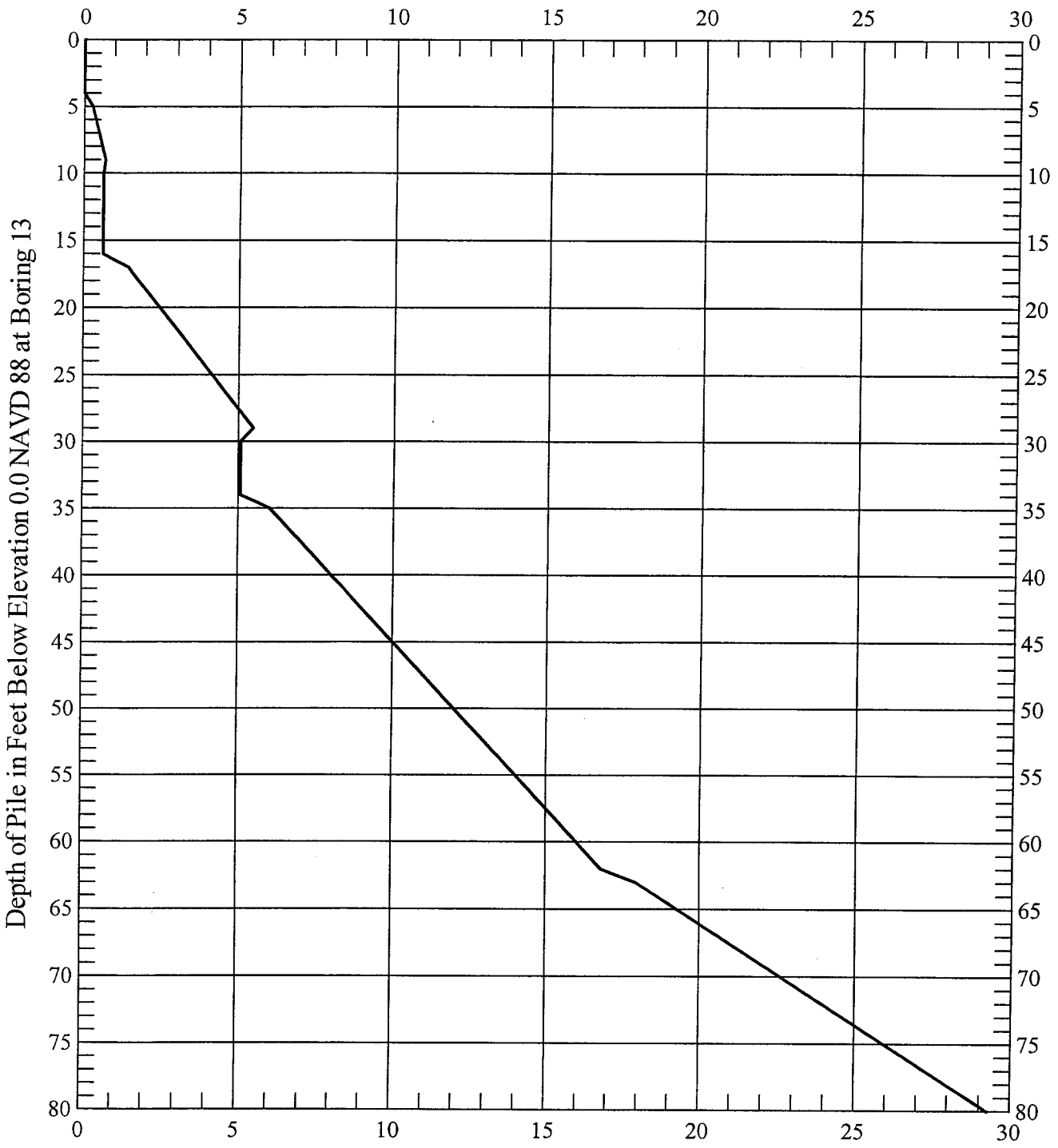
ALLOWABLE AXIAL PILE CAPACITIES (FS = 2.0)
16-in. SQUARE CONCRETE PILE
BORING D - WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA



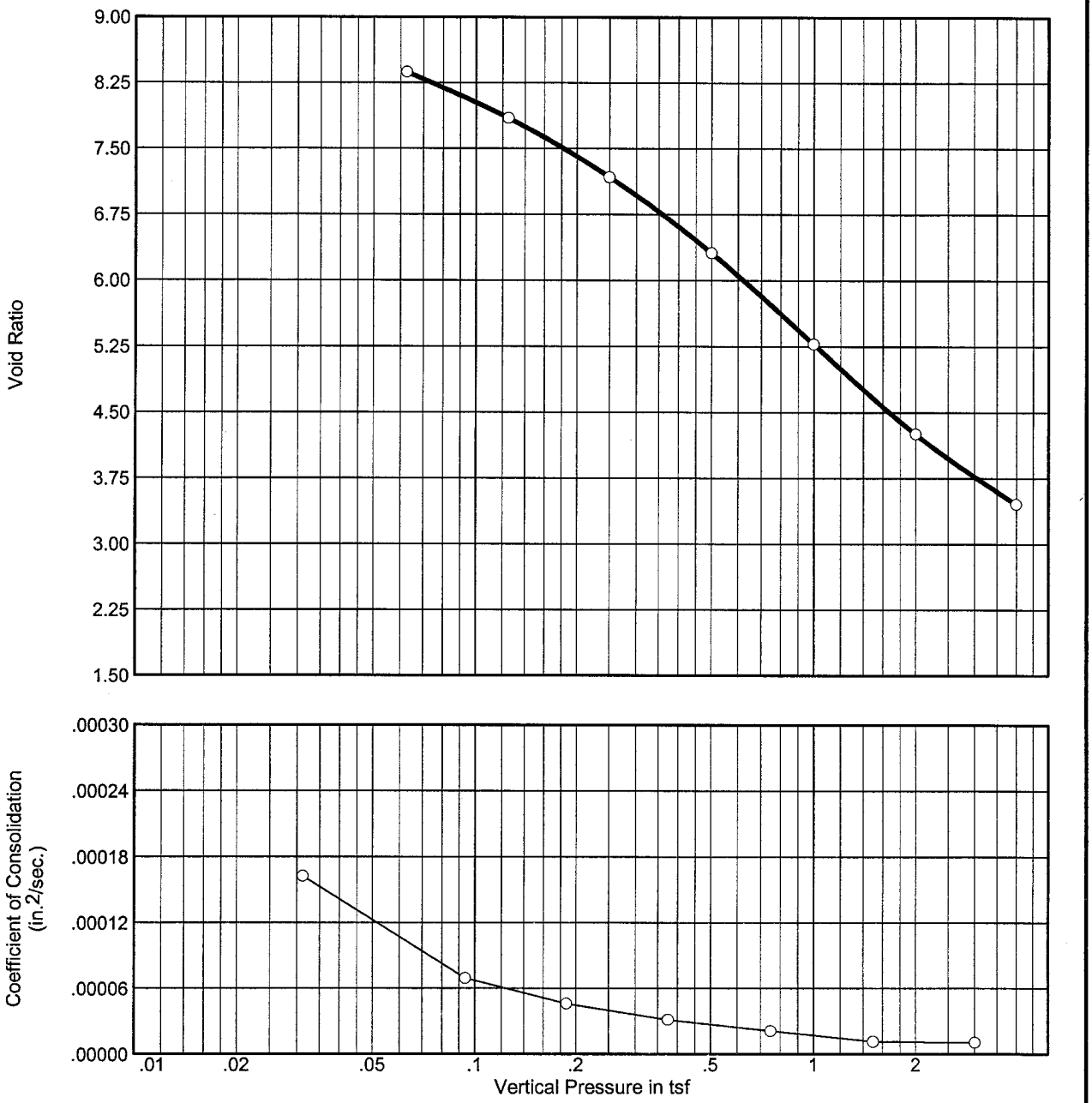
ALLOWABLE AXIAL PILE CAPACITIES (FS = 2.0)
16-in. SQUARE CONCRETE PILE
BORING 12 - WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA



ALLOWABLE AXIAL PILE CAPACITIES (FS = 2.0)
16-in. SQUARE CONCRETE PILE
BORING E - WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA



ALLOWABLE AXIAL PILE CAPACITIES (FS = 2.0)
16-in. SQUARE CONCRETE PILE
BORING 13 - WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA



BORING NO.: 1	**SAMPLE NO.:** 5	**DEPTH:** 7.75	
DESCRIPTION OF MATERIAL: Very soft gray clay (CH) with organic matter			
LIQUID LIMIT: 183	**PLASTIC LIMIT:** 31	**PLASTICITY INDEX:** 152	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 301.8 %	**INITIAL VOID RATIO:** 8.690	**DRY DENSITY:** 17.5 (pcf)	

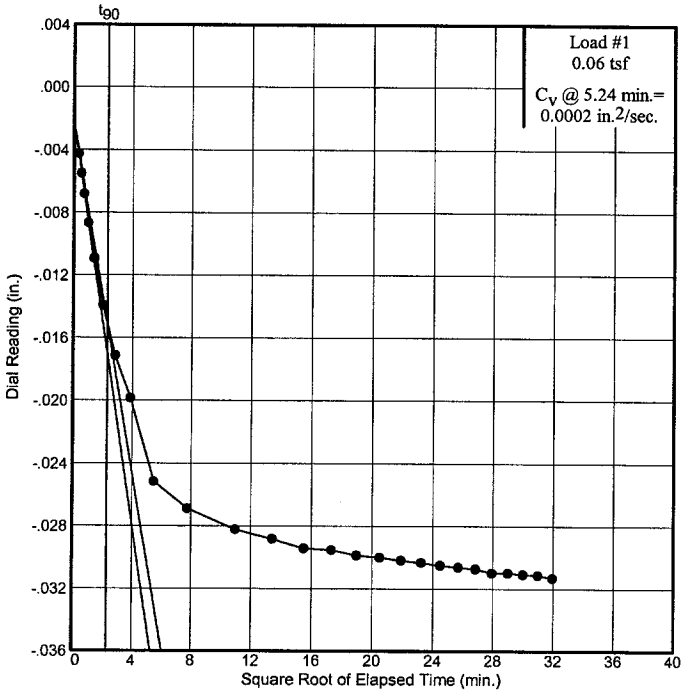
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 03-26-03
	CONSOLIDATION TEST REPORT

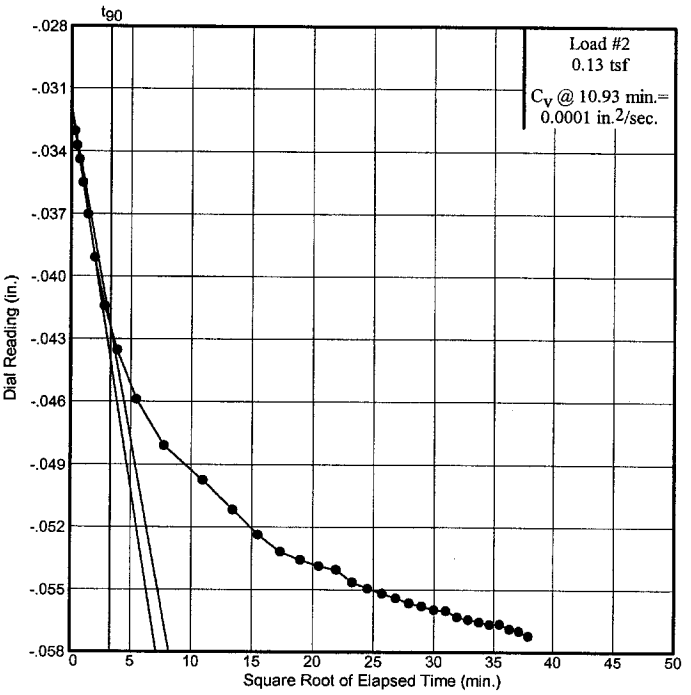
BURNS COOLEY DENNIS, INC.

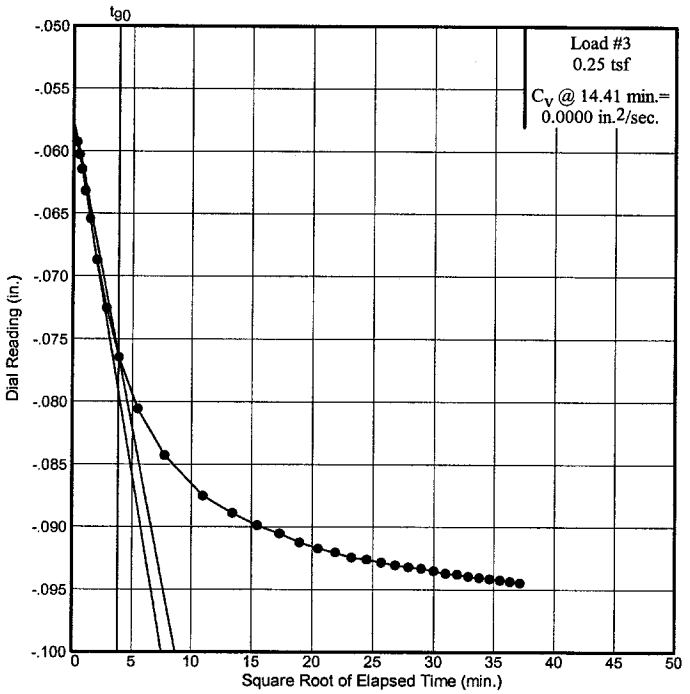
Figure 1

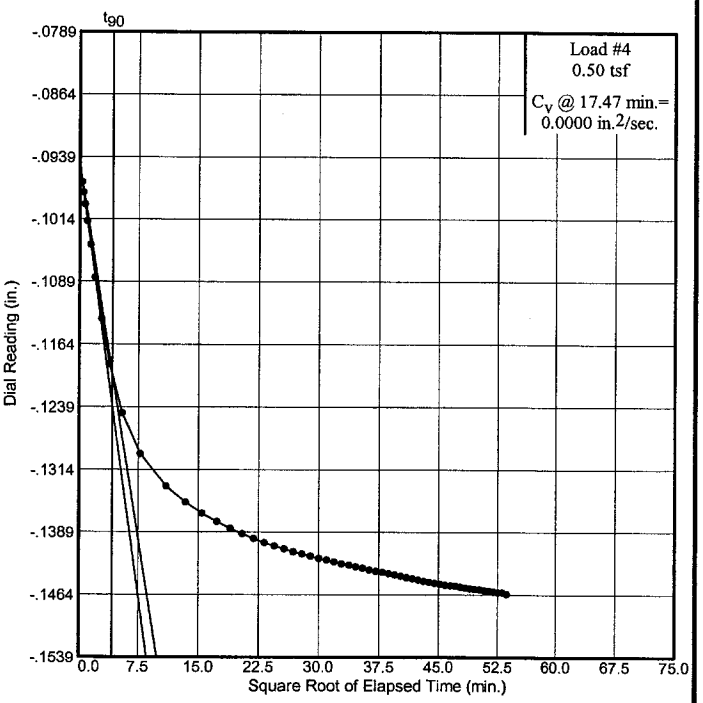
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 1 Sample No.: 5 Elev./Depth: 7.75









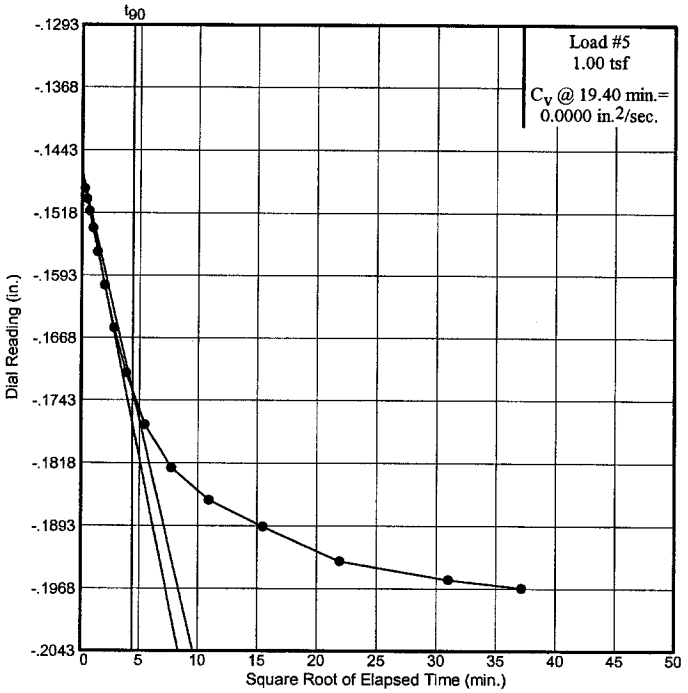
Dial Reading vs. Time

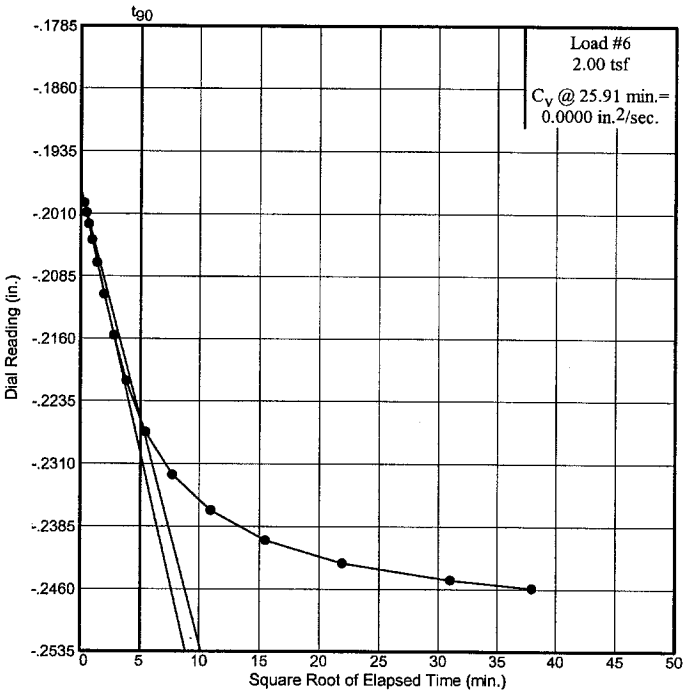
BURNS COOLEY DENNIS, INC.

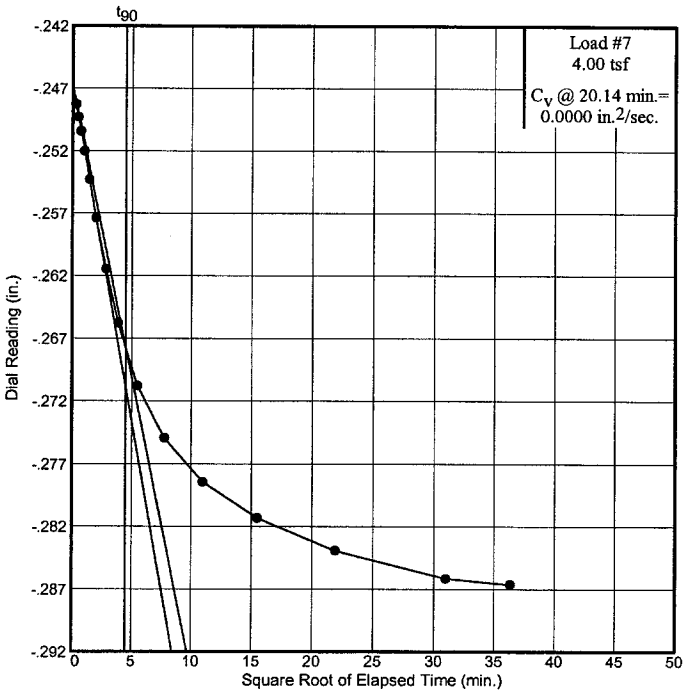
Figure 2

Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 1 Sample No.: 5 Elev./Depth: 7.75



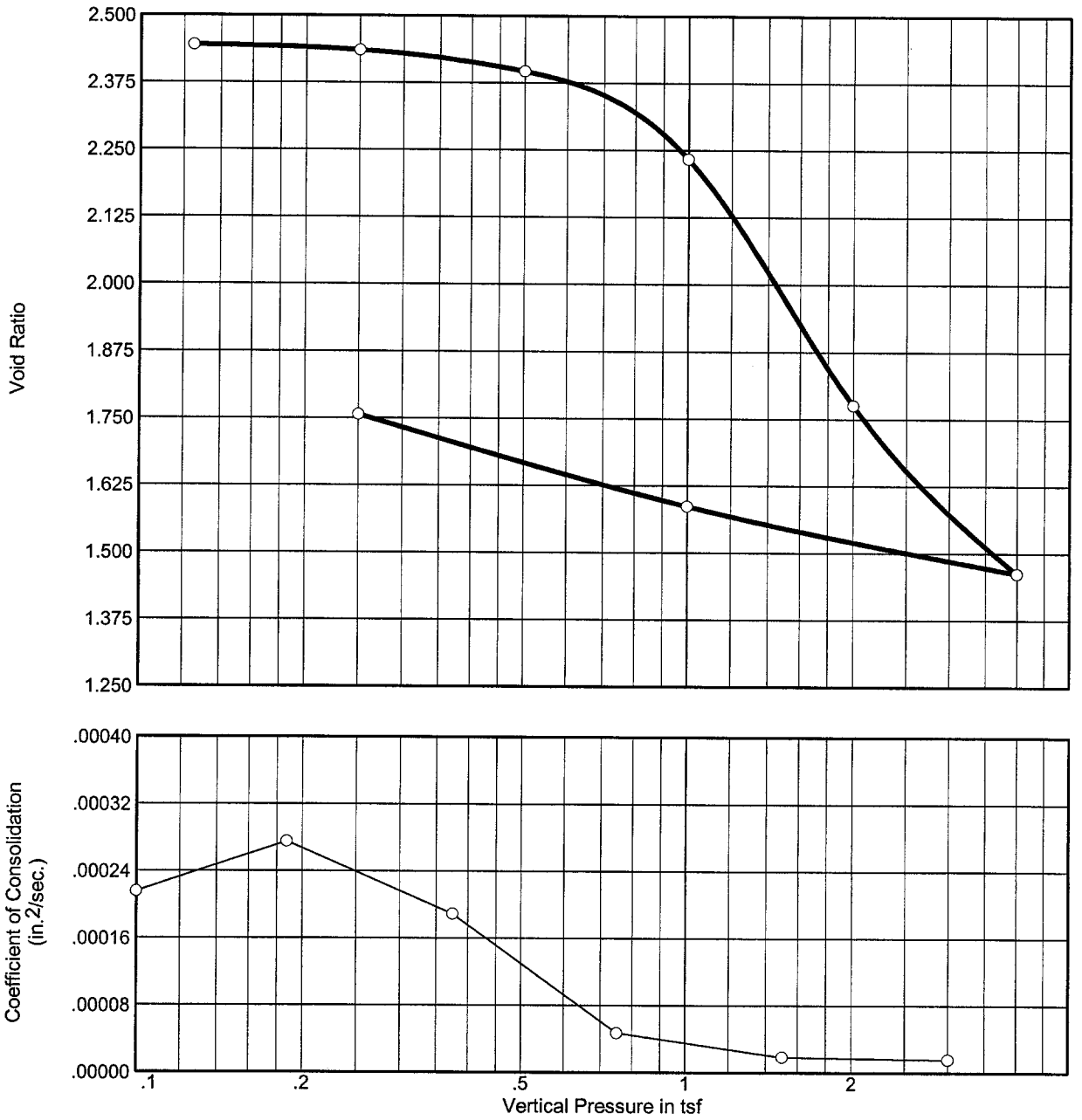




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 3



BORING NO.: 1	**SAMPLE NO.:** 19	**DEPTH:** 22.75	
DESCRIPTION OF MATERIAL: Soft gray clay (CH), slickensided and slightly silty with shell fragments			
LIQUID LIMIT: 105	**PLASTIC LIMIT:** 29	**PLASTICITY INDEX:** 76	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 87.3 %	**INITIAL VOID RATIO:** 2.425	**DRY DENSITY:** 49.6 (pcf)	

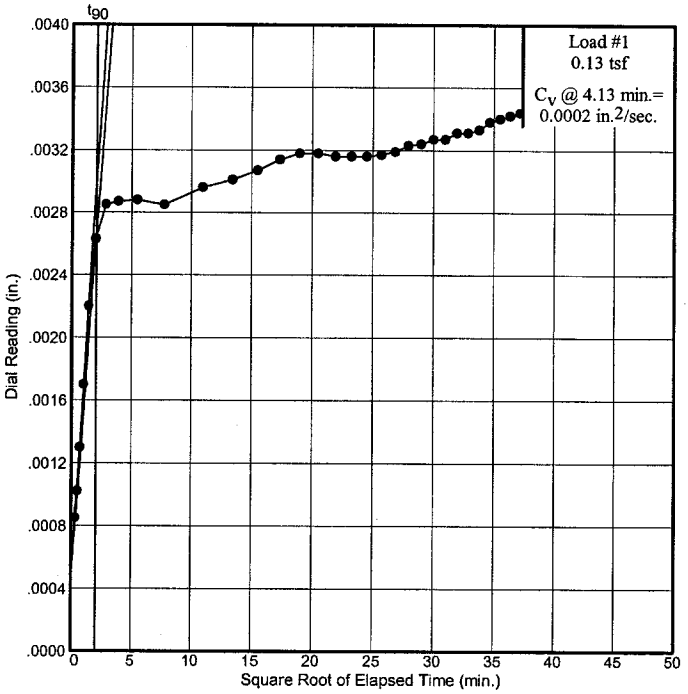
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 04-09-03
	CONSOLIDATION TEST REPORT

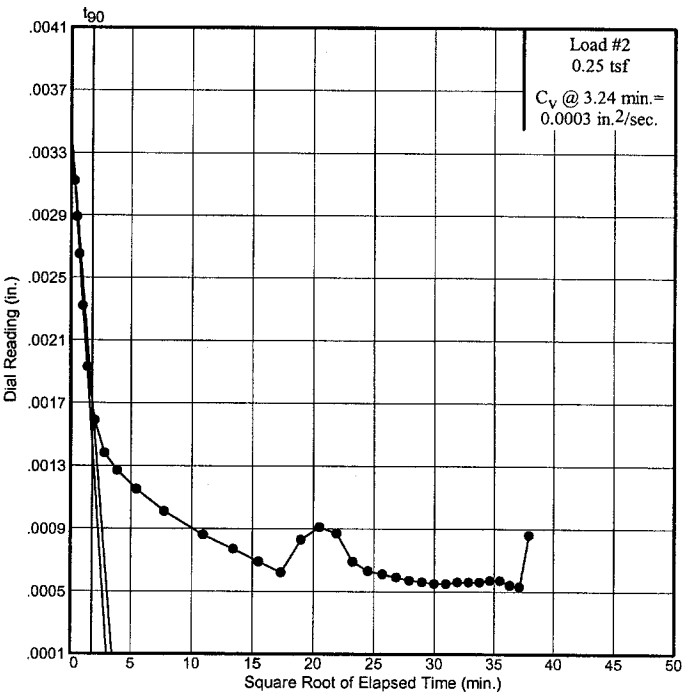
BURNS COOLEY DENNIS, INC.

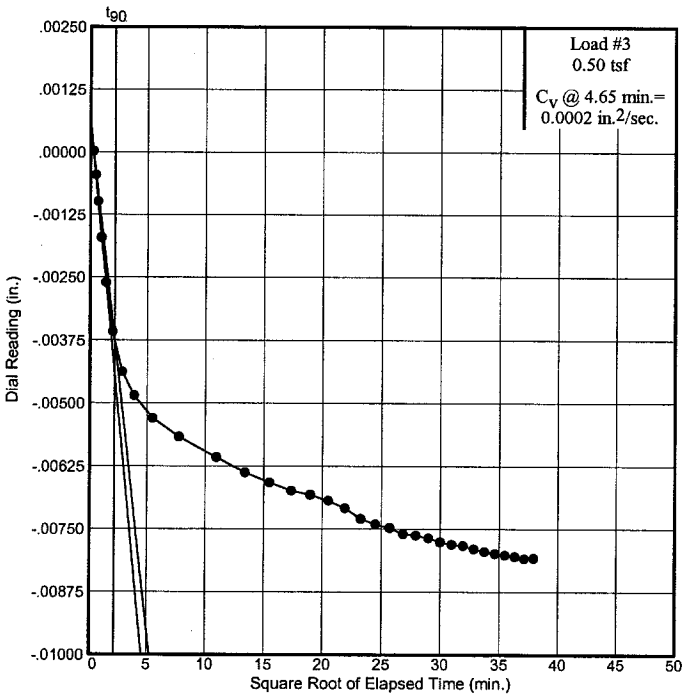
Figure 4

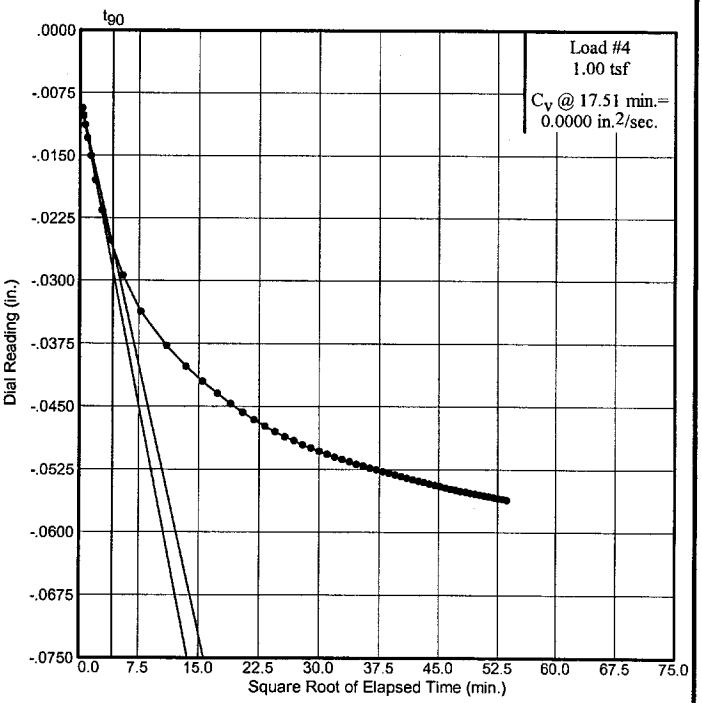
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 1 Sample No.: 19 Elev./Depth: 22.75









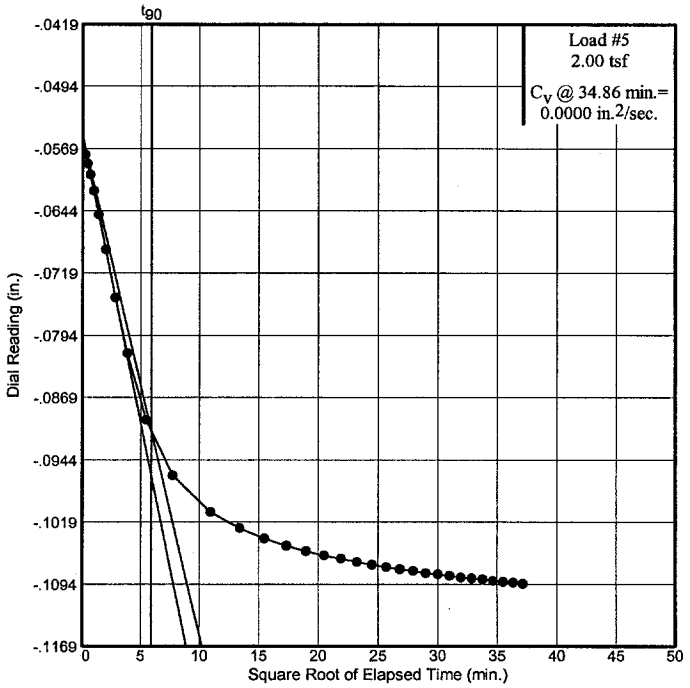
Dial Reading vs. Time

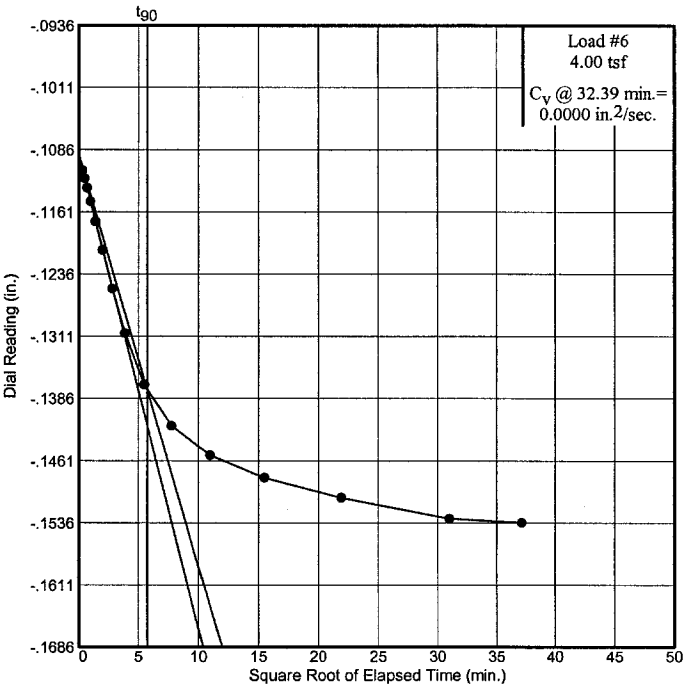
BURNS COOLEY DENNIS, INC.

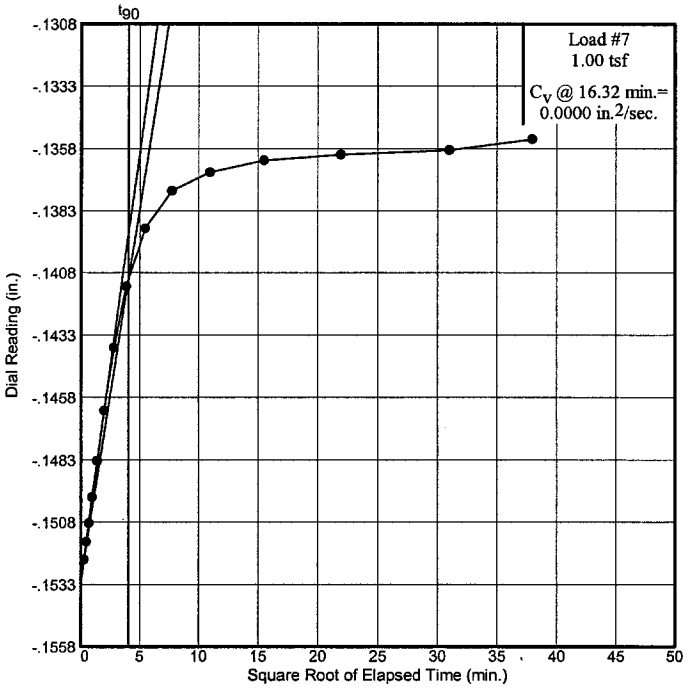
Figure 5

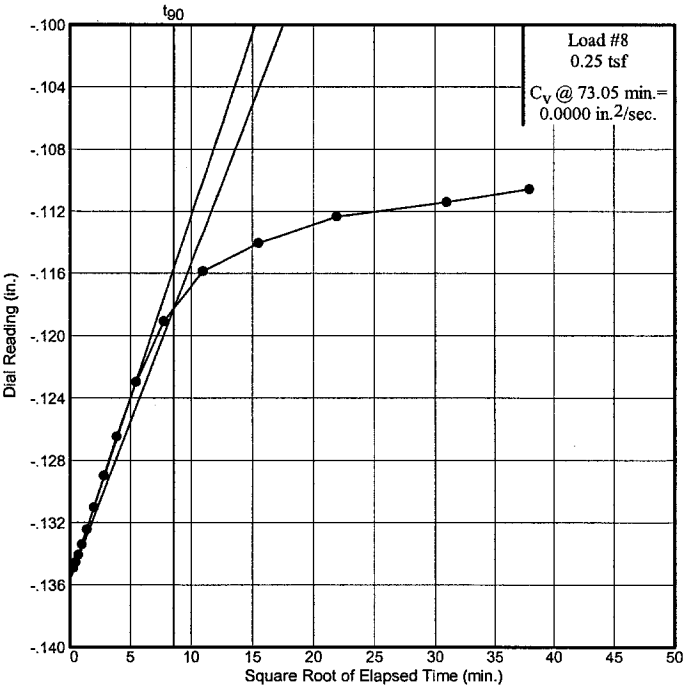
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 1 Sample No.: 19 Elev./Depth: 22.75





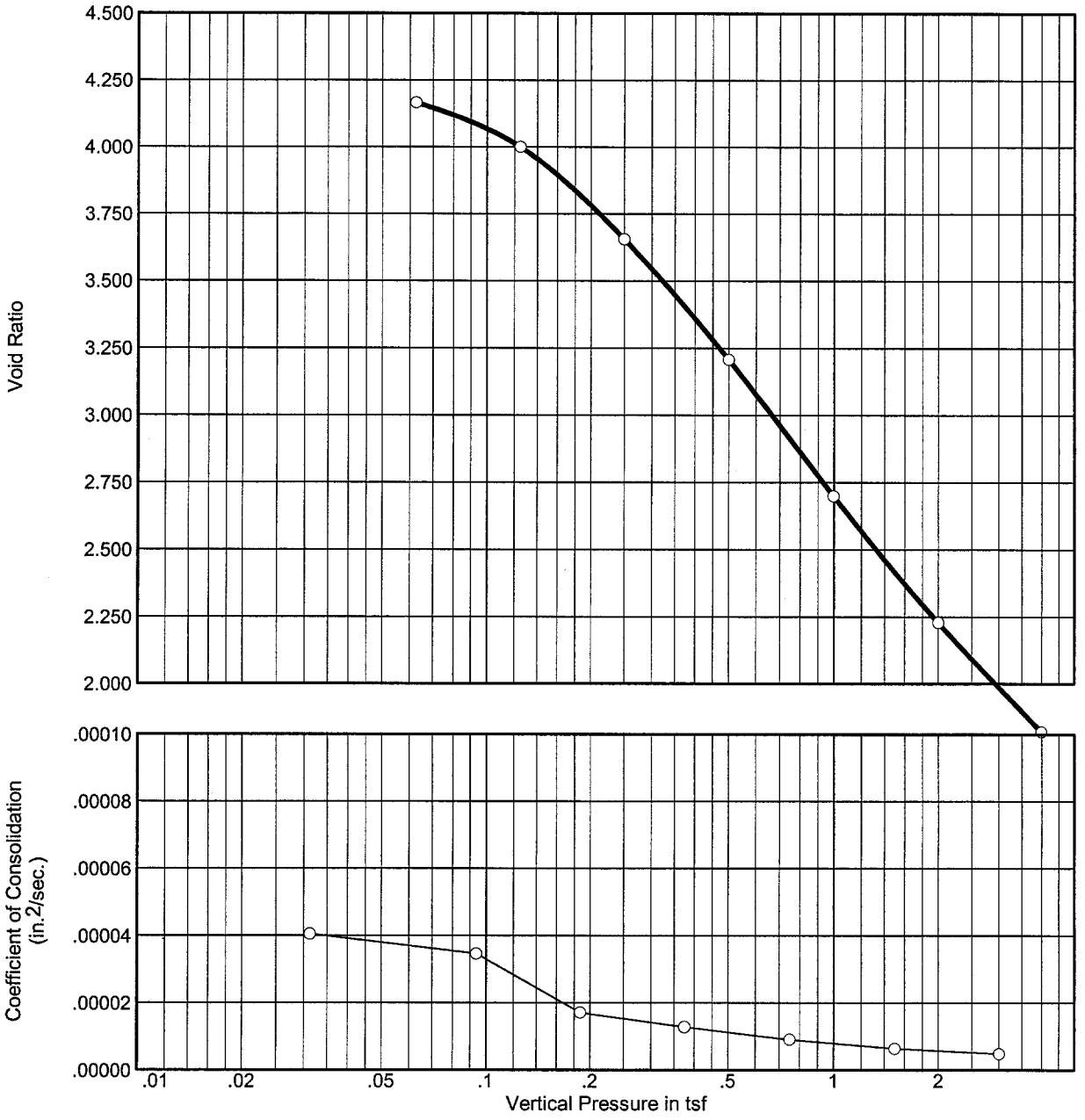




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 6



BORING NO.: 2	**SAMPLE NO.:** 3	**DEPTH:** 6.75
DESCRIPTION OF MATERIAL: Very soft gray clay (CH) with organic matter		
LIQUID LIMIT: 156	**PLASTIC LIMIT:** 34	**PLASTICITY INDEX:** 122	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 162.1 %	**INITIAL VOID RATIO:** 4.338	**DRY DENSITY:** 30.4 (pcf)

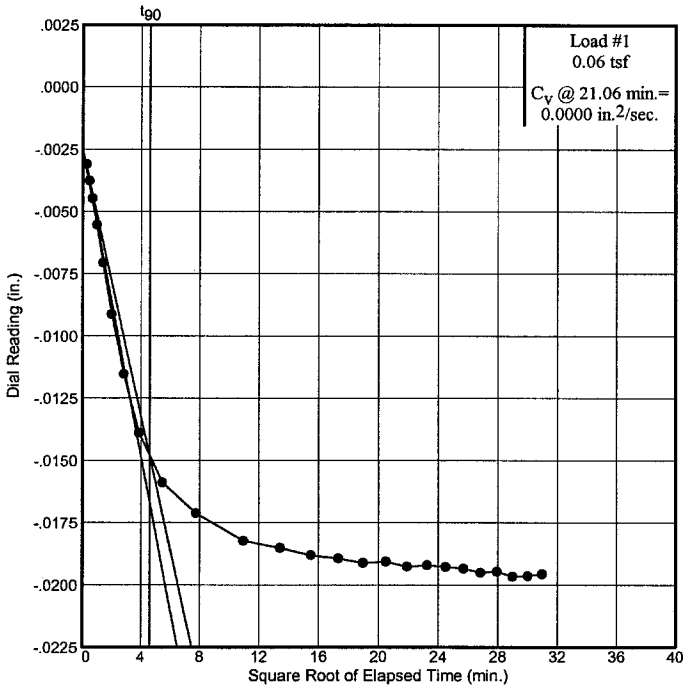
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 / **DATE** 03-26-03
	CONSOLIDATION TEST REPORT

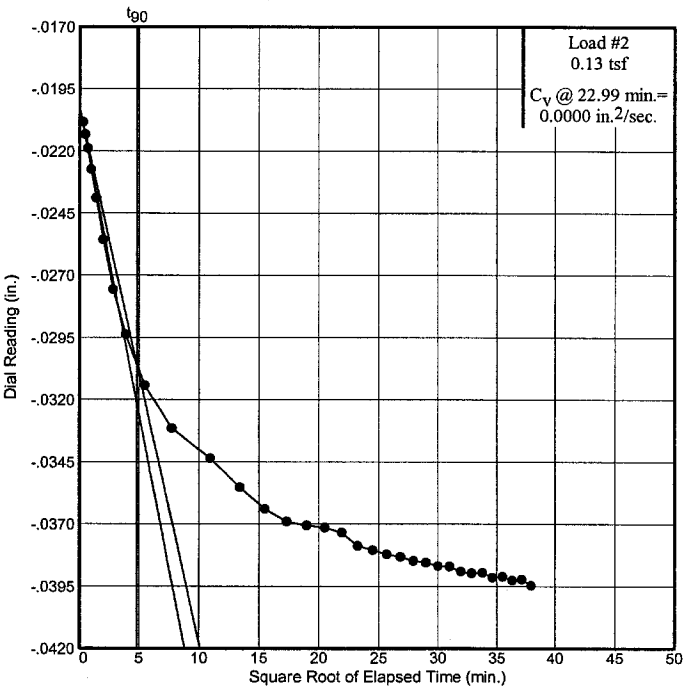
BURNS COOLEY DENNIS, INC.

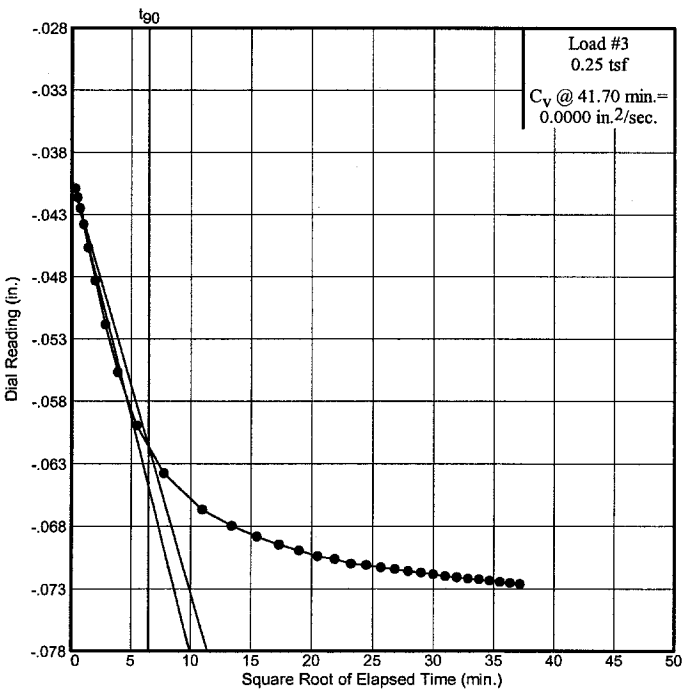
Figure 7

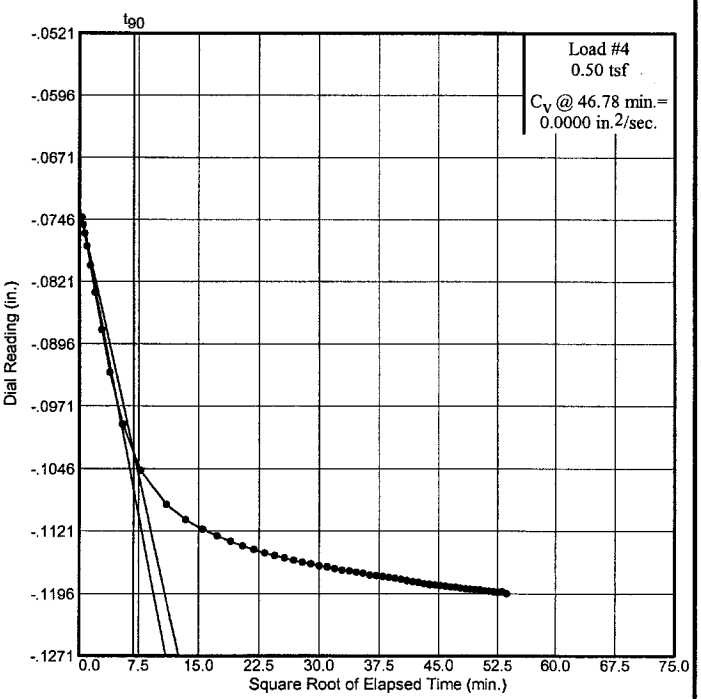
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 2 Sample No.: 3 Elev./Depth: 6.75









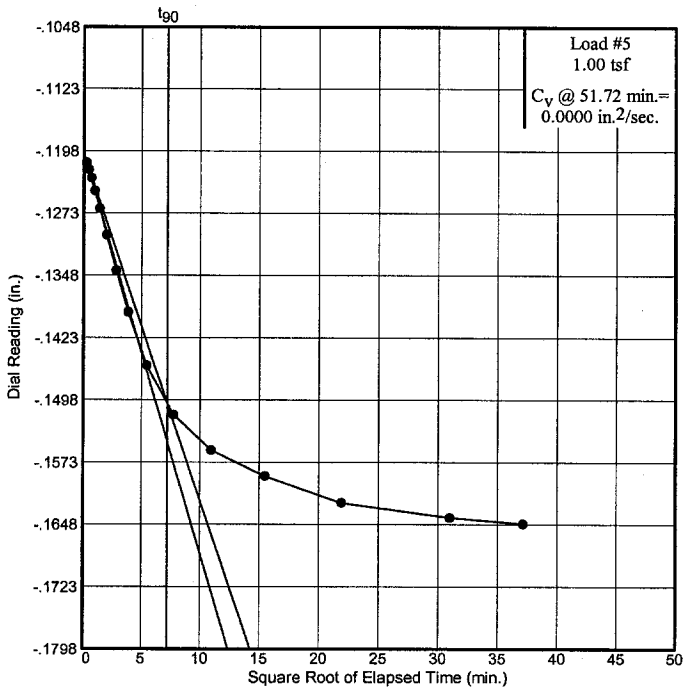
Dial Reading vs. Time

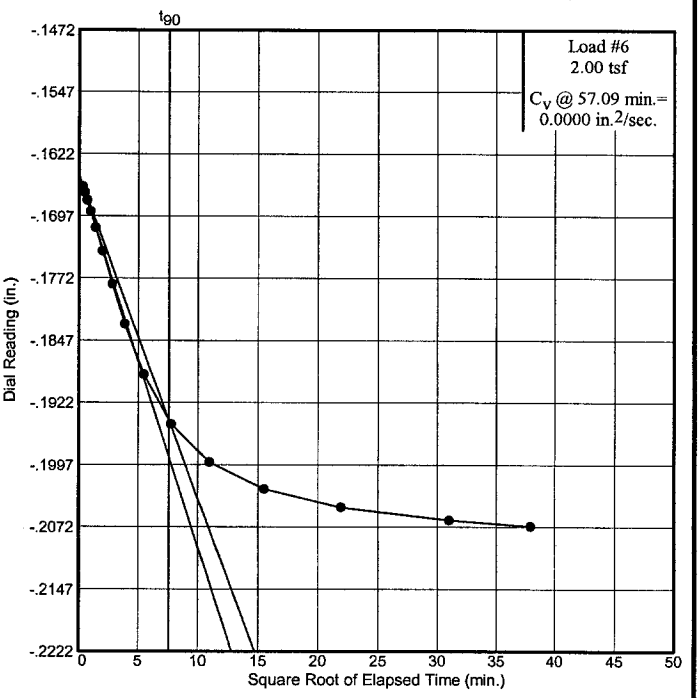
BURNS COOLEY DENNIS, INC.

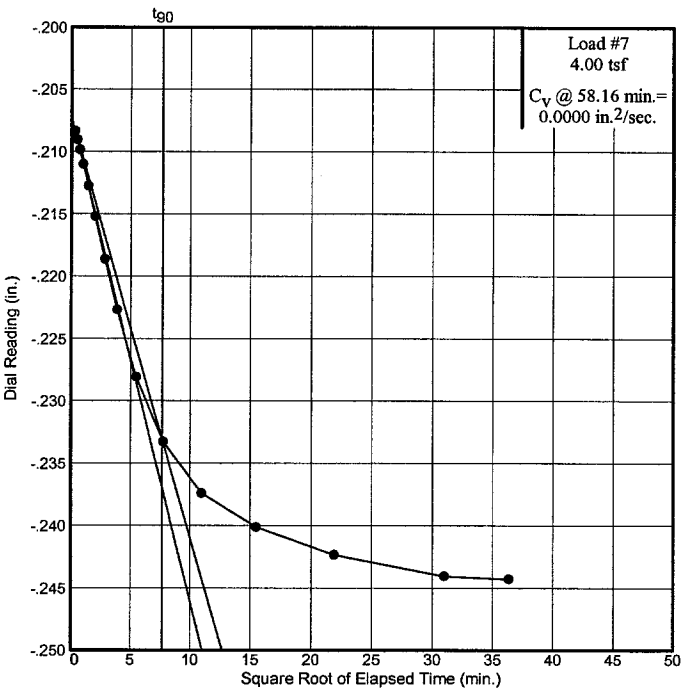
Figure 8

Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 2 Sample No.: 3 Elev./Depth: 6.75



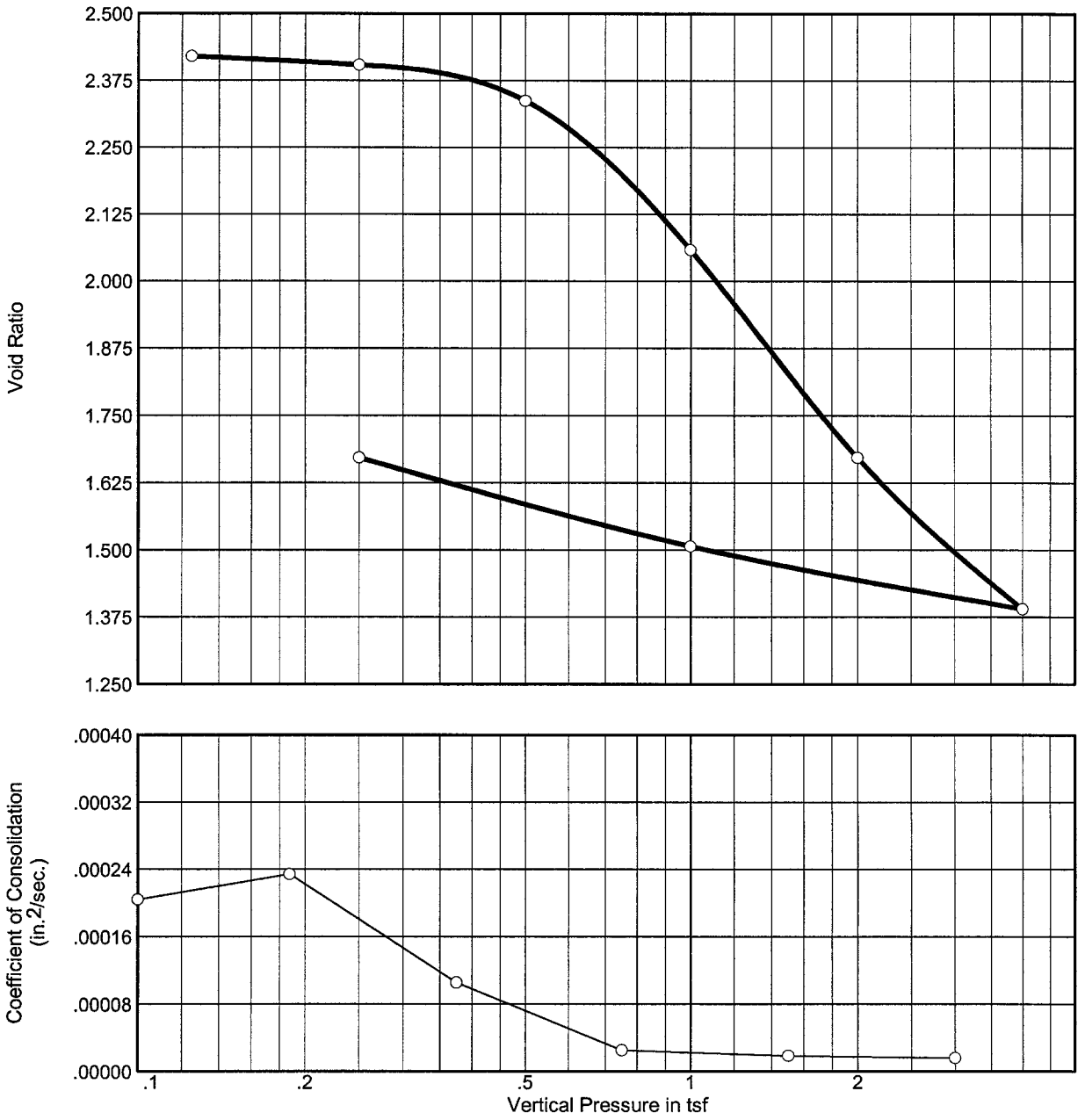




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 9



BORING NO.: 2	**SAMPLE NO.:** 19	**DEPTH:** 22.75
DESCRIPTION OF MATERIAL: Very soft gray clay (CH) with silt pockets		
LIQUID LIMIT: 89	**PLASTIC LIMIT:** 22	**PLASTICITY INDEX:** 67	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 86.6 %	**INITIAL VOID RATIO:** 2.413	**DRY DENSITY:** 49.7 (pcf)

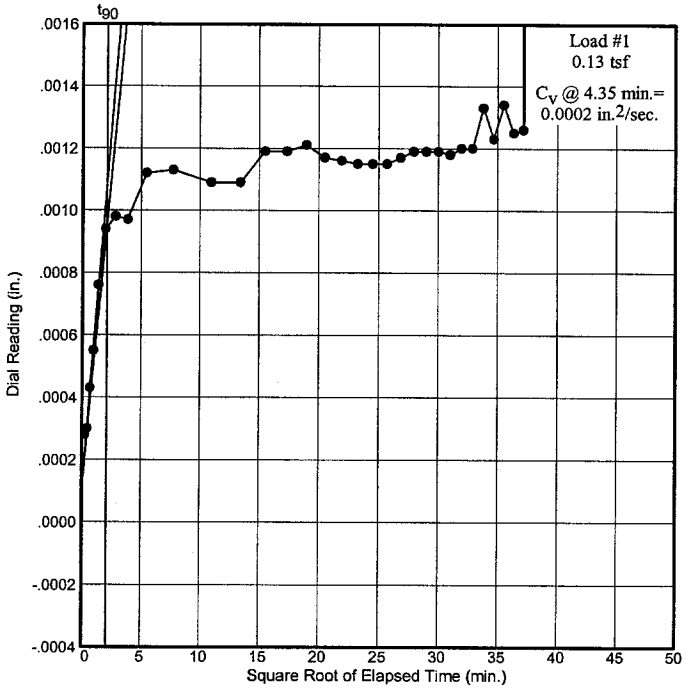
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 / **DATE** 04-09-03
	CONSOLIDATION TEST REPORT

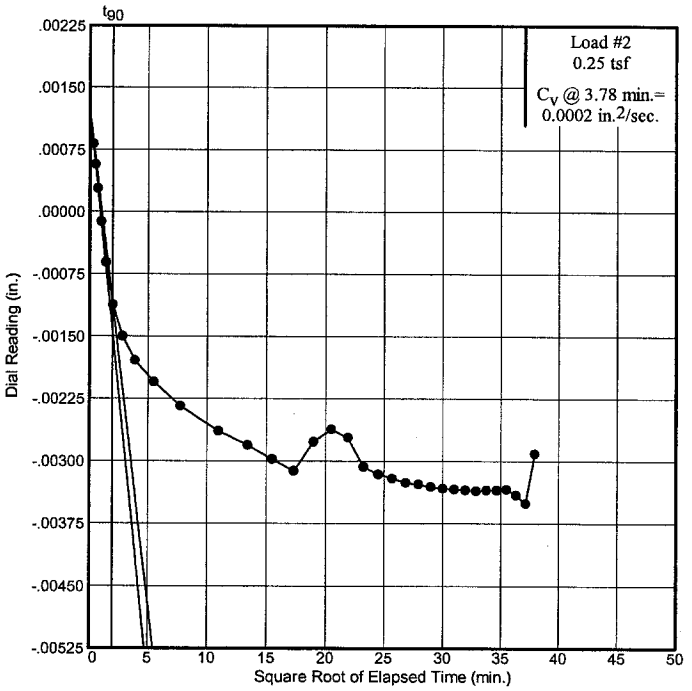
BURNS COOLEY DENNIS, INC.

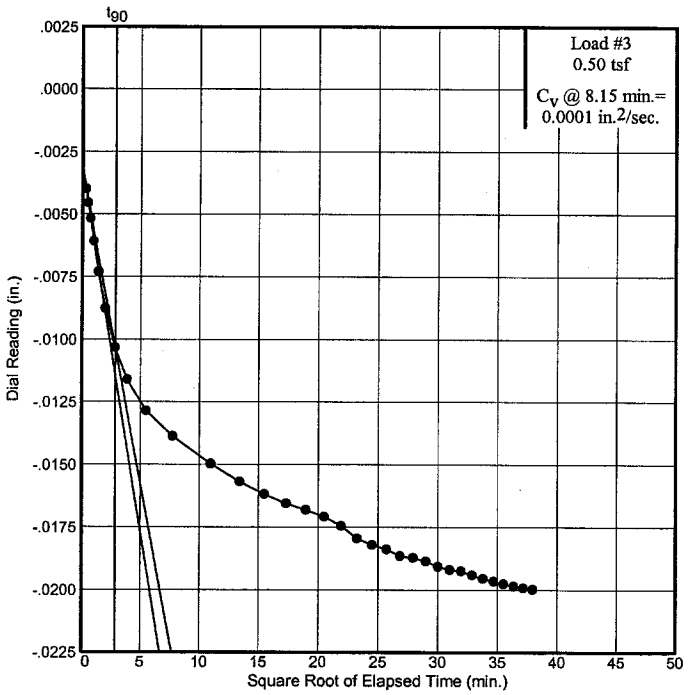
Figure 10

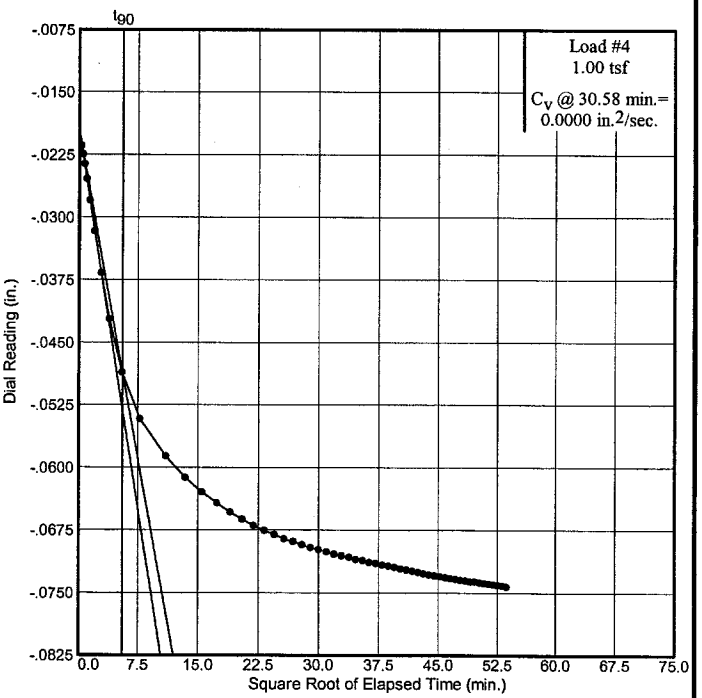
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 2 Sample No.: 19 Elev./Depth: 22.75









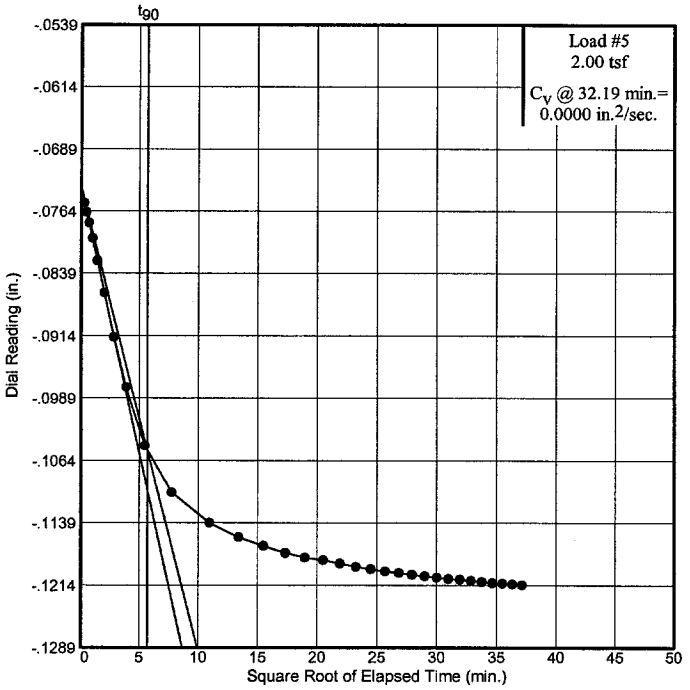
Dial Reading vs. Time

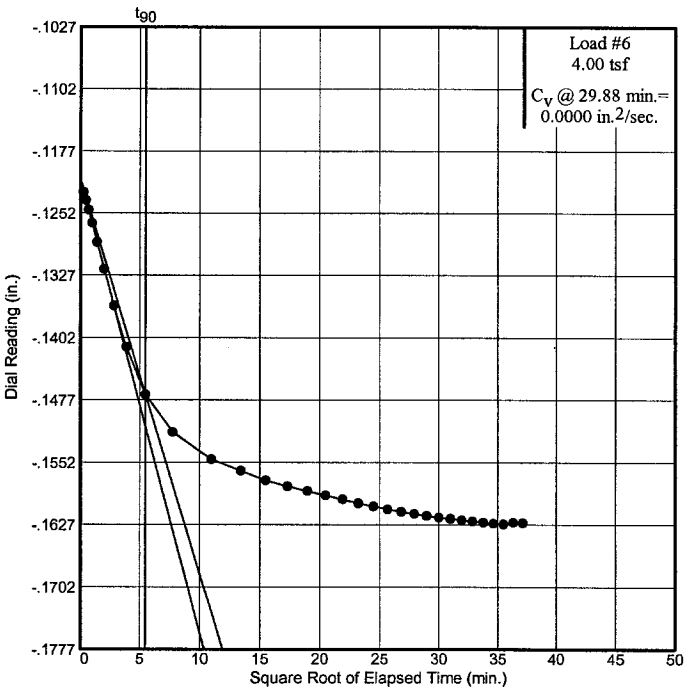
BURNS COOLEY DENNIS, INC.

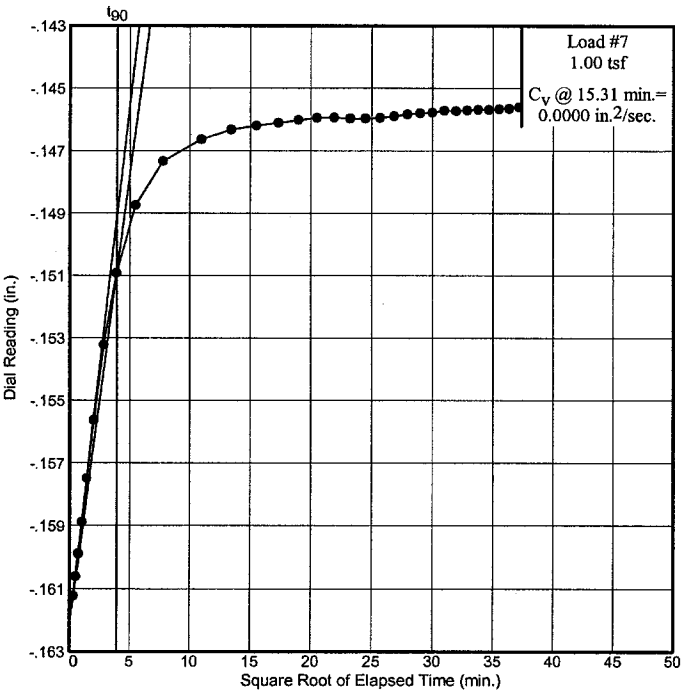
Figure 11

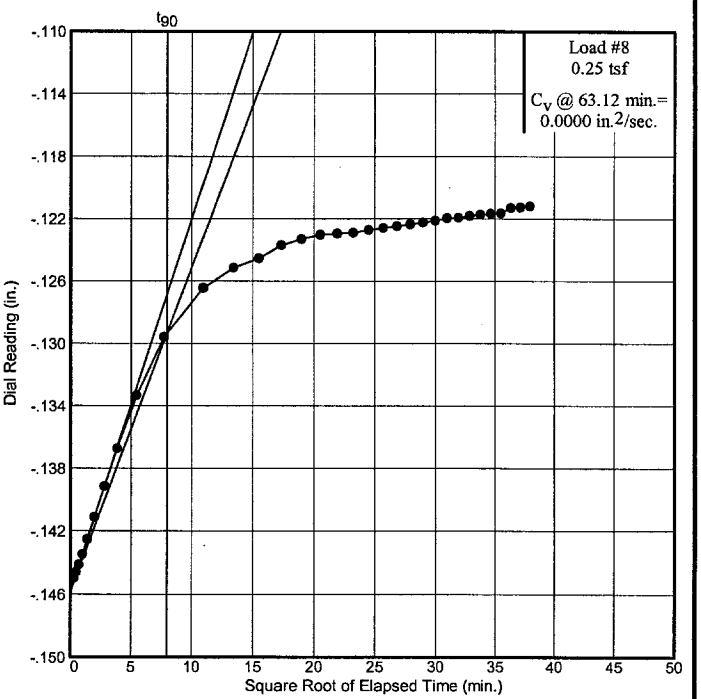
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 2 Sample No.: 19 Elev./Depth: 22.75





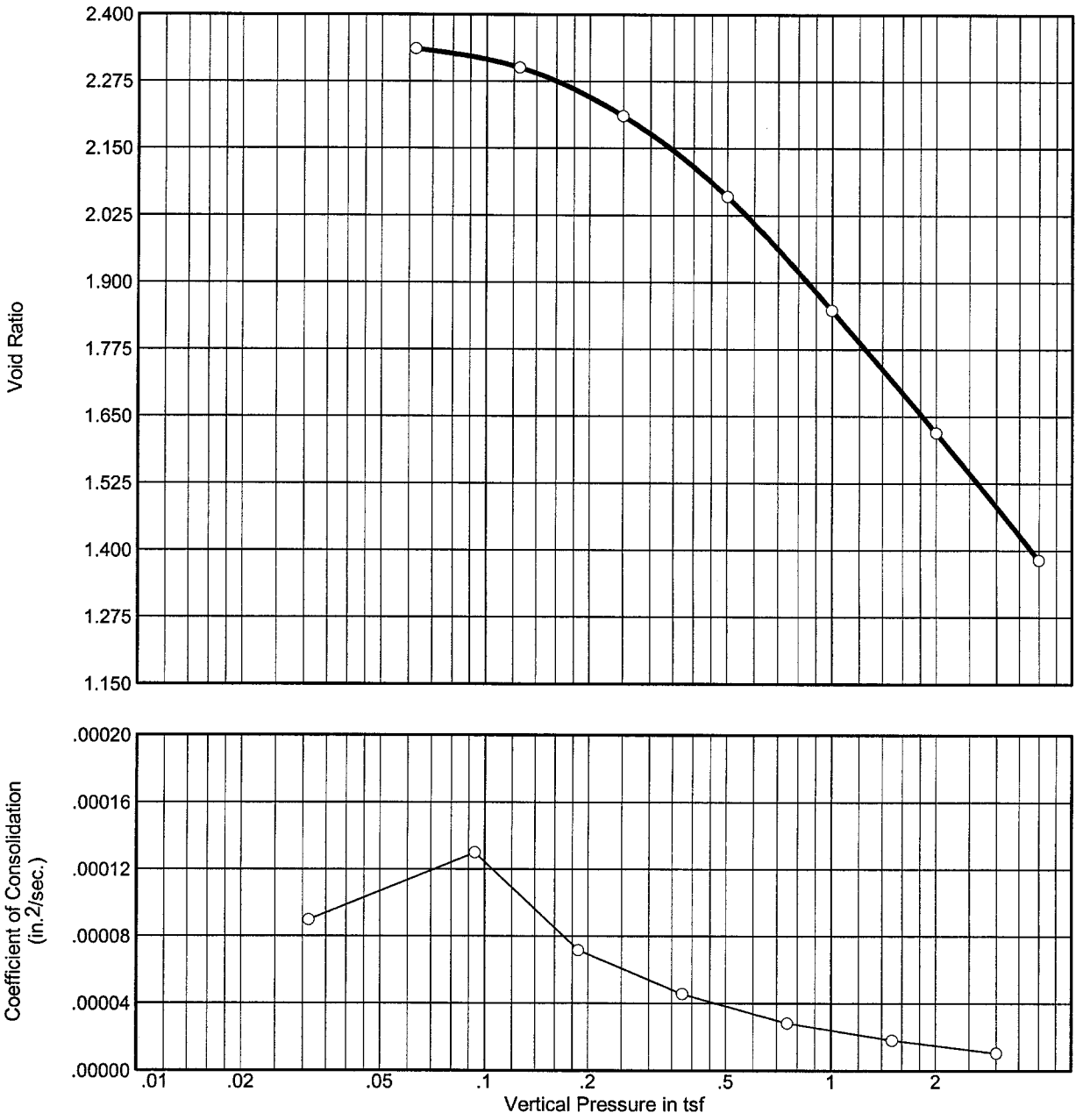




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 12



BORING NO.: 3	**SAMPLE NO.:** 1	**DEPTH:** 2.0
DESCRIPTION OF MATERIAL: Very soft gray clay (CH) with organic matter		
LIQUID LIMIT: 123	**PLASTIC LIMIT:** 33	**PLASTICITY INDEX:** 90	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 89.5 %	**INITIAL VOID RATIO:** 2.372	**DRY DENSITY:** 48.1 (pcf)

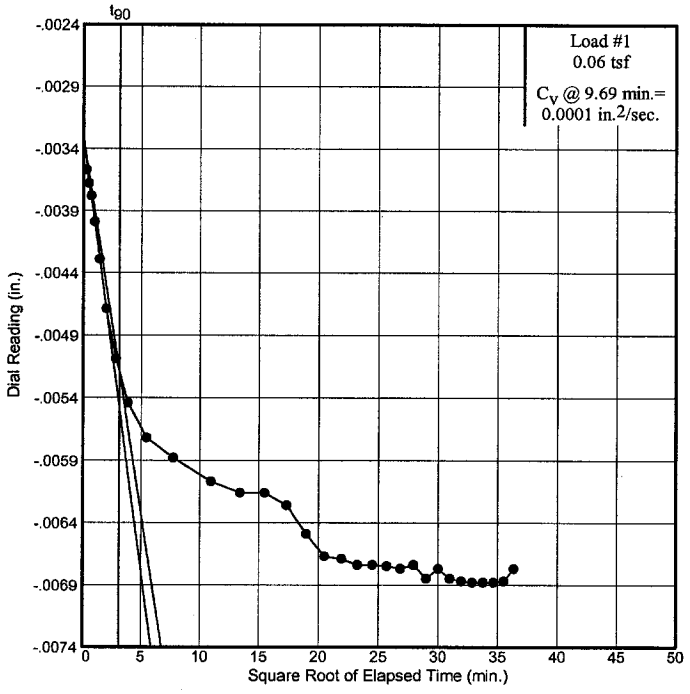
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 04-09-03
	CONSOLIDATION TEST REPORT

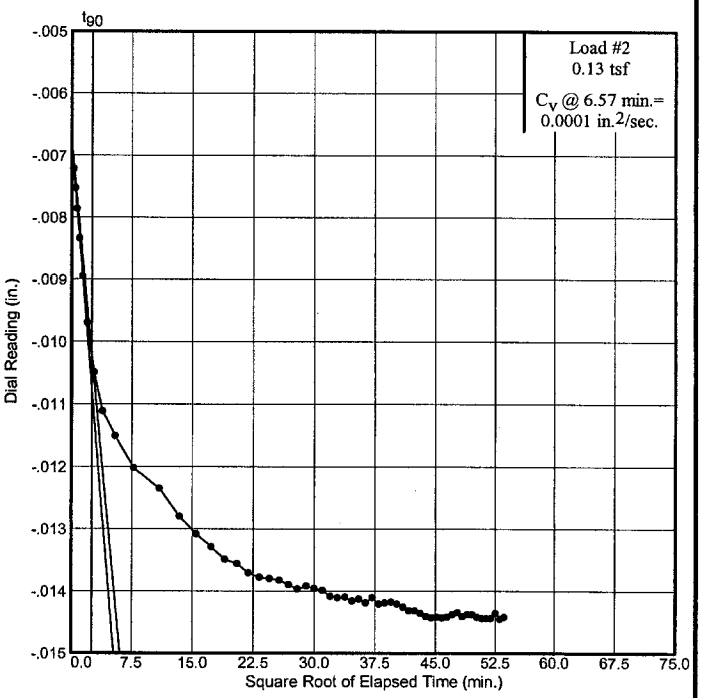
BURNS COOLEY DENNIS, INC.

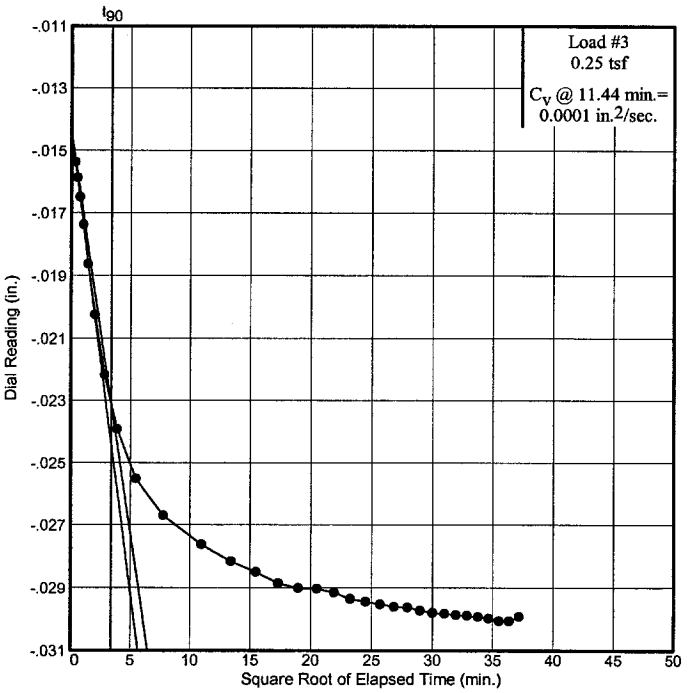
Figure 13

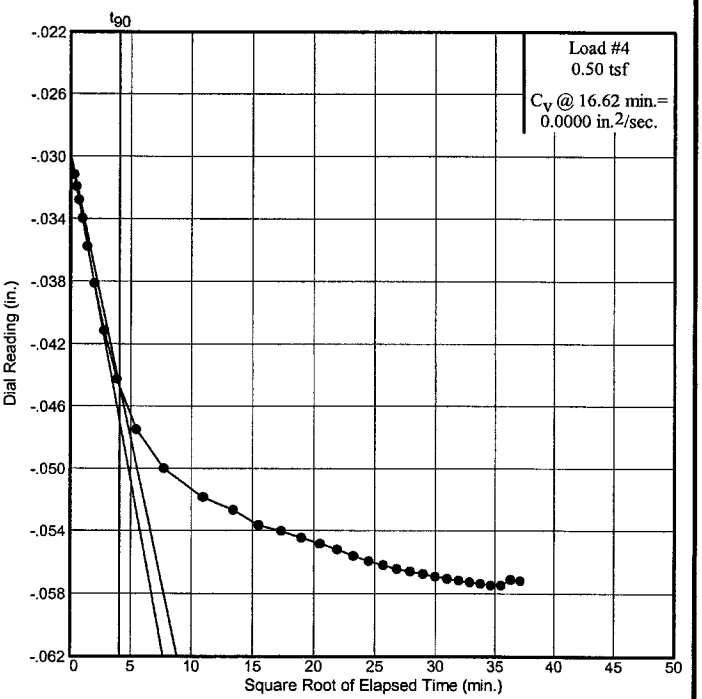
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 3 Sample No.: 1 Elev./Depth: 2.0









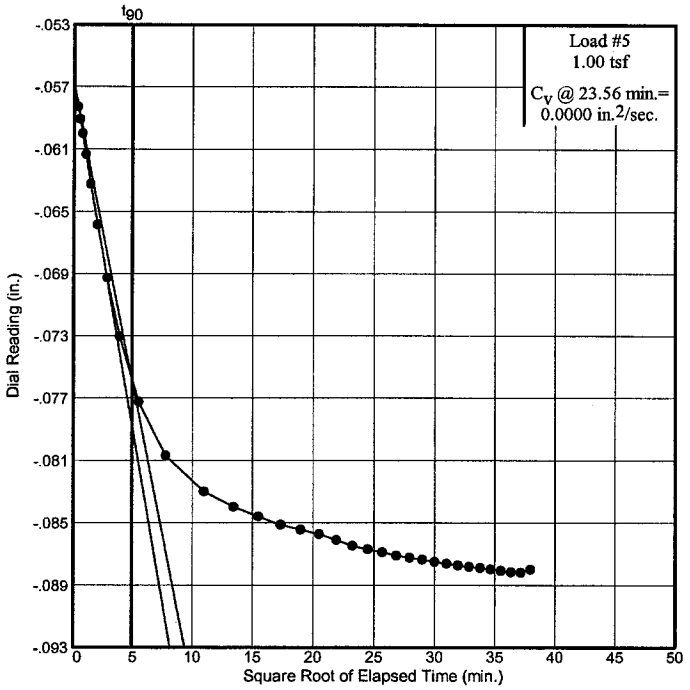
Dial Reading vs. Time

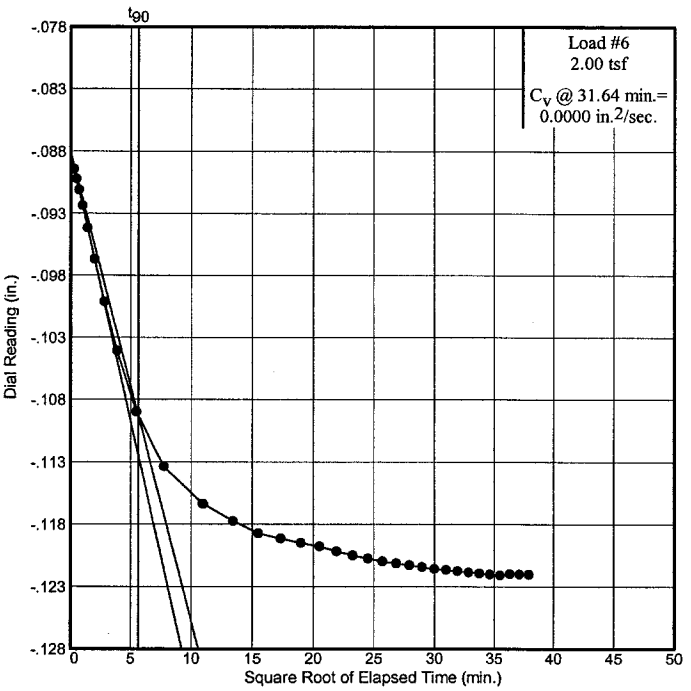
BURNS COOLEY DENNIS, INC.

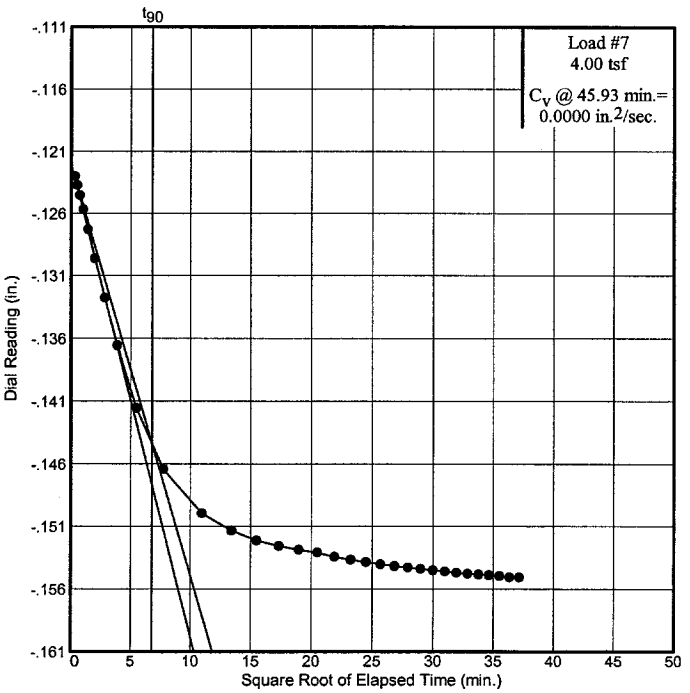
Figure 14

Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 3 Sample No.: 1 Elev./Depth: 2.0



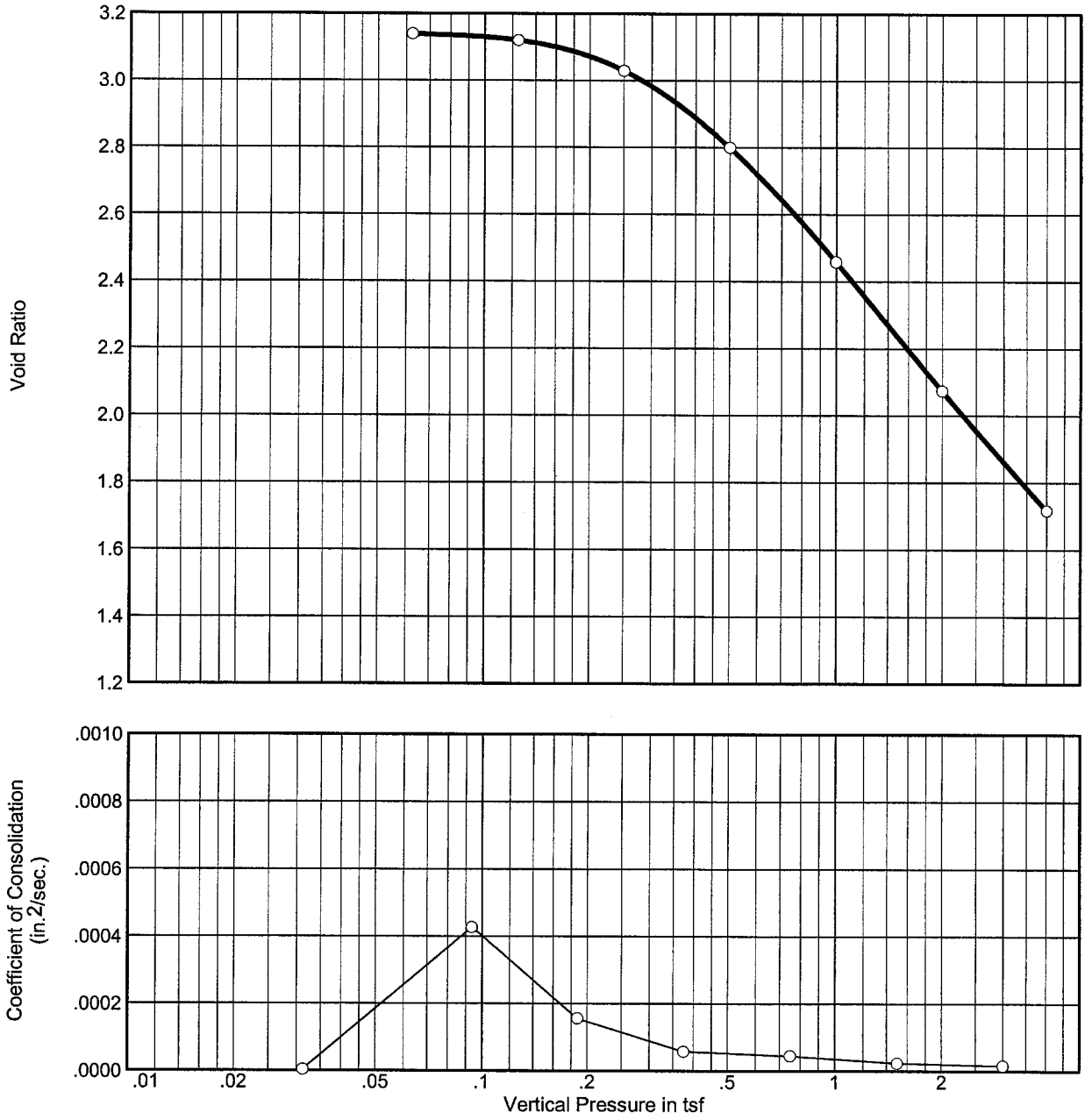




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 15



BORING NO.: 4	**SAMPLE NO.:** 1	**DEPTH:** 3.2	
DESCRIPTION OF MATERIAL: Very soft gray clay (CH) with organic matter			
LIQUID LIMIT: 132	**PLASTIC LIMIT:** 33	**PLASTICITY INDEX:** 99	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 119.8 %	**INITIAL VOID RATIO:** 3.143	**DRY DENSITY:** 39.2 (pcf)	

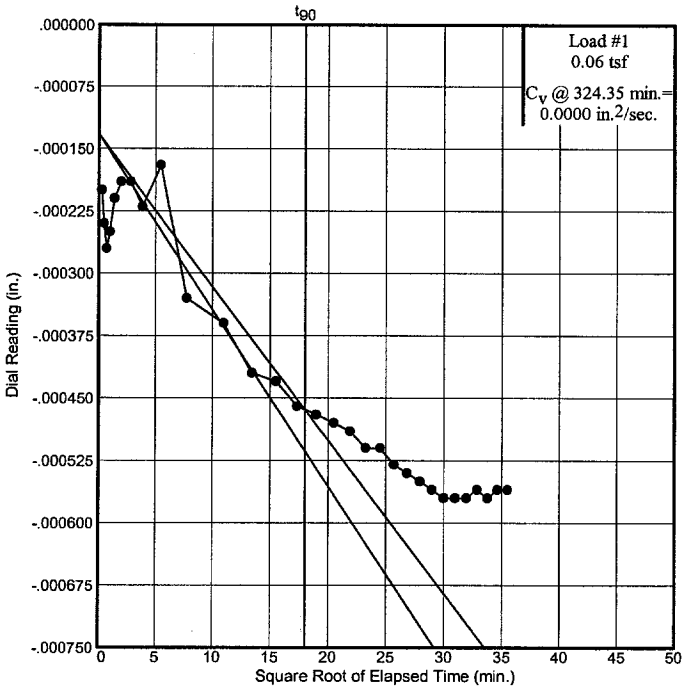
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 04-09-03
	CONSOLIDATION TEST REPORT

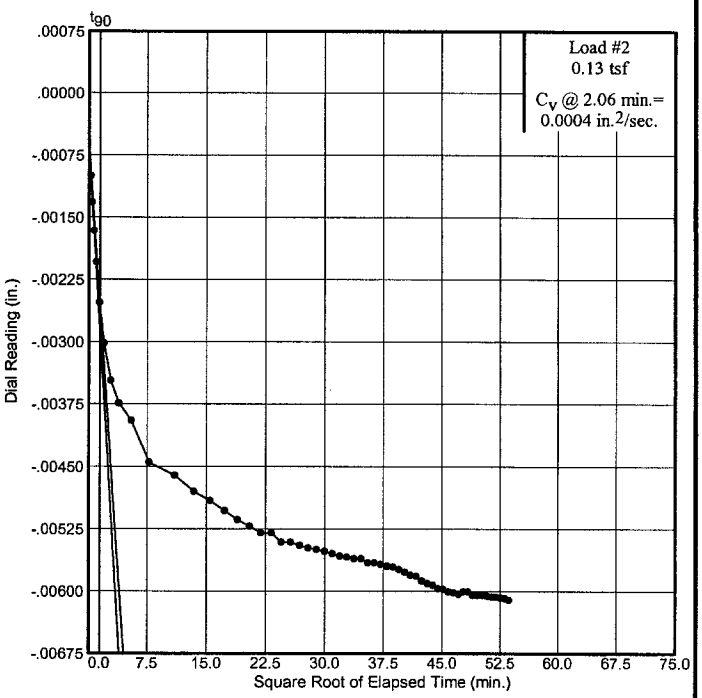
BURNS COOLEY DENNIS, INC.

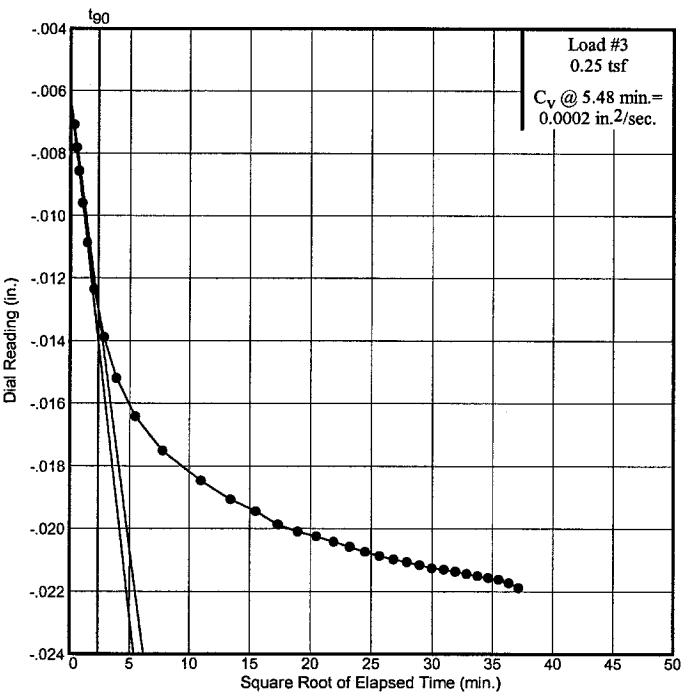
Figure 16

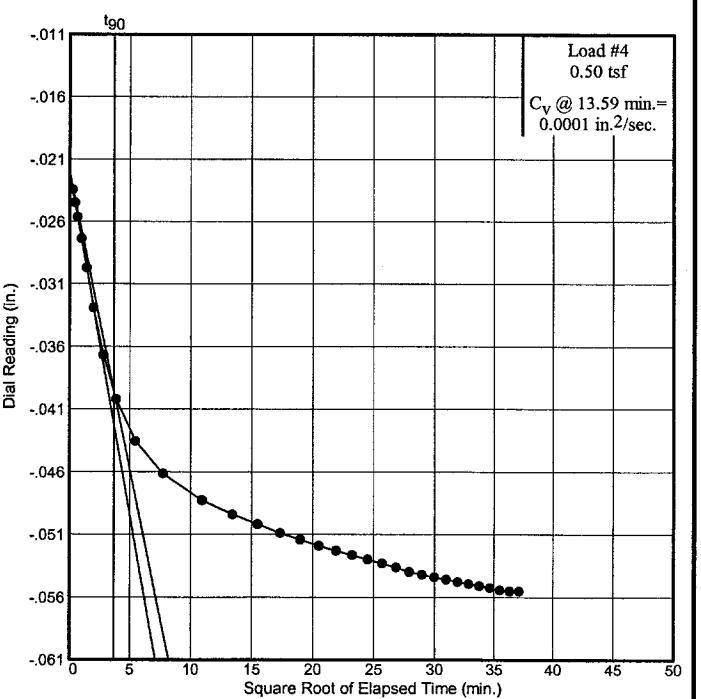
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 4 Sample No.: 1 Elev./Depth: 3.2









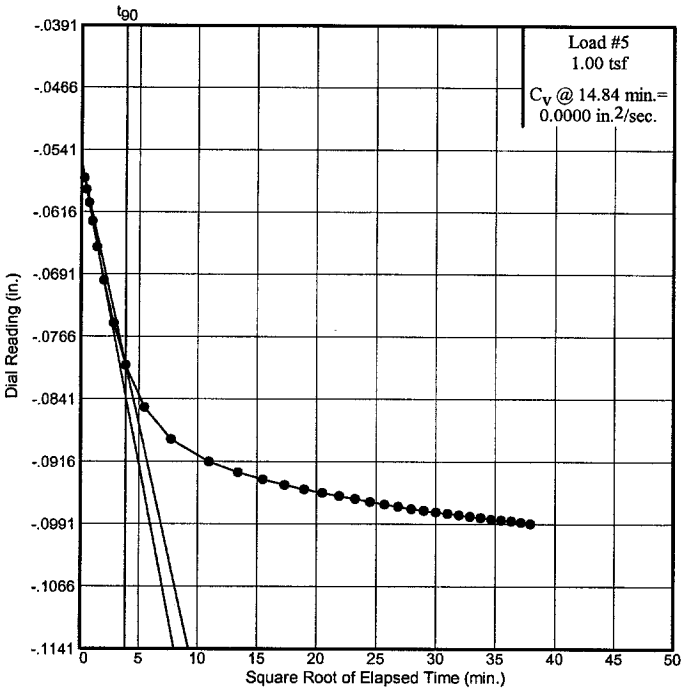
Dial Reading vs. Time

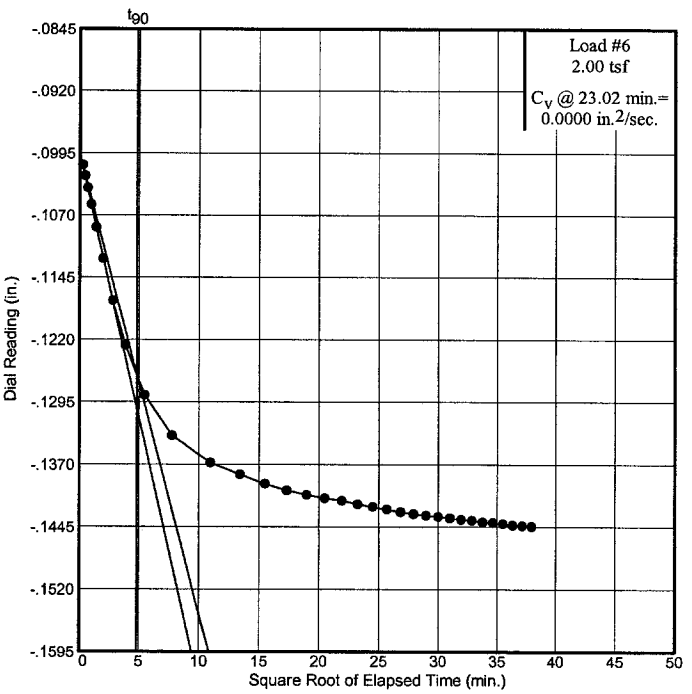
BURNS COOLEY DENNIS, INC.

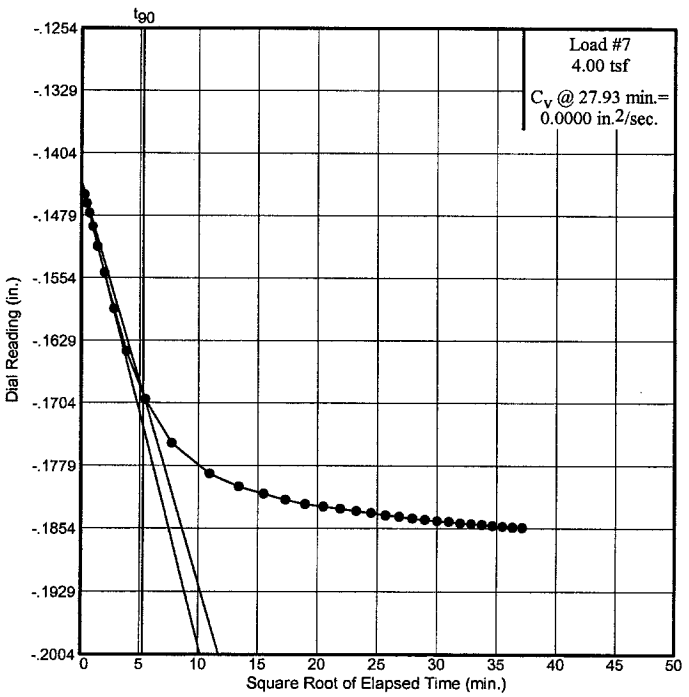
Figure 17

Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 4 Sample No.: 1 Elev./Depth: 3.2



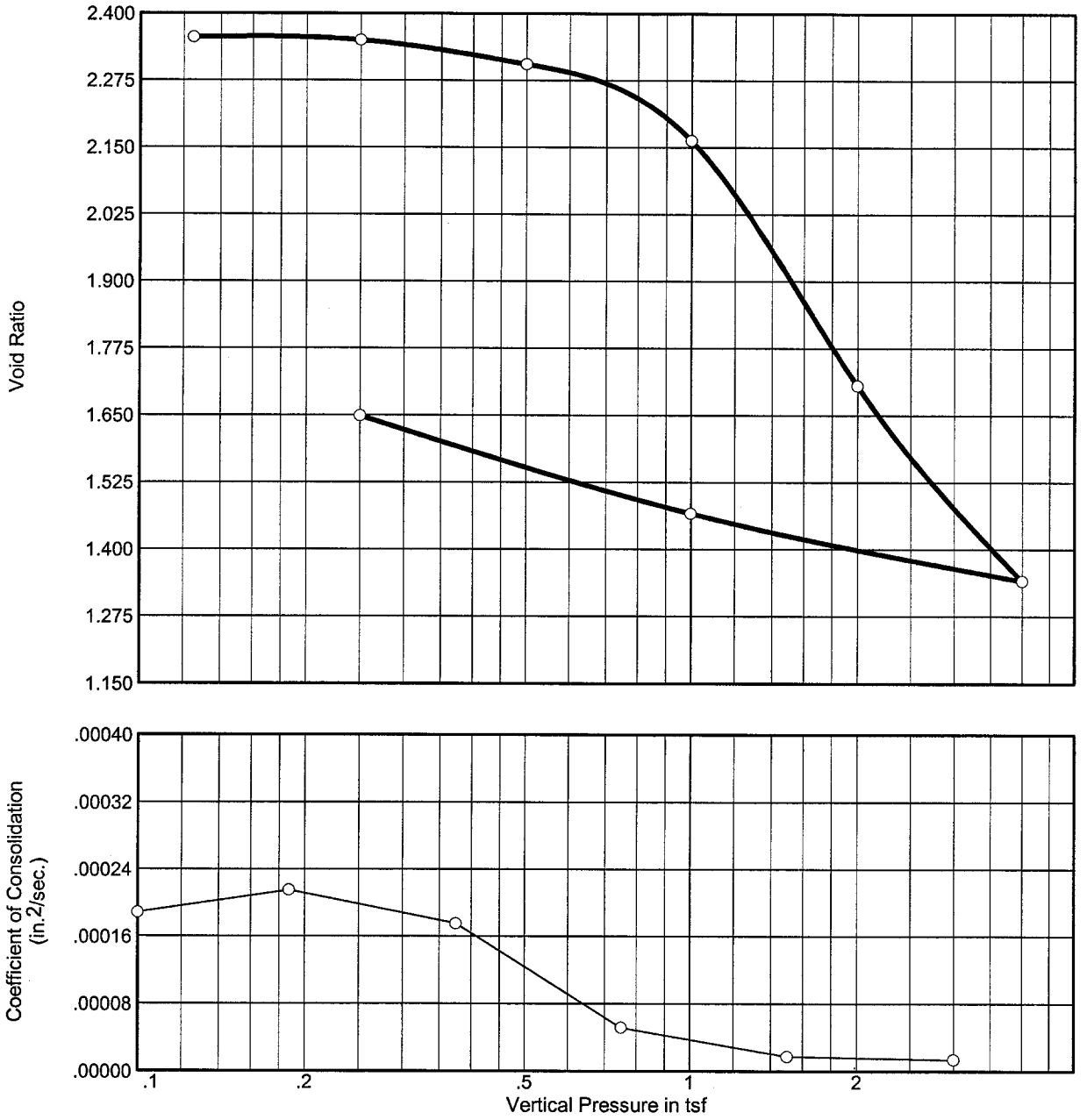




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 18



BORING NO.: 4	**SAMPLE NO.:** 11	**DEPTH:** 30.75	
DESCRIPTION OF MATERIAL: Soft gray clay (CH), slickensided with shell fragments			
LIQUID LIMIT: 106	**PLASTIC LIMIT:** 29	**PLASTICITY INDEX:** 77	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 86.0 %	**INITIAL VOID RATIO:** 2.353	**DRY DENSITY:** 50.6 (pcf)	

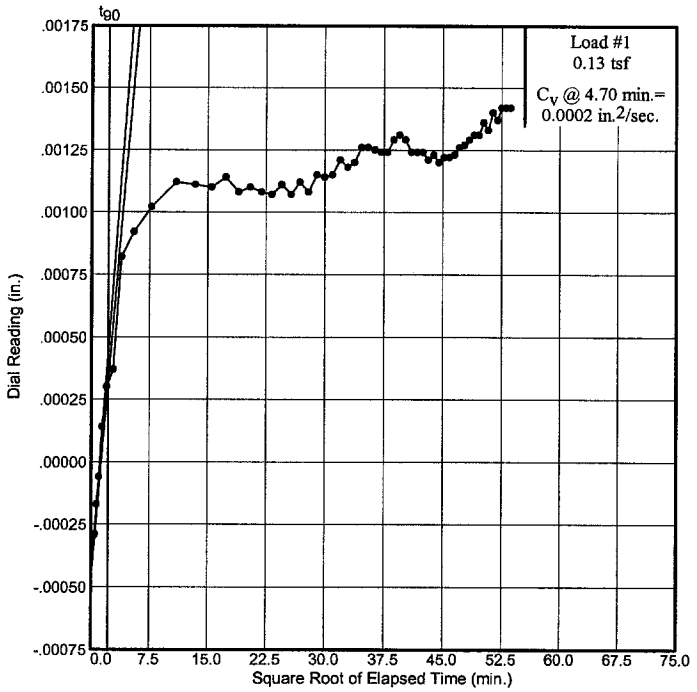
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 04-19-03
	CONSOLIDATION TEST REPORT

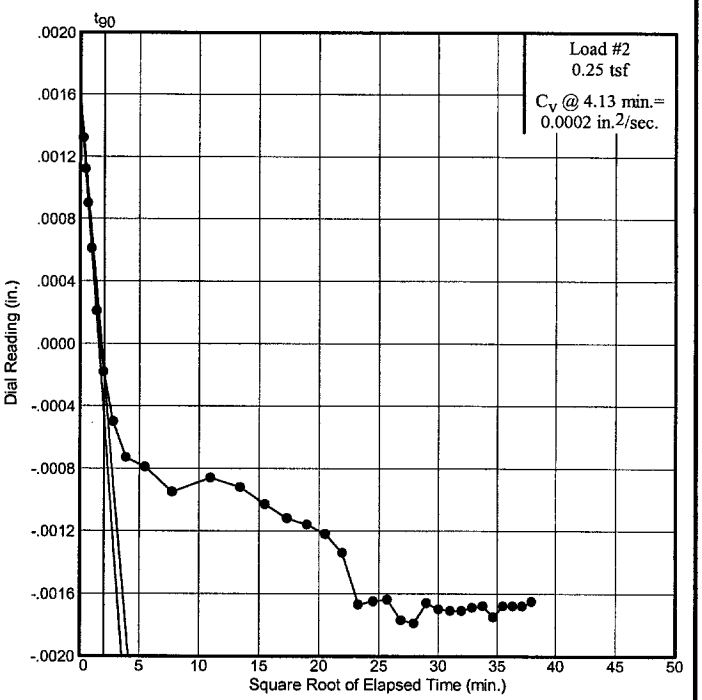
BURNS COOLEY DENNIS, INC.

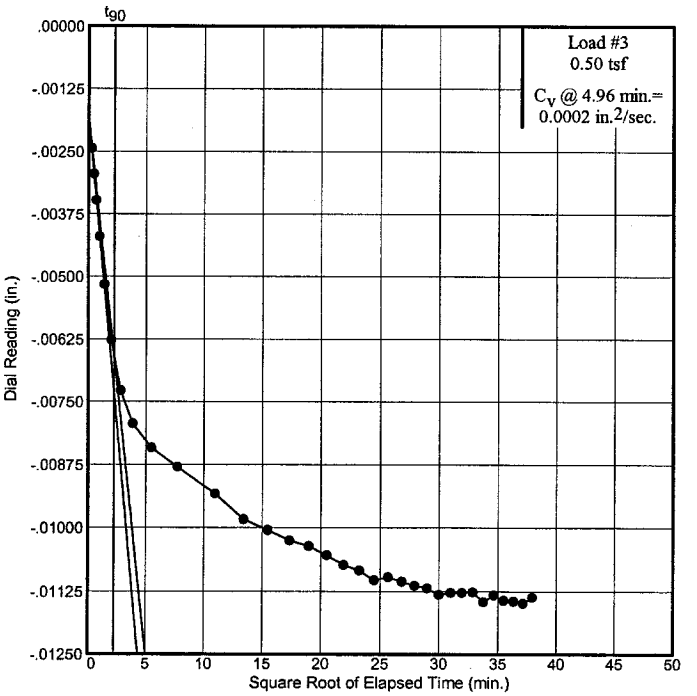
Figure 19

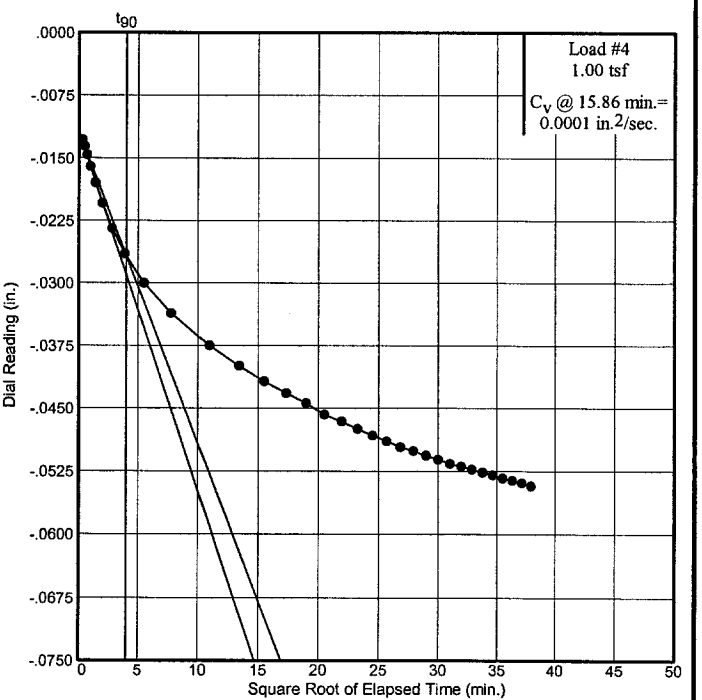
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 4 Sample No.: 11 Elev./Depth: 30.75









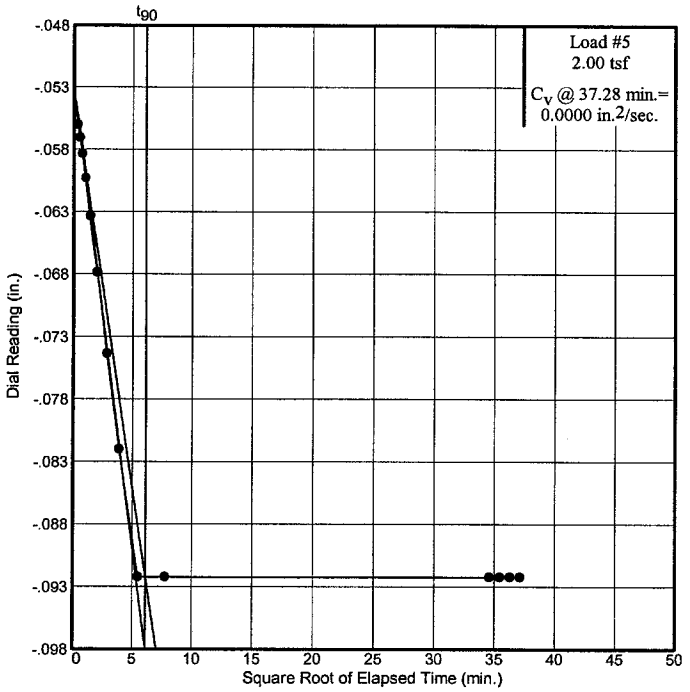
Dial Reading vs. Time

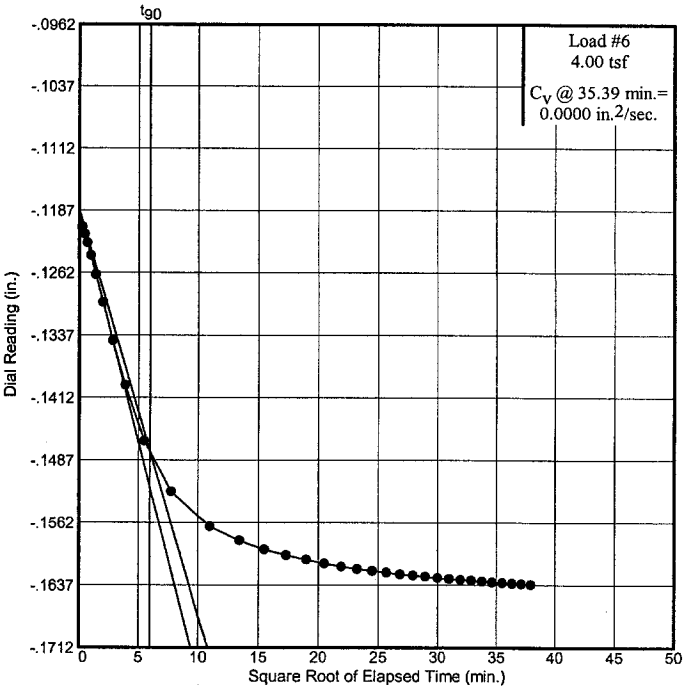
BURNS COOLEY DENNIS, INC.

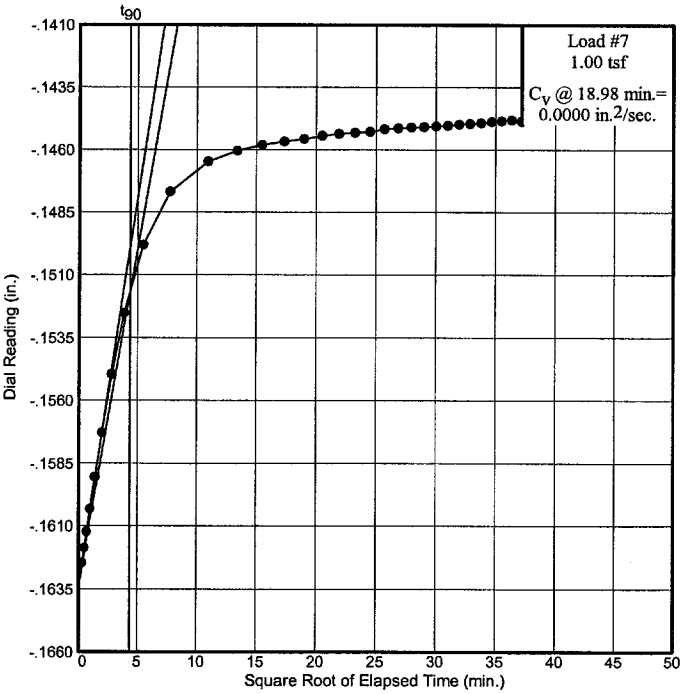
Figure 20

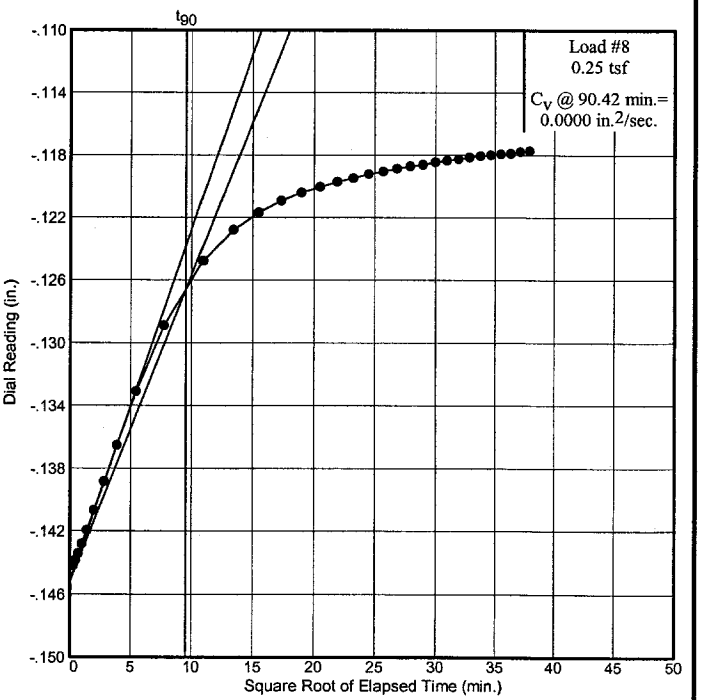
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 4 Sample No.: 11 Elev./Depth: 30.75





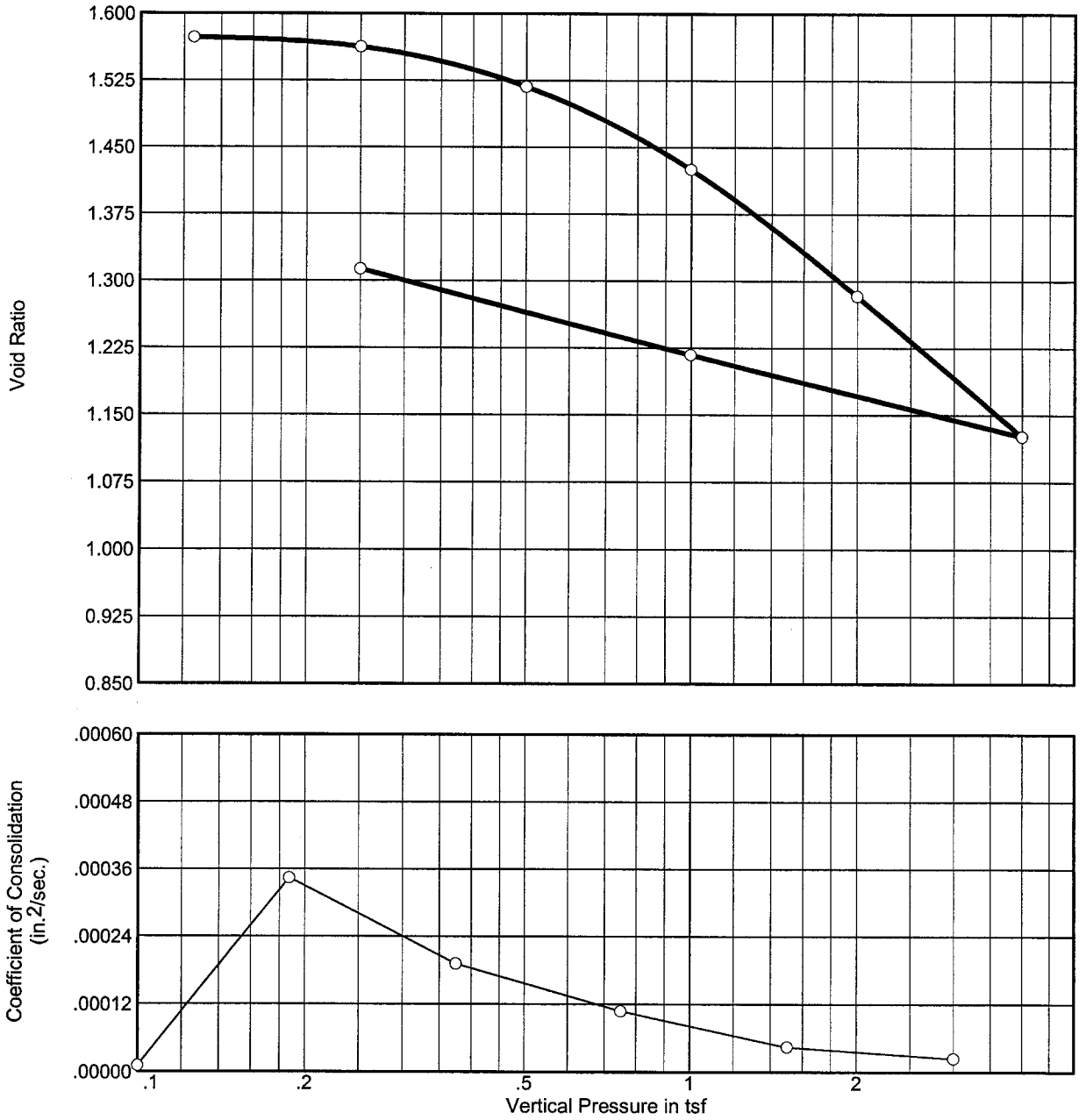




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 21

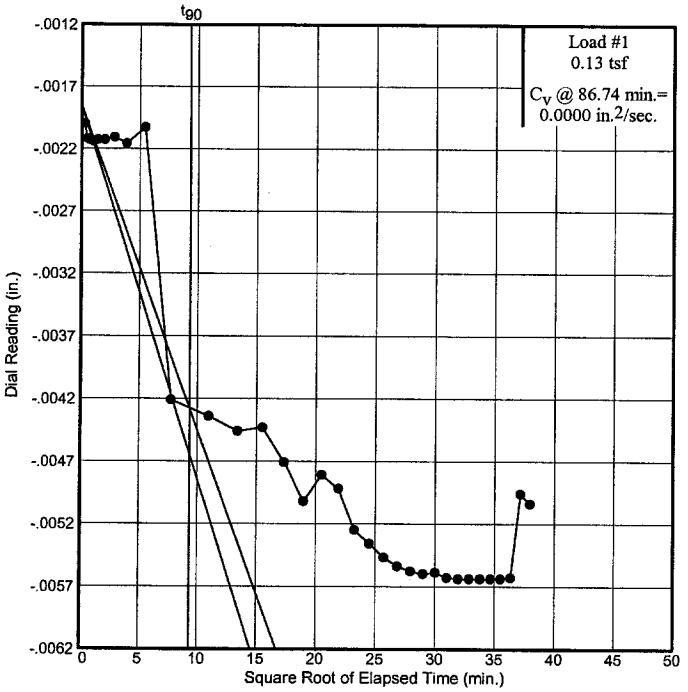


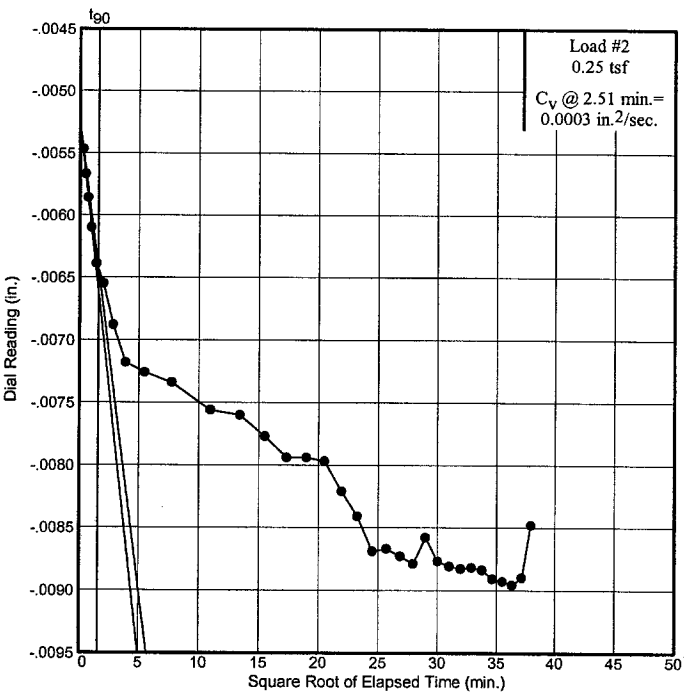
BORING NO.: 5	**SAMPLE NO.:** 2	**DEPTH:** 3.75	
DESCRIPTION OF MATERIAL: Soft gray clay (CH), blocky			
LIQUID LIMIT: 84	**PLASTIC LIMIT:** 24	**PLASTICITY INDEX:** 60	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 61.5 %	**INITIAL VOID RATIO:** 1.597	**DRY DENSITY:** 62.5 (pcf)	

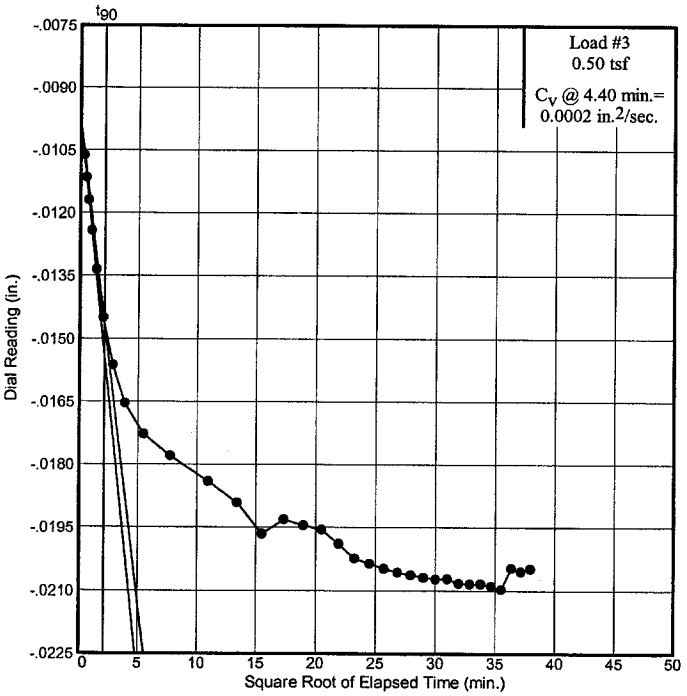
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 04-14-03
	CONSOLIDATION TEST REPORT

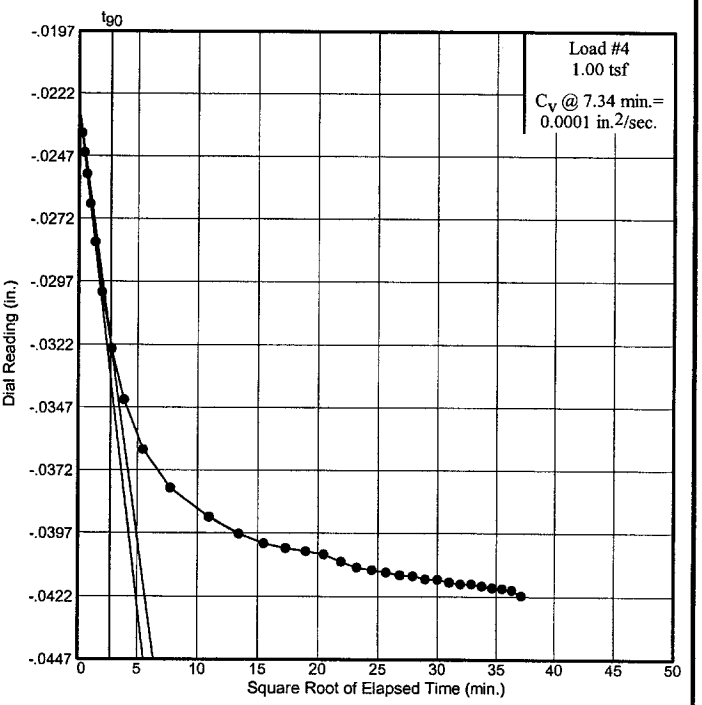
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 5 Sample No.: 2 Elev./Depth: 3.75









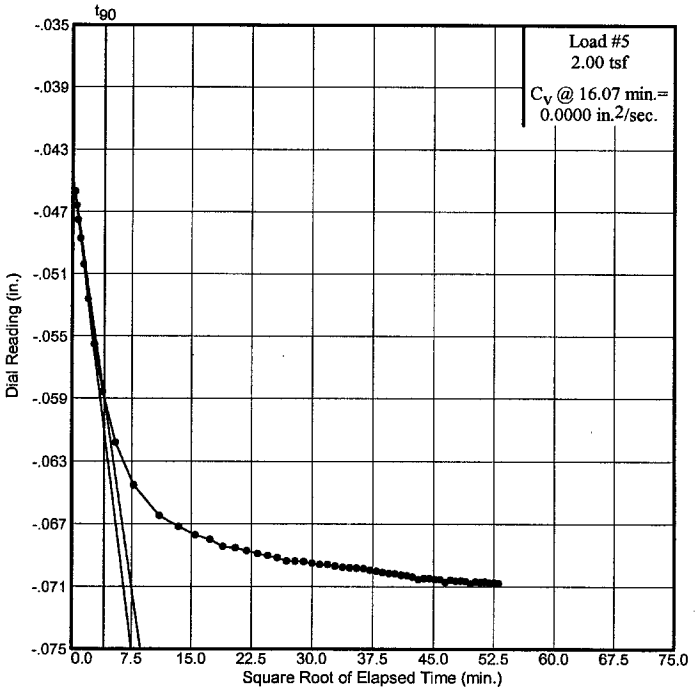
Dial Reading vs. Time

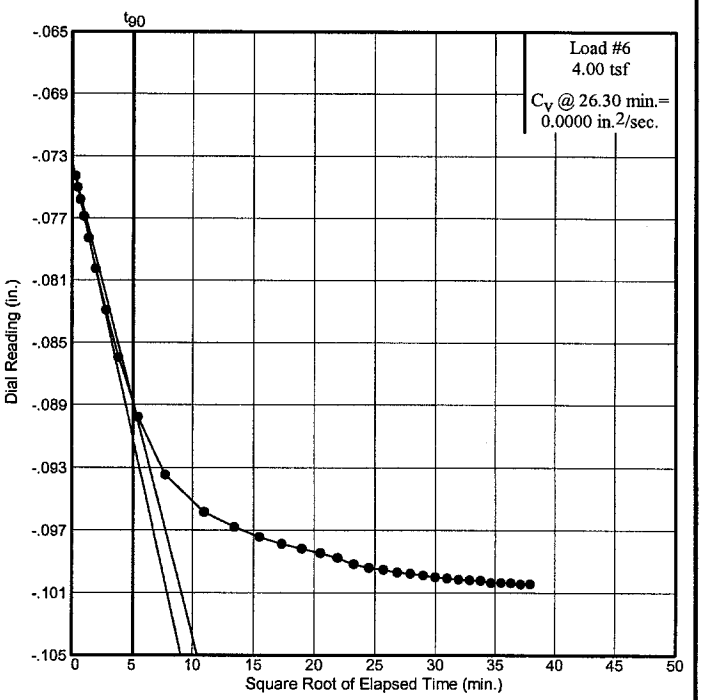
BURNS COOLEY DENNIS, INC.

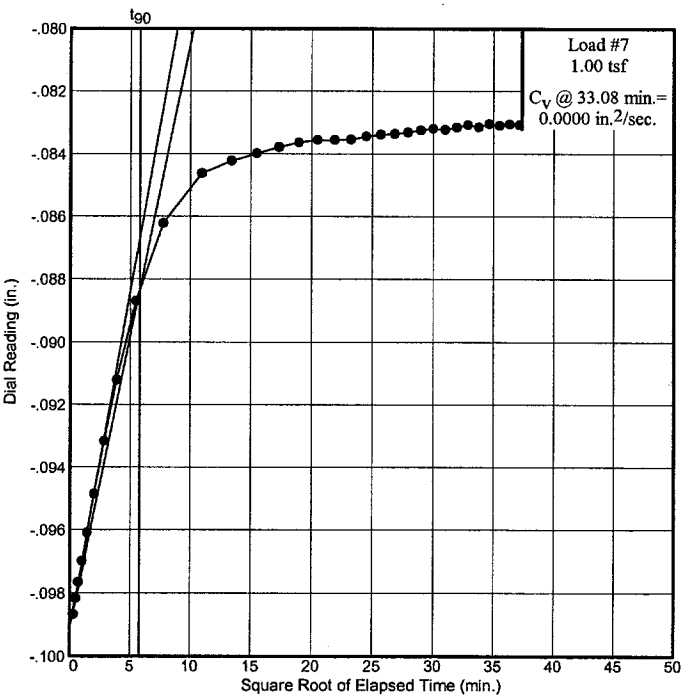
Figure 23

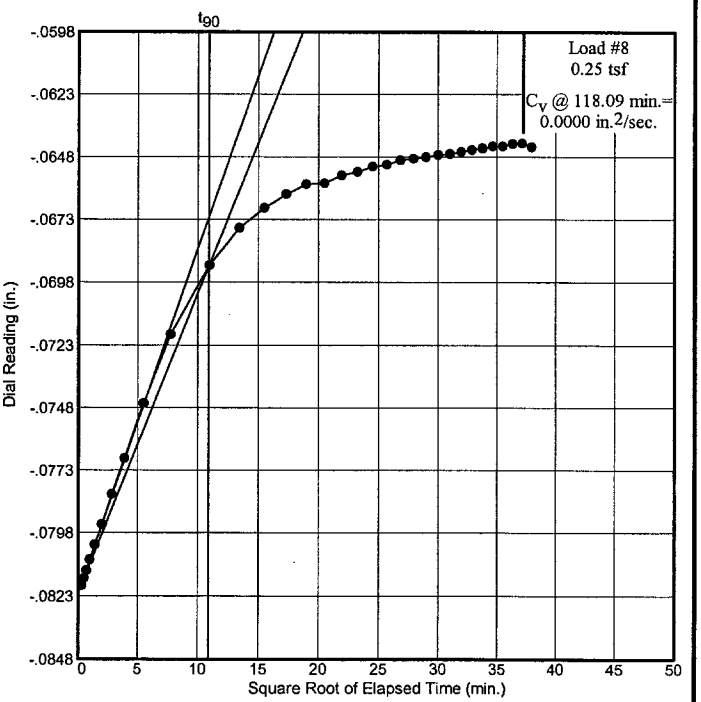
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 5 Sample No.: 2 Elev./Depth: 3.75





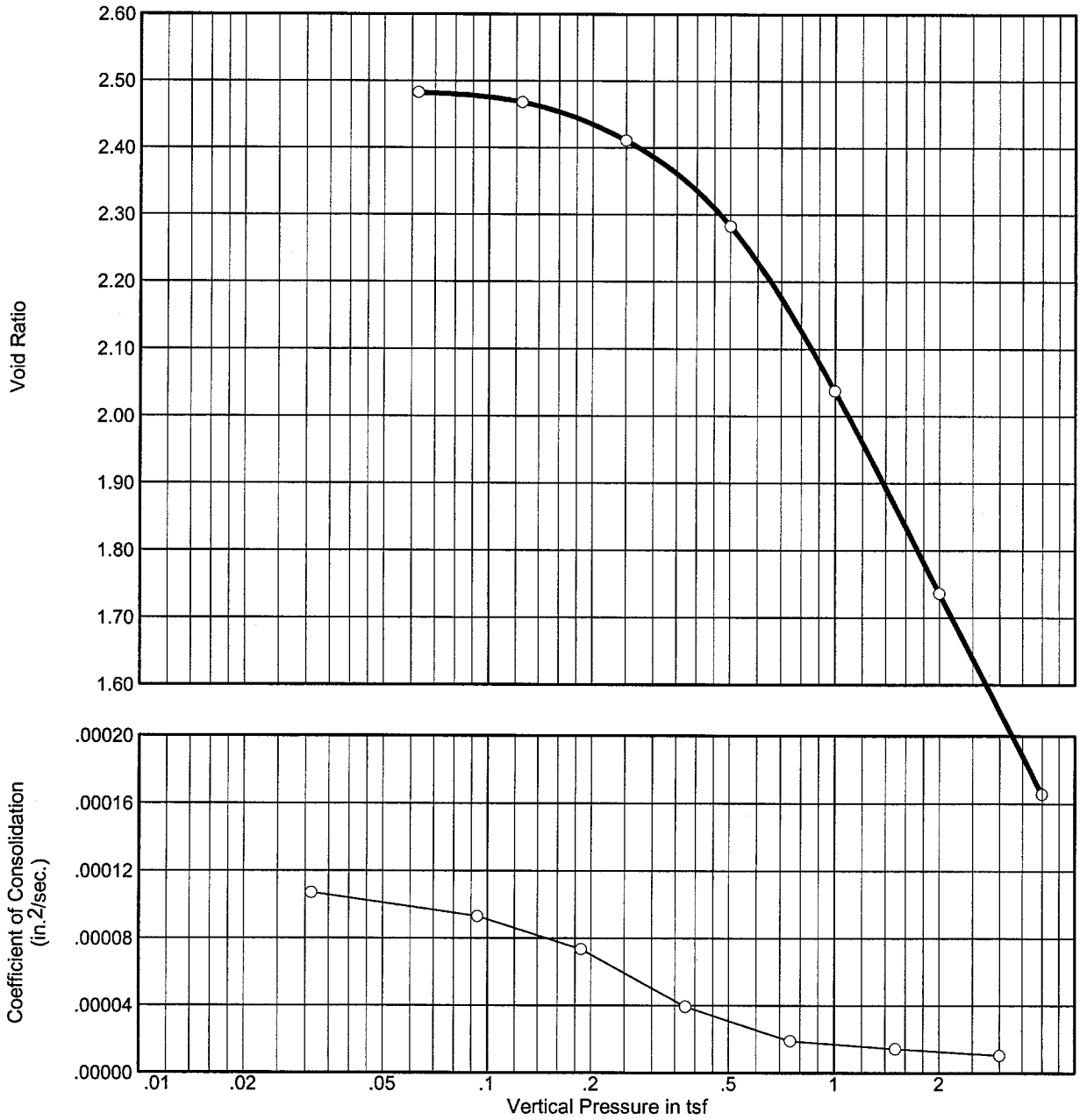




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 24



BORING NO.: 6	**SAMPLE NO.:** 5	**DEPTH:** 8.75	
DESCRIPTION OF MATERIAL: Very soft gray clay (CH) with organic matter			
LIQUID LIMIT: 101	**PLASTIC LIMIT:** 31	**PLASTICITY INDEX:** 70	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 95.1 %	**INITIAL VOID RATIO:** 2.487	**DRY DENSITY:** 46.5 (pcf)	

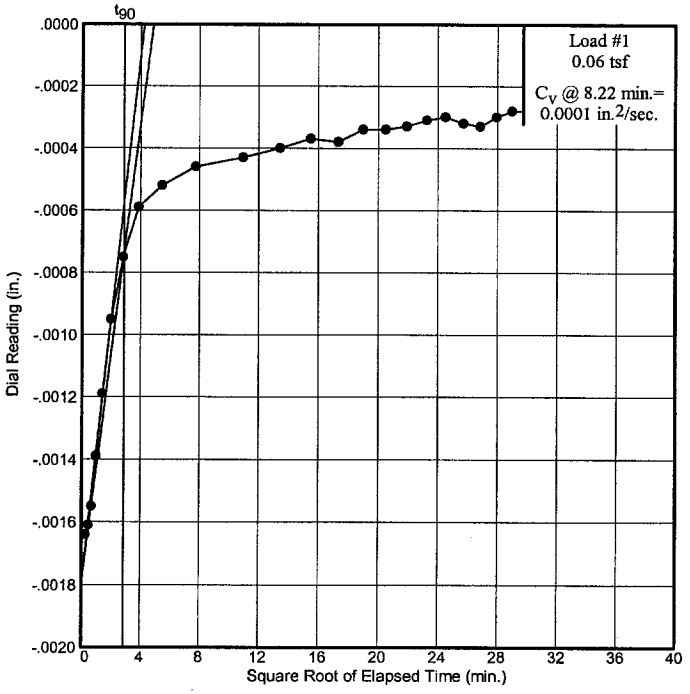
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 03-26-03
	CONSOLIDATION TEST REPORT

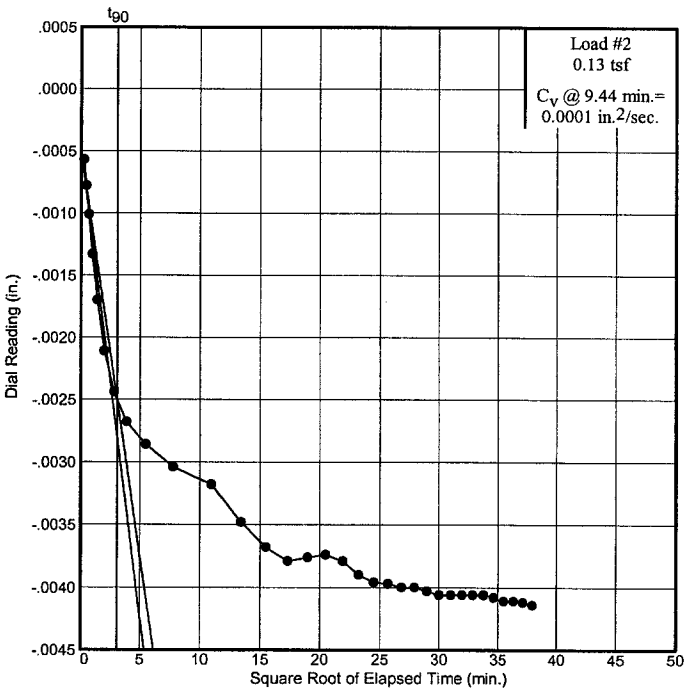
BURNS COOLEY DENNIS, INC.

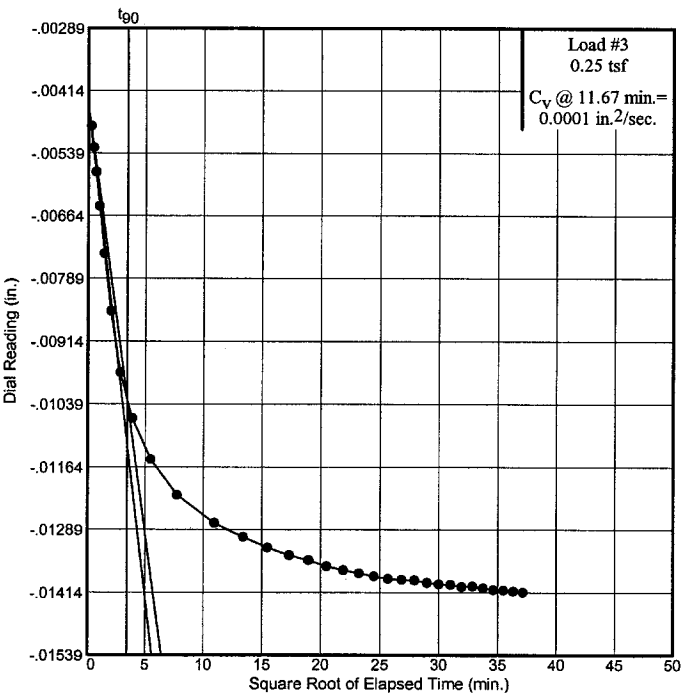
Figure 25

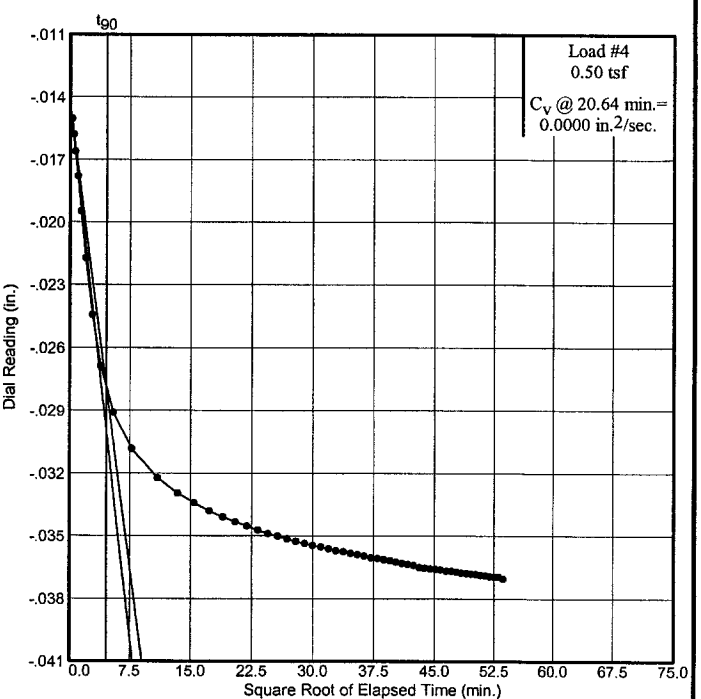
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 6 Sample No.: 5 Elev./Depth: 8.75









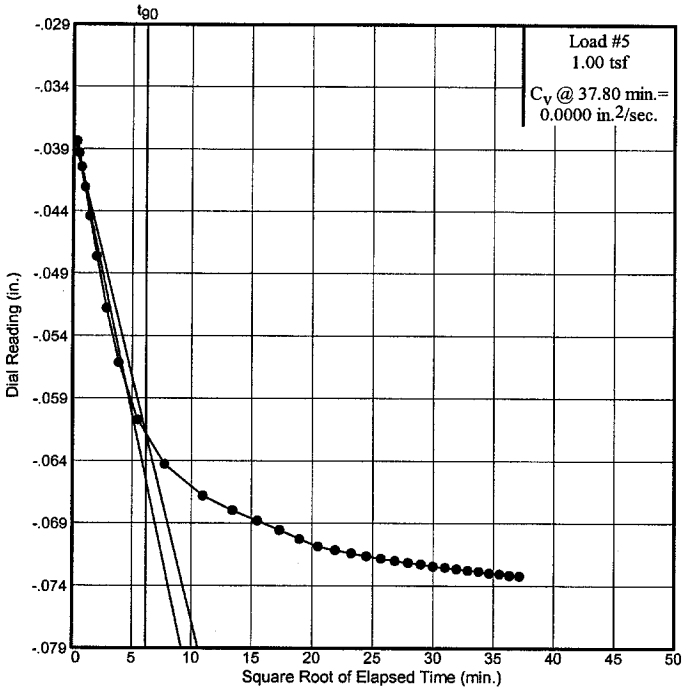
Dial Reading vs. Time

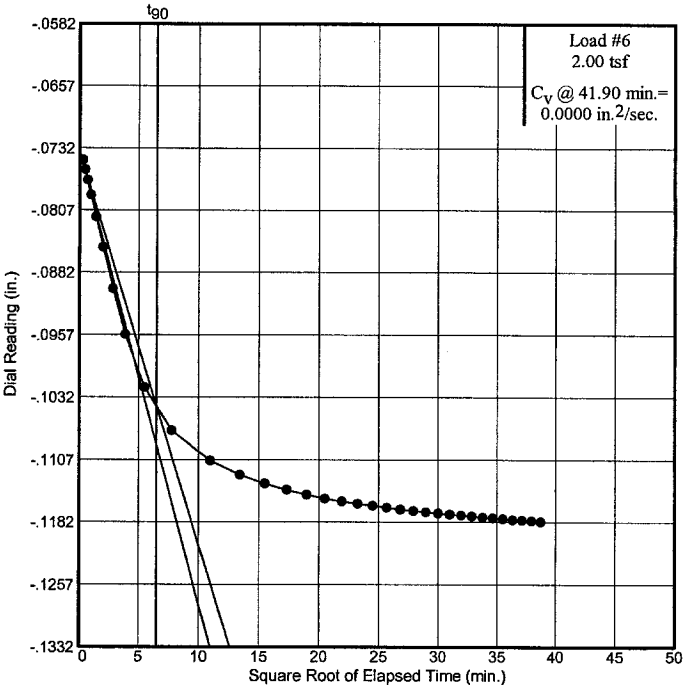
BURNS COOLEY DENNIS, INC.

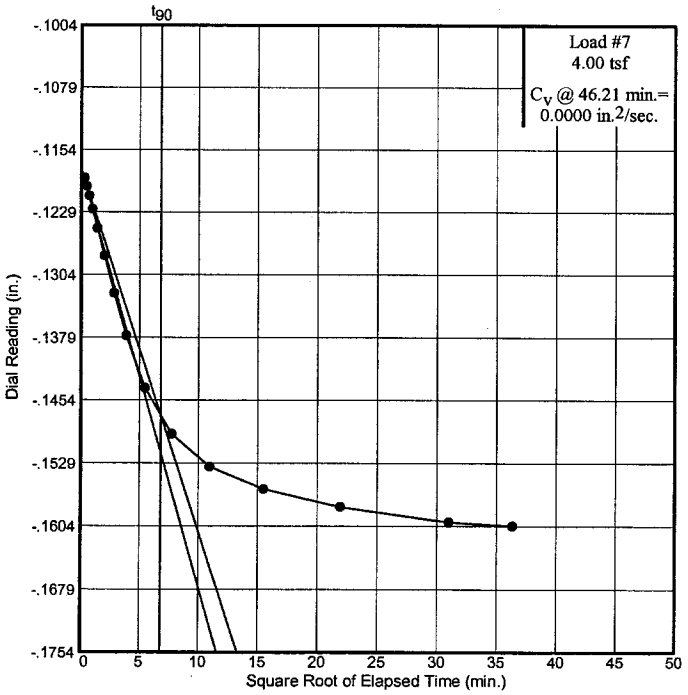
Figure 26

Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 6 Sample No.: 5 Elev./Depth: 8.75



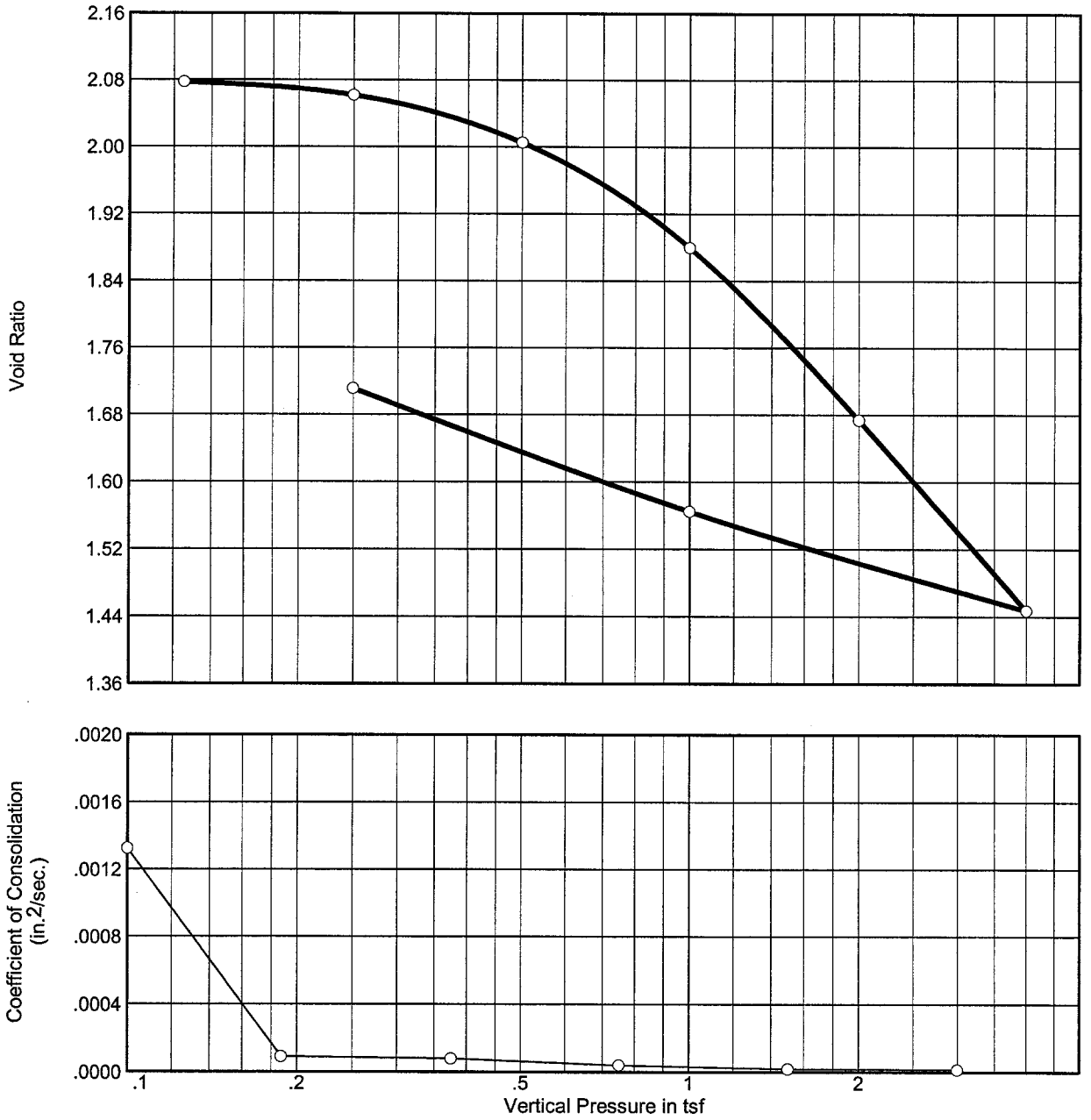




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 27



BORING NO.: 7	**SAMPLE NO.:** 3	**DEPTH:** 7.75	
DESCRIPTION OF MATERIAL: Soft gray clay (CH), blocky, with trace of organic matter			
LIQUID LIMIT: 138	**PLASTIC LIMIT:** 35	**PLASTICITY INDEX:** 103	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 75.6 %	**INITIAL VOID RATIO:** 2.095	**DRY DENSITY:** 54.9 (pcf)	

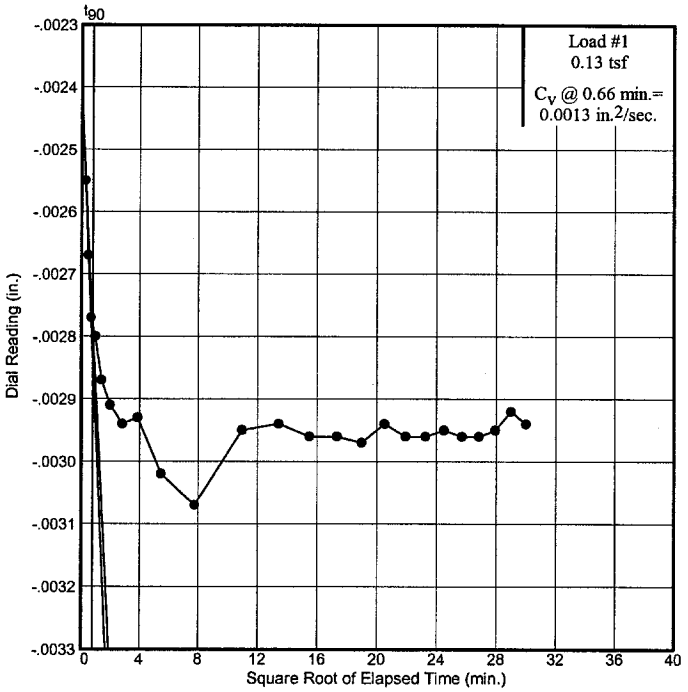
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 03-26-03
	CONSOLIDATION TEST REPORT

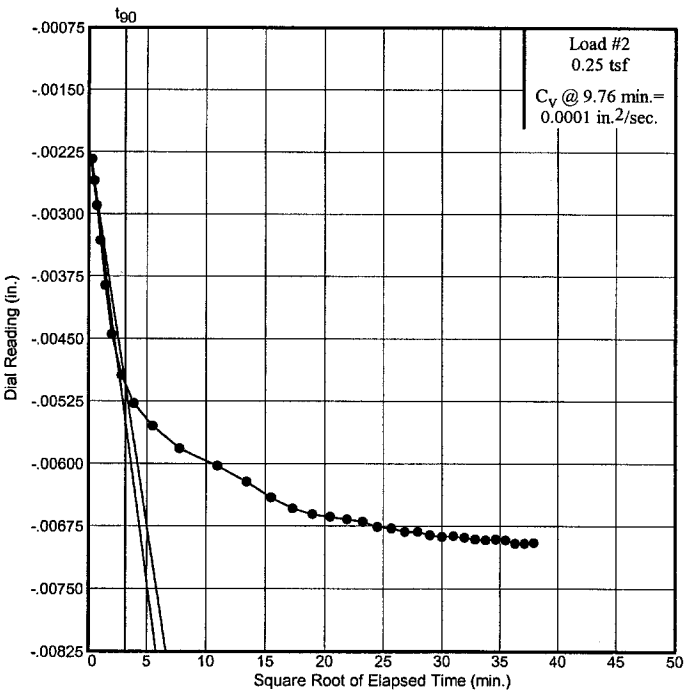
BURNS COOLEY DENNIS, INC.

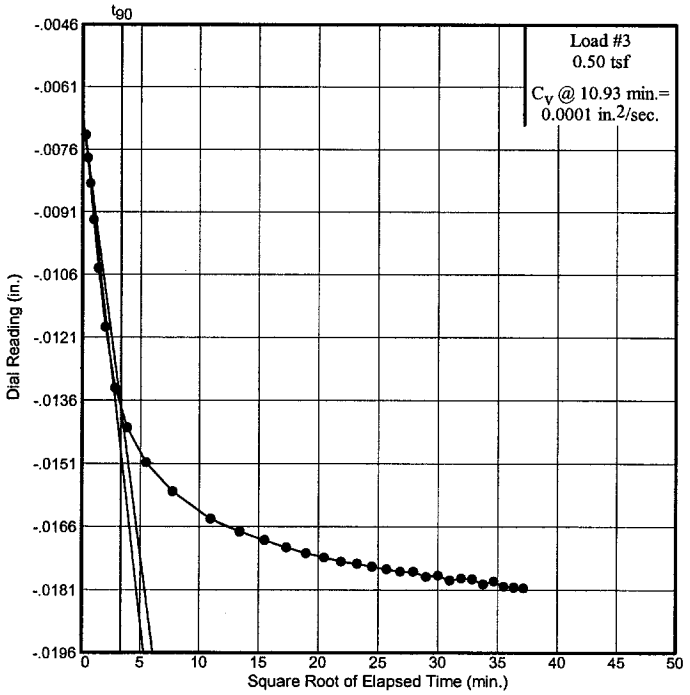
Figure 28

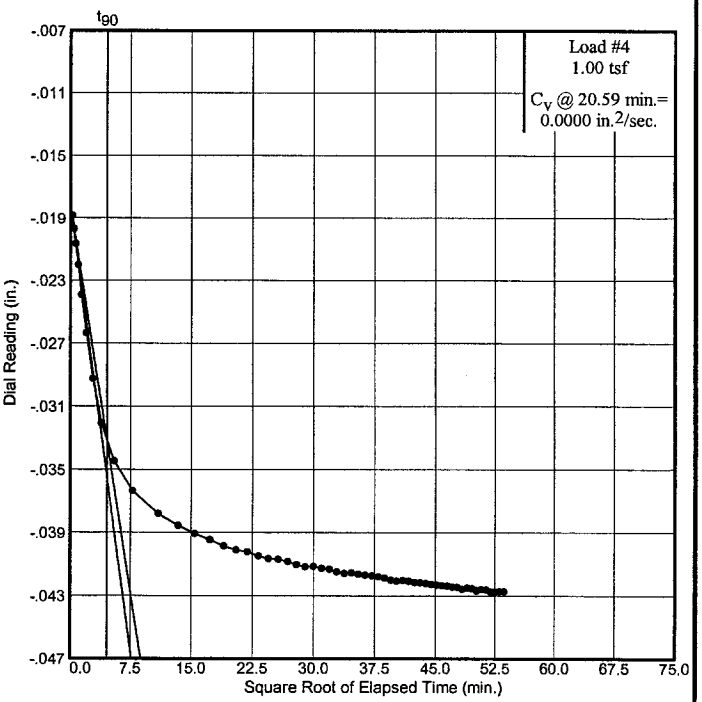
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 7 Sample No.: 3 Elev./Depth: 7.75









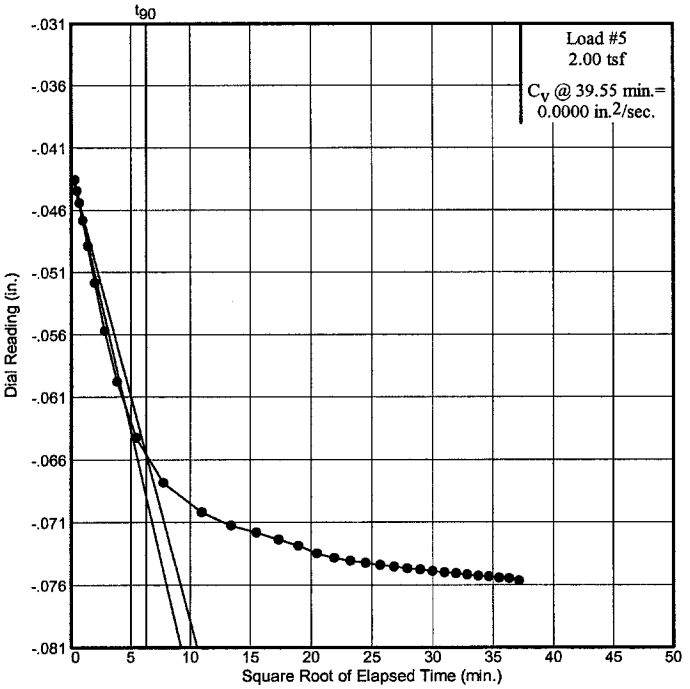
Dial Reading vs. Time

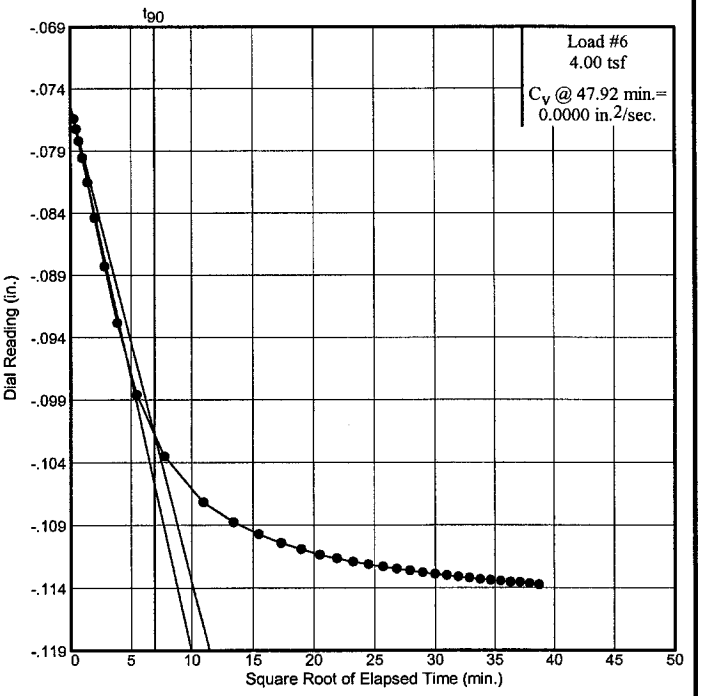
BURNS COOLEY DENNIS, INC.

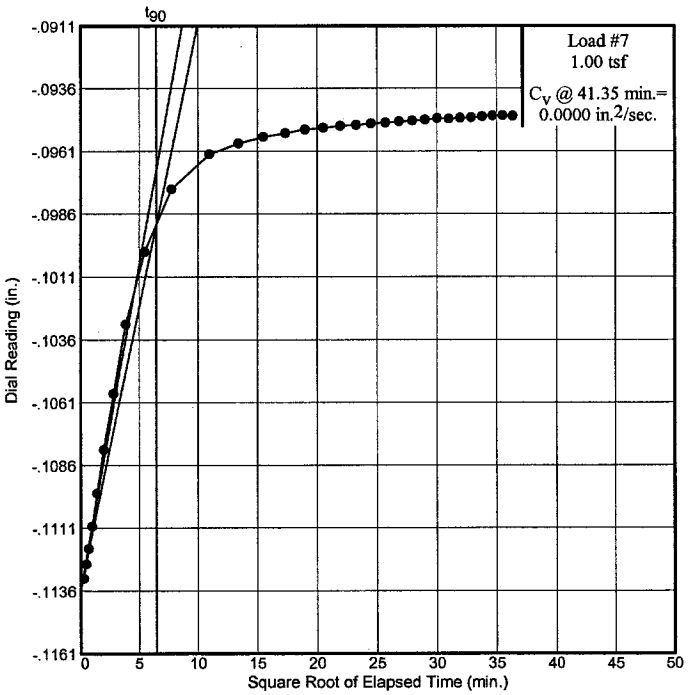
Figure 29

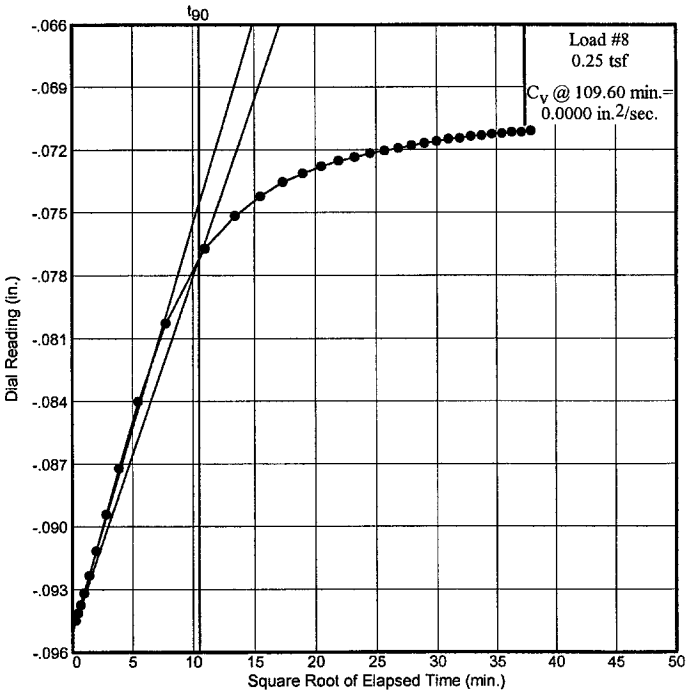
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 7 Sample No.: 3 Elev./Depth: 7.75





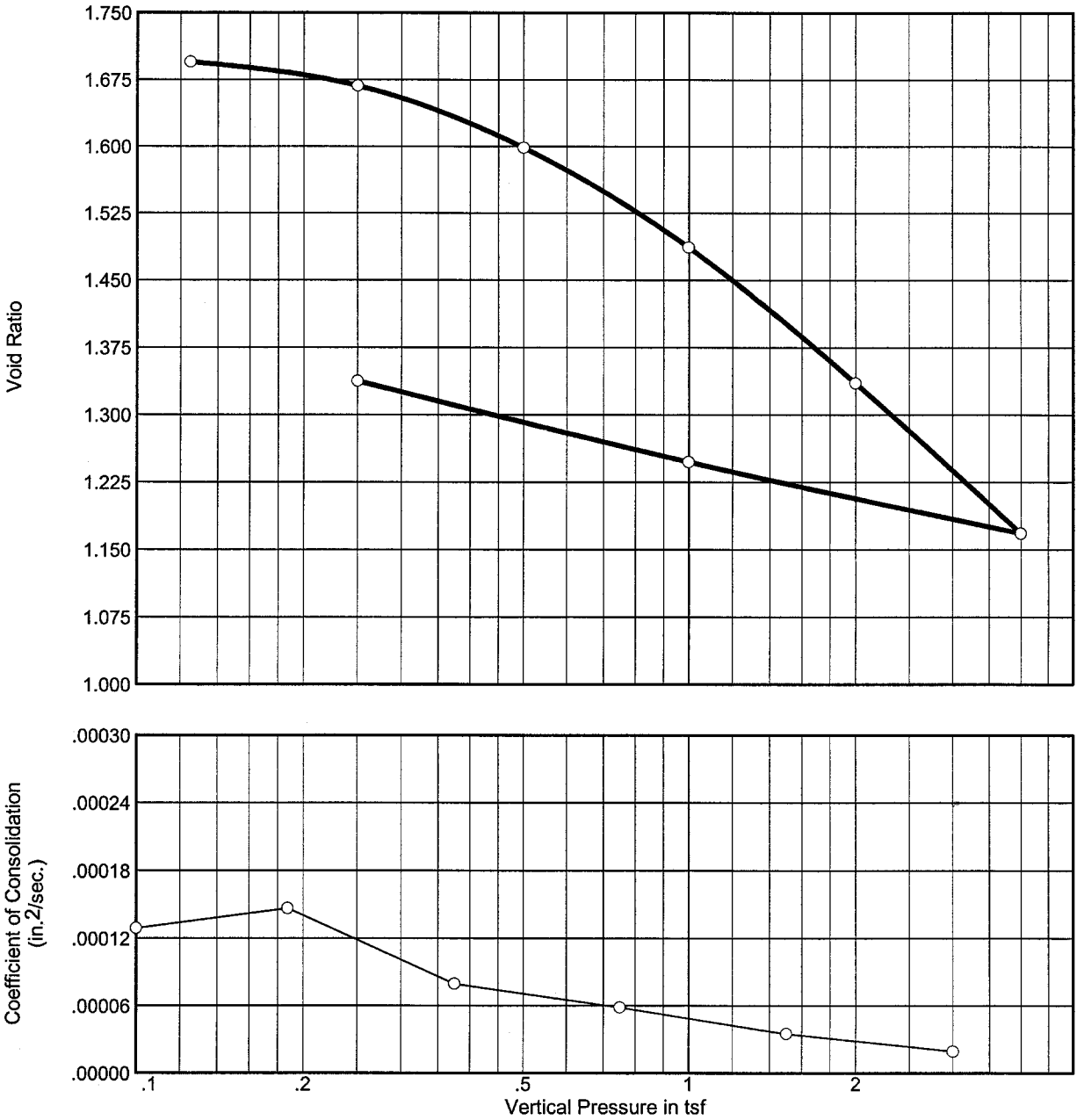




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 30



BORING NO.: 8	**SAMPLE NO.:** 2	**DEPTH:** 3.75	
DESCRIPTION OF MATERIAL: Soft gray clay (CH), blocky			
LIQUID LIMIT: 104	**PLASTIC LIMIT:** 31	**PLASTICITY INDEX:** 73	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 65.2 %	**INITIAL VOID RATIO:** 1.713	**DRY DENSITY:** 59.8 (pcf)	

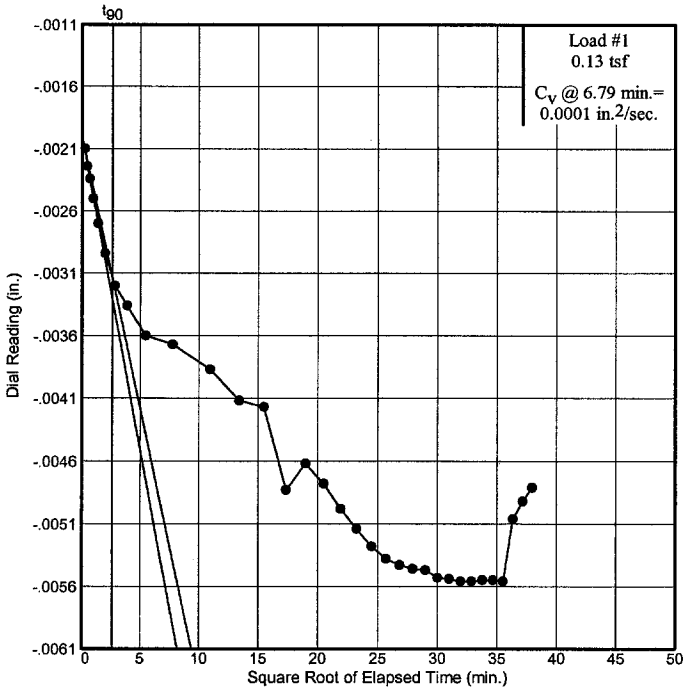
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 04-14-03
	CONSOLIDATION TEST REPORT

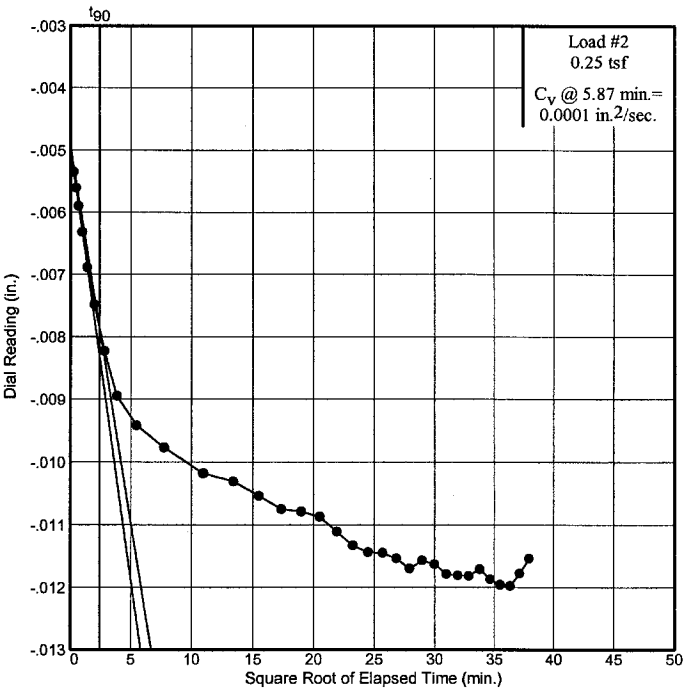
BURNS COOLEY DENNIS, INC.

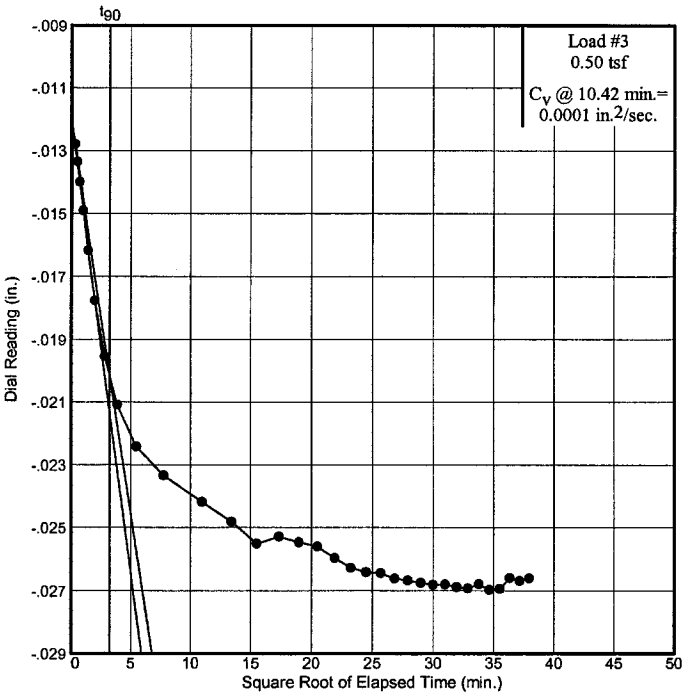
Figure 31

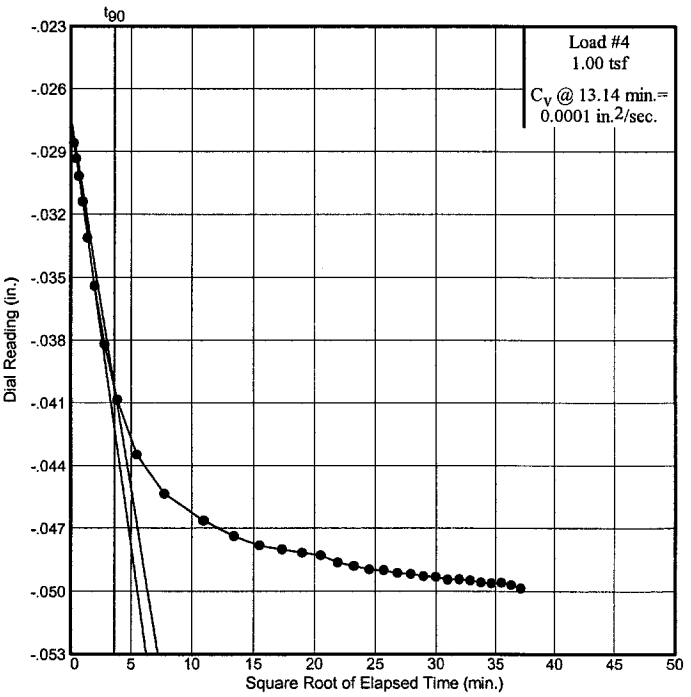
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 8 Sample No.: 2 Elev./Depth: 3.75









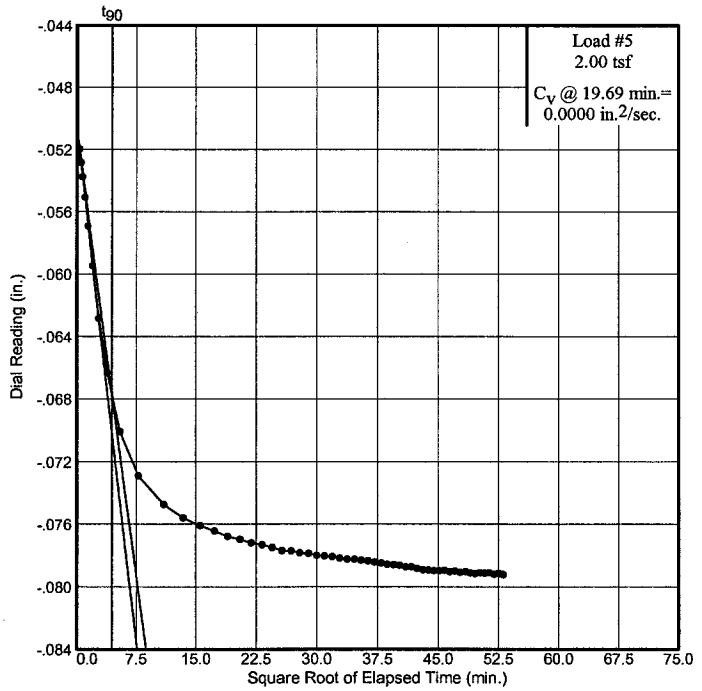
Dial Reading vs. Time

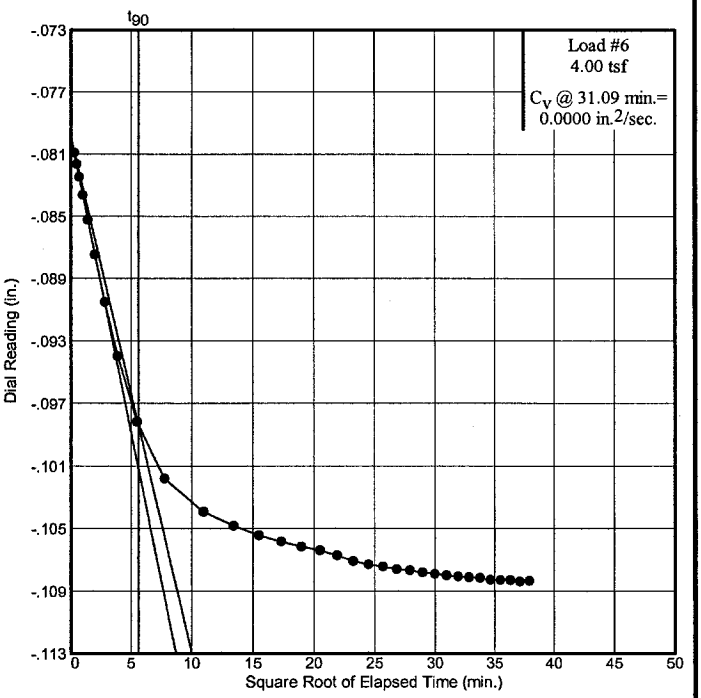
BURNS COOLEY DENNIS, INC.

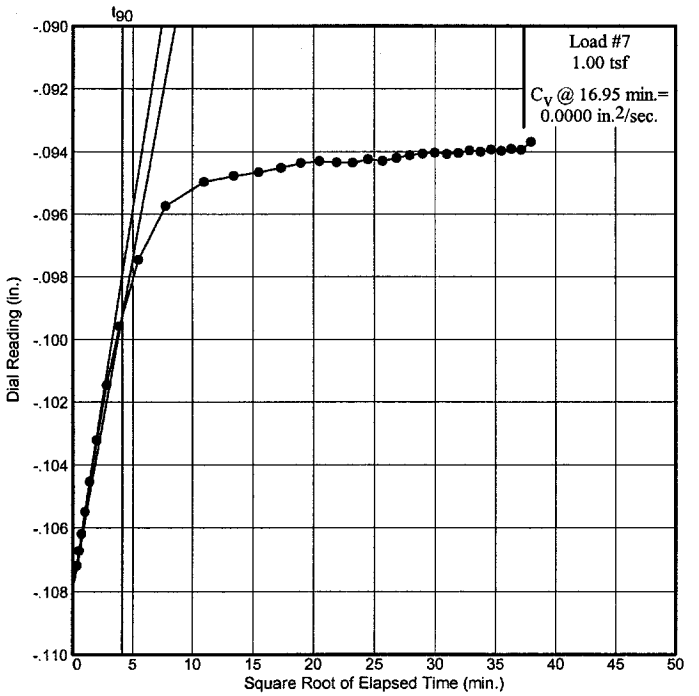
Figure 32

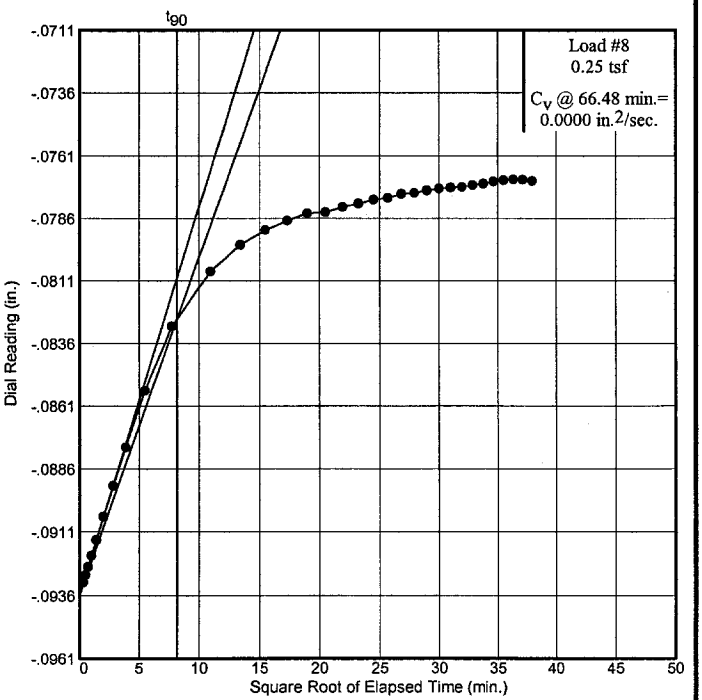
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 8 Sample No.: 2 Elev./Depth: 3.75





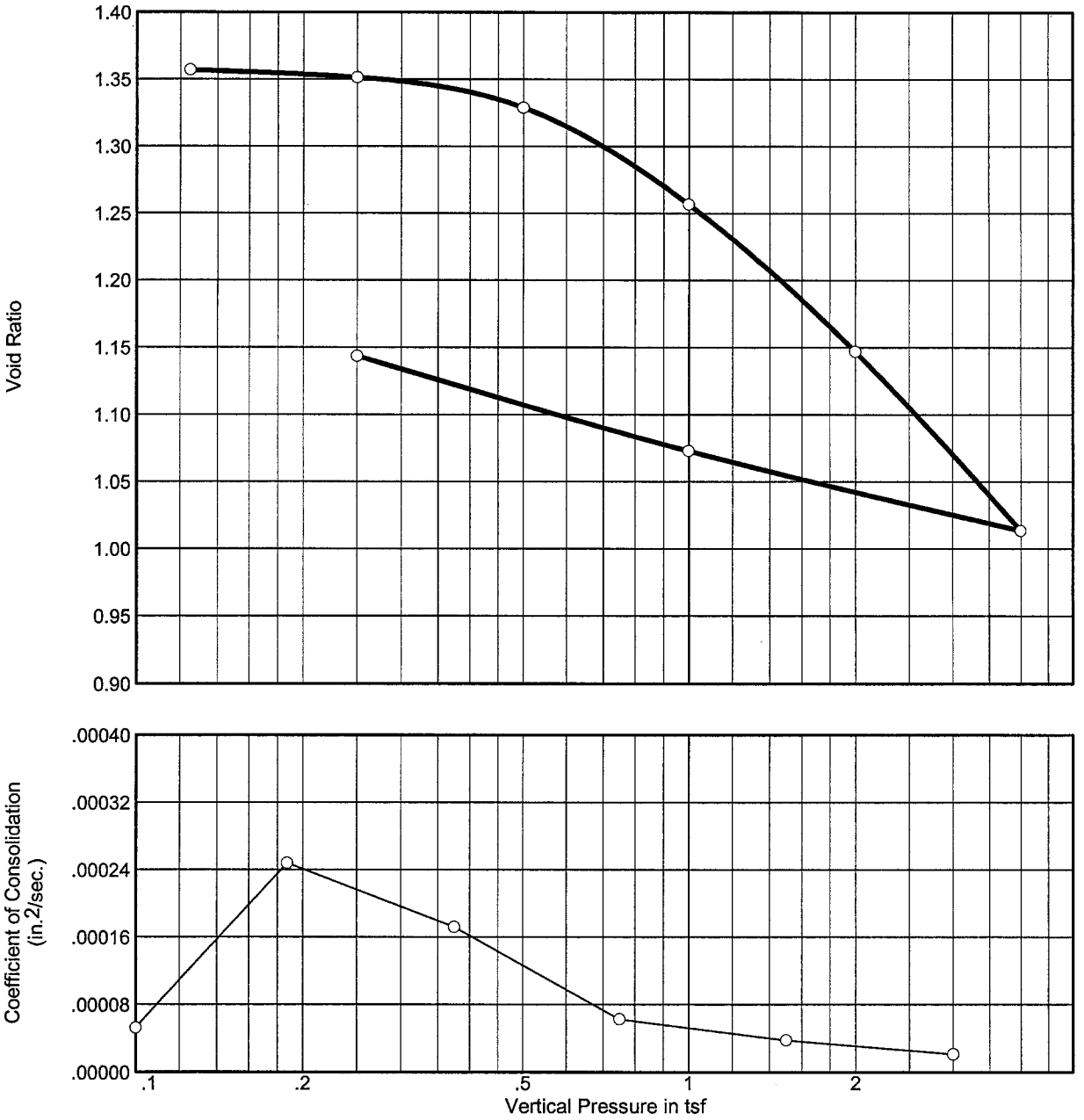




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 33



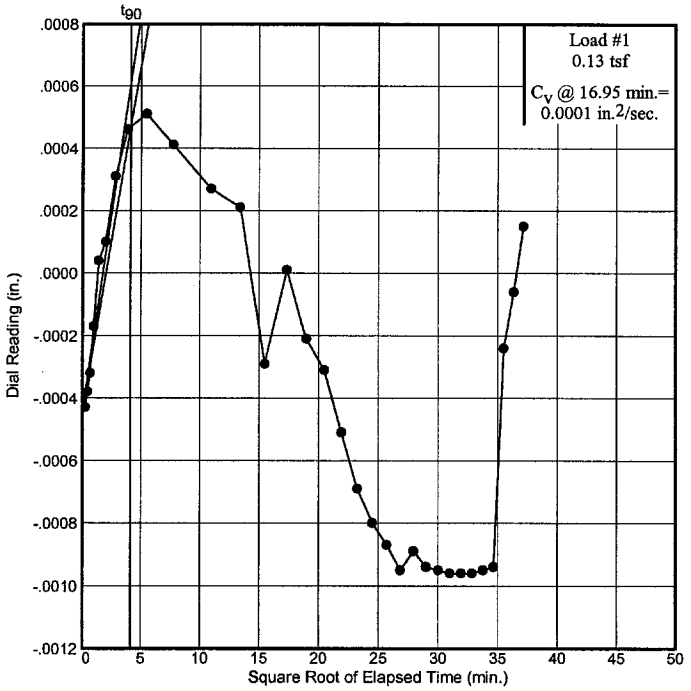
BORING NO.: 9	**SAMPLE NO.:** 2	**DEPTH:** 3.0
DESCRIPTION OF MATERIAL: Soft gray clay (CH) with trace of organic matter		
LIQUID LIMIT: 92	**PLASTIC LIMIT:** 30	**PLASTICITY INDEX:** 62	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 54.1 %	**INITIAL VOID RATIO:** 1.354	**DRY DENSITY:** 68.9 (pcf)

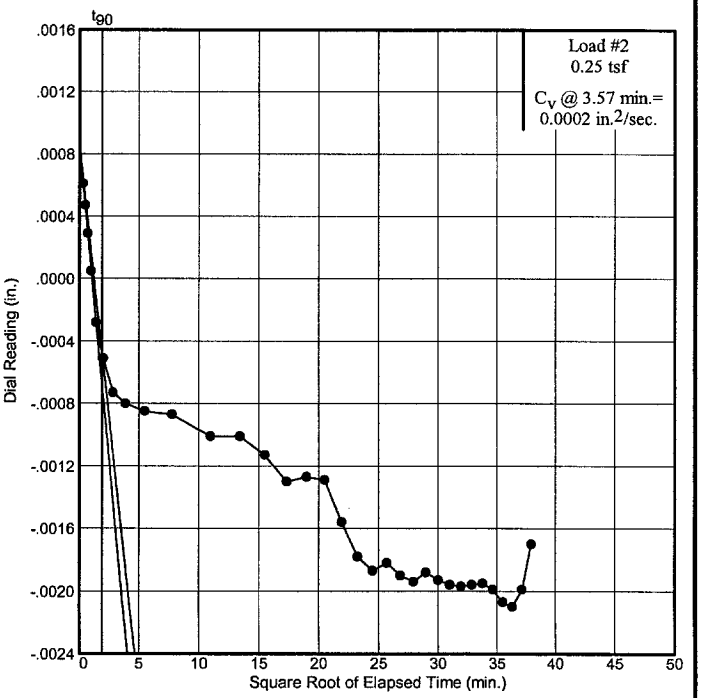
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 04-14-03
	CONSOLIDATION TEST REPORT

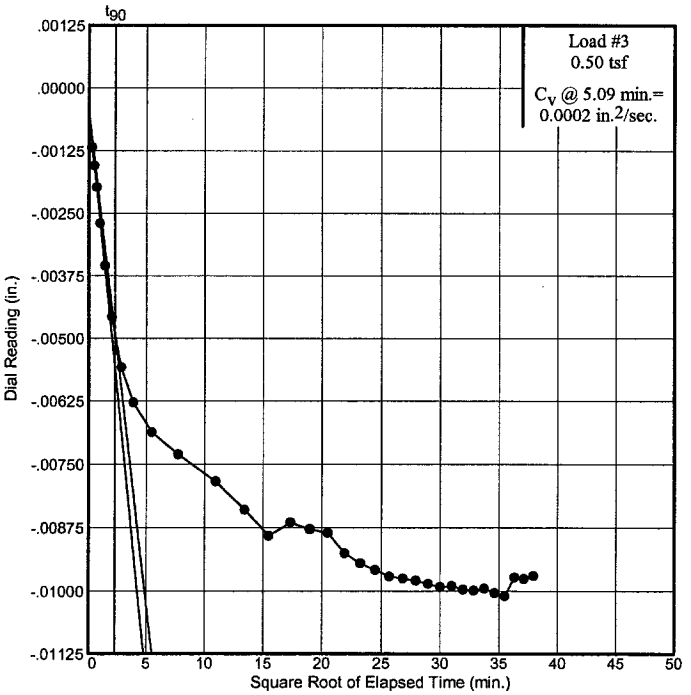
BURNS COOLEY DENNIS, INC. **Figure 34**

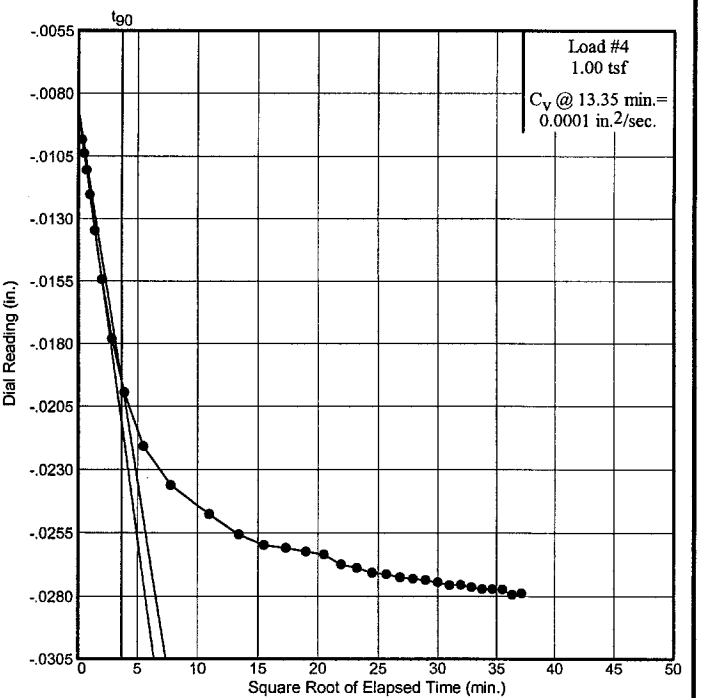
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 9 Sample No.: 2 Elev./Depth: 3.0









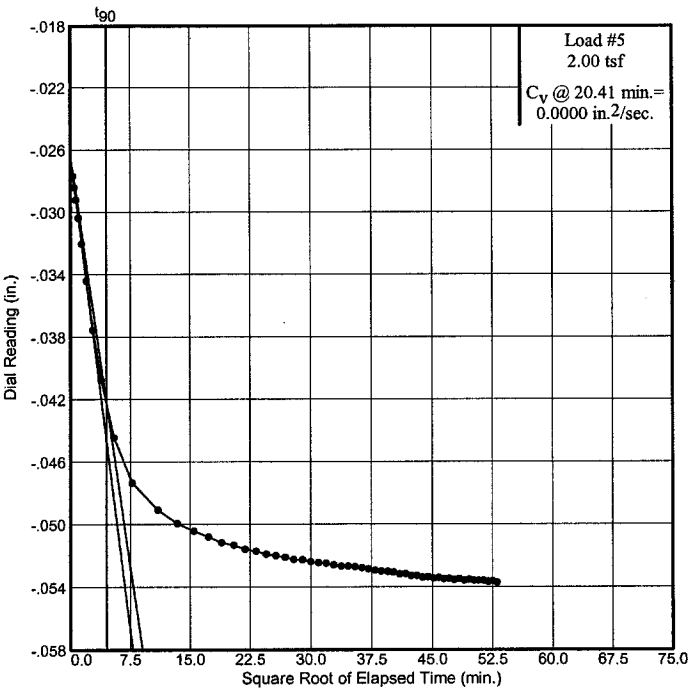
Dial Reading vs. Time

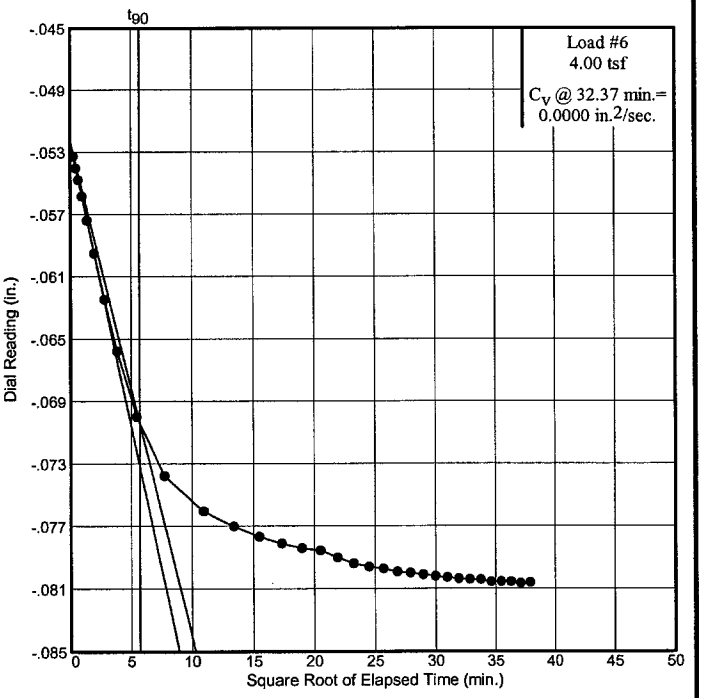
BURNS COOLEY DENNIS, INC.

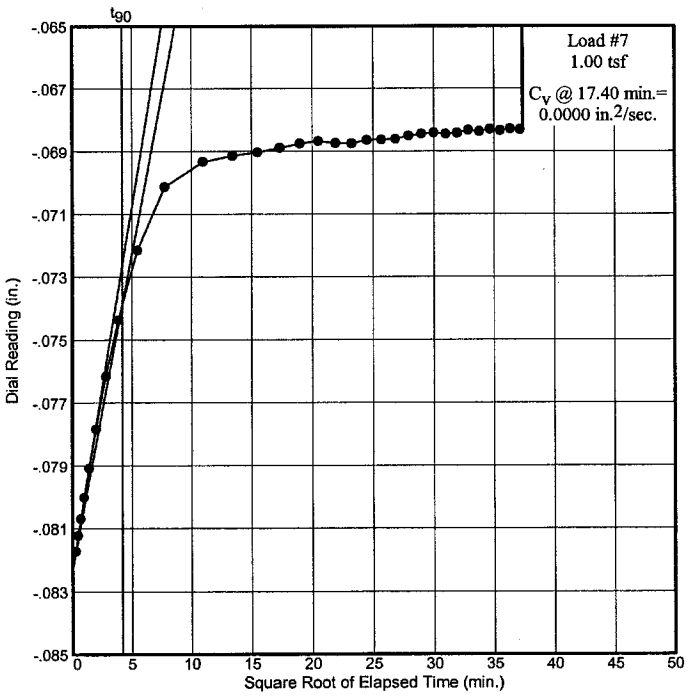
Figure 35

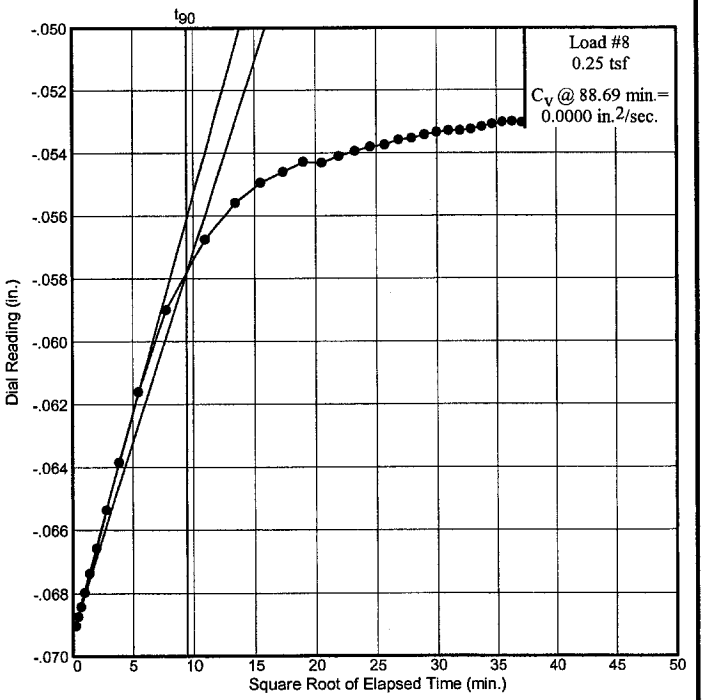
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 9 Sample No.: 2 Elev./Depth: 3.0





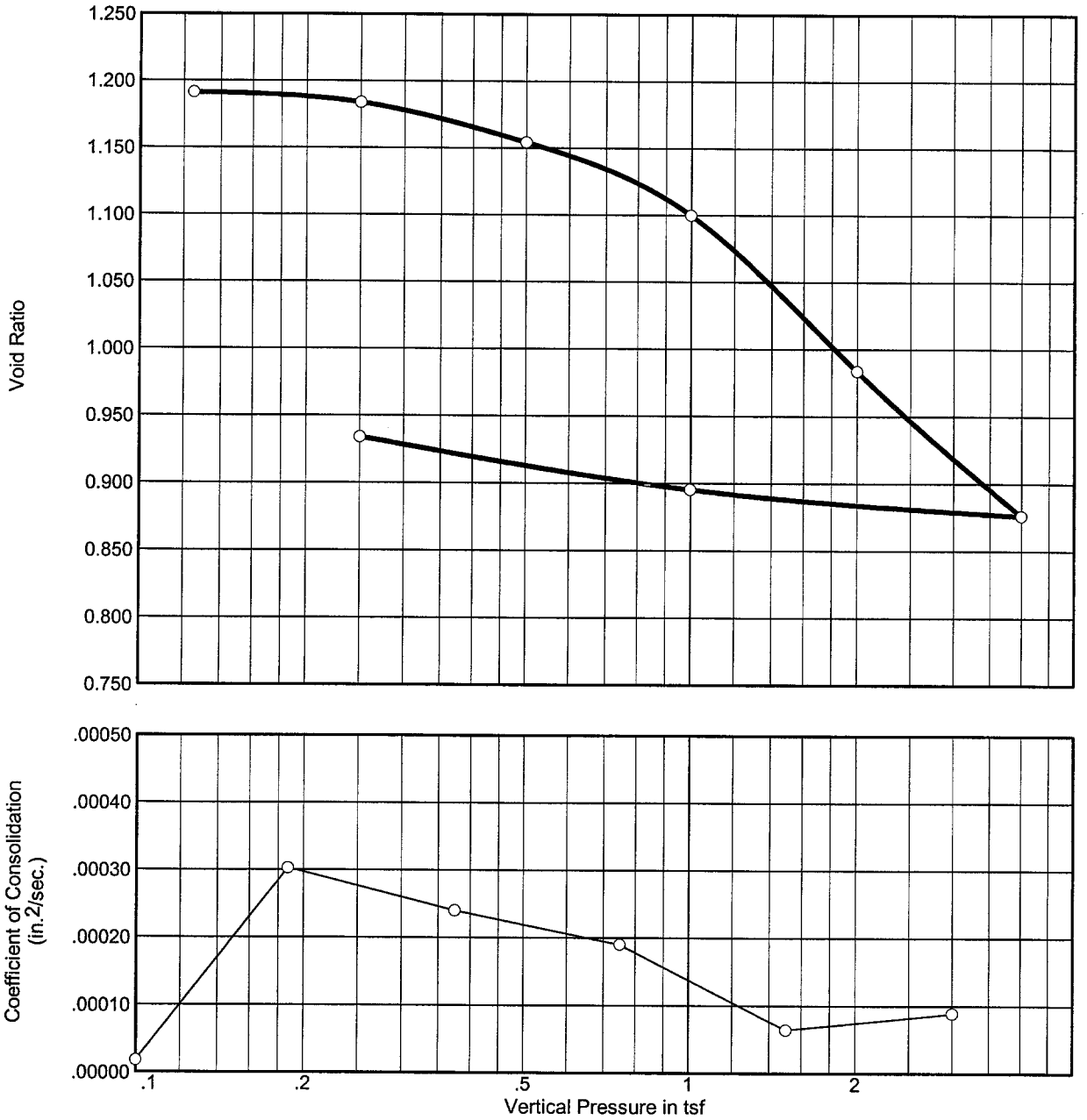




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 36



BORING NO.: 9	**SAMPLE NO.:** 10	**DEPTH:** 28.75	
DESCRIPTION OF MATERIAL: Soft gray clay (CH) with trace of organic matter and shell fragments			
LIQUID LIMIT: 78	**PLASTIC LIMIT:** 25	**PLASTICITY INDEX:** 53	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 42.3 %	**INITIAL VOID RATIO:** 1.199	**DRY DENSITY:** 77.2 (pcf)	

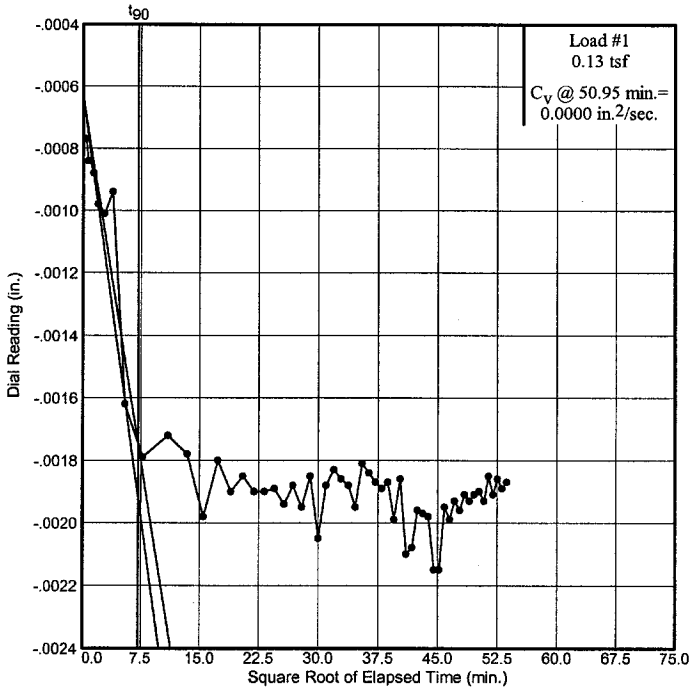
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 04-19-03
	CONSOLIDATION TEST REPORT

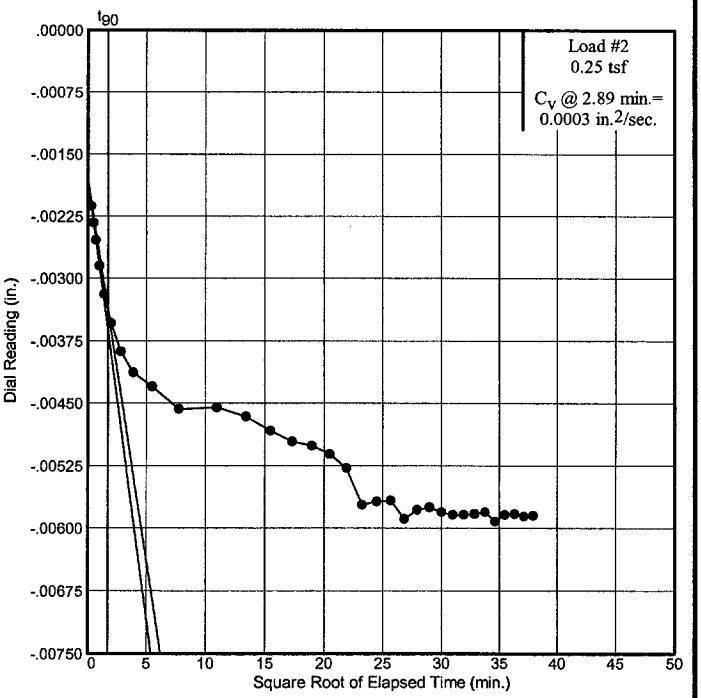
BURNS COOLEY DENNIS, INC.

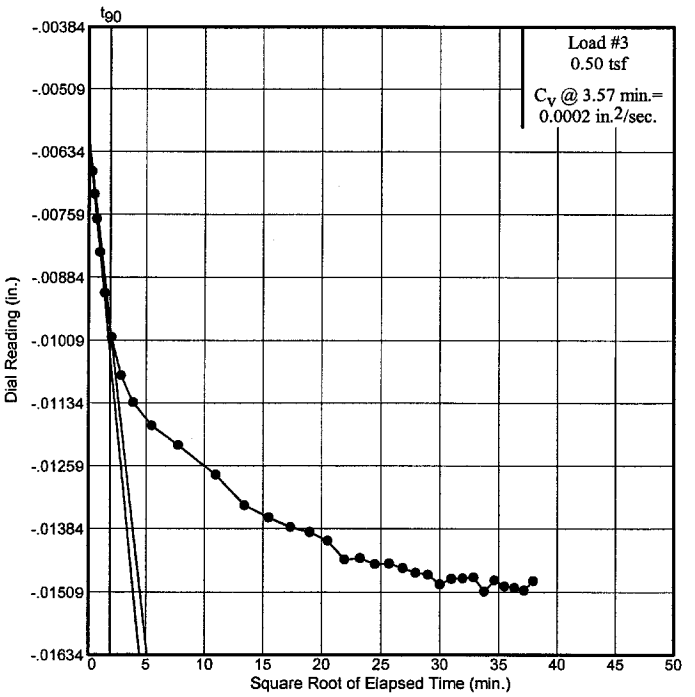
Figure 37

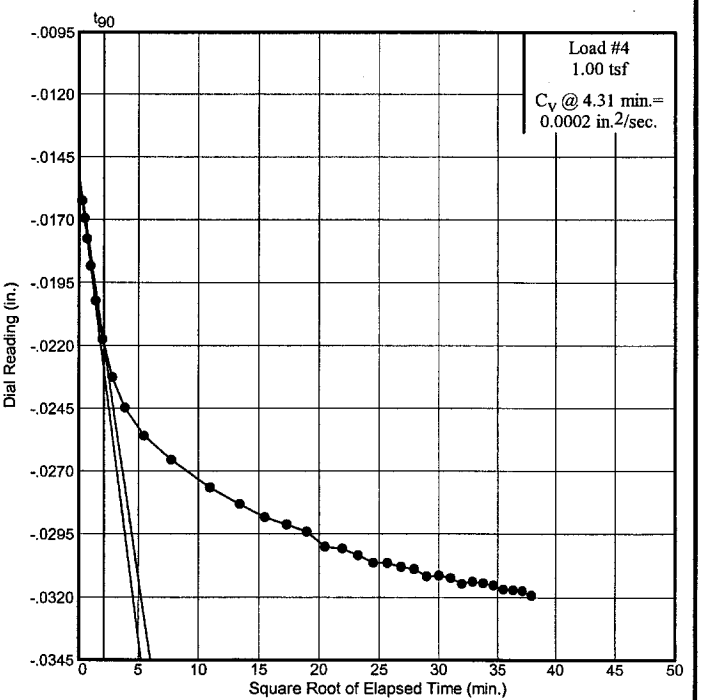
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 9 Sample No.: 10 Elev./Depth: 28.75









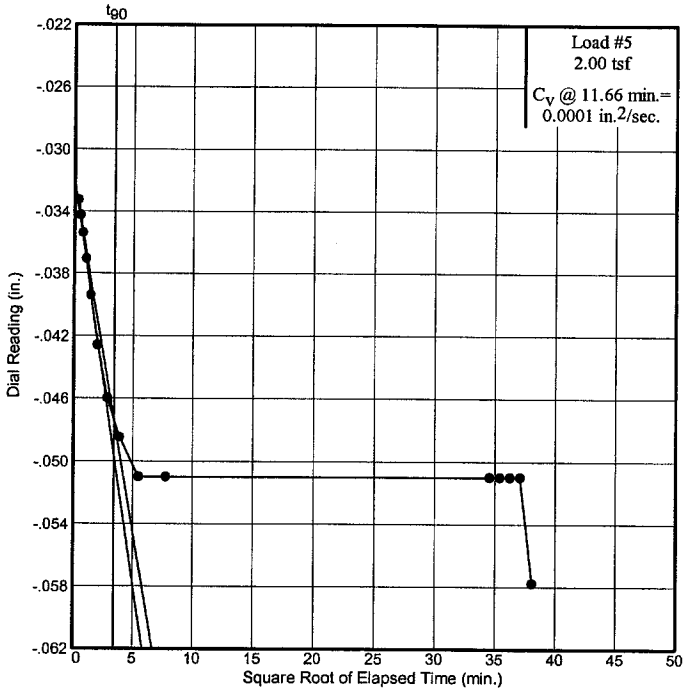
Dial Reading vs. Time

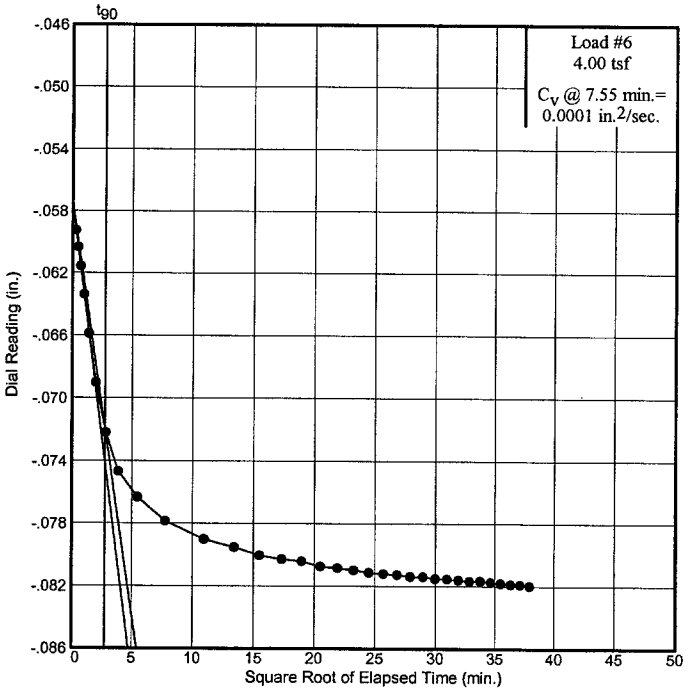
BURNS COOLEY DENNIS, INC.

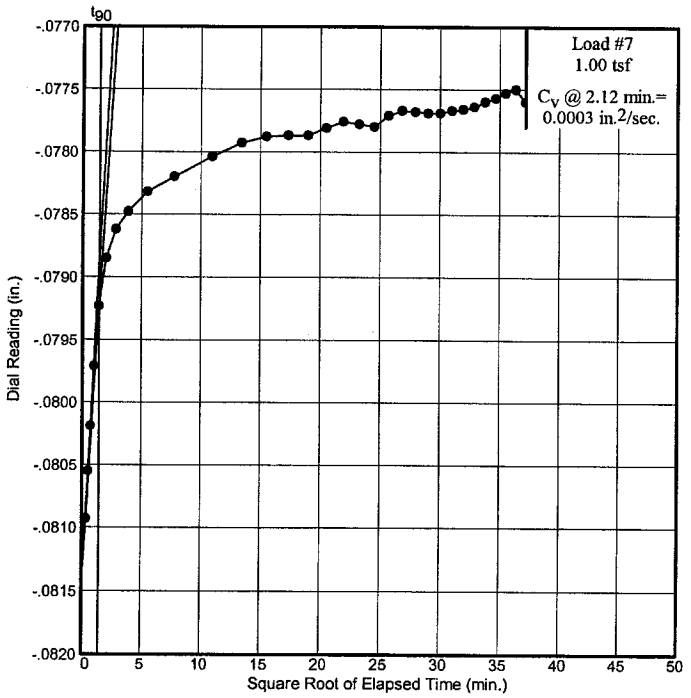
Figure 38

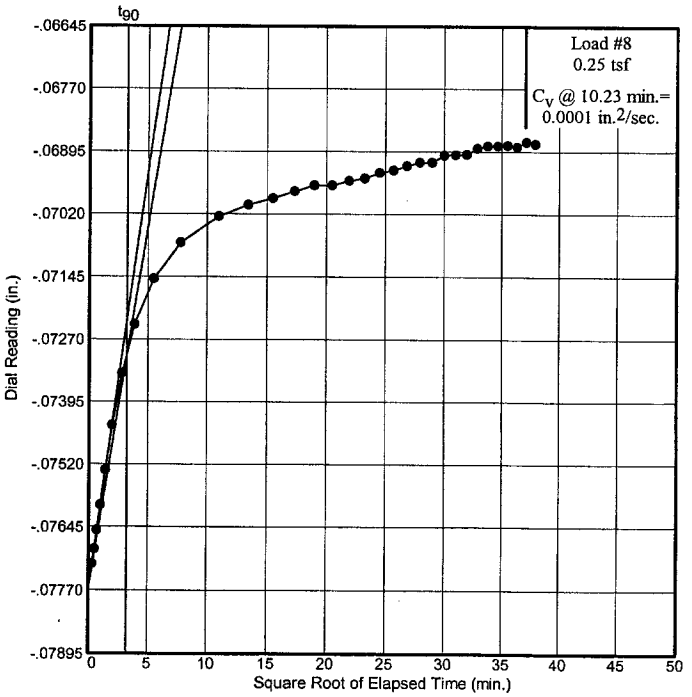
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 9 Sample No.: 10 Elev./Depth: 28.75





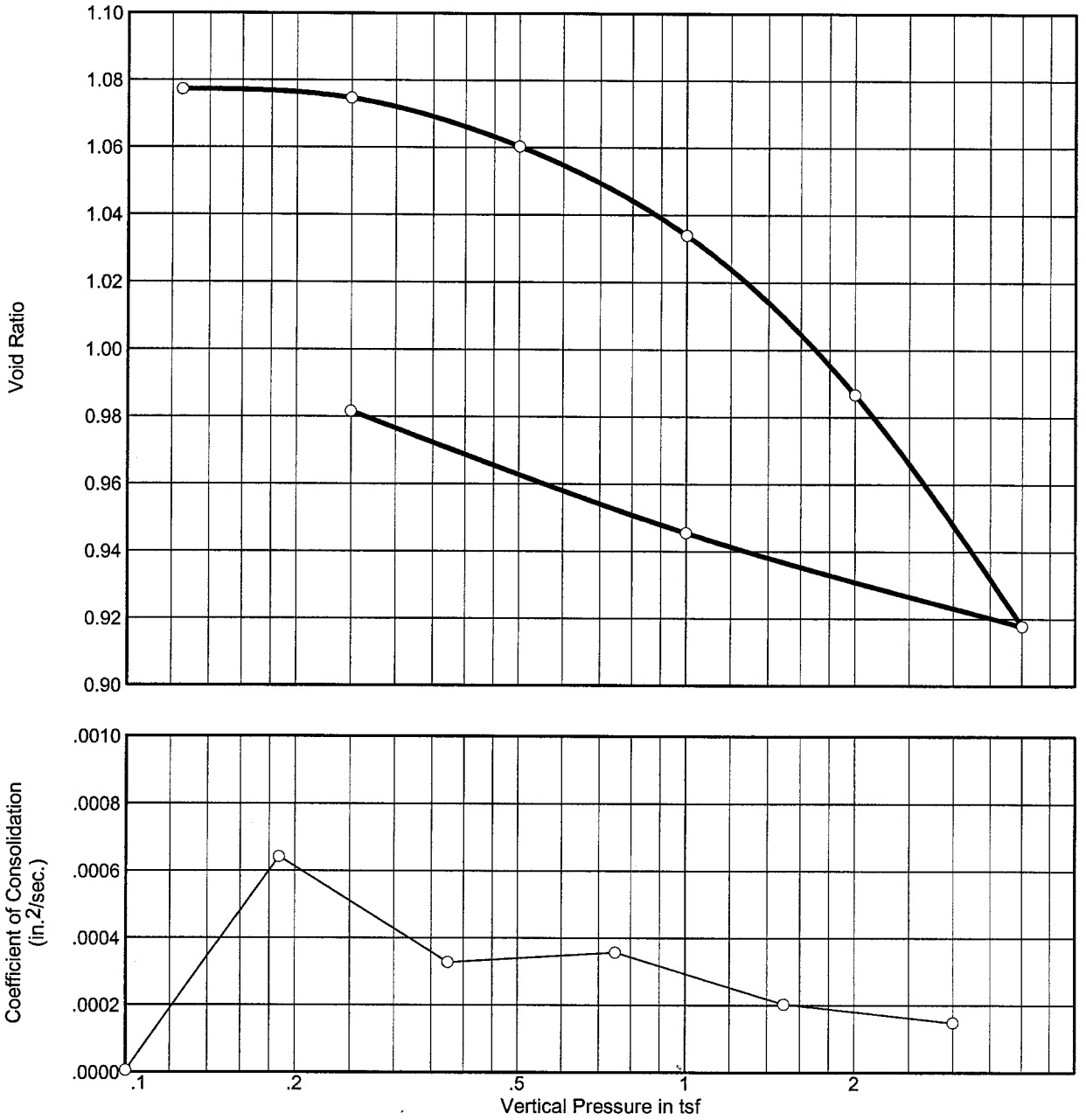




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 39



BORING NO.: 10	**SAMPLE NO.:** 3	**DEPTH:** 6.75	
DESCRIPTION OF MATERIAL: Soft gray clay (CH), slickensided, with organic matter			
LIQUID LIMIT: 78	**PLASTIC LIMIT:** 26	**PLASTICITY INDEX:** 52	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 38.0 %	**INITIAL VOID RATIO:** 1.076	**DRY DENSITY:** 81.8 (pcf)	

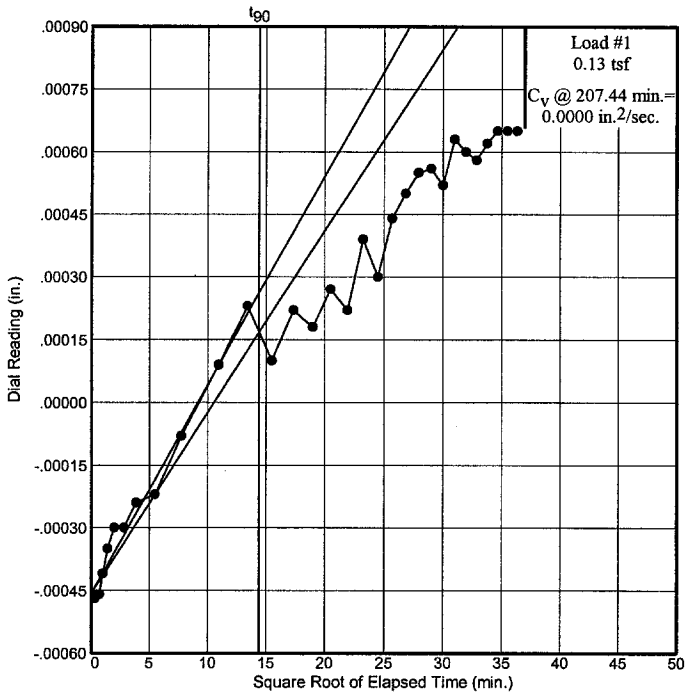
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 03-28-03
	CONSOLIDATION TEST REPORT

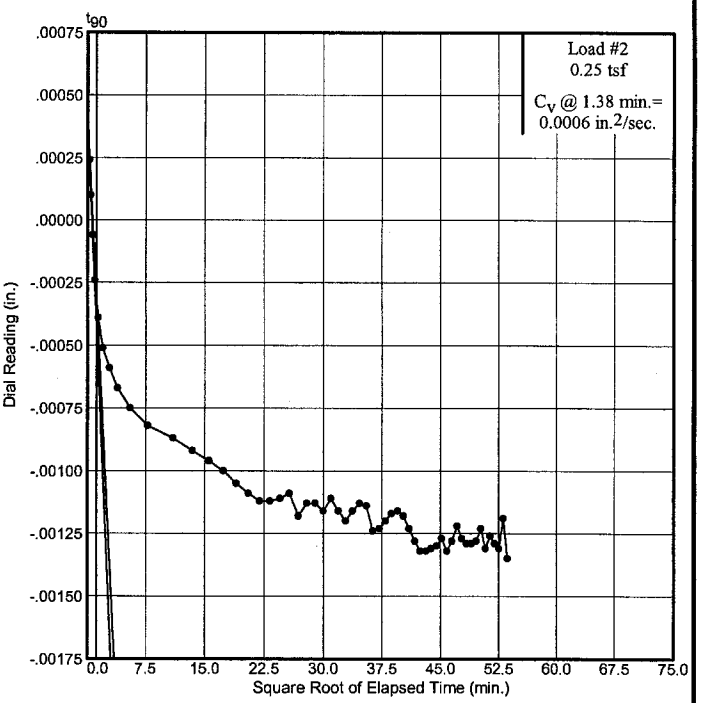
BURNS COOLEY DENNIS, INC.

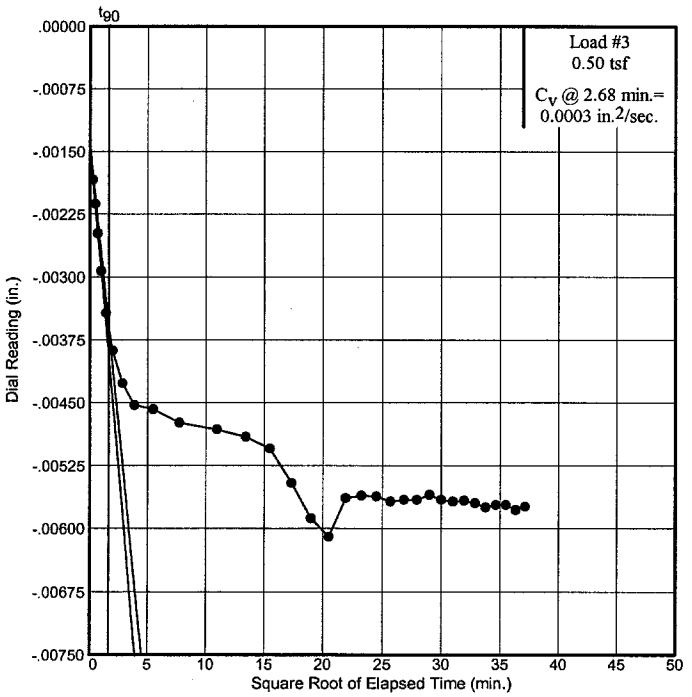
Figure 40

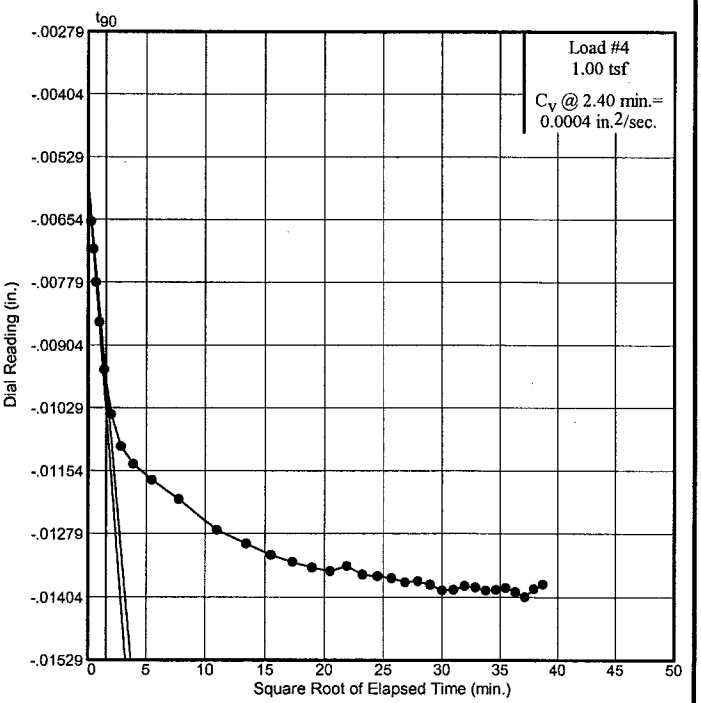
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 10 Sample No.: 3 Elev./Depth: 6.75









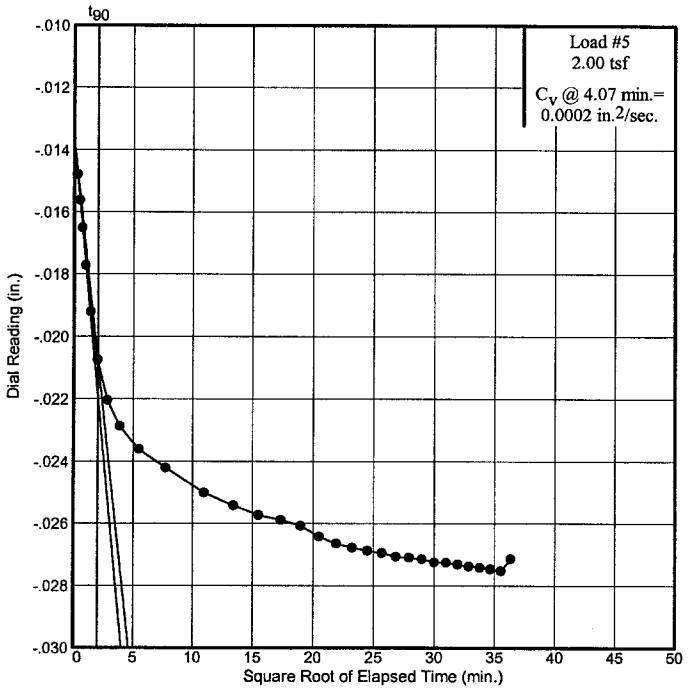
Dial Reading vs. Time

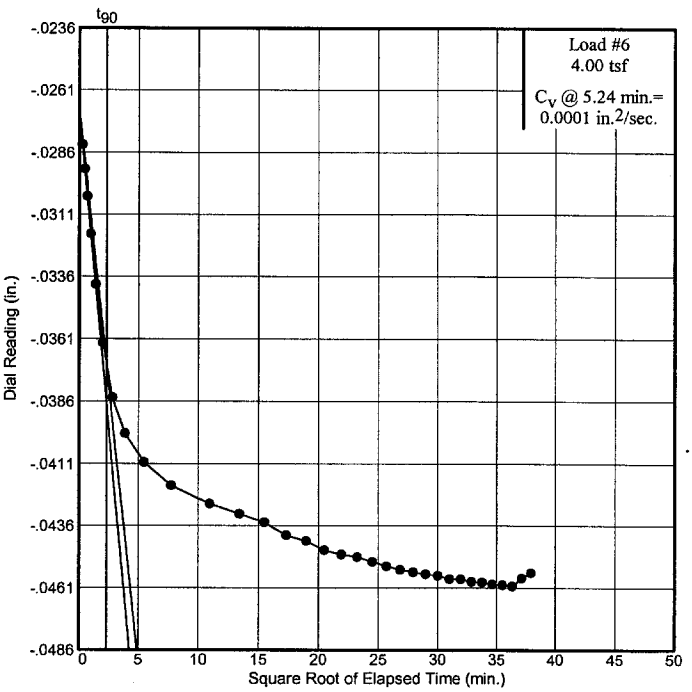
BURNS COOLEY DENNIS, INC.

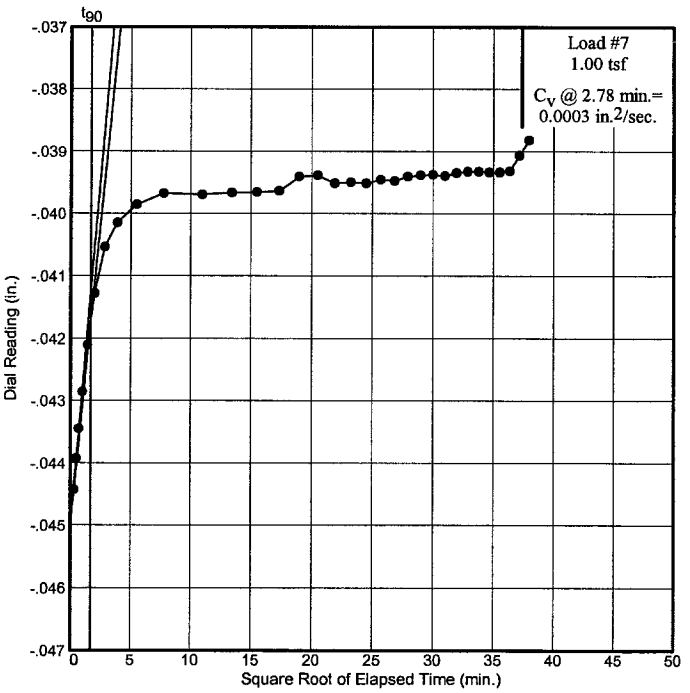
Figure 41

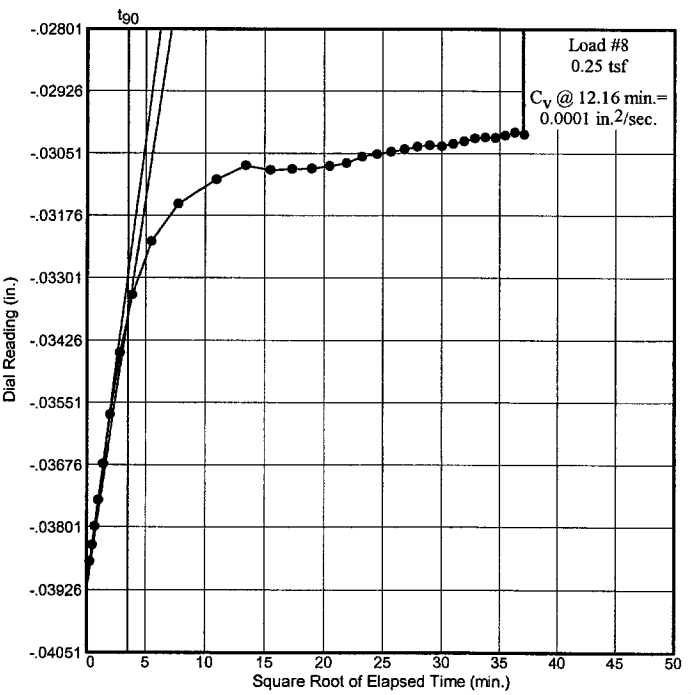
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 10 Sample No.: 3 Elev./Depth: 6.75





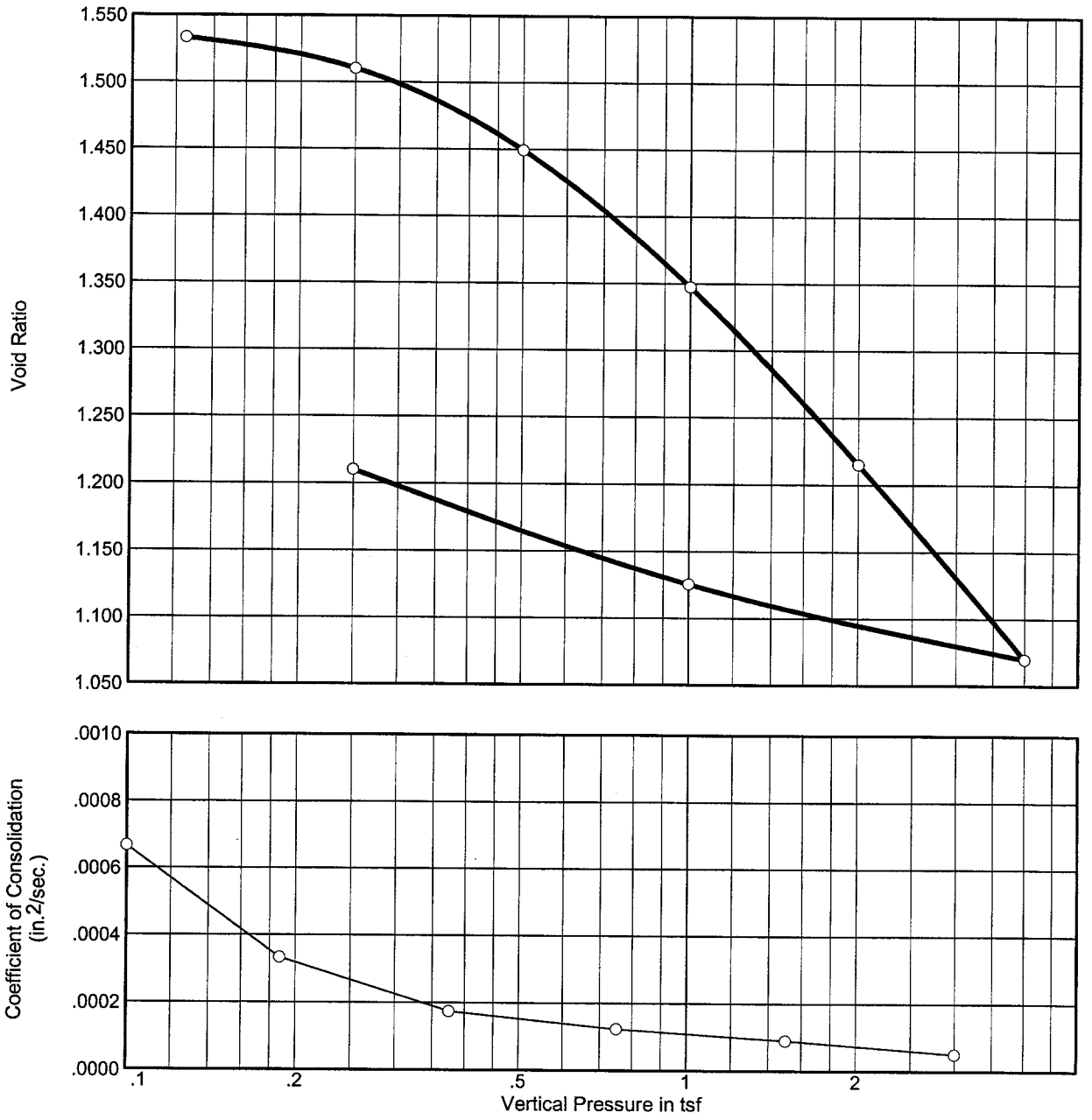




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 42



BORING NO.: 11	**SAMPLE NO.:** 2	**DEPTH:** 2.75	
DESCRIPTION OF MATERIAL: Soft gray clay (CH)			
LIQUID LIMIT: 116	**PLASTIC LIMIT:** 30	**PLASTICITY INDEX:** 86	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 54.3 %	**INITIAL VOID RATIO:** 1.549	**DRY DENSITY:** 66.6 (pcf)	

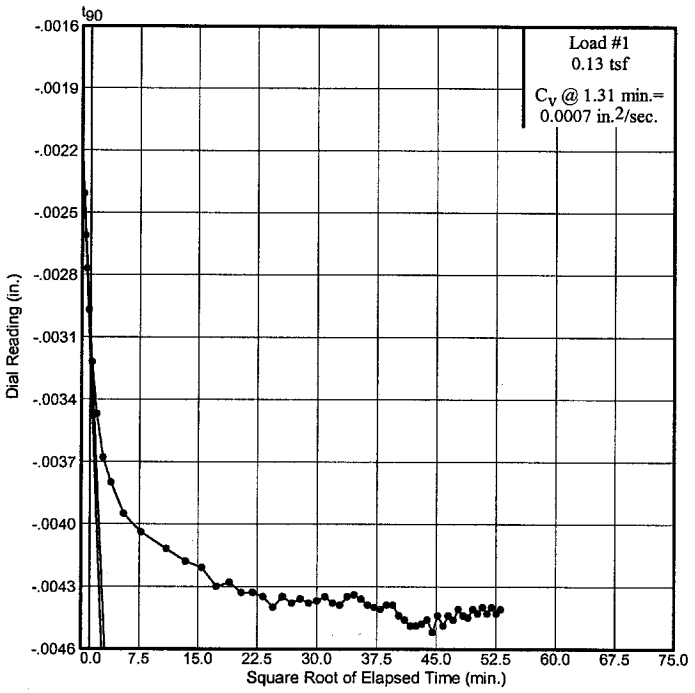
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 04-19-03
	CONSOLIDATION TEST REPORT

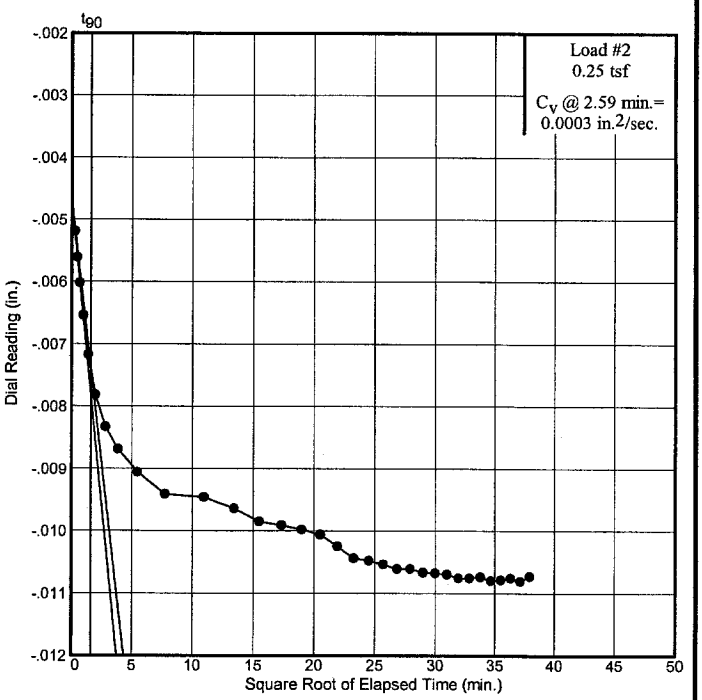
BURNS COOLEY DENNIS, INC.

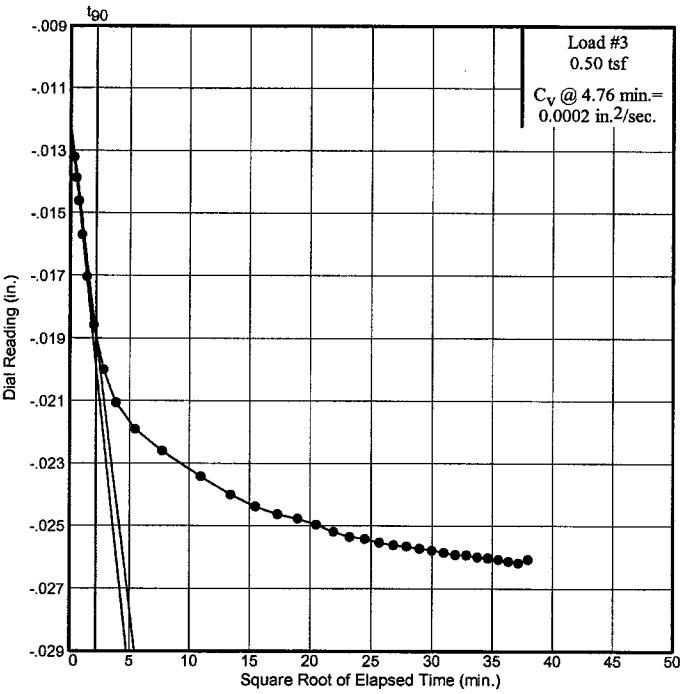
Figure 43

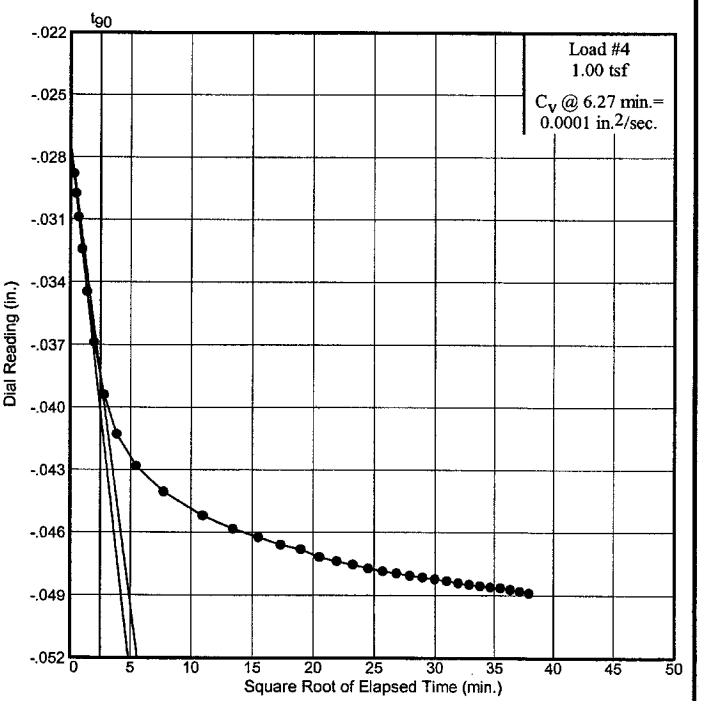
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 11 Sample No.: 2 Elev./Depth: 2.75









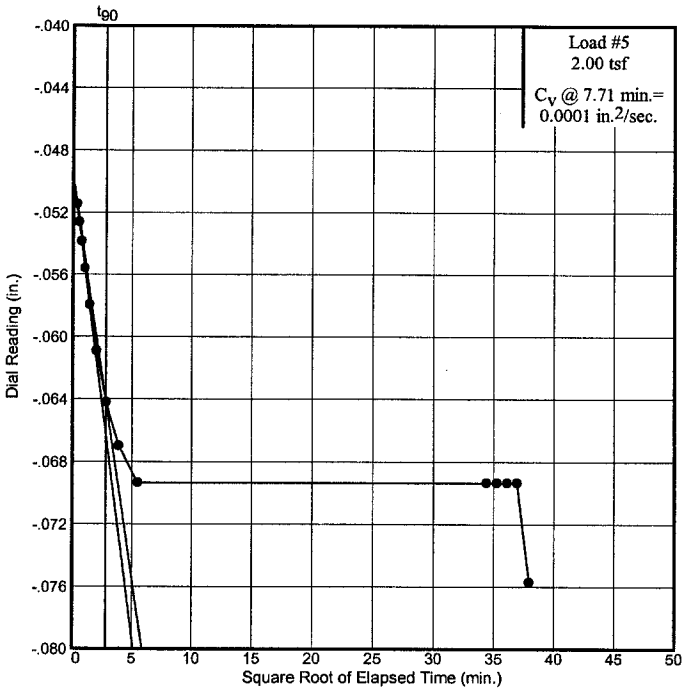
Dial Reading vs. Time

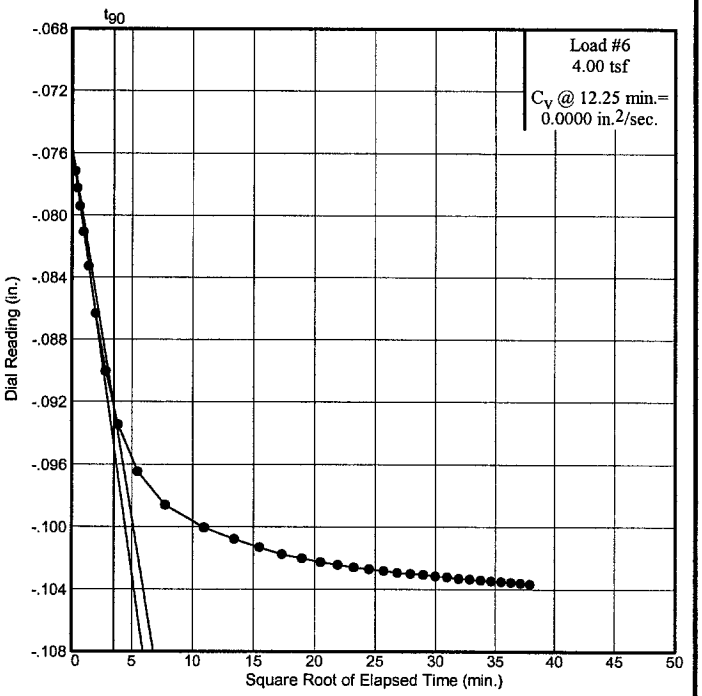
BURNS COOLEY DENNIS, INC.

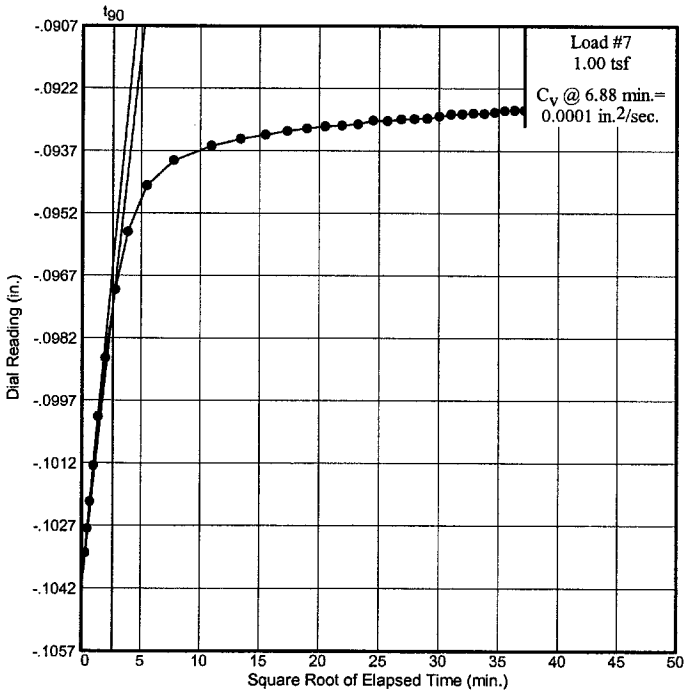
Figure 44

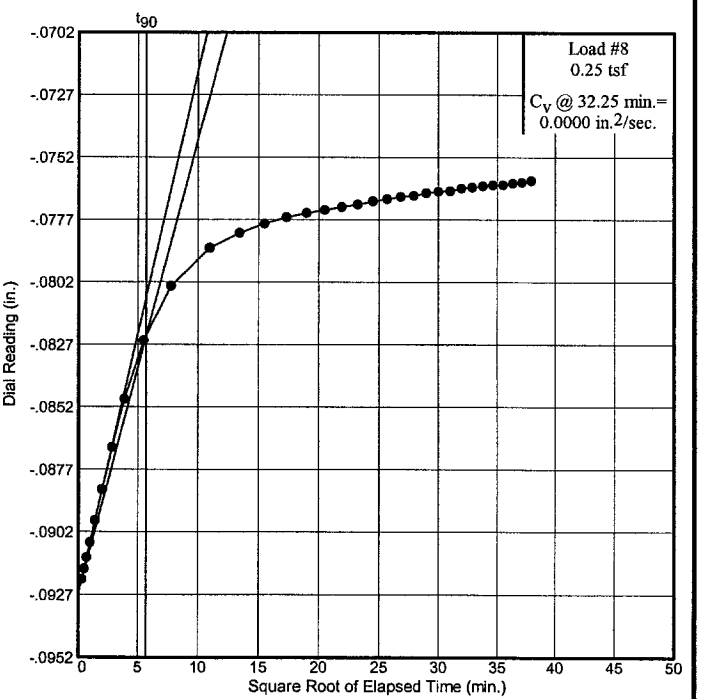
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 11 Sample No.: 2 Elev./Depth: 2.75





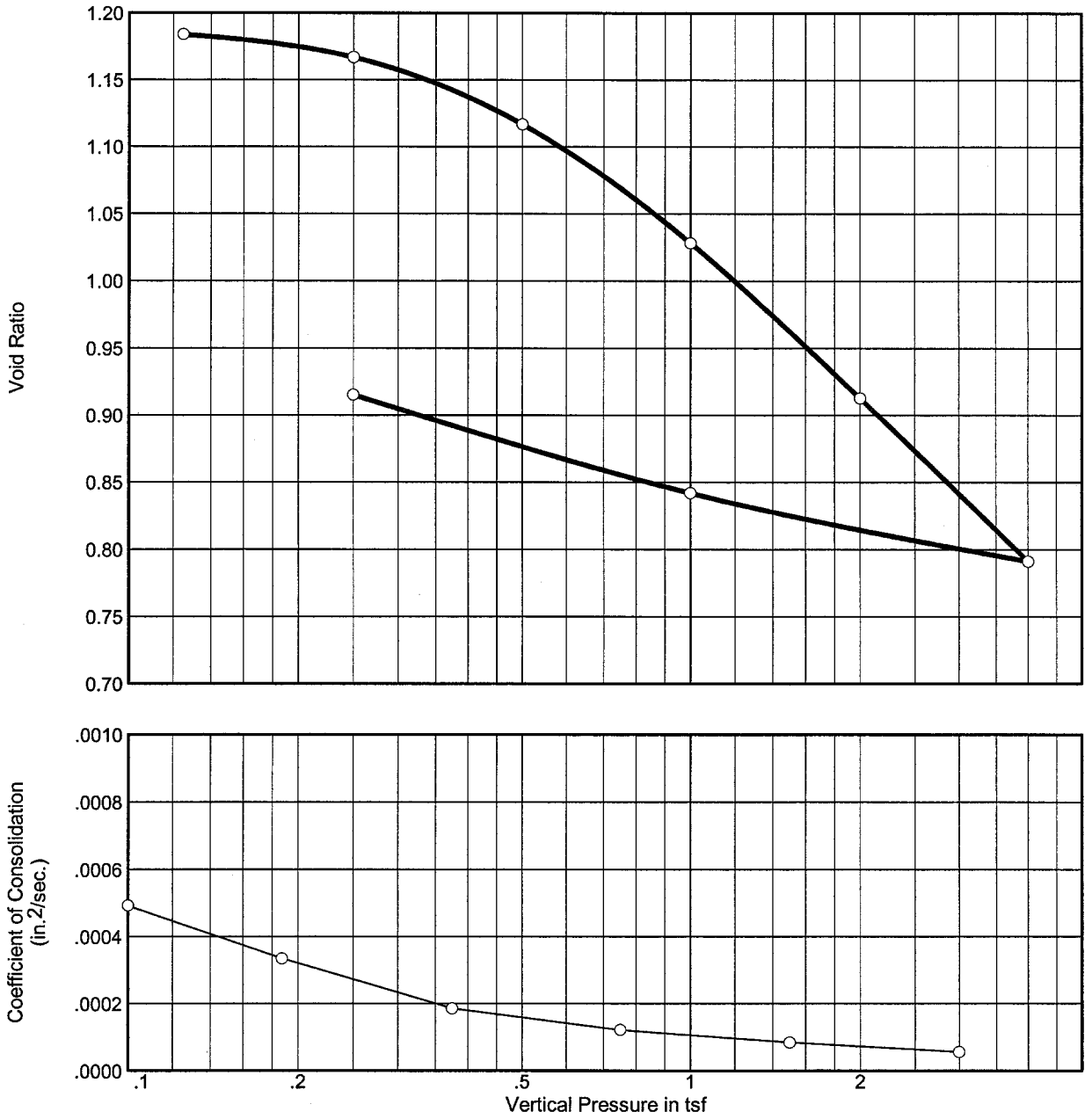




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 45



BORING NO.: 11	**SAMPLE NO.:** 11	**DEPTH:** 29.25	
DESCRIPTION OF MATERIAL: Soft gray clay (CH) with sandy silt pockets and shell fragments			
LIQUID LIMIT: 87	**PLASTIC LIMIT:** 26	**PLASTICITY INDEX:** 61	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 41.9 %	**INITIAL VOID RATIO:** 1.197	**DRY DENSITY:** 77.0 (pcf)	

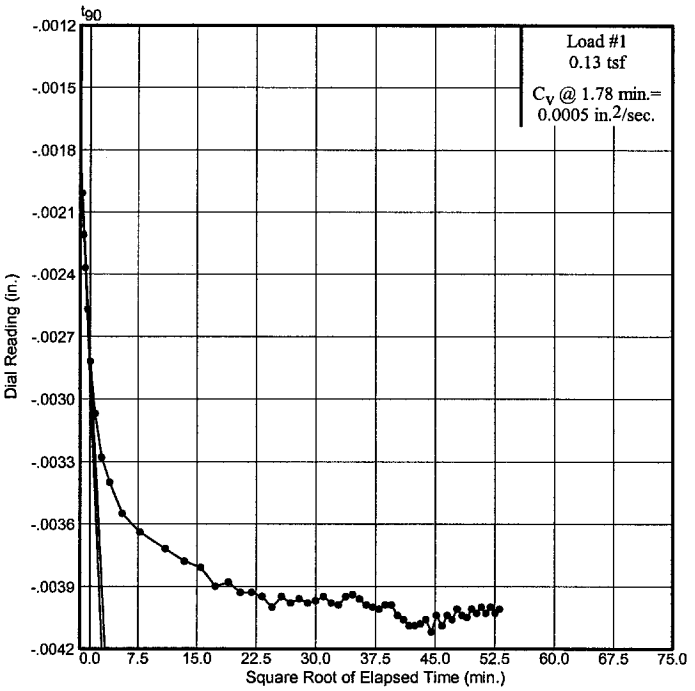
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 04-19-03
	CONSOLIDATION TEST REPORT

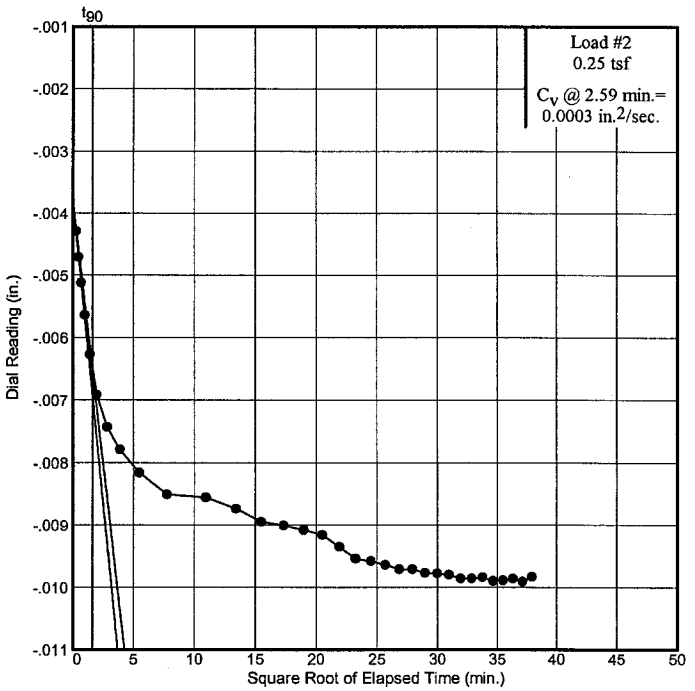
BURNS COOLEY DENNIS, INC.

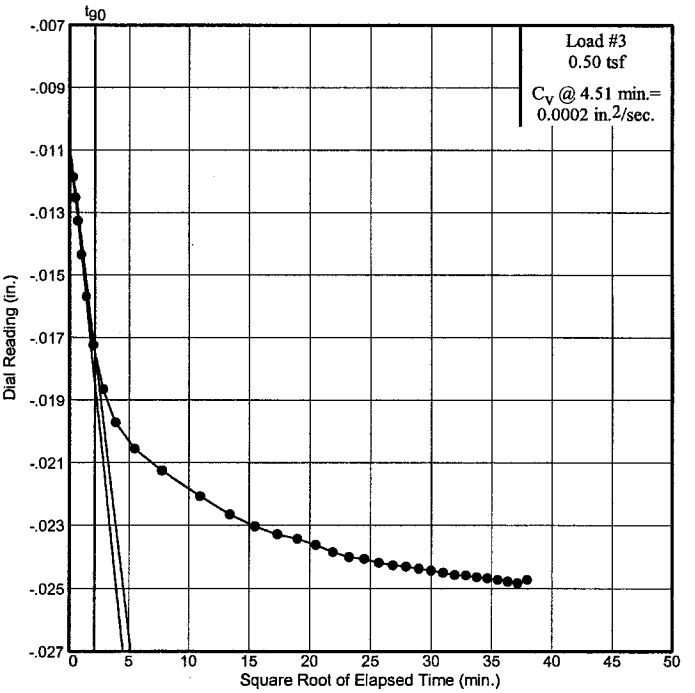
Figure 46

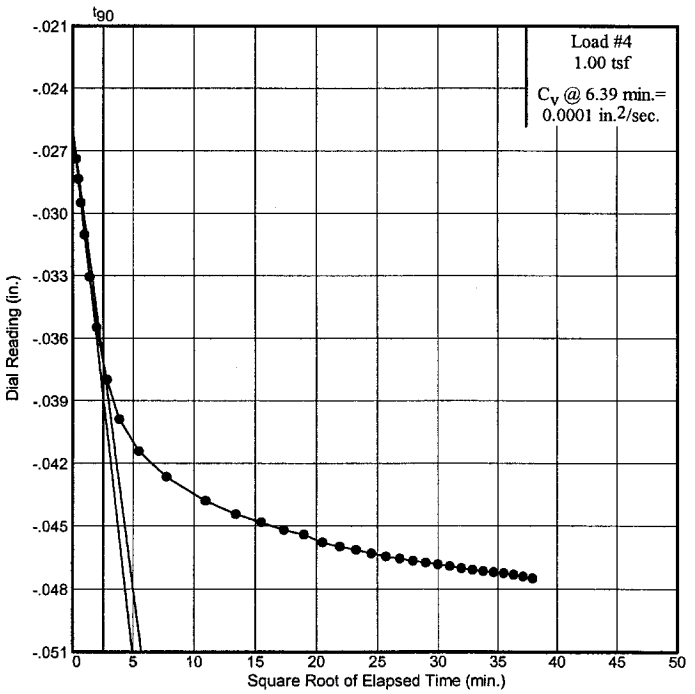
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 11 Sample No.: 11 Elev./Depth: 29.25









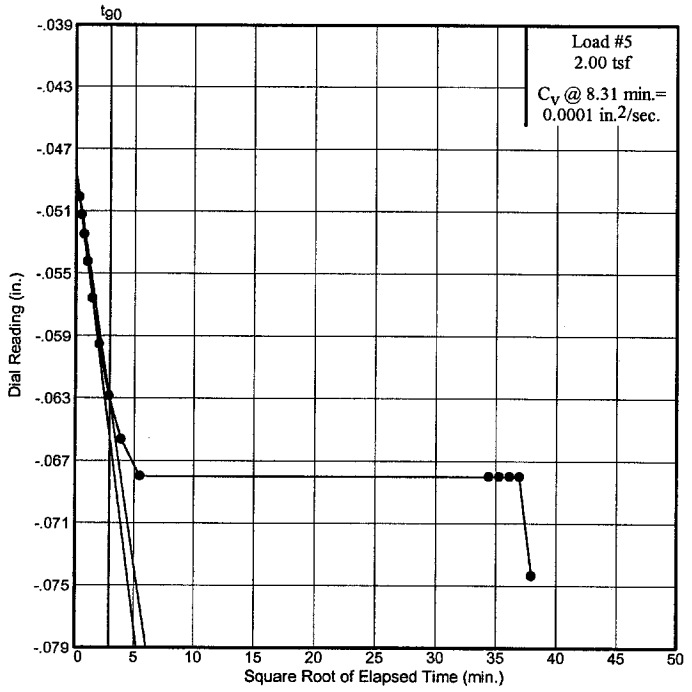
Dial Reading vs. Time

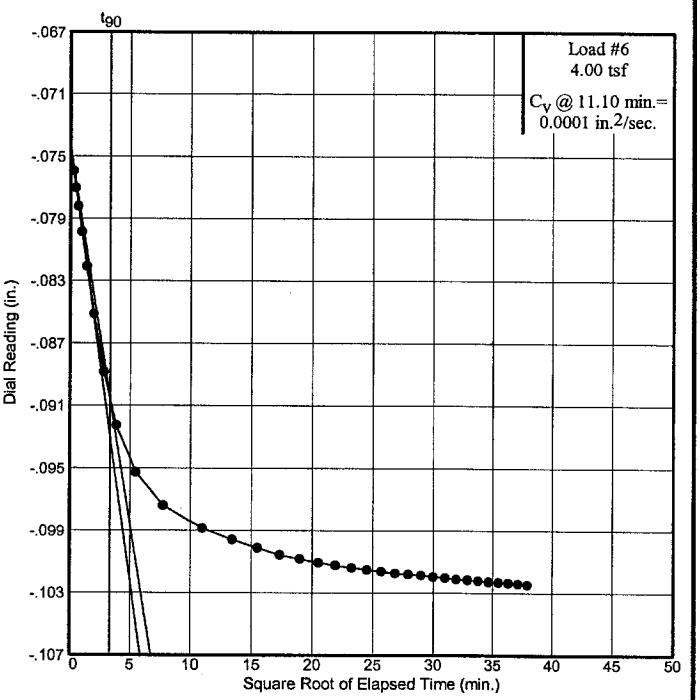
BURNS COOLEY DENNIS, INC.

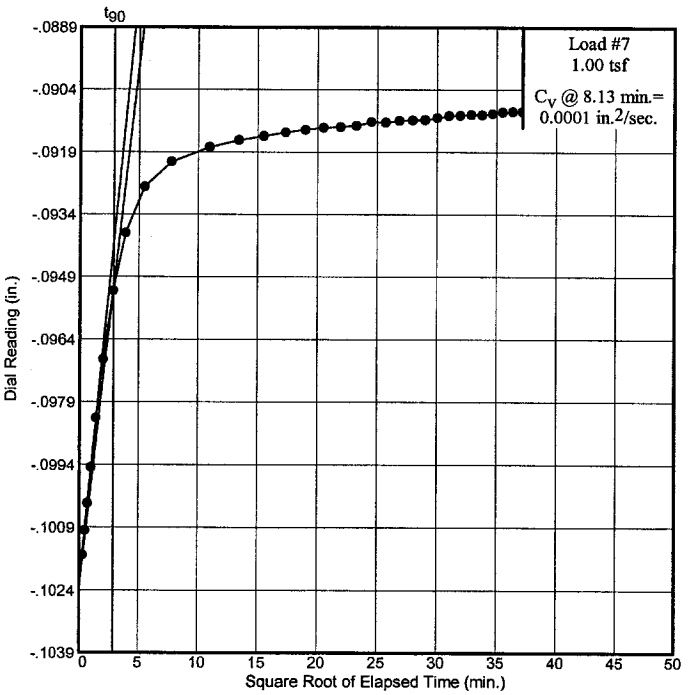
Figure 47

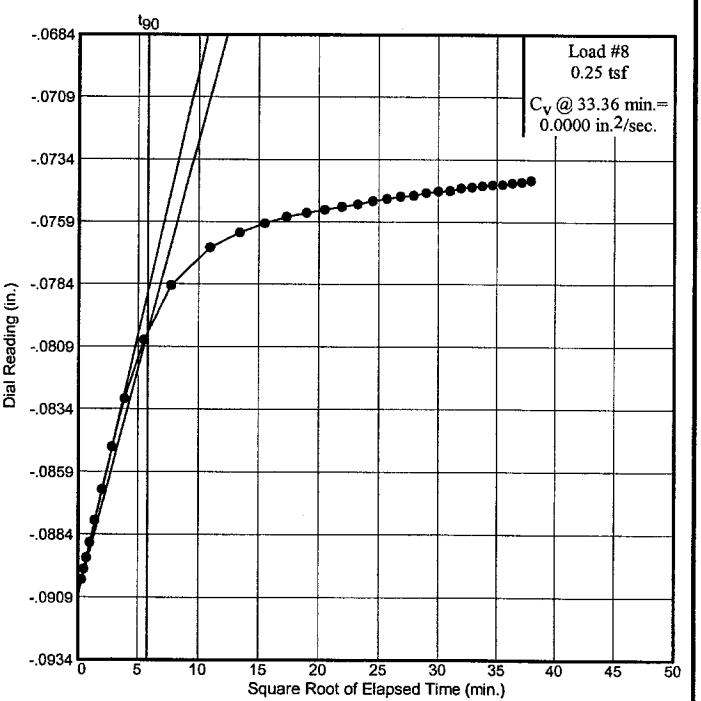
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 11 Sample No.: 11 Elev./Depth: 29.25





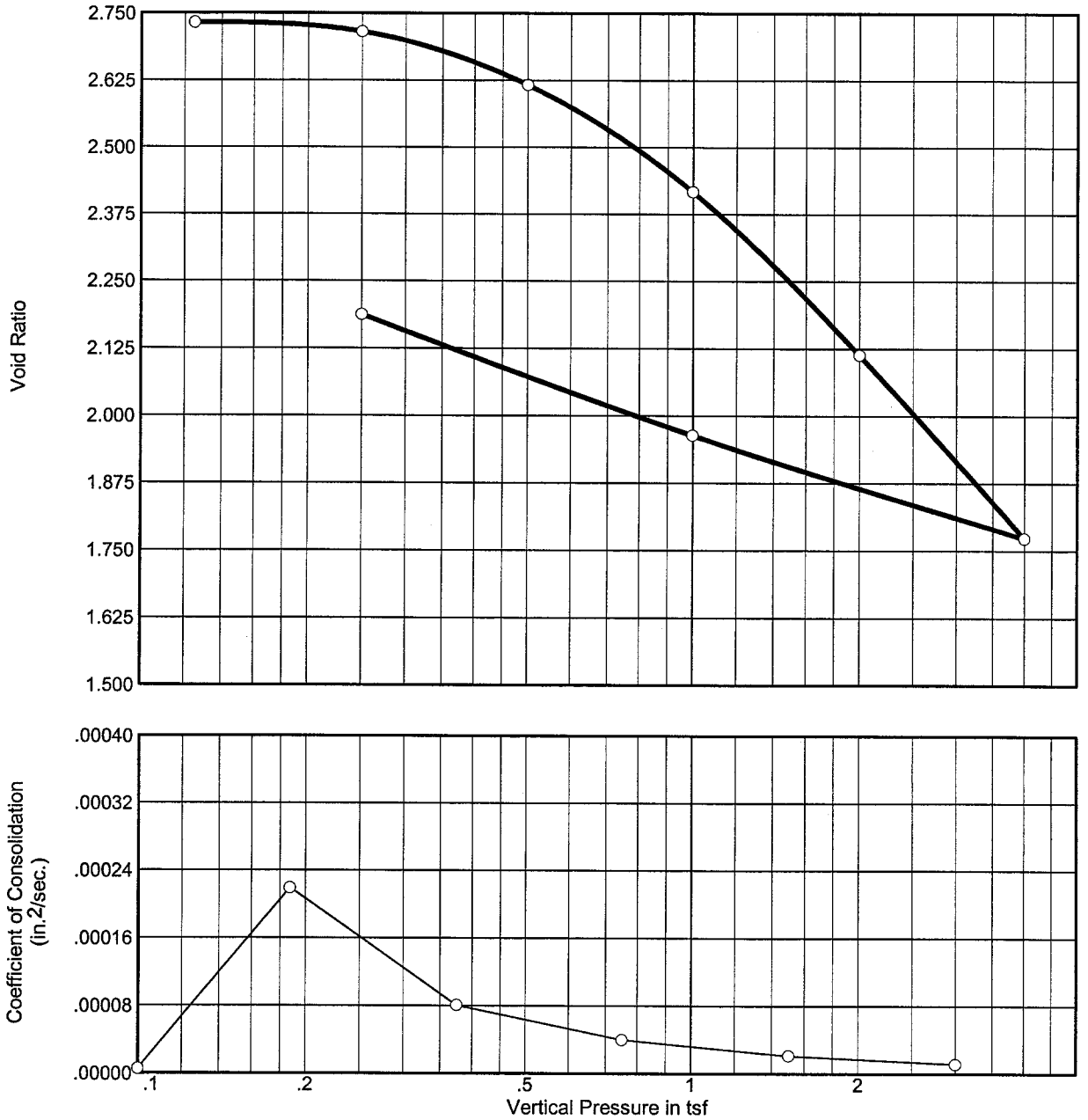




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 48



BORING NO.: 12	**SAMPLE NO.:** 3	**DEPTH:** 6.25
DESCRIPTION OF MATERIAL: Soft gray clay (CH), blocky		
LIQUID LIMIT: 114	**PLASTIC LIMIT:** 31	**PLASTICITY INDEX:** 83	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 110.0 %	**INITIAL VOID RATIO:** 2.754	**DRY DENSITY:** 45.2 (pcf)

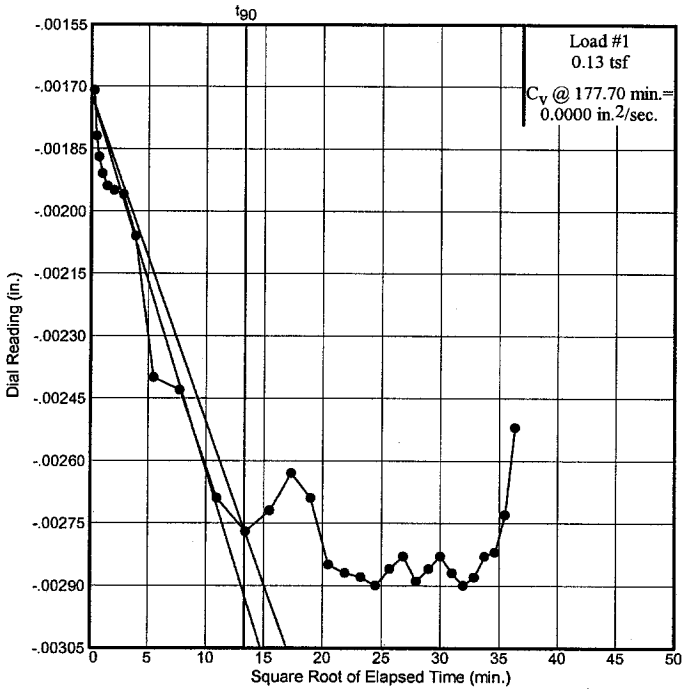
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 04-04-03
	CONSOLIDATION TEST REPORT

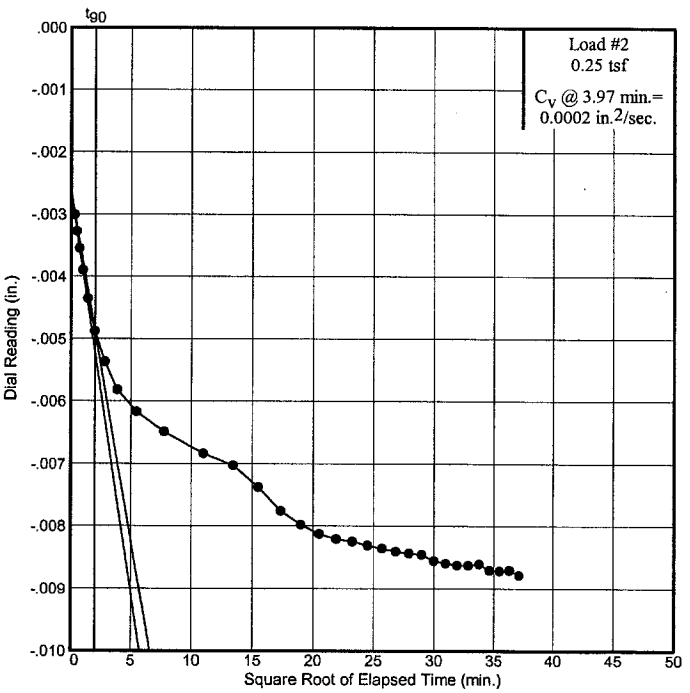
BURNS COOLEY DENNIS, INC.

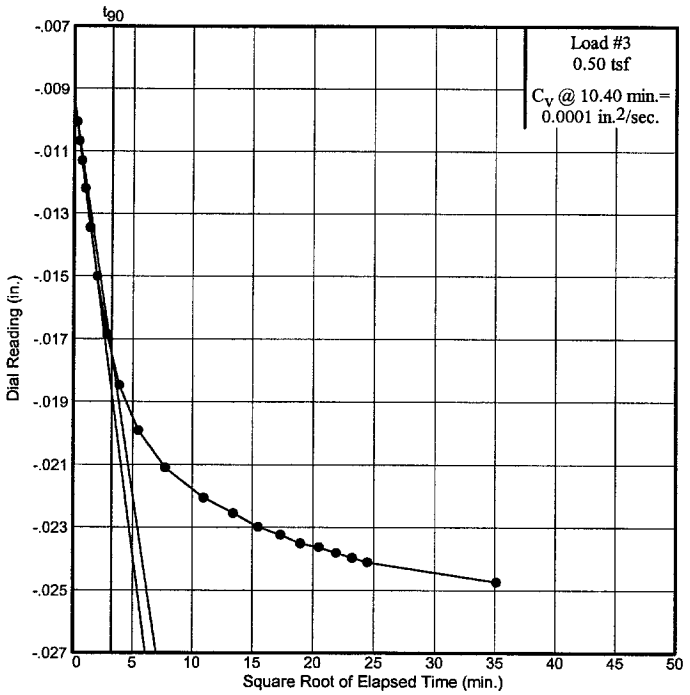
Figure 49

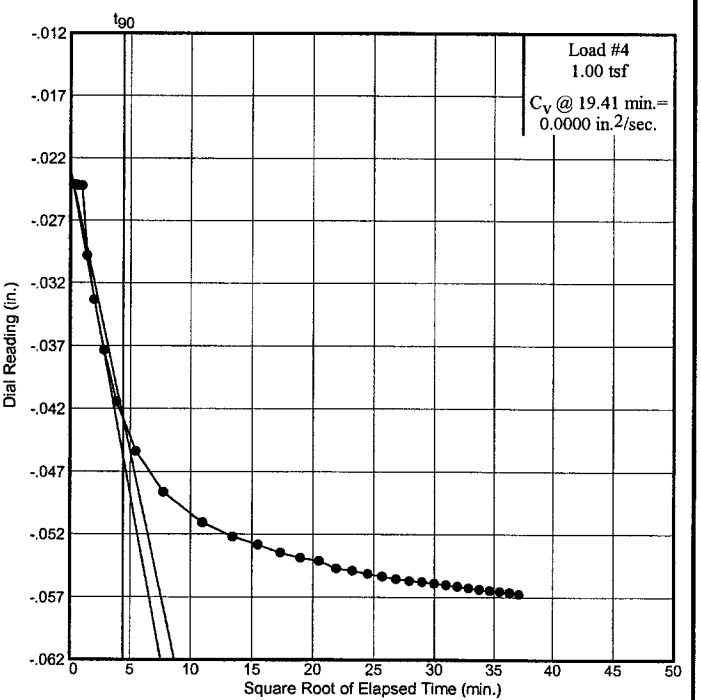
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 12 Sample No.: 3 Elev./Depth: 6.25









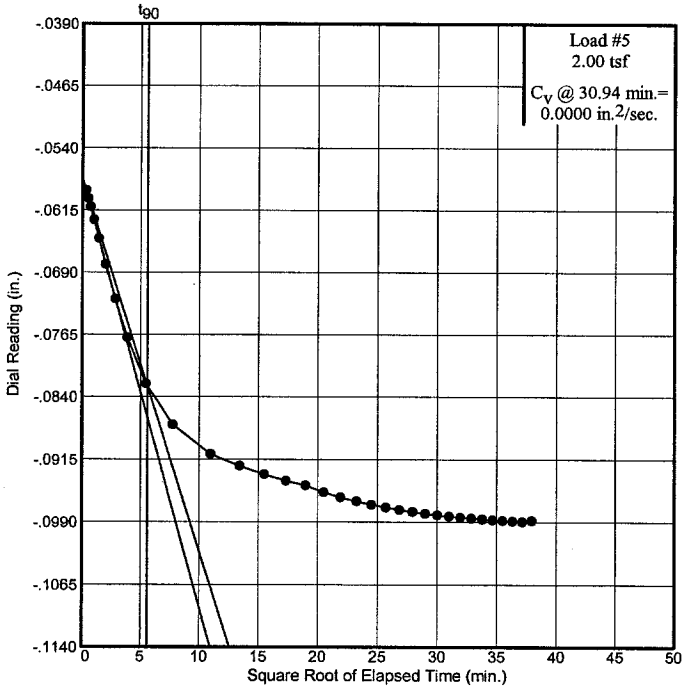
Dial Reading vs. Time

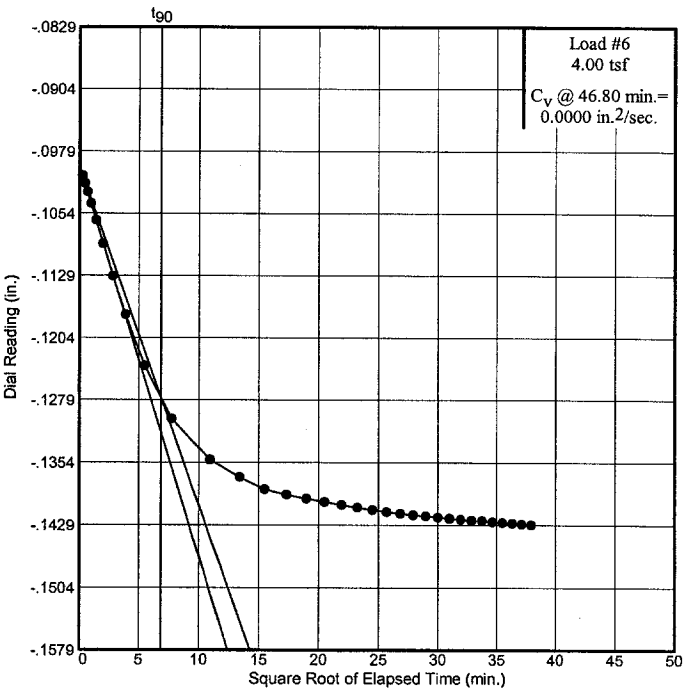
BURNS COOLEY DENNIS, INC.

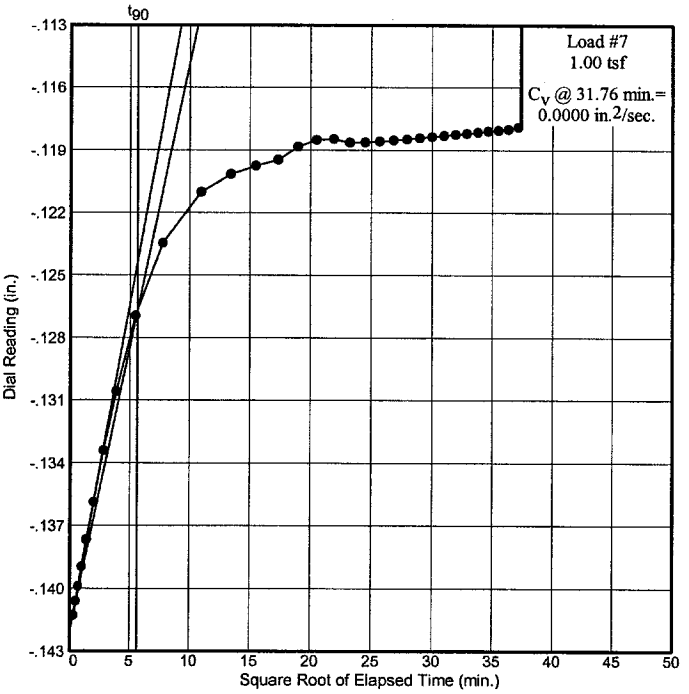
Figure 50

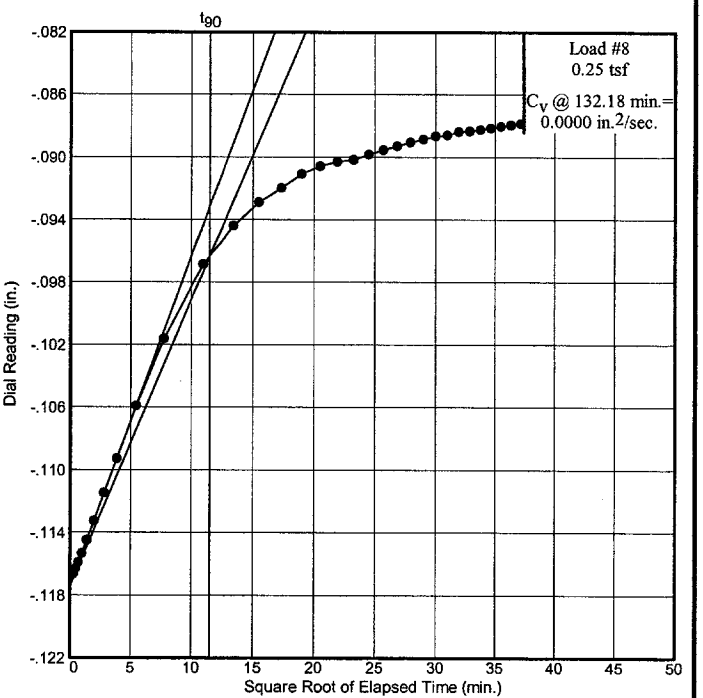
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 12 Sample No.: 3 Elev./Depth: 6.25





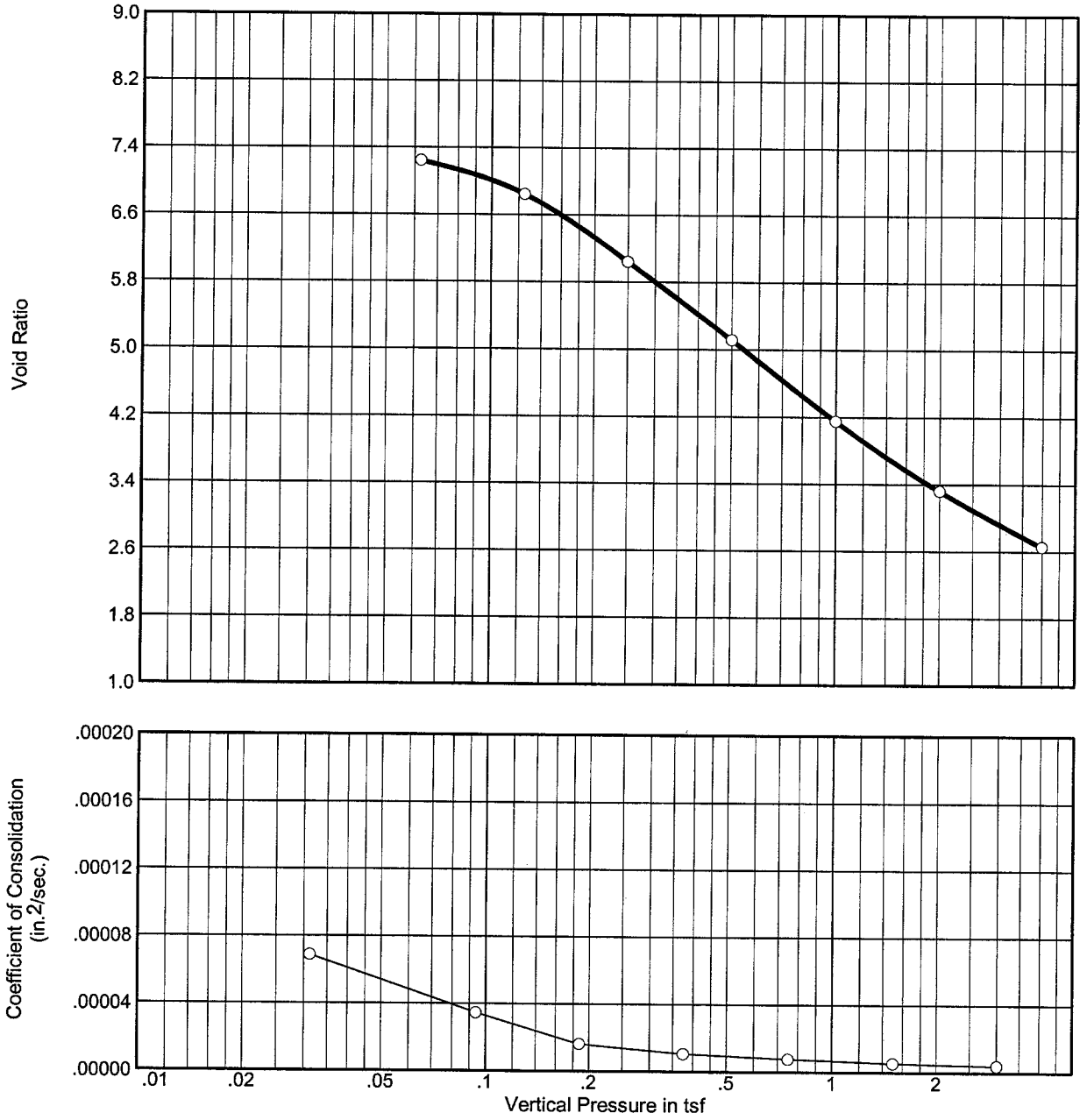




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 51



BORING NO.: 13	**SAMPLE NO.:** 3	**DEPTH:** 5.75
DESCRIPTION OF MATERIAL: Very soft black and dark gray clay (CH) with organic matter		
LIQUID LIMIT: 287	**PLASTIC LIMIT:** 80	**PLASTICITY INDEX:** 207	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 285.4 %	**INITIAL VOID RATIO:** 7.586	**DRY DENSITY:** 18.9 (pcf)

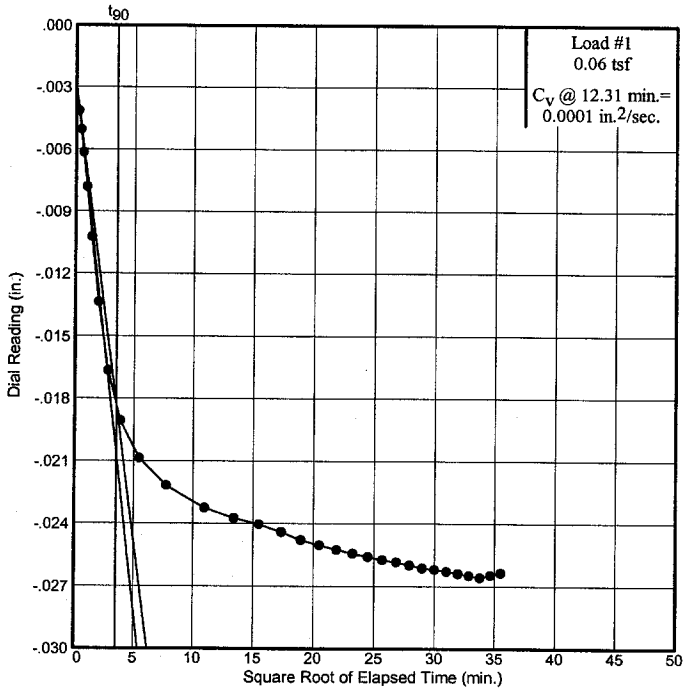
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 04-04-03
	CONSOLIDATION TEST REPORT

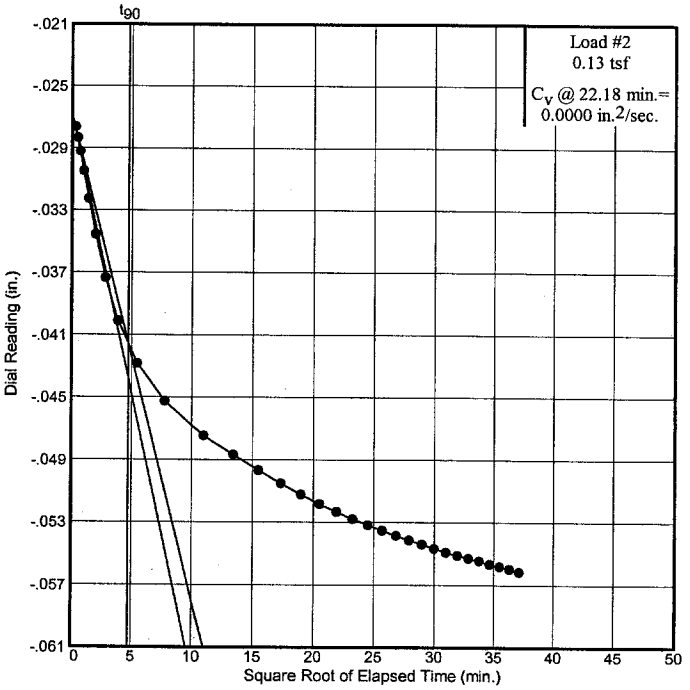
BURNS COOLEY DENNIS, INC.

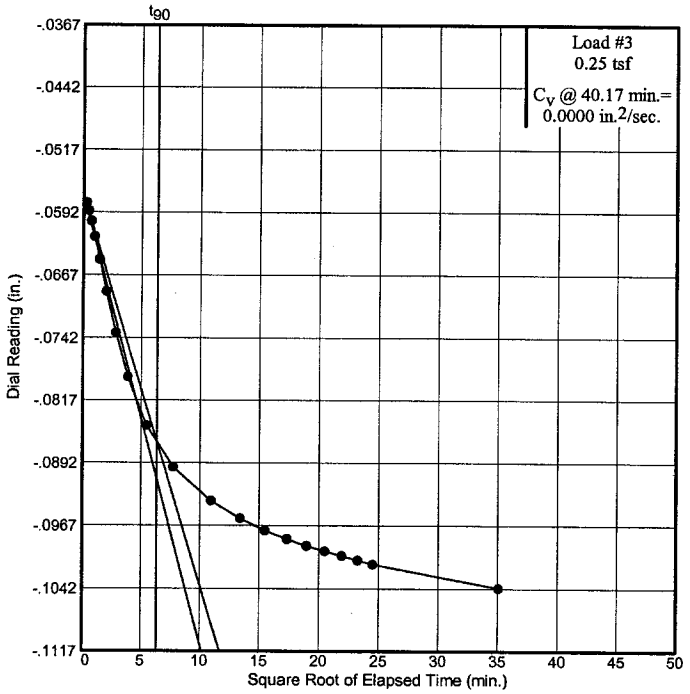
Figure 52

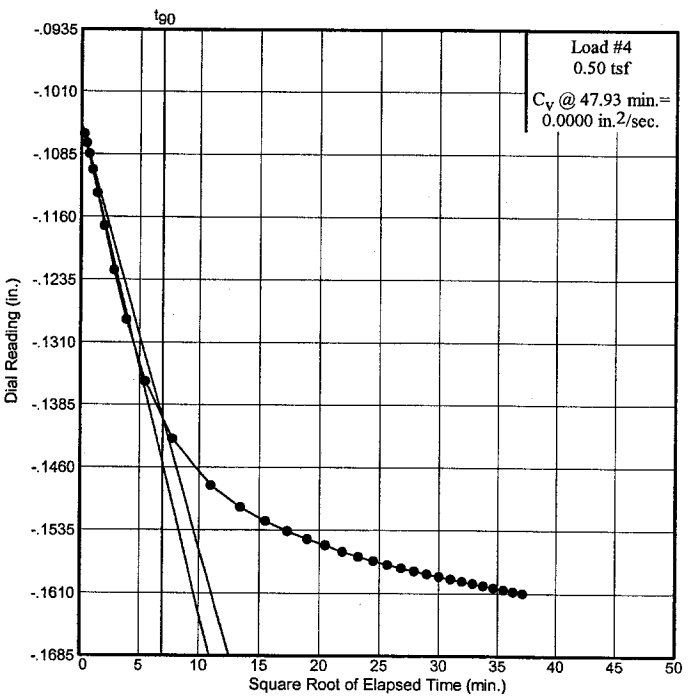
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 13 Sample No.: 3 Elev./Depth: 5.75









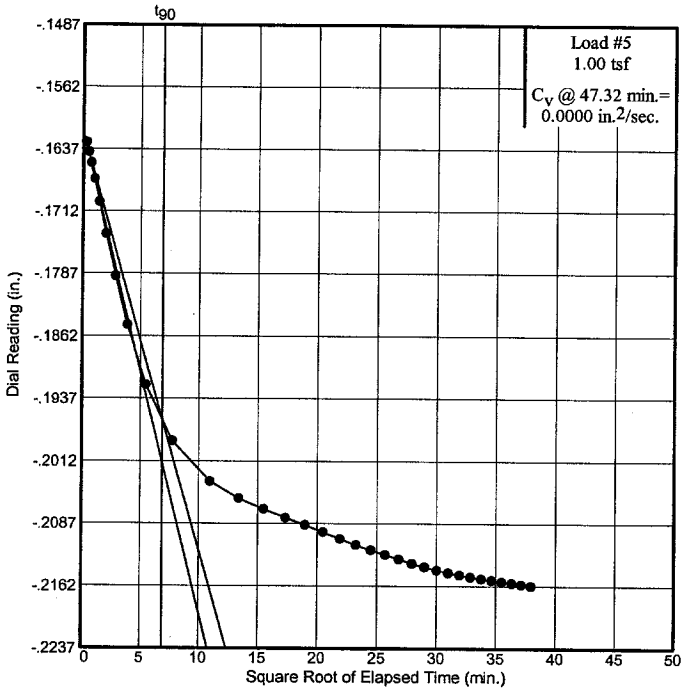
Dial Reading vs. Time

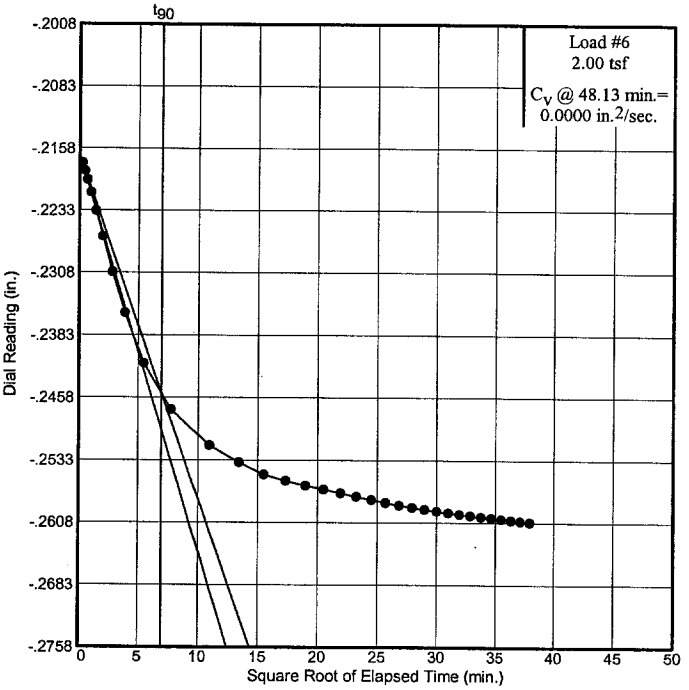
BURNS COOLEY DENNIS, INC.

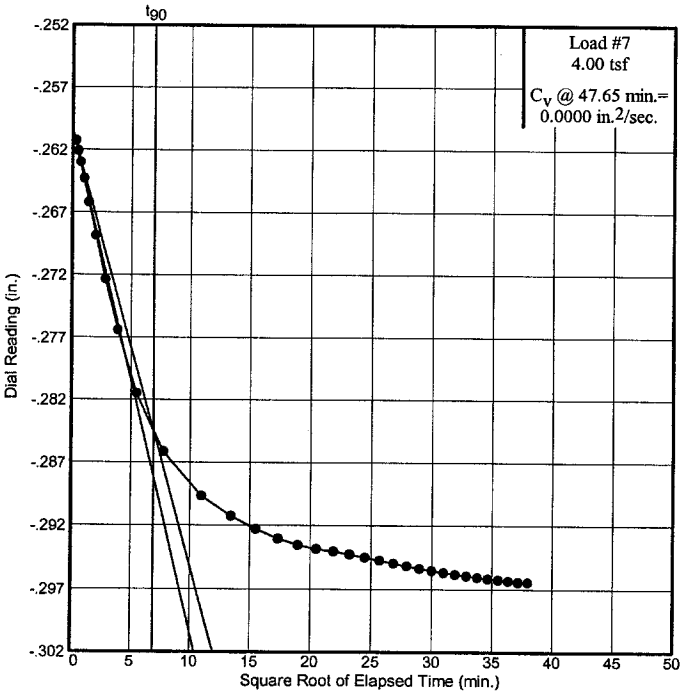
Figure 53

Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: 13 Sample No.: 3 Elev./Depth: 5.75



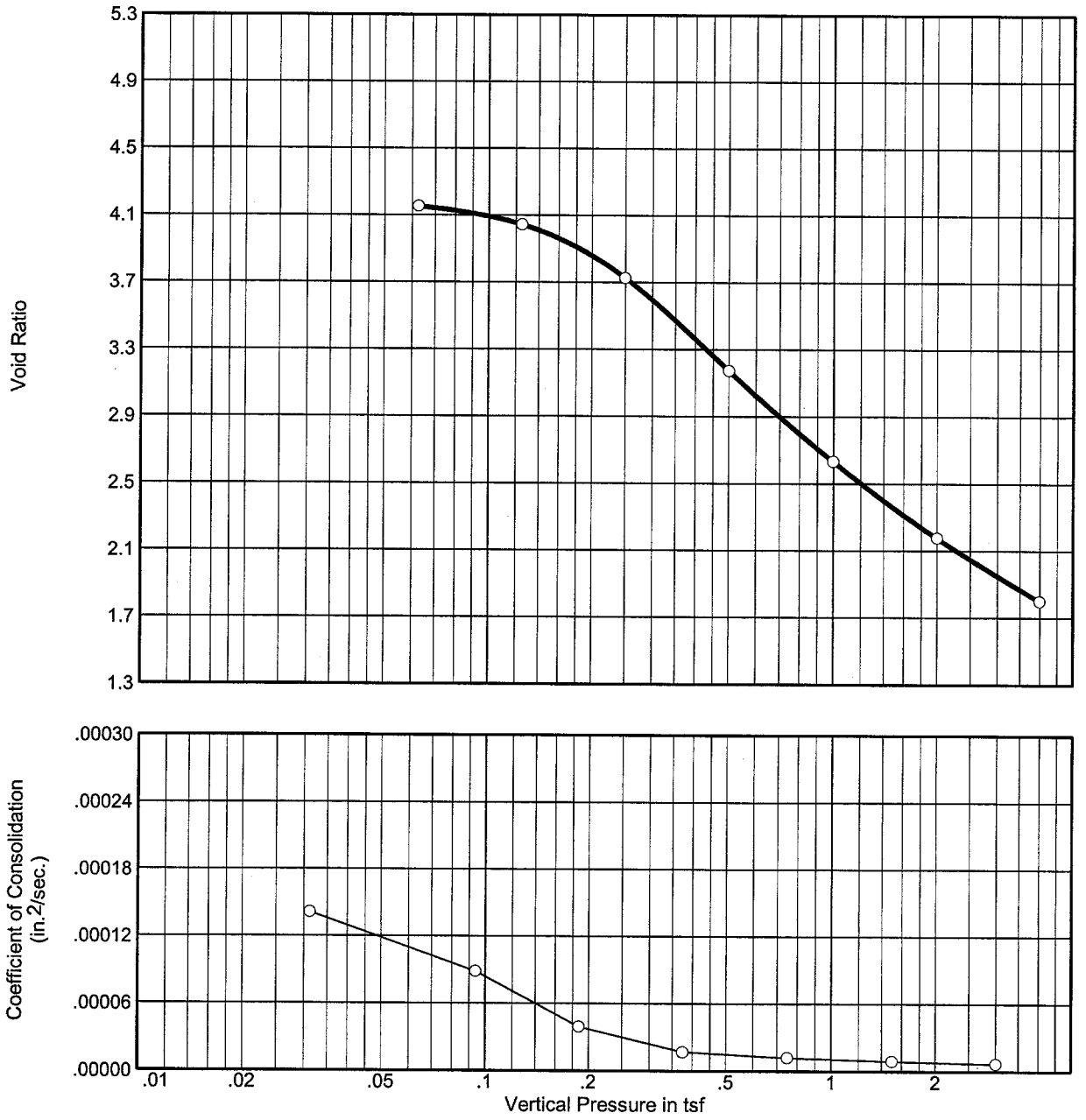




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 54



BORING NO.: A	**SAMPLE NO.:** 3	**DEPTH:** 7.75	
DESCRIPTION OF MATERIAL: Very soft gray clay (CH) with organic matter			
LIQUID LIMIT: 143	**PLASTIC LIMIT:** 35	**PLASTICITY INDEX:** 108	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 157.7 %	**INITIAL VOID RATIO:** 4.205	**DRY DENSITY:** 31.2 (pcf)	

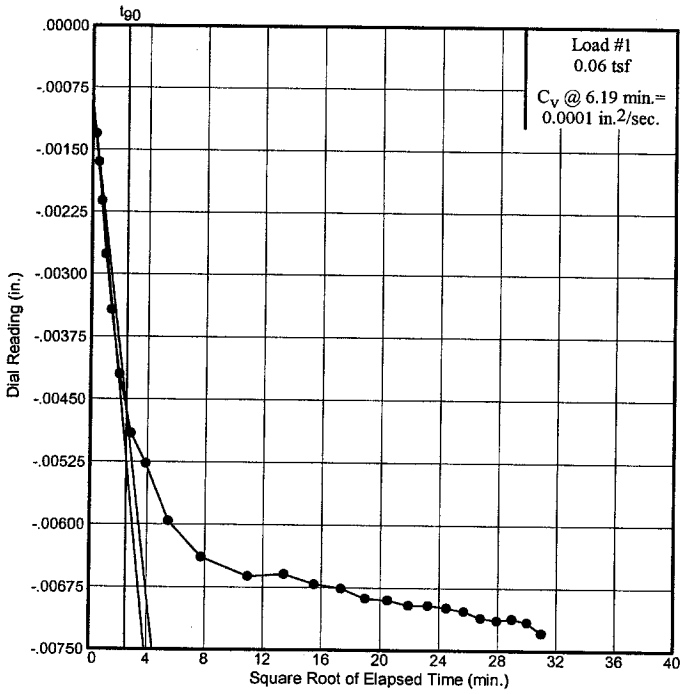
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 03-26-03
	CONSOLIDATION TEST REPORT

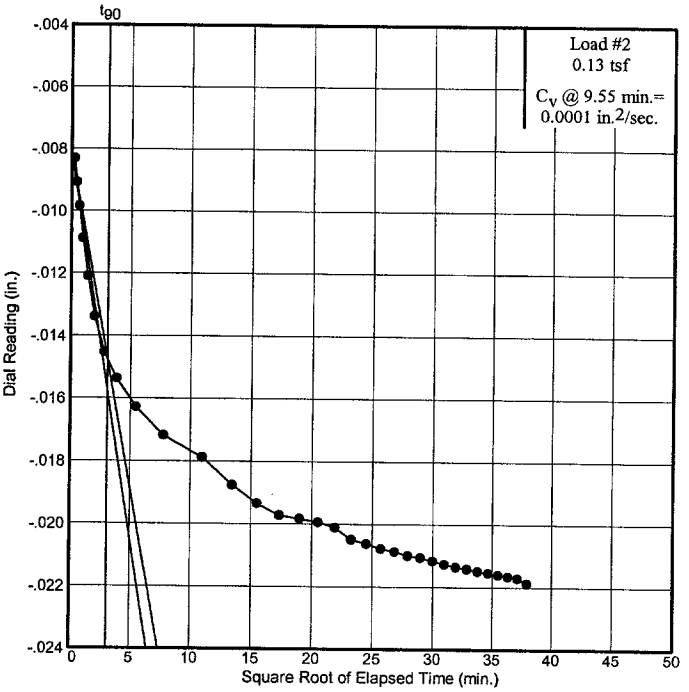
BURNS COOLEY DENNIS, INC.

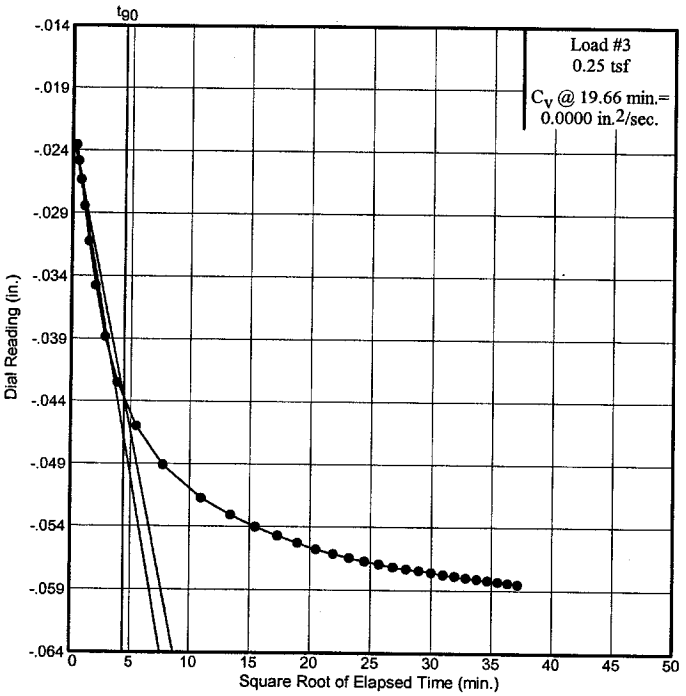
Figure 55

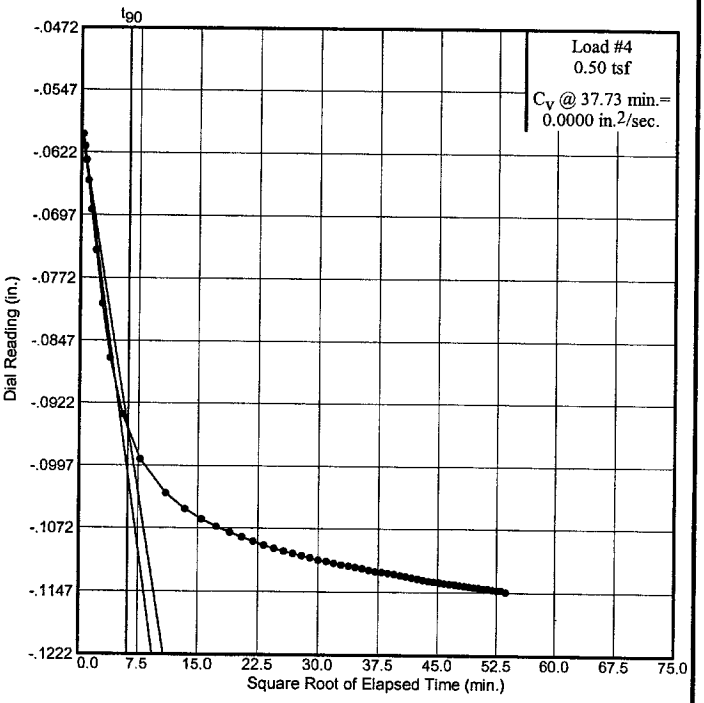
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: A Sample No.: 3 Elev./Depth: 7.75









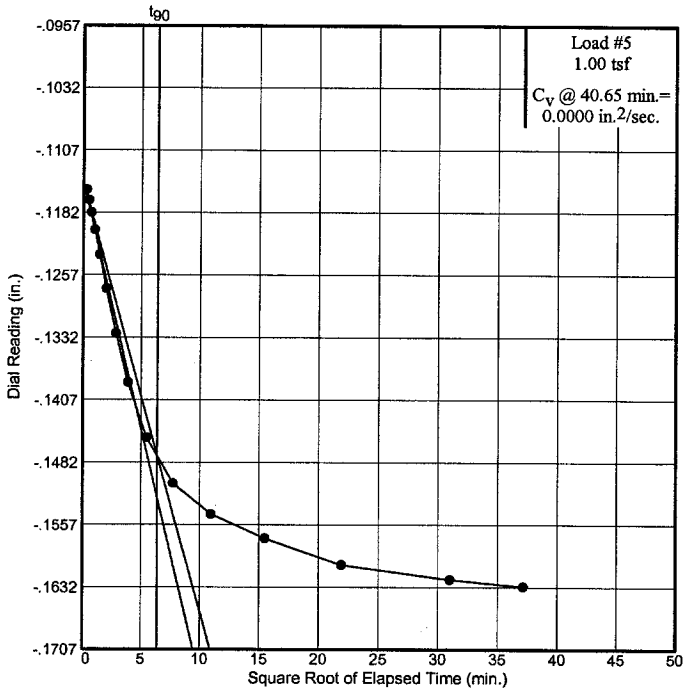
Dial Reading vs. Time

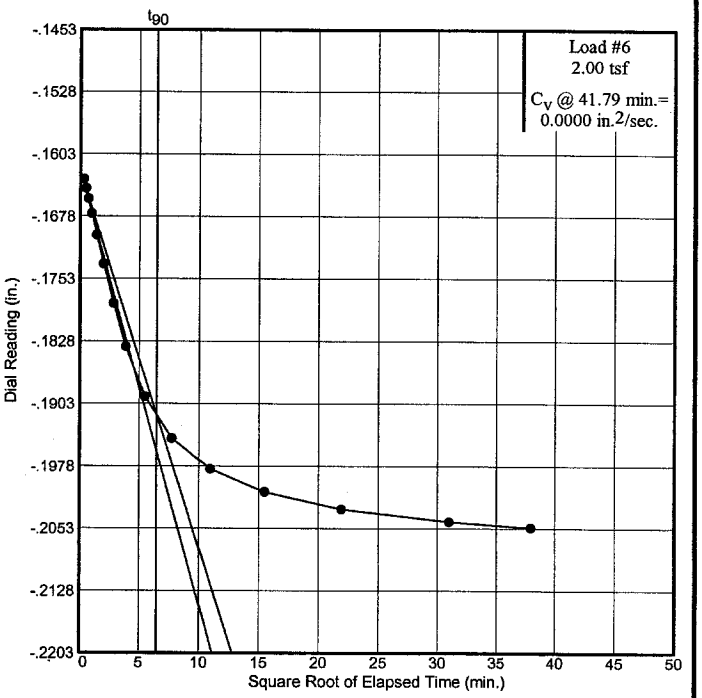
BURNS COOLEY DENNIS, INC.

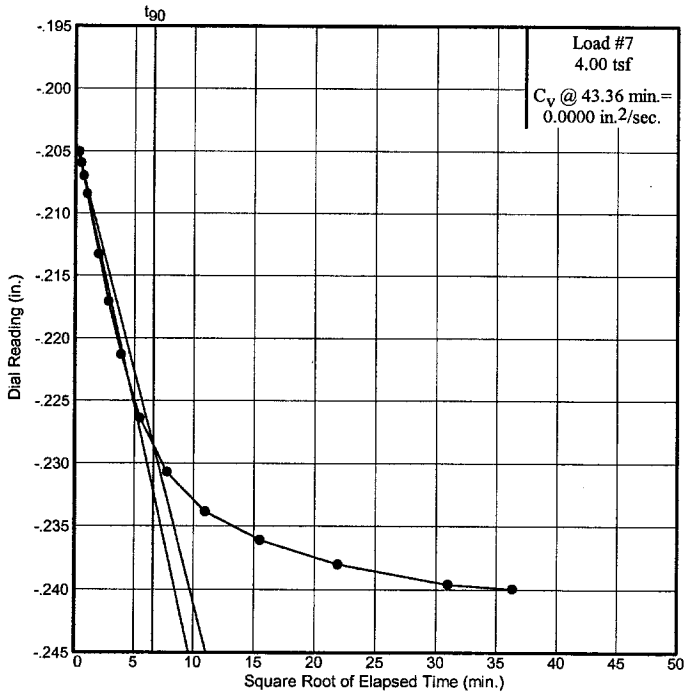
Figure 56

Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: A Sample No.: 3 Elev./Depth: 7.75



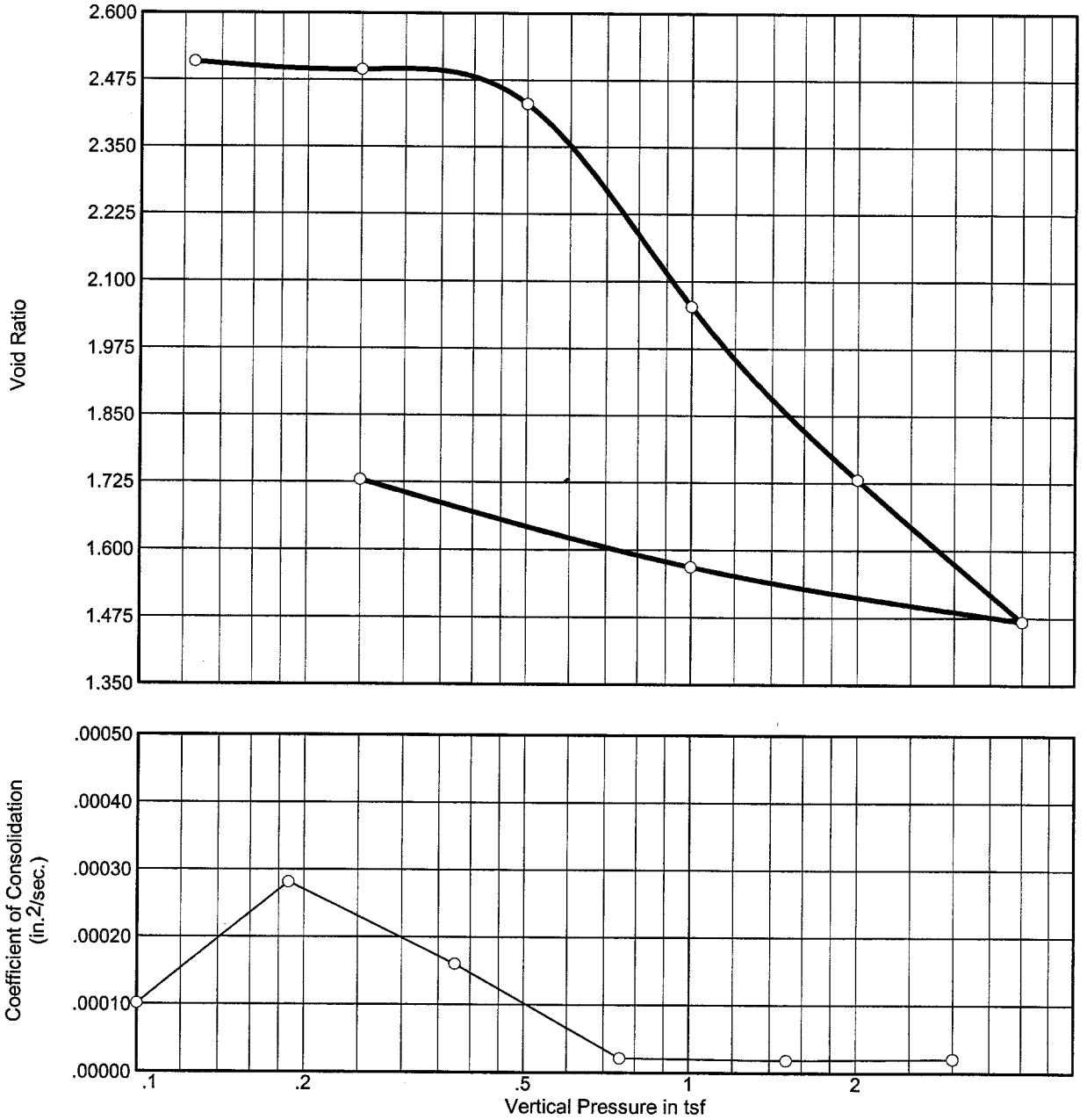




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 57



BORING NO.: A	**SAMPLE NO.:** 16	**DEPTH:** 20.6
DESCRIPTION OF MATERIAL: Soft gray clay (CH), slightly silty, with shell fragments		
LIQUID LIMIT: 101	**PLASTIC LIMIT:** 27	**PLASTICITY INDEX:** 74	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 90.4 %	**INITIAL VOID RATIO:** 2.503	**DRY DENSITY:** 48.5 (pcf)

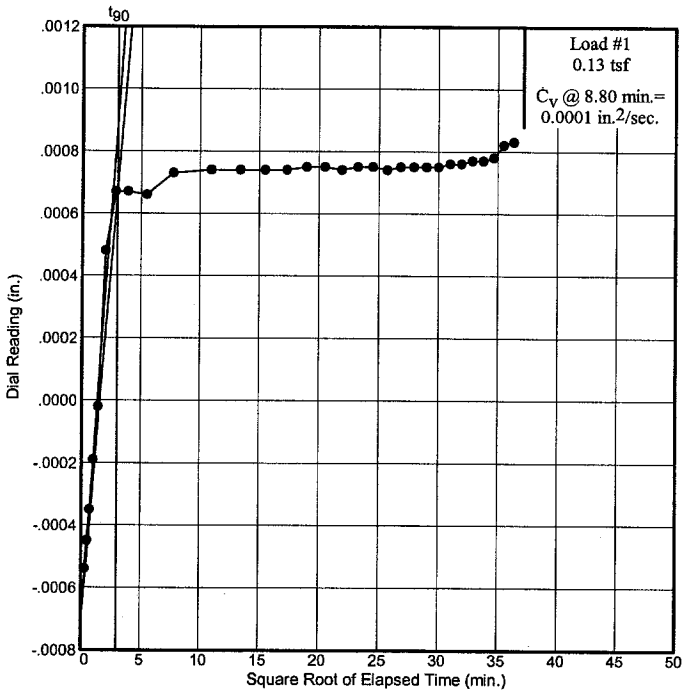
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 04-09-03
	CONSOLIDATION TEST REPORT

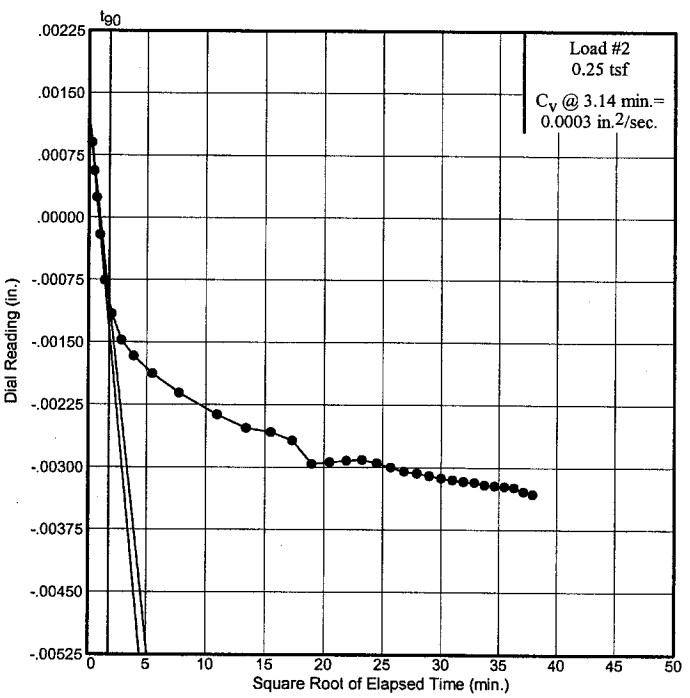
BURNS COOLEY DENNIS, INC.

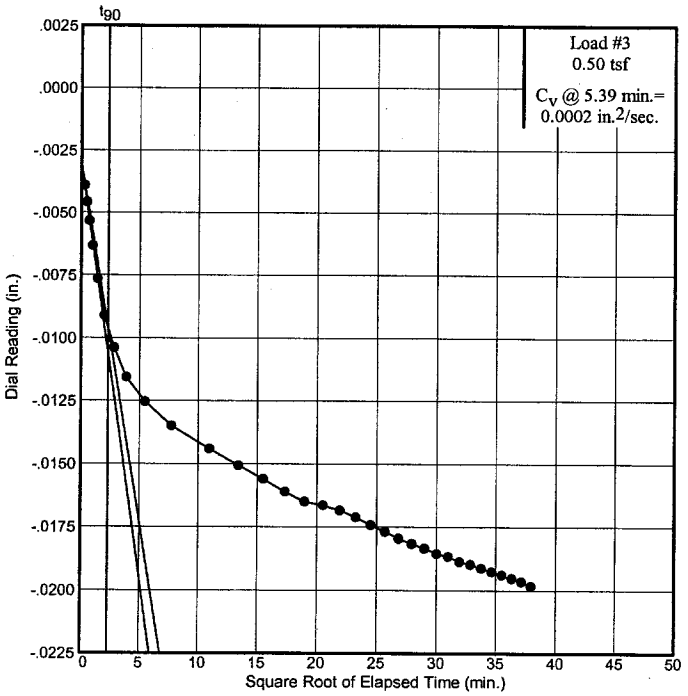
Figure 58

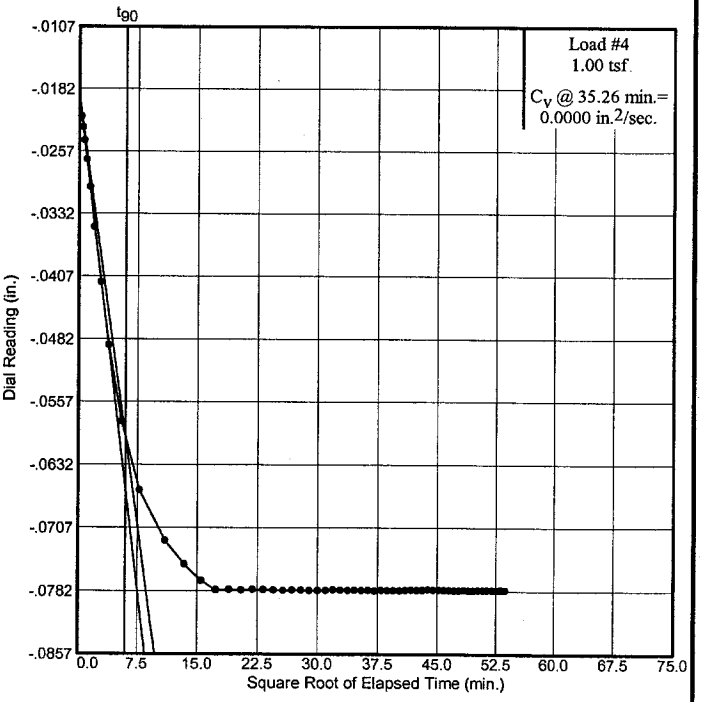
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: A Sample No.: 16 Elev./Depth: 20.6









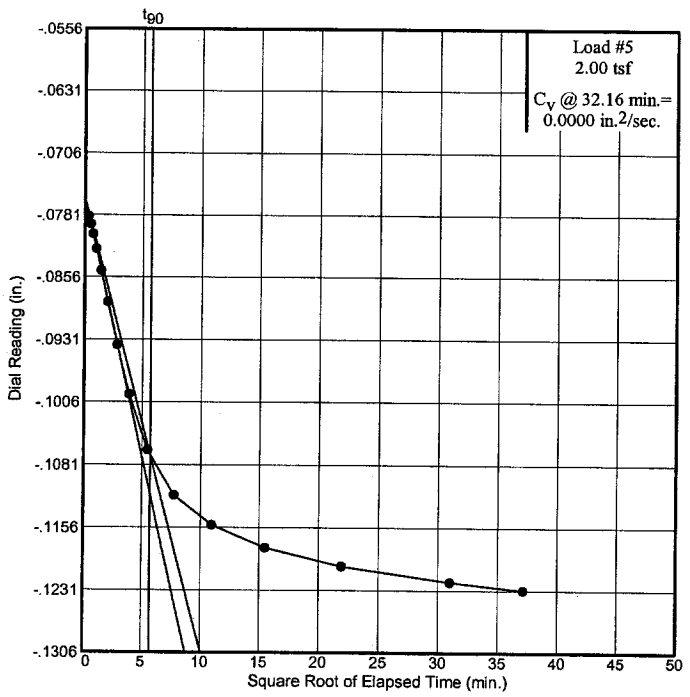
Dial Reading vs. Time

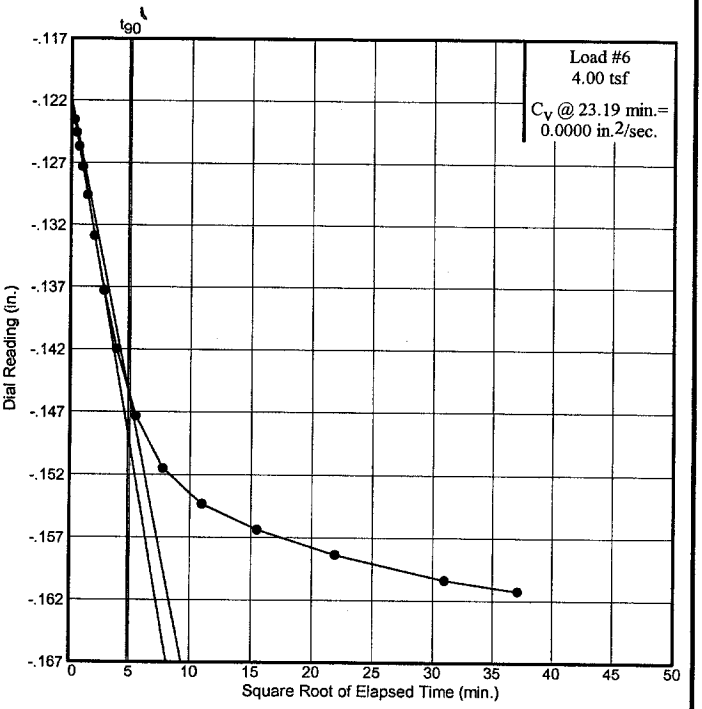
BURNS COOLEY DENNIS, INC.

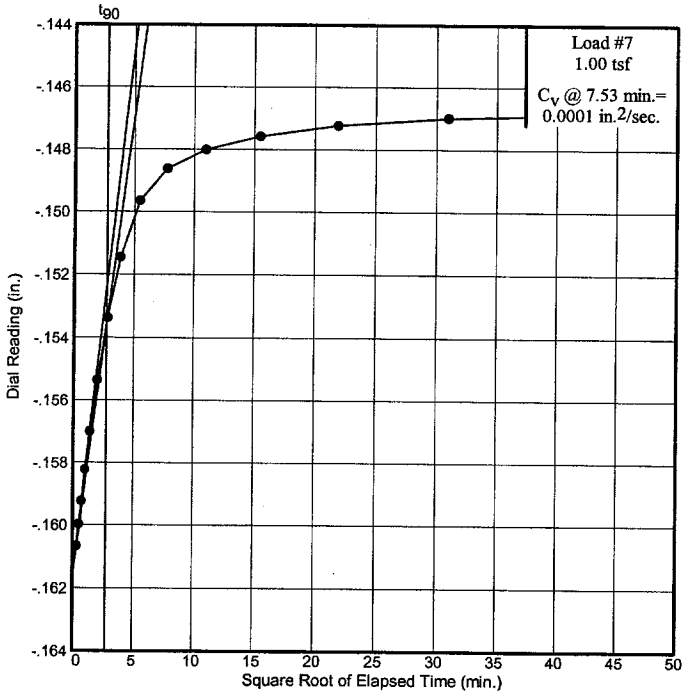
Figure 59

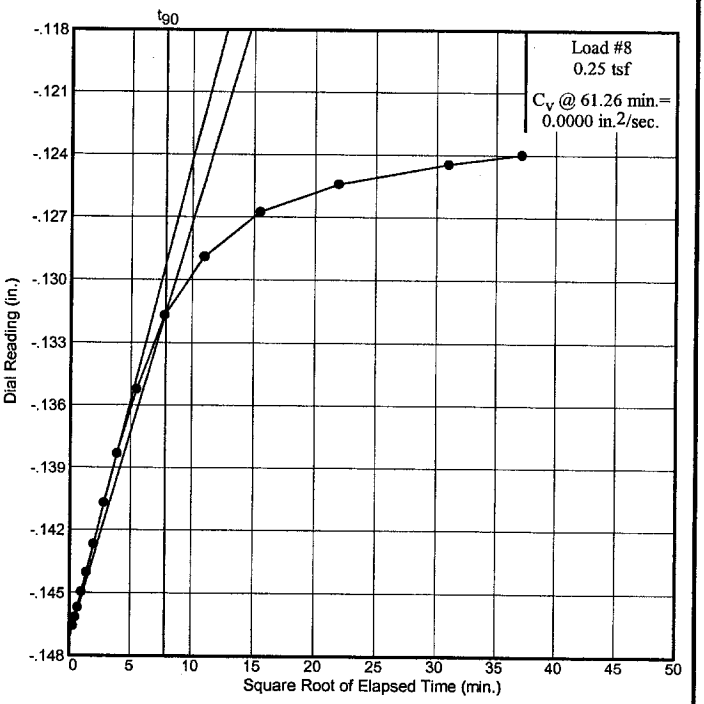
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: A Sample No.: 16 Elev./Depth: 20.6





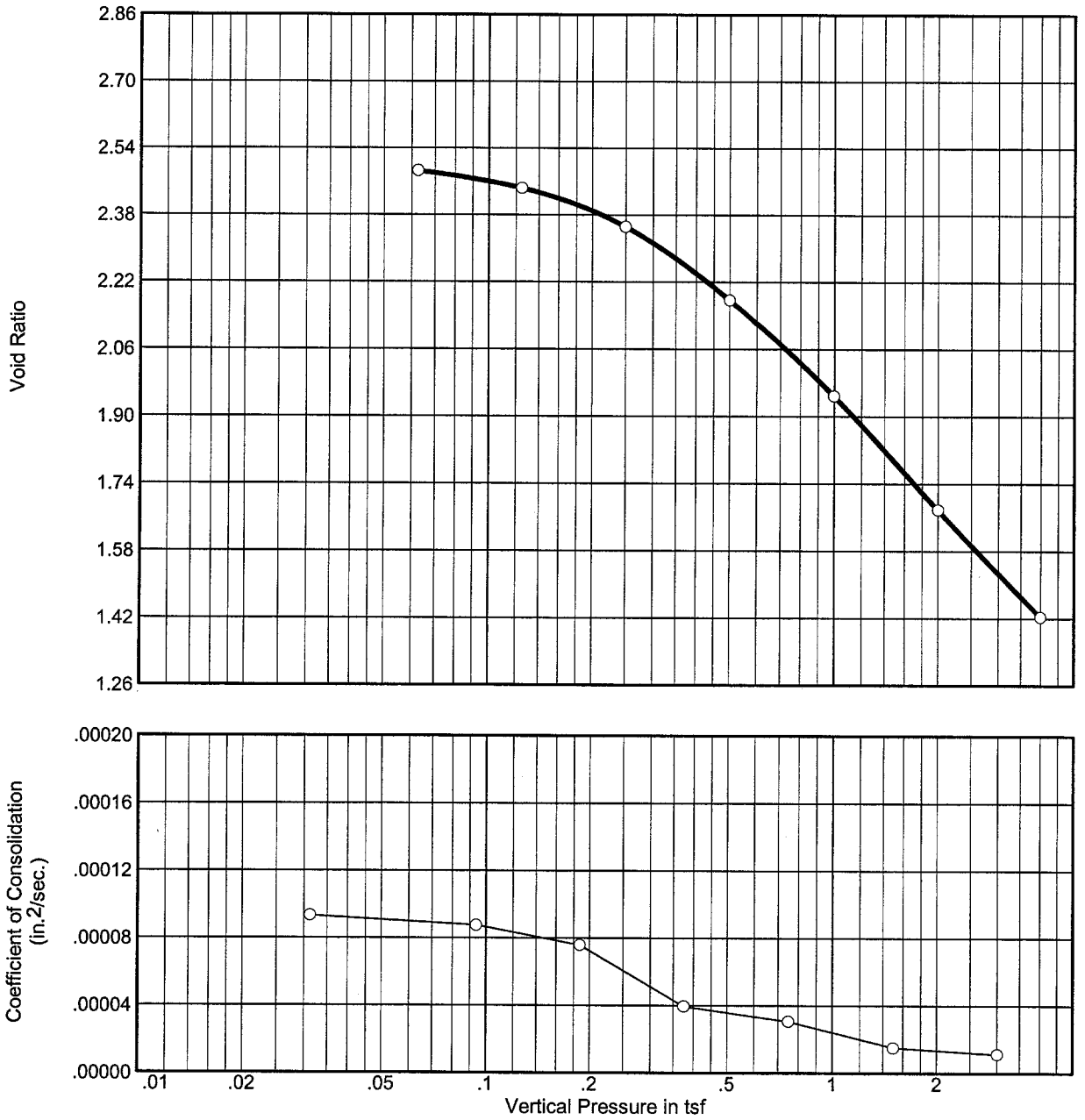




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 60

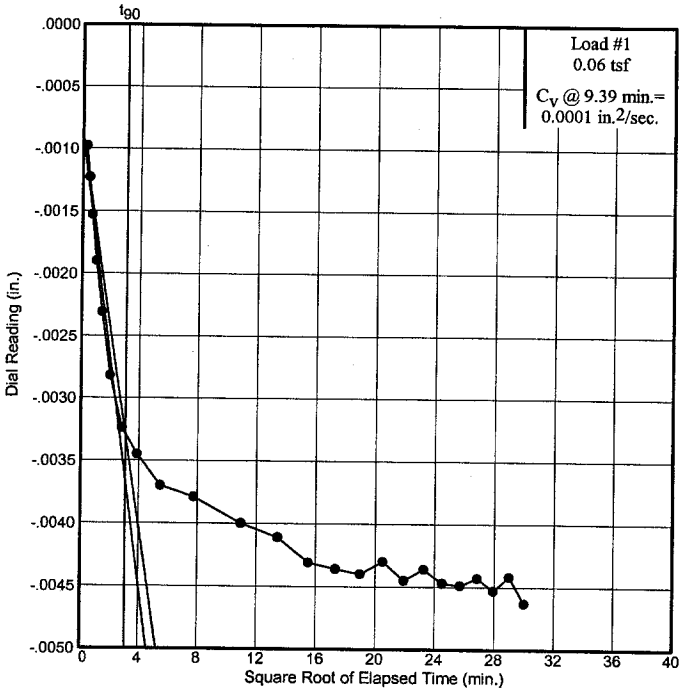


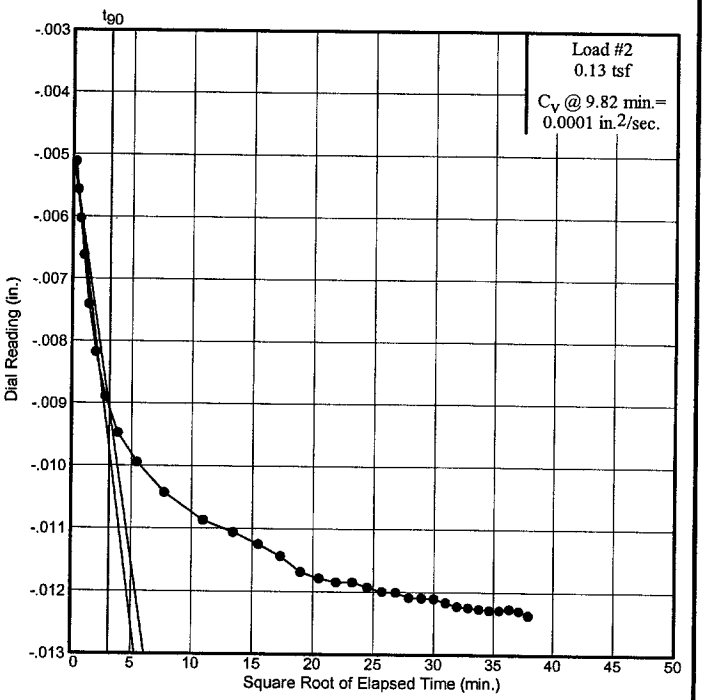
BORING NO.: B	**SAMPLE NO.:** 3	**DEPTH:** 6.75
DESCRIPTION OF MATERIAL: Very soft gray clay (CH) with organic matter		
LIQUID LIMIT: 101	**PLASTIC LIMIT:** 30	**PLASTICITY INDEX:** 71	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 95.5 %	**INITIAL VOID RATIO:** 2.511	**DRY DENSITY:** 47.1 (pcf)

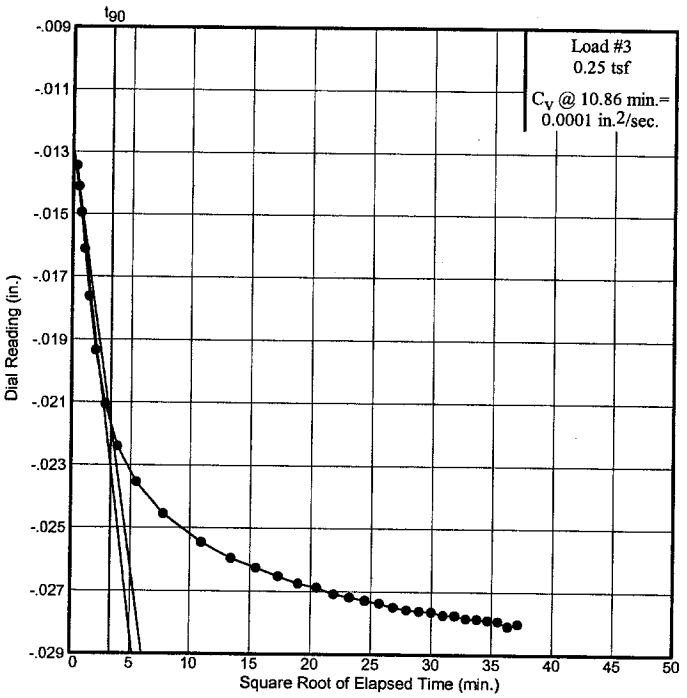
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 03-26-03
	CONSOLIDATION TEST REPORT

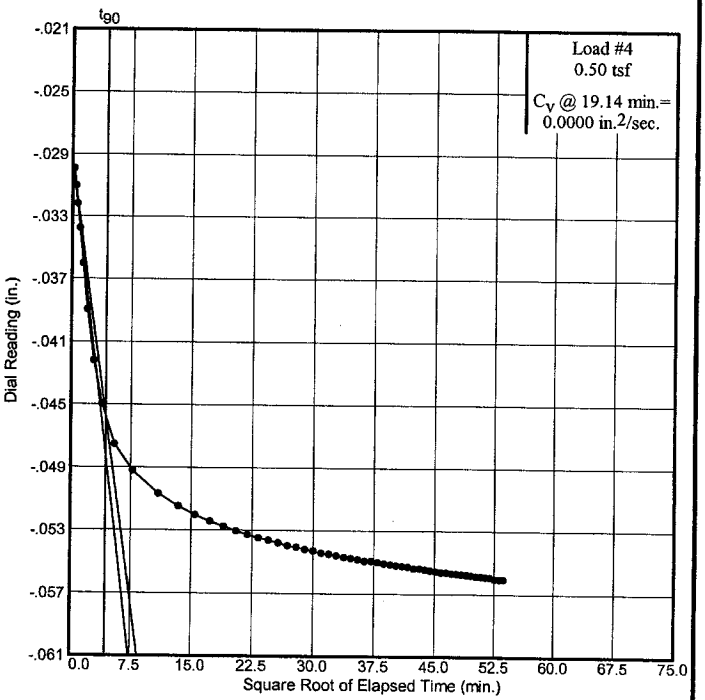
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: B Sample No.: 3 Elev./Depth: 6.75









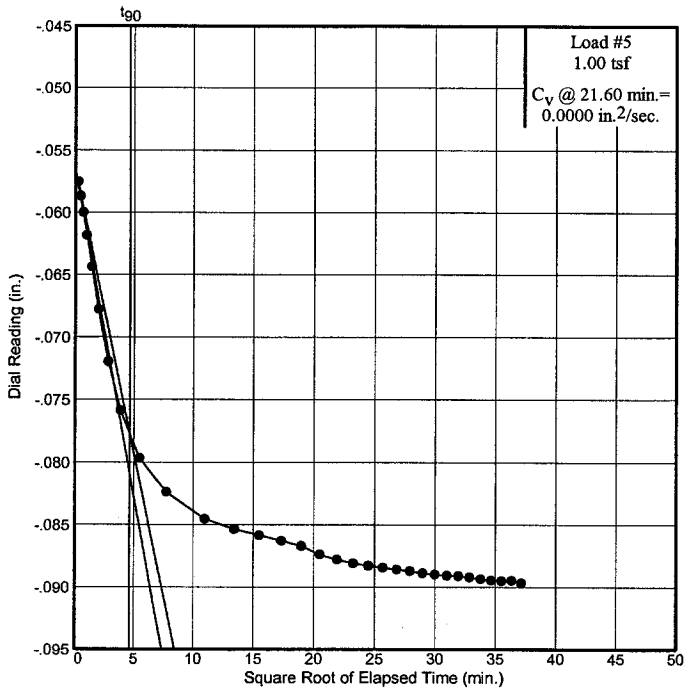
Dial Reading vs. Time

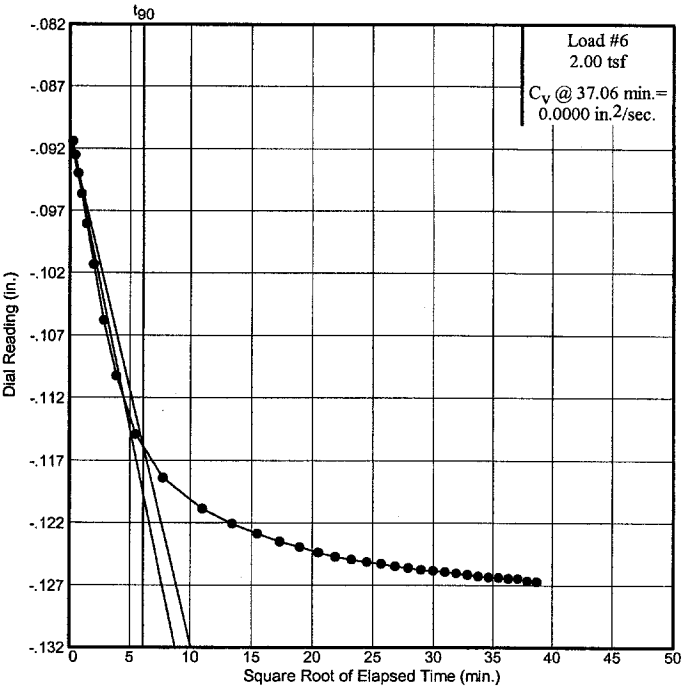
BURNS COOLEY DENNIS, INC.

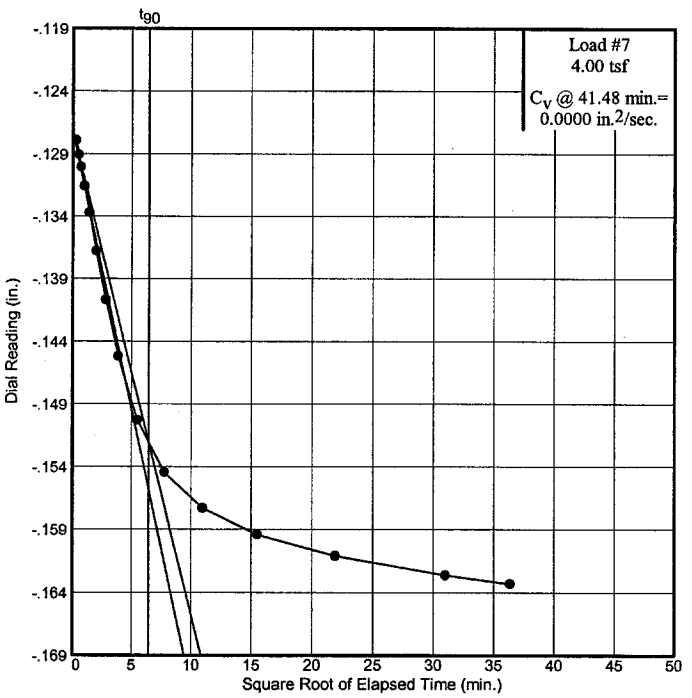
Figure 62

Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: B Sample No.: 3 Elev./Depth: 6.75



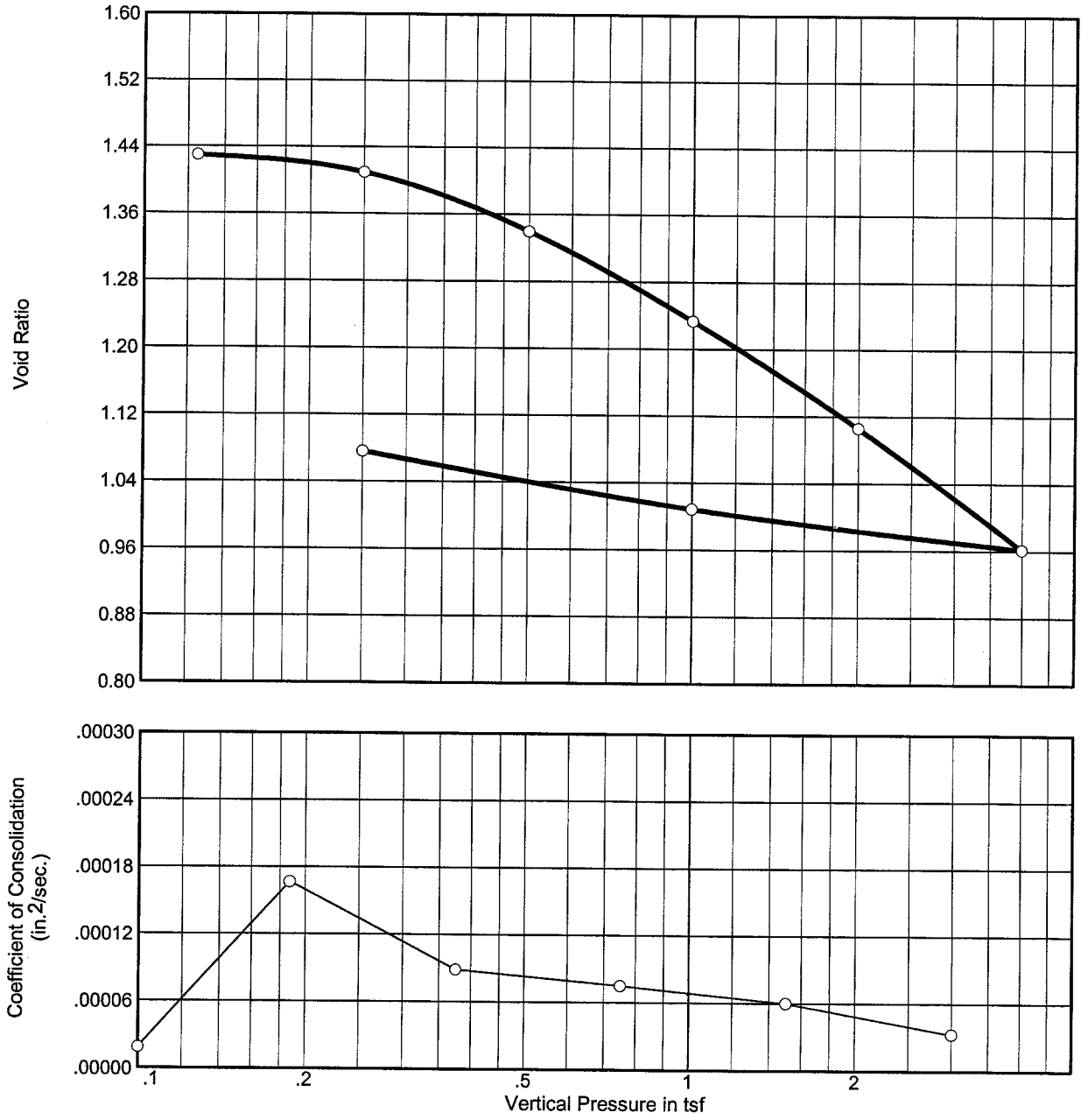




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 63



BORING NO.: C	**SAMPLE NO.:** 3	**DEPTH:** 7.5	
DESCRIPTION OF MATERIAL: Soft gray clay (CH), blocky, with trace of organic matter			
LIQUID LIMIT: 107	**PLASTIC LIMIT:** 30	**PLASTICITY INDEX:** 77	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 50.8 %	**INITIAL VOID RATIO:** 1.443	**DRY DENSITY:** 69.5 (pcf)	

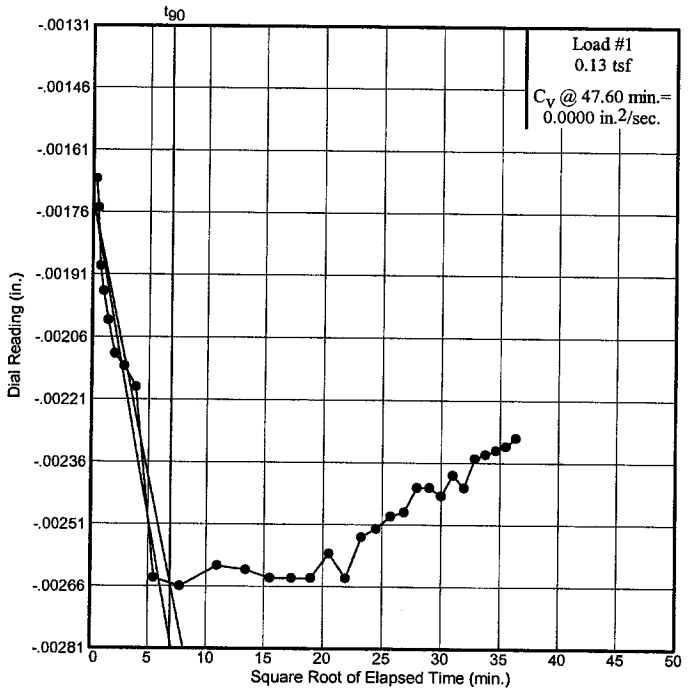
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 03-28-03
	CONSOLIDATION TEST REPORT

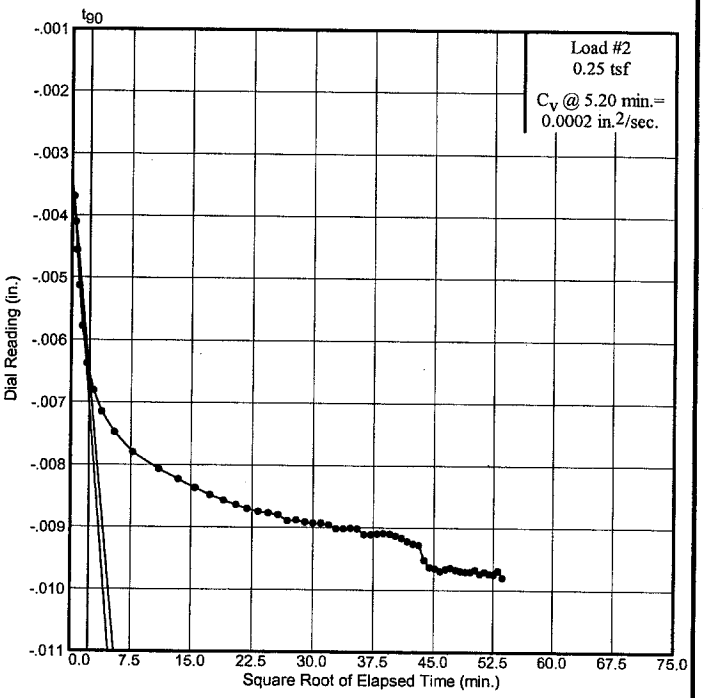
BURNS COOLEY DENNIS, INC.

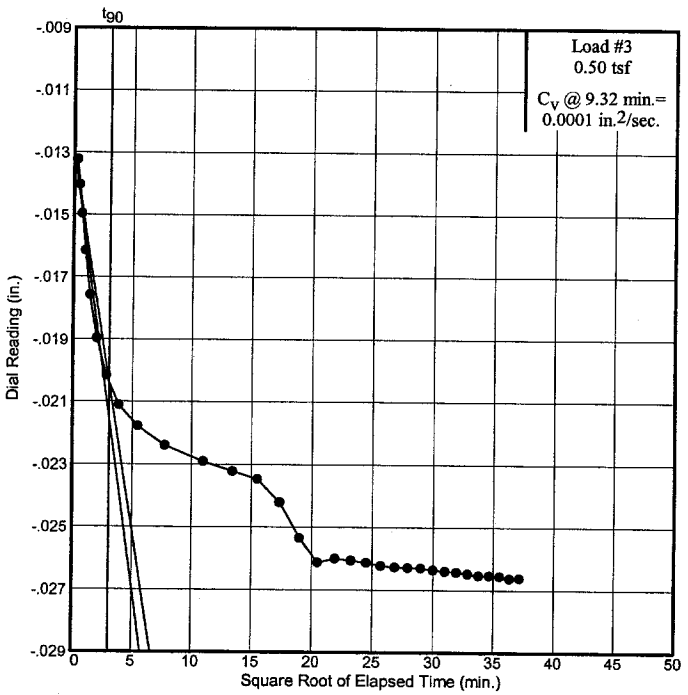
Figure 64

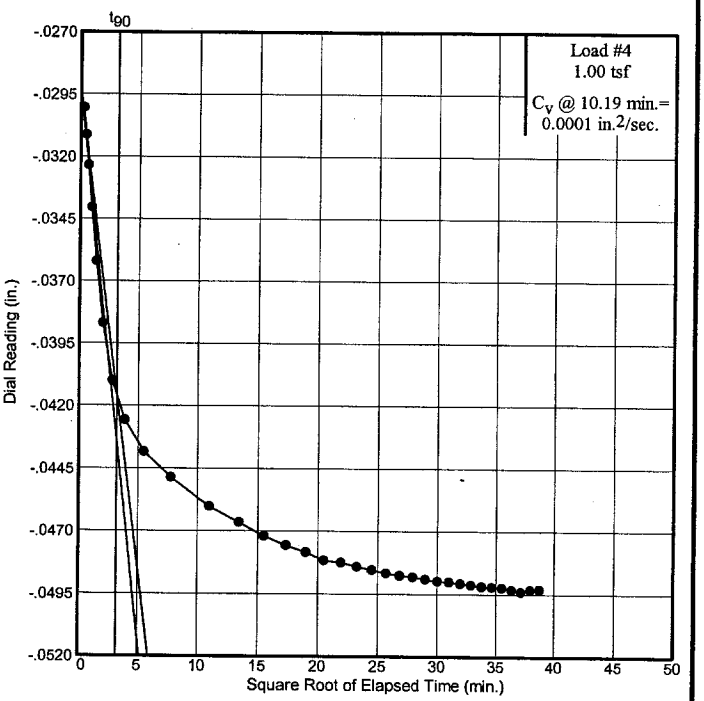
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: C Sample No.: 3 Elev./Depth: 7.5









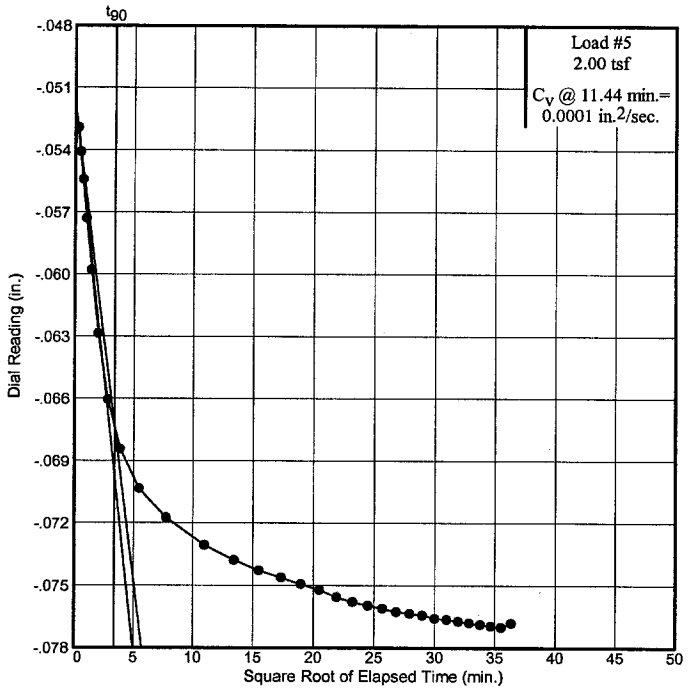
Dial Reading vs. Time

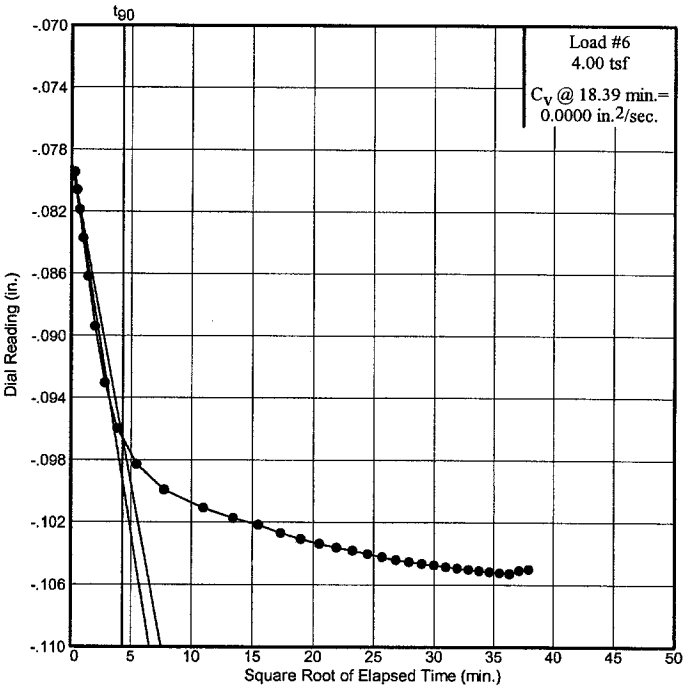
BURNS COOLEY DENNIS, INC.

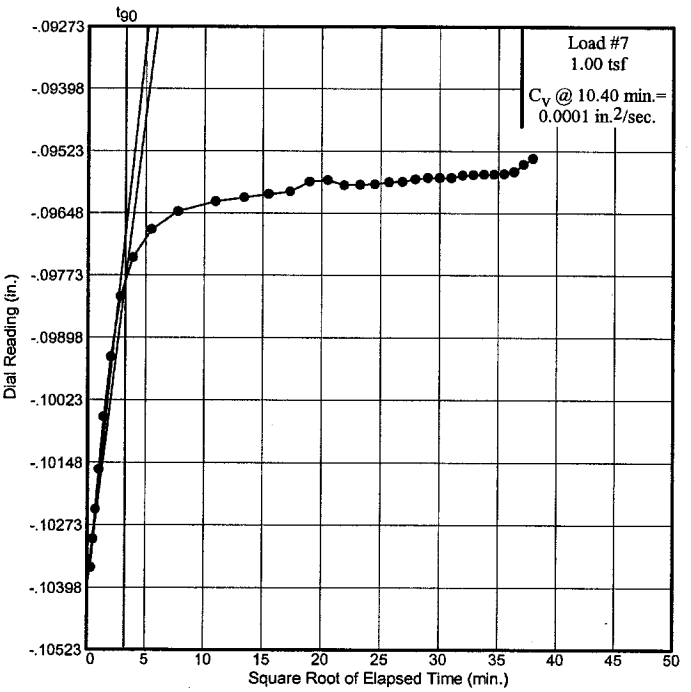
Figure 65

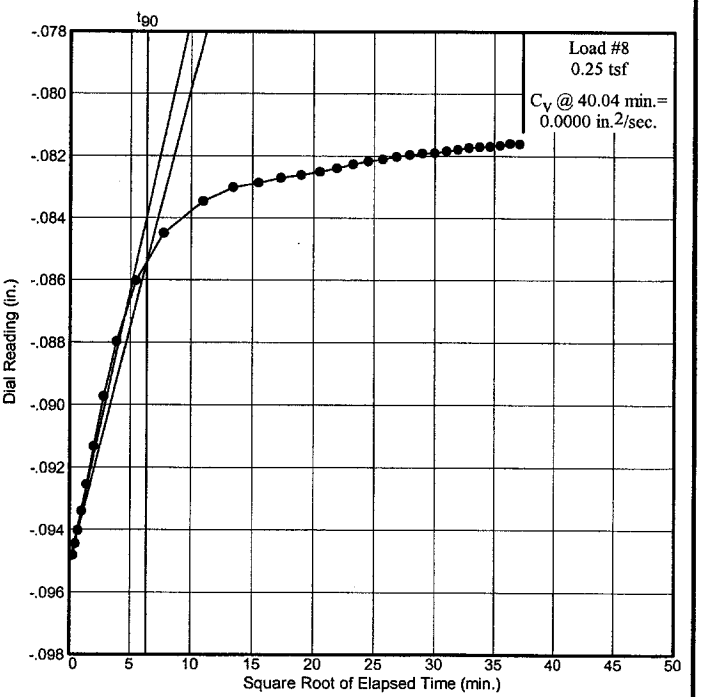
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: C Sample No.: 3 Elev./Depth: 7.5





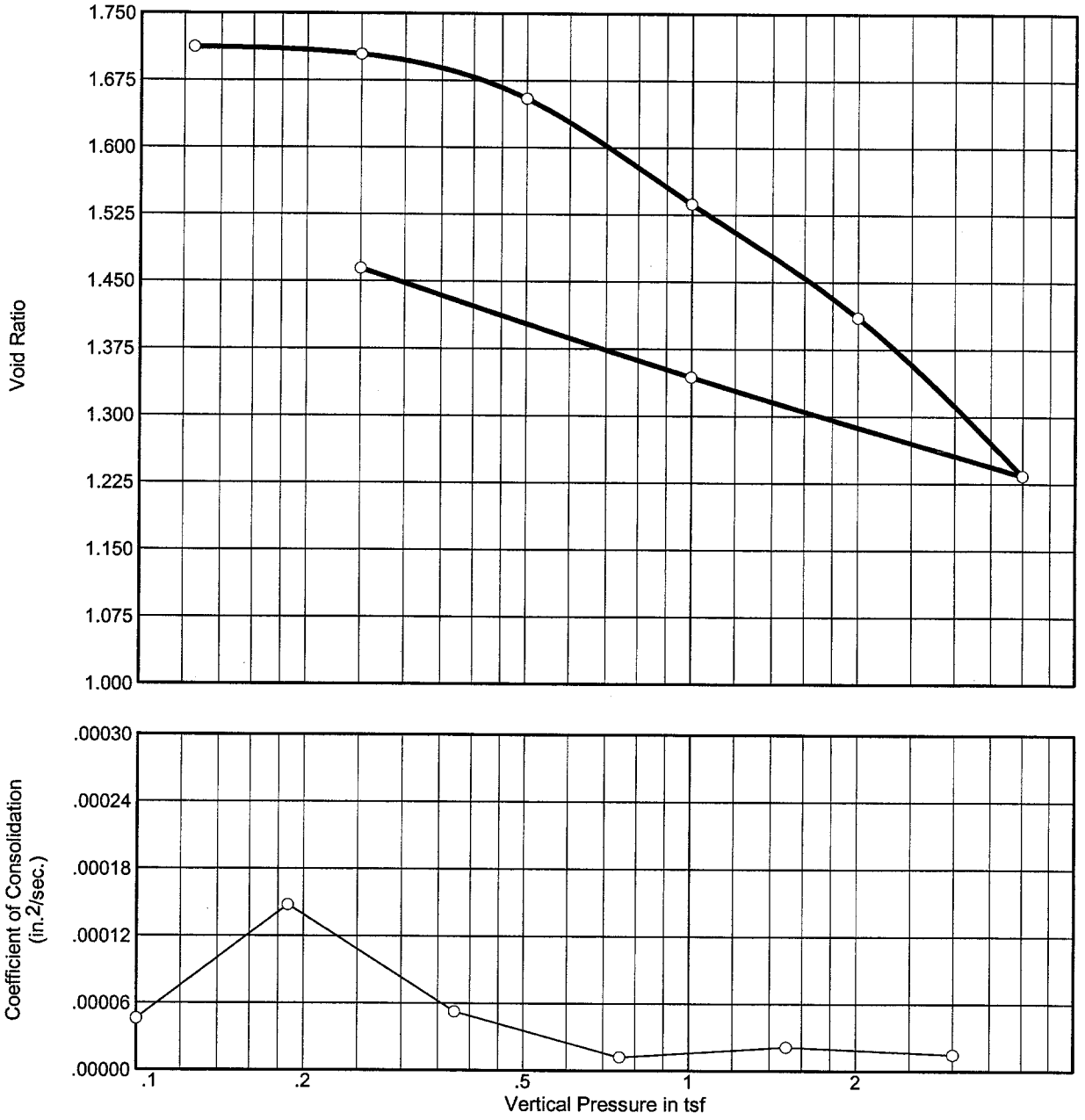




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 66



BORING NO.: D	**SAMPLE NO.:** 3	**DEPTH:** 6.75
DESCRIPTION OF MATERIAL: Soft gray clay (CH), blocky		
LIQUID LIMIT: 97	**PLASTIC LIMIT:** 28	**PLASTICITY INDEX:** 69	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 64.2 %	**INITIAL VOID RATIO:** 1.791	**DRY DENSITY:** 60.8 (pcf)

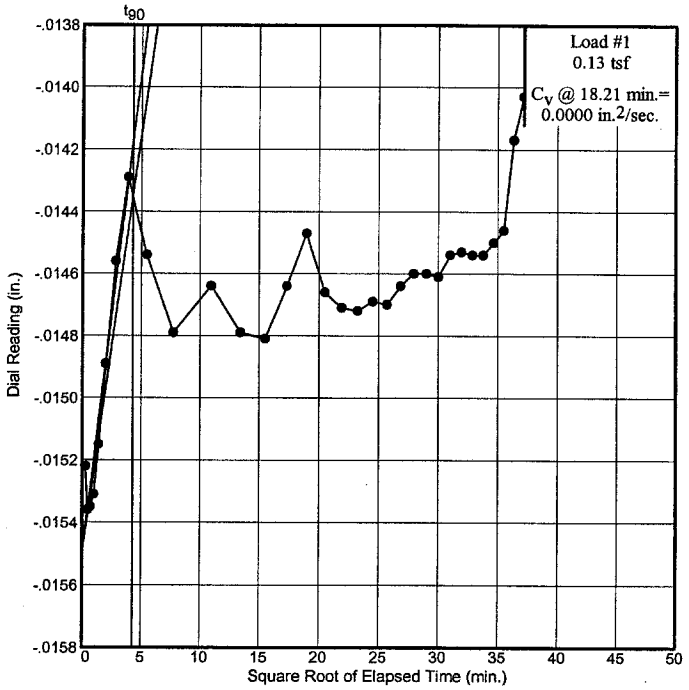
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 **DATE** 04-04-03
	CONSOLIDATION TEST REPORT

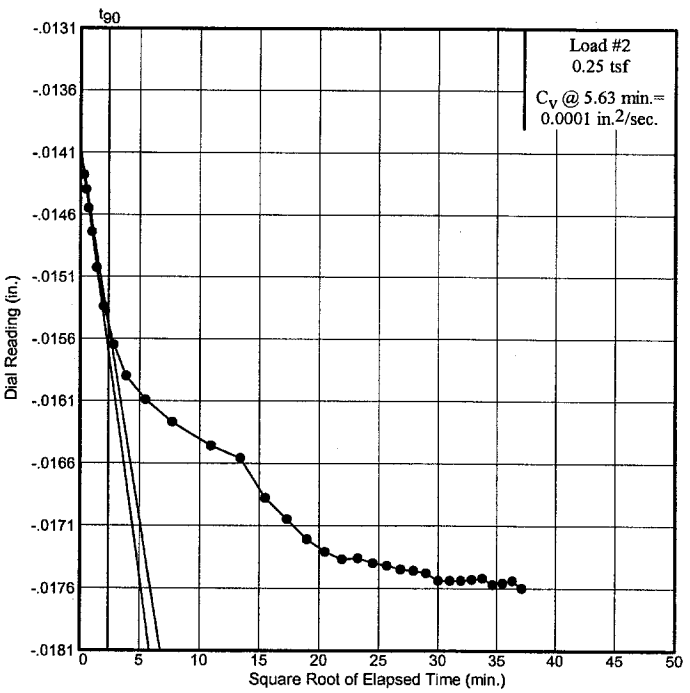
BURNS COOLEY DENNIS, INC.

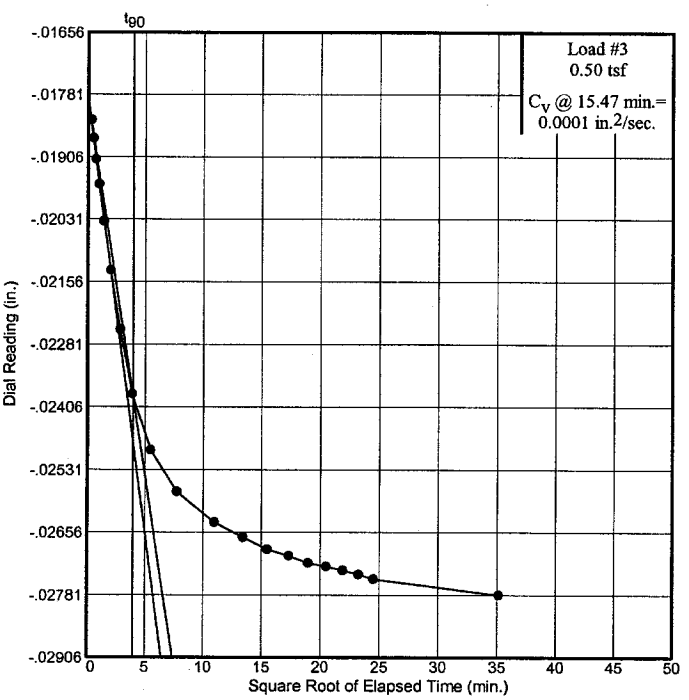
Figure 67

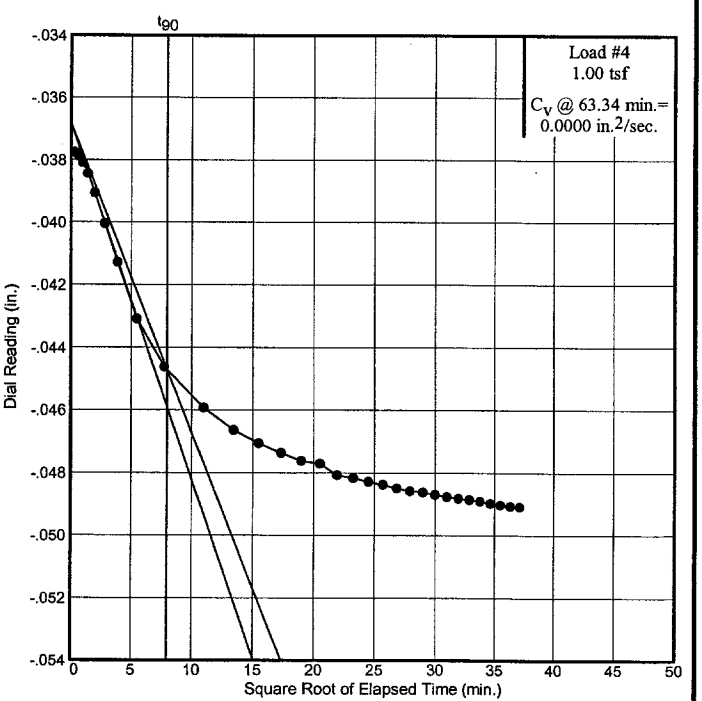
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: D Sample No.: 3 Elev./Depth: 6.75









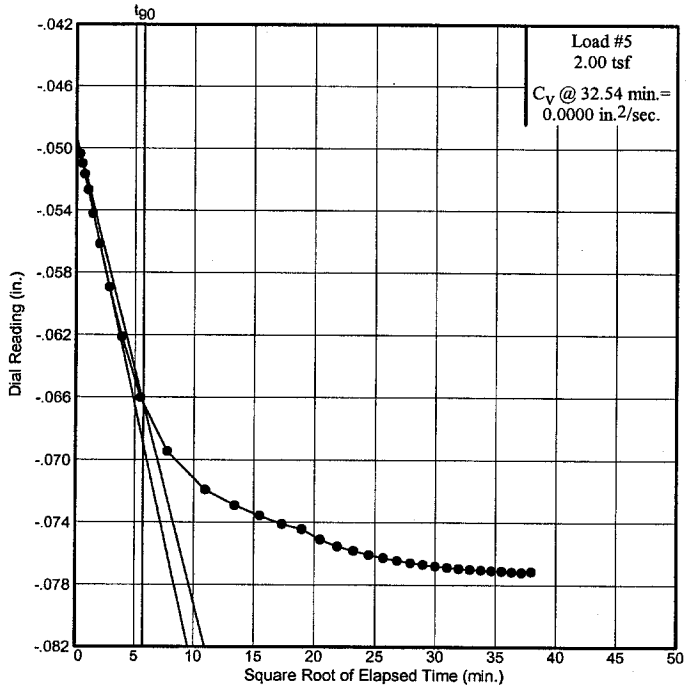
Dial Reading vs. Time

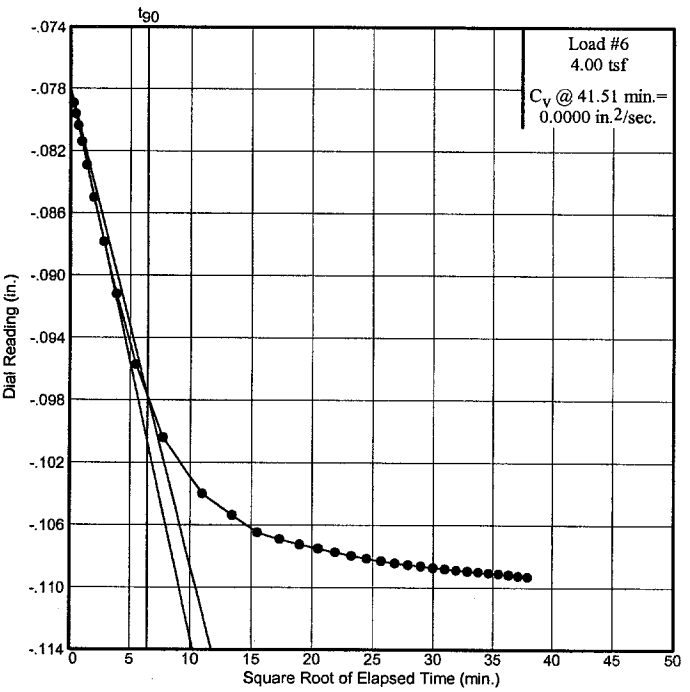
BURNS COOLEY DENNIS, INC.

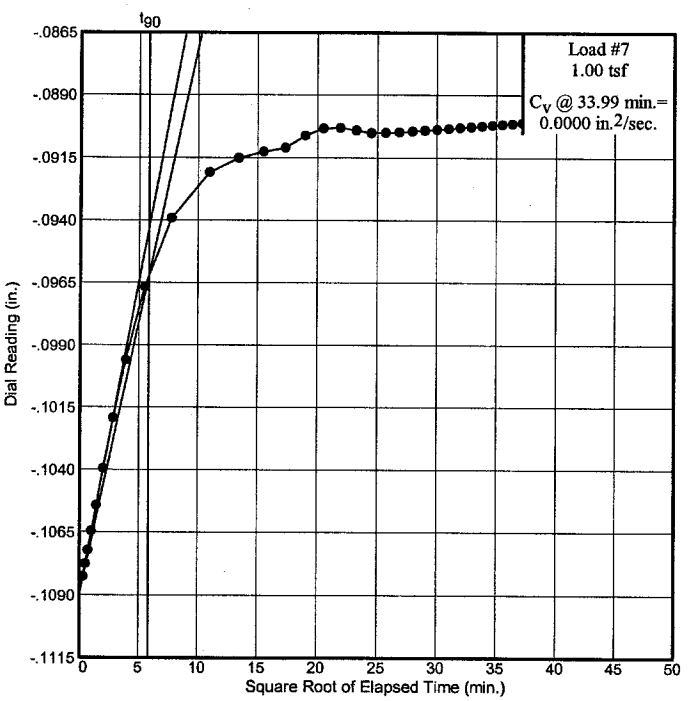
Figure 68

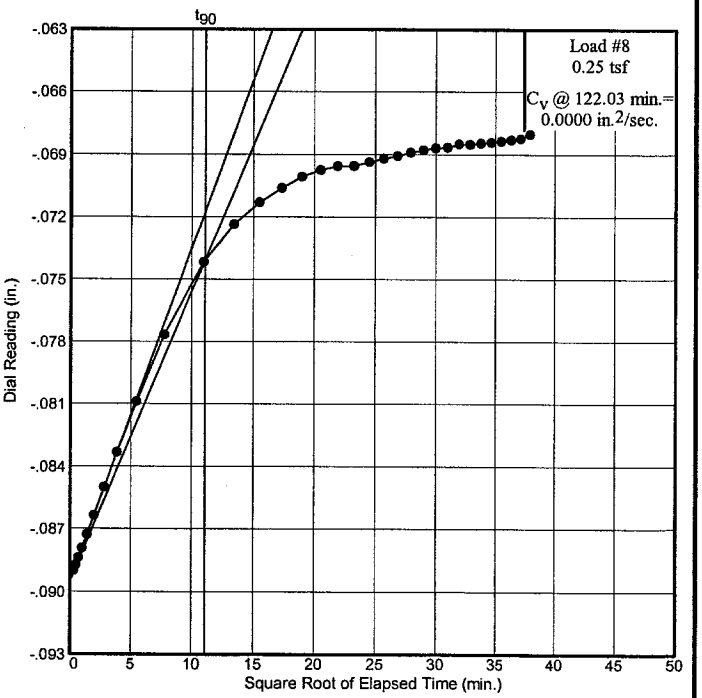
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: D Sample No.: 3 Elev./Depth: 6.75





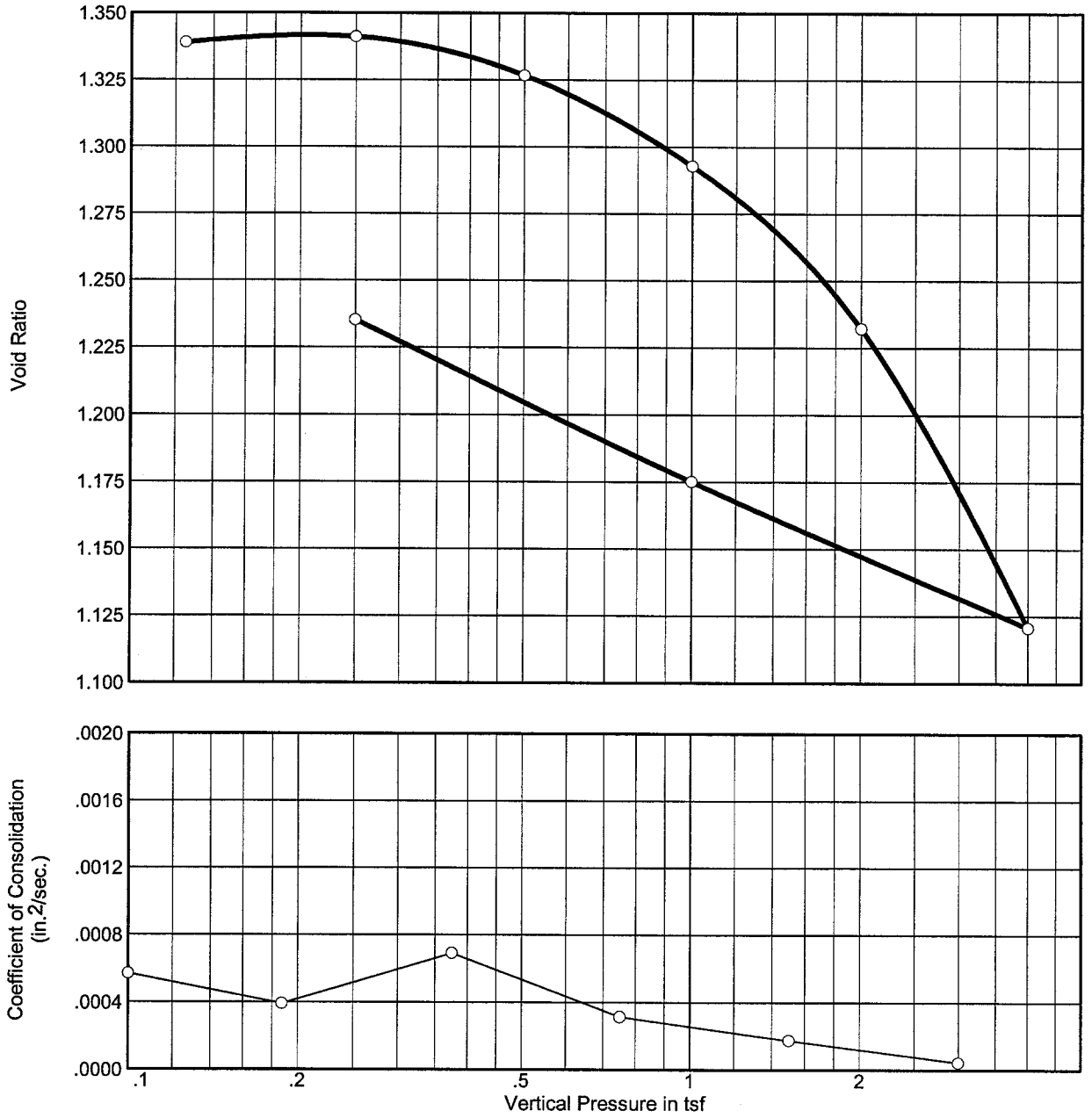




Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 69

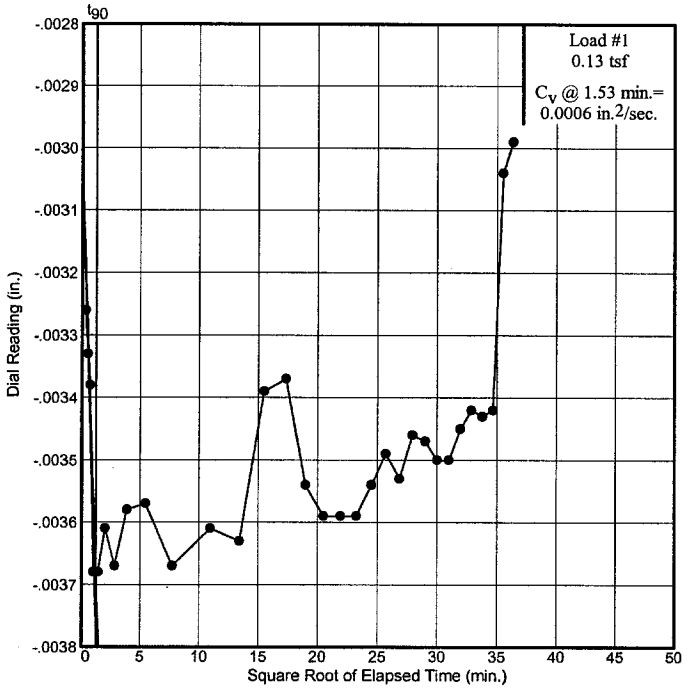


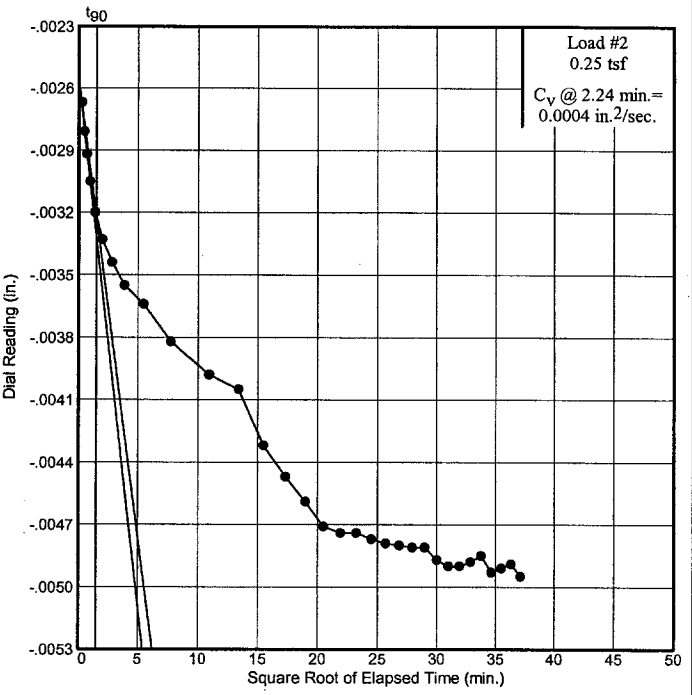
BORING NO.: E	**SAMPLE NO.:** 7	**DEPTH:** 8.25
DESCRIPTION OF MATERIAL: Soft gray clay (CH), blocky, with silt pockets and seams and organic matter		
LIQUID LIMIT: 62	**PLASTIC LIMIT:** 26	**PLASTICITY INDEX:** 36	**TYPE SPECIMEN:** Undisturbed
WATER CONTENT: 48.2 %	**INITIAL VOID RATIO:** 1.357	**DRY DENSITY:** 71.8 (pcf)

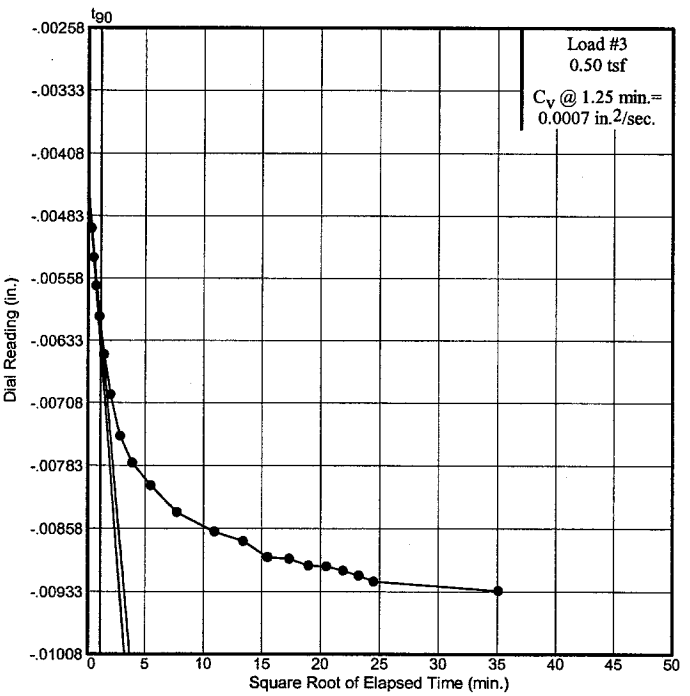
REMARKS	**PROJECT** N R C S
	West Lake Boudreaux
	Shoreline Protection Project - (TE-46)
	JOB NO. 02485-3 / **DATE** 04-04-03
	CONSOLIDATION TEST REPORT

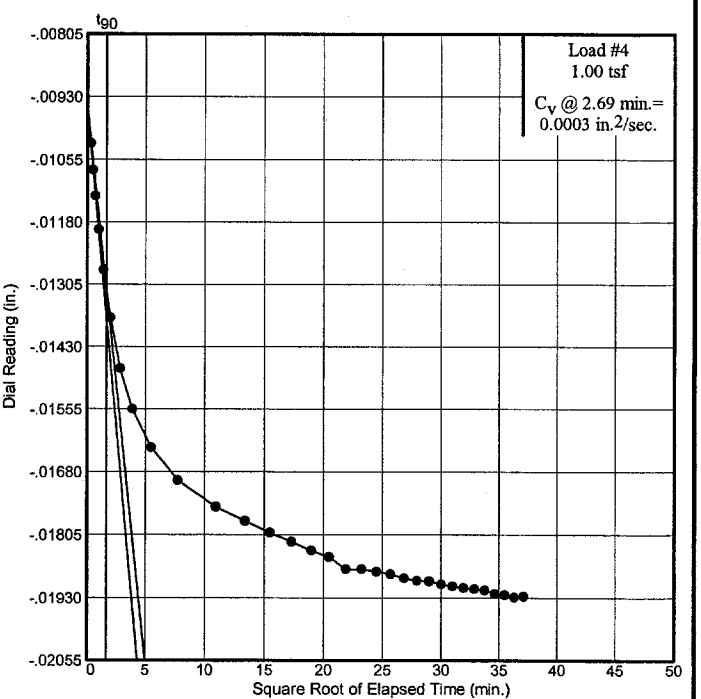
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: E Sample No.: 7 Elev./Depth: 8.25









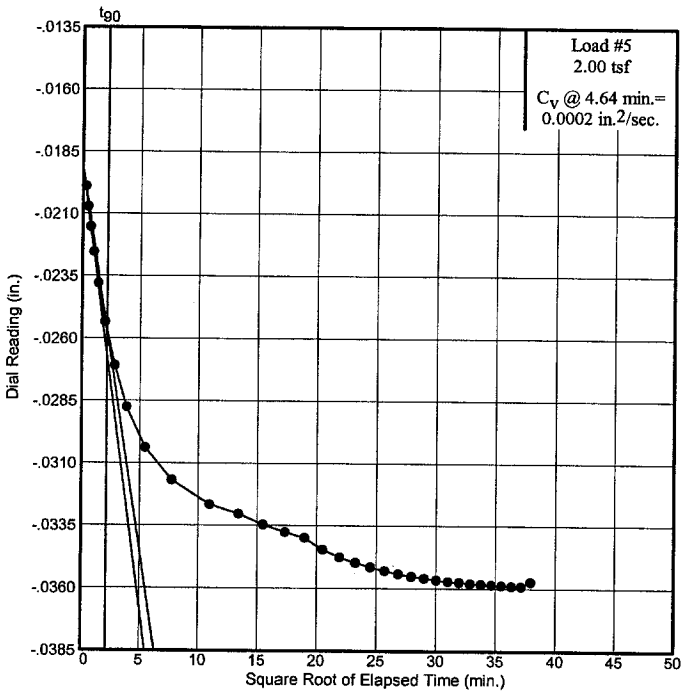
Dial Reading vs. Time

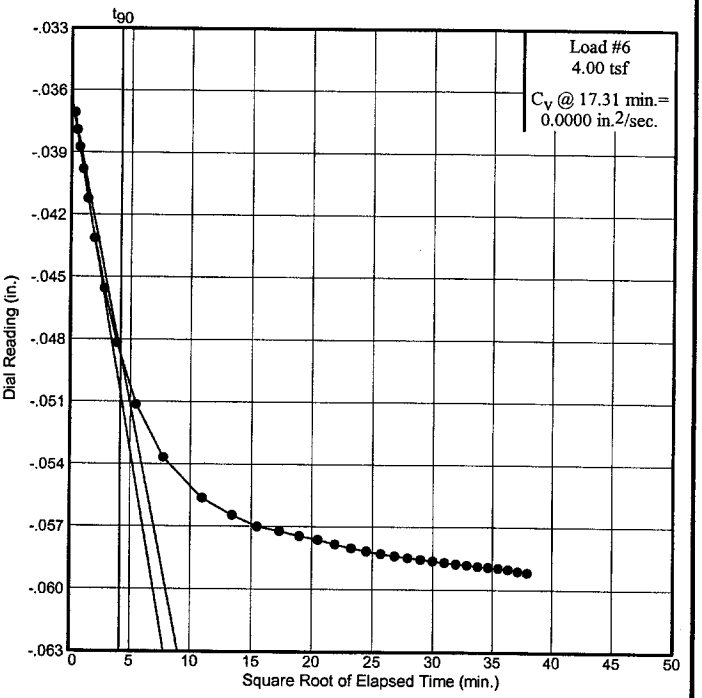
BURNS COOLEY DENNIS, INC.

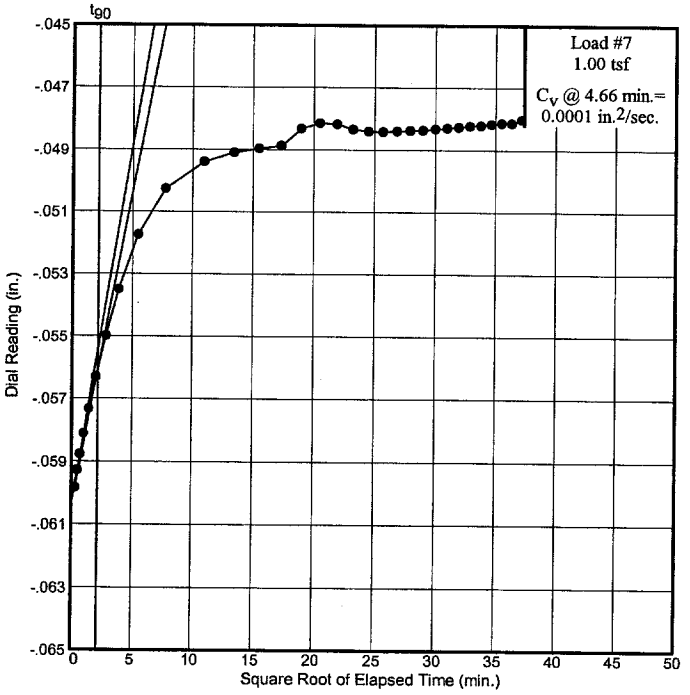
Figure 71

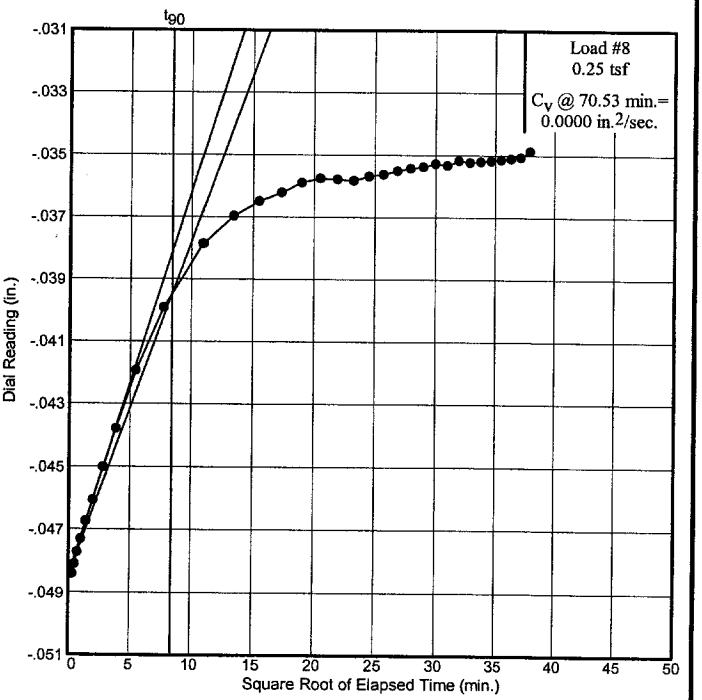
Dial Reading vs. Time

Project No.: 02485-3
Project: N R C S
West Lake Boudreaux
Source: E Sample No.: 7 Elev./Depth: 8.25









Dial Reading vs. Time

BURNS COOLEY DENNIS, INC.

Figure 72

```
010 TITLE
020 ROCK DIKE, WEST LAKE, BORING 1, G.S. EL.= -2
025 2DPR 1 8 0 0
030 -9999 0 0 0 5 105.2 15 565.2 18 565.2
035 28 105.2 33 0 9999 0
040 SOIL 1 -2 D 33.6 0.39 7
045 INDEX 1.69 332 4.3
050 SOIL 2 -5 C 7.6 0.71 13
055 INDEX 3.55 332 8.69
060 SOIL 3 -7 C 33.6 0.39 7
065 INDEX 1.69 332 4.3
070 SOIL 4 -11 S 47.6 0.05 300
080 INDEX 0.15 600 1.0
110 SOIL 5 -18 S 35.6 0.28 4
120 INDEX 1.58 1880 2.43
130 SOIL 6 -33 C 42.6 0.13 15
140 INDEX 0.55 2780 1.75
160 SOIL 7 -44 C 42.6 0.13 15
170 INDEX 0.55 3480 1.75
180 SOIL 8 -56 C 42.6 0.13 15
190 INDEX 0.55 4180 1.75
260 SOIL 9 -68 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 33.0 16.5
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 22-MAY-2003 TIME: 14.43.10

I. INPUT DATA

1. TITLE - ROCK DIKE, WEST LAKE, BORING 1, G.S. EL.= -2

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 8
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	5.00	105.20
4	15.00	565.20
5	18.00	565.20
6	28.00	105.20
7	33.00	.00
8	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-2.00	D	33.60	.39000	7.00000	.32000
2	-5.00	C	7.60	.71000	13.00000	.32000
3	-7.00	C	33.60	.39000	7.00000	.32000
4	-11.00	S	47.60	.05000	300.00000	.32000
5	-18.00	S	35.60	.28000	4.00000	.32000
6	-33.00	C	42.60	.13000	15.00000	.32000
7	-44.00	C	42.60	.13000	15.00000	.32000
8	-56.00	C	42.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1

COMPRESSION INDEX= 1.69000
RECOMPRESSION INDEX= .39000
INSITU VOID RATIO= 4.30000
INSITU OVERBURDEN= 332.00 PSF

STRATUM NO. 2

COMPRESSION INDEX= 3.55000
RECOMPRESSION INDEX= .71000
INSITU VOID RATIO= 8.69000
INSITU OVERBURDEN= 332.00 PSF

STRATUM NO. 3

COMPRESSION INDEX= 1.69000
RECOMPRESSION INDEX= .39000
INSITU VOID RATIO= 4.30000
INSITU OVERBURDEN= 332.00 PSF

STRATUM NO. 4

COMPRESSION INDEX= .15000
RECOMPRESSION INDEX= .05000
INSITU VOID RATIO= 1.00000
INSITU OVERBURDEN= 600.00 PSF

STRATUM NO. 5

COMPRESSION INDEX= 1.58000
RECOMPRESSION INDEX= .28000
INSITU VOID RATIO= 2.43000
INSITU OVERBURDEN= 1880.00 PSF

STRATUM NO. 6

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000

INSITU OVERBURDEN= 2780.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3480.00 PSF

STRATUM NO. 8

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 4180.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE
AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 33.0000 FT.
DELX= 16.5000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 22-MAY-2003 TIME: 14.43.19

II. OUTPUT SUMMARY.

1. TITLE- ROCK DIKE, WEST LAKE, BORING 1, G.S. EL.= -2

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	1.50	50.40	10.30	.017
2	4.00	108.40	29.80	.015
3	7.00	183.20	55.05	.033
4	12.50	417.00	90.73	.018
5	23.50	850.60	113.68	.067
6	36.50	1351.90	106.95	.017
7	48.00	1841.80	93.70	.013
8	60.00	2353.00	81.03	.008

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
		(SETTLEMENT IN FEET AT SPECIFIED TIMES)					
1	.017	.006	.008	.011	.014	.016	.017
2	.015	.005	.007	.010	.013	.015	.015
3	.033	.011	.016	.022	.028	.033	.033
4	.018	.018	.018	.018	.018	.018	.018
5	.067	.000	.001	.004	.005	.005	.009
6	.017	.000	.000	.000	.000	.000	.003
7	.013	.000	.000	.000	.000	.000	.000
8	.008	.000	.000	.000	.000	.000	.000
TOTALS:	.188	.040	.050	.065	.078	.087	.095

POSITION: X= 16.5
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	1.50	50.40	556.00	.406
2	4.00	108.40	504.70	.257
3	7.00	183.20	436.85	.416
4	12.50	417.00	336.43	.080
5	23.50	850.60	219.82	.123
6	36.50	1351.90	148.63	.023
7	48.00	1841.80	115.25	.014
8	60.00	2353.00	93.07	.009

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
		(SETTLEMENT IN FEET AT SPECIFIED TIMES)					
1	.406	.135	.191	.266	.347	.396	.406
2	.257	.085	.121	.168	.219	.250	.257
3	.416	.138	.195	.273	.355	.404	.416
4	.080	.079	.080	.080	.080	.080	.080
5	.123	.003	.005	.006	.008	.011	.016
6	.023	.000	.000	.000	.000	.002	.004
7	.014	.000	.000	.000	.000	.000	.002
8	.009	.000	.000	.000	.000	.000	.000
TOTALS:	1.328	.440	.592	.793	1.009	1.143	1.181

POSITION: X= 33.0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	1.50	50.40	10.30	.017
2	4.00	108.40	29.80	.015
3	7.00	183.20	55.05	.033
4	12.50	417.00	90.73	.018
5	23.50	850.60	113.68	.067
6	36.50	1351.90	106.95	.017
7	48.00	1841.80	93.70	.013
8	60.00	2353.00	81.03	.008

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
		(SETTLEMENT IN FEET AT SPECIFIED TIMES)					

1	.017	.006	.008	.011	.014	.016	.017
2	.015	.005	.007	.010	.013	.015	.015
3	.033	.011	.016	.022	.028	.033	.033
4	.018	.018	.018	.018	.018	.018	.018
5	.067	.000	.001	.004	.005	.005	.009
6	.017	.000	.000	.000	.000	.000	.003
7	.013	.000	.000	.000	.000	.000	.000
8	.008	.000	.000	.000	.000	.000	.000
TOTALS:	.188	.040	.050	.065	.078	.087	.095

```
010 TITLE
020 ROCK DIKE, WEST LAKE, BORING 2, G.S. EL.= -3
025 2DPR 1 8 0 0
030 -9999 0 0 0 10.5 157.8 24.5 617.8
035 27.5 617.8 41.5 157.8 52 0 9999 0
050 SOIL 1 -3 D 14.6 0.39 4
080 INDEX 1.69 332 4.34
090 SOIL 2 -10 S 47.6 0.06 220
095 INDEX 0.25 660 1.20
110 SOIL 3 -21 S 37.6 0.35 4
120 INDEX 1.32 1120 2.41
130 SOIL 4 -33.0 C 42.6 0.13 15
140 INDEX 0.55 2100 1.75
160 SOIL 5 -41 C 42.6 0.13 15
170 INDEX 0.55 2700 1.75
180 SOIL 6 -49 C 42.6 0.13 15
190 INDEX 0.73 3300 1.75
200 SOIL 7 -57 C 42.6 0.13 15
210 INDEX 0.73 3900 1.75
260 SOIL 8 -67 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 52.0 26.0
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.45.44

I. INPUT DATA

1. TITLE - ROCK DIKE, WEST LAKE, BORING 2, G.S. EL.= -3

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 8
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	10.50	157.80
4	24.50	617.80
5	27.50	617.80
6	41.50	157.80
7	52.00	.00
8	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-3.00	D	14.60	.39000	4.00000	.32000
2	-10.00	S	47.60	.06000	220.00000	.32000
3	-21.00	S	37.60	.35000	4.00000	.32000
4	-33.00	C	42.60	.13000	15.00000	.32000
5	-41.00	C	42.60	.13000	15.00000	.32000
6	-49.00	C	42.60	.13000	15.00000	.32000
7	-57.00	C	42.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= 1.69000
RECOMPRESSION INDEX= .39000
INSITU VOID RATIO= 4.34000
INSITU OVERBURDEN= 332.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= .25000
RECOMPRESSION INDEX= .06000
INSITU VOID RATIO= 1.20000
INSITU OVERBURDEN= 660.00 PSF

STRATUM NO. 3
COMPRESSION INDEX= 1.32000
RECOMPRESSION INDEX= .35000
INSITU VOID RATIO= 2.41000
INSITU OVERBURDEN= 1120.00 PSF

STRATUM NO. 4
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2100.00 PSF

STRATUM NO. 5
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2700.00 PSF

STRATUM NO. 6
COMPRESSION INDEX= .73000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3300.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .73000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3900.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 52.0000 FT.
DELX= 26.0000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.46.03

II. OUTPUT SUMMARY.

1. TITLE- ROCK DIKE, WEST LAKE, BORING 2, G.S. EL.= -3

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	3.50	51.10	17.27	.060
2	12.50	364.00	63.23	.022
3	24.00	851.40	103.68	.066
4	34.00	1247.40	116.93	.015
5	42.00	1588.20	117.67	.012
6	50.00	1929.00	114.30	.009
7	59.00	2312.40	108.25	.009

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.060	.019	.028	.038	.050	.058	.060
2	.022	.016	.021	.022	.022	.022	.022
3	.066	.000	.004	.004	.004	.007	.009
4	.015	.000	.000	.000	.000	.001	.003
5	.012	.000	.000	.000	.000	.000	.003
6	.009	.000	.000	.000	.000	.000	.000
7	.009	.000	.000	.000	.000	.000	.000
TOTALS:	.193	.035	.053	.064	.076	.088	.097

POSITION: X= 26.0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)

NO.	OF STRATA (FEET)	OVERBURDEN (LB/SQ FT)	SIGMA (LB/SQ FT)	SETTLEMENT (FEET)
1	3.50	51.10	579.07	1.007
2	12.50	364.00	435.35	.188
3	24.00	851.40	306.43	.244
4	34.00	1247.40	236.80	.028
5	42.00	1588.20	199.30	.019
6	50.00	1929.00	171.43	.014
7	59.00	2312.40	147.93	.013

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	1.007	.324	.459	.642	.843	.975	1.007
2	.188	.139	.171	.187	.188	.188	.188
3	.244	.006	.009	.012	.017	.023	.034
4	.028	.000	.000	.001	.003	.003	.004
5	.019	.000	.000	.000	.001	.003	.003
6	.014	.000	.000	.000	.000	.001	.003
7	.013	.000	.000	.000	.000	.000	.000
TOTALS:	1.513	.469	.639	.842	1.052	1.193	1.239

POSITION: X= 52.0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	3.50	51.10	17.27	.060
2	12.50	364.00	63.23	.022
3	24.00	851.40	103.68	.066
4	34.00	1247.40	116.93	.015
5	42.00	1588.20	117.67	.012
6	50.00	1929.00	114.30	.009
7	59.00	2312.40	108.25	.009

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.060	.019	.028	.038	.050	.058	.060
2	.022	.016	.021	.022	.022	.022	.022
3	.066	.000	.004	.004	.004	.007	.009

4	.015	.000	.000	.000	.000	.001	.003
5	.012	.000	.000	.000	.000	.000	.003
6	.009	.000	.000	.000	.000	.000	.000
7	.009	.000	.000	.000	.000	.000	.000
TOTALS:	.193	.035	.053	.064	.076	.088	.097

```
010 TITLE
020 ROCK DIKE, WEST LAKE, BORING A, G.S. EL.= -2.4
025 2DPR 1 8 0 0
030 -9999 0 0 0 6 126.24 16 586.24
035 19 586.24 29 126.24 35 0 9999 0
050 SOIL 1 -2.4 S 7.6 0.80 90
080 INDEX 3.5 300 6
090 SOIL 2 -3.1 D 21.6 0.43 4
095 INDEX 1.86 380 4.21
110 SOIL 3 -10.9 S 47.6 0.02 300
120 INDEX 0.10 580 1.0
130 SOIL 4 -15.9 C 42.6 0.21 130
140 INDEX 1.26 980 2.5
160 SOIL 5 -23.4 C 42.6 0.21 130
170 INDEX 1.26 1580 2.5
180 SOIL 6 -30.9 C 42.6 0.13 15
190 INDEX 0.55 2080 1.75
200 SOIL 7 -43 C 42.6 0.13 15
210 INDEX 0.55 2680 1.75
240 SOIL 8 -55 C 42.6 0.13 15
250 INDEX 0.55 3280 1.75
255 SOIL 9 -67.6 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 35.0 17.5
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 12-MAY-2003 TIME: 05.46.27

I. INPUT DATA

1. TITLE - ROCK DIKE, WEST LAKE, BORING A, G.S. EL.= -2.4

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 8
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	6.00	126.24
4	16.00	586.24
5	19.00	586.24
6	29.00	126.24
7	35.00	.00
8	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-2.40	S	7.60	.80000	90.00000	.32000
2	-3.10	D	21.60	.43000	4.00000	.32000
3	-10.90	S	47.60	.02000	300.00000	.32000
4	-15.90	C	42.60	.21000	130.00000	.32000
5	-23.40	C	42.60	.21000	130.00000	.32000
6	-30.90	C	42.60	.13000	15.00000	.32000
7	-43.00	C	42.60	.13000	15.00000	.32000
8	-55.00	C	42.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1

COMPRESSION INDEX= 3.50000
RECOMPRESSION INDEX= .80000
INSITU VOID RATIO= 6.00000
INSITU OVERBURDEN= 300.00 PSF

STRATUM NO. 2

COMPRESSION INDEX= 1.86000
RECOMPRESSION INDEX= .43000
INSITU VOID RATIO= 4.21000
INSITU OVERBURDEN= 380.00 PSF

STRATUM NO. 3

COMPRESSION INDEX= .10000
RECOMPRESSION INDEX= .02000
INSITU VOID RATIO= 1.00000
INSITU OVERBURDEN= 580.00 PSF

STRATUM NO. 4

COMPRESSION INDEX= 1.26000
RECOMPRESSION INDEX= .21000
INSITU VOID RATIO= 2.50000
INSITU OVERBURDEN= 980.00 PSF

STRATUM NO. 5

COMPRESSION INDEX= 1.26000
RECOMPRESSION INDEX= .21000
INSITU VOID RATIO= 2.50000
INSITU OVERBURDEN= 1580.00 PSF

STRATUM NO. 6

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000

INSITU OVERBURDEN= 2080.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2680.00 PSF

STRATUM NO. 8

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3280.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 35.0000 FT.
DELX= 17.5000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 12-MAY-2003 TIME: 05.46.39

II. OUTPUT SUMMARY.

1. TITLE- ROCK DIKE, WEST LAKE, BORING A, G.S. EL.= -2.4

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	.35	2.66	2.30	.018
2	4.60	89.56	33.90	.087
3	11.00	292.80	80.65	.005
4	17.25	571.55	107.07	.033
5	24.75	891.05	117.37	.024
6	34.55	1308.53	112.92	.020
7	46.60	1821.86	100.23	.013
8	58.90	2345.84	87.08	.010

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.018	.018	.018	.018	.018	.018	.018
2	.087	.025	.036	.049	.067	.082	.085
3	.005	.001	.002	.002	.002	.004	.005
4	.033	.006	.008	.011	.016	.023	.030
5	.024	.004	.006	.008	.012	.016	.021
6	.020	.005	.005	.007	.010	.014	.018
7	.013	.003	.004	.004	.007	.009	.011
8	.010	.000	.001	.005	.005	.005	.009
TOTALS:	.210	.062	.080	.104	.137	.171	.197

POSITION: X= 17.5
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	.35	2.66	586.10	.216
2	4.60	89.56	510.97	.946
3	11.00	292.80	379.15	.031
4	17.25	571.55	291.00	.081
5	24.75	891.05	221.97	.043
6	34.55	1308.53	167.92	.031
7	46.60	1821.86	127.55	.016
8	58.90	2345.84	102.14	.011

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.216	.216	.216	.216	.216	.216	.216
2	.946	.274	.387	.545	.737	.888	.941
3	.031	.006	.008	.011	.015	.021	.027
4	.081	.015	.019	.028	.039	.055	.070
5	.043	.007	.010	.015	.021	.030	.037
6	.031	.005	.007	.011	.015	.021	.027
7	.016	.004	.004	.006	.008	.011	.014
8	.011	.000	.003	.005	.005	.007	.010
TOTALS:	1.375	.527	.654	.837	1.056	1.249	1.342

POSITION: X= 35.0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	.35	2.66	2.30	.018
2	4.60	89.56	33.90	.087
3	11.00	292.80	80.65	.005
4	17.25	571.55	107.07	.033
5	24.75	891.05	117.37	.024
6	34.55	1308.53	112.92	.020
7	46.60	1821.86	100.23	.013
8	58.90	2345.84	87.08	.010

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)

1	.018	.018	.018	.018	.018	.018	.018
2	.087	.025	.036	.049	.067	.082	.085
3	.005	.001	.002	.002	.002	.004	.005
4	.033	.006	.008	.011	.016	.023	.030
5	.024	.004	.006	.008	.012	.016	.021
6	.020	.005	.005	.007	.010	.014	.018
7	.013	.003	.004	.004	.007	.009	.011
8	.010	.000	.001	.005	.005	.005	.009
TOTALS:	.210	.062	.080	.104	.137	.171	.197

```
010 TITLE
020 ROCK DIKE, WEST LAKE, BORING 6, G.S. EL.= -2
025 2DPR 1 8 0 0
030 -9999 0 0 0 4 105.2 12 565.2 15 565.2
035 23 105.2 27 0 9999 0
050 SOIL 1 -2 D 23.6 0.29 9
060 INDEX 1.29 720 3.143
070 SOIL 2 -6 C 30.6 0.28 11
080 INDEX 1.23 820 2.49
090 SOIL 3 -10 N 57.6
110 SOIL 4 -12 S 47.6 0.05 300
120 INDEX 0.20 1180 1.00
130 SOIL 5 -17.5 C 41.6 0.13 15
140 INDEX 0.55 1220 1.75
160 SOIL 6 -30 C 41.6 0.13 15
170 INDEX 0.55 1292 1.75
180 SOIL 7 -43 C 41.6 0.13 15
190 INDEX 0.55 1380 1.75
200 SOIL 8 -56 C 41.6 0.13 15
210 INDEX 0.55 1460 1.75
260 SOIL 9 -69 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 27.0 13.5
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 22-MAY-2003 TIME: 14.44.59

I. INPUT DATA

1. TITLE - ROCK DIKE, WEST LAKE, BORING 6, G.S. EL.= -2

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 8
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	4.00	105.20
4	12.00	565.20
5	15.00	565.20
6	23.00	105.20
7	27.00	.00
8	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-2.00	D	23.60	.29000	9.00000	.32000
2	-6.00	C	30.60	.28000	11.00000	.32000
3	-10.00	N	57.60			
4	-12.00	S	47.60	.05000	300.00000	.32000
5	-17.50	C	41.60	.13000	15.00000	.32000
6	-30.00	C	41.60	.13000	15.00000	.32000
7	-43.00	C	41.60	.13000	15.00000	.32000
8	-56.00	C	41.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= 1.29000
RECOMPRESSION INDEX= .29000
INSITU VOID RATIO= 3.14300
INSITU OVERBURDEN= 720.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= 1.23000
RECOMPRESSION INDEX= .28000
INSITU VOID RATIO= 2.49000
INSITU OVERBURDEN= 820.00 PSF

STRATUM NO. 3
INCOMPRESSIBLE STRATUM

STRATUM NO. 4
COMPRESSION INDEX= .20000
RECOMPRESSION INDEX= .05000
INSITU VOID RATIO= 1.00000
INSITU OVERBURDEN= 1180.00 PSF

STRATUM NO. 5
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 1220.00 PSF

STRATUM NO. 6
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 1292.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 1380.00 PSF

STRATUM NO. 8

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 1460.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 27.0000 FT.
DELX= 13.5000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 22-MAY-2003 TIME: 14.45.12

II. OUTPUT SUMMARY.

1. TITLE- ROCK DIKE, WEST LAKE, BORING 6, G.S. EL.= -2

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.00	47.20	18.15	.036
2	6.00	155.60	59.25	.043
3	9.00	274.40	86.00	.000
4	12.75	462.90	106.15	.013
5	21.75	853.80	116.82	.033
6	34.50	1384.20	102.86	.065
7	47.50	1925.00	85.00	.050
8	60.50	2465.80	70.92	.034

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
		(SETTLEMENT IN FEET AT SPECIFIED TIMES)					
1	.036	.015	.021	.029	.034	.036	.036
2	.043	.018	.025	.034	.041	.043	.043
3	.000	.000	.000	.000	.000	.000	.000
4	.013	.002	.003	.004	.006	.008	.011
5	.033	.005	.008	.012	.017	.023	.029
6	.065	.012	.016	.023	.031	.044	.057
7	.050	.009	.012	.017	.024	.034	.044
8	.034	.005	.009	.011	.016	.023	.029
TOTALS:	.274	.066	.094	.130	.169	.211	.249

POSITION: X= 13.5
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.00	47.20	539.90	.297
2	6.00	155.60	437.90	.178
3	9.00	274.40	366.40	.000
4	12.75	462.90	299.60	.030
5	21.75	853.80	202.94	.058
6	34.50	1384.20	133.86	.088
7	47.50	1925.00	98.64	.059
8	60.50	2465.80	77.92	.037

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
		(SETTLEMENT IN FEET AT SPECIFIED TIMES)					
1	.297	.126	.177	.237	.282	.296	.297
2	.178	.076	.106	.143	.169	.178	.178
3	.000	.000	.000	.000	.000	.000	.000
4	.030	.005	.007	.010	.014	.020	.026
5	.058	.010	.014	.020	.027	.039	.050
6	.088	.016	.021	.030	.043	.059	.076
7	.059	.010	.014	.020	.029	.040	.050
8	.037	.005	.010	.013	.018	.025	.032
TOTALS:	.747	.248	.349	.473	.582	.657	.709

POSITION: X= 27.0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.00	47.20	18.15	.036
2	6.00	155.60	59.25	.043
3	9.00	274.40	86.00	.000
4	12.75	462.90	106.15	.013
5	21.75	853.80	116.82	.033
6	34.50	1384.20	102.86	.065
7	47.50	1925.00	85.00	.050
8	60.50	2465.80	70.92	.034

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
		(SETTLEMENT IN FEET AT SPECIFIED TIMES)					

1	.036	.015	.021	.029	.034	.036	.036
2	.043	.018	.025	.034	.041	.043	.043
3	.000	.000	.000	.000	.000	.000	.000
4	.013	.002	.003	.004	.006	.008	.011
5	.033	.005	.008	.012	.017	.023	.029
6	.065	.012	.016	.023	.031	.044	.057
7	.050	.009	.012	.017	.024	.034	.044
8	.034	.005	.009	.011	.016	.023	.029
TOTALS:	.274	.066	.094	.130	.169	.211	.249

```
010 TITLE
020 ROCK DIKE, WEST LAKE, BORING B, G.S. EL.= -1.5
025 2DPR 1 8 0 0
030 -9999 0 0 0 3 78.9 11 538.9 14 538.9
035 22 78.9 25 0 9999 0
050 SOIL 1 -1.5 D 30.6 0.21 9
080 INDEX 0.9 700 2.51
090 SOIL 2 -11.5 S 37.6 0.06 150
095 INDEX 0.3 900 1.2
110 SOIL 3 -13.5 S 47.6 0.06 220
120 INDEX 0.25 1080 1.20
130 SOIL 4 -19.5 D 47.6 0.06 150
140 INDEX 0.30 1260 1.20
160 SOIL 5 -21.5 N 57.6
180 SOIL 6 -24.5 S 37.6 0.13 15
190 INDEX 0.55 2200 1.75
200 SOIL 7 -38 C 37.6 0.13 15
202 INDEX 0.55 2260 1.75
205 SOIL 8 -52 C 37.6 0.13 15
210 INDEX 0.55 2320 1.75
260 SOIL 9 -68.5 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 25.0 12.5
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.49.16

I. INPUT DATA

1. TITLE - ROCK DIKE, WEST LAKE, BORING B, G.S. EL.= -1.5

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 8
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	3.00	78.90
4	11.00	538.90
5	14.00	538.90
6	22.00	78.90
7	25.00	.00
8	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-1.50	D	30.60	.21000	9.00000	.32000
2	-11.50	S	37.60	.06000	150.00000	.32000
3	-13.50	S	47.60	.06000	220.00000	.32000
4	-19.50	D	47.60	.06000	150.00000	.32000
5	-21.50	N	57.60			
6	-24.50	S	37.60	.13000	15.00000	.32000
7	-38.00	C	37.60	.13000	15.00000	.32000
8	-52.00	C	37.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= .90000
RECOMPRESSION INDEX= .21000
INSITU VOID RATIO= 2.51000
INSITU OVERBURDEN= 700.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= .30000
RECOMPRESSION INDEX= .06000
INSITU VOID RATIO= 1.20000
INSITU OVERBURDEN= 900.00 PSF

STRATUM NO. 3
COMPRESSION INDEX= .25000
RECOMPRESSION INDEX= .06000
INSITU VOID RATIO= 1.20000
INSITU OVERBURDEN= 1080.00 PSF

STRATUM NO. 4
COMPRESSION INDEX= .30000
RECOMPRESSION INDEX= .06000
INSITU VOID RATIO= 1.20000
INSITU OVERBURDEN= 1260.00 PSF

STRATUM NO. 5
INCOMPRESSIBLE STRATUM

STRATUM NO. 6
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2200.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2260.00 PSF

STRATUM NO. 8

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2320.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE
AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 25.0000 FT.
DELX= 12.5000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.49.31

II. OUTPUT SUMMARY.

1. TITLE- ROCK DIKE, WEST LAKE, BORING B, G.S. EL.= -1.5

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	5.00	153.00	51.05	.070
2	11.00	343.60	101.90	.006
3	15.00	524.00	113.45	.014
4	19.00	714.40	116.60	.004
5	21.50	848.40	115.20	.000
6	29.75	1188.60	104.22	.024
7	43.50	1705.60	84.12	.013
8	58.75	2279.00	67.03	.025

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.070	.023	.034	.046	.060	.069	.070
2	.006	.006	.006	.006	.006	.006	.006
3	.014	.014	.014	.014	.014	.014	.014
4	.004	.004	.004	.004	.004	.004	.004
5	.000	.000	.000	.000	.000	.000	.000
6	.024	.000	.000	.002	.005	.005	.006
7	.013	.000	.000	.000	.000	.003	.005
8	.025	.000	.000	.003	.003	.003	.008
TOTALS:	.156	.047	.058	.075	.092	.104	.113

POSITION: X= 12.5
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	5.00	153.00	439.20	.388
2	11.00	343.60	304.70	.015
3	15.00	524.00	247.65	.027
4	19.00	714.40	204.90	.006
5	21.50	848.40	184.90	.000
6	29.75	1188.60	140.68	.031
7	43.50	1705.60	97.96	.017
8	58.75	2279.00	73.18	.026

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.388	.131	.185	.260	.336	.380	.388
2	.015	.015	.015	.015	.015	.015	.015
3	.027	.027	.027	.027	.027	.027	.027
4	.006	.006	.006	.006	.006	.006	.006
5	.000	.000	.000	.000	.000	.000	.000
6	.031	.000	.002	.004	.005	.006	.008
7	.017	.000	.000	.000	.002	.005	.005
8	.026	.000	.001	.003	.003	.003	.009
TOTALS:	.510	.179	.236	.315	.394	.442	.458

POSITION: X= 25.0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	5.00	153.00	51.05	.070
2	11.00	343.60	101.90	.006
3	15.00	524.00	113.45	.014
4	19.00	714.40	116.60	.004
5	21.50	848.40	115.20	.000
6	29.75	1188.60	104.22	.024
7	43.50	1705.60	84.12	.013
8	58.75	2279.00	67.03	.025

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)

1	.070	.023	.034	.046	.060	.069	.070
2	.006	.006	.006	.006	.006	.006	.006
3	.014	.014	.014	.014	.014	.014	.014
4	.004	.004	.004	.004	.004	.004	.004
5	.000	.000	.000	.000	.000	.000	.000
6	.024	.000	.000	.002	.005	.005	.006
7	.013	.000	.000	.000	.000	.003	.005
8	.025	.000	.000	.003	.003	.003	.008
TOTALS:	.156	.047	.058	.075	.092	.104	.113

```
010 TITLE
020 ROCK DIKE, WEST LAKE, BORING 7, G.S. EL.= -2.6
025 2DPR 1 8 0 0
030 -9999 0 0 0 6.5 136.76 16.5 596.76
035 19.5 596.76 29.5 136.76 36 0 9999 0
050 SOIL 1 -2.6 D 39.6 0.22 22
080 INDEX 0.74 1500 2.02
090 SOIL 2 -10.1 S 47.6 0.02 300
095 INDEX 0.10 1700 1.0
110 SOIL 3 -12.6 S 31.6 0.21 4
120 INDEX 1.26 2080 2.5
130 SOIL 4 -22.6 C 31.6 0.21 4
140 INDEX 1.26 2480 2.5
160 SOIL 5 -32.6 C 42.6 0.13 15
170 INDEX 0.55 3160 1.75
180 SOIL 6 -43 C 42.6 0.13 15
190 INDEX 0.55 3560 1.75
200 SOIL 7 -54 C 42.6 0.13 15
210 INDEX 0.55 3960 1.75
255 SOIL 8 -67.8 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 36.0 18.0
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.50.16

I. INPUT DATA

1. TITLE - ROCK DIKE, WEST LAKE, BORING 7, G.S. EL.= -2.6

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 8
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	6.50	136.76
4	16.50	596.76
5	19.50	596.76
6	29.50	136.76
7	36.00	.00
8	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-2.60	D	39.60	.22000	22.00000	.32000
2	-10.10	S	47.60	.02000	300.00000	.32000
3	-12.60	S	31.60	.21000	4.00000	.32000
4	-22.60	C	31.60	.21000	4.00000	.32000
5	-32.60	C	42.60	.13000	15.00000	.32000
6	-43.00	C	42.60	.13000	15.00000	.32000
7	-54.00	C	42.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= .74000
RECOMPRESSION INDEX= .22000
INSITU VOID RATIO= 2.02000
INSITU OVERBURDEN= 1500.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= .10000
RECOMPRESSION INDEX= .02000
INSITU VOID RATIO= 1.00000
INSITU OVERBURDEN= 1700.00 PSF

STRATUM NO. 3
COMPRESSION INDEX= 1.26000
RECOMPRESSION INDEX= .21000
INSITU VOID RATIO= 2.50000
INSITU OVERBURDEN= 2080.00 PSF

STRATUM NO. 4
COMPRESSION INDEX= 1.26000
RECOMPRESSION INDEX= .21000
INSITU VOID RATIO= 2.50000
INSITU OVERBURDEN= 2480.00 PSF

STRATUM NO. 5
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3160.00 PSF

STRATUM NO. 6
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3560.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3960.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE
AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 36.0000 FT.
DELX= 18.0000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.50.24

II. OUTPUT SUMMARY.

1. TITLE- ROCK DIKE, WEST LAKE, BORING 7, G.S. EL.= -2.6

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	3.75	148.50	27.03	.036
2	8.75	356.50	65.00	.002
3	15.00	574.00	98.05	.039
4	25.00	890.00	117.98	.032
5	35.20	1269.52	114.38	.018
6	45.90	1725.34	103.45	.013
7	58.30	2253.58	90.22	.011

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	(SETTLEMENT IN FEET AT SPECIFIED TIMES) ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.036	.025	.032	.036	.036	.036	.036
2	.002	.002	.002	.002	.002	.002	.002
3	.039	.000	.000	.000	.004	.004	.004
4	.032	.000	.000	.000	.001	.004	.004
5	.018	.000	.000	.000	.000	.000	.002
6	.013	.000	.000	.000	.000	.000	.000
7	.011	.000	.000	.000	.000	.000	.000
TOTALS:	.151	.027	.034	.038	.043	.046	.048

POSITION: X= 18.0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)

NO.	OF STRATA (FEET)	OVERBURDEN (LB/SQ FT)	SIGMA (LB/SQ FT)	SETTLEMENT (FEET)
1	3.75	148.50	538.87	.377
2	8.75	356.50	430.40	.009
3	15.00	574.00	329.83	.117
4	25.00	890.00	228.25	.059
5	35.20	1269.52	170.65	.026
6	45.90	1725.34	134.00	.017
7	58.30	2253.58	107.10	.013

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	(SETTLEMENT IN FEET AT SPECIFIED TIMES) ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.377	.377	.377	.377	.377	.377	.377
2	.009	.009	.009	.009	.009	.009	.009
3	.117	.004	.004	.005	.007	.010	.013
4	.059	.000	.001	.003	.004	.004	.007
5	.026	.000	.000	.000	.000	.003	.004
6	.017	.000	.000	.000	.000	.000	.002
7	.013	.000	.000	.000	.000	.000	.000
TOTALS:	.618	.390	.391	.394	.397	.403	.412

POSITION: X= 36.0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	3.75	148.50	27.03	.036
2	8.75	356.50	65.00	.002
3	15.00	574.00	98.05	.039
4	25.00	890.00	117.98	.032
5	35.20	1269.52	114.38	.018
6	45.90	1725.34	103.45	.013
7	58.30	2253.58	90.22	.011

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	(SETTLEMENT IN FEET AT SPECIFIED TIMES) ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.036	.036	.036	.036	.036	.036	.036
2	.002	.002	.002	.002	.002	.002	.002
3	.039	.000	.000	.000	.004	.004	.004

4	.032	.000	.000	.000	.001	.004	.004
5	.018	.000	.000	.000	.000	.000	.002
6	.013	.000	.000	.000	.000	.000	.000
7	.011	.000	.000	.000	.000	.000	.000
TOTALS:	.151	.038	.038	.038	.043	.046	.048

```
010 TITLE
020 ROCK DIKE, WEST LAKE, BORING C, G.S. EL.= -2.3
025 2DPR 1 8 0 0
030 -9999 0 0 0 4.6 120.98 12.6 580.98 15.6 580.98
035 23.6 120.98 28.2 0 9999 0
050 SOIL 1 -2.3 D 37.6 0.10 18
080 INDEX 0.47 1020 1.38
090 SOIL 2 -10.3 N 57.6
110 SOIL 3 -12.3 D 37.6 0.09 110
120 INDEX 0.38 1180 1.36
130 SOIL 4 -14.3 N 57.6
160 SOIL 5 -17.3 D 41.6 0.21 130
165 INDEX 1.26 1400 2.5
180 SOIL 6 -18.3 N 41.6
200 SOIL 7 -30.3 S 41.6 0.74 50
202 INDEX 0.55 1780 7.8
205 SOIL 8 -32.3 S 41.6 0.13 15
210 INDEX 0.55 2540 1.75
260 SOIL 9 -67.7 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 28.2 14.1
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 12-MAY-2003 TIME: 05.46.59

I. INPUT DATA

1. TITLE - ROCK DIKE, WEST LAKE, BORING C, G.S. EL.= -2.3

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 8
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	4.60	120.98
4	12.60	580.98
5	15.60	580.98
6	23.60	120.98
7	28.20	.00
8	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-2.30	D	37.60	.10000	18.00000	.32000
2	-10.30	N	57.60			
3	-12.30	D	37.60	.09000	110.00000	.32000
4	-14.30	N	57.60			
5	-17.30	D	41.60	.21000	130.00000	.32000
6	-18.30	N	41.60			
7	-30.30	S	41.60	.74000	50.00000	.32000
8	-32.30	S	41.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= .47000
RECOMPRESSION INDEX= .10000
INSITU VOID RATIO= 1.38000
INSITU OVERBURDEN= 1020.00 PSF

STRATUM NO. 2
INCOMPRESSIBLE STRATUM

STRATUM NO. 3
COMPRESSION INDEX= .38000
RECOMPRESSION INDEX= .09000
INSITU VOID RATIO= 1.36000
INSITU OVERBURDEN= 1180.00 PSF

STRATUM NO. 4
INCOMPRESSIBLE STRATUM

STRATUM NO. 5
COMPRESSION INDEX= 1.26000
RECOMPRESSION INDEX= .21000
INSITU VOID RATIO= 2.50000
INSITU OVERBURDEN= 1400.00 PSF

STRATUM NO. 6
INCOMPRESSIBLE STRATUM

STRATUM NO. 7
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .74000
INSITU VOID RATIO= 7.80000
INSITU OVERBURDEN= 1780.00 PSF

STRATUM NO. 8

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2540.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 28.2000 FT.
DELX= 14.1000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 12-MAY-2003 TIME: 05.47.10

II. OUTPUT SUMMARY.

1. TITLE- ROCK DIKE, WEST LAKE, BORING C, G.S. EL.= -2.3

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	4.00	150.40	37.53	.030
2	9.00	358.40	84.00	.000
3	11.00	453.60	97.20	.006
4	13.50	577.60	108.80	.000
5	15.50	684.80	114.70	.004
6	22.00	955.20	118.70	.000
7	29.00	1246.40	114.00	.006
8	47.70	2024.32	89.38	.044

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.030	.018	.025	.029	.030	.030	.030
2	.000	.000	.000	.000	.000	.000	.000
3	.006	.006	.006	.006	.006	.006	.006
4	.000	.000	.000	.000	.000	.000	.000
5	.004	.004	.004	.004	.004	.004	.004
6	.000	.000	.000	.000	.000	.000	.000
7	.006	.006	.006	.006	.006	.006	.006
8	.044	.000	.002	.004	.007	.013	.016
TOTALS:	.090	.034	.043	.049	.053	.059	.062

POSITION: X= 14.1
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	4.00	150.40	504.90	.233
2	9.00	358.40	380.90	.000
3	11.00	453.60	341.40	.018
4	13.50	577.60	300.20	.000
5	15.50	684.80	272.70	.009
6	22.00	955.20	210.83	.000
7	29.00	1246.40	163.70	.009
8	47.70	2024.32	107.72	.052

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.233	.138	.186	.221	.233	.233	.233
2	.000	.000	.000	.000	.000	.000	.000
3	.018	.018	.018	.018	.018	.018	.018
4	.000	.000	.000	.000	.000	.000	.000
5	.009	.009	.009	.009	.009	.009	.009
6	.000	.000	.000	.000	.000	.000	.000
7	.009	.009	.009	.009	.009	.009	.009
8	.052	.000	.003	.006	.008	.015	.019
TOTALS:	.321	.174	.225	.263	.277	.284	.288

POSITION: X= 28.2
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	4.00	150.40	37.53	.030
2	9.00	358.40	84.00	.000
3	11.00	453.60	97.20	.006
4	13.50	577.60	108.80	.000
5	15.50	684.80	114.70	.004
6	22.00	955.20	118.70	.000
7	29.00	1246.40	114.00	.006
8	47.70	2024.32	89.38	.044

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)

1	.030	.018	.025	.029	.030	.030	.030
2	.000	.000	.000	.000	.000	.000	.000
3	.006	.006	.006	.006	.006	.006	.006
4	.000	.000	.000	.000	.000	.000	.000
5	.004	.004	.004	.004	.004	.004	.004
6	.000	.000	.000	.000	.000	.000	.000
7	.006	.006	.006	.006	.006	.006	.006
8	.044	.000	.002	.004	.007	.013	.016
TOTALS:	.090	.034	.043	.049	.053	.059	.062

```
010 TITLE
020 ROCK DIKE, WEST LAKE, BORING 10, G.S. EL.= -1.7
025 2DPR 1 8 0 0
030 -9999 0 0 0 3.4 89.42 11.4 549.42 14.4 549.42
035 22.4 89.42 25.8 0 9999 0
050 SOIL 1 -1.7 D 45.6 0.05 77
080 INDEX 0.23 1980 1.08
050 SOIL 2 -6.2 C 52.4 0.14 36
080 INDEX 0.53 460 1.597
110 SOIL 3 -10.45 S 47.6 0.05 77
120 INDEX 0.23 2240 1.00
130 SOIL 4 -13.2 N 57.6
160 SOIL 5 -15.2 D 52.6 0.06 150
165 INDEX 0.30 2440 1.2
180 SOIL 6 -17.2 N 57.6
200 SOIL 7 -26.2 S 36.6 0.11 13
202 INDEX 0.45 3120 1.35
205 SOIL 8 -32.2 C 42.6 0.13 15
210 INDEX 0.55 3880 1.75
260 SOIL 9 -68.2 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 25.8 12.9
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 22-MAY-2003 TIME: 14.49.31

I. INPUT DATA

1. TITLE - ROCK DIKE, WEST LAKE, BORING 10, G.S. EL.= -1.7

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 8
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	3.40	89.42
4	11.40	549.42
5	14.40	549.42
6	22.40	89.42
7	25.80	.00
8	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-1.70	D	45.60	.05000	77.00000	.32000
2	-6.20	C	52.40	.14000	36.00000	.32000
3	-10.45	S	47.60	.05000	77.00000	.32000
4	-13.20	N	57.60			
5	-15.20	D	52.60	.06000	150.00000	.32000
6	-17.20	N	57.60			
7	-26.20	S	36.60	.11000	13.00000	.32000
8	-32.20	C	42.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= .23000
RECOMPRESSION INDEX= .05000
INSITU VOID RATIO= 1.08000
INSITU OVERBURDEN= 1980.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= .53000
RECOMPRESSION INDEX= .14000
INSITU VOID RATIO= 1.59700
INSITU OVERBURDEN= 460.00 PSF

STRATUM NO. 3
COMPRESSION INDEX= .23000
RECOMPRESSION INDEX= .05000
INSITU VOID RATIO= 1.00000
INSITU OVERBURDEN= 2240.00 PSF

STRATUM NO. 4
INCOMPRESSIBLE STRATUM

STRATUM NO. 5
COMPRESSION INDEX= .30000
RECOMPRESSION INDEX= .06000
INSITU VOID RATIO= 1.20000
INSITU OVERBURDEN= 2440.00 PSF

STRATUM NO. 6
INCOMPRESSIBLE STRATUM

STRATUM NO. 7
COMPRESSION INDEX= .45000

RECOMPRESSION INDEX= .11000
INSITU VOID RATIO= 1.35000
INSITU OVERBURDEN= 3120.00 PSF

STRATUM NO. 8

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3880.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 25.8000 FT.
DELX= 12.9000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 22-MAY-2003 TIME: 14.49.47

II. OUTPUT SUMMARY.

1. TITLE- ROCK DIKE, WEST LAKE, BORING 10, G.S. EL.= -1.7

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.25	102.60	21.35	.008
2	6.63	316.55	67.65	.019
3	10.13	493.35	95.70	.005
4	12.50	616.40	107.10	.000
5	14.50	726.60	113.00	.003
6	20.00	1038.40	116.40	.000
7	27.50	1407.40	109.80	.009
8	48.50	2284.00	81.32	.027

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.008	.008	.008	.008	.008	.008	.008
2	.019	.018	.019	.019	.019	.019	.019
3	.005	.005	.005	.005	.005	.005	.005
4	.000	.000	.000	.000	.000	.000	.000
5	.003	.003	.003	.003	.003	.003	.003
6	.000	.000	.000	.000	.000	.000	.000
7	.009	.000	.000	.000	.002	.002	.002
8	.027	.000	.000	.000	.001	.004	.007
TOTALS:	.071	.034	.035	.035	.038	.041	.044

POSITION: X= 12.9
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.25	102.60	518.35	.088
2	6.63	316.55	406.95	.207
3	10.13	493.35	329.70	.015
4	12.50	616.40	289.10	.000
5	14.50	726.60	260.80	.007
6	20.00	1038.40	205.17	.000
7	27.50	1407.40	154.85	.013
8	48.50	2284.00	94.98	.033

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.088	.088	.088	.088	.088	.088	.088
2	.207	.207	.207	.207	.207	.207	.207
3	.015	.015	.015	.015	.015	.015	.015
4	.000	.000	.000	.000	.000	.000	.000
5	.007	.007	.007	.007	.007	.007	.007
6	.000	.000	.000	.000	.000	.000	.000
7	.013	.000	.000	.002	.002	.002	.004
8	.033	.000	.000	.000	.003	.005	.009
TOTALS:	.363	.317	.317	.319	.322	.324	.330

POSITION: X= 25.8
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.25	102.60	21.35	.008
2	6.63	316.55	67.65	.019
3	10.13	493.35	95.70	.005
4	12.50	616.40	107.10	.000
5	14.50	726.60	113.00	.003
6	20.00	1038.40	116.40	.000
7	27.50	1407.40	109.80	.009
8	48.50	2284.00	81.32	.027

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)

1	.008	.008	.008	.008	.008	.008	.008
2	.019	.019	.019	.019	.019	.019	.019
3	.005	.005	.005	.005	.005	.005	.005
4	.000	.000	.000	.000	.000	.000	.000
5	.003	.003	.003	.003	.003	.003	.003
6	.000	.000	.000	.000	.000	.000	.000
7	.009	.000	.000	.000	.002	.002	.002
8	.027	.000	.000	.000	.001	.004	.007
TOTALS:	.071	.035	.035	.035	.038	.041	.044

```
010 TITLE
020 ROCK DIKE, WEST LAKE, BORING D, G.S. EL.= -1.7
025 2DPR 1 8 0 0
030 -9999 0 0 0 3.4 89.42 11.4 549.42 14.4 549.42
035 22.4 89.42 25.8 0 9999 0
050 SOIL 1 -1.7 D 42.6 0.19 11
080 INDEX 0.59 1640 1.79
090 SOIL 2 -12.2 C 47.6 0.09 150
095 INDEX 0.38 800 1.36
110 SOIL 3 -15.2 S 47.6 0.06 220
120 INDEX 0.25 1320 1.20
160 SOIL 4 -18.5 D 27.6 0.21 4
165 INDEX 1.26 2180 2.5
180 SOIL 5 -20.2 N 27.6
200 SOIL 6 -35.2 S 40.6 0.13 15
202 INDEX 0.55 3920 1.75
205 SOIL 7 -50.0 C 40.6 0.13 15
210 INDEX 0.55 4520 1.75
260 SOIL 8 -68.2 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 25.8 12.9
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 22-MAY-2003 TIME: 15.53.57

I. INPUT DATA

1. TITLE - ROCK DIKE, WEST LAKE, BORING D, G.S. EL.= -1.7

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 8
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	3.40	89.42
4	11.40	549.42
5	14.40	549.42
6	22.40	89.42
7	25.80	.00
8	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-1.70	D	42.60	.19000	11.00000	.32000
2	-12.20	C	47.60	.09000	150.00000	.32000
3	-15.20	S	47.60	.06000	220.00000	.32000
4	-18.50	D	27.60	.21000	4.00000	.32000
5	-20.20	N	27.60			
6	-35.20	S	40.60	.13000	15.00000	.32000
7	-50.00	C	40.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= .59000
RECOMPRESSION INDEX= .19000
INSITU VOID RATIO= 1.79000
INSITU OVERBURDEN= 1640.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= .38000
RECOMPRESSION INDEX= .09000
INSITU VOID RATIO= 1.36000
INSITU OVERBURDEN= 800.00 PSF

STRATUM NO. 3
COMPRESSION INDEX= .25000
RECOMPRESSION INDEX= .06000
INSITU VOID RATIO= 1.20000
INSITU OVERBURDEN= 1320.00 PSF

STRATUM NO. 4
COMPRESSION INDEX= 1.26000
RECOMPRESSION INDEX= .21000
INSITU VOID RATIO= 2.50000
INSITU OVERBURDEN= 2180.00 PSF

STRATUM NO. 5
INCOMPRESSIBLE STRATUM

STRATUM NO. 6
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3920.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 4520.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE
AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 25.8000 FT.
DELX= 12.9000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 22-MAY-2003 TIME: 15.54.07

II. OUTPUT SUMMARY.

1. TITLE- ROCK DIKE, WEST LAKE, BORING D, G.S. EL.= -1.7

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	5.25	223.65	52.00	.059
2	12.00	518.70	105.20	.009
3	15.15	668.64	114.10	.006
4	17.65	770.64	117.10	.006
5	26.00	1001.10	111.06	.000
6	40.90	1508.54	90.08	.017
7	57.40	2178.44	70.63	.012

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.059	.016	.023	.032	.046	.055	.059
2	.009	.003	.004	.005	.007	.008	.009
3	.006	.006	.006	.006	.006	.006	.006
4	.006	.006	.006	.006	.006	.006	.006
5	.000	.000	.000	.000	.000	.000	.000
6	.017	.000	.000	.002	.005	.005	.006
7	.012	.000	.000	.000	.000	.002	.006
TOTALS:	.109	.031	.039	.051	.070	.082	.092

POSITION: X= 12.9
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	OF STRATA (FEET)	MID-DEPTH OVERBURDEN (LB/SQ FT)	IN-SITU SIGMA (LB/SQ FT)	DELTA SETTLEMENT (FEET)	ULTIMATE SETTLEMENT (FEET)

NO.	OF STRATA (FEET)	OVERBURDEN (LB/SQ FT)	SIGMA (LB/SQ FT)	SETTLEMENT (FEET)
1	5.25	223.65	443.60	.378
2	12.00	518.70	297.00	.025
3	15.15	668.64	252.95	.013
4	17.65	770.64	224.80	.011
5	26.00	1001.10	165.66	.000
6	40.90	1508.54	108.04	.022
7	57.40	2178.44	77.86	.013

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.378	.104	.149	.209	.286	.351	.376
2	.025	.007	.010	.014	.019	.024	.025
3	.013	.013	.013	.013	.013	.013	.013
4	.011	.011	.011	.011	.011	.011	.011
5	.000	.000	.000	.000	.000	.000	.000
6	.022	.000	.001	.003	.005	.005	.008
7	.013	.000	.000	.000	.000	.003	.007
TOTALS:	.462	.135	.184	.250	.334	.407	.440

POSITION: X= 25.8
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	5.25	223.65	52.00	.059
2	12.00	518.70	105.20	.009
3	15.15	668.64	114.10	.006
4	17.65	770.64	117.10	.006
5	26.00	1001.10	111.06	.000
6	40.90	1508.54	90.08	.017
7	57.40	2178.44	70.63	.012

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.059	.016	.023	.032	.046	.055	.059
2	.009	.003	.004	.005	.007	.008	.009
3	.006	.006	.006	.006	.006	.006	.006

4	.006	.006	.006	.006	.006	.006	.006
5	.000	.000	.000	.000	.000	.000	.000
6	.017	.000	.000	.002	.005	.005	.006
7	.012	.000	.000	.000	.000	.002	.006
TOTALS:	.109	.031	.039	.051	.070	.082	.092

```
010 TITLE
020 ROCK DIKE, WEST LAKE, BORING 12, G.S. EL.= -1.9
025 2DPR 1 8 0 0
030 -9999 0 0 0 3.8 99.94 11.8 559.94 14.8 559.94
035 22.8 99.94 26.6 0 9999 0
050 SOIL 1 -1.9 D 33.6 0.36 18
080 INDEX 1.25 1400 2.75
090 SOIL 2 -12.4 S 47.6 0.02 300
095 INDEX 0.10 1620 1.0
130 SOIL 3 -14.4 N 57.6
110 SOIL 4 -19.9 S 47.6 0.02 300
120 INDEX 0.10 2080 1.00
160 SOIL 5 -26.4 D 37.6 0.21 4
165 INDEX 1.26 2340 2.5
180 SOIL 6 -32.4 S 42.6 0.13 15
185 INDEX 0.55 3240 1.75
200 SOIL 7 -43.0 S 42.6 0.13 15
202 INDEX 0.55 3840 1.75
205 SOIL 8 -55.0 C 42.6 0.13 15
210 INDEX 0.55 4440 1.75
260 SOIL 9 -68.1 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 26.6 13.3
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.53.58

I. INPUT DATA

1. TITLE - ROCK DIKE, WEST LAKE, BORING 12, G.S. EL.= -1.9

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 8
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	3.80	99.94
4	11.80	559.94
5	14.80	559.94
6	22.80	99.94
7	26.60	.00
8	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-1.90	D	33.60	.36000	18.00000	.32000
2	-12.40	S	47.60	.02000	300.00000	.32000
3	-14.40	N	57.60			
4	-19.90	S	47.60	.02000	300.00000	.32000
5	-26.40	D	37.60	.21000	4.00000	.32000
6	-32.40	S	42.60	.13000	15.00000	.32000
7	-43.00	S	42.60	.13000	15.00000	.32000
8	-55.00	C	42.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= 1.25000
RECOMPRESSION INDEX= .36000
INSITU VOID RATIO= 2.75000
INSITU OVERBURDEN= 1400.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= .10000
RECOMPRESSION INDEX= .02000
INSITU VOID RATIO= 1.00000
INSITU OVERBURDEN= 1620.00 PSF

STRATUM NO. 3
INCOMPRESSIBLE STRATUM

STRATUM NO. 4
COMPRESSION INDEX= .10000
RECOMPRESSION INDEX= .02000
INSITU VOID RATIO= 1.00000
INSITU OVERBURDEN= 2080.00 PSF

STRATUM NO. 5
COMPRESSION INDEX= 1.26000
RECOMPRESSION INDEX= .21000
INSITU VOID RATIO= 2.50000
INSITU OVERBURDEN= 2340.00 PSF

STRATUM NO. 6
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3240.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3840.00 PSF

STRATUM NO. 8

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 4440.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE
AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 26.6000 FT.
DELX= 13.3000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.54.07

II. OUTPUT SUMMARY.

1. TITLE- ROCK DIKE, WEST LAKE, BORING 12, G.S. EL.= -1.9

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	5.25	176.40	50.88	.100
2	11.50	400.40	101.90	.002
3	15.25	606.40	113.80	.000
4	21.25	919.50	117.50	.003
5	27.50	1187.00	111.75	.014
6	35.80	1525.58	99.78	.014
7	47.10	2006.96	84.28	.010
8	59.65	2541.59	70.58	.007

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.100	.046	.063	.083	.096	.100	.100
2	.002	.002	.002	.002	.002	.002	.002
3	.000	.000	.000	.000	.000	.000	.000
4	.003	.003	.003	.003	.003	.003	.003
5	.014	.005	.007	.010	.013	.013	.014
6	.014	.004	.004	.005	.008	.011	.013
7	.010	.000	.000	.001	.004	.004	.004
8	.007	.000	.000	.000	.000	.003	.005
TOTALS:	.150	.060	.079	.104	.126	.136	.141

POSITION: X= 13.3
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	5.25	176.40	453.73	.590
2	11.50	400.40	314.20	.005
3	15.25	606.40	260.45	.000
4	21.25	919.50	200.87	.006
5	27.50	1187.00	160.45	.020
6	35.80	1525.58	126.58	.017
7	47.10	2006.96	97.53	.011
8	59.65	2541.59	77.56	.008

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.590	.268	.377	.495	.572	.590	.590
2	.005	.005	.005	.005	.005	.005	.005
3	.000	.000	.000	.000	.000	.000	.000
4	.006	.006	.006	.006	.006	.006	.006
5	.020	.007	.011	.014	.018	.020	.020
6	.017	.004	.005	.007	.010	.014	.016
7	.011	.000	.000	.002	.004	.004	.006
8	.008	.000	.000	.000	.000	.004	.005
TOTALS:	.657	.290	.404	.529	.615	.643	.648

POSITION: X= 26.6
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	5.25	176.40	50.88	.100
2	11.50	400.40	101.90	.002
3	15.25	606.40	113.80	.000
4	21.25	919.50	117.50	.003
5	27.50	1187.00	111.75	.014
6	35.80	1525.58	99.78	.014
7	47.10	2006.96	84.28	.010
8	59.65	2541.59	70.58	.007

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)

1	.100	.046	.063	.083	.096	.100	.100
2	.002	.002	.002	.002	.002	.002	.002
3	.000	.000	.000	.000	.000	.000	.000
4	.003	.003	.003	.003	.003	.003	.003
5	.014	.005	.007	.010	.013	.013	.014
6	.014	.004	.004	.005	.008	.011	.013
7	.010	.000	.000	.001	.004	.004	.004
8	.007	.000	.000	.000	.000	.003	.005
TOTALS:	.150	.060	.079	.104	.126	.136	.141

```
010 TITLE
020 ROCK DIKE, WEST LAKE, BORING E, G.S. EL.= -1.3
025 2DPR 1 8 0 0
030 -9999 0 0 0 2.6 68.38 10.6 528.38 13.6 528.38
035 21.6 68.38 24.2 0 9999 0
050 SOIL 1 -1.3 D 52.6 0.09 153
080 INDEX 0.38 2320 1.36
090 SOIL 2 -10.3 N 57.6
110 SOIL 3 -29.3 D 42.6 0.11 9
120 INDEX 0.45 3860 1.35
160 SOIL 4 -39.3 S 42.6 0.06 200
165 INDEX 0.25 4180 1.20
180 SOIL 5 -44.3 S 42.6 0.13 15
185 INDEX 0.55 4700 1.75
200 SOIL 6 -52.0 C 42.6 0.13 15
202 INDEX 0.55 5300 1.75
205 SOIL 7 -60.0 C 42.6 0.13 15
210 INDEX 0.55 5900 1.75
260 SOIL 8 -68.7 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 24.2 12.1
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.54.45

I. INPUT DATA

1. TITLE - ROCK DIKE, WEST LAKE, BORING E, G.S. EL.= -1.3

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 8
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	2.60	68.38
4	10.60	528.38
5	13.60	528.38
6	21.60	68.38
7	24.20	.00
8	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-1.30	D	52.60	.09000	153.00000	.32000
2	-10.30	N	57.60			
3	-29.30	D	42.60	.11000	9.00000	.32000
4	-39.30	S	42.60	.06000	200.00000	.32000
5	-44.30	S	42.60	.13000	15.00000	.32000
6	-52.00	C	42.60	.13000	15.00000	.32000
7	-60.00	C	42.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= .38000
RECOMPRESSION INDEX= .09000
INSITU VOID RATIO= 1.36000
INSITU OVERBURDEN= 2320.00 PSF

STRATUM NO. 2
INCOMPRESSIBLE STRATUM

STRATUM NO. 3
COMPRESSION INDEX= .45000
RECOMPRESSION INDEX= .11000
INSITU VOID RATIO= 1.35000
INSITU OVERBURDEN= 3860.00 PSF

STRATUM NO. 4
COMPRESSION INDEX= .25000
RECOMPRESSION INDEX= .06000
INSITU VOID RATIO= 1.20000
INSITU OVERBURDEN= 4180.00 PSF

STRATUM NO. 5
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 4700.00 PSF

STRATUM NO. 6
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 5300.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 5900.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE
AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 24.2000 FT.
DELX= 12.1000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.54.58

II. OUTPUT SUMMARY.

1. TITLE- ROCK DIKE, WEST LAKE, BORING E, G.S. EL.= -1.3

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	4.50	236.70	47.73	.026
2	18.50	1020.60	110.59	.000
3	33.00	1780.80	97.00	.011
4	40.50	2100.30	85.60	.002
5	46.85	2370.81	77.27	.006
6	54.70	2705.22	68.57	.003
7	63.05	3060.93	60.97	.003

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.026	.026	.026	.026	.026	.026	.026
2	.000	.000	.000	.000	.000	.000	.000
3	.011	.004	.004	.008	.009	.010	.011
4	.002	.002	.002	.002	.002	.002	.002
5	.006	.000	.000	.000	.000	.003	.003
6	.003	.000	.000	.000	.000	.001	.003
7	.003	.000	.000	.000	.000	.000	.003
TOTALS:	.051	.032	.032	.036	.037	.042	.048

POSITION: X= 12.1
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA MID-DEPTH IN-SITU DELTA ULTIMATE

NO. OF STRATA	MID-DEPTH (FEET)	OVERBURDEN (LB/SQ FT)	SIGMA (LB/SQ FT)	SETTLEMENT (FEET)
1	4.50	236.70	441.23	.177
2	18.50	1020.60	213.39	.000
3	33.00	1780.80	122.33	.014
4	40.50	2100.30	100.35	.002
5	46.85	2370.81	87.37	.006
6	54.70	2705.22	75.13	.004
7	63.05	3060.93	65.40	.003

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.177	.177	.177	.177	.177	.177	.177
2	.000	.000	.000	.000	.000	.000	.000
3	.014	.004	.006	.009	.011	.013	.014
4	.002	.002	.002	.002	.002	.002	.002
5	.006	.000	.000	.000	.001	.003	.003
6	.004	.000	.000	.000	.000	.002	.003
7	.003	.000	.000	.000	.000	.000	.003
TOTALS:	.206	.183	.185	.188	.191	.197	.202

POSITION: X= 24.2
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	4.50	236.70	47.73	.026
2	18.50	1020.60	110.59	.000
3	33.00	1780.80	97.00	.011
4	40.50	2100.30	85.60	.002
5	46.85	2370.81	77.27	.006
6	54.70	2705.22	68.57	.003
7	63.05	3060.93	60.97	.003

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.026	.026	.026	.026	.026	.026	.026
2	.000	.000	.000	.000	.000	.000	.000
3	.011	.004	.004	.008	.009	.010	.011

4	.002	.002	.002	.002	.002	.002	.002
5	.006	.000	.000	.000	.000	.003	.003
6	.003	.000	.000	.000	.000	.001	.003
7	.003	.000	.000	.000	.000	.000	.003
TOTALS:	.051	.032	.032	.036	.037	.042	.048

```
010 TITLE
020 ROCK DIKE, WEST LAKE, BORING 13, G.S. EL.= -1.6
025 2DPR 1 8 0 0
030 -9999 0 0 0 9.6 84.16 33.6 544.16 36.6 544.16
035 60.6 84.16 70.2 0 9999 0
050 SOIL 1 -1.6 S 17.6 0.74 90
080 INDEX 3.20 340 7.59
050 SOIL 2 -7.1 S 17.6 0.20 35
080 INDEX 0.84 480 2.372
090 SOIL 3 -11.1 S 47.6 0.06 220
095 INDEX 0.25 600 1.2
110 SOIL 4 -18.1 D 32.6 0.14 15
120 INDEX 0.60 980 1.60
130 SOIL 5 -31.1 N 57.6
160 SOIL 6 -33.1 S 42.6 0.13 15
165 INDEX 0.55 2080 1.75
180 SOIL 7 -43.0 C 42.6 0.13 15
185 INDEX 0.55 2680 1.75
200 SOIL 8 -53.0 C 42.6 0.13 15
202 INDEX 0.55 3280 1.75
260 SOIL 9 -69.5 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 70.2 35.1
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 16-MAY-2003 TIME: 16.41.47

I. INPUT DATA

1. TITLE - ROCK DIKE, WEST LAKE, BORING 13, G.S. EL.= -1.6

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 8
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	9.60	84.16
4	33.60	544.16
5	36.60	544.16
6	60.60	84.16
7	70.20	.00
8	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-1.60	S	17.60	.74000	90.00000	.32000
2	-7.10	S	17.60	.20000	35.00000	.32000
3	-11.10	S	47.60	.06000	220.00000	.32000
4	-18.10	D	32.60	.14000	15.00000	.32000
5	-31.10	N	57.60			
6	-33.10	S	42.60	.13000	15.00000	.32000
7	-43.00	C	42.60	.13000	15.00000	.32000
8	-53.00	C	42.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= 3.20000
RECOMPRESSION INDEX= .74000
INSITU VOID RATIO= 7.59000
INSITU OVERBURDEN= 340.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= .84000
RECOMPRESSION INDEX= .20000
INSITU VOID RATIO= 2.37200
INSITU OVERBURDEN= 480.00 PSF

STRATUM NO. 3
COMPRESSION INDEX= .25000
RECOMPRESSION INDEX= .06000
INSITU VOID RATIO= 1.20000
INSITU OVERBURDEN= 600.00 PSF

STRATUM NO. 4
COMPRESSION INDEX= .60000
RECOMPRESSION INDEX= .14000
INSITU VOID RATIO= 1.60000
INSITU OVERBURDEN= 980.00 PSF

STRATUM NO. 5
INCOMPRESSIBLE STRATUM

STRATUM NO. 6
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2080.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2680.00 PSF

STRATUM NO. 8

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3280.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE
AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 70.2000 FT.
DELX= 35.1000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 16-MAY-2003 TIME: 16.42.03

II. OUTPUT SUMMARY.

1. TITLE- ROCK DIKE, WEST LAKE, BORING 13, G.S. EL.= -1.6

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.75	48.40	8.00	.029
2	7.50	132.00	23.60	.016
3	13.00	333.80	43.83	.010
4	23.00	712.30	75.30	.030
5	30.50	981.80	92.20	.000
6	36.45	1250.27	99.70	.016
7	46.40	1674.14	105.98	.012
8	59.65	2238.59	105.62	.016

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	(SETTLEMENT IN FEET AT SPECIFIED TIMES) ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.029	.025	.029	.029	.029	.029	.029
2	.016	.013	.016	.016	.016	.016	.016
3	.010	.010	.010	.010	.010	.010	.010
4	.030	.010	.015	.020	.025	.030	.030
5	.000	.000	.000	.000	.000	.000	.000
6	.016	.000	.000	.001	.004	.004	.004
7	.012	.000	.000	.000	.003	.004	.004
8	.016	.000	.000	.000	.001	.006	.006
TOTALS:	.129	.058	.070	.076	.088	.099	.099

POSITION: X= 35.1
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.75	48.40	528.75	.834
2	7.50	132.00	479.80	.232
3	13.00	333.80	422.13	.128
4	23.00	712.30	335.80	.195
5	30.50	981.80	284.20	.000
6	36.45	1250.27	253.08	.038
7	46.40	1674.14	211.53	.024
8	59.65	2238.59	172.63	.025

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	(SETTLEMENT IN FEET AT SPECIFIED TIMES) ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.834	.727	.818	.834	.834	.834	.834
2	.232	.182	.218	.230	.232	.232	.232
3	.128	.122	.128	.128	.128	.128	.128
4	.195	.065	.093	.129	.168	.190	.195
5	.000	.000	.000	.000	.000	.000	.000
6	.038	.003	.004	.004	.006	.009	.013
7	.024	.000	.002	.004	.004	.006	.008
8	.025	.000	.000	.003	.006	.006	.008
TOTALS:	1.476	1.099	1.263	1.332	1.378	1.405	1.418

POSITION: X= 70.2
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.75	48.40	8.00	.029
2	7.50	132.00	23.60	.016
3	13.00	333.80	43.83	.010
4	23.00	712.30	75.30	.030
5	30.50	981.80	92.20	.000
6	36.45	1250.27	99.70	.016
7	46.40	1674.14	105.98	.012
8	59.65	2238.59	105.62	.016

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	(SETTLEMENT IN FEET AT SPECIFIED TIMES) ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)

1	.029	.025	.029	.029	.029	.029	.029
2	.016	.013	.016	.016	.016	.016	.016
3	.010	.010	.010	.010	.010	.010	.010
4	.030	.010	.015	.020	.025	.030	.030
5	.000	.000	.000	.000	.000	.000	.000
6	.016	.000	.000	.001	.004	.004	.004
7	.012	.000	.000	.000	.003	.004	.004
8	.016	.000	.000	.000	.001	.006	.006
TOTALS:	.129	.058	.070	.076	.088	.099	.099

```
010 TITLE
020 COMPOSITE DIKE, WEST LAKE, BORING 1, G.S. EL.= -2
025 2DPR 1 10 0 0
030 -9999 0 0 0 4 105.2 8 255.2 12 405.2
035 15 405.2 19 255.2 23 105.2 27 0 9999 0
040 SOIL 1 -2 D 33.6 0.39 7
045 INDEX 1.69 332 4.3
050 SOIL 2 -5 C 7.6 0.71 13
055 INDEX 3.55 332 8.69
060 SOIL 3 -7 C 33.6 0.39 7
065 INDEX 1.69 332 4.3
070 SOIL 4 -11 S 47.6 0.05 300
080 INDEX 0.15 600 1.0
110 SOIL 5 -18 S 35.6 0.28 4
120 INDEX 1.58 1880 2.43
130 SOIL 6 -33 C 42.6 0.13 15
140 INDEX 0.55 2780 1.75
160 SOIL 7 -44 C 42.6 0.13 15
170 INDEX 0.55 3480 1.75
180 SOIL 8 -56 C 42.6 0.13 15
190 INDEX 0.55 4180 1.75
260 SOIL 9 -68 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 27.0 13.5
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 22-MAY-2003 TIME: 14.43.43

I. INPUT DATA

1. TITLE - COMPOSITE DIKE, WEST LAKE, BORING 1, G.S. EL.= -2

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 10
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	4.00	105.20
4	8.00	255.20
5	12.00	405.20
6	15.00	405.20
7	19.00	255.20
8	23.00	105.20
9	27.00	.00
10	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-2.00	D	33.60	.39000	7.00000	.32000
2	-5.00	C	7.60	.71000	13.00000	.32000
3	-7.00	C	33.60	.39000	7.00000	.32000
4	-11.00	S	47.60	.05000	300.00000	.32000
5	-18.00	S	35.60	.28000	4.00000	.32000
6	-33.00	C	42.60	.13000	15.00000	.32000
7	-44.00	C	42.60	.13000	15.00000	.32000
8	-56.00	C	42.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= 1.69000
RECOMPRESSION INDEX= .39000
INSITU VOID RATIO= 4.30000
INSITU OVERBURDEN= 332.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= 3.55000
RECOMPRESSION INDEX= .71000
INSITU VOID RATIO= 8.69000
INSITU OVERBURDEN= 332.00 PSF

STRATUM NO. 3
COMPRESSION INDEX= 1.69000
RECOMPRESSION INDEX= .39000
INSITU VOID RATIO= 4.30000
INSITU OVERBURDEN= 332.00 PSF

STRATUM NO. 4
COMPRESSION INDEX= .15000
RECOMPRESSION INDEX= .05000
INSITU VOID RATIO= 1.00000
INSITU OVERBURDEN= 600.00 PSF

STRATUM NO. 5
COMPRESSION INDEX= 1.58000
RECOMPRESSION INDEX= .28000
INSITU VOID RATIO= 2.43000
INSITU OVERBURDEN= 1880.00 PSF

STRATUM NO. 6
COMPRESSION INDEX= .55000

RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2780.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3480.00 PSF

STRATUM NO. 8

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 4180.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE
AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 27.0000 FT.
DELX= 13.5000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 22-MAY-2003 TIME: 14.43.56

II. OUTPUT SUMMARY.

1. TITLE- COMPOSITE DIKE, WEST LAKE, BORING 1, G.S. EL.= -2

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	1.50	50.40	12.70	.020
2	4.00	108.40	34.20	.017
3	7.00	183.20	56.90	.034
4	12.50	417.00	81.93	.015
5	23.50	850.60	88.64	.053
6	36.50	1351.90	76.38	.013
7	48.00	1841.80	64.40	.008
8	60.00	2353.00	54.47	.005

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.020	.007	.010	.013	.017	.020	.020
2	.017	.006	.008	.011	.014	.016	.017
3	.034	.011	.016	.023	.029	.034	.034
4	.015	.014	.015	.015	.015	.015	.015
5	.053	.000	.000	.002	.005	.005	.007
6	.013	.000	.000	.000	.000	.000	.000
7	.008	.000	.000	.000	.000	.000	.000
8	.005	.000	.000	.000	.000	.000	.000
TOTALS:	.165	.038	.049	.064	.080	.090	.093

POSITION: X= 13.5
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	1.50	50.40	397.70	.288
2	4.00	108.40	356.50	.172
3	7.00	183.20	303.25	.284
4	12.50	417.00	227.57	.047
5	23.50	850.60	144.64	.085
6	36.50	1351.90	96.43	.016
7	48.00	1841.80	74.40	.010
8	60.00	2353.00	59.95	.006

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.288	.096	.135	.188	.246	.280	.288
2	.172	.057	.081	.113	.147	.168	.172
3	.284	.095	.133	.186	.242	.276	.284
4	.047	.047	.047	.047	.047	.047	.047
5	.085	.002	.003	.005	.006	.007	.011
6	.016	.000	.000	.000	.000	.000	.002
7	.010	.000	.000	.000	.000	.000	.000
8	.006	.000	.000	.000	.000	.000	.000
TOTALS:	.908	.297	.399	.539	.688	.778	.804

POSITION: X= 27.0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	1.50	50.40	12.70	.020
2	4.00	108.40	34.20	.017
3	7.00	183.20	56.90	.034
4	12.50	417.00	81.93	.015
5	23.50	850.60	88.64	.053
6	36.50	1351.90	76.38	.013
7	48.00	1841.80	64.40	.008
8	60.00	2353.00	54.47	.005

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)

1	.020	.007	.010	.013	.017	.020	.020
2	.017	.006	.008	.011	.014	.016	.017
3	.034	.011	.016	.023	.029	.034	.034
4	.015	.014	.015	.015	.015	.015	.015
5	.053	.000	.000	.002	.005	.005	.007
6	.013	.000	.000	.000	.000	.000	.000
7	.008	.000	.000	.000	.000	.000	.000
8	.005	.000	.000	.000	.000	.000	.000
TOTALS:	.165	.038	.049	.064	.080	.090	.093

```
010 TITLE
020 COMPOSITE DIKE, WEST LAKE, BORING 2, G.S. EL.= -3
025 2DPR 1 12 0 0
030 -9999 0 0 0 4 105.2 6 117.8 10 267.8 14 417.8
035 17 417.8 21 267.8 25 117.8 27 105.2 31 0 9999 0
050 SOIL 1 -3 D 14.6 0.39 4
080 INDEX 1.69 332 4.34
090 SOIL 2 -10 S 47.6 0.06 220
095 INDEX 0.25 660 1.20
110 SOIL 3 -21 S 37.6 0.35 4
120 INDEX 1.32 1120 2.41
130 SOIL 4 -33.0 C 42.6 0.13 15
140 INDEX 0.55 2100 1.75
160 SOIL 5 -41 C 42.6 0.13 15
170 INDEX 0.55 2700 1.75
180 SOIL 6 -49 C 42.6 0.13 15
190 INDEX 0.73 3300 1.75
200 SOIL 7 -57 C 42.6 0.13 15
210 INDEX 0.73 3900 1.75
260 SOIL 8 -67 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 31.0 15.5
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.46.19

I. INPUT DATA

1. TITLE - COMPOSITE DIKE, WEST LAKE, BORING 2, G.S. EL.= -3

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 12
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	4.00	105.20
4	6.00	117.80
5	10.00	267.80
6	14.00	417.80
7	17.00	417.80
8	21.00	267.80
9	25.00	117.80
10	27.00	105.20
11	31.00	.00
12	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-3.00	D	14.60	.39000	4.00000	.32000
2	-10.00	S	47.60	.06000	220.00000	.32000
3	-21.00	S	37.60	.35000	4.00000	.32000
4	-33.00	C	42.60	.13000	15.00000	.32000
5	-41.00	C	42.60	.13000	15.00000	.32000
6	-49.00	C	42.60	.13000	15.00000	.32000
7	-57.00	C	42.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= 1.69000
RECOMPRESSION INDEX= .39000
INSITU VOID RATIO= 4.34000
INSITU OVERBURDEN= 332.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= .25000
RECOMPRESSION INDEX= .06000
INSITU VOID RATIO= 1.20000
INSITU OVERBURDEN= 660.00 PSF

STRATUM NO. 3
COMPRESSION INDEX= 1.32000
RECOMPRESSION INDEX= .35000
INSITU VOID RATIO= 2.41000
INSITU OVERBURDEN= 1120.00 PSF

STRATUM NO. 4
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2100.00 PSF

STRATUM NO. 5
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2700.00 PSF

STRATUM NO. 6

COMPRESSION INDEX= .73000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3300.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .73000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3900.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 31.0000 FT.
DELX= 15.5000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.46.30

II. OUTPUT SUMMARY.

1. TITLE- COMPOSITE DIKE, WEST LAKE, BORING 2, G.S. EL.= -3

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	3.50	51.10	26.77	.089
2	12.50	364.00	73.35	.028
3	24.00	851.40	87.93	.053
4	34.00	1247.40	81.93	.010
5	42.00	1588.20	74.33	.007
6	50.00	1929.00	67.03	.006
7	59.00	2312.40	59.80	.004

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.089	.029	.041	.057	.074	.086	.089
2	.028	.019	.024	.026	.028	.028	.028
3	.053	.000	.002	.004	.004	.005	.008
4	.010	.000	.000	.000	.000	.000	.001
5	.007	.000	.000	.000	.000	.000	.000
6	.006	.000	.000	.000	.000	.000	.000
7	.004	.000	.000	.000	.000	.000	.000
TOTALS:	.197	.048	.067	.087	.106	.119	.126

POSITION: X= 15.5
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)

NO.	OF STRATA (FEET)	OVERBURDEN (LB/SQ FT)	SIGMA (LB/SQ FT)	SETTLEMENT (FEET)
1	3.50	51.10	376.23	.656
2	12.50	364.00	244.85	.092
3	24.00	851.40	154.08	.101
4	34.00	1247.40	113.43	.015
5	42.00	1588.20	93.50	.010
6	50.00	1929.00	79.43	.006
7	59.00	2312.40	67.83	.006

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.656	.211	.298	.418	.549	.635	.656
2	.092	.067	.084	.090	.092	.092	.092
3	.101	.004	.004	.005	.007	.010	.014
4	.015	.000	.000	.000	.000	.001	.003
5	.010	.000	.000	.000	.000	.000	.000
6	.006	.000	.000	.000	.000	.000	.000
7	.006	.000	.000	.000	.000	.000	.000
TOTALS:	.886	.282	.386	.513	.648	.738	.765

POSITION: X= 31.0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	3.50	51.10	26.77	.089
2	12.50	364.00	73.35	.028
3	24.00	851.40	87.93	.053
4	34.00	1247.40	81.93	.010
5	42.00	1588.20	74.33	.007
6	50.00	1929.00	67.03	.006
7	59.00	2312.40	59.80	.004

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.089	.029	.041	.057	.074	.086	.089
2	.028	.019	.024	.026	.028	.028	.028
3	.053	.000	.002	.004	.004	.005	.008

4	.010	.000	.000	.000	.000	.000	.001
5	.007	.000	.000	.000	.000	.000	.000
6	.006	.000	.000	.000	.000	.000	.000
7	.004	.000	.000	.000	.000	.000	.000
TOTALS:	.197	.048	.067	.087	.106	.119	.126

```
010 TITLE
020 COMPOSITE DIKE, WEST LAKE, BORING A, G.S. EL.= -2.4
025 2DPR 1 12 0 0
030 -9999 0 0 0 4 105.2 4.8 110.24 8.8 260.24 12.8 410.24
035 15.8 410.24 19.8 260.24 23.8 110.24 24.6 105.2 28.6 0 9999 0
050 SOIL 1 -2.4 S 7.6 0.80 90
080 INDEX 3.5 300 6
090 SOIL 2 -3.1 D 21.6 0.43 4
095 INDEX 1.86 380 4.21
110 SOIL 3 -10.9 S 47.6 0.02 300
120 INDEX 0.10 580 1.0
130 SOIL 4 -15.9 C 42.6 0.21 130
140 INDEX 1.26 980 2.5
160 SOIL 5 -23.4 C 42.6 0.21 130
170 INDEX 1.26 1580 2.5
180 SOIL 6 -30.9 C 42.6 0.13 15
190 INDEX 0.55 2080 1.75
200 SOIL 7 -43 C 42.6 0.13 15
210 INDEX 0.55 2680 1.75
240 SOIL 8 -55 C 42.6 0.13 15
250 INDEX 0.55 3280 1.75
255 SOIL 9 -67.6 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 28.6 14.3
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.47.40

I. INPUT DATA

1. TITLE - COMPOSITE DIKE, WEST LAKE, BORING A, G.S. EL.= -2.4

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 12
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	4.00	105.20
4	4.80	110.24
5	8.80	260.24
6	12.80	410.24
7	15.80	410.24
8	19.80	260.24
9	23.80	110.24
10	24.60	105.20
11	28.60	.00
12	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-2.40	S	7.60	.80000	90.00000	.32000
2	-3.10	D	21.60	.43000	4.00000	.32000
3	-10.90	S	47.60	.02000	300.00000	.32000
4	-15.90	C	42.60	.21000	130.00000	.32000
5	-23.40	C	42.60	.21000	130.00000	.32000
6	-30.90	C	42.60	.13000	15.00000	.32000
7	-43.00	C	42.60	.13000	15.00000	.32000
8	-55.00	C	42.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= 3.50000
RECOMPRESSION INDEX= .80000
INSITU VOID RATIO= 6.00000
INSITU OVERBURDEN= 300.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= 1.86000
RECOMPRESSION INDEX= .43000
INSITU VOID RATIO= 4.21000
INSITU OVERBURDEN= 380.00 PSF

STRATUM NO. 3
COMPRESSION INDEX= .10000
RECOMPRESSION INDEX= .02000
INSITU VOID RATIO= 1.00000
INSITU OVERBURDEN= 580.00 PSF

STRATUM NO. 4
COMPRESSION INDEX= 1.26000
RECOMPRESSION INDEX= .21000
INSITU VOID RATIO= 2.50000
INSITU OVERBURDEN= 980.00 PSF

STRATUM NO. 5
COMPRESSION INDEX= 1.26000
RECOMPRESSION INDEX= .21000
INSITU VOID RATIO= 2.50000
INSITU OVERBURDEN= 1580.00 PSF

STRATUM NO. 6

STRATUM NO. 7
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2080.00 PSF

STRATUM NO. 7
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2680.00 PSF

STRATUM NO. 8
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3280.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE
AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 28.6000 FT.
DELX= 14.3000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.47.54

II. OUTPUT SUMMARY.

1. TITLE- COMPOSITE DIKE, WEST LAKE, BORING A, G.S. EL.= -2.4

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	.35	2.66	2.90	.021
2	4.60	89.56	36.33	.095
3	11.00	292.80	74.15	.005
4	17.25	571.55	88.03	.028
5	24.75	891.05	88.53	.018
6	34.55	1308.53	79.74	.015
7	46.60	1821.86	67.53	.009
8	58.90	2345.84	57.16	.005

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.021	.021	.021	.021	.021	.021	.021
2	.095	.027	.039	.055	.074	.088	.094
3	.005	.000	.002	.002	.002	.003	.004
4	.028	.005	.007	.010	.014	.018	.024
5	.018	.003	.004	.006	.009	.013	.016
6	.015	.003	.005	.005	.007	.010	.013
7	.009	.000	.003	.004	.004	.006	.008
8	.005	.000	.000	.000	.005	.005	.005
TOTALS:	.196	.059	.081	.103	.136	.164	.185

POSITION: X= 14.3
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	.35	2.66	410.10	.172
2	4.60	89.56	350.67	.591
3	11.00	292.80	250.70	.014
4	17.25	571.55	188.20	.056
5	24.75	891.05	141.30	.028
6	34.55	1308.53	105.84	.019
7	46.60	1821.86	79.93	.010
8	58.90	2345.84	63.80	.006

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.172	.172	.172	.172	.172	.172	.172
2	.591	.170	.242	.340	.461	.556	.589
3	.014	.002	.003	.005	.007	.010	.012
4	.056	.009	.013	.019	.028	.038	.050
5	.028	.005	.007	.010	.015	.019	.025
6	.019	.005	.005	.007	.009	.013	.017
7	.010	.001	.004	.004	.005	.007	.009
8	.006	.000	.000	.002	.005	.005	.005
TOTALS:	.896	.364	.446	.559	.702	.820	.879

POSITION: X= 28.6
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	.35	2.66	2.90	.021
2	4.60	89.56	36.33	.095
3	11.00	292.80	74.15	.005
4	17.25	571.55	88.03	.028
5	24.75	891.05	88.53	.018
6	34.55	1308.53	79.74	.015
7	46.60	1821.86	67.53	.009
8	58.90	2345.84	57.16	.005

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)

1	.021	.021	.021	.021	.021	.021	.021
2	.095	.027	.039	.055	.074	.088	.094
3	.005	.000	.002	.002	.002	.003	.004
4	.028	.005	.007	.010	.014	.018	.024
5	.018	.003	.004	.006	.009	.013	.016
6	.015	.003	.005	.005	.007	.010	.013
7	.009	.000	.003	.004	.004	.006	.008
8	.005	.000	.000	.000	.005	.005	.005
TOTALS:	.196	.059	.081	.103	.136	.164	.185

```
010 TITLE
020 COMPOSITE DIKE, WEST LAKE, BORING 6, G.S. EL.= -2
025 2DPR 1 10 0 0
030 -9999 0 0 0 4 105.2 8 255.2 12 405.2 15 405.2
035 19 255.2 23 105.2 27 0 9999 0
050 SOIL 1 -2 D 23.6 0.29 9
060 INDEX 1.29 720 3.143
070 SOIL 2 -6 C 30.6 0.28 11
080 INDEX 1.23 820 2.49
090 SOIL 3 -10 N 57.6
110 SOIL 4 -12 S 47.6 0.05 300
120 INDEX 0.20 1180 1.00
130 SOIL 5 -17.5 C 41.6 0.13 15
140 INDEX 0.55 1220 1.75
160 SOIL 6 -30 C 41.6 0.13 15
170 INDEX 0.55 1292 1.75
180 SOIL 7 -43 C 41.6 0.13 15
190 INDEX 0.55 1380 1.75
200 SOIL 8 -56 C 41.6 0.13 15
210 INDEX 0.55 1460 1.75
260 SOIL 9 -69 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 27.0 13.5
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 22-MAY-2003 TIME: 15.39.17

I. INPUT DATA

1. TITLE - COMPOSITE DIKE, WEST LAKE, BORING 6, G.S. EL.= -2

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 10
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	4.00	105.20
4	8.00	255.20
5	12.00	405.20
6	15.00	405.20
7	19.00	255.20
8	23.00	105.20
9	27.00	.00
10	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-2.00	D	23.60	.29000	9.00000	.32000
2	-6.00	C	30.60	.28000	11.00000	.32000
3	-10.00	N	57.60			
4	-12.00	S	47.60	.05000	300.00000	.32000
5	-17.50	C	41.60	.13000	15.00000	.32000
6	-30.00	C	41.60	.13000	15.00000	.32000
7	-43.00	C	41.60	.13000	15.00000	.32000
8	-56.00	C	41.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= 1.29000
RECOMPRESSION INDEX= .29000
INSITU VOID RATIO= 3.14300
INSITU OVERBURDEN= 720.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= 1.23000
RECOMPRESSION INDEX= .28000
INSITU VOID RATIO= 2.49000
INSITU OVERBURDEN= 820.00 PSF

STRATUM NO. 3
INCOMPRESSIBLE STRATUM

STRATUM NO. 4
COMPRESSION INDEX= .20000
RECOMPRESSION INDEX= .05000
INSITU VOID RATIO= 1.00000
INSITU OVERBURDEN= 1180.00 PSF

STRATUM NO. 5
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 1220.00 PSF

STRATUM NO. 6
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 1292.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 1380.00 PSF

STRATUM NO. 8

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 1460.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE
AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 27.0000 FT.
DELX= 13.5000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 22-MAY-2003 TIME: 15.39.38

II. OUTPUT SUMMARY.

1. TITLE- COMPOSITE DIKE, WEST LAKE, BORING 6, G.S. EL.= -2

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.00	47.20	17.00	.035
2	6.00	155.60	49.85	.037
3	9.00	274.40	69.20	.000
4	12.75	462.90	83.15	.010
5	21.75	853.80	89.70	.027
6	34.50	1384.20	78.58	.050
7	47.50	1925.00	64.92	.039
8	60.50	2465.80	54.14	.026

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.035	.014	.020	.027	.033	.034	.035
2	.037	.016	.022	.029	.035	.037	.037
3	.000	.000	.000	.000	.000	.000	.000
4	.010	.002	.002	.004	.005	.007	.009
5	.027	.005	.006	.009	.012	.017	.023
6	.050	.009	.012	.017	.024	.034	.043
7	.039	.006	.010	.013	.018	.026	.034
8	.026	.005	.005	.010	.012	.017	.022
TOTALS:	.224	.057	.077	.109	.139	.172	.203

POSITION: X= 13.5
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.00	47.20	388.55	.263
2	6.00	155.60	320.40	.150
3	9.00	274.40	271.30	.000
4	12.75	462.90	223.95	.024
5	21.75	853.80	153.46	.044
6	34.50	1384.20	101.88	.063
7	47.50	1925.00	75.20	.045
8	60.50	2465.80	59.50	.029

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.263	.111	.157	.210	.250	.263	.263
2	.150	.063	.089	.119	.142	.149	.150
3	.000	.000	.000	.000	.000	.000	.000
4	.024	.004	.005	.008	.012	.016	.021
5	.044	.007	.010	.014	.021	.031	.038
6	.063	.011	.015	.022	.031	.042	.055
7	.045	.008	.011	.016	.022	.030	.040
8	.029	.005	.006	.010	.014	.019	.025
TOTALS:	.618	.209	.293	.399	.492	.550	.592

POSITION: X= 27.0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.00	47.20	17.00	.035
2	6.00	155.60	49.85	.037
3	9.00	274.40	69.20	.000
4	12.75	462.90	83.15	.010
5	21.75	853.80	89.70	.027
6	34.50	1384.20	78.58	.050
7	47.50	1925.00	64.92	.039
8	60.50	2465.80	54.14	.026

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)

1	.035	.014	.020	.027	.033	.034	.035
2	.037	.016	.022	.029	.035	.037	.037
3	.000	.000	.000	.000	.000	.000	.000
4	.010	.002	.002	.004	.005	.007	.009
5	.027	.005	.006	.009	.012	.017	.023
6	.050	.009	.012	.017	.024	.034	.043
7	.039	.006	.010	.013	.018	.026	.034
8	.026	.005	.005	.010	.012	.017	.022
TOTALS:	.224	.057	.077	.109	.139	.172	.203

```
010 TITLE
020 COMPOSITE DIKE, WEST LAKE, BORING B, G.S. EL.= -1.5
025 2DPR 1 12 0 0
030 -9999 0 0 0 3 78.9 4 136.4 7 248.9 11 398.9
035 14 398.9 18 248.9 21 136.4 22 78.9 25 0 9999 0
050 SOIL 1 -1.5 D 30.6 0.21 9
080 INDEX 0.9 700 2.51
090 SOIL 2 -11.5 S 37.6 0.06 150
095 INDEX 0.3 900 1.2
110 SOIL 3 -13.5 S 47.6 0.06 220
120 INDEX 0.25 1080 1.20
130 SOIL 4 -19.5 D 47.6 0.06 150
140 INDEX 0.30 1260 1.20
160 SOIL 5 -21.5 N 57.6
180 SOIL 6 -24.5 S 37.6 0.13 15
190 INDEX 0.55 2200 1.75
200 SOIL 7 -38 C 37.6 0.13 15
202 INDEX 0.55 2260 1.75
205 SOIL 8 -52 C 37.6 0.13 15
210 INDEX 0.55 2320 1.75
260 SOIL 9 -68.5 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 25.0 12.5
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.49.43

I. INPUT DATA

1. TITLE - COMPOSITE DIKE, WEST LAKE, BORING B, G.S. EL.= -1.5

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 12
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	3.00	78.90
4	4.00	136.40
5	7.00	248.90
6	11.00	398.90
7	14.00	398.90
8	18.00	248.90
9	21.00	136.40
10	22.00	78.90
11	25.00	.00
12	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-1.50	D	30.60	.21000	9.00000	.32000
2	-11.50	S	37.60	.06000	150.00000	.32000
3	-13.50	S	47.60	.06000	220.00000	.32000
4	-19.50	D	47.60	.06000	150.00000	.32000
5	-21.50	N	57.60			
6	-24.50	S	37.60	.13000	15.00000	.32000
7	-38.00	C	37.60	.13000	15.00000	.32000
8	-52.00	C	37.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= .90000
RECOMPRESSION INDEX= .21000
INSITU VOID RATIO= 2.51000
INSITU OVERBURDEN= 700.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= .30000
RECOMPRESSION INDEX= .06000
INSITU VOID RATIO= 1.20000
INSITU OVERBURDEN= 900.00 PSF

STRATUM NO. 3
COMPRESSION INDEX= .25000
RECOMPRESSION INDEX= .06000
INSITU VOID RATIO= 1.20000
INSITU OVERBURDEN= 1080.00 PSF

STRATUM NO. 4
COMPRESSION INDEX= .30000
RECOMPRESSION INDEX= .06000
INSITU VOID RATIO= 1.20000
INSITU OVERBURDEN= 1260.00 PSF

STRATUM NO. 5
INCOMPRESSIBLE STRATUM

STRATUM NO. 6
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000

INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2200.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2260.00 PSF

STRATUM NO. 8

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2320.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE
AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 25.0000 FT.
DELX= 12.5000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.49.53

II. OUTPUT SUMMARY.

1. TITLE- COMPOSITE DIKE, WEST LAKE, BORING B, G.S. EL.= -1.5

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	5.00	153.00	44.00	.062
2	11.00	343.60	83.10	.005
3	15.00	524.00	91.20	.011
4	19.00	714.40	93.00	.003
5	21.50	848.40	91.70	.000
6	29.75	1188.60	82.70	.019
7	43.50	1705.60	66.68	.011
8	58.75	2279.00	53.18	.019

3. TIME-SETTLEMENT SUMMARY.

	(SETTLEMENT IN FEET AT SPECIFIED TIMES)						
STRATA NO	ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.062	.022	.030	.042	.054	.062	.062
2	.005	.005	.005	.005	.005	.005	.005
3	.011	.011	.011	.011	.011	.011	.011
4	.003	.003	.003	.003	.003	.003	.003
5	.000	.000	.000	.000	.000	.000	.000
6	.019	.000	.000	.000	.003	.005	.005
7	.011	.000	.000	.000	.000	.001	.005
8	.019	.000	.000	.001	.003	.003	.003
TOTALS:	.130	.041	.049	.062	.079	.090	.094

POSITION: X= 12.5
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	5.00	153.00	331.13	.337
2	11.00	343.60	236.10	.012
3	15.00	524.00	193.40	.022
4	19.00	714.40	160.90	.005
5	21.50	848.40	145.50	.000
6	29.75	1188.60	111.06	.026
7	43.50	1705.60	77.58	.013
8	58.75	2279.00	58.03	.021

3. TIME-SETTLEMENT SUMMARY.

	(SETTLEMENT IN FEET AT SPECIFIED TIMES)						
STRATA NO	ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.337	.115	.162	.225	.291	.330	.337
2	.012	.012	.012	.012	.012	.012	.012
3	.022	.022	.022	.022	.022	.022	.022
4	.005	.005	.005	.005	.005	.005	.005
5	.000	.000	.000	.000	.000	.000	.000
6	.026	.000	.000	.002	.005	.005	.007
7	.013	.000	.000	.000	.000	.003	.005
8	.021	.000	.000	.002	.003	.003	.005
TOTALS:	.436	.154	.201	.268	.338	.380	.393

POSITION: X= 25.0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	5.00	153.00	44.00	.062
2	11.00	343.60	83.10	.005
3	15.00	524.00	91.20	.011
4	19.00	714.40	93.00	.003
5	21.50	848.40	91.70	.000
6	29.75	1188.60	82.70	.019
7	43.50	1705.60	66.68	.011
8	58.75	2279.00	53.18	.019

3. TIME-SETTLEMENT SUMMARY.

	(SETTLEMENT IN FEET AT SPECIFIED TIMES)						
STRATA NO	ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)

1	.062	.022	.030	.042	.054	.062	.062
2	.005	.005	.005	.005	.005	.005	.005
3	.011	.011	.011	.011	.011	.011	.011
4	.003	.003	.003	.003	.003	.003	.003
5	.000	.000	.000	.000	.000	.000	.000
6	.019	.000	.000	.000	.003	.005	.005
7	.011	.000	.000	.000	.000	.001	.005
8	.019	.000	.000	.001	.003	.003	.003
TOTALS:	.130	.041	.049	.062	.079	.090	.094

```
010 TITLE
020 COMPOSITE DIKE, WEST LAKE, BORING 7, G.S. EL.= -2.6
025 2DPR 1 12 0 0
030 -9999 0 0 0 4 105.2 5.2 112.76 9.2 262.76 13.2 412.76
035 16.2 412.76 20.2 262.76 24.2 112.76 25.4 105.2 29.4 0 9999 0
050 SOIL 1 -2.6 D 39.6 0.22 22
080 INDEX 0.74 1500 2.02
090 SOIL 2 -10.1 S 47.6 0.02 300
095 INDEX 0.10 1700 1.0
110 SOIL 3 -12.6 S 31.6 0.21 4
120 INDEX 1.26 2080 2.5
130 SOIL 4 -22.6 C 31.6 0.21 4
140 INDEX 1.26 2480 2.5
160 SOIL 5 -32.6 C 42.6 0.13 15
170 INDEX 0.55 3160 1.75
180 SOIL 6 -43 C 42.6 0.13 15
190 INDEX 0.55 3560 1.75
200 SOIL 7 -54 C 42.6 0.13 15
210 INDEX 0.55 3960 1.75
255 SOIL 8 -67.8 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 29.4 14.7
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.50.38

I. INPUT DATA

1. TITLE - COMPOSITE DIKE, WEST LAKE, BORING 7, G.S. EL.= -2.6

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 12
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	4.00	105.20
4	5.20	112.76
5	9.20	262.76
6	13.20	412.76
7	16.20	412.76
8	20.20	262.76
9	24.20	112.76
10	25.40	105.20
11	29.40	.00
12	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-2.60	D	39.60	.22000	22.00000	.32000
2	-10.10	S	47.60	.02000	300.00000	.32000
3	-12.60	S	31.60	.21000	4.00000	.32000
4	-22.60	C	31.60	.21000	4.00000	.32000
5	-32.60	C	42.60	.13000	15.00000	.32000
6	-43.00	C	42.60	.13000	15.00000	.32000
7	-54.00	C	42.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= .74000
RECOMPRESSION INDEX= .22000
INSITU VOID RATIO= 2.02000
INSITU OVERBURDEN= 1500.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= .10000
RECOMPRESSION INDEX= .02000
INSITU VOID RATIO= 1.00000
INSITU OVERBURDEN= 1700.00 PSF

STRATUM NO. 3
COMPRESSION INDEX= 1.26000
RECOMPRESSION INDEX= .21000
INSITU VOID RATIO= 2.50000
INSITU OVERBURDEN= 2080.00 PSF

STRATUM NO. 4
COMPRESSION INDEX= 1.26000
RECOMPRESSION INDEX= .21000
INSITU VOID RATIO= 2.50000
INSITU OVERBURDEN= 2480.00 PSF

STRATUM NO. 5
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3160.00 PSF

STRATUM NO. 6

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3560.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3960.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE
AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 29.4000 FT.
DELX= 14.7000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.50.49

II. OUTPUT SUMMARY.

1. TITLE- COMPOSITE DIKE, WEST LAKE, BORING 7, G.S. EL.= -2.6

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	3.75	148.50	29.40	.041
2	8.75	356.50	62.70	.002
3	15.00	574.00	82.83	.034
4	25.00	890.00	88.15	.024
5	35.20	1269.52	79.68	.013
6	45.90	1725.34	69.05	.009
7	58.30	2253.58	58.54	.007

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.041	.041	.041	.041	.041	.041	.041
2	.002	.002	.002	.002	.002	.002	.002
3	.034	.000	.000	.000	.002	.004	.004
4	.024	.000	.000	.000	.000	.002	.004
5	.013	.000	.000	.000	.000	.000	.000
6	.009	.000	.000	.000	.000	.000	.000
7	.007	.000	.000	.000	.000	.000	.000
TOTALS:	.130	.043	.043	.043	.045	.049	.051

POSITION: X= 14.7
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)

NO.	OF STRATA (FEET)	OVERBURDEN (LB/SQ FT)	SIGMA (LB/SQ FT)	SETTLEMENT (FEET)
1	3.75	148.50	366.90	.314
2	8.75	356.50	283.70	.006
3	15.00	574.00	212.05	.082
4	25.00	890.00	143.25	.039
5	35.20	1269.52	105.95	.017
6	45.90	1725.34	82.75	.010
7	58.30	2253.58	65.90	.008

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.314	.314	.314	.314	.314	.314	.314
2	.006	.006	.006	.006	.006	.006	.006
3	.082	.002	.003	.004	.005	.006	.010
4	.039	.000	.000	.001	.003	.004	.004
5	.017	.000	.000	.000	.000	.000	.002
6	.010	.000	.000	.000	.000	.000	.000
7	.008	.000	.000	.000	.000	.000	.000
TOTALS:	.476	.322	.323	.325	.328	.330	.336

POSITION: X= 29.4
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	3.75	148.50	29.40	.041
2	8.75	356.50	62.70	.002
3	15.00	574.00	82.83	.034
4	25.00	890.00	88.15	.024
5	35.20	1269.52	79.68	.013
6	45.90	1725.34	69.05	.009
7	58.30	2253.58	58.54	.007

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.041	.041	.041	.041	.041	.041	.041
2	.002	.002	.002	.002	.002	.002	.002
3	.034	.000	.000	.000	.002	.004	.004

4	.024	.000	.000	.000	.000	.002	.004
5	.013	.000	.000	.000	.000	.000	.000
6	.009	.000	.000	.000	.000	.000	.000
7	.007	.000	.000	.000	.000	.000	.000
TOTALS:	.130	.043	.043	.043	.045	.049	.051

```
010 TITLE
020 COMPOSITE DIKE, WEST LAKE, BORING C, G.S. EL.= -2.3
025 2DPR 1 12 0 0
030 -9999 0 0 0 4 105.2 4.6 108.98 8.6 258.98 12.6 408.98
035 15.6 408.98 19.6 258.98 23.6 108.98 24.2 105.2 28.2 0 9999 0
050 SOIL 1 -2.3 D 37.6 0.10 18
080 INDEX 0.47 1020 1.38
090 SOIL 2 -10.3 N 57.6
110 SOIL 3 -12.3 D 37.6 0.09 110
120 INDEX 0.38 1180 1.36
130 SOIL 4 -14.3 N 57.6
160 SOIL 5 -17.3 D 41.6 0.21 130
165 INDEX 1.26 1400 2.5
180 SOIL 6 -18.3 N 41.6
200 SOIL 7 -30.3 S 41.6 0.74 50
202 INDEX 0.55 1780 7.8
205 SOIL 8 -32.3 S 41.6 0.13 15
210 INDEX 0.55 2540 1.75
260 SOIL 9 -67.7 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 28.2 14.1
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.51.34

I. INPUT DATA

1. TITLE - COMPOSITE DIKE, WEST LAKE, BORING C, G.S. EL.= -2.3

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 12
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	4.00	105.20
4	4.60	108.98
5	8.60	258.98
6	12.60	408.98
7	15.60	408.98
8	19.60	258.98
9	23.60	108.98
10	24.20	105.20
11	28.20	.00
12	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-2.30	D	37.60	.10000	18.00000	.32000
2	-10.30	N	57.60			
3	-12.30	D	37.60	.09000	110.00000	.32000
4	-14.30	N	57.60			
5	-17.30	D	41.60	.21000	130.00000	.32000
6	-18.30	N	41.60			
7	-30.30	S	41.60	.74000	50.00000	.32000
8	-32.30	S	41.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= .47000
RECOMPRESSION INDEX= .10000
INSITU VOID RATIO= 1.38000
INSITU OVERBURDEN= 1020.00 PSF

STRATUM NO. 2
INCOMPRESSIBLE STRATUM

STRATUM NO. 3
COMPRESSION INDEX= .38000
RECOMPRESSION INDEX= .09000
INSITU VOID RATIO= 1.36000
INSITU OVERBURDEN= 1180.00 PSF

STRATUM NO. 4
INCOMPRESSIBLE STRATUM

STRATUM NO. 5
COMPRESSION INDEX= 1.26000
RECOMPRESSION INDEX= .21000
INSITU VOID RATIO= 2.50000
INSITU OVERBURDEN= 1400.00 PSF

STRATUM NO. 6
INCOMPRESSIBLE STRATUM

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .74000
INSITU VOID RATIO= 7.80000
INSITU OVERBURDEN= 1780.00 PSF

STRATUM NO. 8

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2540.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE
AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 28.2000 FT.
DELX= 14.1000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.51.42

II. OUTPUT SUMMARY.

1. TITLE- COMPOSITE DIKE, WEST LAKE, BORING C, G.S. EL.= -2.3

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	4.00	150.40	32.20	.027
2	9.00	358.40	66.40	.000
3	11.00	453.60	75.50	.005
4	13.50	577.60	83.30	.000
5	15.50	684.80	87.10	.003
6	22.00	955.20	89.20	.000
7	29.00	1246.40	85.20	.005
8	47.70	2024.32	66.78	.034

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
		(SETTLEMENT IN FEET AT SPECIFIED TIMES)					
1	.027	.017	.021	.027	.027	.027	.027
2	.000	.000	.000	.000	.000	.000	.000
3	.005	.005	.005	.005	.005	.005	.005
4	.000	.000	.000	.000	.000	.000	.000
5	.003	.003	.003	.003	.003	.003	.003
6	.000	.000	.000	.000	.000	.000	.000
7	.005	.005	.005	.005	.005	.005	.005
8	.034	.000	.000	.002	.004	.008	.013
TOTALS:	.074	.030	.034	.042	.044	.048	.053

POSITION: X= 14.1
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	4.00	150.40	358.77	.197
2	9.00	358.40	275.70	.000
3	11.00	453.60	248.50	.014
4	13.50	577.60	219.70	.000
5	15.50	684.80	200.30	.007
6	22.00	955.20	155.83	.000
7	29.00	1246.40	121.60	.007
8	47.70	2024.32	80.28	.040

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
		(SETTLEMENT IN FEET AT SPECIFIED TIMES)					
1	.197	.117	.158	.187	.196	.197	.197
2	.000	.000	.000	.000	.000	.000	.000
3	.014	.014	.014	.014	.014	.014	.014
4	.000	.000	.000	.000	.000	.000	.000
5	.007	.007	.007	.007	.007	.007	.007
6	.000	.000	.000	.000	.000	.000	.000
7	.007	.007	.007	.007	.007	.007	.007
8	.040	.000	.001	.004	.006	.009	.015
TOTALS:	.265	.145	.187	.219	.230	.234	.240

POSITION: X= 28.2
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	4.00	150.40	32.20	.027
2	9.00	358.40	66.40	.000
3	11.00	453.60	75.50	.005
4	13.50	577.60	83.30	.000
5	15.50	684.80	87.10	.003
6	22.00	955.20	89.20	.000
7	29.00	1246.40	85.20	.005
8	47.70	2024.32	66.78	.034

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
		(SETTLEMENT IN FEET AT SPECIFIED TIMES)					

1	.027	.017	.021	.027	.027	.027	.027
2	.000	.000	.000	.000	.000	.000	.000
3	.005	.005	.005	.005	.005	.005	.005
4	.000	.000	.000	.000	.000	.000	.000
5	.003	.003	.003	.003	.003	.003	.003
6	.000	.000	.000	.000	.000	.000	.000
7	.005	.005	.005	.005	.005	.005	.005
8	.034	.000	.000	.002	.004	.008	.013
TOTALS:	.074	.030	.034	.042	.044	.048	.053

```
010 TITLE
020 COMPOSITE DIKE, WEST LAKE, BORING 10, G.S. EL.= -1.7
025 2DPR 1 12 0 0
030 -9999 0 0 0 3.4 89.42 4 123.92 7.4 251.42 11.4 401.42
035 14.4 401.42 18.4 251.42 21.8 123.92 22.4 89.42 25.8 0 9999 0
050 SOIL 1 -1.7 D 45.6 0.05 77
080 INDEX 0.23 1980 1.08
050 SOIL 2 -6.2 C 52.4 0.14 36
080 INDEX 0.53 460 1.597
110 SOIL 3 -10.45 S 47.6 0.05 77
120 INDEX 0.23 2240 1.00
130 SOIL 4 -13.2 N 57.6
160 SOIL 5 -15.2 D 52.6 0.06 150
165 INDEX 0.30 2440 1.2
180 SOIL 6 -17.2 N 57.6
200 SOIL 7 -26.2 S 36.6 0.11 13
202 INDEX 0.45 3120 1.35
205 SOIL 8 -32.2 C 42.6 0.13 15
210 INDEX 0.55 3880 1.75
260 SOIL 9 -68.2 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 25.8 12.9
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 22-MAY-2003 TIME: 14.50.09

I. INPUT DATA

1. TITLE - COMPOSITE DIKE, WEST LAKE, BORING 10, G.S. EL.= -1.7

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 12
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	3.40	89.42
4	4.00	123.92
5	7.40	251.42
6	11.40	401.42
7	14.40	401.42
8	18.40	251.42
9	21.80	123.92
10	22.40	89.42
11	25.80	.00
12	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-1.70	D	45.60	.05000	77.00000	.32000
2	-6.20	C	52.40	.14000	36.00000	.32000
3	-10.45	S	47.60	.05000	77.00000	.32000
4	-13.20	N	57.60			
5	-15.20	D	52.60	.06000	150.00000	.32000
6	-17.20	N	57.60			
7	-26.20	S	36.60	.11000	13.00000	.32000
8	-32.20	C	42.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= .23000
RECOMPRESSION INDEX= .05000
INSITU VOID RATIO= 1.08000
INSITU OVERBURDEN= 1980.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= .53000
RECOMPRESSION INDEX= .14000
INSITU VOID RATIO= 1.59700
INSITU OVERBURDEN= 460.00 PSF

STRATUM NO. 3
COMPRESSION INDEX= .23000
RECOMPRESSION INDEX= .05000
INSITU VOID RATIO= 1.00000
INSITU OVERBURDEN= 2240.00 PSF

STRATUM NO. 4
INCOMPRESSIBLE STRATUM

STRATUM NO. 5
COMPRESSION INDEX= .30000
RECOMPRESSION INDEX= .06000
INSITU VOID RATIO= 1.20000
INSITU OVERBURDEN= 2440.00 PSF

STRATUM NO. 6
INCOMPRESSIBLE STRATUM

STRATUM NO. 7

COMPRESSION INDEX= .45000
RECOMPRESSION INDEX= .11000
INSITU VOID RATIO= 1.35000
INSITU OVERBURDEN= 3120.00 PSF

STRATUM NO. 8

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3880.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE
AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 25.8000 FT.
DELX= 12.9000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 22-MAY-2003 TIME: 14.50.21

II. OUTPUT SUMMARY.

1. TITLE- COMPOSITE DIKE, WEST LAKE, BORING 10, G.S. EL.= -1.7

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.25	102.60	19.85	.008
2	6.63	316.55	57.10	.017
3	10.13	493.35	77.60	.004
4	12.50	616.40	85.60	.000
5	14.50	726.60	89.60	.003
6	20.00	1038.40	91.47	.000
7	27.50	1407.40	85.85	.007
8	48.50	2284.00	63.54	.021

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.008	.008	.008	.008	.008	.008	.008
2	.017	.017	.017	.017	.017	.017	.017
3	.004	.004	.004	.004	.004	.004	.004
4	.000	.000	.000	.000	.000	.000	.000
5	.003	.003	.003	.003	.003	.003	.003
6	.000	.000	.000	.000	.000	.000	.000
7	.007	.000	.000	.000	.001	.002	.002
8	.021	.000	.000	.000	.000	.002	.005
TOTALS:	.060	.032	.032	.032	.033	.036	.039

POSITION: X= 12.9
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.25	102.60	380.90	.077
2	6.63	316.55	305.40	.150
3	10.13	493.35	250.80	.012
4	12.50	616.40	221.30	.000
5	14.50	726.60	200.40	.006
6	20.00	1038.40	158.67	.000
7	27.50	1407.40	120.30	.010
8	48.50	2284.00	74.09	.025

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.077	.077	.077	.077	.077	.077	.077
2	.150	.150	.150	.150	.150	.150	.150
3	.012	.012	.012	.012	.012	.012	.012
4	.000	.000	.000	.000	.000	.000	.000
5	.006	.006	.006	.006	.006	.006	.006
6	.000	.000	.000	.000	.000	.000	.000
7	.010	.000	.000	.001	.002	.002	.002
8	.025	.000	.000	.000	.001	.003	.006
TOTALS:	.280	.245	.245	.246	.248	.250	.253

POSITION: X= 25.8
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.25	102.60	19.85	.008
2	6.63	316.55	57.10	.017
3	10.13	493.35	77.60	.004
4	12.50	616.40	85.60	.000
5	14.50	726.60	89.60	.003
6	20.00	1038.40	91.47	.000
7	27.50	1407.40	85.85	.007
8	48.50	2284.00	63.54	.021

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)

1	.008	.008	.008	.008	.008	.008	.008
2	.017	.017	.017	.017	.017	.017	.017
3	.004	.004	.004	.004	.004	.004	.004
4	.000	.000	.000	.000	.000	.000	.000
5	.003	.003	.003	.003	.003	.003	.003
6	.000	.000	.000	.000	.000	.000	.000
7	.007	.000	.000	.000	.001	.002	.002
8	.021	.000	.000	.000	.000	.002	.005
TOTALS:	.060	.032	.032	.032	.033	.036	.039

```
010 TITLE
020 COMPOSITE DIKE, WEST LAKE, BORING D, G.S. EL.= -1.7
025 2DPR 1 12 0 0
030 -9999 0 0 0 3.4 89.42 4 123.92 7.4 251.42 11.4 401.42
035 14.4 401.42 18.4 251.42 21.8 123.92 22.4 89.42 25.8 0 9999 0
050 SOIL 1 -1.7 D 42.6 0.19 11
080 INDEX 0.59 1640 1.79
090 SOIL 2 -12.2 C 47.6 0.09 150
095 INDEX 0.38 800 1.36
110 SOIL 3 -15.2 S 47.6 0.06 220
120 INDEX 0.25 1320 1.20
160 SOIL 4 -18.5 D 27.6 0.21 4
165 INDEX 1.26 2180 2.5
180 SOIL 5 -20.2 N 27.6
200 SOIL 6 -35.2 S 40.6 0.13 15
202 INDEX 0.55 3920 1.75
205 SOIL 7 -50.0 C 40.6 0.13 15
210 INDEX 0.55 4520 1.75
260 SOIL 8 -68.2 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 25.8 12.9
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 22-MAY-2003 TIME: 14.51.16

I. INPUT DATA

1. TITLE - COMPOSITE DIKE, WEST LAKE, BORING D, G.S. EL.= -1.7

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 12
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	3.40	89.42
4	4.00	123.92
5	7.40	251.42
6	11.40	401.42
7	14.40	401.42
8	18.40	251.42
9	21.80	123.92
10	22.40	89.42
11	25.80	.00
12	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-1.70	D	42.60	.19000	11.00000	.32000
2	-12.20	C	47.60	.09000	150.00000	.32000
3	-15.20	S	47.60	.06000	220.00000	.32000
4	-18.50	D	27.60	.21000	4.00000	.32000
5	-20.20	N	27.60			
6	-35.20	S	40.60	.13000	15.00000	.32000
7	-50.00	C	40.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= .59000
RECOMPRESSION INDEX= .19000
INSITU VOID RATIO= 1.79000
INSITU OVERBURDEN= 1640.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= .38000
RECOMPRESSION INDEX= .09000
INSITU VOID RATIO= 1.36000
INSITU OVERBURDEN= 800.00 PSF

STRATUM NO. 3
COMPRESSION INDEX= .25000
RECOMPRESSION INDEX= .06000
INSITU VOID RATIO= 1.20000
INSITU OVERBURDEN= 1320.00 PSF

STRATUM NO. 4
COMPRESSION INDEX= 1.26000
RECOMPRESSION INDEX= .21000
INSITU VOID RATIO= 2.50000
INSITU OVERBURDEN= 2180.00 PSF

STRATUM NO. 5
INCOMPRESSIBLE STRATUM

STRATUM NO. 6
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000

INSITU OVERBURDEN= 3920.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 4520.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE
AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 25.8000 FT.
DELX= 12.9000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 22-MAY-2003 TIME: 14.51.28

II. OUTPUT SUMMARY.

1. TITLE- COMPOSITE DIKE, WEST LAKE, BORING D, G.S. EL.= -1.7

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	5.25	223.65	44.22	.054
2	12.00	518.70	84.30	.007
3	15.15	668.64	90.35	.005
4	17.65	770.64	92.20	.005
5	26.00	1001.10	86.94	.000
6	40.90	1508.54	70.36	.014
7	57.40	2178.44	55.16	.009

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.054	.016	.020	.030	.040	.050	.054
2	.007	.002	.003	.004	.006	.007	.007
3	.005	.005	.005	.005	.005	.005	.005
4	.005	.005	.005	.005	.005	.005	.005
5	.000	.000	.000	.000	.000	.000	.000
6	.014	.000	.000	.000	.003	.005	.005
7	.009	.000	.000	.000	.000	.000	.003
TOTALS:	.094	.028	.033	.044	.059	.072	.079

POSITION: X= 12.9
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	5.25	223.65	329.88	.322
2	12.00	518.70	227.00	.018
3	15.15	668.64	194.55	.010
4	17.65	770.64	173.50	.009
5	26.00	1001.10	128.56	.000
6	40.90	1508.54	84.24	.016
7	57.40	2178.44	60.80	.010

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.322	.090	.126	.179	.243	.298	.320
2	.018	.005	.007	.010	.013	.017	.018
3	.010	.010	.010	.010	.010	.010	.010
4	.009	.009	.009	.009	.009	.009	.009
5	.000	.000	.000	.000	.000	.000	.000
6	.016	.000	.000	.001	.004	.005	.006
7	.010	.000	.000	.000	.000	.001	.004
TOTALS:	.385	.114	.152	.209	.279	.340	.367

POSITION: X= 25.8
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	5.25	223.65	44.22	.054
2	12.00	518.70	84.30	.007
3	15.15	668.64	90.35	.005
4	17.65	770.64	92.20	.005
5	26.00	1001.10	86.94	.000
6	40.90	1508.54	70.36	.014
7	57.40	2178.44	55.16	.009

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.054	.016	.020	.030	.040	.050	.054
2	.007	.002	.003	.004	.006	.007	.007
3	.005	.005	.005	.005	.005	.005	.005

4	.005	.005	.005	.005	.005	.005	.005
5	.000	.000	.000	.000	.000	.000	.000
6	.014	.000	.000	.000	.003	.005	.005
7	.009	.000	.000	.000	.000	.000	.003
TOTALS:	.094	.028	.033	.044	.059	.072	.079

```
010 TITLE
020 COMPOSITE DIKE, WEST LAKE, BORING 12, G.S. EL.= -1.9
025 2DPR 1 12 0 0
030 -9999 0 0 0 3.8 99.94 4 111.44 7.8 253.94 11.8 403.94
035 14.8 403.94 18.8 253.94 22.6 111.44 22.8 99.94 26.6 0 9999 0
050 SOIL 1 -1.9 D 33.6 0.36 18
080 INDEX 1.25 1400 2.75
090 SOIL 2 -12.4 S 47.6 0.02 300
095 INDEX 0.10 1620 1.0
130 SOIL 3 -14.4 N 57.6
110 SOIL 4 -19.9 S 47.6 0.02 300
120 INDEX 0.10 2080 1.00
160 SOIL 5 -26.4 D 37.6 0.21 4
165 INDEX 1.26 2340 2.5
180 SOIL 6 -32.4 S 42.6 0.13 15
185 INDEX 0.55 3240 1.75
200 SOIL 7 -43.0 S 42.6 0.13 15
202 INDEX 0.55 3840 1.75
205 SOIL 8 -55.0 C 42.6 0.13 15
210 INDEX 0.55 4440 1.75
260 SOIL 9 -68.1 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 26.6 13.3
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.54.18

I. INPUT DATA

1. TITLE - COMPOSITE DIKE, WEST LAKE, BORING 12, G.S. EL.= -1.9

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 12
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	3.80	99.94
4	4.00	111.44
5	7.80	253.94
6	11.80	403.94
7	14.80	403.94
8	18.80	253.94
9	22.60	111.44
10	22.80	99.94
11	26.60	.00
12	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-1.90	D	33.60	.36000	18.00000	.32000
2	-12.40	S	47.60	.02000	300.00000	.32000
3	-14.40	N	57.60			
4	-19.90	S	47.60	.02000	300.00000	.32000
5	-26.40	D	37.60	.21000	4.00000	.32000
6	-32.40	S	42.60	.13000	15.00000	.32000
7	-43.00	S	42.60	.13000	15.00000	.32000
8	-55.00	C	42.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= 1.25000
RECOMPRESSION INDEX= .36000
INSITU VOID RATIO= 2.75000
INSITU OVERBURDEN= 1400.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= .10000
RECOMPRESSION INDEX= .02000
INSITU VOID RATIO= 1.00000
INSITU OVERBURDEN= 1620.00 PSF

STRATUM NO. 3
INCOMPRESSIBLE STRATUM

STRATUM NO. 4
COMPRESSION INDEX= .10000
RECOMPRESSION INDEX= .02000
INSITU VOID RATIO= 1.00000
INSITU OVERBURDEN= 2080.00 PSF

STRATUM NO. 5
COMPRESSION INDEX= 1.26000
RECOMPRESSION INDEX= .21000
INSITU VOID RATIO= 2.50000
INSITU OVERBURDEN= 2340.00 PSF

STRATUM NO. 6
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000

INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3240.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3840.00 PSF

STRATUM NO. 8

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 4440.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE
AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 26.6000 FT.
DELX= 13.3000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.54.29

II. OUTPUT SUMMARY.

1. TITLE- COMPOSITE DIKE, WEST LAKE, BORING 12, G.S. EL.= -1.9

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	5.25	176.40	42.90	.088
2	11.50	400.40	80.80	.002
3	15.25	606.40	88.90	.000
4	21.25	919.50	90.87	.003
5	27.50	1187.00	86.10	.011
6	35.80	1525.58	76.78	.010
7	47.10	2006.96	64.83	.008
8	59.65	2541.59	54.30	.005

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.088	.040	.057	.074	.086	.088	.088
2	.002	.002	.002	.002	.002	.002	.002
3	.000	.000	.000	.000	.000	.000	.000
4	.003	.003	.003	.003	.003	.003	.003
5	.011	.004	.006	.008	.010	.011	.011
6	.010	.003	.004	.004	.006	.008	.010
7	.008	.000	.000	.000	.002	.004	.004
8	.005	.000	.000	.000	.000	.000	.004
TOTALS:	.127	.052	.072	.091	.109	.116	.122

POSITION: X= 13.3
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	5.25	176.40	332.65	.504
2	11.50	400.40	236.10	.004
3	15.25	606.40	197.15	.000
4	21.25	919.50	153.13	.004
5	27.50	1187.00	122.80	.015
6	35.80	1525.58	97.13	.014
7	47.10	2006.96	74.97	.009
8	59.65	2541.59	59.66	.005

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.504	.230	.322	.423	.487	.504	.504
2	.004	.004	.004	.004	.004	.004	.004
3	.000	.000	.000	.000	.000	.000	.000
4	.004	.004	.004	.004	.004	.004	.004
5	.015	.006	.008	.011	.014	.015	.015
6	.014	.004	.004	.005	.008	.010	.013
7	.009	.000	.000	.000	.003	.004	.004
8	.005	.000	.000	.000	.000	.001	.005
TOTALS:	.555	.248	.342	.447	.520	.542	.549

POSITION: X= 26.6
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	5.25	176.40	42.90	.088
2	11.50	400.40	80.80	.002
3	15.25	606.40	88.90	.000
4	21.25	919.50	90.87	.003
5	27.50	1187.00	86.10	.011
6	35.80	1525.58	76.78	.010
7	47.10	2006.96	64.83	.008
8	59.65	2541.59	54.30	.005

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)

1	.088	.040	.057	.074	.086	.088	.088
2	.002	.002	.002	.002	.002	.002	.002
3	.000	.000	.000	.000	.000	.000	.000
4	.003	.003	.003	.003	.003	.003	.003
5	.011	.004	.006	.008	.010	.011	.011
6	.010	.003	.004	.004	.006	.008	.010
7	.008	.000	.000	.000	.002	.004	.004
8	.005	.000	.000	.000	.000	.000	.004
TOTALS:	.127	.052	.072	.091	.109	.116	.122

```
010 TITLE
020 COMPOSITE DIKE, WEST LAKE, BORING E, G.S. EL.= -1.3
025 2DPR 1 12 0 0
030 -9999 0 0 0 2.6 68.38 4 148.88 6.6 246.38 10.6 396.38
035 13.6 396.38 17.6 246.38 20.2 148.88 21.6 68.38 24.2 0 9999 0
050 SOIL 1 -1.3 D 52.6 0.09 153
080 INDEX 0.38 2320 1.36
090 SOIL 2 -10.3 N 57.6
110 SOIL 3 -29.3 D 42.6 0.11 9
120 INDEX 0.45 3860 1.35
160 SOIL 4 -39.3 S 42.6 0.06 200
165 INDEX 0.25 4180 1.20
180 SOIL 5 -44.3 S 42.6 0.13 15
185 INDEX 0.55 4700 1.75
200 SOIL 6 -52.0 C 42.6 0.13 15
202 INDEX 0.55 5300 1.75
205 SOIL 7 -60.0 C 42.6 0.13 15
210 INDEX 0.55 5900 1.75
260 SOIL 8 -68.7 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 24.2 12.1
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.55.18

I. INPUT DATA

1. TITLE - COMPOSITE DIKE, WEST LAKE, BORING E, G.S. EL.= -1.3

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 12
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	2.60	68.38
4	4.00	148.88
5	6.60	246.38
6	10.60	396.38
7	13.60	396.38
8	17.60	246.38
9	20.20	148.88
10	21.60	68.38
11	24.20	.00
12	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-1.30	D	52.60	.09000	153.00000	.32000
2	-10.30	N	57.60			
3	-29.30	D	42.60	.11000	9.00000	.32000
4	-39.30	S	42.60	.06000	200.00000	.32000
5	-44.30	S	42.60	.13000	15.00000	.32000
6	-52.00	C	42.60	.13000	15.00000	.32000
7	-60.00	C	42.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= .38000
RECOMPRESSION INDEX= .09000
INSITU VOID RATIO= 1.36000
INSITU OVERBURDEN= 2320.00 PSF

STRATUM NO. 2
INCOMPRESSIBLE STRATUM

STRATUM NO. 3
COMPRESSION INDEX= .45000
RECOMPRESSION INDEX= .11000
INSITU VOID RATIO= 1.35000
INSITU OVERBURDEN= 3860.00 PSF

STRATUM NO. 4
COMPRESSION INDEX= .25000
RECOMPRESSION INDEX= .06000
INSITU VOID RATIO= 1.20000
INSITU OVERBURDEN= 4180.00 PSF

STRATUM NO. 5
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 4700.00 PSF

STRATUM NO. 6
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000

INSITU OVERBURDEN= 5300.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 5900.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 24.2000 FT.
DELX= 12.1000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 07-MAY-2003 TIME: 13.55.27

II. OUTPUT SUMMARY.

1. TITLE- COMPOSITE DIKE, WEST LAKE, BORING E, G.S. EL.= -1.3

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	4.50	236.70	41.93	.023
2	18.50	1020.60	89.87	.000
3	33.00	1780.80	78.08	.008
4	40.50	2100.30	68.90	.002
5	46.85	2370.81	62.23	.003
6	54.70	2705.22	55.23	.003
7	63.05	3060.93	49.10	.003

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.023	.023	.023	.023	.023	.023	.023
2	.000	.000	.000	.000	.000	.000	.000
3	.008	.004	.004	.006	.008	.008	.008
4	.002	.002	.002	.002	.002	.002	.002
5	.003	.000	.000	.000	.000	.001	.003
6	.003	.000	.000	.000	.000	.000	.003
7	.003	.000	.000	.000	.000	.000	.001
TOTALS:	.042	.029	.029	.031	.033	.034	.040

POSITION: X= 12.1
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA MID-DEPTH IN-SITU DELTA ULTIMATE

NO. OF STRATA	(FEET)	OVERBURDEN (LB/SQ FT)	SIGMA (LB/SQ FT)	SETTLEMENT (FEET)
1	4.50	236.70	336.93	.152
2	18.50	1020.60	169.54	.000
3	33.00	1780.80	98.20	.011
4	40.50	2100.30	80.65	.002
5	46.85	2370.81	70.27	.005
6	54.70	2705.22	60.50	.003
7	63.05	3060.93	52.67	.003

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.152	.152	.152	.152	.152	.152	.152
2	.000	.000	.000	.000	.000	.000	.000
3	.011	.004	.005	.007	.009	.010	.011
4	.002	.002	.002	.002	.002	.002	.002
5	.005	.000	.000	.000	.000	.002	.003
6	.003	.000	.000	.000	.000	.000	.003
7	.003	.000	.000	.000	.000	.000	.002
TOTALS:	.176	.158	.159	.161	.163	.166	.173

POSITION: X= 24.2
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	4.50	236.70	41.93	.023
2	18.50	1020.60	89.87	.000
3	33.00	1780.80	78.08	.008
4	40.50	2100.30	68.90	.002
5	46.85	2370.81	62.23	.003
6	54.70	2705.22	55.23	.003
7	63.05	3060.93	49.10	.003

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	ULT	(SETTLEMENT IN FEET AT SPECIFIED TIMES) .25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.023	.023	.023	.023	.023	.023	.023
2	.000	.000	.000	.000	.000	.000	.000
3	.008	.004	.004	.006	.008	.008	.008

4	.002	.002	.002	.002	.002	.002	.002
5	.003	.000	.000	.000	.000	.001	.003
6	.003	.000	.000	.000	.000	.000	.003
7	.003	.000	.000	.000	.000	.000	.001
TOTALS:	.042	.029	.029	.031	.033	.034	.040

```
010 TITLE
020 COMPOSITE DIKE, WEST LAKE, BORING 13, G.S. EL.= -1.6
025 2DPR 1 12 0 0
030 -9999 0 0 0 4 84.16 5 130.16 9 250.16 14 400.16
035 17 400.16 22 250.16 26 130.16 27 84.16 31 0 9999 0
050 SOIL 1 -1.6 S 17.6 0.74 90
080 INDEX 3.20 340 7.59
050 SOIL 2 -7.1 S 17.6 0.20 35
080 INDEX 0.84 480 2.372
090 SOIL 3 -11.1 S 47.6 0.06 220
095 INDEX 0.25 600 1.2
110 SOIL 4 -18.1 D 32.6 0.14 15
120 INDEX 0.60 980 1.60
130 SOIL 5 -31.1 N 57.6
160 SOIL 6 -33.1 S 42.6 0.13 15
165 INDEX 0.55 2080 1.75
180 SOIL 7 -43.0 C 42.6 0.13 15
185 INDEX 0.55 2680 1.75
200 SOIL 8 -53.0 C 42.6 0.13 15
202 INDEX 0.55 3280 1.75
260 SOIL 9 -69.5 N 47.6
265 BOUS 70.0
270 TIMS 0.25 0.50 1.0 2.0 4.0 8.0
280 OUTPUT 0.0 31.0 15.5
290 END
```

PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 16-MAY-2003 TIME: 16.20.34

I. INPUT DATA

1. TITLE - COMPOSITE DIKE, WEST LAKE, BORING 13, G.S. EL.= -1.6

2. BOUSSINESQ SOLUTION WILL BE USED TO COMPUTE INDUCED STRESSES.
THE MAXIMUM DEPTH TO WHICH THE ANALYSIS WILL BE EXTENDED
IS 70.00 FEET.

3. 2-DIMENSIONAL PRESSURE LOAD DATA

LOAD NUMBER 1 : NUMBER OF POINTS= 12
BEGINNING TIME OF APPLICATION = .0000 YRS.
ENDING TIME OF APPLICATION = .0000 YRS.

POINT NO.	X (FT.)	PRESSURE (PSF)
1	-9999.00	.00
2	.00	.00
3	4.00	84.16
4	5.00	130.16
5	9.00	250.16
6	14.00	400.16
7	17.00	400.16
8	22.00	250.16
9	26.00	130.16
10	27.00	84.16
11	31.00	.00
12	9999.00	.00

4. 2-DIMENSIONAL SOIL LOAD DATA
NONE

5. 3-DIMENSIONAL RECTANGULAR LOAD DATA
NONE

6. 3-DIMENSIONAL IRREGULAR LOAD DATA
NONE

7. EXCAVATION DATA
NONE

8. SOIL DATA

STRATA NO.	EL. OF TOP OF STRATUM (FEET NGVD)	DRAINAGE CONDITION	EFF UNIT WEIGHT (PCF)	RECOMPR. INDEX	COEF.OF CONSOL. (SQFT/YR)	POISSON'S RATIO
1	-1.60	S	17.60	.74000	90.00000	.32000
2	-7.10	S	17.60	.20000	35.00000	.32000
3	-11.10	S	47.60	.06000	220.00000	.32000
4	-18.10	D	32.60	.14000	15.00000	.32000
5	-31.10	N	57.60			
6	-33.10	S	42.60	.13000	15.00000	.32000
7	-43.00	C	42.60	.13000	15.00000	.32000
8	-53.00	C	42.60	.13000	15.00000	.32000

9. STRESS-STRAIN DATA

STRATUM NO. 1
COMPRESSION INDEX= 3.20000
RECOMPRESSION INDEX= .74000
INSITU VOID RATIO= 7.59000
INSITU OVERBURDEN= 340.00 PSF

STRATUM NO. 2
COMPRESSION INDEX= .84000
RECOMPRESSION INDEX= .20000
INSITU VOID RATIO= 2.37200
INSITU OVERBURDEN= 480.00 PSF

STRATUM NO. 3
COMPRESSION INDEX= .25000
RECOMPRESSION INDEX= .06000
INSITU VOID RATIO= 1.20000
INSITU OVERBURDEN= 600.00 PSF

STRATUM NO. 4
COMPRESSION INDEX= .60000
RECOMPRESSION INDEX= .14000
INSITU VOID RATIO= 1.60000
INSITU OVERBURDEN= 980.00 PSF

STRATUM NO. 5
INCOMPRESSIBLE STRATUM

STRATUM NO. 6
COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000

INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2080.00 PSF

STRATUM NO. 7

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 2680.00 PSF

STRATUM NO. 8

COMPRESSION INDEX= .55000
RECOMPRESSION INDEX= .13000
INSITU VOID RATIO= 1.75000
INSITU OVERBURDEN= 3280.00 PSF

10. TIME SEQUENCE FOR CONSOLIDATION CALCULATIONS

TIME RATE OF CONSOLIDATION CALCULATIONS WILL BE MADE
AT TIMES (YRS):

.25
.50
1.00
2.00
4.00
8.00

11. OUTPUT CONTROL DATA

XXL= .0000 FT.
XUL= 31.0000 FT.
DELX= 15.5000 FT.

1
PROGRAM CSETT - VERTICAL STRESS INDUCTION AND SETTLEMENT PROGRAM
DATE: 16-MAY-2003 TIME: 16.20.43

II. OUTPUT SUMMARY.

1. TITLE- COMPOSITE DIKE, WEST LAKE, BORING 13, G.S. EL.= -1.6

POSITION: X= .0
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.75	48.40	19.65	.065
2	7.50	132.00	53.40	.034
3	13.00	333.80	78.03	.018
4	23.00	712.30	89.58	.036
5	30.50	981.80	86.60	.000
6	36.45	1250.27	81.15	.013
7	46.40	1674.14	71.58	.008
8	59.65	2238.59	60.53	.009

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	(SETTLEMENT IN FEET AT SPECIFIED TIMES) ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.065	.056	.063	.065	.065	.065	.065
2	.034	.027	.032	.034	.034	.034	.034
3	.018	.018	.018	.018	.018	.018	.018
4	.036	.012	.017	.024	.032	.036	.036
5	.000	.000	.000	.000	.000	.000	.000
6	.013	.000	.000	.000	.003	.004	.004
7	.008	.000	.000	.000	.000	.002	.004
8	.009	.000	.000	.000	.000	.000	.003
TOTALS:	.183	.113	.130	.141	.152	.159	.164

POSITION: X= 15.5
****

2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.75	48.40	376.75	.582
2	7.50	132.00	307.00	.120
3	13.00	333.80	238.87	.055
4	23.00	712.30	162.52	.071
5	30.50	981.80	126.60	.000
6	36.45	1250.27	108.63	.016
7	46.40	1674.14	86.88	.010
8	59.65	2238.59	68.62	.010

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	(SETTLEMENT IN FEET AT SPECIFIED TIMES) ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)
1	.582	.506	.571	.582	.582	.582	.582
2	.120	.095	.114	.120	.120	.120	.120
3	.055	.052	.055	.055	.055	.055	.055
4	.071	.023	.035	.048	.063	.070	.071
5	.000	.000	.000	.000	.000	.000	.000
6	.016	.000	.000	.002	.004	.004	.006
7	.010	.000	.000	.000	.001	.004	.004
8	.010	.000	.000	.000	.000	.001	.004
TOTALS:	.864	.676	.775	.807	.825	.836	.842

POSITION: X= 31.0
****

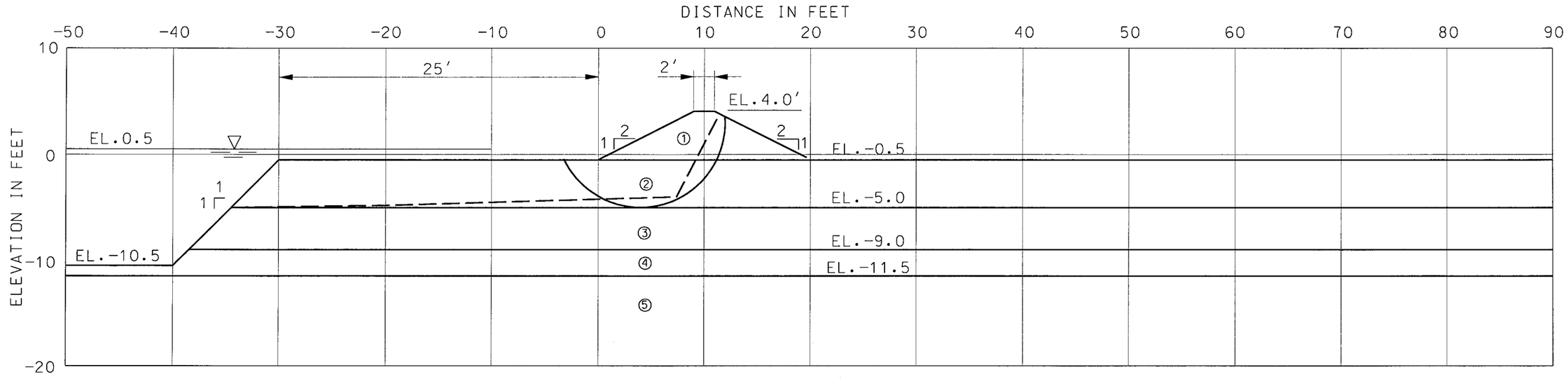
2. SUMMARY OF ULTIMATE SETTLEMENTS.

STRATA NO.	MID-DEPTH OF STRATA (FEET)	IN-SITU OVERBURDEN (LB/SQ FT)	DELTA SIGMA (LB/SQ FT)	ULTIMATE SETTLEMENT (FEET)
1	2.75	48.40	19.65	.065
2	7.50	132.00	53.40	.034
3	13.00	333.80	78.03	.018
4	23.00	712.30	89.58	.036
5	30.50	981.80	86.60	.000
6	36.45	1250.27	81.15	.013
7	46.40	1674.14	71.58	.008
8	59.65	2238.59	60.53	.009

3. TIME-SETTLEMENT SUMMARY.

STRATA NO	(SETTLEMENT IN FEET AT SPECIFIED TIMES) ULT	.25 (YRS.)	.50 (YRS.)	1.00 (YRS.)	2.00 (YRS.)	4.00 (YRS.)	8.00 (YRS.)

1	.065	.056	.063	.065	.065	.065	.065
2	.034	.027	.032	.034	.034	.034	.034
3	.018	.018	.018	.018	.018	.018	.018
4	.036	.012	.017	.024	.032	.036	.036
5	.000	.000	.000	.000	.000	.000	.000
6	.013	.000	.000	.000	.003	.004	.004
7	.008	.000	.000	.000	.000	.002	.004
8	.009	.000	.000	.000	.000	.000	.003
TOTALS:	.183	.113	.130	.141	.152	.159	.164



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	80	0
2	98	100	0
3	98	150	0
4	110	200	0
5	110	200	20

X	Y	FS
-34.5	-5.0	1.76
-20.0	-4.3	
0.0	-4.9	
7.4	-4.0	
10.1	-1.2	
12.7	2.2	

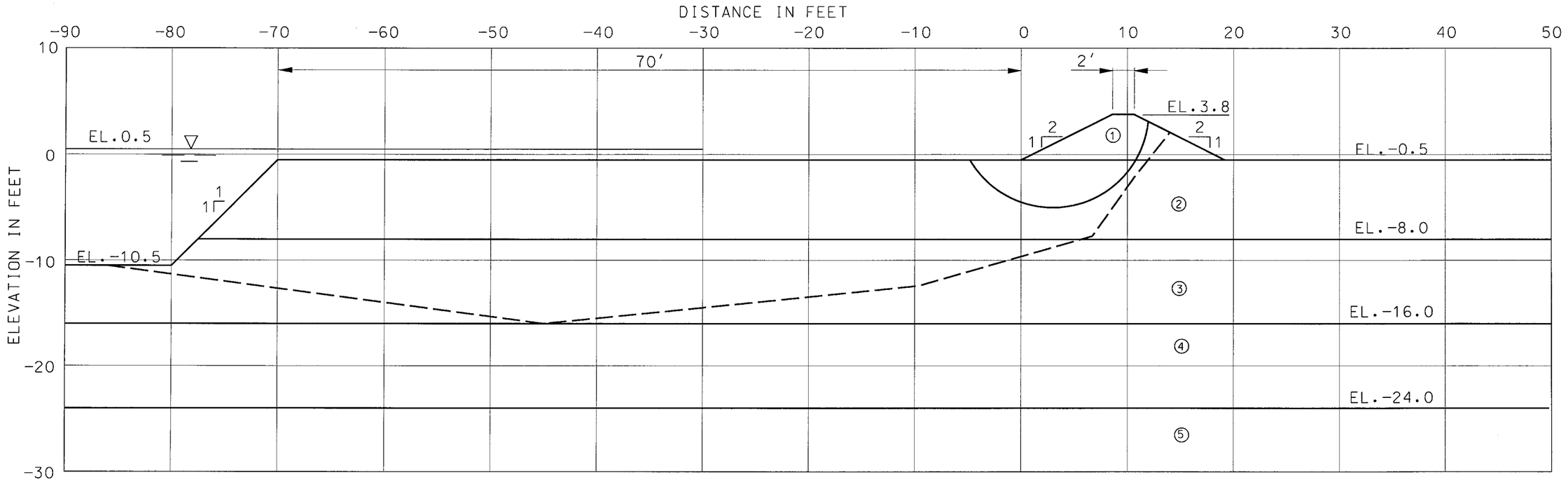
X	Y	R	FS
4	3	8	1.41

Stability Analysis

CONTAINMENT LEVEE - BORING 3
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"=10' | FIGURE F-1



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	80	0
2	87	100	0
3	110	100	0
4	120	200	20
5	108	280	0

X	Y	FS
-86.0	-10.5	1.31
-45.0	-16.0	
-32.0	-14.7	
-9.6	-12.4	
6.7	-7.7	
10.6	-2.2	
14.0	2.1	

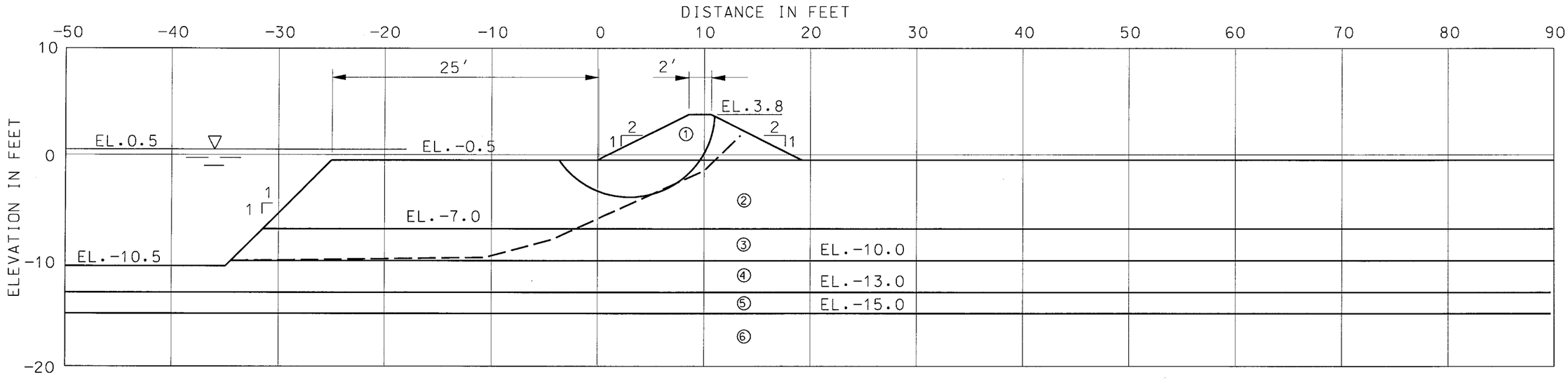
X	Y	R	FS
3	4	9.0	1.44

Stability Analysis

CONTAINMENT LEVEE - BORING 4
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"=10' | FIGURE F-2



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	160	0
2	104	200	0
3	104	260	0
4	104	400	0
5	110	200	20
6	120	0	30

X	Y	FS
-34.5	-10.0	2.00
-10.6	-9.7	
-4.3	-8.0	
10.0	-1.5	
13.4	1.8	

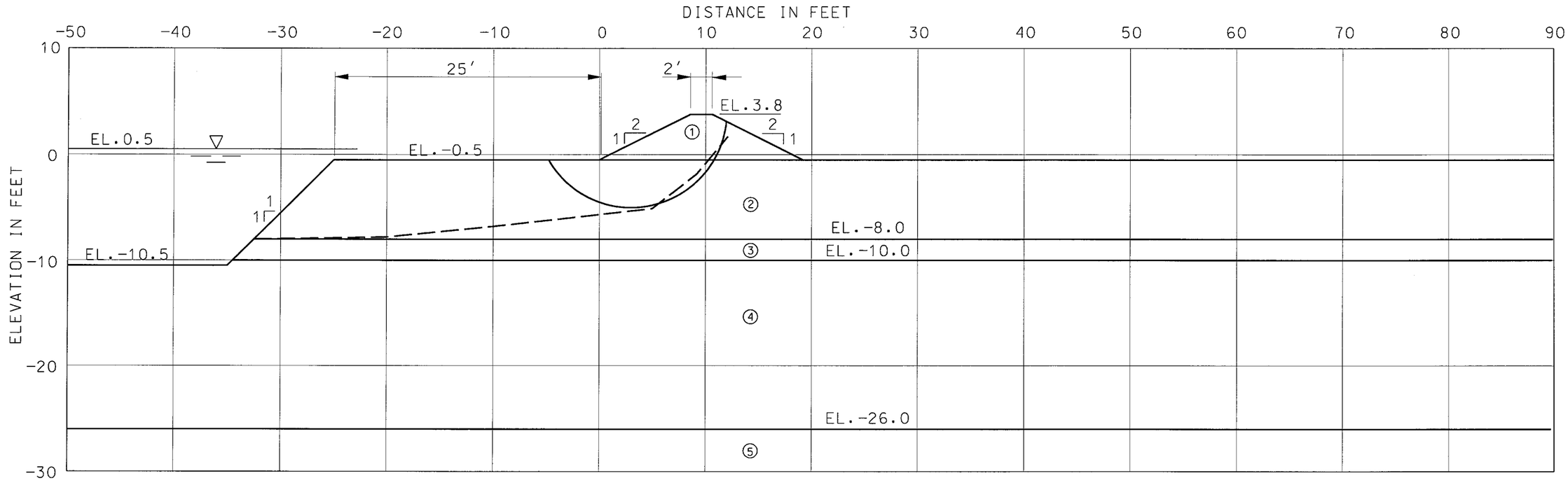
X	Y	R	FS
3	4	8.0	2.91

Stability Analysis

CONTAINMENT LEVEE - BORING 5
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"=10' | FIGURE F-3



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	120	0
2	107	150	0
3	115	275	0
4	110	200	20
5	120	0	30

X	Y	FS
-32.5	-8.0	1.52
-20.0	-7.8	
-10.1	-6.8	
5.0	-5.1	
9.2	-1.8	
12.1	1.7	

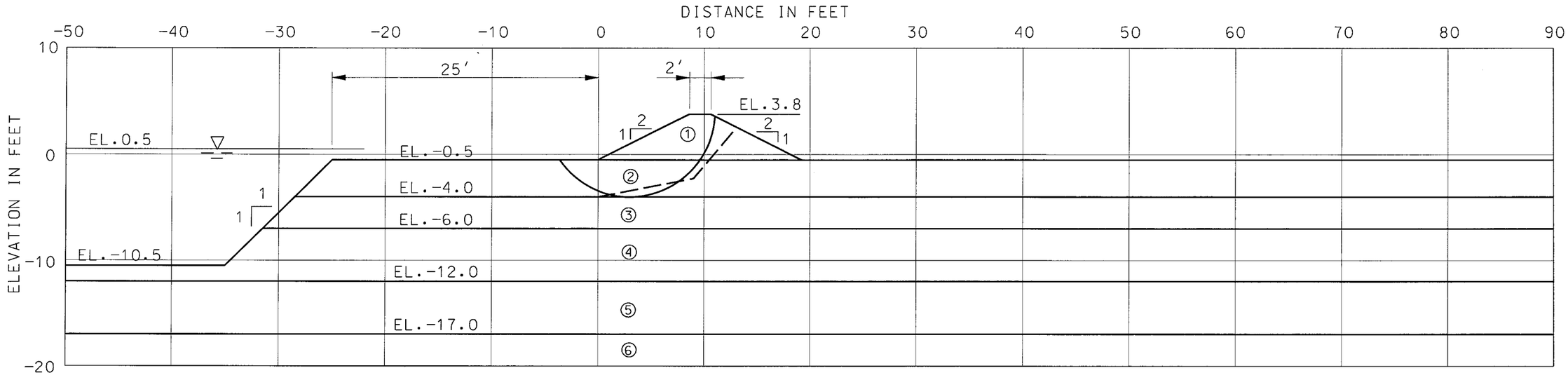
X	Y	FS	FS
3	4	9.0	2.17

Stability Analysis

CONTAINMENT LEVEE - BORING 8
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"=10' | FIGURE F-4



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	104	0
2	107	130	0
3	107	200	0
4	107	230	0
5	110	200	20
6	120	0	30

X	Y	FS
-28.5	-4.0	3.59
-15.0	-4.0	
0.8	-10.8	
10.1	-4.4	
13.0	2.5	

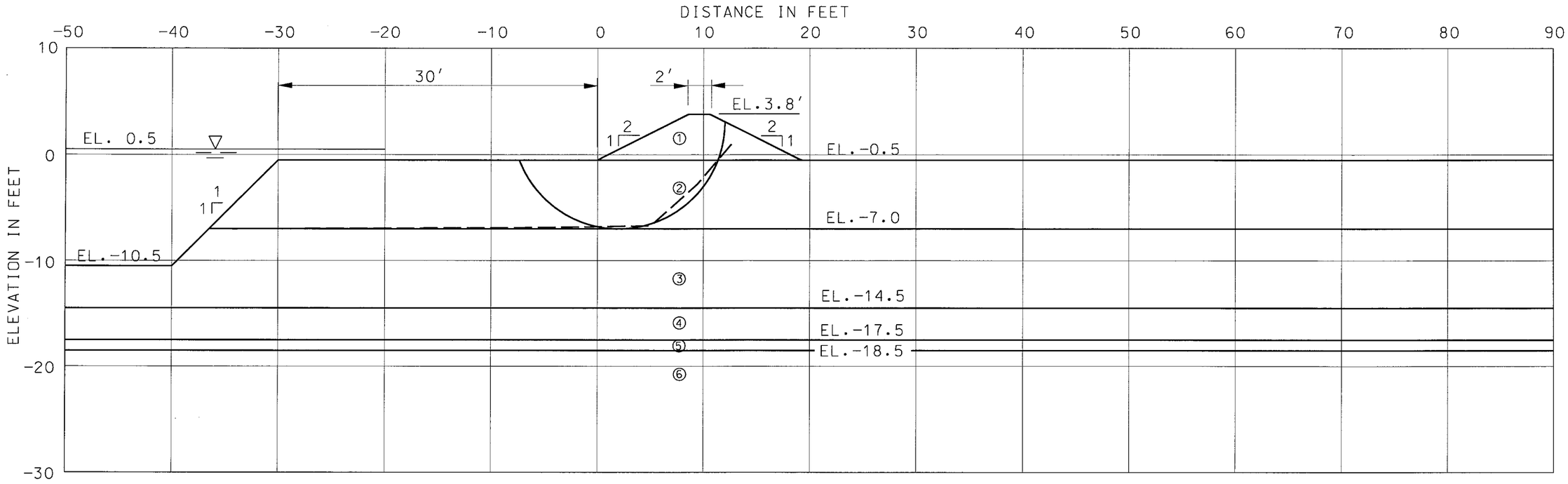
X	Y	R	FS
3	4	8	1.89

Stability Analysis

CONTAINMENT LEVEE - BORING 9
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1'=10' | FIGURE F-5



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	80	0
2	92	100	0
3	92	150	0
4	110	200	20
5	100	150	0
6	120	0	30

X	Y	FS
-36.5	-7.0	1.334
-19.9	-6.93	
-5.37	-6.87	
5.04	-6.70	
9.43	-2.78	
12.74	1.13	

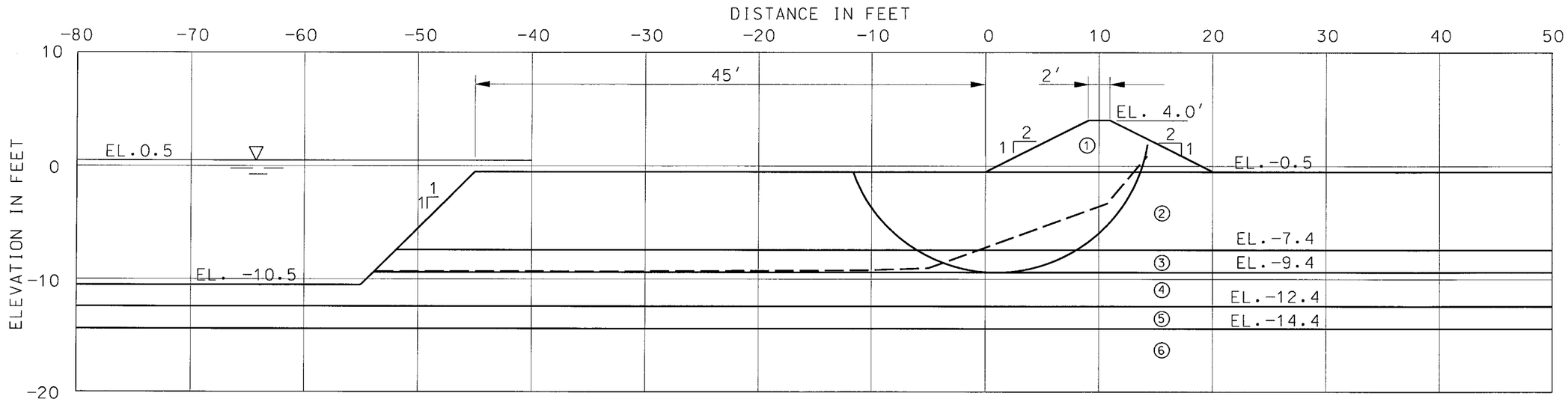
X	Y	R	FS
2	3	10	1.53

Stability Analysis

CONTAINMENT LEVEE - BORING 11
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"=10' | FIGURE F-6



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	140	0
2	96	175	0
3	96	90	0
4	96	250	0
5	110	200	20
6	120	0	30

X	Y	FS
-53.8	-9.3	1.43
-30.0	-9.3	
-10.4	-9.2	
-5.0	-9.0	
10.7	-3.3	
14.2	0.9	

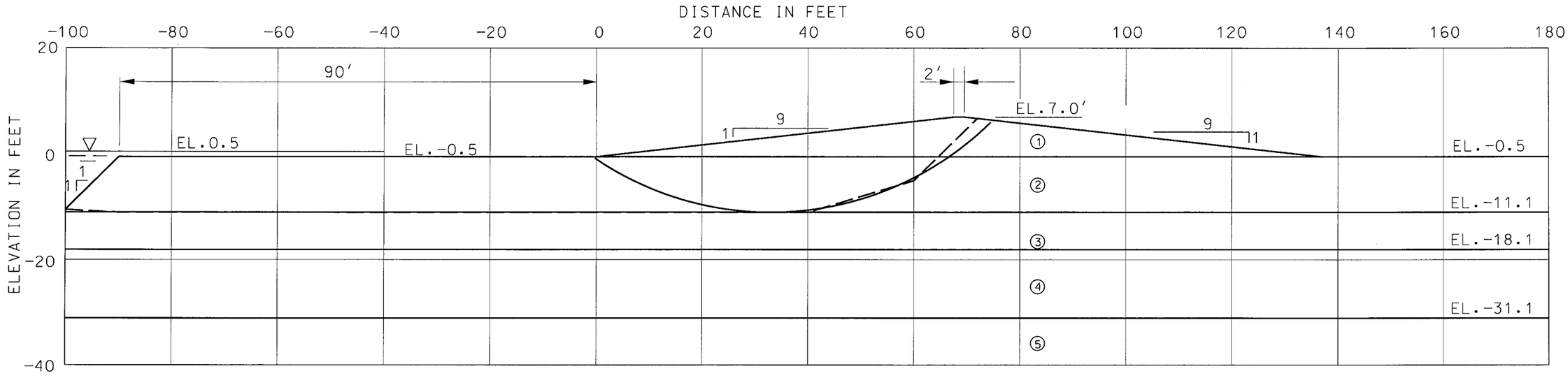
X	Y	R	FS
1	4	13.4	2.14

Stability Analysis

CONTAINMENT LEVEE - BORING 12
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"=10' | FIGURE F-7



SHEAR STRENGTH PARAMETERS			
SOIL NO.	UNIT WT. PCF	COHESION PSF	PHI DEGREES
1	95	64	0
2	80	80	0
3	110	200	20
4	110	200	20
5	95	250	0

X	Y	FS
-100	-10.5	1.36
-90	-11.0	
-30	-11.0	
0	-11.0	
40	-11.0	
60	-5.0	
72	6.8	

X	Y	R	FS
33	48	59	1.30

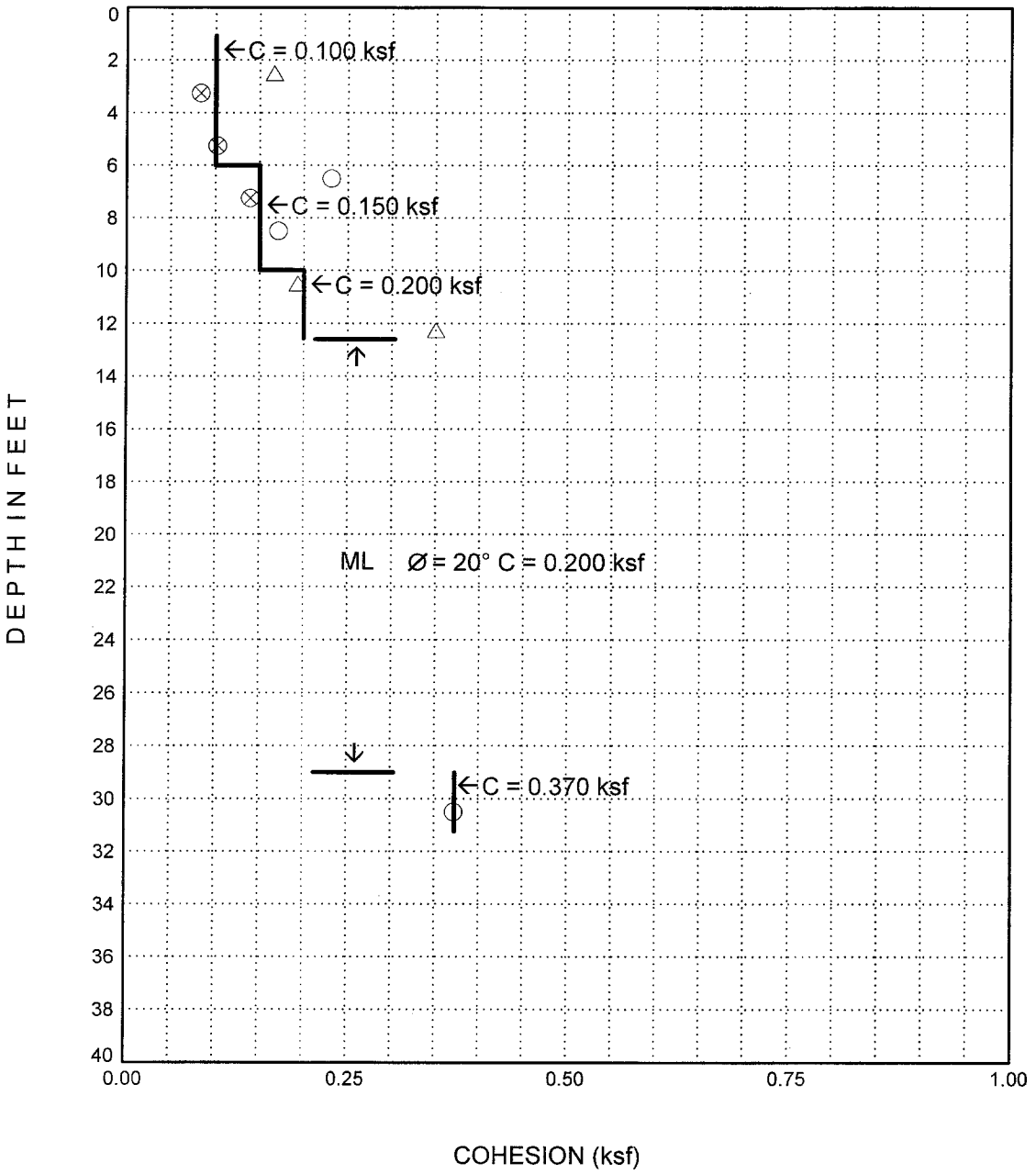
Stability Analysis

CONTAINMENT LEVEE - BORING 13
WEST LAKE BOUDREAUX (TE-46)
TERREBONNE PARISH, LOUISIANA

BURNS COOLEY DENNIS, INC.
551 SUNNYBROOK ROAD
RIDGELAND, MISSISSIPPI 39157

JOB NO. 02485-3 | SCALE: 1"=20' | FIGURE F-8

BORING NO. 3



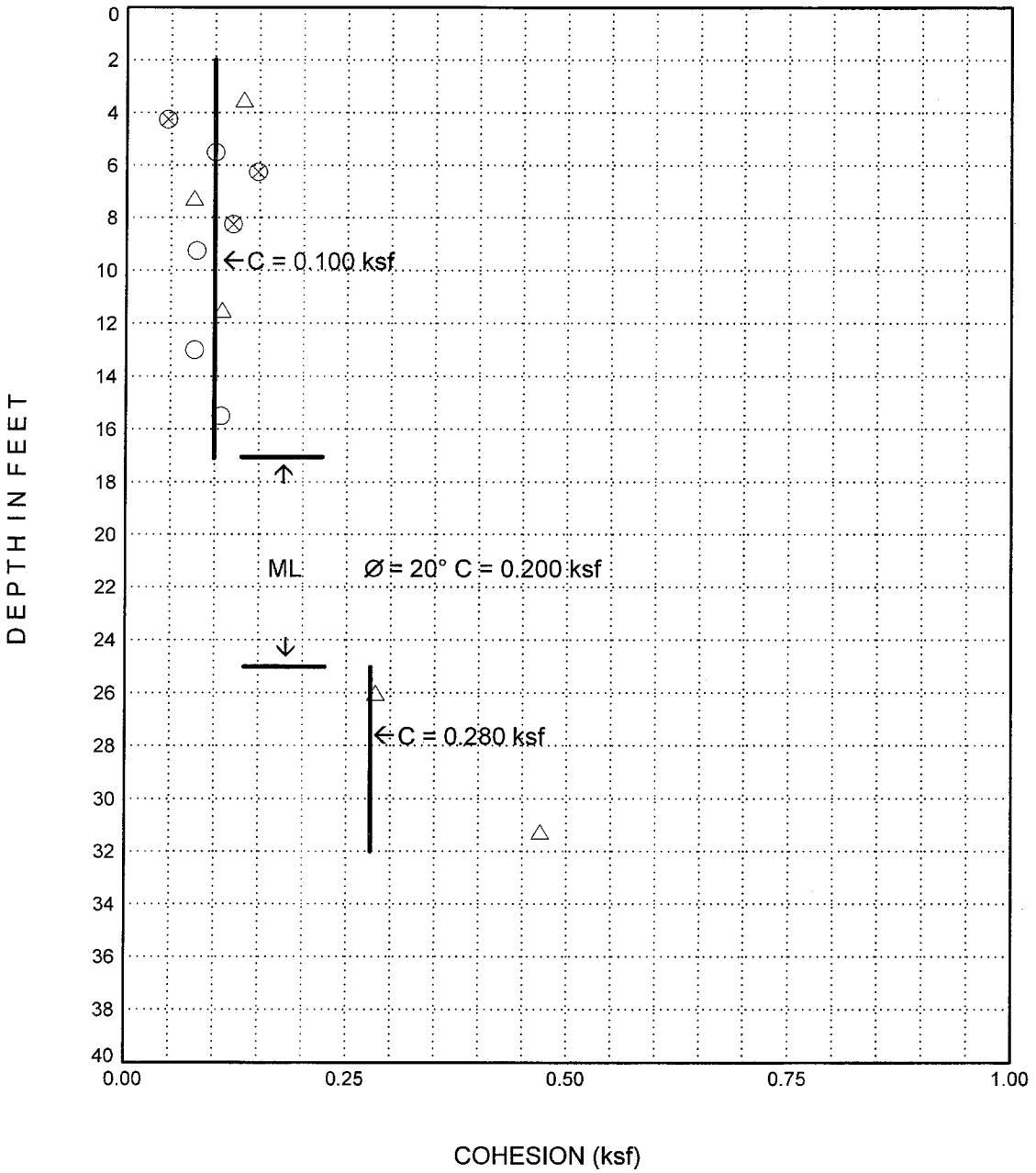
LEGEND:

- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◔ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/2/03	Figure F-9

BORING NO. 4



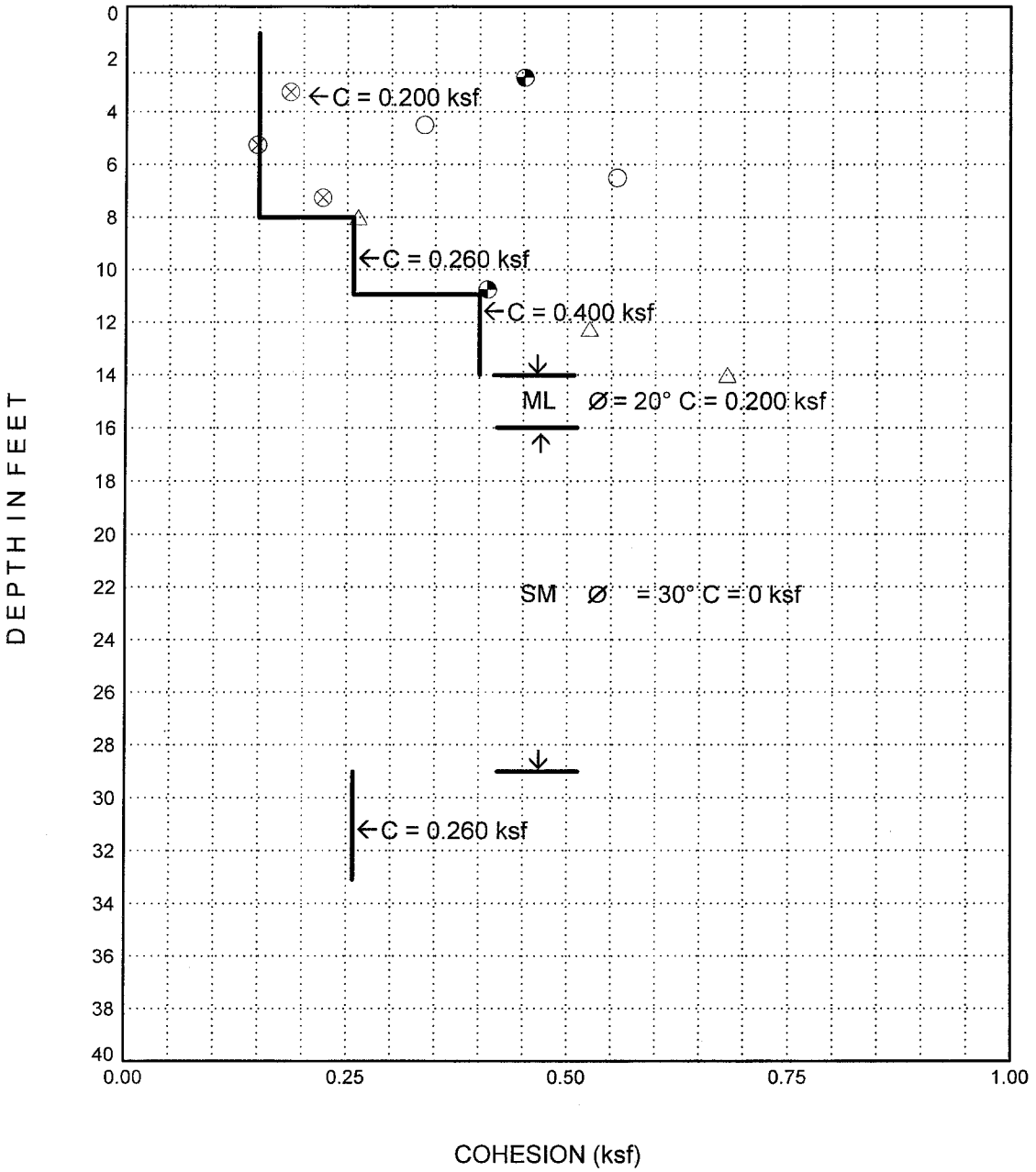
LEGEND:

- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◓ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/2/03	Figure F-10

BORING NO. 5



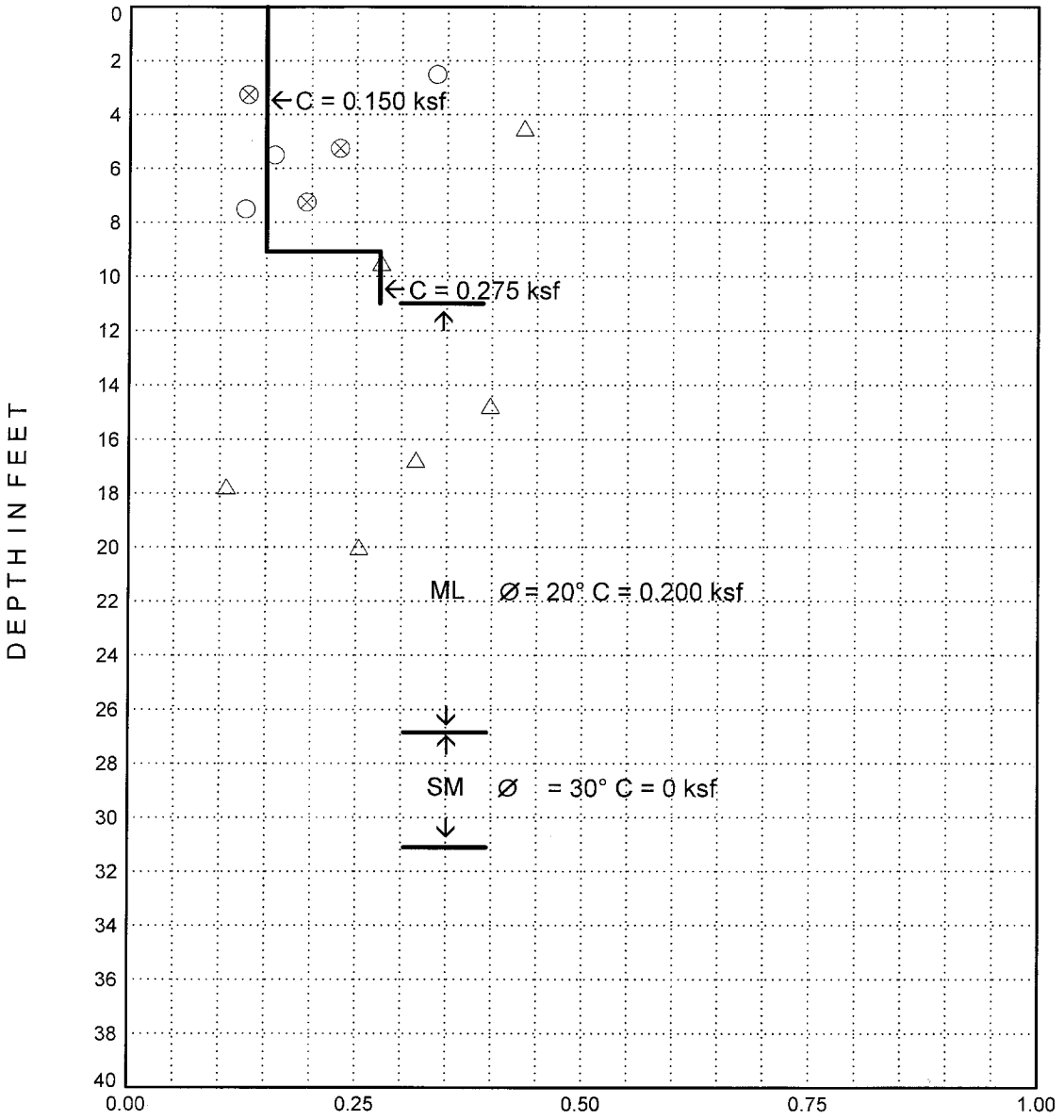
LEGEND:

- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◓ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/2/03	Figure F-11

BORING NO. 8



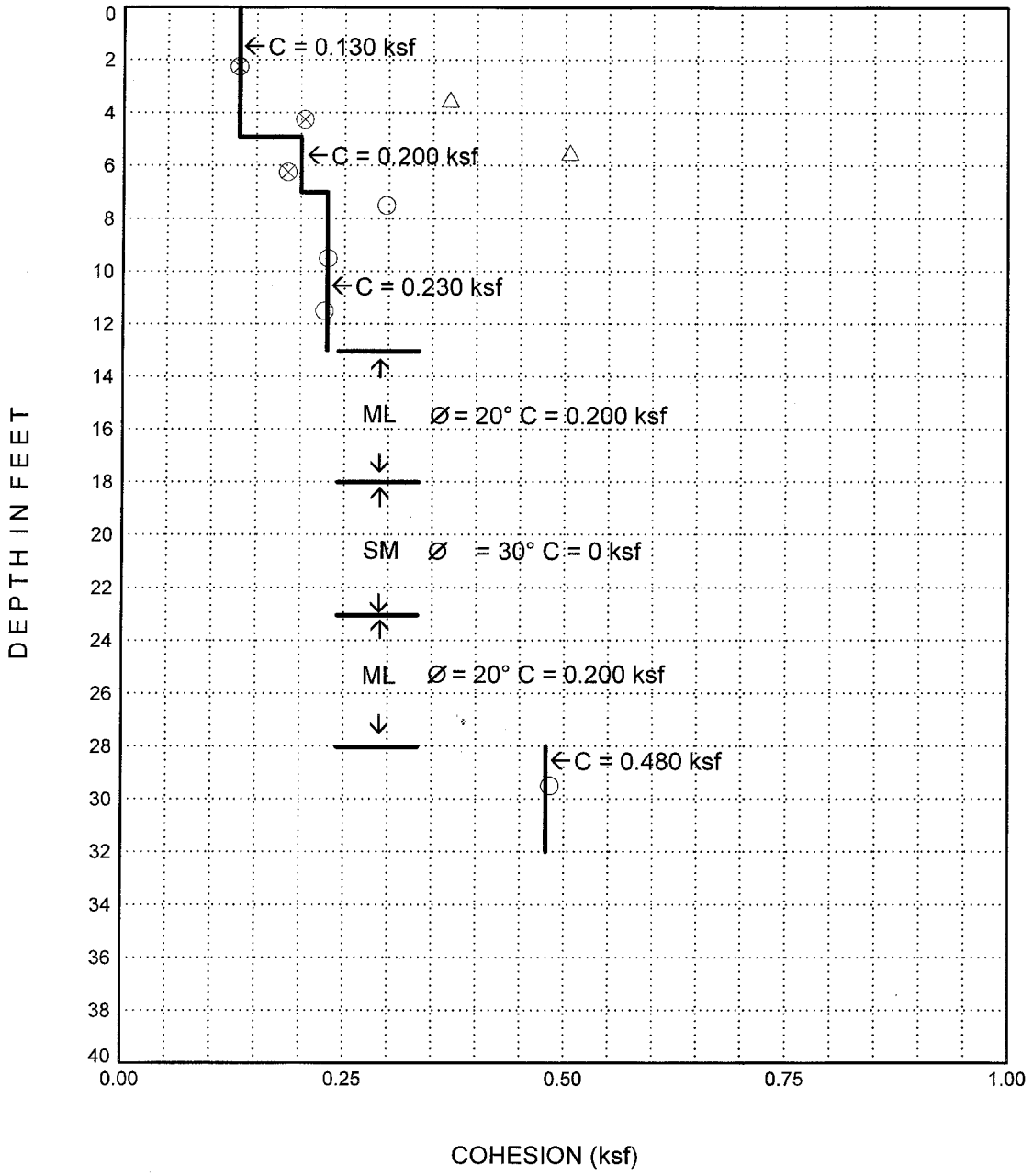
LEGEND:

- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◔ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/2/03	Figure F-12

BORING NO. 9



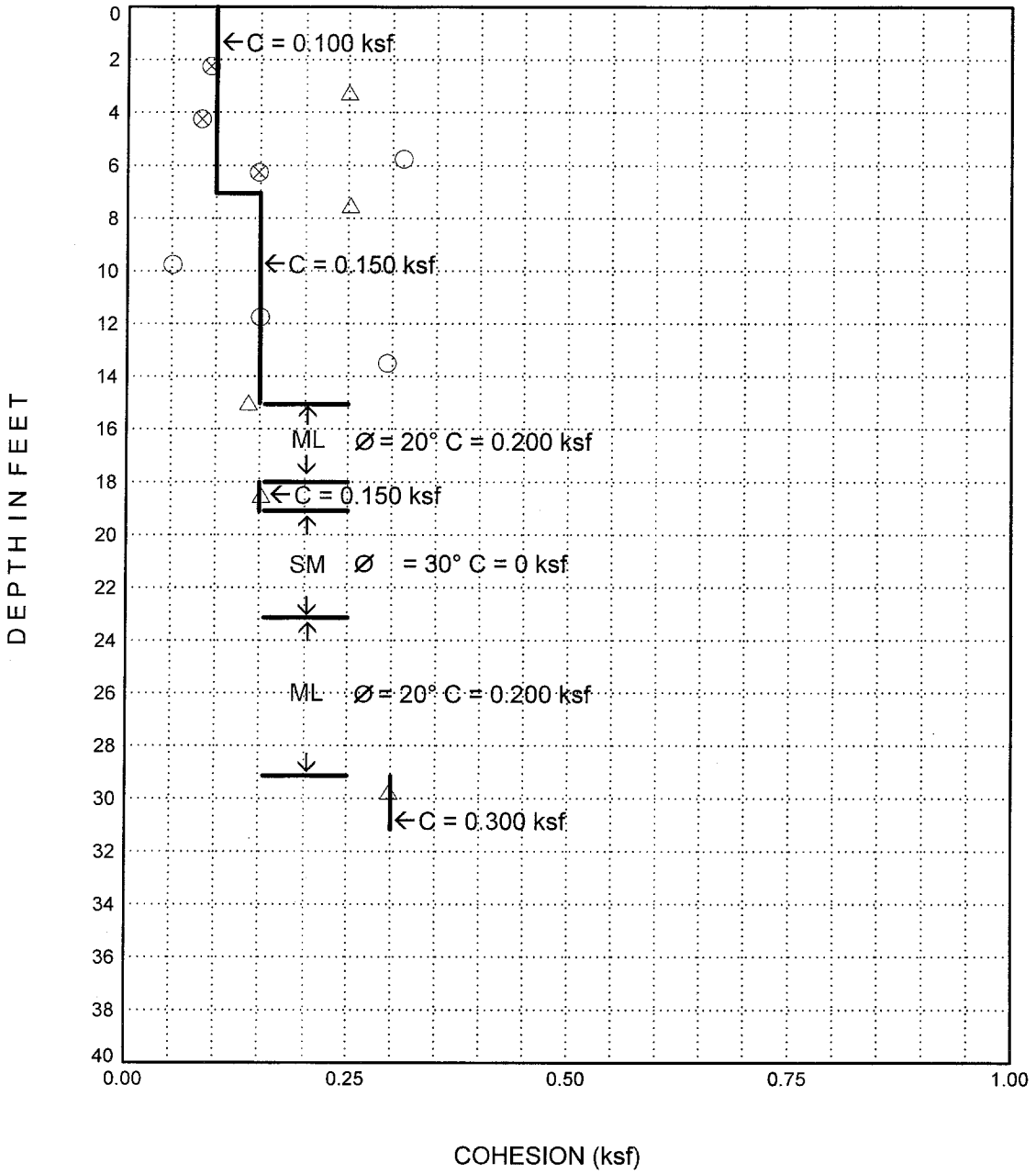
LEGEND:

- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◒ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/2/03	Figure F-13

BORING NO. 11



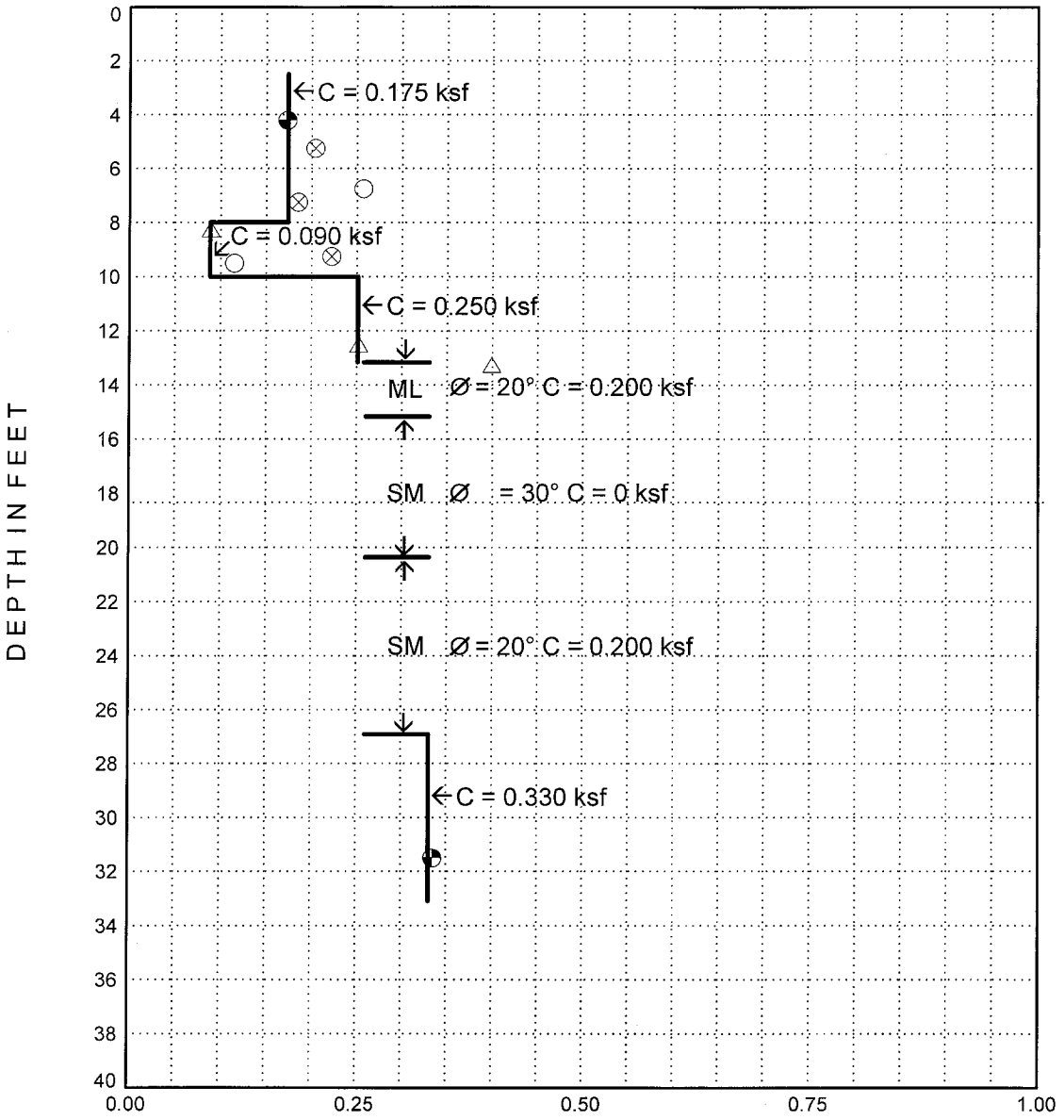
LEGEND:

- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◔ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/2/03	Figure F-14

BORING NO. 12



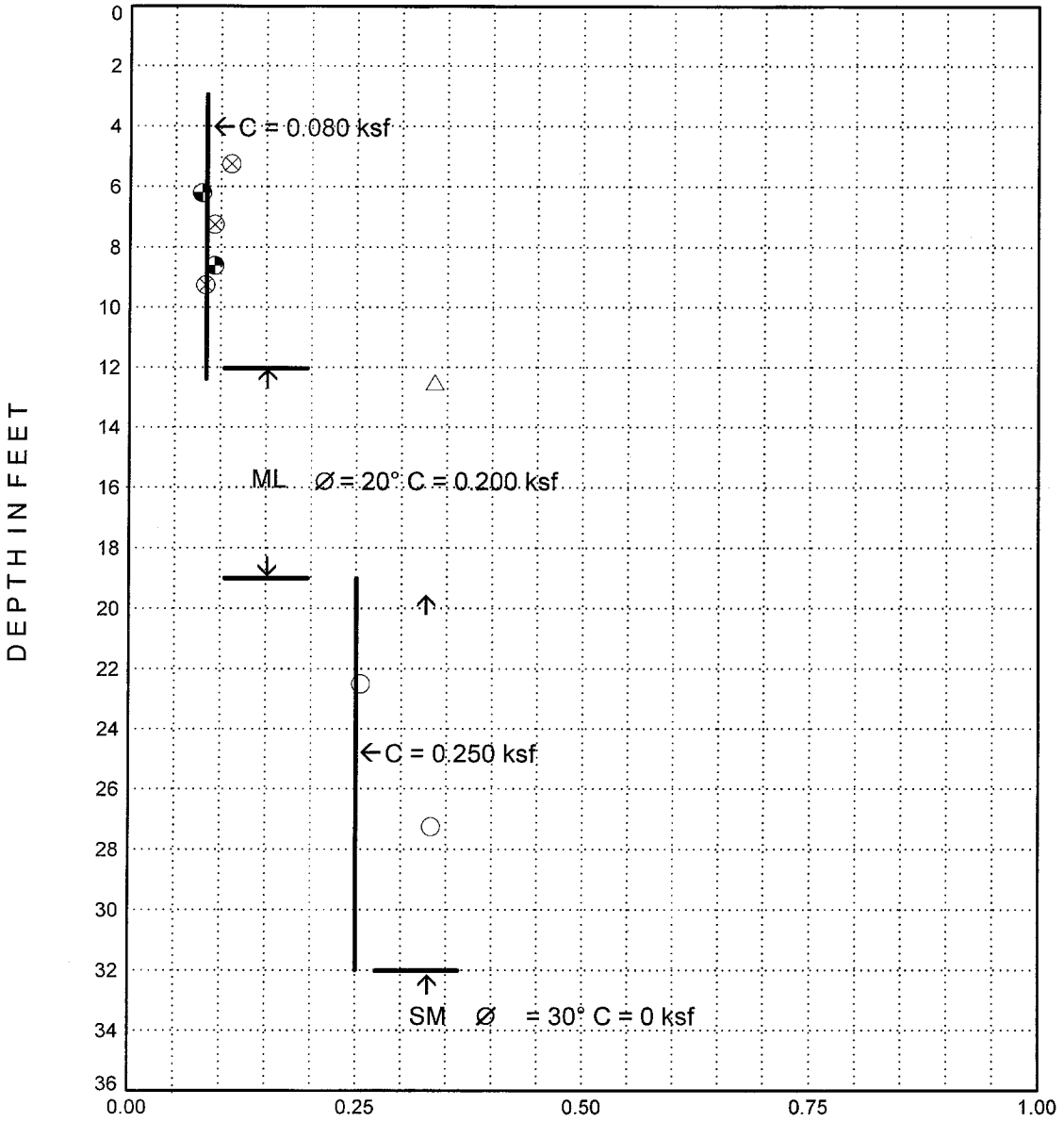
LEGEND:

- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◔ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/2/03	Figure F-15

BORING NO. 13



LEGEND:

- ○ UNCONFINED COMPRESSION
- △ UNCONSOLIDATED UNDRAINED
- ⊗ FIELD VANE
- ◔ LAB VANE

COHESION VERSUS DEPTH

WEST LAKE BOUDREAUX (TE-46) TERREBONNE PARISH, LOUISIANA		
Job No. 02485-3	Date 5/2/03	Figure F-16