LAW Crandall
LAWGIBB Group Member

REPORT OF GEOTECHNICAL INVESTIGATION PROPOSED MOTION PICTURE & TELEVISION FUND FACILITY EXPANSION

23388 Mulholland Drive
Woodland Hills, California

Prepared for:

MOTION PICTURE & TELEVISION FUND

Woodland Hills, California

September 9, 1998

Project 70131-8-0371

February 9, 2000

Mr. E. W. Malinowski
Administrative Director
Facilities Management
Motion Picture and Television Fund
23388 Mulholland Drive
Woodland Hills, California 91364-2792

Subject: **Supplemental Consultation**
Proposed Motion Picture and Television Fund
23388 Mulholland Drive
Woodland Hills, California 91364-2792
Law/Crandall Project 70144-0-0033.0001

Dear Mr. Malinowski:

This letter addresses acceptable materials for fill to be used at the proposed Motion Picture and Television Fund Facility in Woodland Hills, California. We previously submitted our report of geotechnical investigation dated September 9, 1998.

The professional opinions presented in this letter have been developed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical consultants practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this letter.

As stated in our report dated September 9, 1998, "the on-site clayey soils are moderately expansive and should not be used within [2 feet beneath a mat foundation, or 3 feet below spread footings or 1 foot below slabs on grade] The on-site clayey soils may be mixed with the on-site silty and sandy soils if desired to produce a fill with an expansion index less than 35; the mixed soils may then be used in all fill and backfill operations."

The upper soils at the site consist predominantly of clayey soils and silty soils. During our inspection services currently being conducted at the project, additional soil samples were obtained and tested for their expansion properties using an expansion index test to identify if mixing of the readily accessible on-site soils as described above would produce acceptable fill. Results show that all samples of the soils except the sandy soil sample to be moderately expansive in nature, as shown in the attached table.

Therefore, it appears that mixing of on-site soils will not be practical unless sufficient quantities of the sandy materials are identified on the site; otherwise, imported sandy soils could be used as fill or mixed with the on-site soils to produce a fill with an expansion index of less than 35.

Please contact us if you have any further questions or if we can be of further assistance.

Sincerely,

LAW/CRANDALL
A Division of LAW Engineering and Environmental Services, Inc.

Armen Gaprelian
Staff Engineer

Martin B. Hudson, Ph.D.
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
MARTIN B. HUDSON
No. 54220
Exp. 12-31-02
CIVIL
STATE OF CALIFORNIA

enggeo/2000-proj\00331l01.DOC/AG:bam
(2 copies submitted)

Attachment: Table of Expansion Index Results

Table of Expansion Index Results						
			TP-1	TP-2	TP-3	TP-4
Sample Depth (ft)	5	8	2½-7	2½-7	3½-7	2½-7
Soil Type	CL	CL with sand	ML/CL	ML/CL	ML/CL	ML/CL
Expansion Index	55	20	42	60	60	67

CITY OF LOS ANGELES

CALIFORNIA

RICHARD J. RIORDAN
MAYOR

DEPARTMENT OF
BUILDING AND SAFETY
201 NORTH FIGUEROA STREET
LOS ANGELES, CA 90012

ANDREW A. ADELMAN
GENERAL MANAGER

RICHARD E. HOLGUIN
EXECUTIVE OFFICER

July 30, 1999

Log # 27732-01
SOILS/GEOLOGY FILE - 2

Motion Picture & Television Fund
23388 Mulholland Dr
Woodland Hills, CA 91364

TRACT: 3796
LOT: 1
LOCATION: 23388 Mulholland Dr

CURRENT REFERENCE REPORT/LETTER(S)	REPORT NO.	DATE(S) OF DOCUMENT	PREPARED BY
Soil Report	70131-8-0371	07/08/99	LAW Crandall

PREVIOUS REFERENCE REPORT/LETTER(S)	REPORT NO.	DATE(S) OF DOCUMENT	PREPARED BY
Soil Report	70131-8-0371	11/03/98	LAW Crandall
Geology/Soil Report	70131-8-0371	09/09/98	` `

The referenced reports concerning the proposed expansion of the existing facility, to include the Stark Villas and pavilion have been reviewed by the Grading Section of the Department of Building and Safety. According to the reports, the site consists of alluvium that is subject to liquefaction. The reports are acceptable, provided the following conditions are complied with during site development:

1. The geologist and soils engineer shall review and approve the detailed plans prior to issuance of any permits. This approval shall be by signature on the plans which clearly indicates that the geologist and soils engineer have reviewed the plans prepared by the design engineer and that the plans include the recommendations contained in their reports.

2. The buildings shall be supported on a mat foundation, as recommended.

3. All recommendations of the reports which are in addition to or more restrictive than the conditions contained herein shall be incorporated into the plans.

4. The applicant is advised that the approval of this report does not waive the requirements for excavations contained in the State Construction Safety Orders enforced by the State Division of Industrial Safety.

B & S G-5 (Rev. 4/98)

5. A copy of the subject and appropriate referenced reports and this approval letter shall be attached to the District Office and field set of plans. Submit one copy of the above reports to the Building Department Plan Checker prior to issuance of the permit.

6. The soil engineer shall inspect all excavations to determine that conditions anticipated in the report have been encountered and to provide recommendations for the correction of hazards found during grading.

7. All man-made fill shall be compacted to a minimum 90 percent of the maximum dry density of the fill material per the latest version of ASTM D 1557; or 95 percent where less than 15 percent fines passes 0.005mm.

8. All roof and pad drainage shall be conducted to the street in an acceptable manner.

9. Prior to the placing of compacted fill, a representative of the consulting Soils Engineer shall inspect and approve the bottom excavations. He shall post a notice on the job site for the City Grading Inspector and the Contractor stating that the soil inspected meets the conditions of the report, but that no fill shall be placed until the City Grading Inspector has also inspected and approved the bottom excavations. A written certification to this effect shall be filed with the Department upon completion of the work. The fill shall be placed under the inspection and approval of the Foundation Engineer. A compaction report shall be submitted to the Department upon completion of the compaction.

10. Prior to the pouring of concrete, a representative of the consulting Soil Engineer shall inspect and approve the footing excavations. He shall post a notice on the job site for the City Building Inspector and the Contractor stating that the work so inspected meets the conditions of the report, but that no concrete shall be poured until the City Building Inspector has also inspected and approved the footing excavations. A written certification to this effect shall be filed with the Department upon completion of the work.

DAVID HSU
Chief of Grading Section

DANA PREVOST
Engineering Geologist II

PASCAL CHALLITA
Geotechnical Engineer I

DP/PC:dp/pc
27732-01
(213) 977-6329

cc: LAW Crandall
VN District Office

November 3, 1998

FILE

Mr. E. W. Malinowski
Administrative Director
Facilities Management
Motion Picture & Television Fund
23388 Mulholland Drive
Woodland Hills, California 91364-2792

Subject: **Supplemental Geotechnical Recommendations**
Proposed Motion Picture & Television Fund Facility Expansion
23388 Mulholland Drive
Woodland Hills, California 91364-2792
Law/Crandall Project 70131-8-0371

Dear Mr. Malinowski:

As requested by Mr. Ed Gharibans of Taylor & Gaines in a fax dated September 14, 1998, this letter presents supplemental recommendations regarding the proposed expansion of the Motion Picture & Television Fund Facility in Woodland Hills, California. Our report of geotechnical investigation for the project was submitted on September 9, 1998; where specified, information in this letter amends or supersedes that given in our geotechnical report.

Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical consultants practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this letter.

MAT FOUNDATION

A mat foundation may be used to support the proposed buildings as discussed in our report dated September 9, 1998. As requested, modified recommendations for the support of dynamic loads are presented below.

A mat foundation, supported on properly compacted fill soils, and carried at least 2 feet below the lowest adjacent grade or floor level may be designed to impose a net, static, dead-plus-live load pressure of 1,500 pounds per square foot. A bearing value of 2,000 pounds per square foot may be used for transient wind or seismic loading. The recommended bearing value is a net value, and the weight of concrete in the mat may be taken as 50 pounds per cubic foot.

GROUND IMPROVEMENT

As an alternative to a mat foundation, ground improvement techniques may be considered beneath the proposed buildings to make conventional spread footings feasible, as recommended in our report of September 9, 1998. As requested, additional recommendations for support of footings on improved soils are presented below.

Footings established above an area of improved soil, and underlain by 3 feet of compacted fill, may be designed to impose a net dead-plus-live load pressure of 3,000 pounds per square foot. The footings should extend at least 2 feet below the lowest adjacent final grade.

A one-third increase in the bearing value may be used for wind or seismic loads. When determining the downward loads on the foundations, the weight of concrete in the foundations below grade may be taken as 50 pounds per cubic foot, and the weight of soil backfill may be neglected.

Settlement would depend on the method of ground improvement chosen, but may be expected to be less than ½ inch.

DEEP REMOVAL AND RECOMPACTION

As discussed ion our report dated September 9, 1998, the liquefiable soils in the areas of the Stark Villas extend to a depth of 42 feet. Additionally, shallow groundwater was encountered at the site (about 10½ feet to 14½ feet in our current borings). Because of the deep removal depths, and because dewatering would be necessary which could affect nearby structures, deep removal and recompaction are not recommended to mitigate the liquefaction potential at the site.

PILE FOUNDATIONS

Drilled or driven piles may also be used to support the proposed buildings, as discussed in our September 9, 1998 report. As requested, additional recommendations for pile foundations are presented in the following sections.

Driven Piles

<u>General</u>

To provide uniform support to the buildings, all piles should be driven at least 10 feet into the underlying siltstone. The downward and upward capacities of 12- and 14-inch-square precast concrete piles are presented below for 10, 15, and 20 feet embedment into the siltstone. The top of the siltstone is at a depth of about 42 feet below the existing ground surface. A downdrag load due to liquefaction of 70 kips for 12-inch-square piles and 80 kips for 14-inch-square piles should be applied; the downdrag loads due to liquefaction should be added to the applied loads for downward capacity, and subtracted from the applied loads for upward capacity.

Embedment into Siltstone (feet)	Pile Size	Allowable Capacity (kips) Downward	Upward
10	12-Inch Square	119	44
	14-Inch Square	147	52
15	12-Inch Square	168	68
	14-Inch Square	203	80
20	12-Inch Square	218	93
	14-Inch Square	261	109

Dead-plus-live load capacities are shown; a one-third increase may be used for wind or seismic loads. The capacities are based on the strength of the soils; the compressive and tensile strength of the pile section itself should be checked to verify the structural capacity of the piles.

Piles in groups should be spaced at least 2½ pile widths on-centers, but not less than 3 feet. If the piles are so spaced, no reduction in the downward capacity of the piles due to group action need be considered in the design.

In the event of a major earthquake, liquefaction of some of the soils could occur, resulting in unsupported length of the piles. The piles should be designed to resist buckling due to column action over a potentially unsupported length of approximately 40 feet.

Settlement

The settlement of the proposed buildings, supported on driven piling in the manner recommended, is estimated to be less than about ½ inch.

Installation of Driven Piling

Hard driving resistance should be expected within the siltstone, and predrilling may be required to drive the piles to the design lengths. Prior to the ordering of production piles, we suggest that indicator piles be driven to evaluate the driving resistance using a pile driving analyzer (PDA). These piles may be actual foundation piling driven in their final position. Once a contractor for driven pile installation has been selected, and the driving system has been established, a wave equation analysis can be performed to prepare preliminary pile driving criteria. The preliminary driving criteria can be modified as needed based on the results of the indicator piles. The installation of the piles should be observed by personnel of our firm so that modifications in the driving criteria and the pile lengths can be made as required.

The predrilled holes should be limited to about 10 inches in diameter if 12-inch-square precast piles are used, and to about 12 inches in diameter if 14-inch-square piles are used.

Drilled Piles

General

The downward and upward capacities of 18-, 24-, and 30-inch-diameter drilled cast-in-place concrete piles are presented as a function of penetration into siltstone in Figure 1, Drilled Pile Capacities. The top of the siltstone is at a depth of about 42 feet. The following downdrag loads due to liquefaction should be added to applied downward loads and subtracted from applied uplift loads.

Pile Diameter	**Downdrag Loads for Drilled Piles (kips)**
18-Inch	48
24-Inch	64
30-Inch	80

The capacities of other sizes of piles may be taken as proportional to the diameter. Dead-plus-live load capacities are shown; a one-third increase may be used for wind or seismic loads. The capacities are based on the strength of the soils; the compressive and tensile strength of the pile section itself should be checked to verify the structural capacity of the piles.

Piles in groups should be spaced at least 2½ shaft diameters on centers. If the piles are so spaced, no reduction in the downward capacity of the piles due to group action need be considered in the design.

Settlement

The settlement of the proposed buildings, supported on drilled piling in the manner recommended, is estimated to be less than about ¾ inch.

Installation of Drilled Piling

Difficulties in drilling for the piles should be anticipated due to the hard, cemented layers encountered in the siltstone in our borings; special coring buckets will probably be required.

Water was encountered in the current borings from approximately Elevation 926 to Elevation 932. Therefore, it will be necessary to use casing or drilling mud to reduce caving potential during the drilling and placing of the concrete.

As some caving may occur during installation, piles spaced less than five diameters on centers should be drilled and filled alternately, allowing the concrete to set a least 8 hours before drilling an adjacent hole. The pile installation should be completed during the same day that the drilling is performed. A collar should be placed around the mouth of the shaft after drilling to prevent soils from entering the excavation, and the pile shafts should be covered until concrete is placed.

Concrete should be pumped from the bottom up through a rigid pipe extending to the bottom of the drilled excavation, with the pipe being slowly withdrawn as the concrete level rises. The discharge end of the pipe should be at least 5 feet below the surface of the concrete at all times during replacement. The concrete pump pressure should be at least 200 pounds per square inch. The discharge pipe should be kept full of concrete during the entire placing operation and should not be removed form the concrete until all of the concrete is placed and fresh concrete appears at the top of the pile. The volume of concrete pumped into the hole should be recorded and compared to the design volume.

The drilling of the piles and the placing of the concrete should be observed continuously by personnel of our firm to verify that the desired diameters and depths of piles are achieved.

RETAINING WALL FOUNDATIONS - PROPOSED LANDSCAPED CORRIDOR

Footings for the proposed retaining wall underlain by at least 3 feet of compacted fill may be designed to impose a net dead-plus-live load pressure of 1,500 pounds per square foot. Footings should extend at least 1½ feet below the lowest adjacent final grade.

The recommended bearing value is a net value, and the weight of concrete in the footings may be taken as 50 pounds per cubic foot. A one-third increase in the above bearing value may be used when considering seismic loads.

While the actual bearing value of the compacted fill will depend on materials used and the compaction methods employed, the quoted bearing value will be applicable if acceptable soils are used and are compacted as recommended. The bearing value of the compacted fill should be confirmed during grading.

Lateral loads may be resisted by soil friction against the retaining wall footings and by the passive resistance of the soils. A coefficient of friction of 0.3 may be used between the spread footings and the supporting soils. The passive resistance of the undisturbed natural soils or properly compacted fill against the retaining wall footings may be assumed to be 200 pounds per cubic foot. A one-third increase in the passive value may be used for seismic loads.

SITE COEFFICIENT AND SEISMIC ZONATION

According to Map L-32 in the 1998 publication from the International Conference of Building Officials entitled "Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada," the site is located at a distance of 10½ kilometers from the zone comprised by the Malibu Coast fault, Santa Monica fault, and Hollywood fault. The closest fault to the site within the zone is the Malibu Coast fault.

GRADING - BACKFILL

As discussed in Section 6.3 of our report dated September 9, 1998, the settlement of the mat due to liquefaction in the event of the design basis earthquake ground motions is estimated to be 2 to 7 inches. Some settlement of the backfill also should be expected du to static loads, and any utilities supported therein should be designed to accept differential settlement, particularly at the points of entry to the building. Also, provisions should be made for some settlement of concrete walks supported on backfill.

We trust that this information satisfies your current needs. Please call if you have any questions or require additional information.

Sincerely,

LAW/CRANDALL
A DIVISION OF LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

REGISTERED PROFESSIONAL ENGINEER
VICTOR K. LANGHAAR
No. 55774
Exp. 12-31-00
CIVIL
STATE OF CALIFORNIA

Victor Langhaar
Senior Engineer
Project Manager

REGISTERED PROFESSIONAL ENGINEER
MARTIN B. HUDSON
No. 54220
Exp. 12-31-99
CIVIL
STATE OF CALIFORNIA

Martin B. Hudson, Ph.D.
Principal Engineer

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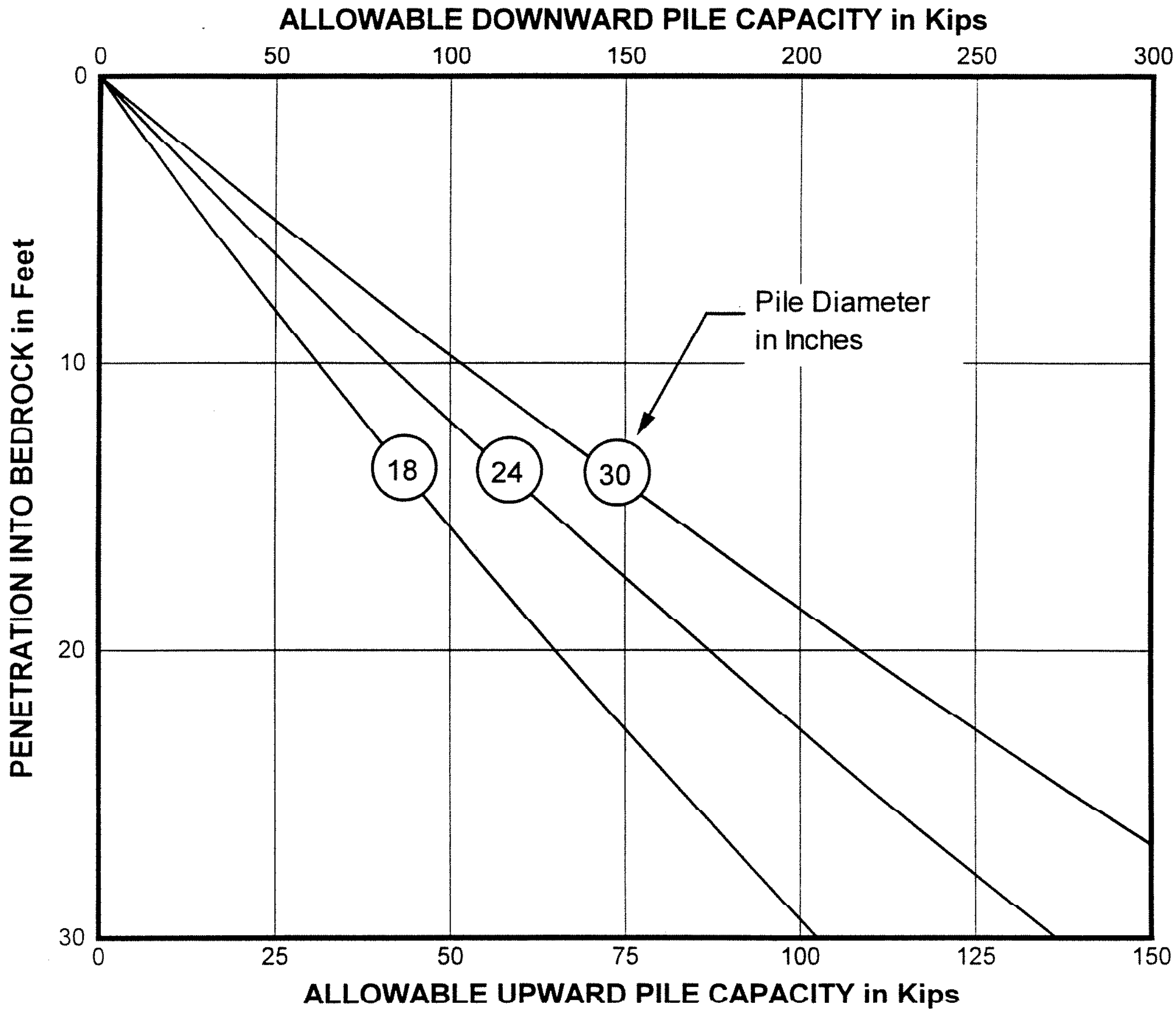
(2 copies submitted)

Attachment: Drilled Pile Capacities

cc: (1) RBA Partners, Inc. Consulting Civil Engineers
Attn: Mr. John B. Black

(1) Taylor & Gaines
Attn: Mr. Ed Gharibans



NOTES:

(1) The indicated values refer to the total of dead plus live loads; a one-third increase may be used when considering wind or seismic loads.

(2) Piles in groups should be spaced a minimum of 2-1/2 diameters on centers, and should be drilled and filled alternately with the concrete permitted to set at least 8 hours before drilling an adjacent hole.

(3) The indicated values are based on the strength of the soils; the actual pile capacities may be limited to lesser values by the strength of the piles.

DRILLED PILE CAPACITIES

LAW/CRANDALL

JOB 70131-8-0371 DATE 10/16/98 DR MWH OE MWH CHKD

LAW Crandall
LAWGIBB Group Member

September 9, 1998

Mr. E. W. Malinowski
Administrative Director
Facilities Management
Motion Picture & Television Fund
23388 Mulholland Drive
Woodland Hills, California 91364-2792

Subject: **Report of Geotechnical Investigation**
Proposed Motion Picture & Television Fund Facility Expansion
23388 Mulholland Drive
Woodland Hills, California 91364-2792
Law/Crandall Project 70131-8-0371

Dear Mr. Malinowski:

We are pleased to submit the results of our geotechnical investigation for the proposed expansion of the Motion Picture & Television Fund Facility in Woodland Hills, California. This investigation was conducted in general accordance with our proposal dated June 29, 1998, which you authorized on July 1, 1998.

The scope of our services was planned with you. Mr. Ed Gharibans of Taylor & Gaines advised us of the structural features of the proposed expansion.

The results of our investigation and design recommendations are presented in this report. Please note that you or your representative should submit copies of this report to the appropriate governmental agencies for their review and approval prior to obtaining a building permit.

It has been a pleasure to be of professional service to you. Please call if you have any questions or if we can be of further assistance.

Sincerely,

LAW/CRANDALL
A DIVISION OF LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

Victor Langhaar
Senior Engineer
Project Manager

Susan F. Kirkgard
Senior Engineering Geologist

Martin B. Hudson, Ph.D
Principal Engineer

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(2 copies submitted)

cc: (1) RBA Partners, Inc. Consulting Civil Engineers
Attn: Mr. John B. Black

(1) Taylor & Gaines
Attn: Mr. Ed Gharibans

REPORT OF GEOTECHNICAL INVESTIGATION
PROPOSED MOTION PICTURE & TELEVISION FUND
FACILITY EXPANSION

23388 MULHOLLAND DRIVE
WOODLAND HILLS, CALIFORNIA

Prepared for:

MOTION PICTURE & TELEVISION FUND

WOODLAND HILLS, CALIFORNIA

Law/Crandall

Los Angeles, California

September 9, 1998

Project 70131-8-0371

TABLE OF CONTENTS

Page

LIST OF FIGURES

Figure

SUMMARY

We have completed our geotechnical investigation of the site of the proposed Motion Picture & Television Fund Facility expansion in Woodland Hills, California. Our subsurface explorations, engineering analyses, and foundation design recommendations are summarized below. The recommendations summarized in this report are applicable to the currently proposed Stark Villas and Pavilion buildings and are applicable as preliminary recommendations for similar, possible future buildings in the eastern portion of the site.

The site was explored for the current investigation by drilling seven borings to depths of 43 to 61 feet using 5-inch-diameter, rotary-wash-type drilling equipment. In addition to the current borings, Gregg In Situ, Inc. was retained to perform two Cone Penetration Tests (CPTs) to a depth of 40 feet below the existing grade. The site vicinity was previously explored by drilling 25 borings to depths of 3 to 40 feet using bucket, rotary-wash, flight auger, and hand auger-type drilling equipment.

To supplement our current geotechnical analyses, we also reviewed our prior reports for the site. The geotechnical recommendations in this report were developed in part using information from our previous investigations.

Fill soils were encountered in some of our current and prior borings at the site to a maximum depth of 2 feet. The fill soils consist of consist of silty clay, clayey silt, and silty sand with minor amounts of sand and construction debris. The upper natural soils consist of Holocene age alluvium. As encountered in our borings, the alluvium consists of very soft to medium stiff sandy silt, clayey silt, and silty clay, with lesser amounts of very loose to medium dense silty sand and sand. The clayey soils are moderately expansive and would shrink or swell with changes in moisture content. The alluvium is underlain by clayey siltstone of the Miocene age Modelo Formation. The bedrock occurs at variable depth across the site. However, in the southern portion of the site, the depth to bedrock is fairly uniform, ranging from 36 to 42½ feet in the current borings, except for Boring 6, in which bedrock was encountered at a depth of 54½ feet.

The soils beneath the site were found to have a potential for liquefaction in the event of the design basis earthquake ground motion. Therefore, the existing soils are not suitable for support of the proposed structure on spread footings. The proposed structure may be supported on a mat foundation, designed to accommodate the estimated settlement and lateral spreading in the event of liquefaction. Alternately, the buildings may be supported on spread footings if ground improvement is performed to remediate the liquefaction potential. As an additional alternative, the building may be supported on pile foundations. The on-site clayey soils are moderately expansive and are not suitable for use as compacted fill within a two-foot depth below slabs, walks, or behind retaining walls.

1.0 SCOPE

This report provides foundation design information for the site of the proposed Motion Picture & Television Fund Facility expansion. The location of the site is shown in Figure 1, Site Vicinity Map. The locations of the proposed Stark Villas, pavilion, landscaped corridor, adjacent existing buildings, and our current and nearby prior exploration borings and current Cone Penetration Tests are shown in Figure 2, Plot Plan. The portion of the site between the proposed Stark Villas and Mulholland Drive are being considered for possible future development.

We are familiar with the soil and groundwater conditions underlying the site having previously performed several geotechnical investigations at the site for the following projects:

- Modular Building, letter dated December 19, 1990 (our Job No. AE-84074).
- Propane Tank, letter dated April 20, 1989 (our Job No. AE-84074)
- Cottage Building Addition, letter dated January 13, 1988 (our Job No. AE-84074)
- Laundry/Purchasing Building, report dated June 29, 1987 (our Job No. AE-87219)
- Addition to Accounting Office Building, report dated February 27, 1986 (our Job No. A-86014)
- Building Additions, report dated April 27, 1984 (our Job No. AE-84074)
- Landscape, Maintenance, and Office Building, report dated July 2, 1975 (our Job No. A-75129)
- Lodge Buildings, report dated December 30, 1969 (our Job No. A-69307)

In addition, we have performed an assessment of subsurface contamination from an underground diesel storage tank leak; we submitted the results in our report dated October 31, 1986 (our Job No. E-86304).

This investigation was authorized to determine the static physical characteristics of the soils at the site of the currently proposed facility expansion and at the site of the possible future development, and to provide recommendations for foundation design, floor slab support, and grading for the currently proposed development and preliminary recommendations for the possible future development. The recommendations in this report were developed in part using geotechnical information from our previous investigations. We were to evaluate the existing soil and groundwater conditions at the site, including the corrosion potential of the soils by performing the following tasks:

- Subsurface explorations to determine the nature and stratigraphy of the subsurface soils, and to obtain undisturbed and bulk samples for laboratory observation and testing.
- Evaluation of the liquefaction potential of the soils underlying the site.
- Laboratory testing of soil samples for determination of the static physical soil properties.
- Corrosion studies to determine the presence of potentially corrosive soils.
- Engineering evaluation of the geotechnical data to develop recommendations for design of foundations and walls below grade, for floor slab support, for paving, and for earthwork for the currently proposed development and preliminary recommendations for the possible future development.

Our investigation was performed in two main sections of the site. The currently proposed buildings and landscaped corridor are in the western portion of the site, and the preliminary recommendations for possible future development are in the eastern portion of the site.

The assessment of general site environmental conditions for the presence of contaminants in the soils and groundwater of the site was beyond the scope of this investigation.

The results of the current field explorations and laboratory tests, which, together with the data obtained during our previous investigations form the basis of our recommendations, are presented in the appendices.

Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical consultants practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this report. This report has been prepared for Motion Picture & Television Fund and their design consultants to be used solely in the design of the proposed facility expansion as described in this report. The report has not been prepared for use by other parties, and may not contain sufficient information for purpose of other parties or other uses.

2.0 PROJECT DESCRIPTION

The southern portion of the Motion Picture & Television Fund facility is proposed for development. The (reference) western portion of the site is proposed to contain the Stark Villas and a pavilion. The Stark Villas building will consist of a two- and three-story structure built at about the existing grade. Maximum interior bearing wall loads will be about 3,750 pounds per lineal foot; maximum exterior bearing wall loads will be about 2,600 pounds per lineal foot. The total load for the structure will be about 3,760 kips dead load and 2,940 kips live load. As shown in Figure 2, a landscaped corridor is proposed to connect the development area to the center of the existing facility. The proposed landscaped corridor runs along the base of an existing slope; retaining walls are proposed to provide space for the corridor.

The (reference) eastern portion of the site (the area between the proposed Stark Villas and Mulholland Drive) is being considered for future development. Parking is proposed along the western and eastern edges of the proposed development area.

Previously, development was proposed at the site of the proposed Stark Villas consisting of a laundry/purchasing building, and prior to that time, residential buildings. Those buildings were never constructed; however, the data obtained from our prior geotechnical investigations at the site were used for the currently proposed development. In addition, we previously performed the geotechnical investigations on either side of the proposed landscaped corridor; the data from those prior investigations were used to develop recommendations for the retaining walls proposed for the corridor.

3.0 SITE CONDITIONS

The site is within a City of Los Angeles hillside study area. Nevertheless, the site is generally flat except for the landscaped corridor that is proposed at the base of an existing slope up to about

20 feet high. Existing buildings in the northern portion of the site include a modular building (business center) and a warehouse. It is proposed to move the warehouse building and demolish the business center as part of the development of the site. The southern portion of the site is currently being used for agricultural purposes. Underground utilities cross the site.

4.0 FIELD EXPLORATIONS

The site was explored for the current investigation by drilling seven borings to depths of 43 to 61 feet using 5-inch-diameter, rotary-wash-type drilling equipment. Relatively undisturbed samples for laboratory testing were obtained from the borings, and Standard Penetration Testing (SPTs) were performed in each of the borings. Details of the current borings are presented in Appendix A.

In addition to the boring explorations, Gregg In Situ, Inc. was retained to perform two Cone Penetration Tests (CPTs) to a depth of 40 feet below the existing grade. In one of the CPTs, the shear wave velocity of the soils was measured. The results of the CPTs are presented in Appendix B.

The site vicinity was previously explored by drilling 25 borings to depths of 3 to 40 feet using bucket, rotary-wash, flight auger, and hand auger-type drilling equipment. Details of the prior exploration borings are presented in Appendix A.

5.0 LABORATORY TESTS

Laboratory tests were performed on selected samples obtained from the current borings to aid in the classification of the soils and to determine the pertinent engineering properties of the soils. The following tests were performed:

- Moisture content and dry density
- Direct shear
- Consolidation
- Atterberg Limits
- Percent Fines (passing the No. 200 sieve)
- Compaction
- Expansion Index
- Corrosion studies

All testing was done in general accordance with applicable ASTM specifications. Details of the laboratory testing program and test results are presented in Appendix A.

6.0 GEOLOGY

6.1 GEOLOGIC MATERIALS

The site is located within the Transverse Range Province of Southern California, at the southwestern edge of the San Fernando Valley. The site lies in a small valley at the northerly base of the Santa Monica Mountains. The Santa Monica Mountains in the vicinity of the site are complexly folded and faulted sedimentary and volcanic rocks of marine origin varying from late Cretaceous through Tertiary age.

Fill soils were encountered in two of our current borings to a maximum depth of 2 feet. Fill soils were encountered in our previous borings in the areas of the proposed development to a maximum depth of 2 feet. The fill soils consist of consist of silty clay, clayey silt, and silty sand with minor amounts of sand and construction debris. We also observed some areas of dumped fill in portions of the site. Fill depths may be deeper and/or of poorer quality between boring locations.

The upper natural soils consist of Holocene age alluvium. As encountered in our borings, the alluvium consists of very soft to medium stiff sandy silt, clayey silt, and silty clay, with lesser amounts of very loose to medium dense silty sand and sand. The clayey soils are moderately expansive and would shrink or swell with changes in moisture content.

The alluvium is underlain by clayey siltstone of the Miocene age Modelo Formation. The bedrock occurs at variable depth across the Motion Picture and Television Fund facility. However, in the southern portion of the site, the depth to bedrock is fairly uniform, ranging from 36 to 42½ feet in the current borings, except for Boring 6, in which bedrock was encountered at a depth of 54½ feet. The top of the bedrock ranges from Elevation 901 to Elevation 905 in the western portion of the site under the proposed Stark Villa building, and ranges from about Elevation 890 to Elevation 903 in the eastern portion of the site (preliminary study area).

The corrosion studies indicate that the on-site soils are severely corrosive to ferrous metals. The report of corrosion studies presented in Appendix A should be referred to for a discussion of the corrosion potential of the soils, and for potential mitigation measures.

6.2 GROUNDWATER

The site is located in Section 23, Township 1 North, Range 17 West on the edge of the San Fernando Hydrologic Subarea in Los Angeles County. Groundwater occurs in the alluvium and is tributary to the regional groundwater basin. The local groundwater is not beneficially used by anyone due to the limited thickness of the saturated section. The nearest producing water wells are located about two miles northeast of the site. Groundwater was encountered in our current exploratory borings at the depths listed in the following table:

Groundwater Depths and Elevations

Boring Number	Depth to Groundwater (feet)	Elevation of Groundwater (feet)	Date Measured
1	13.0	932.0	July 14, 1998
2	10.6	930.5	July 14, 1998
3	12.3	930.6	July 13, 1998
4	13.8	930.5	July 14, 1998
5	13.2	931.3	July 14, 1998
6	14.6	929.8	July 14, 1998
7	14.7	926.1	July 13, 1998

6.3 GEOLOGIC HAZARDS

Faults

The numerous faults in Southern California include active, potentially active, and inactive faults. The criteria for these major groups are based on criteria developed by the California Division of Mines and Geology (CDMG) for the Alquist-Priolo Earthquake Fault Zoning Program (Hart, 1997). By definition, an active fault is one that has had surface displacement within Holocene time (about the last 11,000 years). A potentially active fault is a fault that has demonstrated surface displacement of Quaternary age deposits (last 1.6 million years). Inactive faults have not moved in the last 1.6 million years.

The closest active fault to the site is the Malibu Coast fault, located about 7.7 miles south of the site. Other nearby active faults are the Santa Monica-Hollywood, Santa Susana fault, and the San Fernando Fault Zone, located 10.5 miles south-southeast, 11.5 miles north-northeast, and 12.5 miles northeast of the site, respectively. The San Andreas fault zone is located about 37 miles north-northeast of the site.

The closest potentially active fault to the site is the Northridge Hills fault, located about 8.7 miles north-northeast of the site. Other nearby active faults are the Overland fault, the Charnock fault, and the MacArthur Park fault, located 15 miles southeast, 16 miles southeast, and 19 miles east-southeast of the site, respectively.

The site is not within a currently established Alquist-Priolo Earthquake Fault Zone for surface fault rupture hazards. The closest Alquist-Priolo Earthquake Fault Zone, established for the Santa Susana fault zone, is located 12 miles to the northwest. No active faults with the potential for surface fault rupture are known to pass directly beneath the site. Therefore, the potential for surface rupture due to faulting occurring beneath the site during the design life of the proposed development is considered low.

Liquefaction

Liquefaction potential is greatest where the groundwater level is shallow, and loose, fine sands or silts occur within a depth of about 50 feet or less. Liquefaction potential decreases as grain size and clay and gravel content increase. As ground acceleration and shaking duration increase during an earthquake, liquefaction potential increases.

Evaluation of the liquefaction potential of the soils at the project location was performed using both SPT and CPT data. The liquefaction potential at the site was determined for the ground motion with a 10% probability of exceedence in 50 years, designated the design basis earthquake. The peak ground acceleration (PGA) was computed by a probablistic seismic hazard analysis

(PSHA) using the computer program FRISKSP, Version 3.01b. The PGA was developed using the ground motion attenuation relations for a type "C" site classification described in Boore et. al. (1993) based on the shear wave velocities measured at the site. Magnitude weighting factors were used to compute the magnitude 7.5-compatible DBE PGA for the liquefaction evaluation. The magnitude 7.5-compatible design basis earthquake DBE PGA was computed to be 0.38g. The groundwater level used in the liquefaction calculations were those measured in the borings. The groundwater level is not expected to rise significantly above this level in the future.

The liquefaction potential of the sandy and silty soils was determined based on the method discussed in Youd and Idriss (1997). Based on the SPTs and CPTs, it is our opinion that the loose silty sands and soft sandy silts at the site could be subject to liquefaction in the event of the design basis earthquake ground motion. The liquefiable soils in the area of the Stark Villas generally occur from depths of 12 feet to 23 feet and from 32 feet to bedrock (which is at a depth of about 42 feet). In the eastern portion of the site, the liquefiable soils generally occur from a depth of 10 feet and extend to bedrock (which is at a depth of about 42 to 54 feet).

Seismic Settlement

Seismic-induced settlement is often caused by loose to medium-dense granular soils densified during ground shaking. Uniform settlement beneath a given structure would cause minimal damage; however, because of variations in distribution, density, and confining conditions of the soils, seismic settlement is generally non-uniform and can cause serious structural damage. Dry and partially saturated soils as well as saturated granular soils are subject to seismically-induced settlement. For the design basis earthquake, the seismic settlement at the site could be on the order of 2 to 7 inches.

Lateral Spreading

Liquefaction-induced lateral spreading displacement is a possible consequence of liquefaction occurring beneath a site on which a slope gradient exists or beneath a site adjacent to a free face (a steep earth slope). Such a phenomenon was observed at the Los Angeles Juvenile Hall in Sylmar during the 1971 San Fernando earthquake, where several feet of lateral spreading occurred, and in other sites throughout the world during earthquakes.

It is our opinion that there is a potential for lateral spreading at the site in the event of a moderate or large earthquake in the area. The looser sandy soils are susceptible to liquefaction, as found in the previous borings and current CPTs. For the evaluation of lateral spreading displacement, the empirical equations developed by Bartlett and Youd (1992) were used. Any soil layers with N_1 less than 15 is considered to be a possible layer upon which lateral spreading can occur. The lateral spreading is a function of the distance from the fault, the magnitude of the earthquake, the ratio of the distance from the free-face divided by the height of the free face, the thickness of the lateral spreading inducing layer, the fines content of materials in that layer, and the mean grain size diameter. Using this methodology, there is a potential for lateral spreading at the site. Lateral spreading on the order of 1 inch to 4 inches could occur in the event of a maximum credible earthquake (magnitude 6.7) on the Malibu Coast fault, located at a distance of 7.7 miles from the site.

Slope Stability

The site is within a City of Los Angeles Slope Stability Study Area. However, the gently sloping topography at the site precludes both slope stability problems and the potential for lurching (earth movement at a right angle to a cliff or steep slope during ground shaking). There are no known landslides at the site, nor is the site in the path of any known or potential landslides.

Only low height cuts (less than 10 feet high) are planned at the site as part of the proposed project (within the landscaped corridor). The site is underlain by Holocene age alluvium that is underlain by sedimentary bedrock units of the Tertiary age Modelo Formation. The alluvium extends to depths of 36 feet or greater beneath the site in the area of proposed construction. Any temporary or permanent excavations planned as part of the proposed project would expose artificial fill or alluvial deposits. These materials are horizontally stratified and lack any well-defined planar features or discontinuities (such as bedding or joints) which would act as planes of weakness. The geologic conditions present at the site should not adversely impact the proposed project.

7.0 RECOMMENDATIONS

7.1 FOUNDATIONS

General

The alluvial soils are very soft to medium stiff and very loose to medium dense, and are considered to be liquefiable as discussed previously. Therefore, the soils are not suitable for support of the proposed structures on shallow footings; instead, the proposed structures may be supported on a mat foundation or piles. Alternately, ground improvement may be performed to allow the structure to be supported on shallow foundations. Deep removal and recompaction is not feasible because of the considerable depth of liquefiable soils as well as the presence of shallow groundwater.

Any piling used to support the structures would have to extend into the bedrock due to considerable downdrag loads during a liquefaction event. Furthermore, the noise associated with the installation of driven piles may not be considered acceptable; and the presence of shallow groundwater as well as soils that caved, sloughed, and squeezed in our prior bucket explorations would necessitate the use of drilling mud and/or casing during drilled pile installation. Consequently, piles may not be a practical option for support of the proposed buildings. If recommendations for piles are desired, they can be presented in a supplemental letter.

The following sections provide recommendations for a mat foundation and for ground improvement.

Mat Foundation

Bearing Value

A mat foundation, supported by the undisturbed natural soils or properly compacted fill soils, and carried at least 2 feet below the lowest adjacent grade or floor level may be designed to impose a net dead-plus-live load pressure of 500 pounds per square foot. A one-third increase may be used for wind or seismic loads. The recommended bearing value is a net value, and the weight of concrete in the mat may be taken as 50 pounds per cubic foot.

Footings for minor structures (loading dock walls, minor retaining walls, and free-standing walls) that are structurally separate from the main structures may be designed to impose a net dead-plus-live load pressure of 1,000 pounds per square foot at a depth of 1½ feet below the lowest adjacent grade. Such footings may be established in either properly compacted fill soils or undisturbed natural soils.

Modulus of Subgrade Reaction

A vertical modulus of subgrade reaction of 150 pounds per cubic inch may be used in the design of mat foundations. This value is a unit value for use with a one-foot square footing. The modulus should be reduced in accordance with the following equation when used with larger foundations:

$$K_R = K\left[\frac{B+1}{2B}\right]^2$$

where K = unit subgrade modulus

K_R = reduced subgrade modulus

B = foundation width (in feet).

Settlement

We estimate the settlement of the Stark Villa structure due to dead and live loads, supported on a mat in the manner recommended, will be approximately 1 inch. Differential settlement across the mat is expected to be about ½ inch. As discussed in Section 6.3, the settlement of the mat due to liquefaction in the event of the design basis earthquake ground motions is estimated to be 2 to 7 inches.

Lateral Resistance

Lateral loads may be resisted by soil friction and by the passive resistance of the soils. A coefficient of friction of 0.3 can be used between the mat and the supporting soils. The passive resistance of natural soils or properly compacted fill soils can be assumed to be equal to the pressure developed by a fluid with a density of 200 pounds per cubic foot. A one-third increase in the passive value can be used for wind or seismic loads. The frictional resistance and the passive resistance of the soils can be combined without reduction in determining the total lateral resistance.

Ground Improvement

As an alternative to a mat foundation, ground improvement techniques may be considered beneath the proposed buildings to support the structures on conventional spread foundations. The following ground improvement techniques have been considered to reduce the seismic settlements: vibro-replacement and jet grouting, described below.

With vibro-replacement, a 1-foot diameter probe is advanced into the ground via fluid jetting and vibration, and gravel is used to backfill the resulting void ideally through a bottom feed procedure. Ground improvement is accomplished by the formation of "stone columns" within the ground and by densifying the sand layers adjacent to the stone columns.

Jet grouting forms cylindrical or panel shapes of hardened soils to replace poorer, settlement sensitive soils with "soilcrete" (a mixture of soil and cement). The method relies on a high-pressure water nozzel to cut soils, mix in place cement slurry, and lift spoils to the surface.

With the vibro-replacement or the jet grouting technique, the top few feet of soil would require overexcavation and recompaction for support of spread footings.

7.2 SITE COEFFICIENT AND SEISMIC ZONATION

The site coefficient, S, may be determined as established in the Earthquake Regulations under Section 1628 of the Uniform Building Code (UBC), 1994 edition, or Section 1629 of the UBC, 1997 edition, for seismic design of the proposed buildings. Based on a review of the local soil and geologic conditions, the site may be classified as Soil Profile S_3 as specified in the 1994 code (corresponding to a site coefficient, S, of 1.5), or Soil Profile Type S_D, as specified in the 1997 code. The site is located within UBC Seismic Zone 4.

The site is near the Santa Monica fault, which has been determined to be a Type B seismic source by the California Division of Mines and Geology. According to Map L-32 in the 1998 publication from the International Conference of Building Officials entitled "Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada," the site is located at a distance of 10½ kilometers from the Santa Monica fault. At this distance for a seismic source type B, the near source factors, N_a and N_v, are both to be taken as 1.0 based on Tables 16-S and 16-T of the 1997 UBC.

7.3 FLOOR SLAB SUPPORT

If the subgrade is prepared as recommended in the following section on grading, the building floor slab may be supported on grade. If ground improvement is not performed at the site, then settlement and damage to the floor slabs may occur in the event of a large earthquake on a nearby fault.

Construction activities and exposure to the environment can cause deterioration of the prepared subgrade. Therefore, we recommend our that our field representative observe the condition of the final subgrade soils immediately prior to slab-on-grade construction, and, if necessary, perform further density and moisture content tests to determine the suitability of the final prepared subgrade.

If vinyl or other moisture-sensitive floor covering is planned, we recommend that the floor slab in those areas be underlain by a capillary break consisting of a vapor-retarding membrane over a 4-inch-thick layer of gravel. A 2-inch-thick layer of sand should be placed between the gravel and the membrane to decrease the possibility of damage to the membrane. We suggest the following gradation for the gravel:

Sieve Size	Percent Passing
¾"	90 – 100
No. 4	0 – 10
No. 100	0 – 3

A low-slump concrete should be used to minimize possible curling of the slab. A 2-inch-thick layer of coarse sand can be placed over the vapor retarding membrane to reduce slab curling. If this sand bedding is used, care should be taken during the placement of the concrete to prevent displacement of the sand. The concrete slab should be allowed to cure properly before placing vinyl or other moisture-sensitive floor covering.

7.4 RETAINING WALLS

In this section, data are given for the following retaining wall design considerations:

- Lateral earth pressure (for design of cantilevered retaining walls).
- Seismic lateral earth pressure (for design of retaining walls over 6 feet high).
- Drainage.

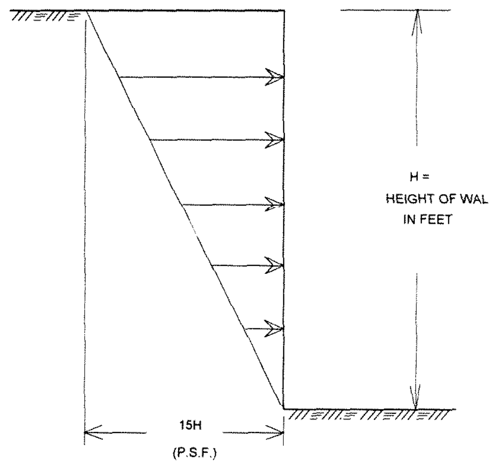
Lateral Earth Pressure

For design of cantilevered retaining walls, where the surface of the backfill is level, it can be assumed that drained soils will exert a lateral pressure equal to that developed by a fluid with a density of 30 pounds per cubic foot. The lateral pressure will be greater for retaining walls at the base of an ascending slope; those pressures can be provided when the inclination and height are established. In addition to the recommended earth pressure, the walls should be designed to resist any applicable surcharges due to storage or traffic loads.

In addition to the recommended earth pressure, retaining walls adjacent to areas subject to vehicular traffic should be designed to resist a uniform lateral pressure of 100 pounds per square foot, acting as a result of an assumed 300 pounds per square foot surcharge behind the walls due to normal vehicular traffic. If the traffic is kept back at least 10 feet from the walls, the traffic surcharge may be neglected.

Seismic Lateral Earth Pressure

In addition to the above-mentioned lateral earth pressures, retaining walls more than 6 feet high should be designed to support a seismic active pressure. The recommended seismic active pressure distribution on the wall is shown in the following diagram with the maximum pressure equal to 15H pounds per square foot, where H is the wall height in feet.



Drainage

Retaining walls should be designed to resist hydrostatic pressures or be provided with a drain pipe or weepholes. The drain could consist of a 4-inch-diameter perforated pipe placed with perforations down at the base of the wall. The pipe should be sloped at least 2 inches in 100 feet and surrounded by filter gravel. The filter gravel should meet the requirements of Class 2 Permeable Material as defined in the current State of California, Department of Transportation, Standard Specifications.

If Class 2 Permeable Material is not available, ¾-inch crushed rock or gravel separated from the on-site soils by an appropriate filter fabric may be used. The crushed rock or gravel should have less than 5% passing a No. 200 sieve.

7.5 UTILITIES

As discussed in Section 6.3, the estimated seismic settlement due to liquefaction in the event of the design basis earthquake is up to 7 inches; the maximum lateral spreading is estimated to be 4 inches or less. Utilities for the proposed development should be designed to accommodate such vertical and horizontal movement.

7.6 PAVING

To provide support for paving, the subgrade soils should be prepared as recommended in the following section on grading. Compaction of the subgrade, including trench backfills, to at least 90%, and achieving a firm, hard, and unyielding surface will be important for paving support. The preparation of the paving area subgrade should be done immediately prior to placement of the base course. Proper drainage of the paved areas should be provided since this will reduce moisture infiltration into the subgrade and increase the life of the paving.

A CBR value of 4 was used for design. The CBR-value should be confirmed during grading.

Asphalt Concrete Paving

The required paving and base thicknesses will depend on the expected wheel loads and volume of traffic (Traffic Index). Assuming that the paving subgrade will consist of the on-site or comparable soils compacted to at least 90% as recommended, the minimum recommended paving thicknesses are presented in the following table.

Asphalt Concrete Paving Thickness

Traffic Use	Traffic Index	Asphalt Concrete (inches)	Base Course (inches)
Automobile Parking	4	3	4
Light Truck Traffic and Drives	5½	4	6
Medium to Heavy Truck Traffic	7	4	11

The asphalt paving sections were determined using the Asphalt Institute design method. We can determine the recommended paving and base course thicknesses for other Traffic Indices if required. Careful inspection is recommended to verify that the recommended thicknesses or greater are achieved, and that proper construction procedures are followed.

The base course should conform to requirements of Section 26 of State of California Department of Transportation Standard Specifications (Caltrans), latest edition, or meet the specifications for untreated base as defined in Section 200-2 of the latest edition of the Standard Specifications for Public Works Construction (Green Book). The base course should be compacted to at least 95%. The asphalt concrete should conform to the specifications outlined in Section 203-6 of the Green Book, and asphalt concrete construction methods should meet the requirements of Section 302-5 of the Green Book.

Portland Cement Concrete Paving

The required paving and base thicknesses will depend on the expected wheel loads and volume of traffic (Traffic Index). Assuming that the paving subgrade will consist of the on-site or comparable soils compacted to at least 90% as recommended, the minimum recommended paving thicknesses for concrete supported on the on-site soils are presented in the following table.

Portland Cement Concrete Paving Thickness

Traffic Use	Traffic Index	Portland Cement Concrete (inches)
Automobile Parking	4	5½
Light Truck Traffic and Drive	5½	6
Medium to Heavy Truck Traffic	7	7½

Concrete should have a compressive strength of at least 4,000 pounds per square inch. A relatively low water to cement ratio should be used to reduce the potential for shrinkage cracking.

The concrete paving sections were determined using the Portland Cement Association design method. We can determine the recommended paving thicknesses for other Traffic Indices if required. Careful inspection is recommended to verify that the recommended thicknesses or greater are achieved, and that proper construction procedures are followed. We recommend that construction joints be provided at the transition different subgrade supports. If 1/8 inch of differential settlement cannot be tolerated at the transition between the different subgrade supports, we recommend that dowels be installed at the transition to reduce the amount of differential movement between the two slabs. Additionally, expansion joints should be placed at no more than 15 feet on centers in each direction. In the overlay, the expansion joints should be placed directly above any existing joints to allow for uniform movement between the two slabs.

The temperature at the site may be hot during placement and finishing of the concrete paving, which may cause potential problems. Some potential problems caused by hot weather include an increased water demand and tendency to add water at the job site, increased setting rate resulting in greater difficulties with handling, finishing, and curing, decreased strength of concrete resulting from higher water demand and increased temperature level, and increased tendency for drying shrinkage and differential thermal cracking. Many of the potential problems can be avoided by proper planning, and preparation must be made to transport, place, consolidate, and finish the concrete at the fastest possible rate.

To reduce the potential for severe shrinkage cracking, provisions should be made to promptly protect all exposed surfaces from drying. Water curing is the preferred method but the water should not be much colder than the concrete to avoid temperature-change stresses and resulting cracking. We recommend that concrete be placed in accordance with the American Concrete Institute reports "Hot Weather Concreting" (ACI 305R-89) and "Standard Practice for Curing Concrete" (ACI 308-81). We suggest a concrete contractor experienced in placing and finishing concrete in the area of the site be retained for the work.

The concrete should conform to the requirements specified in Section 201-1 of the latest edition of the Green Book. Construction methods should conform to Section 302-6 of the Green Book.

7.6 GRADING

To provide good support for the proposed buildings, we recommend that the upper 2 feet of natural soils beneath a mat foundation, or 3 feet below spread footings, or one foot below slabs on grade, be excavated and replaced as properly compacted fill. All required fill should be uniformly well compacted and observed and tested during placement. The on-site soils, except any debris or organic matter within the existing fill soils, may be used in any required fill. The on-site clayey soils are moderately expansive and should not be used behind retaining walls, except in the upper two feet, or within the depths given above for the mat foundation, spread footings, or slabs on grade. The on-site clayey soils may be mixed with the on-site silty and sandy soils, if desired, to produce a fill with an expansion index less than 35; the mixed soil may then be used in all fill and backfill operations.

This section gives recommendations for the following grading considerations:

- Site preparation (includes specifications for compaction of natural soils).
- Excavations and temporary slopes.
- Compaction (specifications for fill compaction).
- Backfill (specifications for backfill compaction).
- Material for fill (specifications for on-site and import materials).
- Shrinkage and subsidence (data for computing fill quantities).

Site Preparation

After the site is cleared and any existing fill soils and the upper natural soils are excavated as recommended, the exposed natural soils should be carefully observed for the removal of all unsuitable deposits. Next, the exposed soils should be scarified to a depth of 6 inches, brought to near-optimum moisture content, and rolled with heavy compaction equipment. At least the upper 6 inches of the exposed soils should be compacted to at least 90% of the maximum dry density obtainable by the ASTM Designation D1557-91 method of compaction.

The on-site soils are moderately expansive and will shrink and swell with changes in the moisture content. The expansive condition is typical of the general area, and will have to be taken into consideration in site grading and support of concrete slabs-on-grade. Floor slabs and adjacent concrete slabs and walks should be underlain by at least one foot of relatively non-expansive soil. Good drainage of surface water should be provided by adequately sloping all surfaces. Such drainage will be important to minimize infiltration of water beneath floor slabs and pavement.

Excavations and Temporary Slopes

Where excavations are deeper than about 4 feet, the sides of the excavations should be sloped back at 2:1 (horizontal to vertical) or shored for safety. Unshored excavations should not extend below a plane drawn at 1½:1 (horizontal to vertical) extending downward from adjacent existing footings. We would be pleased to present data for design of shoring if required.

Excavations should be observed by personnel of our firm so that any necessary modifications based on variations in the soil conditions can be made. All applicable safety requirements and regulations, including OSHA regulations, should be met.

Compaction

Any required fill should be placed in loose lifts not more than 8 inches thick and compacted. The fill should be compacted to at least 90% of the maximum density obtainable by the ASTM Designation D1557-91 method of compaction. The moisture content of the on-site soils at the time of compaction should vary no more than 2% below or above optimum moisture content. The moisture content of the on-site clayey soils at the time of compaction should be between 2% and 4% above optimum moisture content.

Backfill

All required backfill should be mechanically compacted in layers; flooding should not be permitted. Proper compaction of backfill will be necessary to minimize settlement of the backfill and to minimize settlement of overlying slabs and paving. Backfill should be compacted to at least 90% of the maximum dry density obtainable by the ASTM Designation D1557-91 method of compaction. The on-site soils may be used in the compacted backfill. However, the on-site clayey soils are moderately expansive and will be difficult to compact, and should not be used within the upper backfill or wall backfill unless they are mixed with the on-site silty and sandy soils to produce backfill with an expansion index less than 35. The on-site clayey soils may be used in the upper 2 feet of the backfill, except beneath concrete walks and slabs, to provide a relatively impermeable layer when compacted to restrict the inflow of surface water into the backfill. The exterior grades should be sloped to drain away from the foundations to prevent ponding of water.

Some settlement of the backfill should be expected, and any utilities supported therein should be designed to accept differential settlement, particularly at the points of entry to the building. Also, provisions should be made for some settlement of concrete walks supported on backfill.

Material for Fill

The on-site soils, less any debris or organic matter, may be used in required fills. However, because of their expansive characteristics, the on-site clayey soils should not be used within one foot of the subgrade for floor slabs, walks, and other slabs and should not be used as backfill for retaining walls, except in the upper two feet as described previously. The on-site clayey soils may be mixed with the on-site silty or sandy soils to produce a fill with an expansion index less than 35, which may be used in all fill and backfill operations. Cobbles larger than 4 inches in diameter should not be used in the fill. Any required import material should consist of relatively non-expansive soils with an expansion index of less than 35. The imported materials should contain sufficient fines (binder material) so as to be relatively impermeable and result in a stable subgrade when compacted. All proposed import materials should be approved by our personnel prior to being placed at the site.

7.7 GEOTECHNICAL OBSERVATION

The reworking of the upper soils and the compaction of all required fill should be observed and tested during placement by a representative of our firm. This representative should perform at least the following duties:

- Observe the clearing and grubbing operations for proper removal of all unsuitable materials.
- Observe the exposed subgrade in areas to receive fill and in areas where excavation has resulted in the desired finished subgrade. The representative

should also observe proofrolling and delineation of areas requiring overexcavation.

- Evaluate the suitability of on-site and import soils for fill placement; collect and submit soil samples for required or recommended laboratory testing where necessary.
- Observe the fill and backfill for uniformity during placement.
- Test backfill for field density and compaction to determine the percentage of compaction achieved during backfill placement.
- Observe and probe foundation materials to confirm that suitable bearing materials are present at the design foundation depths.

The governmental agencies having jurisdiction over the project should be notified prior to commencement of grading so that the necessary grading permits can be obtained and arrangements can be made for required inspection(s). The contractor should be familiar with the inspection requirements of the reviewing agencies.

8.0 BASIS FOR RECOMMENDATIONS

The recommendations provided in this report are based upon our understanding of the described project information and on our interpretation of the data collected during our current and previous subsurface explorations. We have made our recommendations based upon experience with similar subsurface conditions under similar loading conditions. The recommendations apply to the specific project discussed in this report; therefore, any change in the structure configuration, loads, location, or the site grades should be provided to us so that we can review our conclusions and recommendations and make any necessary modifications.

The recommendations provided in this report are also based upon the assumption that the necessary geotechnical observations and testing during construction will be performed by representatives of our firm. The field observation services are considered a continuation of the geotechnical investigation and essential to verify that the actual soil conditions are as expected. This also provides for the procedure whereby the client can be advised of unexpected or changed conditions that would require modifications of our original recommendations. In addition, the presence of our representative at the site provides the client with an independent professional opinion regarding the geotechnically related construction procedures. If another firm is retained for the geotechnical observation services, our professional responsibility and liability would be limited to the extent that we would not be the geotechnical engineer of record.

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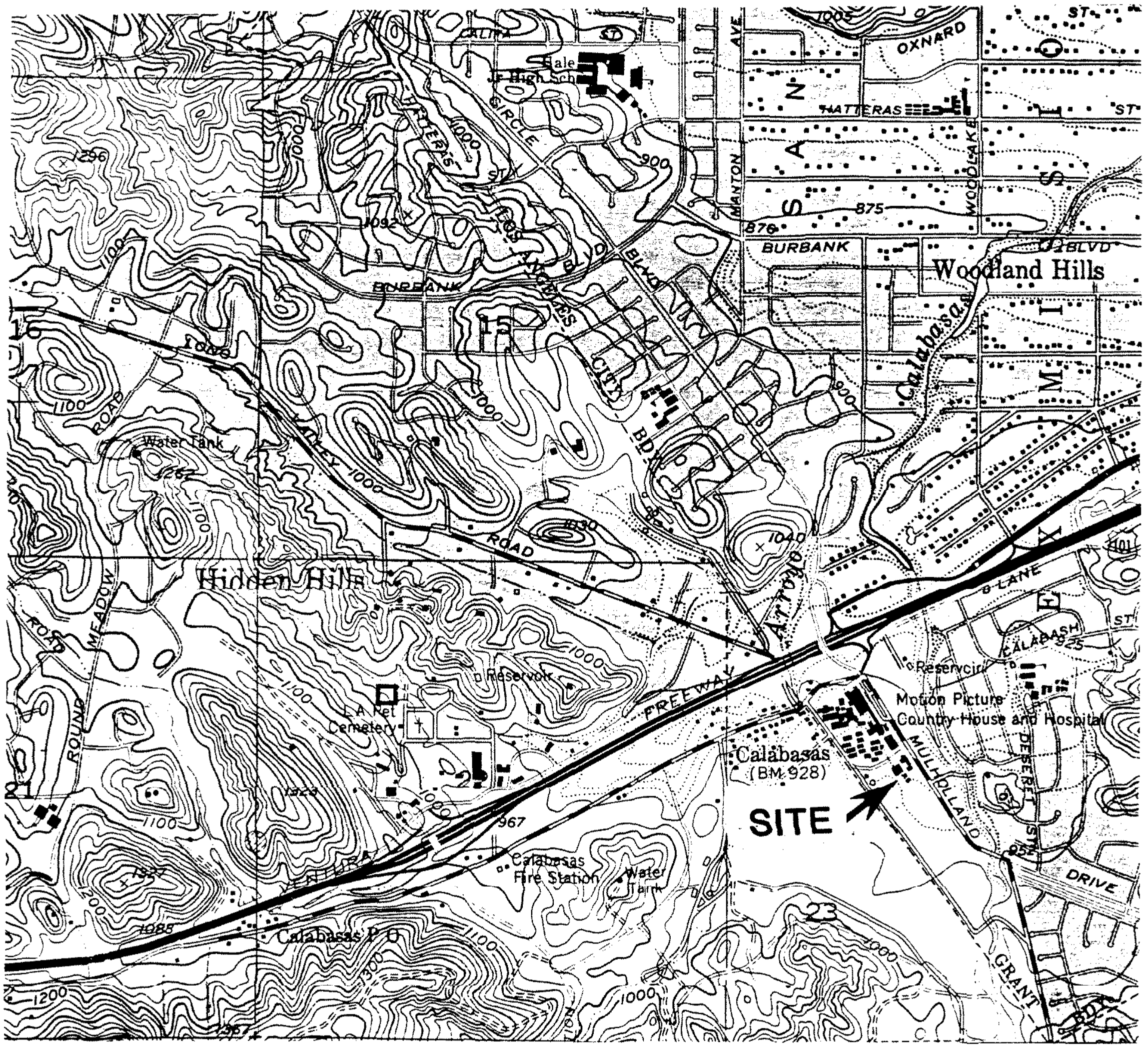
JOB 70131-8-0371 * DATE 8-19-98 DR. GMC O.E. VL CHKD. [illegible]



REFERENCE:

U.S.G.S. 7.5 CALABASAS, CALIFORNIA QUADRANGLE 1952
(PHOTOREVISED 1967)

SITE VICINITY MAP

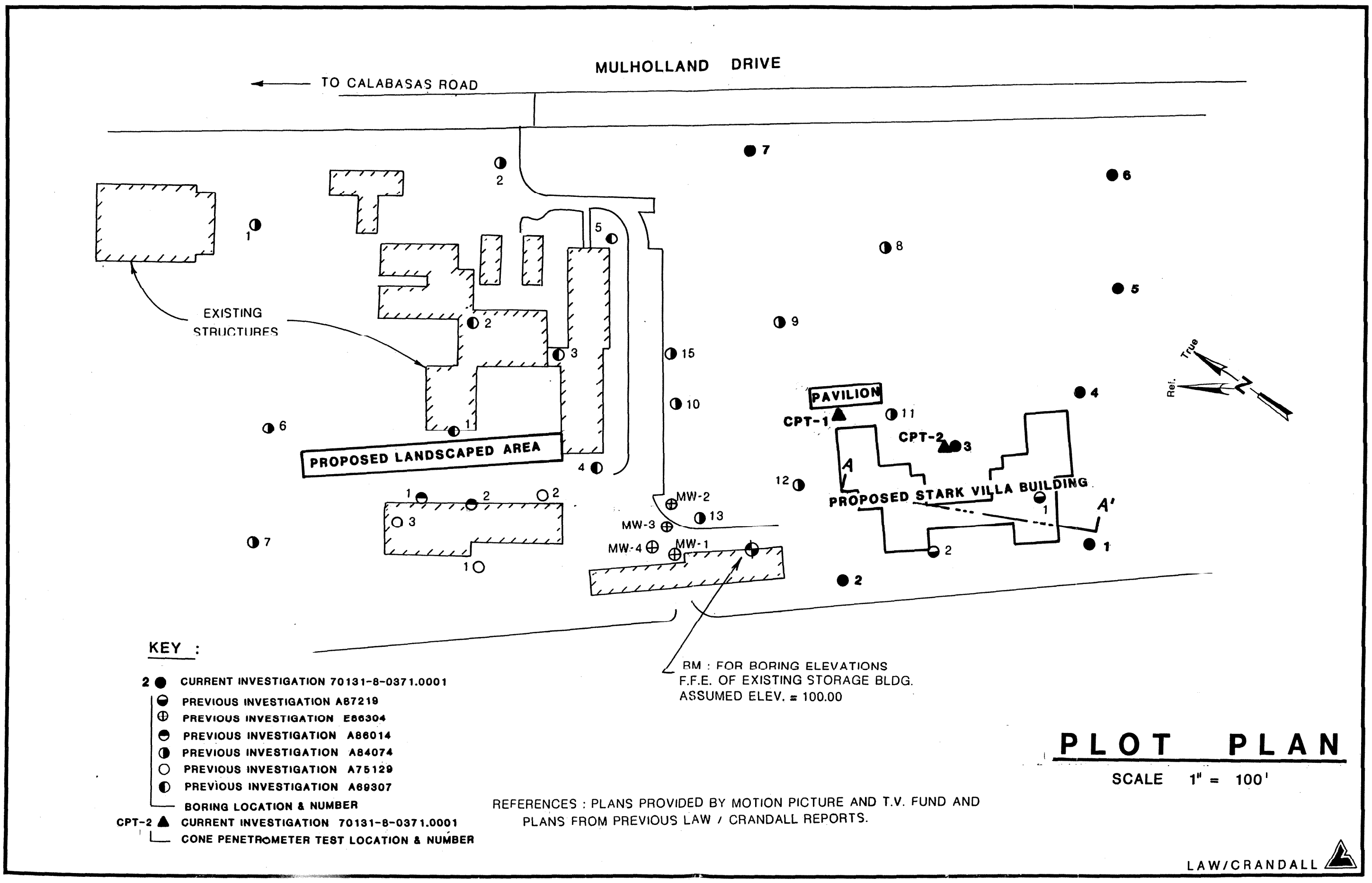
N

0 2000 4000

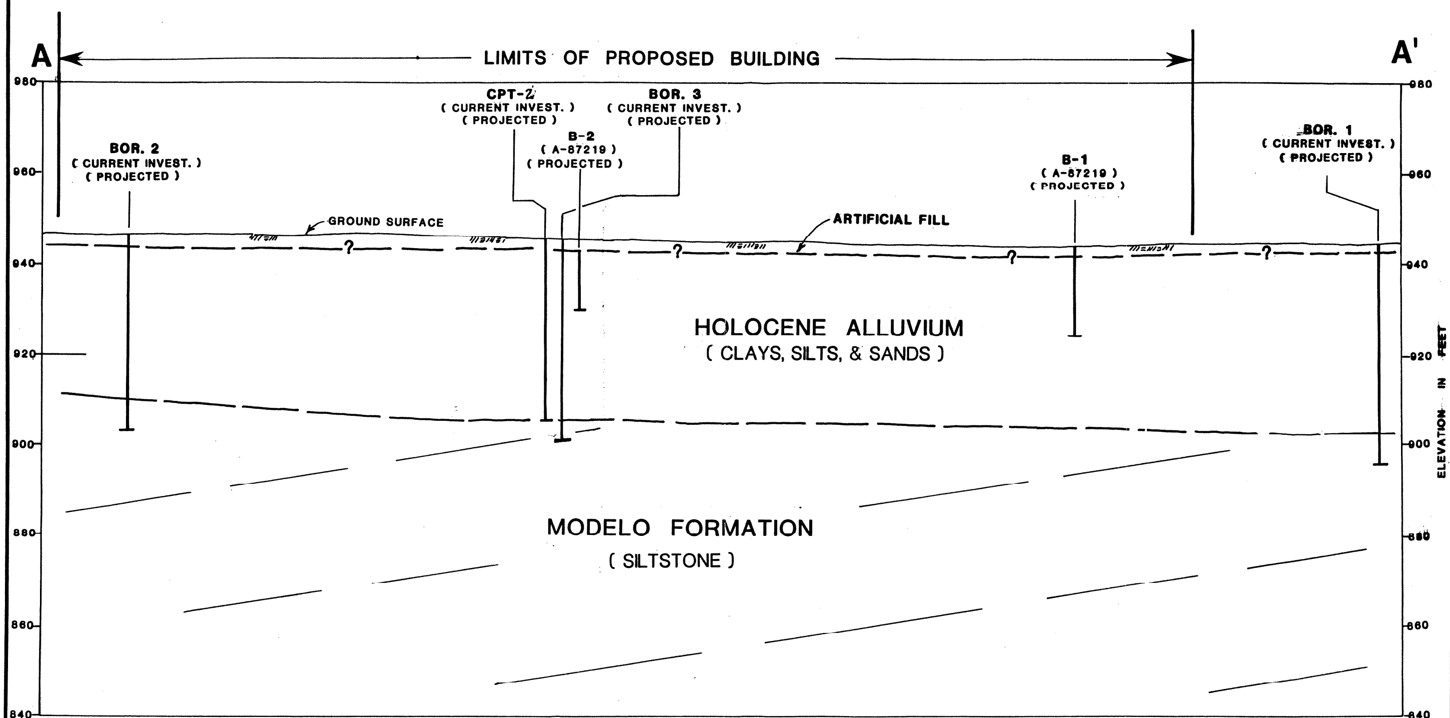
feet

LAW / CRANDALL

FIGURE 1



MULHOLLAND DRIVE
TO CALABASAS ROAD
EXISTING STRUCTURES
PROPOSED LANDSCAPED AREA
PAVILION
CPT-1
CPT-2
PROPOSED STARK VILLA BUILDING
A
A'
MW-1
MW-2
MW-3
MW-4
True
Rel.
KEY :
CURRENT INVESTIGATION 70131-8-0371.0001
PREVIOUS INVESTIGATION A87219
PREVIOUS INVESTIGATION E86304
PREVIOUS INVESTIGATION A86014
PREVIOUS INVESTIGATION A84074
PREVIOUS INVESTIGATION A75129
PREVIOUS INVESTIGATION A69307
BORING LOCATION & NUMBER
CPT-2 CURRENT INVESTIGATION 70131-8-0371.0001
CONE PENETROMETER TEST LOCATION & NUMBER
BM : FOR BORING ELEVATIONS
F.F.E. OF EXISTING STORAGE BLDG.
ASSUMED ELEV. = 100.00
REFERENCES : PLANS PROVIDED BY MOTION PICTURE AND T.V. FUND AND
PLANS FROM PREVIOUS LAW / CRANDALL REPORTS.
PLOT PLAN
SCALE 1" = 100'
LAW/CRANDALL



NOTES:

1. THE SECTION IS BASED ON GEOLOGIC CONDITIONS AT BORING AND CORE PENETRATION TEST LOCATIONS AND AT SURFACE EXPOSURES MAPPED DURING THE INVESTIGATION. THE GEOLOGIC CONDITIONS BETWEEN SUCH LOCATIONS HAVE BEEN INTERPOLATED. LOCALIZED VARIATIONS COULD OCCUR. THE SECTION IS INTENDED FOR DESCRIPTIVE PURPOSES ONLY.

2. SEE FIGURE 2 FOR LOCATION OF SECTION.

GEOLOGIC SECTION A - A'

SCALE 1" = 20'

LAW/CRANDALL

APPENDIX A
EXPLORATIONS AND LABORATORY TESTS

APPENDIX A

EXPLORATIONS AND LABORATORY TESTS

EXPLORATIONS

The soil conditions beneath the site were explored by drilling seven borings and performing two Cone Penetration Tests (CPTs). The results of the CPTs are presented in Appendix B. In addition, data were available from our prior investigations at the site. The locations of the CPTs and our current and prior borings are shown in Figure 2.

The current borings were drilled to depths of 43 to 61 feet below the existing grade using 5-inch-diameter rotary wash-type drilling equipment. Drilling mud was used to prevent caving. The mud was removed following completion of the drilling to permit future measurements of the water level.

The soils encountered were logged by our field technician, and undisturbed and bulk samples were obtained for laboratory inspection and testing. In addition to obtaining undisturbed samples, Standard Penetration Tests were performed in the borings; the results of the tests are indicated on the logs. The tests were performed in accordance with ASTM D1586 Test Method.

The logs of the current borings are presented in Figures A-1.1 through A-1.7; the logs from 26 prior borings at the site are presented in Figures A-1.8 and A-1.33. The depths at which the undisturbed samples were obtained are indicated to the left of the boring logs. The number of blows required to drive the Crandall sampler 12 inches using a 400-hammer falling 24 inches is indicated on the current logs. The soils are classified in accordance with the Unified Soil Classification System described in Figure A-2.

LABORATORY TESTS

Laboratory tests were performed on selected samples obtained from the borings to aid in the classification of the soils and to determine their engineering properties.

The field moisture content and dry density of the soils encountered were determined by performing tests on the undisturbed samples. The results of the tests are shown to the left of the boring logs.

Direct shear tests were performed on selected undisturbed samples to determine the strength of the soils. The tests were performed at field moisture content and after soaking to near-saturated moisture content and at various surcharge pressures. Remolded samples, compacted to 95% of the maximum dry density obtainable by the ASTM Designation D1557-91 method of compaction, were tested at optimum moisture content and after soaking to near-saturated moisture content. The yield-point values determined from the direct shear tests for the current investigation are presented in Figure A-3.1, Direct Shear Test Data. The yield-point values determined for tests run during prior investigations are presented in Figures A-3.2 and A-3.3.

Confined consolidation tests were performed on undisturbed samples from the current and prior investigations to determine the compressibility of the soils. Water was added to some of the samples during the tests to illustrate the effect of moisture on the compressibility. The results of the tests are presented in Figures A-4.1 through A-4.11, Consolidation Test Data.

The optimum moisture content and maximum dry density of the upper soils were determined for the current investigation by performing a compaction test on a sample obtained from Boring 3. The test was performed in accordance with the ASTM Designation D1557-91 method of compaction. The results of the test are presented in Figures A-5.1, Compaction and Test Data. The results of prior compaction tests as well as a California Bearing Ratio test are presented in Figures A-5.2 through A-5.5.

Expansion tests were performed during our prior investigations at the site to determine the volume change of the soils due to changes in the moisture content. The results of the tests are shown in Figures A-6.1 and A-6.2, Expansion Test Data.

The Expansion Index of the soils was determined by testing one sample in accordance with the Uniform Building Code Standard No. 29-2. The results of the test are shown in Figure A-7, Expansion Index Test Data.

To determine the particle size distribution of the soils and to aid in classifying the soils, mechanical analyses were performed on five samples for the current investigation. The results of the mechanical analyses are presented in Figures A-8.1 and A-8.2, Particle Size Distribution. The results of three prior mechanical analyses are presented in Figures A-8.3 and A-8.4.

In addition to the full mechanical analyses, tests to determine the percentage of fines (material passing through a No. 200 sieve) in selected samples were performed. The results of these tests are presented on the boring logs.

To aid in classification of the soils and to define the plasticity characteristics of the fine grained soils, Atterberg Limits tests were performed to determine the liquid limit and plastic limit of selected samples. The testing procedure was in accordance with ASTM Designation D4318-83. The results of the tests are shown on the boring logs.

Soil corrosivity studies were performed on samples of the on-site soils. The results of the study and recommendations for mitigation procedures are presented in Figures A-9.1 through A-9.5.

BORING 1

DATE DRILLED: July 13, 1998
EQUIPMENT USED: 5" - Diameter Rotary Wash
ELEVATION: 945.0**

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	"N" VALUE STD.PEN.TEST	BLOW COUNT* (blows/ft.)	SAMPLE LOC.	USCS	DESCRIPTION
							ML	FILL - CLAYEY SILT - dark brown
		15.0	105		6	■	ML	SURFACE OF NATURAL SOIL CLAYEY SILT - dark brown
		16.3	85		3	■	CL	SILTY CLAY - dark brown
940	5	17.1	99		5	■		
				5		◪		(LL = 41; PI = 17)
935	10	30.4	92		4	■		Brown
							ML	SANDY SILT - light brown
				6		◪		
930	15	30.5	91		1	■		
925	20							
		28.2	94		11	■		
920	25						CL	SILTY CLAY - brown
				13		◪		
		26.3	98		9	■		
915	30							
				7		◪		
							SM	SILTY SAND - fine, brown
910	35	25.2	102		3	■		(42% Passing No. 200 Sieve)
				11		◪	ML	SANDY SILT - dark brown Some iron oxide stains, light brown
905	40							

* Number of blows required to drive the Crandall sampler 12 inches using a 400 pound hammer falling 24 inches.

** Elevations refer to spot elevations shown on undated plan provided by RBA Partners, Inc.; see Figure 2 for location and elevation of bench mark.

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

JOB 70131-8-0371 DATE 9/9/1998 F.T GMC DR. JB O.E. MBH CHKD

(CONTINUED ON FOLLOWING FIGURE)

LOG OF BORING

LAW/CRANDALL

FIGURE A-1.1a

BORING 1 (Continued)

DATE DRILLED: July 13, 1998
EQUIPMENT USED: 5" - Diameter Rotary Wash
ELEVATION: 945.0**

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	"N" VALUE STD.PEN.TEST	BLOW COUNT* (blows/ft.)	SAMPLE LOC.	DESCRIPTION
							CLAYEY SILTSTONE - well bedded, moderately fractured, light brown and light grey
900	45						Bluish grey to dark grey
		34.8	85		50 for 10"	■	END OF BORING AT 49'.

NOTE: Drilling mud used in drilling process. Mud removed at completion of drilling. Water level measured at a depth of 13 feet, 24 hours after completion of drilling. Boring grouted with cement.

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

JOB 70131-8-0371 DATE 8/19/1998 F.T. GMC DR. JB O.E. MBH CHKD

LOG OF BORING

LAW/CRANDALL

FIGURE A-1.1b

JOB 70131-8-0371 DATE 8/19/1998 F.T. GMC DR. JB O.E. MBH CHKD

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

BORING 2

DATE DRILLED: July 14, 1998
EQUIPMENT USED: 5" - Diameter Rotary Wash
ELEVATION: 941.1

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	"N" VALUE STD.PEN.TEST	BLOW COUNT* (blows/ft.)		DESCRIPTION
							4" Asphalt Paving - 6" Base Course
940						CL	FILL - SILTY CLAY - some Sand, dark brown
		12.7	120		7		SURFACE OF NATURAL SOIL
						ML	CLAYEY SILT - some Sand, brown
		16.0	104		3		
						ML	SANDY SILT - brown
	5						
935		26.6	89		2		
		26.3	96		<1		
	10						
930				1			
		23.8	96		<1		
	15						
925							Some Clay
				2			
	20	21.4	105		2		
920							
				1		CL	SILTY CLAY - some bedrock fragments, brown
	25	21.1	106		9		
915							
				13			
	30					SM	SILTY SAND - fine, some bedrock fragments, brown
910		20.4	105		11		
	35			12			(18% Passing No. 200 Sieve)
905							CLAYEY SILTSTONE - well bedded, moderately fractured, dark grey
		37.1	85		50 for 8"		
	40						

(CONTINUED ON FOLLOWING FIGURE)

LOG OF BORING

LAW/CRANDALL

FIGURE A-1.2a

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	"N" VALUE STD.PEN.TEST	BLOW COUNT* (blows/ft.)	SAMPLE LOC.
900						
		24.8	93		50 for 8"	

BORING 2 (Continued)

DATE DRILLED: July 14, 1998
EQUIPMENT USED: 5" - Diameter Rotary Wash
ELEVATION: 941.1

END OF BORING AT 43'.

NOTE: Drilling mud used in drilling process. Mud removed at completion of drilling. Water level measured at a depth of 10.6' after removal of mud. Boring grouted with cement.

JOB 70131-8-0371 DATE 8/19/1998 F.T. GMC DR. JB O.E. MBH CHKD VC

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

LOG OF BORING

LAW/CRANDALL

FIGURE A-1.2b

JOB 70131-8-0371 DATE 8/19/1998 F.T. GMC DR. JB O.E. MBH CHKD

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.
It is not warranted to be representative of subsurface conditions at other locations and times.

BORING 3

DATE DRILLED: July 13, 1998
EQUIPMENT USED: 5" - Diameter Rotary Wash
ELEVATION: 942.9

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	"N" VALUE STD.PEN.TEST	BLOW COUNT* (blows/ft.)	SAMPLE LOC.	USCS	DESCRIPTION
							CL	SILTY CLAY - dark brown
		18.3	101		3			
							ML	CLAYEY SILT - dark brown
940		20.5	93		2			
	5	23.2	93		3			
935		25.4	91		3			Brown
	10			3				
930		19.7	103		5			Layer of Silty Sand
	15							Some Sand, light brown
				1				
925								
	20	26.5	99		<1			
920				2				
							CL	SILTY CLAY - brown
	25	23.1	104		8			
915				8				
	30						ML	SANDY SILT - brown
		26.6	93		3			
910								Layer of Silty Clay
	35			6				
							SM	SILTY SAND - fine, some bedrock fragments, brown (25% Passing No. 200 Sieve)
905		23.2	97		8			
	40							

(CONTINUED ON FOLLOWING FIGURE)

LOG OF BORING

LAW/CRANDALL

FIGURE A-1.3a

BORING 3 (Continued)

DATE DRILLED: July 13, 1998
EQUIPMENT USED: 5" - Diameter Rotary Wash
ELEVATION: 942.9

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	"N" VALUE STD.PEN.TEST	BLOW COUNT* (blows/ft.)	SAMPLE LOC.
900						
		36.6	82		30	

CLAYEY SILTSTONE - well bedded, moderately fractured, light grey and light brown

END OF BORING AT 44'.

NOTE: Drilling mud used in drilling process. Mud removed at completion of drilling. Water level measured at a depth of 12.3' after removal of mud. Boring grouted with cement.

JOB 70131-8-0371 DATE 8/19/1998 F.T. GMC DR. JB O.E. MBH CHKD

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

LOG OF BORING

LAW/CRANDALL

FIGURE A-1.3b

BORING 4

DATE DRILLED: July 14, 1998
EQUIPMENT USED: 5" - Diameter Rotary Wash
ELEVATION: 944.3

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	"N" VALUE STD.PEN.TEST	BLOW COUNT* (blows/ft.)	SAMPLE LOC.		DESCRIPTION
							ML	CLAYEY SILT - dark brown
		18.6	105		3			
		24.4	90		3		CL	SILTY CLAY - brown
940	5							
		25.6	92		3			
				4				
935	10							
		26.3	94		4			(LL = 36; PI = 14)
							ML	SANDY SILT - brown
				2				
930	15						SM	SILTY SAND - fine, brown
		20.2	103		2			(33% Passing No. 200 Sieve)
							SP	SAND - fine, brown
925	20			14				
		19.4	106		23		ML	SANDY SILT - brown (66% Passing No. 200 Sieve)
920	25							
				8				
		27.6	90		2			
915	30						SM	SILTY SAND - fine, some bedrock fragments, light brown
				20				
							ML	SANDY SILT - brown
910	35	28.7	101		2			
				4			SM	SILTY SAND - fine, brown (44% Passing No. 200 Sieve)
905	40							

(CONTINUED ON FOLLOWING FIGURE)

LOG OF BORING

LAW/CRANDALL

FIGURE A-1.4a

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

JOB 70131-8-0371 DATE 8/19/1998 F.T. GMC DR. JB O.E. MBH CHKD

BORING 4 (Continued)

DATE DRILLED: July 14, 1998
EQUIPMENT USED: 5" - Diameter Rotary Wash
ELEVATION: 944.3

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	"N" VALUE STD.PEN.TEST	BLOW COUNT* (blows/ft.)	SAMPLE LOC.	DESCRIPTION
							CLAYEY SILTSTONE - well bedded, light brown and light grey
							Cemented layer
900	45						
		27.5	89		50 for 10"	■	Grey
895	50						END OF BORING AT 50'.

NOTE: Drilling mud used in drilling process. Mud removed at completion of drilling. Water level measured at a depth of 13.8' after removal of mud. Boring grouted with cement.

JOB 70131-8-0371 DATE 8/19/1998 F.T. GMC DR. JB O.E. MBH CHKD

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

LOG OF BORING

LAW/CRANDALL

FIGURE A-1.4b

JOB 70131-8-0371 DATE 8/19/1998 F.T. GMC DR. JB O.E. MBH CHKD

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.
It is not warranted to be representative of subsurface conditions at other locations and times.

BORING 5

DATE DRILLED: July 13, 1998
EQUIPMENT USED: 5" - Diameter Rotary Wash
ELEVATION: 944.5

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	"N" VALUE STD.PEN.TEST	BLOW COUNT* (blows/ft.)	SAMPLE LOC.		DESCRIPTION
							ML	CLAYEY SILT - dark brown
		13.9	100		3			
		25.0	91		3			Brown
940	5							
		27.4	86		4			
		24.4	93		4		ML	SANDY SILT - brown
935	10							
				4				
							SM	SILTY SAND - fine, brown
		20.1	100		2			
930	15							
				2				(47% Passing No. 200 Sieve)
925	20							
		24.3	102		8			Some bedrock fragments, light brown
				3				
920	25						SP	SAND - fine, some bedrock fragments, brown
		--	--		5			Sample not recovered
				16				
915	30							
		15.0	106		22			
							SM	SILTY SAND - fine to medium, some bedrock fragments, light brown
910	35			17				(13% Passing No. 200 Sieve)
								Layer of Silt
		25.2	100		9			
905	40							

(CONTINUED ON FOLLOWING FIGURE)

LOG OF BORING

LAW/CRANDALL

JOB 70131-8-0371 DATE 8/19/1993 F.T. GMC DR. JB O.E. MBH CHKD

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

BORING 5 (Continued)

DATE DRILLED: July 13, 1998
EQUIPMENT USED: 5" - Diameter Rotary Wash
ELEVATION: 944.5

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	"N" VALUE STD.PEN.TEST	BLOW COUNT* (blows/ft.)	SAMPLE LOC.	DESCRIPTION
		15.4	106		12	■	Layer of Silt Abundant bedrock fragments
							CLAYEY SILTSTONE - well bedded, light brown and light grey
							Cemented zone
900	45						
							Dark grey
895		30.8	90		32	■	END OF BORING AT 49½'.

NOTE: Drilling mud used in drilling process. Mud removed at completion of drilling. Water level measured at a depth of 13.2 feet, 12 hours after completion of drilling. Boring grouted with cement.

LOG OF BORING

LAW/CRANDALL

FIGURE A-1.5b

BORING 6

DATE DRILLED: July 14, 1998
EQUIPMENT USED: 5" - Diameter Rotary Wash
ELEVATION: 944.4

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	"N" VALUE STD.PEN.TEST	BLOW COUNT* (blows/ft.)	SAMPLE LOC.	USCS	DESCRIPTION
							CL	SILTY CLAY - dark brown
		14.2	95		3	■		
							ML	CLAYEY SILT - brown
		18.7	90		3	■		
940	5							
		19.6	101		4	■		
		12.8	108		5	■	ML	SANDY SILT - brown
935	10							
				6		◩	ML	CLAYEY SILT - light brown
		33.5	85		3	■		(LL = 43; PI = 17)
930	15							
							ML	SANDY SILT - light brown
				2		◩		
925	20	28.4	92		5	■		
				2		◩		
920	25							
		25.6	93		3	■		
				5		◩		
915	30						SP SM	SAND - fine, some Silt, light brown
		28.6	98		9	■		
910							ML	SANDY SILT - light brown
	35			8		◩		
		27.1	93		4	■		
905	40						SP	SAND - fine, some bedrock fragments, light brown

(CONTINUED ON FOLLOWING FIGURE)

LOG OF BORING

LAW/CRANDALL

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

JOB 70131-8-0371 DATE 8/19/1998 F.T. GMC DR. JB O.E. MBH CHKD [handwritten initials]

BORING 6 (Continued)

DATE DRILLED: July 14, 1998
EQUIPMENT USED: 5" - Diameter Rotary Wash
ELEVATION: 944.4

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	"N" VALUE STD.PEN.TEST	BLOW COUNT* (blows/ft.)	SAMPLE LOC.	USCS	DESCRIPTION
				17		■		
900	45	16.8	104		18	■		
895	50	31.1	89		5	■	ML	SANDY SILT - grey
							SP	SAND - fine to medium, grey
890	55	15.7	112		35	■		CLAYEY SILTSTONE - well bedded, moderately fractured, dark grey
								Cemented layer
885	60	13.5	108		50 for 6"	■		

END OF BORING AT 61'.

NOTE: Drilling mud used in drilling process. Mud removed at completion of drilling. Water level measured at a depth of 14.6 feet, one hour after completion of drilling. Boring grouted with cement.

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

JOB 70131-8-0371 DATE 8/19/1998 F.T. GMC DR. JB O.E. MBH CHKD

LOG OF BORING

LAW/CRANDALL

FIGURE A-1.6b

JOB 70131-8-0371 DATE 8/19/1998 F.T. GMC DR. JB O.E. MBH CHKD

BORING 7

DATE DRILLED: July 13, 1998
EQUIPMENT USED: 5" - Diameter Rotary Wash
ELEVATION: 940.8

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	"N" VALUE STD.PEN.TEST	BLOW COUNT* (blows/ft.)		
940						ML	CLAYEY SILT - brown
		16.8	102		4		
		19.8	95		3		
	5						
935		12.2	106		8	SM	SILTY SAND - fine, some Gravel, light brown
				5		ML	SANDY SILT - light brown
	10						
930		23.5	95		2		
				5			(LL = 30; PI = 7)
	15						
925		27.6	91		1		
						SM	SILTY SAND - fine, light brown
				1			
	20						
920							
		--	--		1		Sample not recovered
		17.1	104		12	SP SM	SAND - fine, some Silt, some bedrock fragments, light brown
	25						
915				18			Layer of Sandy Silt
		22.6	98		15		
	30						
910							
				30			(11% Passing No. 200 Sieve)
	35	13.6	106		15		
905						ML	SANDY SILT - light brown
				4			
	40						

(CONTINUED ON FOLLOWING FIGURE)

LOG OF BORING

LAW/CRANDALL

FIGURE A-1.7a

BORING 7 (Continued)

DATE DRILLED: July 13, 1998
EQUIPMENT USED: 5" - Diameter Rotary Wash
ELEVATION: 940.8

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	"N" VALUE STD.PEN.TEST	BLOW COUNT* (blows/ft.)	SAMPLE LOC.	DESCRIPTION
900		22.7	100		6	■	
							CLAYEY SILTSTONE - well bedded, light grey and light brown
	45						
895		42.6	83		30	■	
							END OF BORING AT 46'.

NOTE: Drilling mud used in drilling process. Mud removed at completion of drilling. Water level measured at a depth of 14.7' after removal of mud. Boring grouted with cement.

JOB 70131-8-0371 DATE 8/19/1998 F.T. GMC DR. JB O.E. MBH CHKD

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

LOG OF BORING

LAW/CRANDALL

FIGURE A-1.7b

(PREVIOUS INVESTIGATION AE-87219)

BORING 1

DATE DRILLED: June 10, 1987
EQUIPMENT USED: 18"-Diameter Bucket

ELEVATION 944.8*

ELEVATION	DEPTH (ft.)		MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.		
							SM	FILL - SILTY SAND - fine to medium, brown
			16.8	107	5		CL	SILTY CLAY - dark brown
			17.5	100	2			
940	5							
			21.1	104	5			Some Sand, brown
			22.6	100	6			
935	10							
			23.0	99	3			
			27.8	86	2			
930	15						ML	SANDY SILT - brown
								Layers of Silty Clay
			41.1	78	< 1			
925	20							

NOTE: Water level measured at 18' after completion of drilling and at 17' 10 minutes later. Caving below 18'.

* Elevations refer to datum of reference survey; see Plate 1 for location and elevation of bench mark.

Note : The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

JOB 70131-8-0371.X DATE 8/14/98 F.T. LS DR. lp O.E. SK SK W.P. lp CHKD BW

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

FIGURE A-1.8

(PREVIOUS INVESTIGATION AE-87219)

BORING 2

DATE DRILLED: June 10, 1987
EQUIPMENT USED: 18"-Diameter Bucket

ELEVATION 943.5

ELEVATION	DEPTH (ft.)		MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.		DESCRIPTION
							SM	FILL - SILTY SAND - some Clay, light brown
			14.8	106	5			
							CL	SILTY CLAY - some Sand, dark brown
940			19.3	104	3			
	5							
			26.5	93	5			Brown
935			20.3	101	8			
	10							Siltier
			25.0	96	3			
930							ML	SANDY SILT - brown
	15		32.0	89	< 1			

NOTE: Water level measured at 15' after completion of drilling. Boring squeezing in below 15'. No caving.

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

JOB 70131-8-0371.X DATE 8/14/98 F.T. LS DR. lp O.E. SK W.P. lp CHKD

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

FIGURE A-1.9

(PREVIOUS INVESTIGATION E-86304)

BORING MW-1

DATE DRILLED: October 9, 1986

EQUIPMENT USED: 8"-Diameter Flight Auger

ELEVATION 943 ft.

ELEVATION (ft.)	DEPTH (ft.)	TOTAL FUEL HYDROCARBONS	BENZENE	TOLUENE	ZYLENE	SAMPLE LOC.
	5					5
	10	<5	<1	<1	<1	10
	15	<5	<1	<1	<1	15
	20	<5	<1	<1	<1	20
	25	<5	<1	<1	<1	25
	30					
	35					
	40					

MH — ARTIFICIAL FILL: Clayey Silt, medium to dark brown, some fine Sand, moderately plastic, damp to slightly moist, firm

MH — TOPSOIL: Clayey Silt, dark brown, some fine Sand, moderately moist, firm, moderately plastic, color becomes lighter with depth

MH — WEATHERED BEDROCK: Clayey Silt and SILTSTONE, light to medium grey-brown, moderately plastic, slightly damp, firm

MODELO FORMATION: Clayey Siltstone, light to medium grey, diatomaceous, moderately hard, dry to slightly moist, fissile

Slight hydrocarbon odor at 15 feet

Color becoming medium greyish-brown at 22.5 feet

Saturated, rust deposits along fractures and bedding planes at 24 feet

Increasing Clay content, highly plastic at 32 feet

NOTE: End boring at 40 ft. Install Monitoring Well #1. Ground water at 24 ft.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

FIGURE A-1.10

(PREVIOUS INVESTIGATION E-86304)

BORING MW-2

DATE DRILLED: October 9, 1986

EQUIPMENT USED: 8"-Diameter Flight Auger

ELEVATION 940 ft.

ELEVATION (ft.)	DEPTH (ft.)	TOTAL FUEL HYDROCARBONS	BENZENE	TOLUENE	ZYLENE	SAMPLE LOC.		DESCRIPTION
							MH	ARTIFICIAL FILL: Clayey Silt, medium to dark brown, damp, firm, moderately plastic
	5					5	MH	TOPSOIL: Clayey Silt, light to medium brown, some fine Sand, moderately plastic, damp, firm
	10					10	SP	ALLUVIUM: Silty Sand, light to medium brown, moist, slightly firm, fine to coarse grained Sand and minor pea Gravel increasing with depth.
	15	<5	<1	<1	<1	15		Saturated, grey-brown color at 15 feet
	20					20		
	25							
	30							
	35							MODELO FORMATION: Siltstone, medium grey, hard, moist with water and rust deposits in fractures

NOTE: End boring at 35'. Install Monitoring Well #2. Ground water at 15 ft.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

FIGURE A-1.11

(PREVIOUS INVESTIGATION E-86304)

BORING MW-3

DATE DRILLED: October 9, 1986

EQUIPMENT USED: 8"-Diameter Flight Auger

ELEVATION 944 ft.

ELEVATION (ft.)	DEPTH (ft.)	TOTAL FUEL HYDROCARBONS	BENZENE	TOLUENE	ZYLENE	SAMPLE LOC.
	5					5
	10	<5	<1	<1	<1	10
	15	90	<1	<1	<1	15
	20	<5	<1	<1	<1	20
	25	<5	<1	<1	<1	25
	30					
	35					
	40					

MH — ARTIFICIAL FILL: Clayey Silt, medium to dark brown, firm, moist, moderately plastic

MH — TOPSOIL: Clayey Silt, light to medium brown, firm, slightly moist, moderately plastic

MH — WEATHERED BEDROCK: Clayey Silt, light grey-brown, moderately hard, dry

MODELO FORMATION: Clayey Siltstone, light to medium grey brown, diatomaceous, moderately hard to hard, moist, slight to moderate hydrocarbon odor, fissile, approximately 10-15° dip on bedding.

No hydrocarbon odor at 20 feet

Rust deposits in fractures at 22 feet

Saturated, no hydrocarbon odor at 25 feet

Increasing Clay content, highly plastic at 27.5 feet

Change to very dark grey to black color, diatomaceous, high Clay content, unweathered anaerobic zone at 37 feet

NOTE: End boring at 40 ft. Install Monitoring Well #3. Ground water at 25 ft.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

FIGURE A-1.12

(PREVIOUS INVESTIGATION E-86304)

BORING MW-4

DATE DRILLED: October 9, 1986

EQUIPMENT USED: 8"-Diameter Flight Auger

ELEVATION 943 ft.

ELEVATION (ft.)	DEPTH (ft.)	TOTAL FUEL HYDROCARBONS	BENZENE	TOLUENE	ZYLENE	SAMPLE LOC.
	5					5
	10					10
	15	<5	<1	<1	<1	15
	20	2900	<1	<1	<1	20
	25					
	30					
	35					
	40					

MH — ARTIFICIAL FILL: Clayey Silt with some fine Sand, firm, moist

MH — TOPSOIL: Clayey Silt, medium to dark brown, firm, moist, moderately plastic

MH — WEATHERED BEDROCK: Clayey Silt and Silt-Stone, light to medium brown-grey, firm, dry to slightly moist

MODELO FORMATION: Clayey Siltstone, light to medium grey, diatomaceous, moderately hard, dry to slightly moist, fissile
Strong hydrocarbon odor at 15 feet

Free diesel fuel in fractures at 20 feet

Saturated at 22 feet

Becoming dark grey-black color at 26 feet

NOTE: End boring at 40 ft. Install Monitoring Well #4. Ground water at 22 ft.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

(PREVIOUS INVESTIGATION A-86014)

BORING 1

DATE DRILLED: January 28, 1986

EQUIPMENT USED: 6"-Diameter Hand Auger

ELEVATION 948.3*

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.		DESCRIPTION
			14.7	108	1		CL SM	FILL - SANDY CLAY and SILTY SAND - few pieces of brick, gravel, reddish-brown
			15.0	100	1		SC SM	FILL - CLAYEY SAND and SILTY SAND - some gravel and few cobbles (4" in size), reddish-brown Patches of Silty Clay
945			19.1	94	4			
			15.3	103	2			
	5							
940								
	10							
935								
	15							

NOTE: Water not encountered. No caving.

*Elevations refer to datum of reference drawing; see Plate 1 for location and elevation of bench mark.

BORING 2

DATE DRILLED: January 28, 1986

EQUIPMENT USED: 6"-Diameter Hand Auger

ELEVATION 948.7

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.		DESCRIPTION
							ML	FILL - SANDY SILT - roots, few pieces of brick, dark brown
			14.6	112	2		CL	FILL - SANDY CLAY - patches of Clay, some gravel and few cobbles, light reddish-brown
			-	-	22			(BORING TERMINATED AT 3' DUE TO ENCOUNTERING ROCK AND DIFFICULT DRILLING)
945								
	5							
940								
	10							
935								
	15							

NOTE: Water not encountered. No caving.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

JOB 70131-9-0071.X DATE 8/14/98 DR JHN

(PREVIOUS INVESTIGATION AE-84074)

BORING 1

DATE DRILLED: March 21, 1984

EQUIPMENT USED: 5"-Diameter Rotary Wash

ELEVATION 936.8*

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.		
							CL	2" Asphaltic Paving FILL - SANDY CLAY - mottled brown
935			12.5	113	5			
			12.0	98	2			Sandier
							ML	CLAYEY SILT - few roots, light brown
	5		11.4	92	2			
930							SM	SILTY SAND - fine, brown
			9.7	110	6			
	10							SHALE (SILTSTONE) - weathered, fractured, greyish-brown
			34.5	82	12			
925								
	15		40.2	76	5			
920								
								Dark greyish-brown
	20		38.6	76	17			

NOTE: Drilling mud used in drilling process. Mud removed. Water level measured at 12.7' on 3/22/84.

*See Plate 1 for locations and elevations of bench marks.

NOTE. THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

[redacted]

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

FIGURE A-1.15

(PREVIOUS INVESTIGATION AE-84074)

BORING 2

DATE DRILLED: March 14 & 19, 1984

EQUIPMENT USED: 24"-Diameter Bucket 0' to 17'
5"-Diameter Rotary Wash to 25'

ELEVATION 937.4

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft-kips/ft.)	SAMPLE LOC.		Description
							ML	SANDY SILT - dark brown
935								
			21.1	87	1	■		Brown
	5							
			20.9	93	1	■	ML	CLAYEY SILT - light brown
930								
							CL	SILTY CLAY - brown
	10		28.1	92	1	■		
925			26.5	95	< 1	■		
	15							
			29.1	93	< 1	■		
								(BUCKET HOLE TERMINATED DUE TO CAVING AND SLOUGHING)
920							SC	CLAYEY SAND - fine and medium, brown
	20		26.4	99	1	■		
915								
							CL	SANDY CLAY - dark brown
	25		17.0	113	4	■		

NOTE: Bucket Hole: Water seepage encountered at 13.5'. Water level measured at 13.5' 10 minutes after completion of drilling. Heavy caving and sloughing below 14'.

Rotary Wash Hole: Drilling mud used in drilling process. Mud removed. Water level measured at 12' on 3/22/84.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

FIGURE A-1.16

(PREVIOUS INVESTIGATION AE-84074)

BORING 6

DATE DRILLED: March 20, 1984

EQUIPMENT USED: 5"-Diameter Rotary Wash

ELEVATION 942.1

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
940			21.4	101	3	■
	5		20.3	102	4	■
935			26.6	92	3	■
			22.6	98	4	■
930	10		11.3	99	5	■
	15		16.1	99	4	■
925	20					

	3" Asphaltic Paving - 6" Base Course
ML	CLAYEY SILT - brown
SC	CLAYEY SAND - fine, about 20% gravel, brown
CL	SANDY CLAY - brown
SP	SAND - fine, light brown
SW	SAND - well graded, brown Lenses of fine Sand About 20% gravel

NOTE: Drilling mud used in drilling process. Water level not established.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

FIGURE A-1.17

(PREVIOUS INVESTIGATION AE-84074)

BORING 7

DATE DRILLED: March 20, 1984

EQUIPMENT USED: 5"-Diameter Rotary Wash

ELEVATION 945.2

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu.ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC		
945								3" Asphaltic Paving - 6" Sand and Gravel Base
			16.9	105	3	■	CL	FILL - SANDY CLAY - brown
							SC	CLAYEY SAND - fine and medium, brown
			13.0	112	4	■		
940	5						CL	SILTY CLAY - brown
			18.3	106	3	■		
							SP	SAND - fine and medium, light brown
			13.3	103	4	■		
							SW	SAND - well graded, brown
935	10							
			18.5	97	3	■		Layer of Silt
								About 20% gravel
	15		14.2	106	17	■		

NOTE: Drilling mud used in drilling process. Mud removed. Water level measured at 10.1' on 3/22/84.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

FIGURE A-1.18

[redacted]

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

(PREVIOUS INVESTIGATION AE-84074)

BORING 8

DATE DRILLED: March 14, 1984

EQUIPMENT USED: 24"-Diameter Bucket

ELEVATION 940.2

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft-kips/ft.)	SAMPLE LOC.		
940							CL ML	FILL - CLAY and SILT - greyish-brown
			23.7	85	1		CL	SILTY CLAY - dark grey
			20.5	96	1			
								Brown
935	5		26.3	79	< 1			
			24.7	98	2			
930	10		24.3	96	2			
			33.6	88	< 1		SC	CLAYEY SAND - fine, brown
	15							

NOTE: Water not encountered. No caving.

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

(PREVIOUS INVESTIGATION AE-84074)

BORING 9

DATE DRILLED: March 14, 1984

EQUIPMENT USED: 24"-Diameter Bucket

ELEVATION 940.3

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.		
940							SP ML	FILL - SAND and SILT - grey and brown
			19.7	98	2	■	ML	CLAYEY SILT - dark brown
			24.8	92	2	■		
935	5							
			24.1	91	1	■		
			24.3	91	< 1	■	CL	SILTY CLAY - brown
930	10							
			27.3	96	1	■		
925	15		25.1	100	< 1	■		
	20							

NOTE: Water seepage encountered at 14'. Boring caved back to 13.9'. Water covering the bottom of hole at 13.9' at completion of drilling.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

07/14/98

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

FIGURE A-1.20

(PREVIOUS INVESTIGATION AE-84074)

BORING 10

DATE DRILLED: March 13, 1984

EQUIPMENT USED: 24"-Diameter Bucket 0' to 15'
5"-Diameter Rotary Wash to 25'

ELEVATION 940.3

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.		
940							ML	SANDY SILT - dark brown
			17.5	106	1			
			16.0	97	< 1			Brown
935	5		23.6	96	2			
			23.6	98	2		CL	SILTY CLAY - brown
930	10		31.5	89	< 1			
925	15		26.8	91	1		SC	CLAYEY SAND - fine, brown (BUCKET HOLE TERMINATED DUE TO CAVING AND SLOUGHING)
920	20		24.2	94	5			
	25		27.6	89	3			

NOTE: Bucket Hole: Water seepage encountered at 12½'. Water level measured at 12.5' 5 minutes after completion of drilling. Caving and sloughing below 13.5'

Rotary Wash Hole: Drilling mud used in drilling process. Water level not established.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

FIGURE A-1.21

(PREVIOUS INVESTIGATION AE-84074)

BORING 11

DATE DRILLED: March 19, 1984

EQUIPMENT USED: 5"-Diameter Rotary Wash

ELEVATION 940.4

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.		Description
940							ML	FILL - CLAYEY SILT - brown
			24.6	97	1			
935	5		31.6	78	1			
							ML	CLAYEY SILT - brown
			25.2	93	1			
			26.4	93	1			
930	10							
			31.5	89	1			
925	15		29.8	93	< 1			
							SC	CLAYEY SAND - fine, brown
920	20		25.8	90	1			
915	25		25.3	98	1		CL	SILTY CLAY - brown
	30							

NOTE: Drilling mud used in drilling process. Water level not established.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

70131-8-0371.X 8/14/98

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

FIGURE A-1.22

(PREVIOUS INVESTIGATION AE-84074)

BORING 12

DATE DRILLED: March 14, 1984

EQUIPMENT USED: 24"-Diameter Bucket

ELEVATION 941.5

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
940						
			24.1	97	< 1	■
	5		18.8	100	1	■
935			31.5	88	1	■
			10.8	93	< 1	■
	10					
930			38.0	82	< 1	■
	15					

CL	SILTY CLAY - dark greyish-brown
ML	SANDY SILT - brown
ML	CLAYEY SILT - brown
SM	SILTY SAND - fine, brown
CL	SILTY CLAY - brown

(BORING TERMINATED DUE TO SLOUGHING)

NOTE: Water seepage encountered at 11'. Water level measured at 11½' at completion of drilling. Sloughing below 11'.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

FIGURE A-1.23

(PREVIOUS INVESTIGATION AE-84074)

BORING 13

DATE DRILLED: March 19, 1984

EQUIPMENT USED: 5"-Diameter Rotary Wash

ELEVATION 941.6

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.		
							ML	FILL - CLAYEY SILT - brown
940			22.7	100	1			
			19.9	93	1		ML	CLAYEY SILT - some Sand, brown
	5							
			24.9	88	1			
935								
			23.8	92	1			
							SC	CLAYEY SAND - fine, brown
	10							
930								
	15		38.3	83	1			
925								
							SW	SAND - well graded, some gravel and cobbles, light brown
	20		22.6	94	3			
920								
	25		22.3	97	5			

NOTE: Drilling mud used in drilling process. Water level not established.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

FIGURE A-1.24

(PREVIOUS INVESTIGATION AE-84074)

BORING 15

DATE DRILLED: March 22, 1984

EQUIPMENT USED: 5"-Diameter Rotary Wash

ELEVATION 937.2

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.		
							CL	2" Asphaltic Paving SANDY CLAY - some alkali, brown
935		5						
	5						ML	CLAYEY SILT - brown
930		5						
	10	3					ML	SANDY SILT - brown
925		4						
	15	2						
920							SC	CLAYEY SAND - fine, brown
		8						Very Clayey
	20							
915		3					CL	SANDY CLAY - brown
	25	5						
910							SC	CLAYEY SAND - fine, brown
	30	15						
905							SP	SAND - fine and medium, light brown
	35	26						
900								SHALE (SILTSTONE) - weathered, fractured, grey (BORING TERMINATED DUE TO DIFFICULT DRILLING)
	40							

NOTE: Drilling mud used in drilling process. Mud removed. Water level measured at 8.5' 1 hour after removing mud.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

FIGURE A-1.25

(PREVIOUS INVESTIGATION A-75129)

BORING 1

DATE DRILLED: June 12, 1975

EQUIPMENT USED: 24"-Diameter Bucket

ELEVATION 954.0**

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu.ft.)	BLOWS *	SAMPLE
		10.0	104	2	■
950		17.6	108	3	■
	5	15.9	108	5	■
		16.2	102	7	■
945	10	6.6	103	7	■
940	15	5.3	101	11	■
935	20				

CL	SILTY CLAY - some Sand and Shale fragments, brown
ML	SANDY SILT - some Clay, brown
CL	SANDY CLAY - light brown
SC	CLAYEY SAND - fine to medium, some shale fragments, brown
CL	SANDY CLAY - brown
SM	SILTY SAND - fine, some shale fragments, light brown
ML	SANDY SILT - light yellowish-brown
SP	SAND - fine to medium, yellowish-brown

NOTE: Water not encountered. No caving.

*Number of blows required to drive LC&A sampler 12": Driving Weight = 1600 lbs.; Stroke = 1'.

**Elevations refer to datum of reference drawing; see Plate 1.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

FIGURE A-1.26

(PREVIOUS INVESTIGATION A-75129)

BORING 2

DATE DRILLED: June 12, 1975

EQUIPMENT USED: 24"-Diameter Bucket

ELEVATION 949.5

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu.ft.)	BLOWS	SAMPLE		
						CL	SILTY CLAY - some fine Sand, dark brown
		10.3	114	3	■	SC	CLAYEY SAND - fine to medium, some shale fragments, dark brown
945	5	14.6	118	5	■		Mottled light brown
		23.0	98	4	■		Light brown
						SM	SILTY SAND - fine, yellowish-brown
940	10	10.3	106	5	■		
		26.7	85	3	■	SW	SAND - well graded, some shale fragments, yellowish-brown
935	15						

NOTE: Water not encountered. No caving.

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

J[redacted]70[redacted]-03[redacted] D[redacted]/98[redacted]DR.[redacted]CH[redacted]

LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

FIGURE A-1.27

(PREVIOUS INVESTIGATION A-75129)

BORING 3

DATE DRILLED: June 12, 1975
EQUIPMENT USED: 24"-Diameter Bucket

ELEVATION 950.7

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu.ft.)	BLOWS	SAMPLE		
950						ML	FILL - SANDY SILT - some shale fragments, dark brown
		12.9	112	1	■	CL	SILTY CLAY - some shale fragments, light brown
		13.0	109	3	■	SC	CLAYEY SAND - fine to medium, some shale fragments, yellowish-brown
945	5	13.3	90	6	■		
						SW	SAND - well graded, some shale fragments, yellowish-brown
		10.4	94	9	■		
	10	19.9	100	9	■	CL	SILTY CLAY - some fine Sand, light yellowish-brown
940						SM	SILTY SAND - well graded, large amount of shale fragments, light brown
	15	6.6	112	10	■		

NOTE: Water not encountered. Raveling from 6' to 9' (to 3' in diameter).

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

[redacted]

LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

FIGURE A-1.28

(PREVIOUS INVESTIGATION A-69307)

BORING 1

DATE DRILLED: December 9, 1969

EQUIPMENT USED: 18"-Diameter Bucket

ELEVATION 41.7*

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	SAMPLE
40		15.7	101	■
		11.4	105	■
	5			
35		18.6	101	■
		10.7	103	■
	10			
30		36.4	83	■
	15			
		39.8	79	■
25				
	20			

ML	SANDY SILT - dark brown
SC	CLAYEY SAND - fine, few gravel, brown
SP	SAND - fine, some clay, 5% gravel, brown
	SHALE (SILTSTONE) - weathered, fractured, light brown and light grey
	Grey to dark grey

NOTE: Water not encountered. No caving.

* Elevations refer to datum of reference drawing; see Plate 1 for benchmark.

Overburden soils classified in accordance with the Unified Soil Classification System.

LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

FIGURE A-1.29

(PREVIOUS INVESTIGATION A-69307)

BORING 2

DATE DRILLED : December 9, 1969

EQUIPMENT USED : 18"-Diameter Bucket

ELEVATION 38.0

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	SAMPLE		
					ML	FILL - CLAYEY SILT - some sand, few pieces of wood, dark brown
		20.6	101	■	ML	SANDY SILT - some clay, dark brown
35		22.0	90	■		Few gravel
	5					
		20.8	94	■		
		13.6	101	■		Brown
30						
	10	9.1	95	■		
25					SP	SAND - fine, few gravel, light brown
	15					

NOTE: Water level measured at a depth of 13½' at completion of drilling; water level measured at a depth of 13½' 10 minutes after completion of drilling. Sloughing below 12' (to 2' in diameter).

LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

(PREVIOUS INVESTIGATION A-69307)

BORING 3

DATE DRILLED : December 9, 1969

EQUIPMENT USED : 18"-Diameter Bucket

ELEVATION 37.7

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu.ft.)	SAMPLE		DESCRIPTION
		13.2	103	■	ML	SANDY SILT - dark brown
35		16.5	92	■		
		19.6	98	■		Some clay
	5					
		19.1	97	■		Lenses of Silty Sand
30						
	10	23.2	95	■		Light brown to brown
25						
		22.2	99	■		
	15					2 cobbles, 5" in size
						SHALE (SILTSTONE) - weathered, fractured, light brown and light grey
20						Cemented layer (GAD USED)
	20					

NOTE: Water seepage encountered at a depth of 12. Water level measured at a depth of 16½' at completion of drilling; water level measured at a depth of 13½' 1 hour after completion of drilling. Sloughing from 13½' to 15½' (to 2' in diameter).

LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

(PREVIOUS INVESTIGATION A-69307)

BORING 4

DATE DRILLED: December 9, 1969
EQUIPMENT USED: 18"-Diameter Bucket

ELEVATION 39.2

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt)	DRY DENSITY (lbs./cu.ft.)	SAMPLE		DESCRIPTION
		10.6	106	■	ML	FILL - CLAYEY SILT light brown SANDY SILT - dark brown
		12.2	90	■		
35						Brown
	5	11.0	90	■		
		11.1	104	■		Light brown to brown
30						
	10	22.3	96	■		
25		27.9	95	■		
	15					

NOTE: Water seepage encountered at a depth of 12'. Water level measured at a depth of 14' 5 minutes after completion of drilling. Sloughing below 12' (to 2' in diameter).

LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

FIGURE A-1.32

(PREVIOUS INVESTIGATION A-69307)

BORING 5

DATE DRILLED: December 9, 1969
EQUIPMENT USED: 18"-Diameter Bucket

ELEVATION 37.9

ELEVATION (ft)	DEPTH (ft)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	SAMPLE		DESCRIPTION
		13.1	102	■	ML	SANDY SILT - some clay, dark brwon
35		13.2	101	■		
						No clay, few gravel, brown
	5					Some clay, brown
		8.5	95	■		
		22.9	89	■		
30						
	10					Few gravel
		28.0	91	■		
25						
	15	24.0	97	■		5% gravel, brown
20						
	20					
15						
	25					

NOTE: Water seepage encountered below a depth of 13'.
Heavy sloughing below 14' (to 3½' in diameter).

LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of material is LARGER than the No.200 sieve size)	GRAVELS (More than 50% of coarse fraction is LARGER than the No.4 sieve size)	CLEAN GRAVELS (Little or no fines)	GW	Well graded gravels, gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels or gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES (Appreciable amount of fines)	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS (More than 50% of coarse fraction is SMALLER than the No.4 sieve size)	CLEAN SANDS (Little or no fines)	SW	Well graded sands, gravelly sands, little or no fines
			SP	Poorly graded sands or gravelly sands, little or no fines
		SANDS WITH FINES (Appreciable amount of fines)	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS (More than 50% of material is SMALLER than the No.200 sieve size)	SILTS AND CLAYS (Liquid limit LESS than 50)		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS (Liquid limit GREATER than 50)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			PT	Peat and other highly organic soils

BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.

P A R T I C L E S I Z E L I M I T S

SILT OR CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	Fine	Medium	Coarse	Fine	Coarse		

No. 200 No. 40 No. 10 No. 4 3/4 in. 3 in. (12 in.)

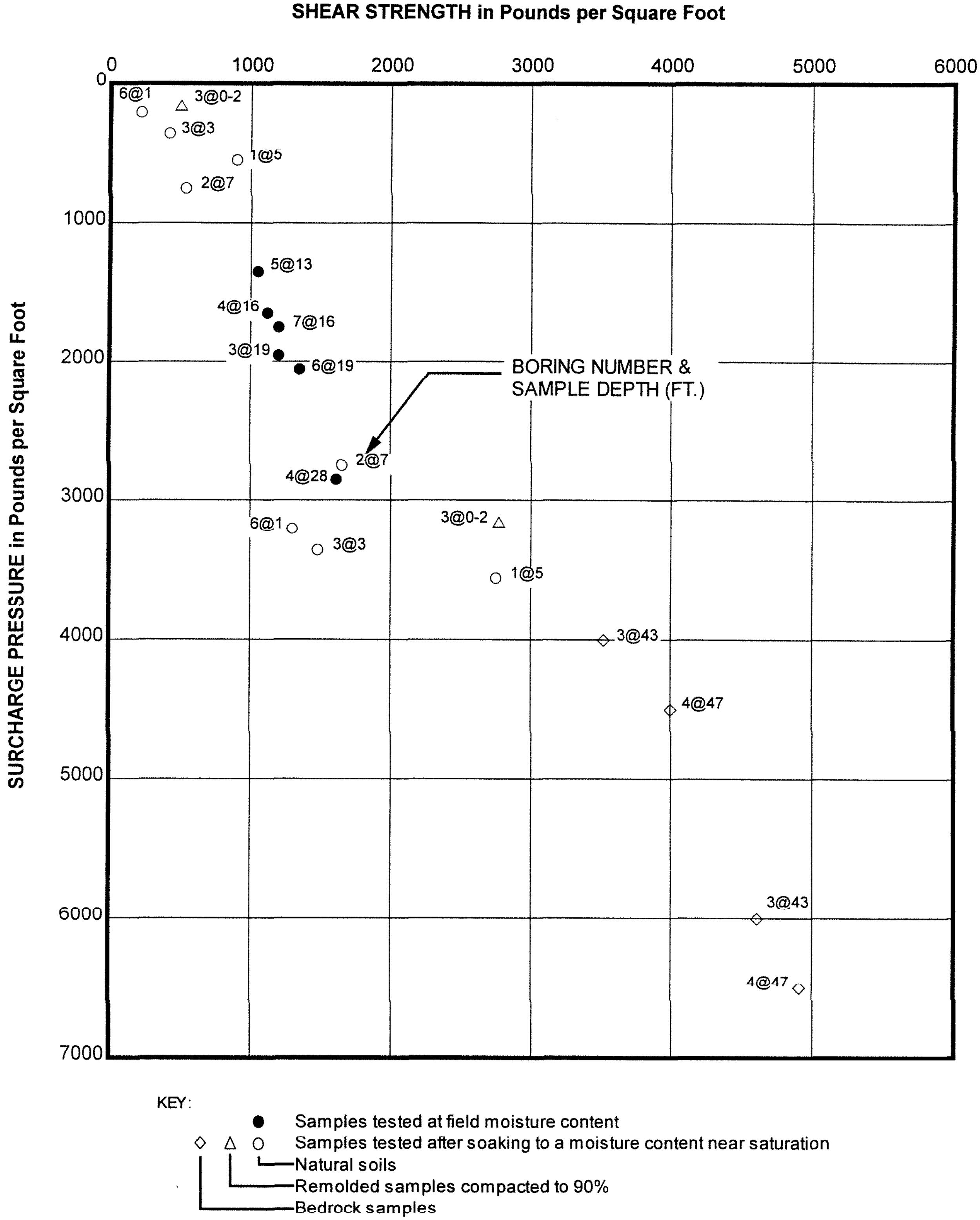
U. S. STANDARD SIEVE SIZE

UNIFIED SOIL CLASSIFICATION SYSTEM

REFERENCE:
The Unified Soil Classification System, Corps of Engineers, U.S. Army Technical Memorandum No. 3-357, Vol. 1, March, 1953. (Revised April, 1960).

LAW/CRANDALL

FIGURE A-2

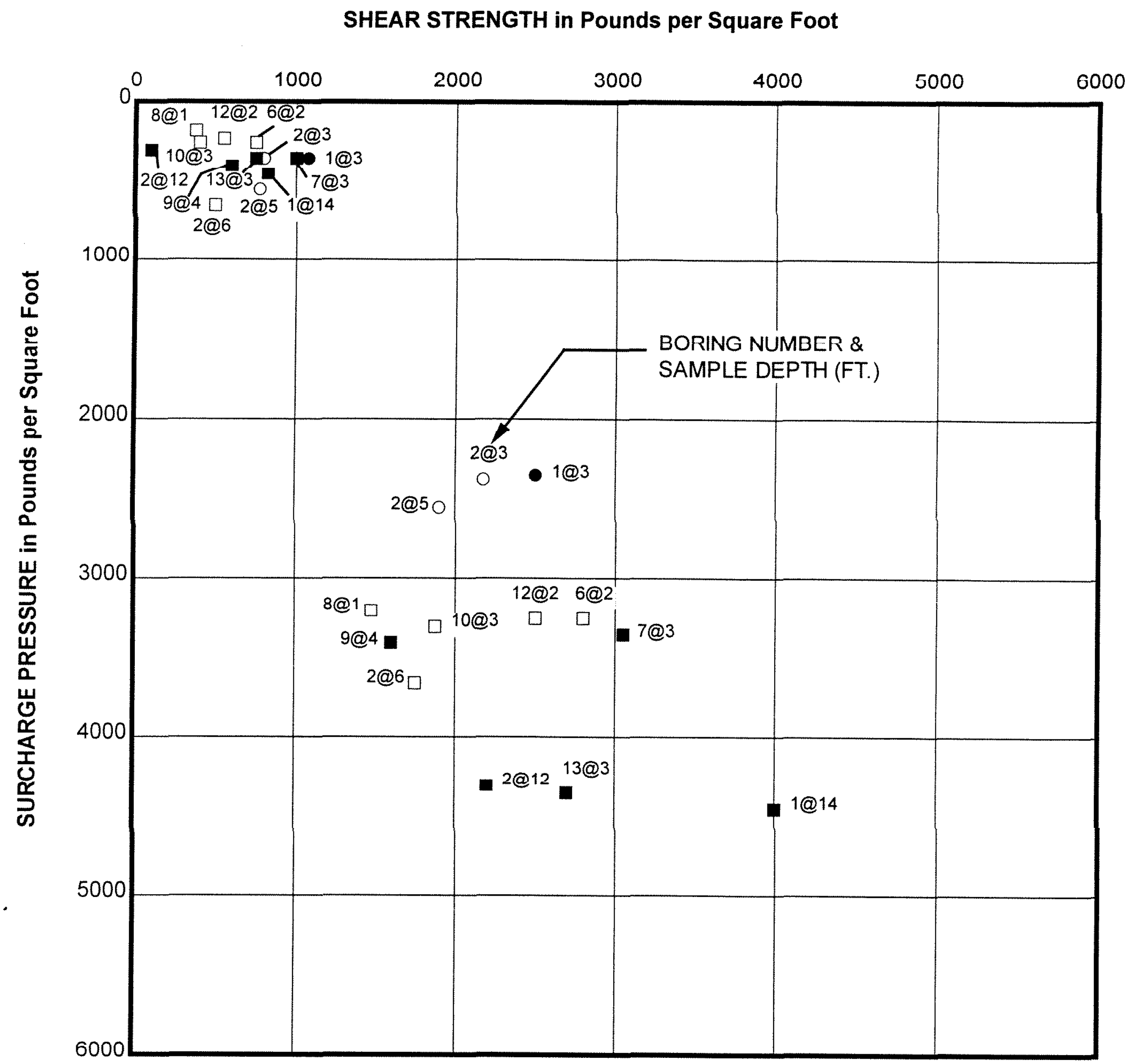


JOB 70131-8-0371 DATE 8/4/98 DR JB OE AG CHKD

DIRECT SHEAR TEST DATA

LAW/CRANDALL

FIGURE A - 3.1



KEY:

■ ● Samples tested at field moisture content

□ ○ Samples tested after soaking to a moisture content near saturation

From our previous investigation; Our Job Number: AE-87219

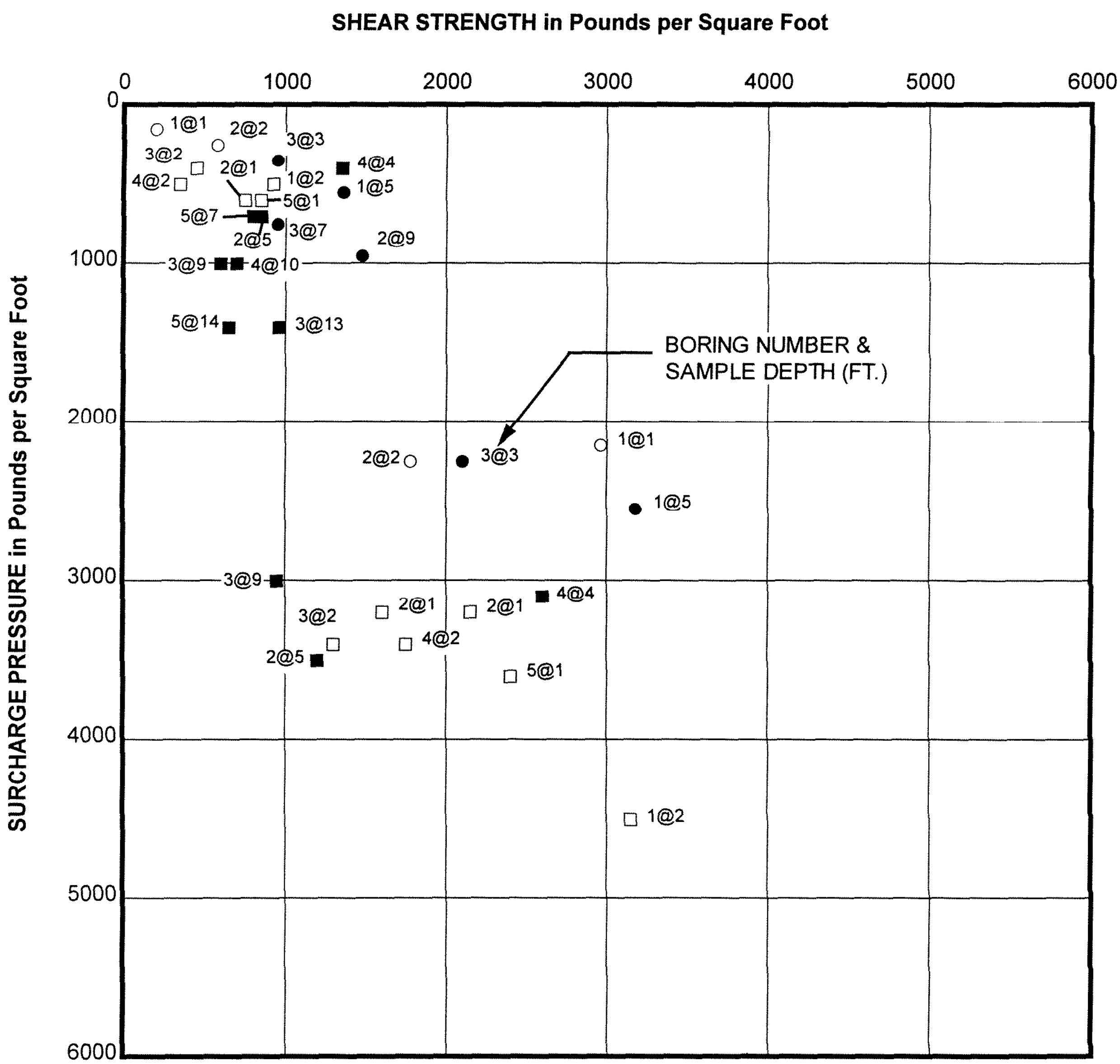
From our previous investigation; Our Job Number: A-84074

DIRECT SHEAR TEST DATA

LAW/CRANDALL

FIGURE A - 3.2

JOB 70131-8-0371 DATE 8/4/98 DR JB OE AG CHKD



KEY:

■ ● Samples tested at field moisture content

□ ○ Samples tested after soaking to a moisture content near saturation

○ From our previous investigation; Our Job Number: A-75129

□ From our previous investigation; Our Job Number: A-69307

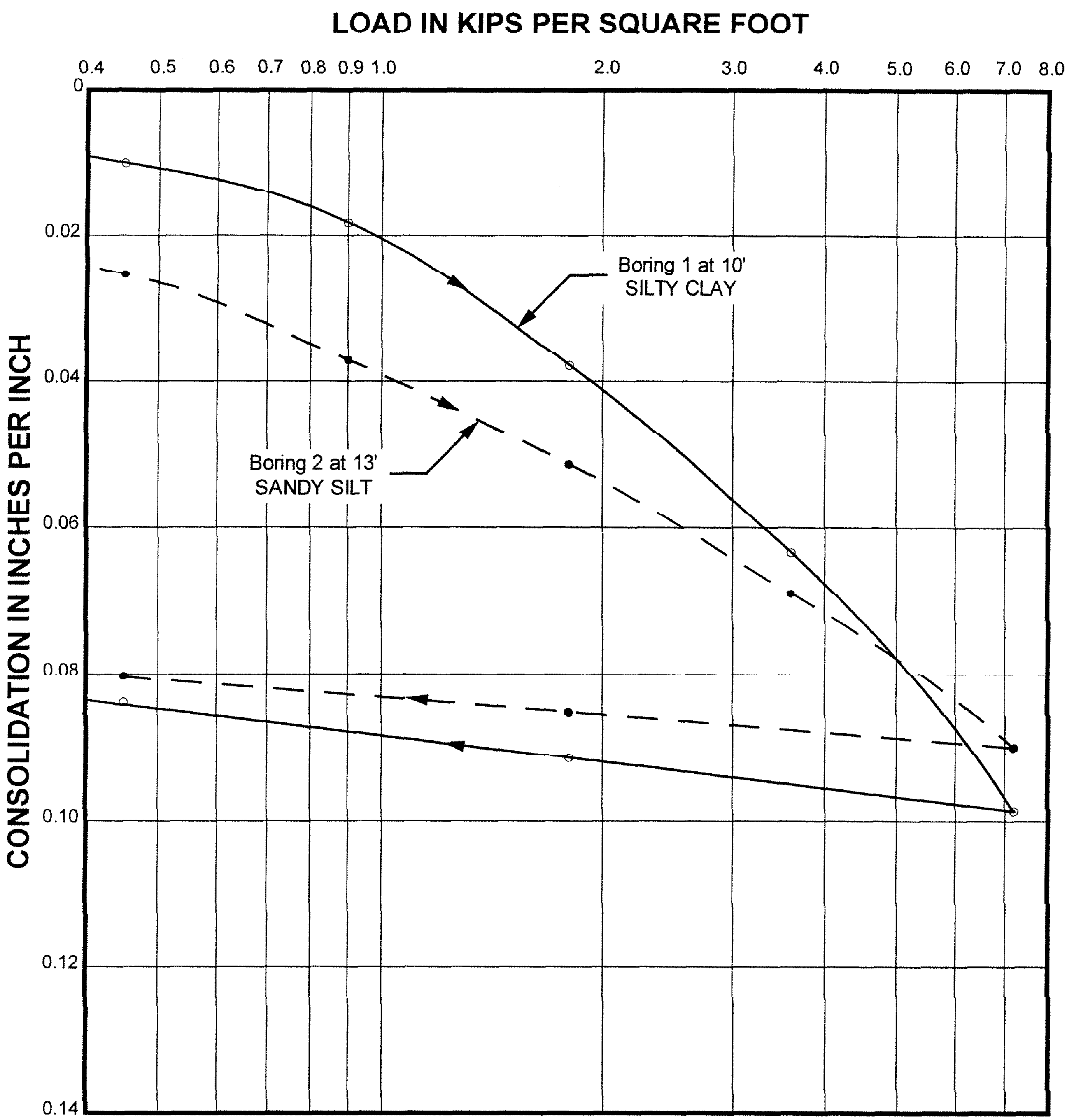
DIRECT SHEAR TEST DATA

JOB 70131-8-0371 DATE 8/4/98 DR JB OE AG CHKD

LAW/CRANDALL

FIGURE A - 3.3

JOB 70131-8-0371 DATE 8/10/98 DR JB OE VL CHKD

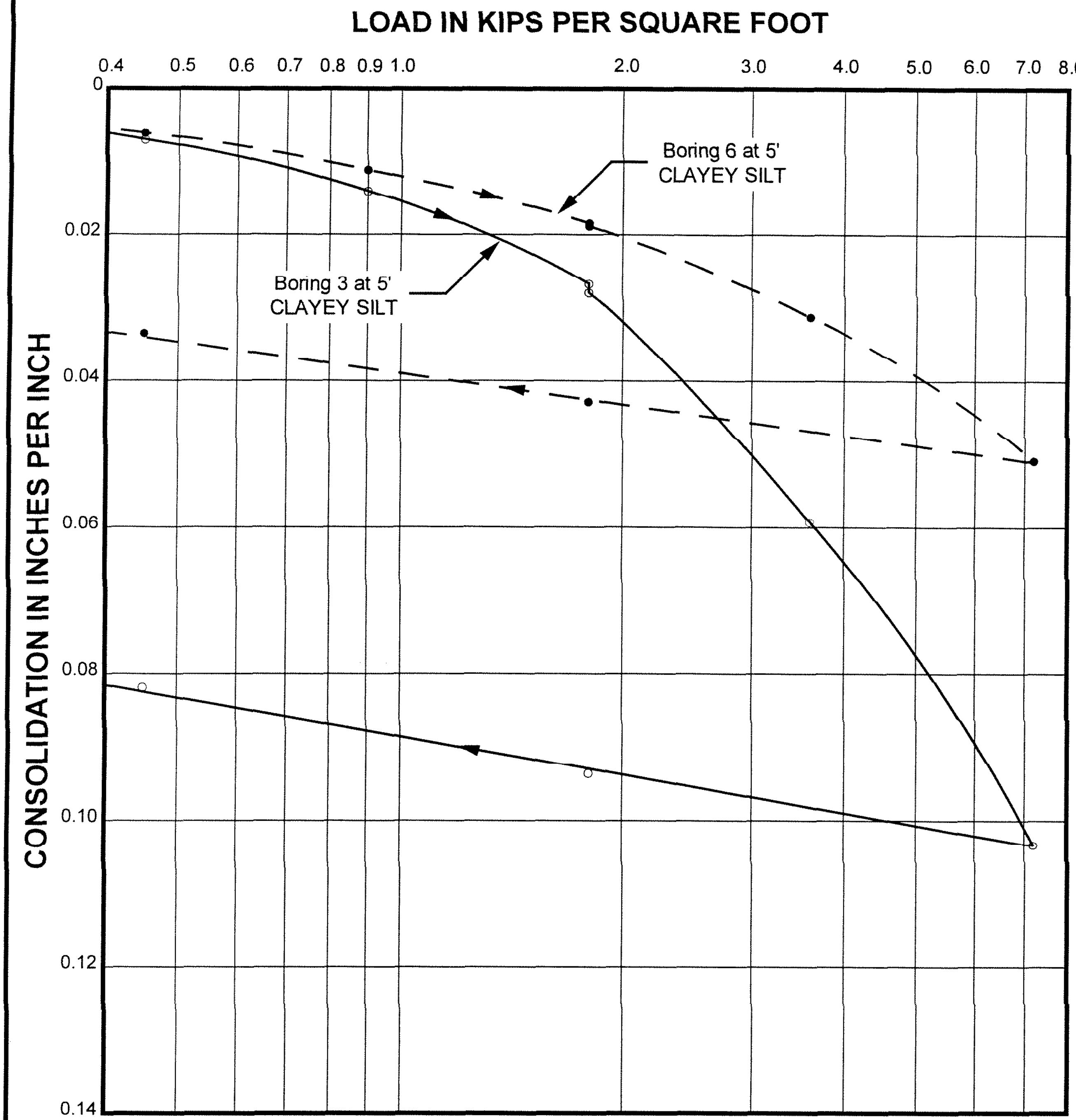


NOTE: Samples tested at field moisture content.

CONSOLIDATION TEST DATA

LAW/CRANDALL

FIGURE A - 4.1



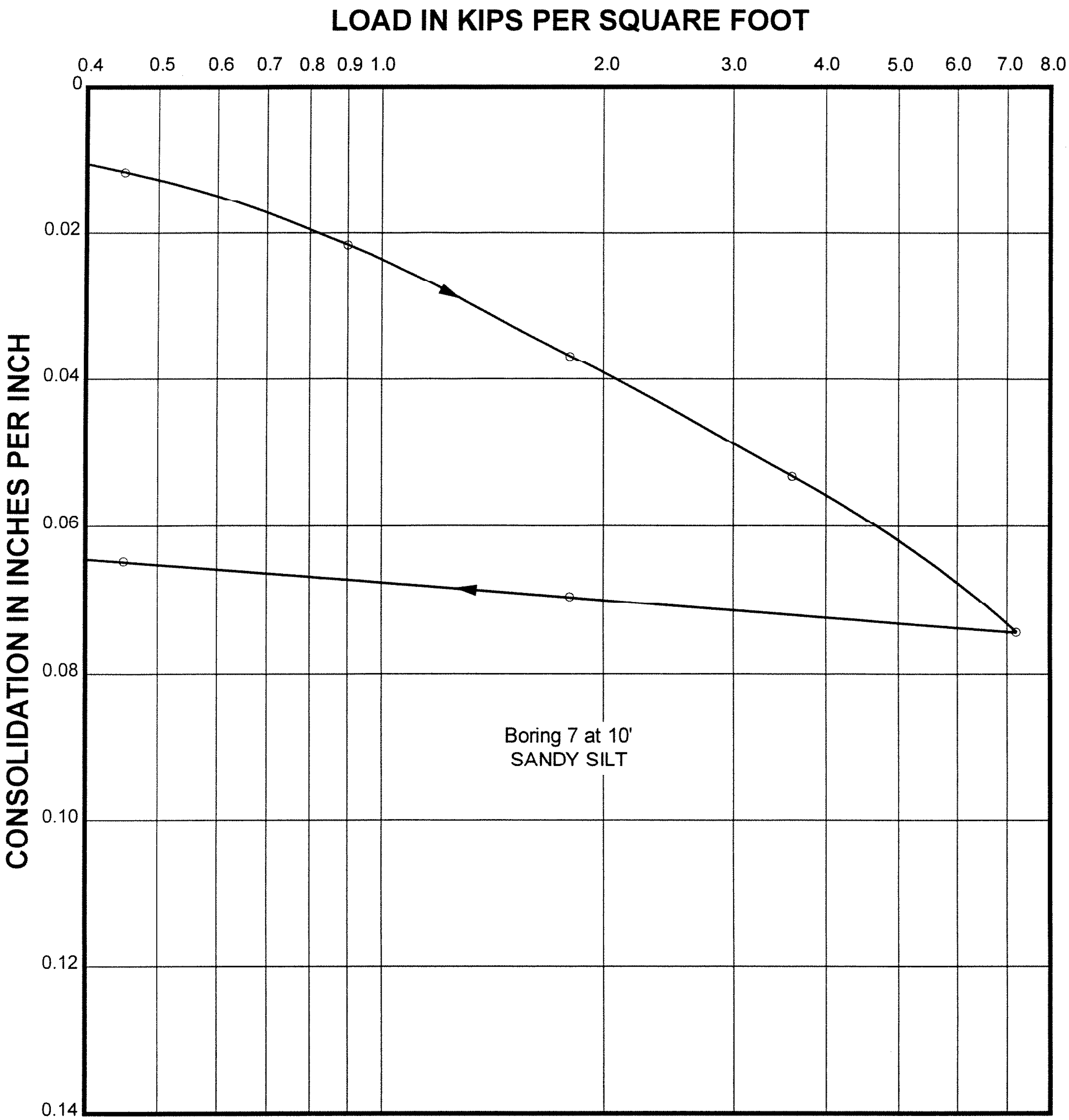
NOTE: Water added to samples after consolidation under a load of 1.8 kips per square foot.

CONSOLIDATION TEST DATA

LAW/CRANDALL

FIGURE A - 4.2

JOB 70131-8-0371 DATE 8/10/98 DR JB OE VL CHKD VL



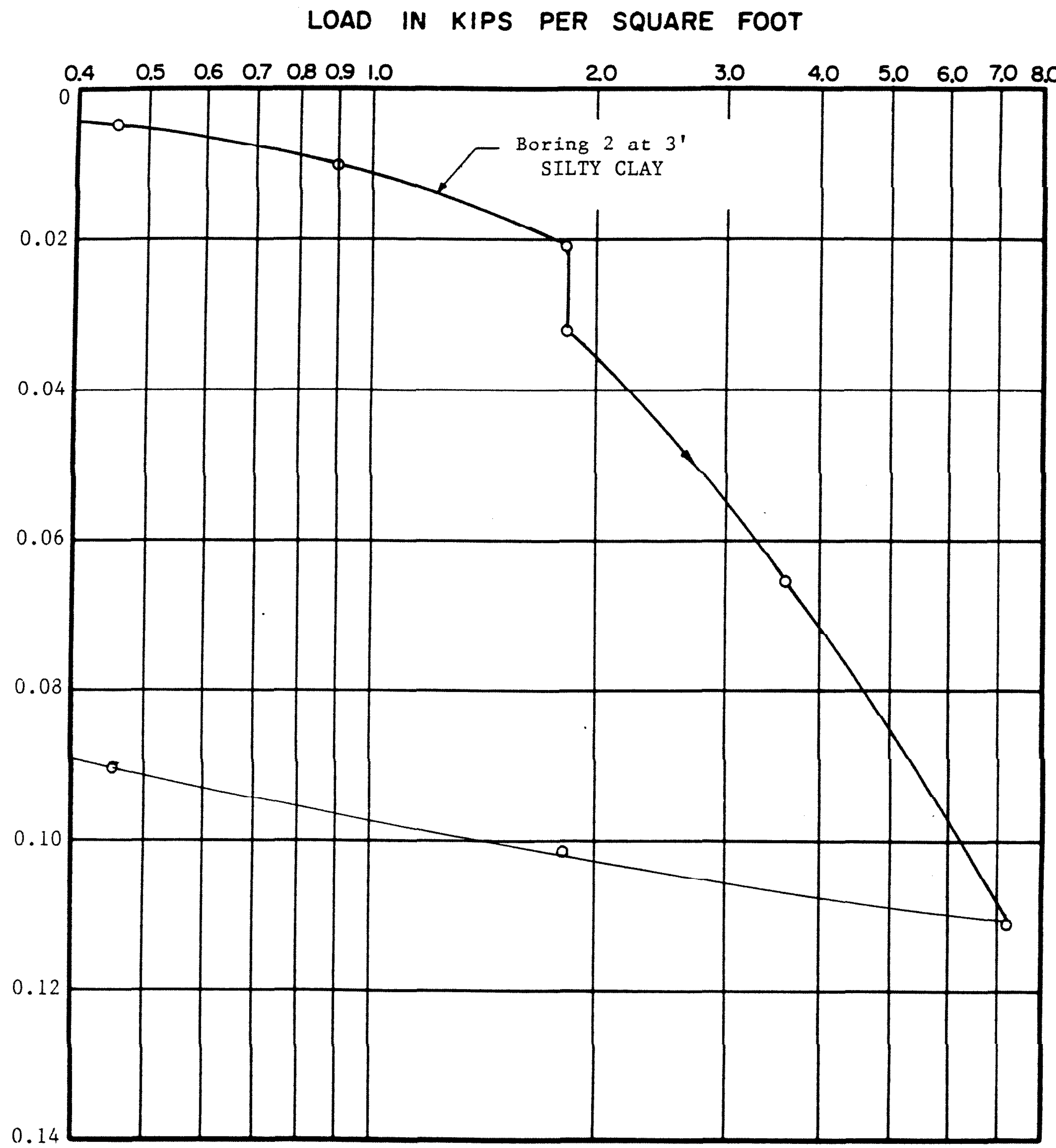
NOTE: Sample tested at field moisture content.

CONSOLIDATION TEST DATA

JOB 70131-8-0371 DATE 8/10/98 DR JB OE VL CHKD

LAW/CRANDALL

FIGURE A - 4.3



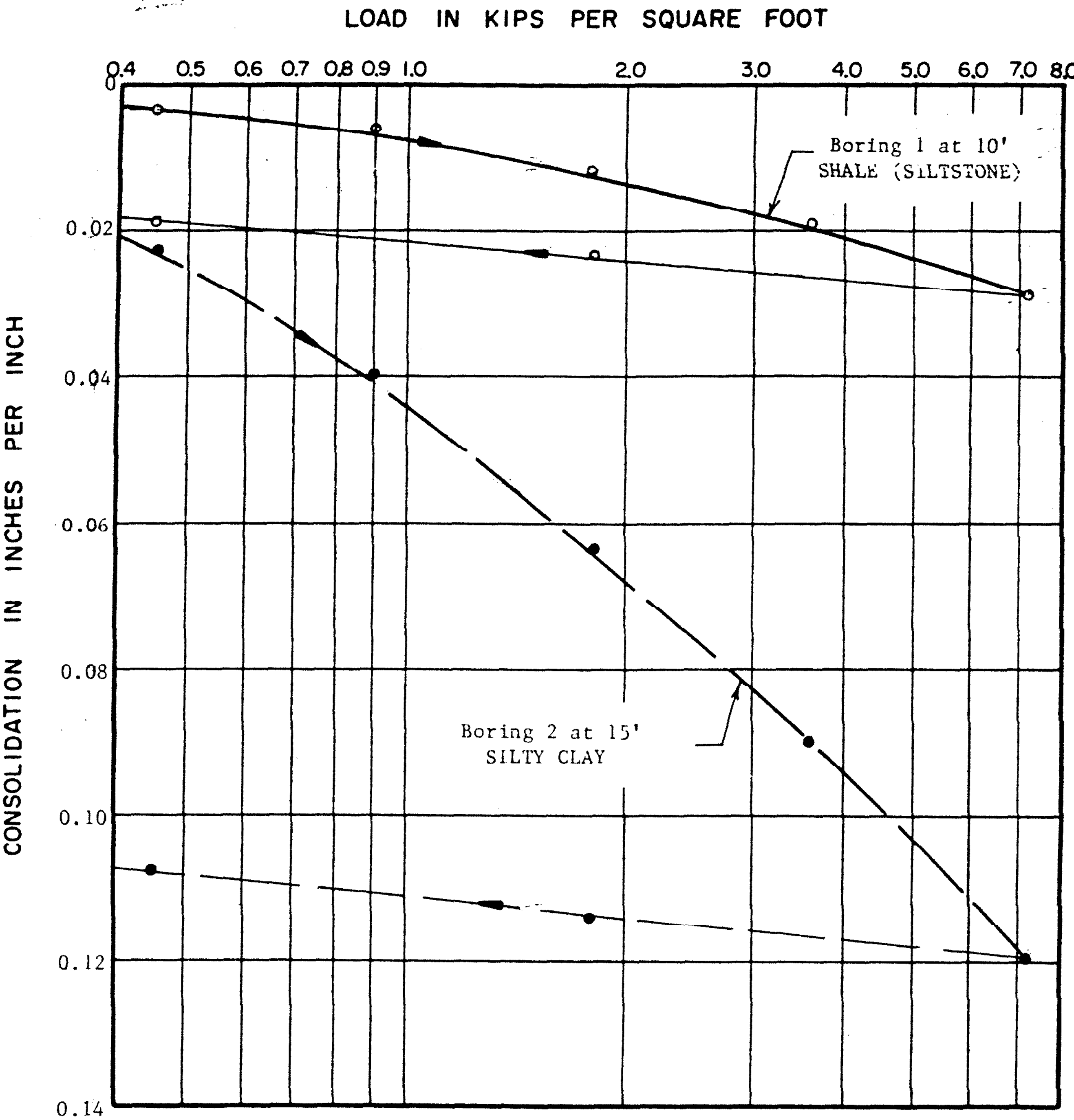
NOTE: Water added to sample after consolidation under a load of 1.8 kips per square foot.

CONSOLIDATION TEST DATA

(PREVIOUS INVESTIGATION AE-87219)

LeROY CRANDALL AND ASSOCIATES

FIGURE A-4.4



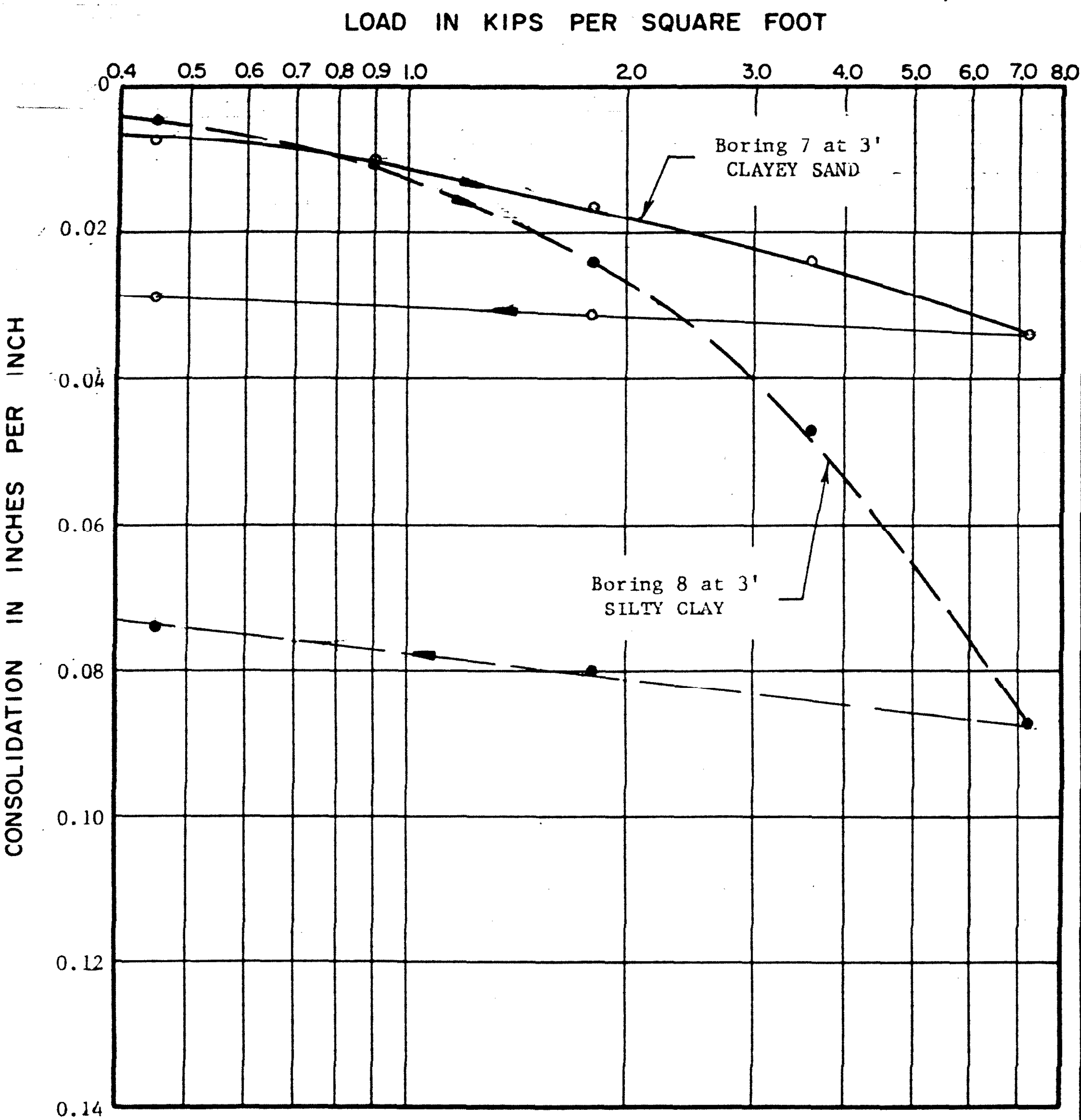
NOTE: Samples tested at field moisture content.

CONSOLIDATION TEST DATA

(PREVIOUS INVESTIGATION A-84074)

LeROY CRANDALL AND ASSOCIATES

FIGURE A-4.5



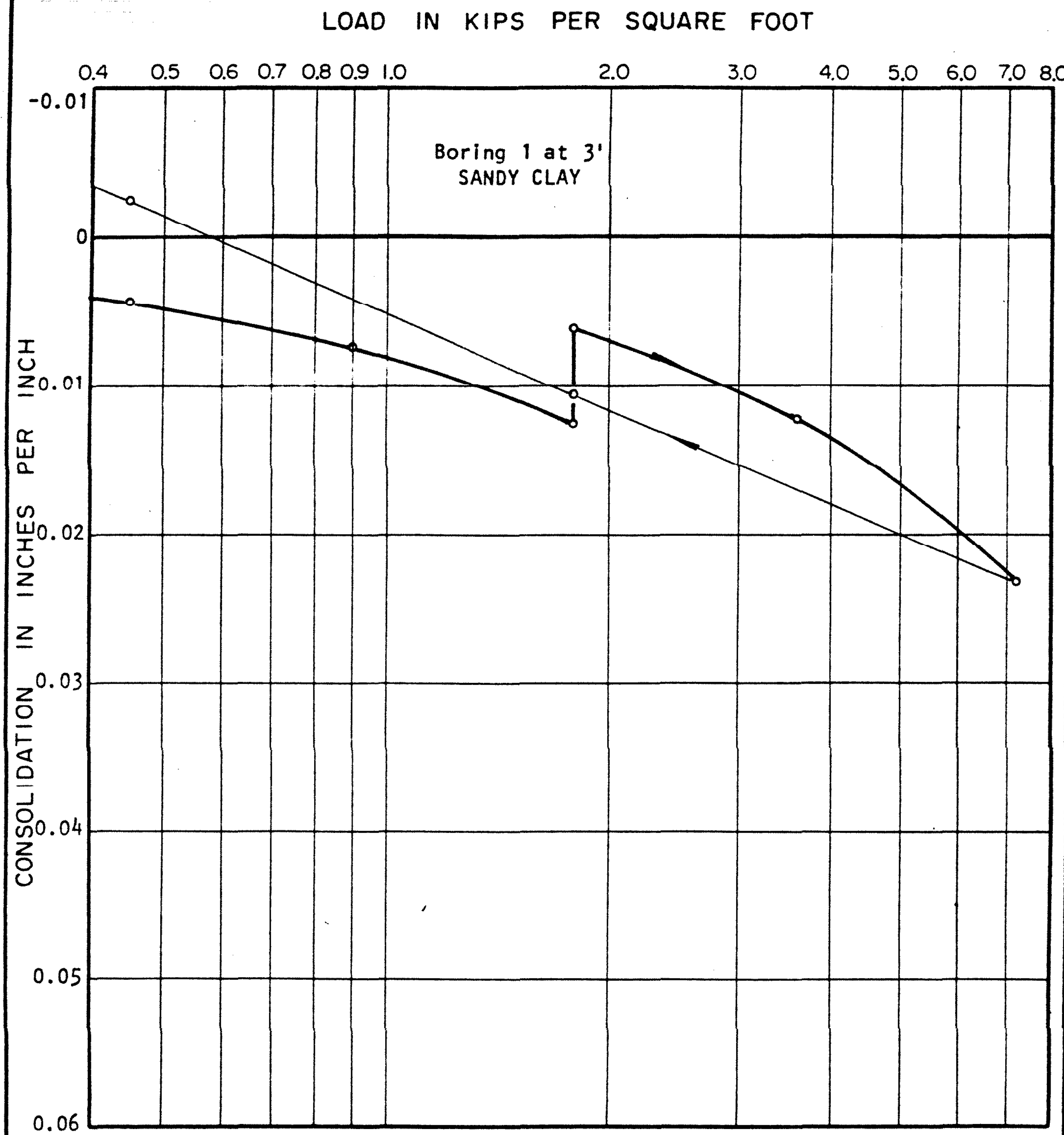
NOTE: Samples tested at field moisture content.

CONSOLIDATION TEST DATA

(PREVIOUS INVESTIGATION A-84074)

LeROY CRANDALL AND ASSOCIATES

FIGURE A-4.6



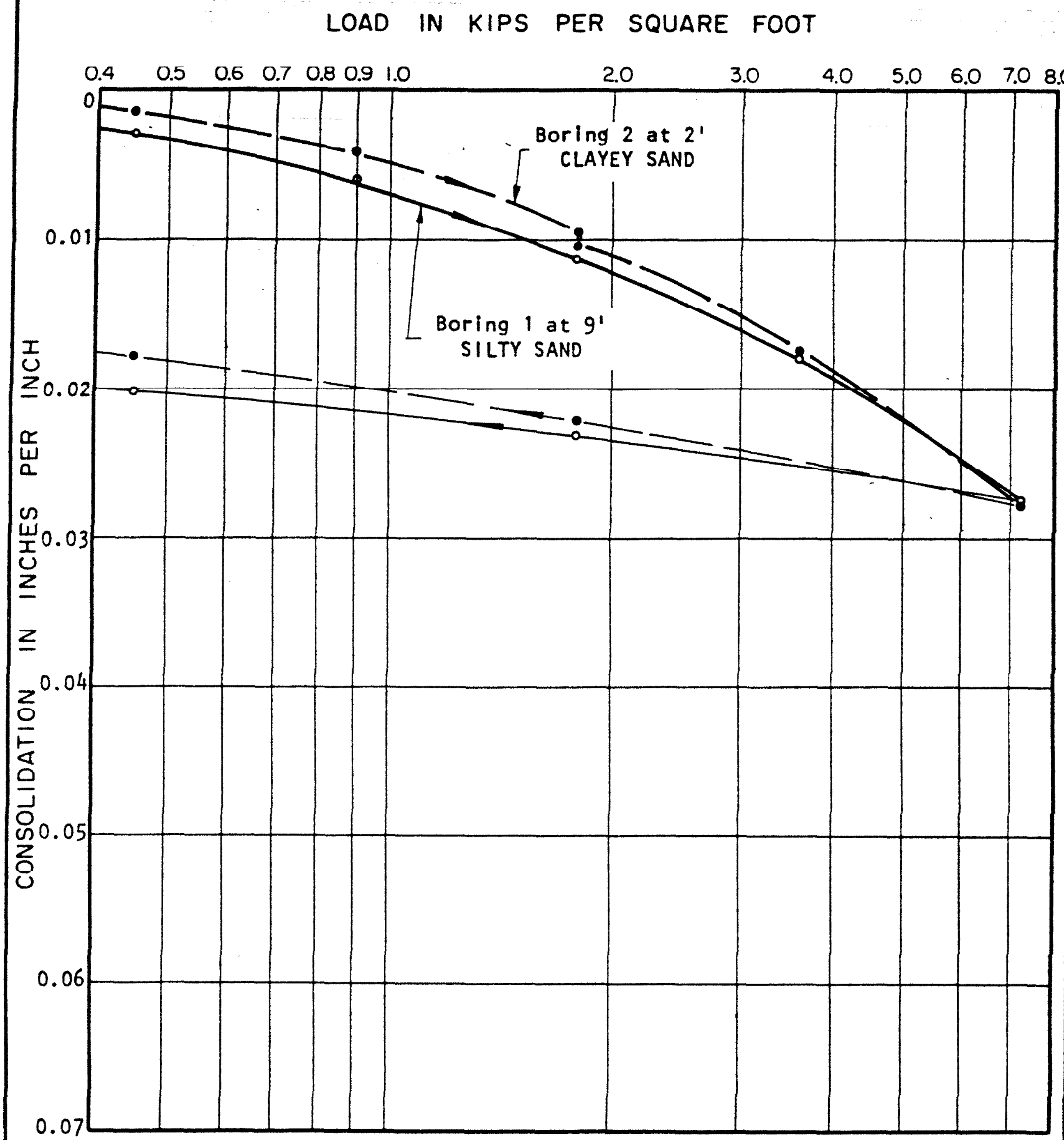
NOTE: Water added to sample after consolidation under a load of 1.8 kips per square foot.

CONSOLIDATION TEST DATA

(PREVIOUS INVESTIGATION A-75129)

LEROY CRANDALL & ASSOCIATES

FIGURE A-4.7



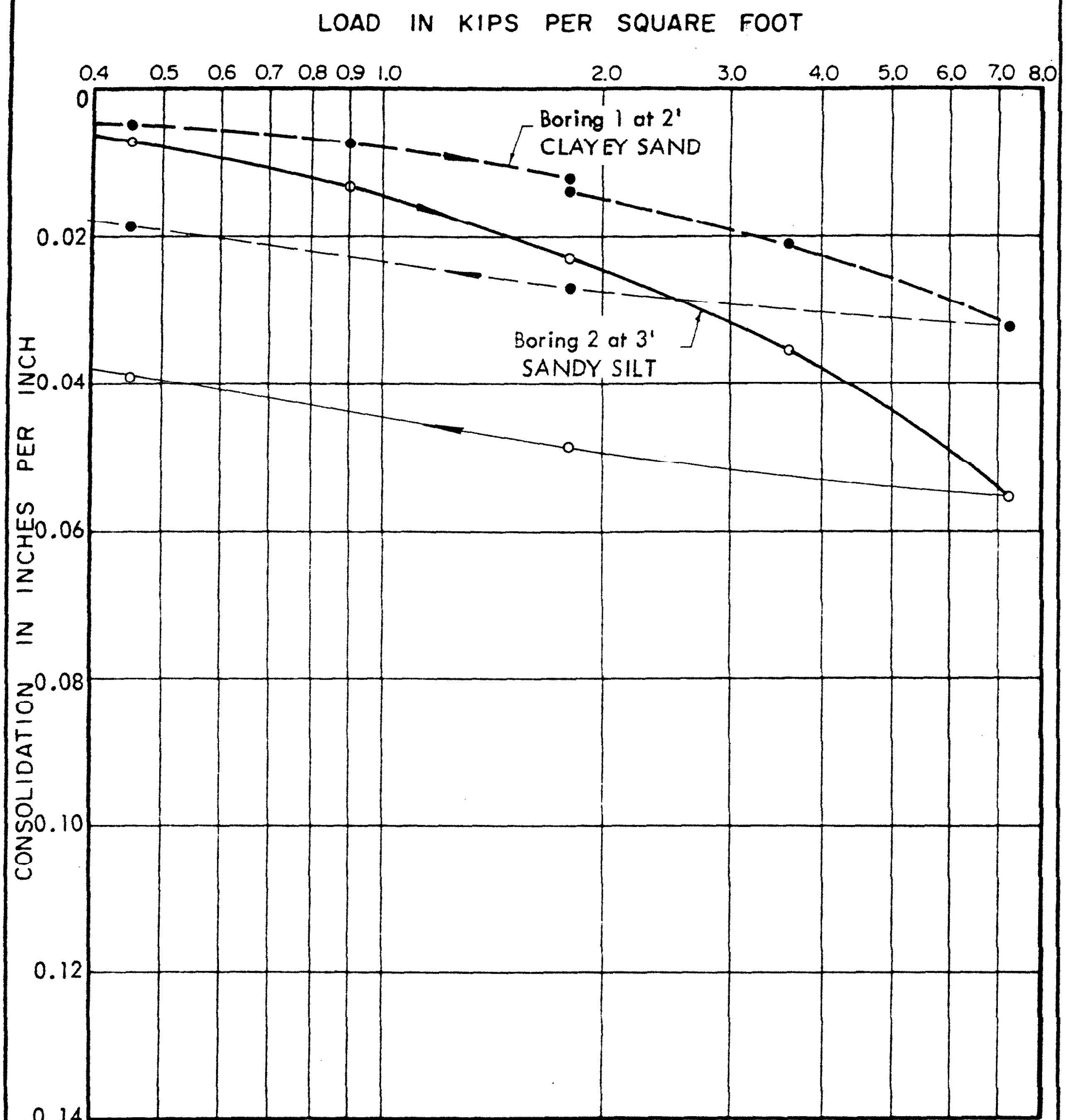
NOTE: Water added to sample from Boring 2 after consolidation under a load of 1.8 kips per square foot. The other sample tested at field moisture content.

CONSOLIDATION TEST DATA

(PREVIOUS INVESTIGATION A-75129)

LEROY CRANDALL & ASSOCIATES

FIGURE A-4.8



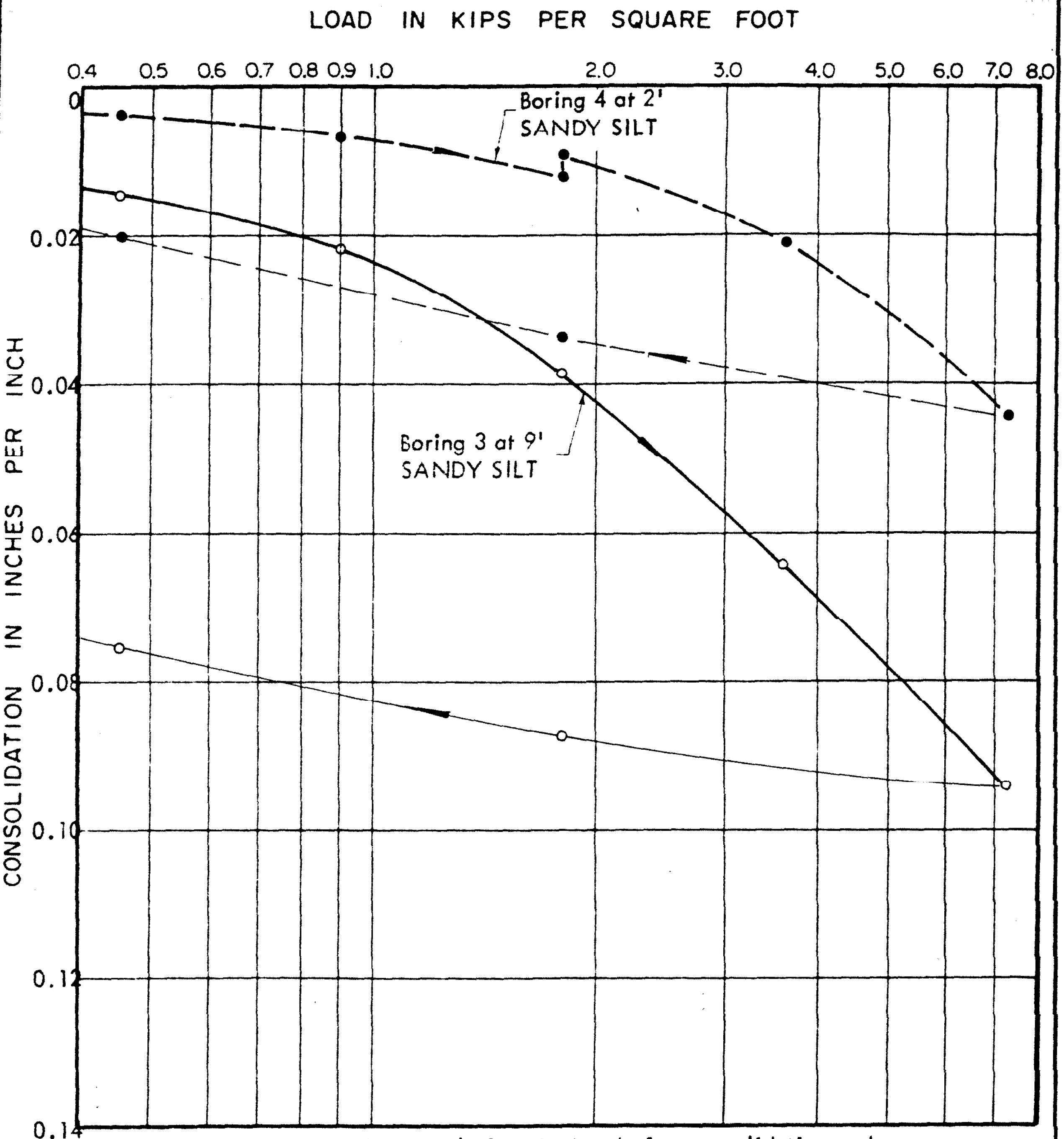
NOTE: Water was added to samples after consolidation under a load of 1.8 kips per square foot.

CONSOLIDATION TEST DATA

(PREVIOUS INVESTIGATION A-69307)

LEROY CRANDALL AND ASSOCIATES

FIGURE A-4.9



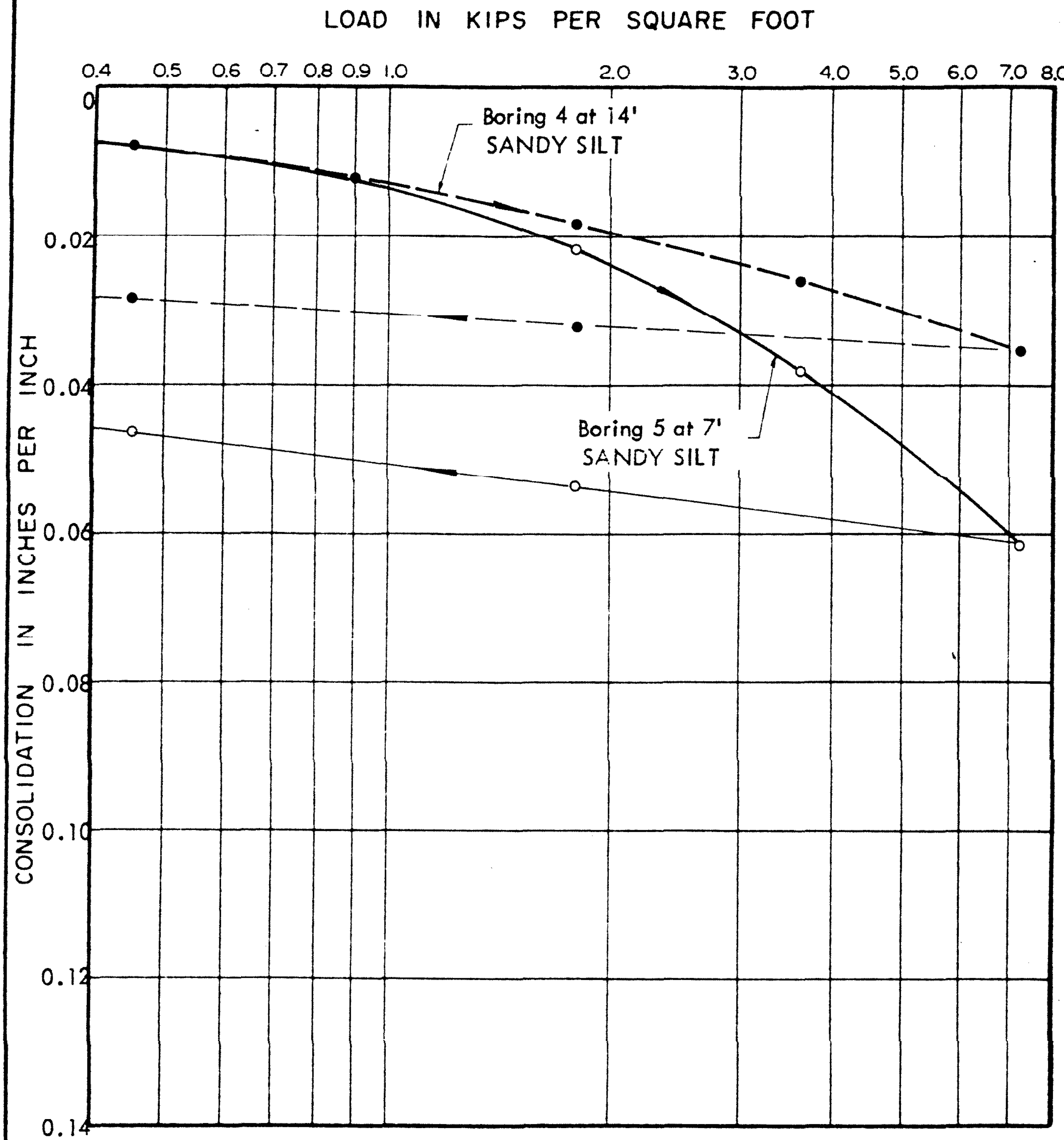
NOTE: Water added to sample from Boring 4 after consolidation under a load of 1.8 kips per square foot. The other sample tested at field moisture content.

CONSOLIDATION TEST DATA
(PREVIOUS INVESTIGATION A-69307)

LEROY CRANDALL AND ASSOCIATES

FIGURE A-4.10

7031-8-0371* 8-10-90



NOTE: Samples tested at field moisture content.

CONSOLIDATION TEST DATA
(PREVIOUS INVESTIGATION A-69307)

LEROY CRANDALL AND ASSOCIATES

FIGURE A-4.11

BORING NUMBER
AND SAMPLE DEPTH: 3 at 0 to 2'

SOIL TYPE: SILTY CLAY

MAXIMUM DRY DENSITY: 117
(lbs./cu. ft.)

OPTIMUM MOISTURE CONTENT: 12.5
(% of dry wt.)

TEST METHOD: ASTM Designation D1557-91

COMPACTION TEST DATA

LAW/CRANDALL

FIGURE A - 5.1

JOB 70131-8-0371 DATE 7/27/98 DR JB OE MBH CHKD

O.E. ___ SK Sk CHKD BW LM

7013I-8-037I* 8-19-98

BORING NUMBER
AND SAMPLE DEPTH : 2 at 0' to 2'

SOIL TYPE : FILL - SILTY SAND

MAXIMUM DRY DENSITY : 111
(lbs./cu. ft.)

OPTIMUM MOISTURE CONTENT : 15
(% of dry wt.)

TEST METHOD : ASTM Designation D1557 - 70

COMPACTION TEST DATA

(PREVIOUS INVESTIGATION AE-87219)

LeROY CRANDALL AND ASSOCIATES

FIGURE A-5.2

BORING NUMBER AND SAMPLE DEPTH:	1 at 0'-2'	5 at 0'-3'
SOIL TYPE:	SANDY SILT	SANDY SILT
MAXIMUM DRY DENSITY*: (Lbs./Cu.Ft.)	112	114
OPTIMUM MOISTURE CONTENT*: (% of Dry Wt.)	15	14

* TEST METHOD: ASTM Designation D1557-66T.

7013/-8-0371 * 8-19-98

COMPACTION TEST DATA
(PREVIOUS INVESTIGATION A-86014)

LEROY CRANDALL AND ASSOCIATES

FIGURE A-5.3

BORING NUMBER
AND SAMPLE DEPTH: Boring 8 at 1½' to 3'

SOIL TYPE: SILTY CLAY

MAXIMUM DRY DENSITY *: 116
(LBS./CU. FT.)

OPTIMUM MOISTURE CONTENT *: 13
(% OF DRY WT.)

EXPANSION (%): 3.7
(FROM OPTIMUM TO SATURATED MOISTURE CONTENT)

C.B.R. **
(% OF STANDARD)

AT 90% COMPACTION: 4

AT 95% COMPACTION: 5

* TEST METHOD: ASTM DESIGNATION D1557-70.

** TEST METHOD: ASTM DESIGNATION D1883-73.

COMPACTION AND C.B.R. TEST DATA

(PREVIOUS INVESTIGATION A-84074)

LeROY CRANDALL AND ASSOCIATES

FIGURE A-5.4

7-8-37-6

BORING NUMBER
AND SAMPLE DEPTH: 1 at ½' to 5'

SOIL TYPE: FILL - SANDY CLAY, CLAYEY SAND and SILTY SAND

MAXIMUM DRY DENSITY: 117
(LBS./CU. FT.)

OPTIMUM MOISTURE CONTENT: 14
(% OF DRY WT.)

TEST METHOD: ASTM DESIGNATION D1557-70.

COMPACTION TEST DATA
(PREVIOUS INVESTIGATION A-69307)

LeROY CRANDALL AND ASSOCIATES

FIGURE A-5.5

BORING NUMBER AND SAMPLE DEPTH:	Boring 6 at 2'	Boring 8 at 1'	Boring 12 at 2'
SOIL TYPE:	CLAYEY SILT	SILTY CLAY	SILTY CLAY
CONFINING PRESSURE: (LBS./SQ. FT.)	200	200	200
FIELD MOISTURE CONTENT: (%)	21.4	23.7	24.1
EXPANSION FROM FIELD TO SOAKED MOISTURE CONTENT: (%)	1.5	0.4	0
SOAKED MOISTURE CONTENT: (%)	23.6	25.1	27.0
SHRINKAGE FROM FIELD TO AIR-DRIED MOISTURE CONTENT: (%)	7.4	11.8	11.1
AIR-DRIED MOISTURE CONTENT: (%)	6.3	4.9	4.9
TOTAL VOLUME CHANGE: (%)	8.9	12.2	11.1

EXPANSION TEST DATA

(PREVIOUS INVESTIGATION A-84074)

LeROY CRANDALL AND ASSOCIATES

FIGURE A-6.1

BORING NUMBER AND SAMPLE DEPTH:	1 at 3'	2 at 2'	4 at ½'
SOIL TYPE:	SANDY CLAY	CLAYEY SAND	SANDY SILT
CONFINING PRESSURE: (Lbs./Sq.Ft.)	200	200	200
FIELD MOISTURE CONTENT: (%)	17.6	10.3	3.8
EXPANSION FROM FIELD TO SOAKED MOISTURE CONTENT: (%)	4.7	0	0.8
SOAKED MOISTURE CONTENT: (%)	22.1	14.1	15.4
SHRINKAGE FROM FIELD TO AIR-DRIED MOISTURE CONTENT: (%)	10.2	3.0	1.9
AIR-DRIED MOISTURE CONTENT: (%)	6.2	2.0	1.1
TOTAL VOLUME CHANGE: (%)	14.9	3.0	2.7

EXPANSION TEST DATA

(PREVIOUS INVESTIGATION A-75129)

LEROY CRANDALL AND ASSOCIATES

FIGURE A-6.2

7013/-8-0371 * 8-19-98

BORING NUMBER AND SAMPLE DEPTH:	3 at 3½'	6 at 1½'
SOIL TYPE:	CLAYEY SILT	SILTY CLAY
CONFINING PRESSURE: (lbs./sq.ft.)	144	144
INITIAL MOISTURE CONTENT: (% of dry wt.)	12.5	11.5
FINAL MOISTURE CONTENT: (% of dry wt.)	20.0	31.5
DRY DENSITY: (lbs./cu.ft.)	100	105
EXPANSION INDEX:	53	65

TEST METHOD: ASTM Designation D4829-88

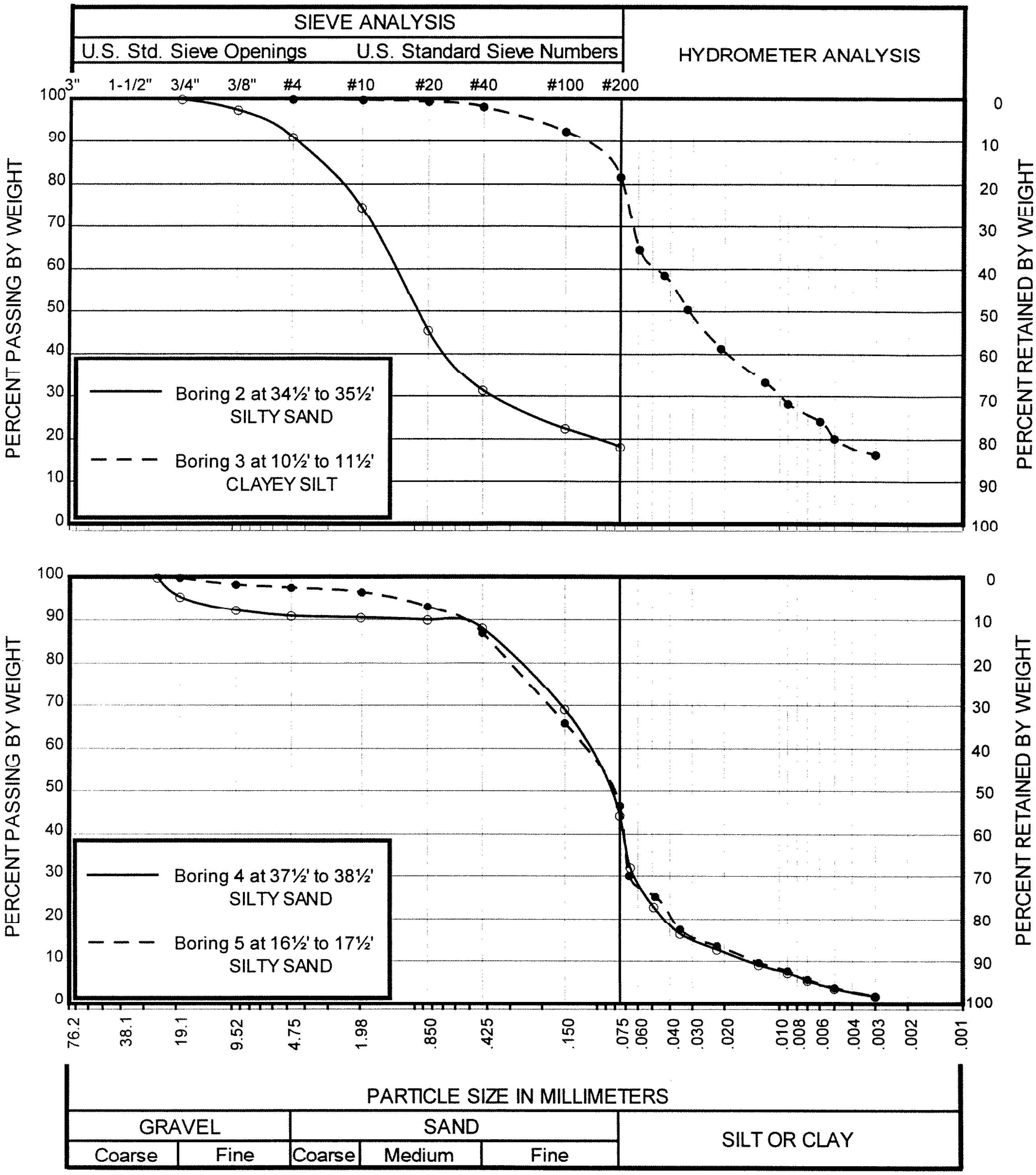
EXPANSION INDEX TEST DATA

LAW/CRANDALL

FIGURE A - 7

JOB 70131-8-0371 DATE 7/27/98 DR JB OE MBH CHKD

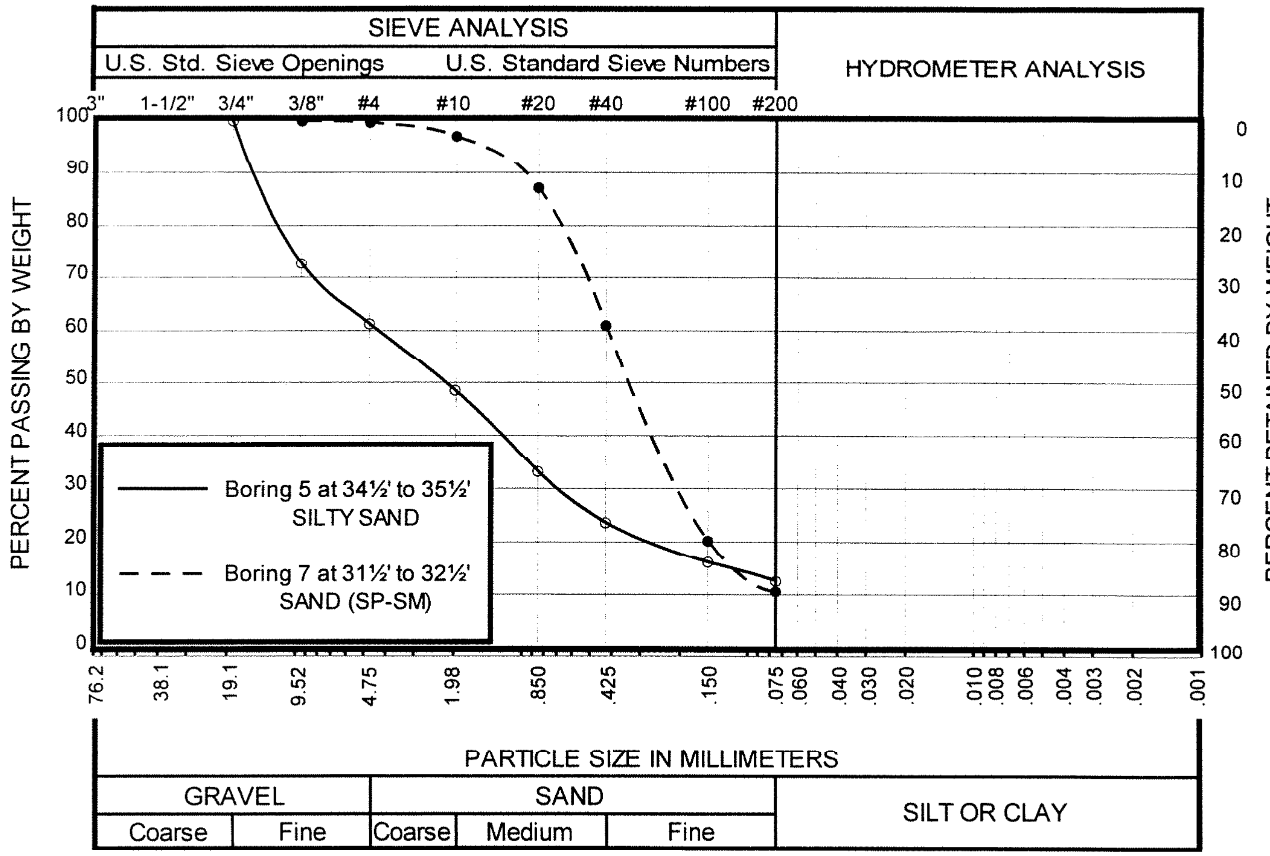
JOB 70131-8-0371 DATE 7/27/98 DR JB OE MBH CHKD



PARTICLE SIZE DISTRIBUTION

LAW/CRANDALL

FIGURE A - 8.1



JOB 70131-8-0371 DATE 7/27/98 DR JB OE MBH CHKD

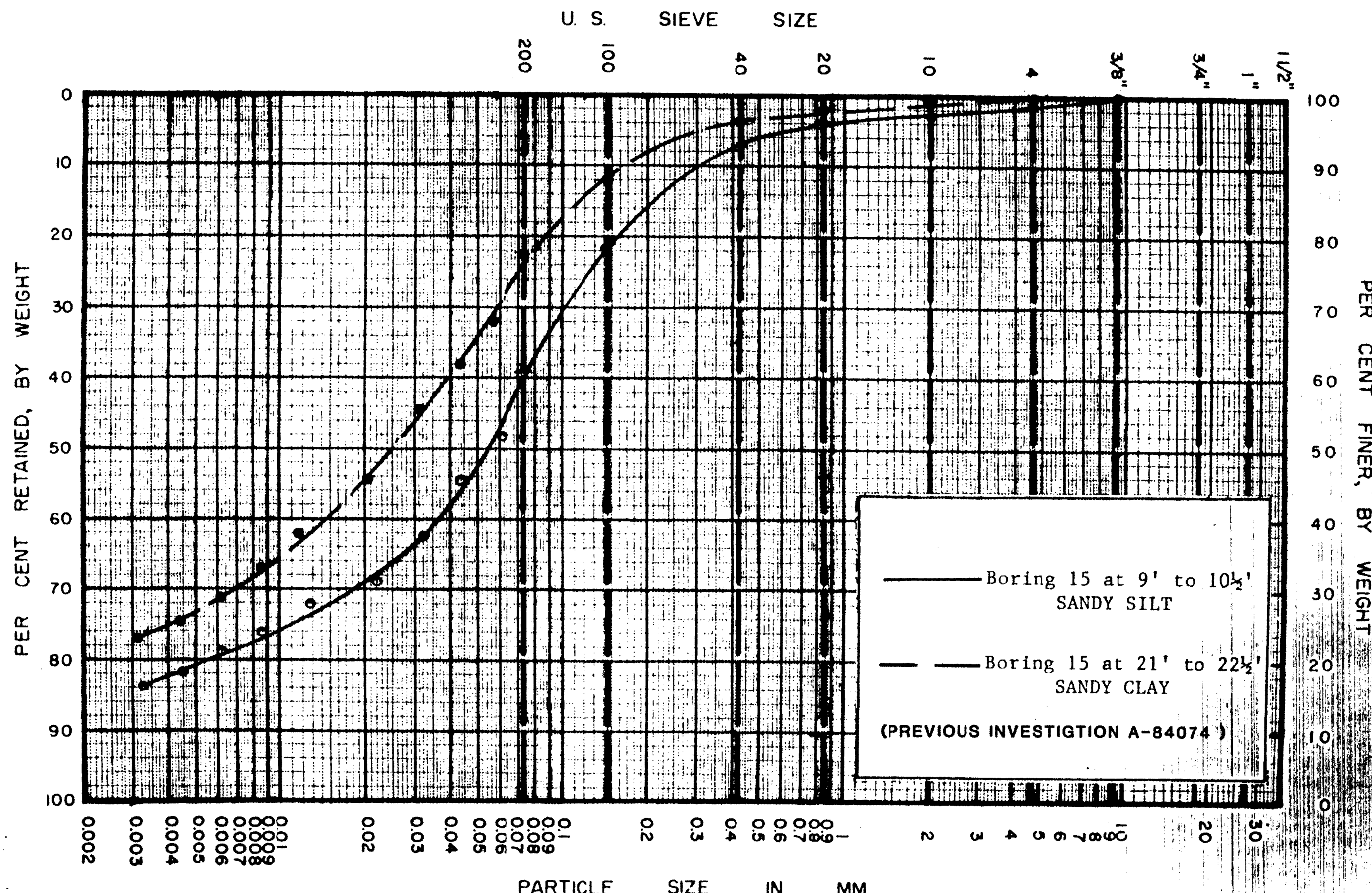
PARTICLE SIZE DISTRIBUTION

LAW/CRANDALL

FIGURE A - 8.2

[redacted]

70131-8-0371 * 8-19-98

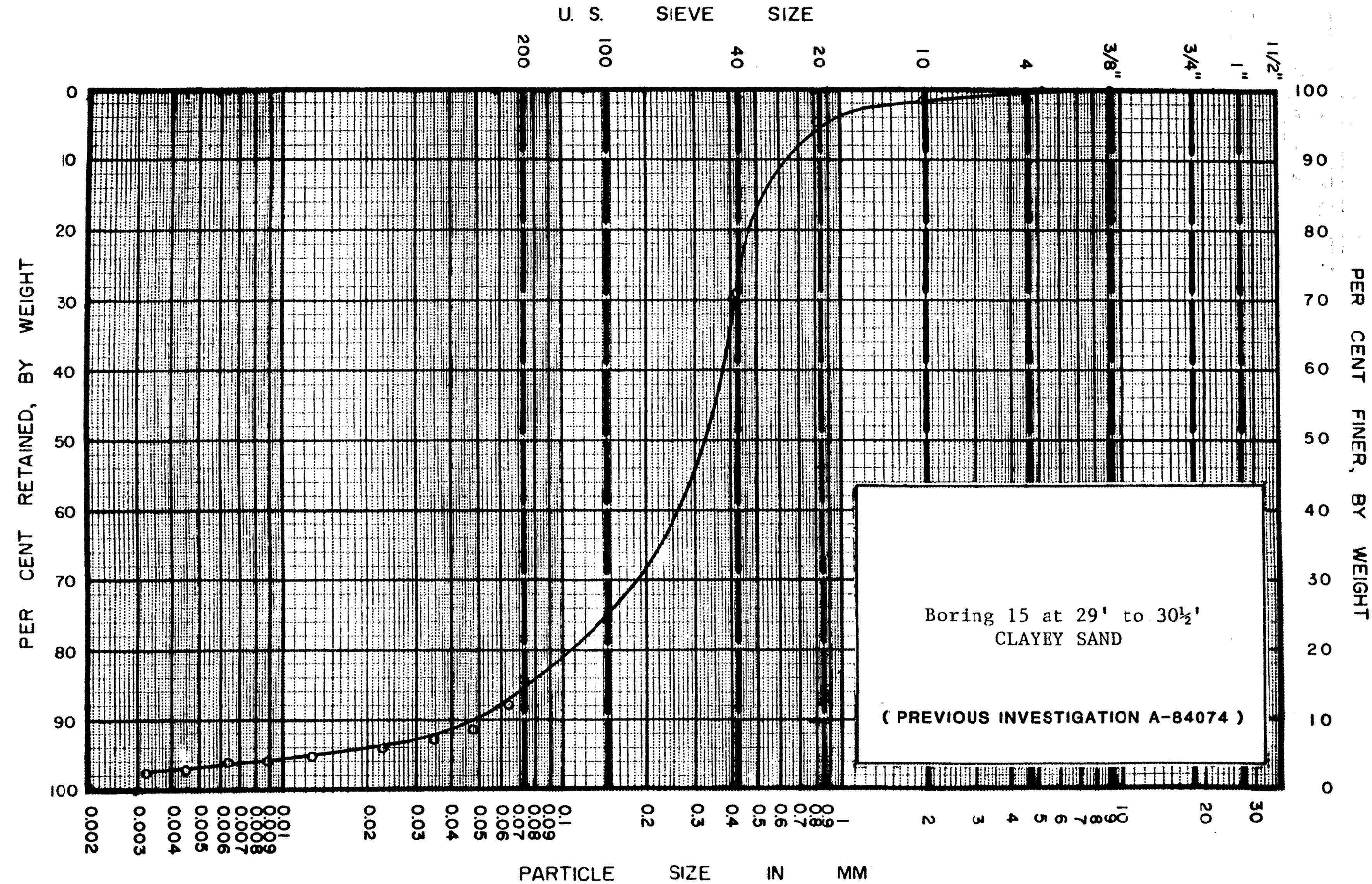


PARTICLE SIZE DISTRIBUTION

LEROY CRANDALL AND ASSOCIATES

FIGURE A-8.3

70131-8-0371 * 8-19-98



PARTICLE SIZE DISTRIBUTION

LEROY CRANDALL AND ASSOCIATES

FIGURE A-8.4

M.J. SCHIFF & ASSOCIATES, INC.

Consulting Corrosion Engineers - Since 1959
1291 North Indian Hill Boulevard
Claremont, California 91711

Phone: 909.626.0967/ Fax: 909.621.1419
E-mail: mjsa@mjs-a.com
http://www.mjs-a.com

August 13, 1998

LAW/CRANDALL, INC.
200 Citadel Drive
Los Angeles, California 90040-1554

Attention: Mr. Victor Langhaar

Re: Soil Corrosivity Study
Motion Picture and TV Fund
Woodland Hills, California
Your #70131-8-0371*2003, MJS&A #98334

INTRODUCTION

Laboratory tests have been completed on four soil samples you provided from referenced project at 23388 Mulholland Drive. The purpose of these tests was to determine if the soils may have deleterious effects on underground utilities, hydraulic elevator cylinders, and concrete foundations. It is our understanding that this project will consist of 2 and 3-story buildings at about existing grade. We assume that the samples provided are representative of the most corrosive soils at the site.

The scope of this study is limited to a determination of soil corrosivity and general corrosion control recommendations for materials likely to be used for construction. If the architects and/or engineers desire more specific information, designs, specifications, or review of design, we will be happy to work with them as a separate phase of this project.

TEST PROCEDURES

The electrical resistivity of each sample was measured in a soil box per ASTM G57 in its as-received condition and again after saturation with distilled water. Resistivities are at about their lowest value when the soil is saturated. The pH of the saturated samples was measured. A 5:1 water:soil extract from each sample was chemically analyzed for the major anions and cations and ammonium and nitrate. Test results are shown on Table 1.

SOIL CORROSIVITY

A major factor in determining soil corrosivity is electrical resistivity. The electrical resistivity of a soil is a measure of its resistance to the flow of electrical current. Corrosion of buried metal is an electrochemical process in which the amount of metal loss due to corrosion is directly proportional to the flow of electrical current (DC) from the metal into the soil. Corrosion currents, following Ohm's Law, are inversely proportional to soil resistivity. Lower electrical resistivities result from higher moisture and chemical contents and indicate corrosive soil.

A correlation between electrical resistivity and corrosivity toward ferrous metals is:

Soil Resistivity In ohm-centimeters			Corrosivity Category
Over		10,000	mildly corrosive
2,000	to	10,000	moderately corrosive
1,000	to	2,000	corrosive
below		1,000	severely corrosive

Other soil characteristics that may influence corrosivity towards metals are pH, chemical content, soil types, aeration, anaerobic conditions, and site drainage.

Electrical resistivities were in moderately corrosive through severely corrosive categories with as-received moisture and at saturation. All as-received resistivities were at or near their saturated values indicating a relatively high moisture content.

Soil pH values varied from 6.3 to 6.7. This range is slightly acidic to neutral and does not particularly increase soil corrosivity.

The chemical content of the samples was low and moderate. No concentration was high enough to be of particular concern.

Tests were not made for sulfide or negative oxidation-reduction (redox) potentials because they would not exist in these aerated samples.

This soil is classified as severely corrosive to ferrous metals.

CORROSION CONTROL

The life of buried materials depends on thickness, strength, loads, construction details, soil moisture, etc., in addition to soil corrosivity, and is, therefore, difficult to predict. Of more practical value are corrosion control methods that will increase the life of materials that would be subject to significant corrosion.

Steel Pipe

Abrasive blast underground steel utilities and apply a high quality dielectric coating such as extruded polyethylene, a tape coating system, hot applied coal tar enamel, or fusion bonded epoxy.

Bond underground steel pipe with rubber gasketed, mechanical, grooved end, or other nonconductive type joints for electrical continuity. Electrical continuity is necessary for corrosion monitoring and cathodic protection.

Electrically insulate each buried steel pipeline from dissimilar metals, cement-mortar coated and concrete encased steel, and above ground steel pipe to prevent dissimilar metal corrosion cells and to facilitate the application of cathodic protection.

Apply cathodic protection to steel piping as per NACE International RP-0169-96.

As an alternative to dielectric coating and cathodic protection, apply a 3/4 inch cement mortar coating or encase in cement-slurry or concrete 3 inches thick, using any type of cement.

Hydraulic Elevator

Coat hydraulic elevator cylinders as described above. Electrically insulate each cylinder from building metals by installing dielectric material between the piston platen and car, insulating the bolts, and installing an insulated joint in the oil line. Apply cathodic protection to hydraulic cylinders as per NACE International RP-0169-96. As an alternative to electrical insulation and cathodic protection, place each cylinder in a plastic casing with a plastic watertight seal at the bottom.

The elevator oil line should be placed above ground if possible but, if underground, should be protected as described above for steel utilities.

Iron Pipe

Encase ductile iron water piping in 8 mil thick low-density polyethylene or 4 mil thick high-density, cross-laminated polyethylene plastic tubes or wraps per AWWA Standard C105 or coat with a polyurethane intended for underground use. As an alternative, encase iron piping with cement slurry or concrete at least 3 inches thick surrounding the pipe, using any type of cement. Bond all nonconductive type joints for electrical continuity. Electrically insulate underground iron pipe from dissimilar metals and from above ground iron pipe with insulated joints.

Encase cast iron drain lines in 8 mil thick low-density polyethylene or 4 mil thick high-density, cross-laminated polyethylene plastic tubes or wraps per AWWA Standard C105. As an alternative, encase iron piping with cement slurry or concrete at least 3 inches thick surrounding the pipe, using any type of cement. Electrically insulate underground iron pipe from dissimilar metals and from above ground iron pipe with insulated joints.

Copper Tube

Bare copper tubing for cold water should be bedded and backfilled in sand at least 2-inches thick around the tubing. Hot water tubing may be subject to a higher corrosion rate. Hot copper can be protected by applying cathodic protection or preventing soil contact. Soil contact may be prevented by placing the tubing above ground or inside a plastic pipe.

Plastic and Vitrified Clay Pipe

No special precautions are required for plastic and vitrified clay piping placed underground from a corrosion viewpoint. Protect any iron valves and fittings with a double polyethylene wrap per AWWA C105 or as described below for bare steel appurtenances. Where concrete thrust blocks are to be placed against iron, use a single polyethylene wrap to prevent concrete/iron contact and to eliminate the slipperiness of a double wrap.

All Pipe

On all pipe, coat bare steel appurtenances such as bolts, joint harnesses, or flexible couplings with a coal tar or elastomer based mastic, coal tar epoxy, moldable sealant, wax tape, or equivalent after assembly.

Where metallic pipelines penetrate concrete structures such as building floors or walls, use plastic sleeves, rubber seals, or other dielectric material to prevent pipe contact with the concrete and reinforcing steel.

Concrete

Any type of cement and standard concrete cover over reinforcing steel may be used for concrete structures and pipe in contact with these soils. Use 2 inches minimum cover over embedded steel at the edges of concrete slabs and footings above grade as well as below.

Please call if you have any questions.

Respectfully Submitted,
M.J. SCHIFF & ASSOCIATES, INC.

James T. Keegan

Reviewed by,

Paul R. Smith

Paul R. Smith, P.E.

Enc: Table 1

Docs-98\98334.doc

REGISTERED PROFESSIONAL ENGINEER
PAUL R. SMITH
Paul R. Smith
CR1043
EXP 6-30-01
CORROSION
STATE OF CALIFORNIA

FIGURE A-9.4

M. J. Schiff & Associates, Inc.
Consulting Corrosion Engineers - Since 1959
1291 N. Indian Hill Boulevard
Claremont, CA 91711-3897
Phone 909.626.0967

Table 1 - Laboratory Tests on Soil Samples

Motion Picture & TV Fund
Your #70131-8-0371 2003, MJS&A #98334*
11-Aug-98

Sample ID			B-2 @ 3 1/2'	B-3 @ 25 1/2'	B-5 @ 3 1/2'	B-7 @ 3 1/2'
Soil Type			clayey silt	silty clay	clayey silt	clayey silt
Resistivity		**Units**				
as-received		ohm-cm	2,800	720	780	1,000
saturated		ohm-cm	2,550	670	725	1,000
pH			6.6	6.7	6.4	6.3
Electrical Conductivity		mS/cm	0.06	0.27	0.19	0.08
Chemical Analyses						
Cations						
calcium	Ca^{2+}	mg/kg	12	100	80	32
magnesium	Mg^{2+}	mg/kg	7	32	12	10
sodium	Na^{1+}	mg/kg	5	50	12	ND
Anions						
carbonate	CO_3^{2-}	mg/kg	ND	ND	ND	ND
bicarbonate	HCO_3^{1-}	mg/kg	85	134	122	98
chloride	Cl^{1-}	mg/kg	ND	25	57	ND
sulfate	SO_4^{2-}	mg/kg	ND	331	92	ND
Other Tests						
sulfide	S^{2-}	qual	na	na	na	na
Redox		mv	na	na	na	na
ammonium	NH_4^{1+}	mg/kg	2.2	2.6	8.4	0.9
nitrate	NO_3^{1-}	mg/kg	3.3	1.8	30.0	8.4

Minimum resistivity per California Test 643.

Electrical conductivity in millisiemens/cm and chemical analysis were made on a 1:5 soil-to-water extract.
mg/kg = milligrams per kilogram (parts per million) of dry soil.
Redox = oxidation-reduction potential in millivolts
ND = not detected
na = not analyzed

APPENDIX B

CONE PENETRATION TEST RESULTS

PRESENTATION OF CONE PENETRATION TEST DATA

MOTION PICTURE

WOODLAND HILLS, CALIFORNIA

Prepared for:

LAW/CRANDALL
Los Angeles, California

Prepared by:

GREGG IN SITU, INC.
Signal Hill, California

Prepared on:

August 17, 1998

TABLE OF CONTENTS

PRESENTATION OF CONE PENETRATION TEST DATA

1.0 INTRODUCTION

This report presents the results of a Cone Penetration Testing (CPT) program carried out at the Motion Picture site located in Woodland Hills, CA. The work was performed on July 27, 1998. The work is part of a geotechnical program being carried out by LAW/CRANDALL. The enclosed information consists of the CPT data from the referenced project. We recommend that all data be carefully reviewed by qualified personnel to verify the data and make appropriate recommendations.

2.0 FIELD EQUIPMENT & PROCEDURES

2.1 Electronic Cone Penetration Testing

The Cone Penetration Tests (CPT) were carried out by GREGG IN SITU, INC. of Signal Hill, CA using an integrated electronic cone system. A 10 ton or 20 ton capacity cone was used for the soundings. This cone has a tip area of 10 sq.cm. and friction sleeve area of 150 sq.cm. A piezometer element of 5 mm. thickness is located immediately behind the cone tip. The subtraction cone used has an equal end area friction sleeve and a tip end area ratio of 0.85 (Refer to Figure 1).

The cone used during the program was capable of recording the following parameters at 5 cm depth intervals:

- Tip Resistance (Qc)
- Sleeve Friction (Fs)
- Dynamic Pore Pressure (Ut)
- Shear (S) Wave Arrival Time

The above parameters, excluding the seismic wave velocities were printed simultaneously on a printer and stored on a computer diskette for future analysis and reference. CPT logs are included as well as interpreted parameters based on the CPT measurements.

A complete set of baseline readings was taken prior to and at the completion of the sounding to determine temperature shifts and any zero load offsets. Establishing temperature shifts and load offsets enables the engineer to make corrections to the cone data if necessary. The cone was hydraulically pushed using an integrated 25-ton cone rig.

Two CPT soundings were performed to a depth of 40 feet below the ground surface. Downhole seismic measurements were taken at approximately 5 foot intervals. The CPT sounding locations were specified by LAW/CRANDALL personnel.

2.2 Seismic Cone Penetration Testing

The seismic equipment and procedures used in this investigation, in general, were as developed at UBC and reported by Rice, 1984, Laing, 1985 and Robertson et al, 1986. The procedure was incorporated within the cone penetration test (CPT) and conducted when the cone penetration test was stopped at the desired test depth.

Seismic shear waves were generated by striking a steel beam which was held down by a hydraulic stabilizer on the CPT rig. The steel beam was 8.4 foot long, 6 inches wide and 6 inches deep. The beam was struck using 20 lb. sledge hammers.

For shear wave generation, the beam was struck using a 20 lb. sledge hammer in a horizontal direction, parallel to the active axis of the transducer, first from one end and then the other. The wave traces were recorded using a digital oscilloscope card within our 486 portable computer. Each wave was inspected and the procedure was repeated, if necessary. A contact trigger between the beam and the hammer produced accurate triggering times and allowed for the accurate timing of shear wave markers.

After each pair of shear wave traces was recorded, inspected and saved, the two traces were overlaid on a digital oscilloscope screen and the arrival times were selected. Each of the wave traces are presented in the Appendix. Some judgement is required on deciding the time of seismic wave arrival. A summary of the seismic wave data is presented in tabular form following the text of the report. We recommend qualified personnel review the wave arrival times and make any appropriate corrections.

3.0 CONE PENETRATION TEST DATA & INTERPRETATION

The cone penetration test data is presented in graphical form in the attached Appendix. Penetration depths are referenced to existing ground surface. This data includes CPT logs of measured soil parameters and a computer tabulation of interpreted soil types along with additional geotechnical parameters and pore pressure dissipation data.

GREGG IN SITU, INC.
August 17, 1998

LAW/CRANDALL
Motion Picture
Woodland Hills, CA

The stratigraphic interpretation is based on relationships between cone bearing (Qc), sleeve friction (Fs), and penetration pore pressure (Ut). The friction ratio (Rf), which is sleeve friction divided by cone bearing, is a calculated parameter which is used to infer soil behavior type. Generally, cohesive soils (clays) have high friction ratios, low cone bearing and generate large excess pore water pressures. Cohesionless soils (sands) have lower friction ratios, high cone bearing and generate little in the way of excess pore water pressures.

The interpretation of soils encountered on this project was carried out using recent correlations developed by Robertson et al, 1988. It should be noted that it is not always possible to clearly identify a soil type based on Qc, Fs and Ut. In these situations, experience and judgement and an assessment of the pore pressure dissipation data should be used to infer the soil behavior type. The soil classification chart used to interpret soil types based on Qc and Rf is provided in the Appendix.

We hope the information presented is sufficient for your purposes. If you have any questions, please do not hesitate to contact our office at (562) 427-6899.

Sincerely,
GREGG IN SITU, INC.

Brian Savela
Operations Manager

APPENDIX

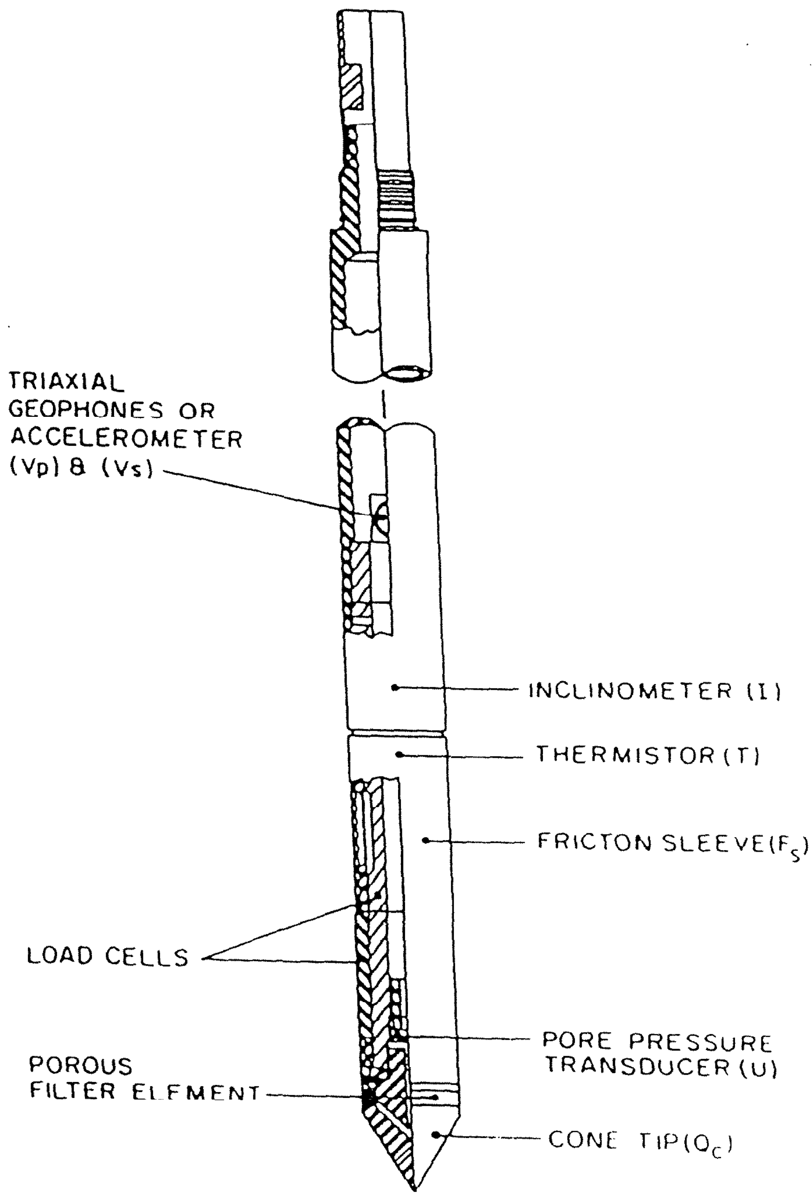


FIGURE 1: SEISMIC CONE PENETROMETER

SEISMIC CPT SHEAR WAVE RESULTS

Location : MOTION PICTURE
Hole No. : SCPT-2 Date : 07/27/98
Source : 20 lb. HAMMER AND BEAM ON CPT RIG
Offset : 1.60 ft

Geophone Depth (ft)	Travel Distance (ft)	S-Wave Marker Time (msec)	Equivalent Vertical Path Time (msec)	Incr. S-Wave Velocity (ft/s)
***********	***********	***********	***********	***********
9.9	10.05	27.8 *	27.40	
9.9	10.05	37.8	37.33	362.1 *
15.0	15.09	44.8	44.54	705.3
19.9	19.99	52.3	52.08	652.7
24.8	24.90	60.1	59.98	623.3
29.9	29.98	66.8	66.70	755.8
34.9	34.89	74.5	74.42	637.8
39.9	39.97	81.2	81.13	757.5

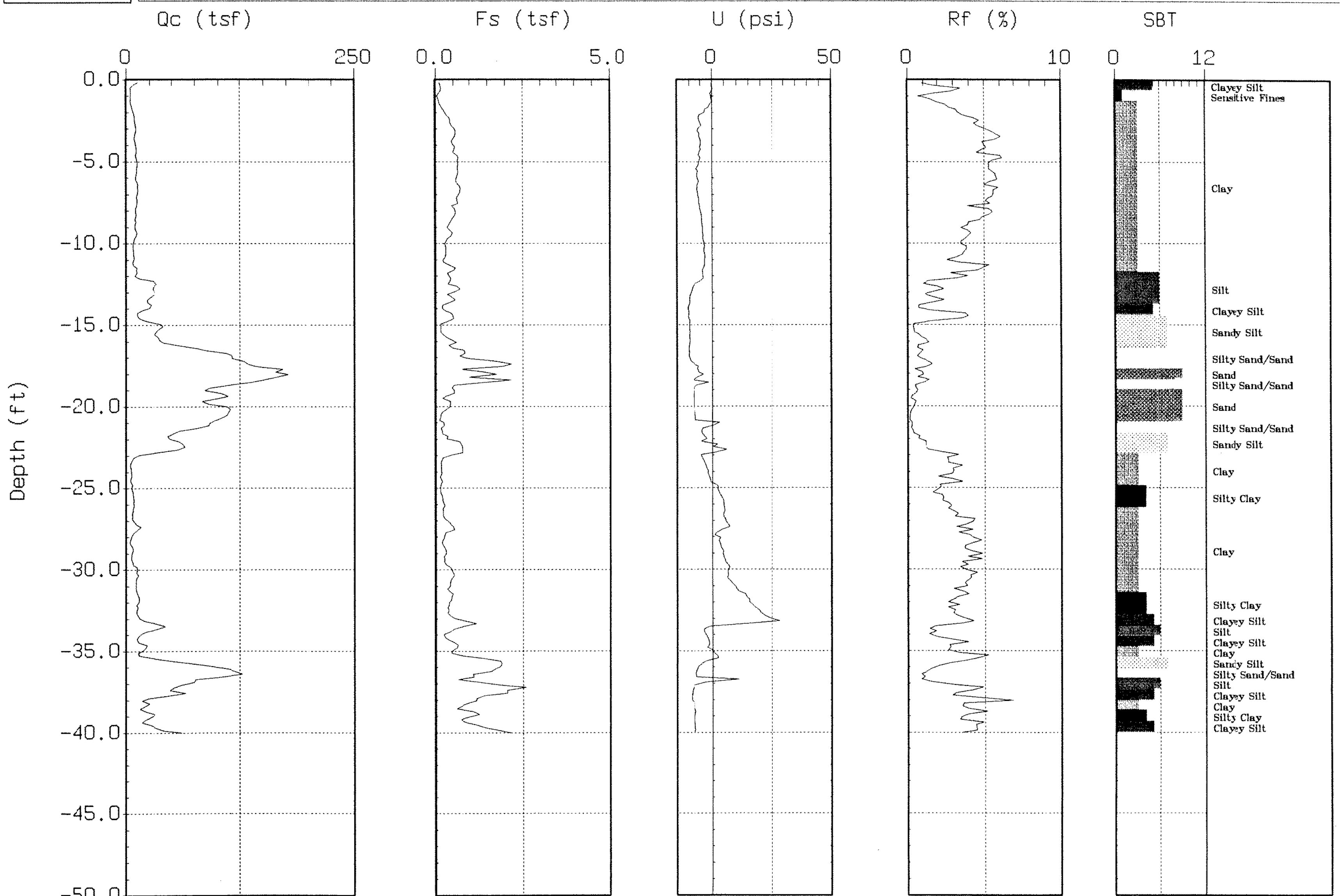
* Shear wave arrival time is used to calculate incremental velocity at 1st depth interval, first shear wave cross over time is used to calculate incremental velocities at subsequent depth intervals.

GREGG

LAW CRANDALL

Site : MOTION PICTURE
Location : CPT-1

Engineer : V. _ANGHAAR
Date : 07:27:93 11:C2



Max. Depth: 40.03 (ft)

Depth Inc.: 0.164 (ft)

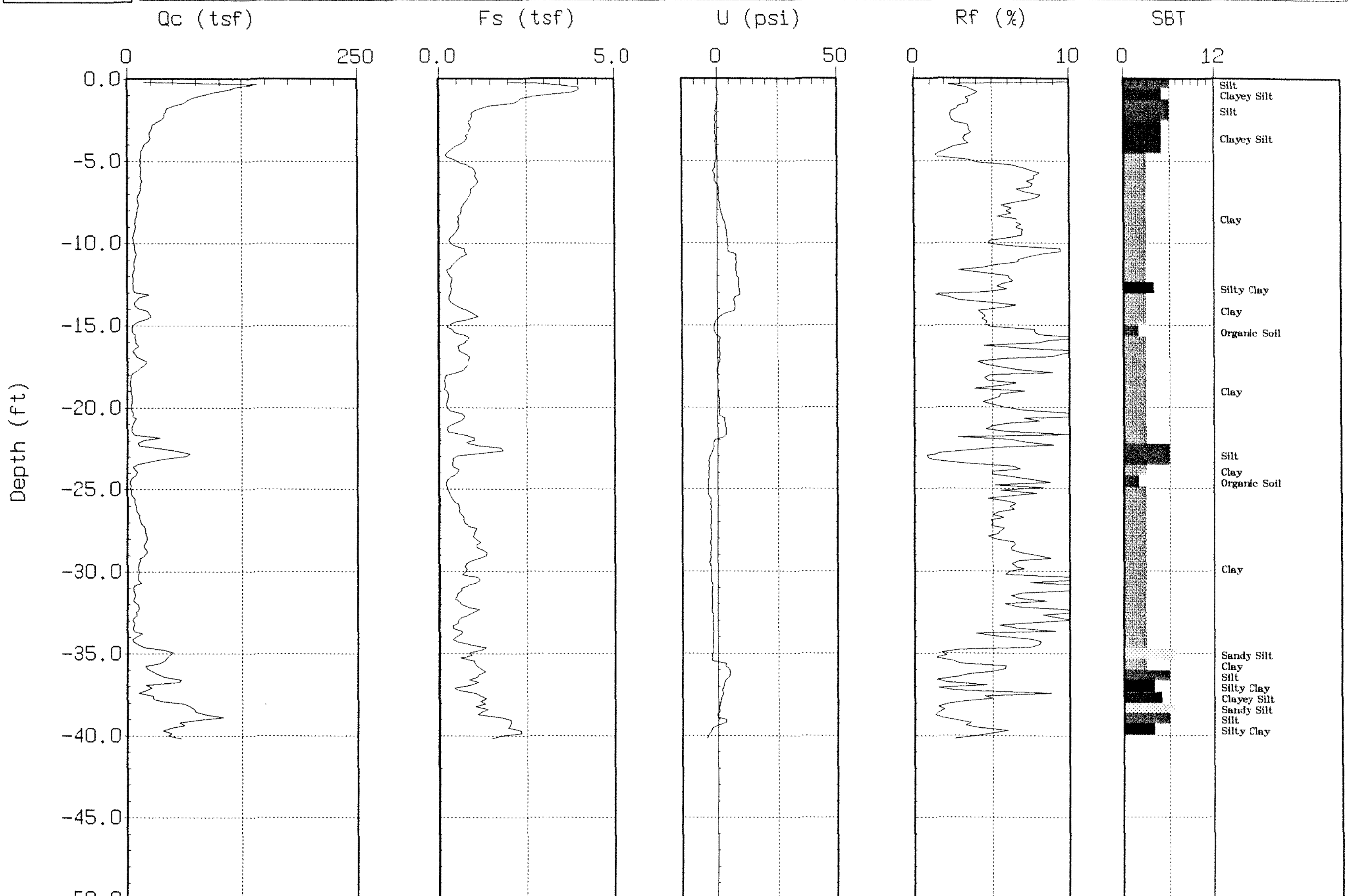
SBT: Soil Behavior Type (Robertson and Campanella 1988)

GREGG

LAW CRANDALL

Site : MOTION PICTURE
Location : SCPT-2

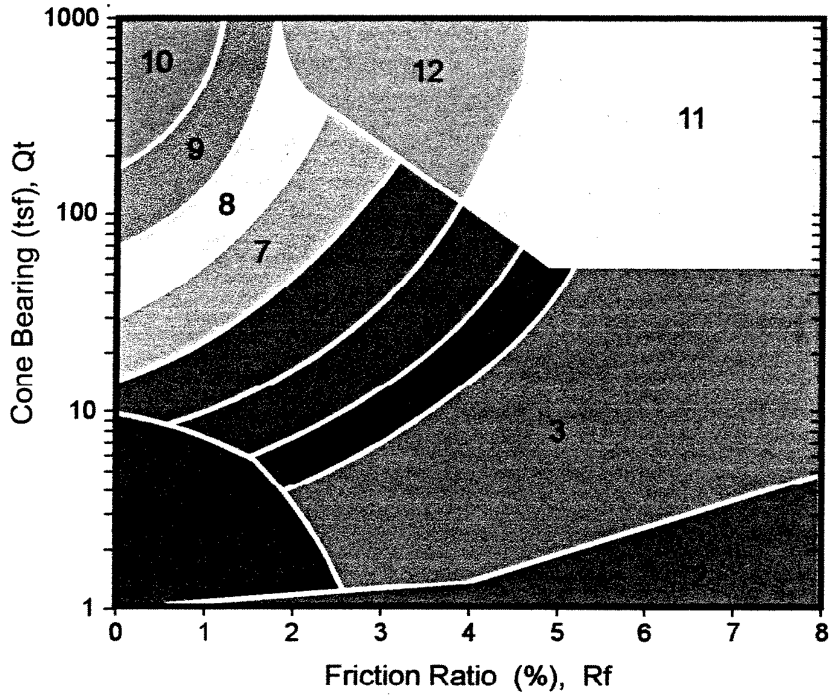
Engineer : V. LANGHAAR
Date : 07:27:98 16:55



Max. Depth: 40.19 (ft)
Depth Inc.: 0.164 (ft)

SBT: Soil Behavior Type (Robertson and Campanella 1988)

CPT Classification Chart
(after Robertson and Campanella, 1988)



Zone		Q_t / N	Soil Behaviour Type
1	■	2	sensitive fine grained
2	■	1	organic material
3	■	1	clay
4	■	1.5	silty clay to clay
5	■	2	clayey silt to silty clay
6	■	2.5	sandy silt to clayey silt
7	■	3	silty sand to sandy silt
8		4	sand to silty sand
9	■	5	sand
10	■	6	gravelly sand to sand
11		1	very stiff fine grained *
12	■	2	sand to clayey sand *

* overconsolidated or cemented

GREGG

Gregg In Situ, Inc.

Gregg In Situ, Inc. Page: 1a
Interpretation Output - Release 1.00.17
Run No: 98-0817-1333-4881
Job No: 98-132
Client: LAW CRANDALL
Project: WOODLAND HILLS
Site: MOTION PICTURE
Location: CPT-1
Cone: V. LANGHAAR
CPT Date: 98/27/07
CPT Time: 11:02
CPT File: 132C01.COR
Northing (m): 0.000
Easting (m): 0.000
Elevation (m): 0.000

Water Table (m): 1.52 (ft): 5.0
Su Nkt used: 12.50
Averaging Increment (m): 0.0 (Every Data Point)
Phi Method : Robertson and Campanella, 1983
Dr Method : Jamiolkowski - All Sands
State Parameter M: 1.20
Used Unit Weights Assigned to Soil Zones
Values of 1.0E9 or UnDef are printed for parameters that are not valid for the material type (SBT)

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (tsf)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)	Ueq (tsf)	Cn	N60 (blows/ft)	(N1)60 (blows/ft)	Su (tsf)	CRR
0.16	12.1	0.11	0.91	-0.1	6	114.6	0.01	0.01	0.00	2.00	4.6	9.3	0.97	0.00
0.33	7.1	0.12	1.70	-0.5	5	114.6	0.02	0.02	0.00	2.00	3.4	6.8	0.56	0.00
0.49	4.3	0.15	3.46	0.4	3	111.4	0.03	0.03	0.00	2.00	4.2	8.3	0.35	0.00
0.66	4.5	0.13	2.91	0.0	3	111.4	0.04	0.04	0.00	2.00	4.3	8.6	0.35	0.00
0.82	4.6	0.08	1.76	-2.1	4	114.6	0.05	0.05	0.00	2.00	2.9	5.8	0.36	0.00
0.98	4.6	0.03	0.66	-0.9	1	79.6	0.05	0.05	0.00	2.00	2.2	4.4	0.36	0.00
1.15	4.5	0.07	1.56	-1.2	1	79.6	0.06	0.06	0.00	2.00	2.2	4.3	0.36	0.00
1.31	4.4	0.08	1.83	0.3	4	114.6	0.07	0.07	0.00	2.00	2.8	5.6	0.35	0.00
1.48	4.4	0.11	2.50	-2.5	3	111.4	0.08	0.08	0.00	2.00	4.2	8.5	0.35	0.00
1.64	5.6	0.15	2.70	-3.3	3	111.4	0.09	0.09	0.00	2.00	5.3	10.7	0.44	0.00
1.80	6.3	0.20	3.18	-7.1	3	111.4	0.10	0.10	0.00	2.00	6.0	12.1	0.50	0.00
1.97	7.2	0.24	3.32	-7.4	3	111.4	0.11	0.11	0.00	2.00	6.9	13.9	0.57	0.08
2.13	8.3	0.30	3.63	-12.7	3	111.4	0.11	0.11	0.00	2.00	7.9	15.9	0.65	0.09
2.30	8.7	0.37	4.26	-13.2	3	111.4	0.12	0.12	0.00	2.00	8.3	16.7	0.69	0.09
2.46	8.8	0.41	4.65	-12.8	3	111.4	0.13	0.13	0.00	2.00	8.5	16.9	0.70	0.10
2.62	9.4	0.41	4.35	-11.6	3	111.4	0.14	0.14	0.00	2.00	9.0	18.1	0.74	0.10
2.79	9.7	0.44	4.55	-10.8	3	111.4	0.15	0.15	0.00	2.00	9.3	18.6	0.76	0.10
2.95	10.2	0.51	5.03	-13.5	3	111.4	0.16	0.16	0.00	2.00	9.7	19.5	0.80	0.13
3.12	10.1	0.55	5.45	-14.3	3	111.4	0.17	0.17	0.00	2.00	9.7	19.4	0.80	0.16
3.28	9.8	0.56	5.71	-12.2	3	111.4	0.18	0.18	0.00	2.00	9.4	18.8	0.77	0.00
3.44	9.0	0.54	6.03	-12.9	3	111.4	0.19	0.19	0.00	2.00	8.6	17.2	0.70	0.00
3.61	8.2	0.47	5.71	-11.8	3	111.4	0.20	0.20	0.00	2.00	7.9	15.8	0.64	0.00
3.77	9.3	0.45	4.87	-11.3	3	111.4	0.21	0.21	0.00	2.00	8.9	17.8	0.73	0.15
3.94	9.7	0.48	4.98	-11.2	3	111.4	0.22	0.22	0.00	2.00	9.3	18.5	0.76	0.15
4.10	10.5	0.54	5.13	-12.1	3	111.4	0.22	0.22	0.00	2.00	10.1	20.2	0.83	0.18
4.27	10.9	0.52	4.80	-11.3	3	111.4	0.23	0.23	0.00	2.00	10.4	20.8	0.85	0.18
4.43	10.9	0.49	4.50	-12.7	3	111.4	0.24	0.24	0.00	2.00	10.5	20.9	0.85	0.19
4.59	9.8	0.59	6.02	-13.4	3	111.4	0.25	0.25	0.00	1.99	9.4	18.7	0.77	0.00
4.76	10.5	0.64	6.13	-11.6	3	111.4	0.26	0.26	0.00	1.96	10.0	19.6	0.82	0.00
4.92	11.2	0.61	5.45	-12.3	3	111.4	0.27	0.27	0.00	1.92	10.8	20.7	0.88	0.00
5.09	11.8	0.62	5.28	-12.9	3	111.4	0.28	0.28	0.00	1.90	11.3	21.5	0.92	0.00
5.25	11.7	0.62	5.30	-13.4	3	111.4	0.29	0.28	0.01	1.89	11.2	21.2	0.92	0.00

Gregg In Situ, Inc.
Run No: 98-0817-1333-4881
CPT File: 132C01.COR

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (tsf)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)	Ueq (tsf)	Cn	N60 (blows/ft)	(N1)60 (blows/ft)	Su (tsf)	CRR
5.41	11.6	0.61	5.27	-15.5	3	111.4	0.30	0.28	0.01	1.87	11.1	20.8	0.90	0.00
5.58	11.3	0.62	5.52	-13.7	3	111.4	0.31	0.29	0.02	1.86	10.8	20.1	0.88	0.00
5.74	10.9	0.62	5.71	-14.7	3	111.4	0.32	0.29	0.02	1.85	10.4	19.3	0.84	0.00
5.91	10.3	0.59	5.73	-14.6	3	111.4	0.32	0.30	0.03	1.84	9.9	18.2	0.80	0.00
6.07	9.8	0.57	5.82	-14.0	3	111.4	0.33	0.30	0.03	1.82	9.4	17.2	0.76	0.00
6.23	10.8	0.57	5.29	-12.8	3	111.4	0.34	0.30	0.04	1.81	10.3	18.7	0.84	0.00
6.40	12.5	0.62	4.99	-14.1	3	111.4	0.35	0.31	0.04	1.80	11.9	21.5	0.97	0.00
6.56	11.7	0.69	5.90	-14.5	3	111.4	0.36	0.31	0.05	1.79	11.2	20.1	0.91	0.00
6.73	12.4	0.69	5.59	-14.8	3	111.4	0.37	0.32	0.05	1.78	11.8	21.1	0.96	0.00
6.89	12.2	0.68	5.59	-14.0	3	111.4	0.38	0.32	0.06	1.77	11.7	20.6	0.95	0.00
7.05	11.4	0.63	5.56	-14.0	3	111.4	0.39	0.32	0.06	1.76	10.9	19.1	0.88	0.00
7.22	11.1	0.58	5.26	-13.1	3	111.4	0.40	0.33	0.07	1.74	10.6	18.5	0.85	0.00
7.38	11.8	0.60	5.09	-12.9	3	111.4	0.41	0.33	0.07	1.73	11.3	19.6	0.91	0.00
7.55	11.6	0.62	5.35	-12.9	3	111.4	0.42	0.34	0.08	1.72	11.1	19.2	0.90	0.00
7.71	11.5	0.45	3.91	-11.9	3	111.4	0.43	0.34	0.08	1.71	11.0	18.9	0.89	0.16
7.87	10.0	0.53	5.29	-11.9	3	111.4	0.43	0.34	0.09	1.70	9.6	16.4	0.77	0.00
8.04	10.0	0.55	5.51	-10.9	3	111.4	0.44	0.35	0.09	1.69	9.6	16.2	0.76	0.00
8.20	10.3	0.55	5.38	-10.8	3	111.4	0.45	0.35	0.10	1.68	9.8	16.5	0.78	0.00
8.37	10.3	0.50	4.89	-10.2	3	111.4	0.46	0.36	0.11	1.67	9.8	16.4	0.78	0.00
8.53	9.6	0.45	4.71	-10.1	3	111.4	0.47	0.36	0.11	1.66	9.2	15.3	0.73	0.00
8.69	10.3	0.41	3.99	-10.3	3	111.4	0.48	0.36	0.12	1.66	9.9	16.3	0.79	0.13
8.86	9.4	0.37	3.96	-9.7	3	111.4	0.49	0.37	0.12	1.65	9.0	14.8	0.71	0.12
9.02	9.2	0.32	3.50	-9.2	3	111.4	0.50	0.37	0.13	1.64	8.8	14.4	0.69	0.12
9.19	9.9	0.39	3.94	-9.3	3	111.4	0.51	0.38	0.13	1.63	9.5	15.5	0.75	0.13
9.35	11.6	0.48	4.14	-9.3	3	111.4	0.52	0.38	0.14	1.62	11.1	18.0	0.89	0.15
9.51	10.9	0.43	3.95	-8.6	3	111.4	0.53	0.38	0.14	1.61	10.4	16.8	0.83	0.14
9.68	8.9	0.34	3.81	-9.1	3	111.4	0.54	0.39	0.15	1.60	8.6	13.7	0.67	0.11
9.84	8.5	0.30	3.53	-8.4	3	111.4	0.54	0.39	0.15	1.60	8.2	13.0	0.64	0.11
10.01	7.2	0.25	3.50	-7.8	3	111.4	0.55	0.40	0.16	1.59	6.9	10.9	0.53	0.10
10.17	7.5	0.29	3.87	-7.5	3	111.4	0.56	0.40	0.16	1.58	7.2	11.3	0.56	0.00
10.33	7.3	0.28	3.85	-7.9	3	111.4	0.57	0.41	0.17	1.57	7.0	11.0	0.54	0.00
10.50	7.6	0.28	3.68	-7.9	3	111.4	0.58	0.41	0.17	1.56	7.3	11.4	0.56	0.00
10.66	7.8	0.28	3.62	-7.6	3	111.4	0.59	0.41	0.18	1.56	7.4	11.6	0.57	0.10
10.83	8.4	0.27	3.22	-7.0	3	111.4	0.60	0.42	0.18	1.55	8.0	12.5	0.62	0.10
10.99	8.1	0.21	2.60	-7.3	4	114.6	0.61	0.42	0.19	1.54	5.2	8.0	0.60	0.10
11.15	6.7	0.22	3.32	-7.2	3	111.4	0.62	0.43	0.19	1.53	6.4	9.8	0.48	0.09
11.32	7.4	0.39	5.30	-7.6	3	111.4	0.63	0.43	0.20	1.53	7.1	10.8	0.54	0.00
11.48	11.3	0.55	4.88	-8.5	3	111.4	0.64	0.43	0.20	1.52	10.8	16.4	0.85	0.00
11.65	10.9	0.50	4.62	-9.9	3	111.4	0.64	0.44	0.21	1.51	10.4	15.7	0.82	0.00
11.81	11.3	0.32	2.83	-9.3	4	114.6	0.65	0.44	0.21	1.51	7.2	10.9	0.85	0.13
11.97	9.4	0.37	3.96	-9.3	3	111.4	0.66	0.45	0.22	1.50	9.0	13.4	0.70	0.00
12.14	12.9	0.42	3.26	-8.6	4	114.6	0.67	0.45	0.22	1.49	8.2	12.3	0.98	0.16
12.30	29.5	0.40	1.36	-12.1	6	114.6	0.68	0.45	0.23	1.48	11.3	16.8	2.31	0.10
12.47	33.3	0.34	1.02	-17.5	7	117.8	0.69	0.46	0.23	1.48	10.6	15.7	UnDef	0.10
12.63	30.3	0.59	1.95	-19.2	6	114.6	0.70	0.46	0.24	1.47	11.6	17.0	2.37	0.12
12.80	28.6	0.68	2.38	-20.1	6	114.6	0.71	0.47	0.24	1.46	11.0	16.0	2.23	0.13
12.96	30.9	0.52	1.69	-20.7	6	114.6	0.72	0.47	0.25	1.46	11.8	17.2	2.42	0.11
13.12	30.3	0.33	1.09	-22.1	7	117.8	0.73	0.48	0.25	1.45	9.7	14.0	UnDef	0.10
13.29	26.0	0.45	1.73	-22.5	6	114.6	0.74	0.48	0.26	1.44	10.0	14.4	2.02	0.11
13.45	22.4	0.54	2.41	-22.9	6	114.6	0.75	0.48	0.26	1.44	8.6	12.3	1.73	0.13
13.62	22.7	0.39	1.72	-22.6	6	114.6	0.76	0.49	0.27	1.43	8.7	12.4	1.76	0.10
13.78	27.1	0.19	0.70	-23.6	7	117.8	0.77	0.49	0.27	1.42	8.6	12.3	UnDef	0.09
13.94	24.9	0.17	0.68	-24.2	7	117.8	0.78	0.50	0.28	1.42	7.9	11.3	UnDef	0.09
14.11	16.7	0.25	1.50	-24.1	6	114.6	0.79	0.50	0.28	1.41	6.4	9.0	1.27	0.10

Gregg In Situ, Inc.
Run No: 98-0817-1333-4881
CPT File: 132C01.COR

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (tsf)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)	Ueq (tsf)	Cn	N60 (blows/ft)	(N1)60 (blows/ft)	Su (tsf)	CRR
14.27	11.7	0.44	3.77	-23.5	3	111.4	0.80	0.51	0.29	1.41	11.2	15.7	0.87	0.13
14.44	11.9	0.47	3.96	-23.8	3	111.4	0.80	0.51	0.29	1.40	11.4	16.0	0.89	0.00
14.60	14.1	0.50	3.56	-23.8	4	114.6	0.81	0.51	0.30	1.39	9.0	12.5	1.06	0.16
14.76	21.6	0.34	1.58	-22.6	6	114.6	0.82	0.52	0.30	1.39	8.3	11.5	1.66	0.10
14.93	37.5	0.14	0.37	-23.1	7	117.8	0.83	0.52	0.31	1.38	12.0	16.6	UnDef	0.09
15.09	40.3	0.14	0.35	-23.2	8	120.9	0.84	0.53	0.32	1.38	9.7	13.3	UnDef	0.09
15.26	35.6	0.13	0.37	-23.1	7	117.8	0.85	0.53	0.32	1.37	11.4	15.6	UnDef	0.09
15.42	32.6	0.13	0.40	-22.4	7	117.8	0.86	0.54	0.33	1.36	10.4	14.2	UnDef	0.09
15.58	31.6	0.21	0.67	-22.7	7	117.8	0.87	0.54	0.33	1.36	10.1	13.7	UnDef	0.09
15.75	35.1	0.30	0.86	-23.1	7	117.8	0.88	0.55	0.34	1.35	11.2	15.1	UnDef	0.10
15.91	36.9	0.46	1.25	-22.5	7	117.8	0.89	0.55	0.34	1.35	11.8	15.9	UnDef	0.11
16.08	40.6	0.57	1.41	-22.4	7	117.8	0.90	0.56	0.35	1.34	12.9	17.4	UnDef	0.12
16.24	56.9	0.36	0.63	-22.9	8	120.9	0.91	0.56	0.35	1.34	13.6	18.2	UnDef	0.13
16.40	75.9	0.47	0.62	-23.4	8	120.9	0.92	0.56	0.36	1.33	18.2	24.2	UnDef	0.18
16.57	86.7	0.82	0.95	-23.3	8	120.9	0.93	0.57	0.36	1.33	20.8	27.5	UnDef	0.24
16.73	109.5	0.85	0.78	-22.9	8	120.9	0.94	0.57	0.37	1.32	26.2	34.6	UnDef	0.34
16.90	117.0	0.67	0.57	-23.4	9	124.1	0.95	0.58	0.37	1.31	22.4	29.4	UnDef	0.40
17.06	117.2	0.93	0.80	-22.6	8	120.9	0.96	0.58	0.38	1.31	28.1	36.7	UnDef	0.39
17.22	130.2	1.73	1.33	-21.8	8	120.9	0.97	0.59	0.38	1.30	31.2	40.6	UnDef	0.00
17.39	134.0	2.18	1.62	-18.1	8	120.9	0.98	0.59	0.39	1.30	32.1	41.6	UnDef	0.00
17.55	143.0	1.91	1.34	-13.9	8	120.9	0.99	0.60	0.39	1.29	34.2	44.3	UnDef	0.00
17.72	171.4	0.75	0.44	-14.2	9	124.1	1.00	0.60	0.40	1.29	32.8	42.3	UnDef	0.00
17.88	163.4	1.38	0.85	-13.5	9	124.1	1.01	0.61	0.40	1.28	31.3	40.1	UnDef	0.00
18.04	177.0	1.74	0.99	-8.7	9	124.1	1.02	0.61	0.41	1.28	33.9	43.3	UnDef	0.00
18.21	163.5	0.98	0.60	-14.5	9	124.1	1.03	0.62	0.41	1.27	31.3	39.8	UnDef	0.00
18.37	149.6	2.17	1.45	-18.9	8	120.9	1.04	0.62	0.42	1.27	35.8	45.4	UnDef	0.00
18.54	136.3	1.43	1.05	-3.6	8	120.9	1.05	0.63	0.42	1.26	32.6	41.2	UnDef	0.00
18.70	110.6	0.52	0.47	-15.8	9	124.1	1.06	0.63	0.43	1.26	21.2	26.6	UnDef	0.31
18.86	90.2	0.45	0.50	-18.2	8	120.9	1.07	0.64	0.43	1.25	21.6	27.0	UnDef	0.21
19.03	86.0	0.52	0.61	-17.8	8	120.9	1.08	0.64	0.44	1.25	20.6	25.7	UnDef	0.20
19.19	103.5	0.51	0.49	-18.5	9	124.1	1.09	0.65	0.44	1.24	19.8	24.6	UnDef	0.27
19.36	111.0	0.28	0.25	-18.9	9	124.1	1.10	0.65	0.45	1.24	21.3	26.3	UnDef	0.31
19.52	98.7	0.19	0.19	-18.6	9	124.1	1.11	0.66	0.45	1.23	18.9	23.3	UnDef	0.24
19.68	82.8	0.40	0.48	-18.5	8	120.9	1.12	0.66	0.46	1.23	19.8	24.4	UnDef	0.17
19.85	90.8	0.40	0.44	-18.3	8	120.9	1.13	0.67	0.46	1.22	21.7	26.6	UnDef	0.20
20.01	109.7	0.39	0.36	-18.6	9	124.1	1.14	0.67	0.47	1.22	21.0	25.6	UnDef	0.29
20.18	113.4	0.28	0.25	-18.1	9	124.1	1.15	0.68	0.47	1.21	21.7	26.4	UnDef	0.31
20.34	111.1	0.18	0.16	-17.7	9	124.1	1.16	0.68	0.48	1.21	21.3	25.8	UnDef	0.29
20.51	110.4	0.14	0.13	-16.9	9	124.1	1.17	0.69	0.48	1.21	21.1	25.5	UnDef	0.29
20.67	105.4	0.14	0.13	-16.7	9	124.1	1.18	0.69	0.49	1.20	20.2	24.2	UnDef	0.26
20.83	97.3	0.09	0.09	-16.7	9	124.1	1.19	0.70	0.49	1.20	18.6	22.3	UnDef	0.22
21.00	91.9	0.22	0.24	6.9	9	124.1	1.20	0.70	0.50	1.19	17.6	21.0	UnDef	0.19
21.16	90.1	0.23	0.26	1.0	9	124.1	1.21	0.71	0.50	1.19	17.3	20.5	UnDef	0.19
21.33	76.1	0.13	0.17	-9.2	8	120.9	1.22	0.71	0.51	1.18	18.2	21.6	UnDef	0.14
21.49	58.6	0.18	0.31	-10.4	8	120.9	1.23	0.72	0.51	1.18	14.0	16.5	UnDef	0.11
21.65	51.2	0.17	0.33	-10.1	8	120.9	1.24	0.72	0.52	1.18	12.3	14.4	UnDef	0.10
21.82	45.6	0.34	0.75	-7.8	7	117.8	1.25	0.73	0.53	1.17	14.6	17.1	UnDef	0.11
21.98	47.6	0.30	0.63	-5.5	7	117.8	1.26	0.73	0.53	1.17	15.2	17.8	UnDef	0.11
22.15	58.6	0.66	1.13	-10.7	7	117.8	1.27	0.74	0.54	1.17	18.7	21.8	UnDef	0.14
22.31	62.0	0.71	1.15	4.4	7	117.8	1.28	0.74	0.54	1.16	19.8	23.0	UnDef	0.15
22.47	64.0	0.74	1.16	0.8	7	117.8	1.29	0.75	0.55	1.16	20.4	23.7	UnDef	0.16
22.64	56.1	0.75	1.34	13.5	7	117.8	1.30	0.75	0.55	1.15	17.9	20.7	UnDef	0.15
22.80	32.2	0.76	2.36	2.3	6	114.6	1.31	0.75	0.56	1.15	12.4	14.2	2.48	0.17
22.97	13.6	0.45	3.31	-11.0	4	114.6	1.32	0.76	0.56	1.15	8.7	10.0	0.98	0.12

Gregg In Situ, Inc.
Run No: 98-0817-1333-4881
CPT File: 132C01.COR

Depth (ft)	AvgQt (tsf)	Avgfs (tsf)	AvgRf (tsf)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)	Ueq (tsf)	Cn	N60 (blows/ft)	(N1)60 (blows/ft)	Su (tsf)	CRR
23.13	7.7	0.20	2.59	-10.2	4	114.6	1.33	0.76	0.57	1.14	4.9	5.7	0.51	0.09
23.29	6.0	0.16	2.67	-8.9	3	111.4	1.34	0.77	0.57	1.14	5.7	6.6	0.37	0.00
23.46	4.9	0.13	2.68	-7.5	3	111.4	1.35	0.77	0.58	1.14	4.7	5.3	0.28	0.00
23.62	4.2	0.15	3.55	-6.4	3	111.4	1.36	0.78	0.58	1.14	4.1	4.6	0.23	0.00
23.79	5.1	0.15	2.96	-5.5	3	111.4	1.37	0.78	0.59	1.13	4.9	5.5	0.30	0.00
23.95	5.0	0.15	3.01	-4.4	3	111.4	1.37	0.78	0.59	1.13	4.8	5.4	0.29	0.00
24.11	5.5	0.16	2.91	-4.9	3	111.4	1.38	0.79	0.60	1.13	5.3	5.9	0.33	0.00
24.28	5.5	0.11	2.00	-3.3	4	114.6	1.39	0.79	0.60	1.12	3.5	4.0	0.33	0.08
24.44	4.8	0.14	2.90	-2.6	3	111.4	1.40	0.80	0.61	1.12	4.6	5.2	0.27	0.00
24.61	4.8	0.17	3.55	-2.1	3	111.4	1.41	0.80	0.61	1.12	4.6	5.1	0.27	0.00
24.77	6.7	0.14	2.11	3.5	4	114.6	1.42	0.80	0.62	1.12	4.3	4.7	0.42	0.08
24.93	5.6	0.12	2.16	5.3	4	114.6	1.43	0.81	0.62	1.11	3.5	3.9	0.33	0.00
25.10	6.2	0.12	1.94	5.1	4	114.6	1.44	0.81	0.63	1.11	4.0	4.4	0.38	0.08
25.26	7.3	0.12	1.66	6.2	5	114.6	1.45	0.82	0.63	1.11	3.5	3.9	0.47	0.09
25.43	7.1	0.16	2.25	7.4	4	114.6	1.46	0.82	0.64	1.10	4.6	5.0	0.45	0.09
25.59	7.7	0.18	2.36	8.9	4	114.6	1.47	0.82	0.64	1.10	4.9	5.4	0.50	0.09
25.75	8.4	0.19	2.27	10.4	5	114.6	1.48	0.83	0.65	1.10	4.0	4.4	0.55	0.09
25.92	7.9	0.21	2.67	10.6	4	114.6	1.49	0.83	0.65	1.10	5.0	5.5	0.51	0.00
26.08	8.4	0.24	2.85	10.8	4	114.6	1.50	0.84	0.66	1.09	5.4	5.9	0.56	0.00
26.25	7.3	0.19	2.63	11.6	4	114.6	1.51	0.84	0.66	1.09	4.6	5.0	0.46	0.00
26.41	7.1	0.21	2.97	11.6	3	111.4	1.51	0.85	0.67	1.09	6.8	7.4	0.45	0.00
26.57	6.1	0.20	3.29	10.4	3	111.4	1.52	0.85	0.67	1.08	5.8	6.3	0.37	0.00
26.74	6.5	0.20	3.07	10.6	3	111.4	1.53	0.85	0.68	1.08	6.2	6.8	0.40	0.00
26.90	6.0	0.26	4.36	12.5	3	111.4	1.54	0.86	0.68	1.08	5.7	6.2	0.36	0.00
27.07	8.3	0.35	4.24	12.7	3	111.4	1.55	0.86	0.69	1.08	7.9	8.5	0.54	0.00
27.23	11.1	0.42	3.79	15.1	3	111.4	1.56	0.87	0.69	1.07	10.6	11.4	0.76	0.00
27.39	15.4	0.49	3.20	16.2	4	114.6	1.57	0.87	0.70	1.07	9.8	10.5	1.10	0.13
27.56	12.1	0.51	4.23	8.5	3	111.4	1.58	0.87	0.70	1.07	11.6	12.4	0.84	0.00
27.72	8.1	0.27	3.32	4.1	3	111.4	1.59	0.88	0.71	1.07	7.8	8.3	0.52	0.00
27.89	6.2	0.25	4.03	2.3	3	111.4	1.60	0.88	0.71	1.06	6.0	6.3	0.37	0.00
28.05	5.4	0.23	4.27	7.5	3	111.4	1.61	0.89	0.72	1.06	5.2	5.5	0.30	0.00
28.21	4.0	0.19	4.78	6.0	3	111.4	1.62	0.89	0.72	1.06	3.8	4.0	0.19	0.00
28.38	3.8	0.16	4.24	7.0	3	111.4	1.62	0.89	0.73	1.06	3.6	3.8	0.17	0.00
28.54	5.6	0.21	3.75	7.8	3	111.4	1.63	0.90	0.74	1.05	5.4	5.7	0.32	0.00
28.71	7.0	0.26	3.71	8.8	3	111.4	1.64	0.90	0.74	1.05	6.7	7.1	0.43	0.00
28.87	7.0	0.29	4.13	10.3	3	111.4	1.65	0.91	0.75	1.05	6.7	7.1	0.43	0.00
29.04	5.8	0.28	4.84	10.1	3	111.4	1.66	0.91	0.75	1.05	5.6	5.8	0.33	0.00
29.20	5.6	0.22	3.92	10.3	3	111.4	1.67	0.91	0.76	1.05	5.4	5.6	0.32	0.00
29.36	5.0	0.24	4.82	11.6	3	111.4	1.68	0.92	0.76	1.04	4.8	5.0	0.27	0.00
29.53	6.5	0.23	3.53	12.3	3	111.4	1.69	0.92	0.77	1.04	6.3	6.5	0.39	0.00
29.69	7.2	0.28	3.91	14.4	3	111.4	1.70	0.93	0.77	1.04	6.9	7.1	0.44	0.00
29.86	11.4	0.39	3.42	16.6	4	114.6	1.71	0.93	0.78	1.04	7.3	7.6	0.78	0.00
30.02	11.9	0.45	3.80	14.6	3	111.4	1.72	0.94	0.78	1.03	11.4	11.8	0.81	0.00
30.18	10.7	0.48	4.51	14.6	3	111.4	1.73	0.94	0.79	1.03	10.2	10.5	0.72	0.00
30.35	12.8	0.52	4.07	14.9	3	111.4	1.73	0.94	0.79	1.03	12.3	12.6	0.89	0.00
30.51	11.0	0.45	4.11	14.1	3	111.4	1.74	0.95	0.80	1.03	10.5	10.8	0.74	0.00
30.68	10.3	0.40	3.88	17.1	3	111.4	1.75	0.95	0.80	1.03	9.9	10.2	0.69	0.00
30.84	10.6	0.39	3.70	18.5	3	111.4	1.76	0.96	0.81	1.02	10.1	10.4	0.70	0.00
31.00	10.1	0.39	3.87	21.3	3	111.4	1.77	0.96	0.81	1.02	9.7	9.9	0.67	0.00
31.17	10.4	0.31	3.00	22.8	4	114.6	1.78	0.96	0.82	1.02	6.6	6.7	0.69	0.00
31.33	10.7	0.38	3.55	24.5	3	111.4	1.79	0.97	0.82	1.02	10.3	10.4	0.71	0.00
31.50	12.2	0.48	3.96	31.3	3	111.4	1.80	0.97	0.83	1.01	11.6	11.8	0.83	0.00
31.66	13.3	0.43	3.25	32.5	4	114.6	1.81	0.98	0.83	1.01	8.5	8.6	0.92	0.00
31.82	14.2	0.43	3.03	35.4	5	114.6	1.82	0.98	0.84	1.01	6.8	6.9	0.99	0.11

Gregg In Situ, Inc.
Run No: 98-0817-1333-4881
CPT File: 132C01.COR

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (tsf)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)	Ueq (tsf)	Cn	N60 (blows/ft)	(N1)60 (blows/ft)	Su (tsf)	CRR
31.99	13.7	0.36	2.64	35.3	5	114.6	1.83	0.98	0.84	1.01	6.5	6.6	0.95	0.11
32.15	11.0	0.37	3.39	38.4	4	114.6	1.84	0.99	0.85	1.01	7.0	7.0	0.73	0.00
32.32	12.5	0.33	2.64	40.8	5	114.6	1.85	0.99	0.85	1.00	6.0	6.0	0.86	0.10
32.48	11.4	0.35	3.09	44.4	4	114.6	1.86	1.00	0.86	1.00	7.3	7.3	0.76	0.00
32.64	11.1	0.33	2.97	46.0	4	114.6	1.86	1.00	0.86	1.00	7.1	7.1	0.74	0.00
32.81	12.2	0.39	3.19	49.5	4	114.6	1.87	1.01	0.87	1.00	7.8	7.8	0.83	0.00
32.97	13.8	0.51	3.69	55.0	3	111.4	1.88	1.01	0.87	1.00	13.3	13.2	0.96	0.00
33.14	20.7	0.88	4.27	65.1	3	111.4	1.89	1.01	0.88	0.99	19.8	19.7	1.50	0.00
33.30	33.0	1.17	3.56	37.8	5	114.6	1.90	1.02	0.88	0.99	15.8	15.6	2.49	0.46
33.46	42.9	0.77	1.80	-2.3	7	117.8	1.91	1.02	0.89	0.99	13.7	13.5	UnDef	0.16
33.63	33.6	0.49	1.46	-8.1	6	114.6	1.92	1.03	0.89	0.99	12.9	12.7	2.53	0.13
33.79	21.4	0.40	1.87	-8.2	6	114.6	1.93	1.03	0.90	0.98	8.2	8.1	1.56	0.18
33.96	15.6	0.22	1.42	-7.1	6	114.6	1.94	1.04	0.90	0.98	6.0	5.9	1.09	0.12
34.12	12.5	0.24	1.93	-5.1	5	114.6	1.95	1.04	0.91	0.98	6.0	5.9	0.84	0.10
34.28	11.3	0.32	2.85	-4.3	4	114.6	1.96	1.04	0.91	0.98	7.2	7.0	0.74	0.00
34.45	12.8	0.50	3.91	-3.4	3	111.4	1.97	1.05	0.92	0.98	12.3	12.0	0.87	0.00
34.61	22.4	0.61	2.73	-3.2	5	114.6	1.98	1.05	0.92	0.98	10.7	10.5	1.64	0.19
34.78	21.1	0.59	2.80	-5.2	5	114.6	1.99	1.06	0.93	0.97	10.1	9.8	1.53	0.17
34.94	18.2	0.48	2.65	-0.5	5	114.6	2.00	1.06	0.93	0.97	8.7	8.5	1.29	0.14
35.10	12.9	0.43	3.34	1.5	4	114.6	2.00	1.06	0.94	0.97	8.2	8.0	0.87	0.00
35.27	13.4	0.70	5.22	4.0	3	111.4	2.01	1.07	0.95	0.97	12.9	12.4	0.91	0.00
35.43	29.8	1.35	4.54	5.6	3	111.4	2.02	1.07	0.95	0.97	28.5	27.6	2.22	0.00
35.60	50.0	1.84	3.69	-5.9	5	114.6	2.03	1.08	0.96	0.96	23.9	23.1	3.84	0.00
35.76	70.6	1.89	2.68	-10.3	6	114.6	2.04	1.08	0.96	0.96	27.0	26.0	5.48	0.33
35.92	92.4	1.85	2.01	-13.5	7	117.8	2.05	1.09	0.97	0.96	29.5	28.3	UnDef	0.31
36.09	112.2	1.68	1.50	-14.7	8	120.9	2.06	1.09	0.97	0.96	26.9	25.7	UnDef	0.32
36.25	119.5	1.59	1.33	-15.8	8	120.9	2.07	1.10	0.98	0.96	28.6	27.3	UnDef	0.33
36.42	127.9	1.07	0.84	-16.3	9	124.1	2.08	1.10	0.98	0.95	24.5	23.4	UnDef	0.29
36.58	104.2	1.10	1.05	-15.8	8	120.9	2.09	1.11	0.99	0.95	25.0	23.7	UnDef	0.24
36.74	76.0	0.63	0.83	24.7	8	120.9	2.10	1.11	0.99	0.95	18.2	17.3	UnDef	0.15
36.91	74.3	1.26	1.70	-6.4	7	117.8	2.11	1.11	1.00	0.95	23.7	22.5	UnDef	0.21
37.07	59.9	1.85	3.09	-17.3	6	114.6	2.12	1.12	1.00	0.95	23.0	21.7	4.62	0.43
37.24	52.9	2.58	4.87	-18.7	4	114.6	2.13	1.12	1.01	0.94	33.8	31.9	4.06	0.00
37.40	48.2	2.04	4.25	-19.6	5	114.6	2.14	1.13	1.01	0.94	23.1	21.7	3.68	0.00
37.57	65.4	2.04	3.13	-20.4	6	114.6	2.15	1.13	1.02	0.94	25.0	23.5	5.06	0.44
37.73	48.4	1.41	2.92	-20.8	6	114.6	2.16	1.14	1.02	0.94	18.5	17.4	3.70	0.43
37.89	23.8	1.18	4.96	-20.6	3	111.4	2.17	1.14	1.03	0.94	22.8	21.4	1.73	0.00
38.06	17.1	1.17	6.87	-20.6	3	111.4	2.18	1.14	1.03	0.93	16.3	15.3	1.19	0.00
38.22	24.8	0.90	3.63	-18.0	5	114.6	2.19	1.15	1.04	0.93	11.9	11.1	1.81	0.22
38.39	19.8	0.70	3.54	-18.0	4	114.6	2.20	1.15	1.04	0.93	12.6	11.8	1.41	0.00
38.55	14.9	0.58	3.91	-18.0	3	111.4	2.20	1.16	1.05	0.93	14.2	13.2	1.01	0.00
38.71	21.3	1.09	5.14	-16.5	3	111.4	2.21	1.16	1.05	0.93	20.4	18.9	1.52	0.00
38.88	31.6	1.24	3.94	-16.9	4	114.6	2.22	1.17	1.06	0.93	20.2	18.7	2.35	0.35
39.04	27.5	0.97	3.53	-17.7	5	114.6	2.23	1.17	1.06	0.92	13.2	12.2	2.02	0.26
39.21	20.7	0.70	3.38	-17.7	5	114.6	2.24	1.17	1.07	0.92	9.9	9.2	1.48	0.16
39.37	17.3	0.85	4.91	-17.5	3	111.4	2.25	1.18	1.07	0.92	16.6	15.3	1.21	0.00
39.53	26.5	1.17	4.43	-17.0	3	111.4	2.26	1.18	1.08	0.92	25.4	23.3	1.94	0.00
39.70	31.9	1.41	4.44	-16.9	4	114.6	2.27	1.19	1.08	0.92	20.3	18.7	2.37	0.00
39.86	40.9	1.82	4.47	-16.8	4	114.6	2.28	1.19	1.09	0.92	26.1	23.9	3.09	0.00
40.03	61.2	2.15	3.50	-17.4	5	114.6	2.29	1.19	1.09	0.92	29.3	26.8	4.72	0.00

Gregg In Situ, Inc.
Interpretation Output - Release 1.00.17
Run No: 98-0817-1333-4881
Job No: 98-132
Client: LAW CRANDALL
Project: WOODLAND HILLS
Site: MOTION PICTURE
Location: CPT-1
Cone: V. LANGHAAR
CPT Date: 98/27/07
CPT Time: 11:02
CPT File: 132C01.COR
Northing (m): 0.000
Easting (m): 0.000
Elevation (m): 0.000

Water Table (m): 1.52 (ft): 5.0
Su Nkt used: 12.50
Averaging Increment (m): 0.0 (Every Data Point)
Phi Method : Robertson and Campanella, 1983
Dr Method : Jamiolkowski - All Sands
State Parameter M: 1.20
Used Unit Weights Assigned to Soil Zones
Values of 1.0E9 or UnDef are printed for parameters that are not valid for the material type (SBT)

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs	Fc (%)	Phi (Deg)	Dr (%)	OCR	State Param	Del(n1)60	(N1)60cs
0.16	5.0E-05	0.00	1000.0	0.91	10	23.2	0.0	23.2	0.1	50	73.0	10.0	-0.39	0.0	9.3
0.33	5.0E-06	0.00	374.9	1.71	9	13.5	0.5	14.0	6.2	UnDef	UnDef	10.0	UnDef	0.1	6.9
0.49	5.0E-08	0.00	153.7	3.49	12	8.3	UnDef	UnDef	0.0	UnDef	UnDef	10.0	UnDef	UnDef	UnDef
0.66	5.0E-08	0.00	119.2	2.94	7	8.6	4.9	13.5	18.6	UnDef	UnDef	10.0	UnDef	2.5	11.1
0.82	5.0E-07	-0.01	96.9	1.78	7	8.7	3.4	12.1	15.5	UnDef	UnDef	10.0	UnDef	1.2	7.0
0.98	1.0E-07	-0.01	82.7	0.67	9	8.7	1.3	10.0	9.7	UnDef	UnDef	10.0	UnDef	0.4	4.7
1.15	1.0E-07	-0.01	72.9	1.58	7	8.6	4.1	12.8	17.2	UnDef	UnDef	10.0	UnDef	1.1	5.4
1.31	5.0E-07	0.00	62.7	1.85	7	8.4	5.8	14.2	20.3	UnDef	UnDef	10.0	UnDef	1.9	7.5
1.48	5.0E-08	-0.02	55.5	2.54	7	8.5	9.9	18.4	25.2	UnDef	UnDef	10.0	UnDef	4.3	12.8
1.64	5.0E-08	-0.02	62.8	2.74	7	10.7	11.7	22.4	24.6	UnDef	UnDef	10.0	UnDef	5.2	15.9
1.80	5.0E-08	-0.04	64.4	3.23	7	12.1	15.9	28.0	26.3	UnDef	UnDef	10.0	UnDef	6.7	18.8
1.97	5.0E-08	-0.03	67.6	3.37	7	13.9	18.3	32.1	26.3	UnDef	UnDef	10.0	UnDef	7.6	21.5
2.13	5.0E-08	-0.05	71.3	3.68	6	15.9	22.1	38.0	26.8	UnDef	UnDef	10.0	UnDef	9.1	25.0
2.30	5.0E-08	-0.05	69.3	4.32	6	16.7	30.9	47.6	29.3	UnDef	UnDef	10.0	UnDef	11.4	28.1
2.46	5.0E-08	-0.05	65.5	4.72	6	16.9	40.1	57.0	31.3	UnDef	UnDef	10.0	UnDef	13.3	30.2
2.62	5.0E-08	-0.04	65.4	4.42	6	18.1	38.0	56.1	30.4	UnDef	UnDef	10.0	UnDef	13.3	31.4
2.79	5.0E-08	-0.04	63.1	4.62	6	18.6	44.9	63.4	31.5	UnDef	UnDef	10.0	UnDef	14.7	33.3
2.95	5.0E-08	-0.04	62.3	5.11	6	19.5	59.2	78.6	33.2	UnDef	UnDef	10.0	UnDef	17.3	36.8
3.12	5.0E-08	-0.04	58.6	5.55	6	19.4	77.4	96.8	35.3	UnDef	UnDef	10.0	UnDef	19.4	38.7
3.28	5.0E-08	-0.04	54.0	5.82	1	18.8	UnDef	UnDef	100.0	UnDef	UnDef	10.0	UnDef	UnDef	UnDef
3.44	5.0E-08	-0.05	46.8	6.16	1	17.2	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
3.61	5.0E-08	-0.05	40.9	5.85	1	15.8	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
3.77	5.0E-08	-0.04	44.0	4.98	6	17.8	71.0	88.8	37.7	UnDef	UnDef	6.0	UnDef	17.8	35.5
3.94	5.0E-08	-0.04	43.9	5.09	6	18.5	74.0	92.5	38.2	UnDef	UnDef	6.0	UnDef	18.5	37.0
4.10	5.0E-08	-0.04	46.0	5.24	6	20.2	80.8	101.0	37.9	UnDef	UnDef	6.0	UnDef	20.2	40.4
4.27	5.0E-08	-0.03	45.5	4.91	6	20.8	83.2	103.9	37.0	UnDef	UnDef	6.0	UnDef	20.8	41.6
4.43	5.0E-08	-0.04	44.0	4.60	6	20.9	83.7	104.6	36.5	UnDef	UnDef	6.0	UnDef	20.9	41.9
4.59	5.0E-08	-0.04	38.0	6.18	1	18.8	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
4.76	5.0E-08	-0.04	39.1	6.29	1	20.0	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
4.92	5.0E-08	-0.03	40.6	5.58	1	21.1	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
5.09	5.0E-08	-0.04	41.6	5.40	1	21.9	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
5.25	5.0E-08	-0.04	40.8	5.43	1	21.7	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef

Gregg In Situ, Inc. Page: 2b
Run No: 98-0817-1333-4881
CPT File: 132C01.COR

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs	Fc (%)	Phi (Deg)	Dr (%)	OCR	State Param	Del(n1)60	(N1)60cs
5.41	5.0E-08	-0.04	39.7	5.41	1	21.3	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
5.58	5.0E-08	-0.04	38.0	5.67	1	20.5	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
5.74	5.0E-08	-0.05	36.1	5.88	1	19.7	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
5.91	5.0E-08	-0.05	33.7	5.91	1	18.6	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
6.07	5.0E-08	-0.05	31.5	6.02	1	17.5	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
6.23	5.0E-08	-0.04	34.3	5.47	1	19.1	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
6.40	5.0E-08	-0.04	39.2	5.14	1	21.9	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
6.56	5.0E-08	-0.04	36.4	6.08	1	20.5	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
6.73	5.0E-08	-0.04	37.9	5.76	1	21.5	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
6.89	5.0E-08	-0.04	36.9	5.76	1	21.1	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
7.05	5.0E-08	-0.05	33.8	5.76	1	19.5	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
7.22	5.0E-08	-0.04	32.4	5.46	1	18.9	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
7.38	5.0E-08	-0.04	34.3	5.27	1	20.0	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
7.55	5.0E-08	-0.04	33.2	5.55	1	19.6	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
7.71	5.0E-08	-0.04	32.6	4.06	6	19.3	77.3	96.7	39.3	UnDef	UnDef	6.0	UnDef	18.9	37.8
7.87	5.0E-08	-0.05	27.9	5.53	1	16.7	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
8.04	5.0E-08	-0.05	27.4	5.77	1	16.6	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
8.20	5.0E-08	-0.04	27.8	5.63	1	16.9	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
8.37	5.0E-08	-0.04	27.5	5.12	1	16.8	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
8.53	5.0E-08	-0.05	25.2	4.95	1	15.6	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
8.69	5.0E-08	-0.04	26.9	4.19	6	16.7	66.7	83.4	43.1	UnDef	UnDef	6.0	UnDef	16.3	32.7
8.86	5.0E-08	-0.05	24.1	4.18	4	15.1	60.4	75.5	45.1	UnDef	UnDef	6.0	UnDef	14.8	29.5
9.02	5.0E-08	-0.05	23.2	3.70	6	14.7	58.7	73.4	43.8	UnDef	UnDef	6.0	UnDef	14.4	28.7
9.19	5.0E-08	-0.04	25.0	4.15	6	15.8	63.3	79.1	44.3	UnDef	UnDef	6.0	UnDef	15.5	31.0
9.35	5.0E-08	-0.04	29.2	4.33	6	18.4	73.7	92.2	42.2	UnDef	UnDef	6.0	UnDef	18.0	36.1
9.51	5.0E-08	-0.04	27.0	4.15	6	17.2	68.8	86.0	42.9	UnDef	UnDef	6.0	UnDef	16.8	33.7
9.68	5.0E-08	-0.05	21.6	4.06	4	14.0	56.1	70.1	46.6	UnDef	UnDef	6.0	UnDef	13.7	27.5
9.84	5.0E-08	-0.05	20.3	3.77	4	13.3	53.2	66.5	46.6	UnDef	UnDef	6.0	UnDef	13.0	26.0
10.01	5.0E-08	-0.06	16.6	3.79	4	11.1	44.5	55.6	50.7	UnDef	UnDef	6.0	UnDef	10.9	21.8
10.17	5.0E-08	-0.06	17.3	4.19	1	11.6	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
10.33	5.0E-08	-0.06	16.6	4.18	1	11.2	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
10.50	5.0E-08	-0.06	17.2	3.98	1	11.7	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
10.66	5.0E-08	-0.06	17.3	3.92	4	11.8	47.2	59.0	50.4	UnDef	UnDef	6.0	UnDef	11.6	23.1
10.83	5.0E-08	-0.05	18.7	3.47	6	12.7	50.9	63.6	46.9	UnDef	UnDef	6.0	UnDef	12.5	24.9
10.99	5.0E-07	-0.06	17.8	2.81	6	12.2	48.8	61.0	44.7	UnDef	UnDef	6.0	UnDef	8.0	15.9
11.15	5.0E-08	-0.07	14.2	3.65	4	10.0	39.9	49.9	53.5	UnDef	UnDef	6.0	UnDef	9.8	19.5
11.32	5.0E-08	-0.06	15.7	5.80	1	11.0	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
11.48	5.0E-08	-0.04	24.6	5.18	1	16.8	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
11.65	5.0E-08	-0.05	23.4	4.91	1	16.1	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
11.81	5.0E-07	-0.05	24.2	3.01	6	16.7	66.7	83.4	39.9	UnDef	UnDef	6.0	UnDef	10.9	21.8
11.97	5.0E-08	-0.06	19.5	4.26	1	13.7	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
12.14	5.0E-07	-0.04	27.2	3.44	6	18.8	75.4	94.2	39.8	UnDef	UnDef	6.0	UnDef	12.3	24.6
12.30	5.0E-05	-0.02	63.5	1.39	7	42.8	21.4	64.3	17.5	40	43.0	10.0	-0.18	4.4	21.2
12.47	5.0E-04	-0.02	71.1	1.05	9	48.1	15.2	63.3	14.0	40	46.3	1.0	-0.16	2.8	18.5
12.63	5.0E-05	-0.03	63.9	2.00	7	43.5	32.1	75.6	20.9	40	43.4	10.0	-0.22	6.2	23.2
12.80	5.0E-05	-0.03	59.7	2.44	7	41.0	41.6	82.5	23.9	40	41.7	10.0	-0.24	7.4	23.4
12.96	5.0E-05	-0.03	64.0	1.73	7	44.1	27.5	71.5	19.4	40	43.8	10.0	-0.20	5.5	22.7
13.12	5.0E-04	-0.03	62.1	1.12	7	42.9	17.6	60.6	15.9	40	43.0	1.0	-0.16	3.1	17.1
13.29	5.0E-05	-0.04	52.7	1.78	7	36.8	30.4	67.2	22.0	40	38.6	10.0	-0.19	5.7	20.1
13.45	5.0E-05	-0.05	44.7	2.50	7	31.5	49.3	80.8	27.8	38	34.2	6.0	-0.21	7.6	19.9
13.62	5.0E-05	-0.04	44.9	1.78	7	31.8	32.6	64.4	23.9	38	34.4	6.0	-0.17	5.8	18.2
13.78	5.0E-04	-0.04	53.3	0.72	9	37.7	12.6	50.3	14.4	40	39.3	1.0	-0.10	2.3	14.6
13.94	5.0E-04	-0.04	48.4	0.71	9	34.5	13.0	47.5	15.2	38	36.8	1.0	-0.09	2.3	13.6
14.11	5.0E-05	-0.07	31.6	1.58	7	23.0	34.8	57.8	27.5	36	30.0	6.0	-0.12	5.4	14.4

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs	Fc (%)	Phi (Deg)	Dr (%)	OCR	State Param	Del(n1)60	(N1)60cs
14.27	5.0E-08	-0.09	21.5	4.05	4	16.1	64.3	80.4	46.7	UnDef	UnDef	6.0	UnDef	15.7	31.5
14.44	5.0E-08	-0.09	21.7	4.25	1	16.3	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
14.60	5.0E-07	-0.08	25.8	3.78	6	19.2	76.8	96.0	42.2	UnDef	UnDef	6.0	UnDef	12.5	25.1
14.76	5.0E-05	-0.05	40.0	1.64	7	29.3	32.4	61.7	24.7	38	32.1	6.0	-0.15	5.6	17.1
14.93	5.0E-04	-0.03	70.2	0.38	9	50.8	0.0	50.8	5.0	40	47.9	1.0	-0.08	0.0	16.6
15.09	5.0E-03	-0.03	74.8	0.36	9	54.3	0.0	54.3	5.0	40	49.8	1.0	-0.08	0.0	13.3
15.26	5.0E-04	-0.03	65.3	0.37	9	47.8	0.0	47.8	5.0	40	46.1	1.0	-0.07	0.0	15.6
15.42	5.0E-04	-0.03	59.1	0.41	9	43.5	0.0	43.5	5.0	40	43.4	1.0	-0.07	0.0	14.2
15.58	5.0E-04	-0.03	56.7	0.69	9	42.0	12.1	54.1	13.4	40	42.4	1.0	-0.11	2.2	15.9
15.75	5.0E-04	-0.03	62.6	0.88	9	46.4	14.7	61.2	14.0	40	45.3	1.0	-0.13	2.7	17.8
15.91	5.0E-04	-0.03	65.5	1.28	7	48.7	21.4	70.1	16.4	40	46.7	1.0	-0.17	3.8	19.6
16.08	5.0E-04	-0.03	71.4	1.44	7	53.3	23.8	77.0	16.5	40	49.2	1.0	-0.19	4.2	21.5
16.24	5.0E-03	-0.02	100.0	0.64	9	74.4	6.5	80.9	8.0	42	58.8	1.0	-0.15	1.0	19.2
16.40	5.0E-03	-0.01	132.8	0.63	9	98.9	2.4	101.3	5.9	44	66.9	1.0	-0.17	0.4	24.6
16.57	5.0E-03	-0.01	150.7	0.96	9	112.5	7.6	120.1	7.4	44	70.6	1.0	-0.22	1.1	28.7
16.73	5.0E-03	-0.01	189.1	0.78	9	141.4	0.0	141.4	4.9	44	77.2	1.0	-0.23	0.0	34.6
16.90	5.0E-02	-0.01	200.4	0.58	9	150.5	0.0	150.5	3.2	46	79.0	1.0	-0.20	0.0	29.4
17.06	5.0E-03	-0.01	199.0	0.80	9	150.1	0.0	150.1	4.7	46	78.9	1.0	-0.23	0.0	36.7
17.22	5.0E-03	-0.01	219.4	1.34	9	166.0	10.6	176.6	7.2	46	81.8	1.0	-0.29	1.6	42.2
17.39	5.0E-03	-0.01	224.0	1.64	9	170.2	17.7	187.9	8.5	46	82.5	1.0	-0.32	2.6	44.2
17.55	5.0E-03	-0.01	237.3	1.35	9	180.9	9.4	190.3	6.8	46	84.3	1.0	-0.30	1.4	45.7
17.72	5.0E-02	0.00	282.4	0.44	10	216.0	0.0	216.0	0.8	46	89.3	1.0	-0.21	0.0	42.3
17.88	5.0E-02	-0.01	266.9	0.85	9	205.0	0.0	205.0	3.6	46	87.8	1.0	-0.26	0.0	40.1
18.04	5.0E-02	0.00	286.9	0.99	9	221.2	0.0	221.2	4.1	46	90.0	1.0	-0.29	0.0	43.3
18.21	5.0E-02	-0.01	262.6	0.60	9	203.4	0.0	203.4	2.2	46	87.6	1.0	-0.23	0.0	39.8
18.37	5.0E-03	-0.01	238.2	1.46	9	185.4	12.5	197.8	7.4	46	85.0	1.0	-0.31	1.9	47.2
18.54	5.0E-03	0.00	215.3	1.06	9	168.3	4.0	172.2	5.9	46	82.2	1.0	-0.27	0.6	41.8
18.70	5.0E-02	-0.01	173.0	0.48	9	136.0	0.0	136.0	3.2	44	76.1	1.0	-0.17	0.0	26.6
18.86	5.0E-03	-0.01	139.7	0.51	9	110.5	0.0	110.5	4.6	44	70.1	1.0	-0.16	0.0	27.0
19.03	5.0E-03	-0.01	132.1	0.61	9	105.0	2.4	107.3	5.8	44	68.7	1.0	-0.17	0.4	26.0
19.19	5.0E-02	-0.01	158.1	0.50	9	125.9	0.0	125.9	3.8	44	73.9	1.0	-0.17	0.0	24.6
19.36	5.0E-02	-0.01	168.3	0.26	9	134.5	0.0	134.5	1.4	44	75.8	1.0	-0.12	0.0	26.3
19.52	5.0E-02	-0.01	148.3	0.20	9	119.1	0.0	119.1	1.5	44	72.3	1.0	-0.08	0.0	23.3
19.68	5.0E-03	-0.01	123.3	0.49	9	99.6	0.0	99.6	5.0	42	67.1	1.0	-0.15	0.0	24.4
19.85	5.0E-03	-0.01	134.3	0.45	9	108.7	0.0	108.7	4.4	44	69.7	1.0	-0.14	0.0	26.6
20.01	5.0E-02	-0.01	161.5	0.36	9	130.9	0.0	130.9	2.6	44	75.0	1.0	-0.14	0.0	25.6
20.18	5.0E-02	-0.01	165.6	0.25	9	134.8	0.0	134.8	1.5	44	75.8	1.0	-0.11	0.0	26.4
20.34	5.0E-02	-0.01	161.0	0.16	9	131.6	0.0	131.6	0.8	44	75.1	1.0	-0.08	0.0	25.8
20.51	5.0E-02	-0.01	158.8	0.13	9	130.3	0.0	130.3	0.5	44	74.9	1.0	-0.06	0.0	25.5
20.67	5.0E-02	-0.01	150.4	0.13	9	123.9	0.0	123.9	0.8	44	73.4	1.0	-0.06	0.0	24.2
20.83	5.0E-02	-0.01	137.7	0.09	9	113.9	0.0	113.9	0.9	44	71.0	1.0	-0.02	0.0	22.3
21.00	5.0E-02	0.00	129.0	0.24	9	107.3	0.0	107.3	2.7	44	69.3	1.0	-0.09	0.0	21.0
21.16	5.0E-02	-0.01	125.5	0.26	9	104.8	0.0	104.8	3.0	44	68.6	1.0	-0.09	0.0	20.5
21.33	5.0E-03	-0.01	105.1	0.17	9	88.2	0.0	88.2	3.1	42	63.7	1.0	-0.05	0.0	21.6
21.49	5.0E-03	-0.01	79.9	0.31	9	67.6	0.0	67.6	5.0	42	56.1	1.0	-0.07	0.0	16.5
21.65	5.0E-03	-0.02	69.1	0.34	9	58.9	0.0	58.9	5.0	40	52.1	1.0	-0.06	0.0	14.4
21.82	5.0E-04	-0.02	61.0	0.77	9	52.3	15.0	67.4	13.4	40	48.7	1.0	-0.12	2.8	19.8
21.98	5.0E-04	-0.02	63.3	0.65	9	54.4	12.4	66.8	11.9	40	49.8	1.0	-0.11	2.3	20.1
22.15	5.0E-04	-0.02	77.8	1.16	9	66.8	20.8	87.6	13.9	42	55.7	1.0	-0.18	3.8	25.6
22.31	5.0E-04	-0.01	81.9	1.17	9	70.5	20.8	91.2	13.5	42	57.2	1.0	-0.18	3.8	26.8
22.47	5.0E-04	-0.01	84.1	1.18	9	72.5	20.8	93.3	13.4	42	58.1	1.0	-0.19	3.8	27.5
22.64	5.0E-04	0.00	73.0	1.37	7	63.4	26.0	89.4	15.9	40	54.2	1.0	-0.19	4.6	25.3
22.80	5.0E-05	-0.02	41.0	2.46	7	36.3	63.9	100.2	28.9	38	38.3	6.0	-0.20	9.4	23.7
22.97	5.0E-07	-0.07	16.2	3.67	4	15.3	61.2	76.5	50.7	UnDef	UnDef	6.0	UnDef	10.0	20.0

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs	Fc (%)	Phi (Deg)	Dr (%)	OCR	State Param	Del(n1)60	(N1)60cs
23.13	5.0E-07	-0.14	8.4	3.13	4	8.7	34.7	43.4	63.3	UnDef	UnDef	3.0	UnDef	5.7	11.3
23.29	5.0E-08	-0.18	6.1	3.44	1	6.7	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
23.46	5.0E-08	-0.23	4.6	3.70	1	5.4	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
23.62	5.0E-08	-0.27	3.7	5.23	1	4.7	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
23.79	5.0E-08	-0.20	4.8	4.04	1	5.6	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
23.95	5.0E-08	-0.20	4.6	4.15	1	5.5	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
24.11	5.0E-08	-0.18	5.2	3.89	1	6.1	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
24.28	5.0E-07	-0.17	5.2	2.67	4	6.1	24.3	30.4	73.6	UnDef	UnDef	1.5	UnDef	4.0	7.9
24.44	5.0E-08	-0.20	4.3	4.08	1	5.3	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
24.61	5.0E-08	-0.20	4.2	5.03	1	5.3	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
24.77	5.0E-07	-0.10	6.5	2.68	4	7.3	29.1	36.4	67.3	UnDef	UnDef	3.0	UnDef	4.7	9.5
24.93	5.0E-07	-0.11	5.1	2.91	1	6.1	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
25.10	5.0E-07	-0.10	5.9	2.53	4	6.7	26.9	33.7	69.3	UnDef	UnDef	1.5	UnDef	4.4	8.8
25.26	5.0E-06	-0.08	7.1	2.07	4	7.9	31.5	39.3	60.8	UnDef	UnDef	3.0	UnDef	3.9	7.7
25.43	5.0E-07	-0.07	6.9	2.82	4	7.7	30.9	38.6	66.6	UnDef	UnDef	3.0	UnDef	5.0	10.1
25.59	5.0E-07	-0.06	7.5	2.91	4	8.3	33.0	41.3	65.0	UnDef	UnDef	3.0	UnDef	5.4	10.8
25.75	5.0E-06	-0.05	8.3	2.75	4	9.0	36.1	45.1	61.3	UnDef	UnDef	3.0	UnDef	4.4	8.8
25.92	5.0E-07	-0.05	7.7	3.29	1	8.5	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
26.08	5.0E-07	-0.05	8.3	3.46	1	9.0	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
26.25	5.0E-07	-0.05	6.8	3.31	1	7.7	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
26.41	5.0E-08	-0.06	6.6	3.78	1	7.5	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
26.57	5.0E-08	-0.08	5.4	4.39	1	6.5	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
26.74	5.0E-08	-0.07	5.8	4.02	1	6.9	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
26.90	5.0E-08	-0.07	5.2	5.87	1	6.3	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
27.07	5.0E-08	-0.04	7.8	5.21	1	8.7	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
27.23	5.0E-08	-0.02	11.0	4.41	1	11.7	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
27.39	5.0E-07	-0.01	15.8	3.56	4	16.1	64.5	80.6	50.7	UnDef	UnDef	6.0	UnDef	10.5	21.0
27.56	5.0E-08	-0.04	12.0	4.86	1	12.6	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
27.72	5.0E-08	-0.09	7.5	4.13	1	8.5	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
27.89	5.0E-08	-0.14	5.2	5.41	1	6.5	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
28.05	5.0E-08	-0.13	4.3	6.08	1	5.6	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
28.21	5.0E-08	-0.23	2.7	8.03	1	4.1	UnDef	UnDef	100.0	UnDef	UnDef	1.0	UnDef	UnDef	UnDef
28.38	5.0E-08	-0.24	2.4	7.43	1	3.9	UnDef	UnDef	100.0	UnDef	UnDef	1.0	UnDef	UnDef	UnDef
28.54	5.0E-08	-0.12	4.4	5.28	1	5.8	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
28.71	5.0E-08	-0.09	6.0	4.84	1	7.2	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
28.87	5.0E-08	-0.08	5.9	5.40	1	7.2	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
29.04	5.0E-08	-0.11	4.5	6.78	1	5.9	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
29.20	5.0E-08	-0.11	4.3	5.57	1	5.8	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
29.36	5.0E-08	-0.12	3.6	7.25	1	5.1	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
29.53	5.0E-08	-0.08	5.3	4.76	1	6.7	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
29.69	5.0E-08	-0.06	5.9	5.12	1	7.3	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
29.86	5.0E-07	-0.03	10.5	4.01	1	11.6	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
30.02	5.0E-08	-0.03	10.9	4.44	1	12.0	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
30.18	5.0E-08	-0.04	9.5	5.38	1	10.8	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
30.35	5.0E-08	-0.03	11.7	4.71	1	12.9	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
30.51	5.0E-08	-0.04	9.7	4.89	1	11.0	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
30.68	5.0E-08	-0.03	9.0	4.67	1	10.4	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
30.84	5.0E-08	-0.03	9.2	4.44	1	10.6	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
31.00	5.0E-08	-0.02	8.7	4.69	1	10.1	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
31.17	5.0E-07	-0.01	8.9	3.62	1	10.3	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
31.33	5.0E-08	-0.01	9.2	4.27	1	10.7	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
31.50	5.0E-08	0.01	10.7	4.65	1	12.1	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
31.66	5.0E-07	0.02	11.8	3.76	1	13.2	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
31.82	5.0E-06	0.02	12.7	3.48	4	14.1	56.2	70.3	55.2	UnDef	UnDef	6.0	UnDef	6.9	13.8

Gregg In Situ, Inc.
Run No: 98-0817-1333-4881
CPT File: 132C01.COR

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs	Fc (%)	Phi (Deg)	Dr (%)	OCR	State Param	Del(n1)60	(N1)60cs
31.99	5.0E-06	0.02	12.0	3.05	4	13.5	53.9	67.4	54.2	UnDef	UnDef	3.0	UnDef	6.6	13.2
32.15	5.0E-07	0.04	9.2	4.07	1	10.8	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
32.32	5.0E-06	0.04	10.8	3.09	4	12.3	49.3	61.6	57.0	UnDef	UnDef	3.0	UnDef	6.0	12.1
32.48	5.0E-07	0.06	9.5	3.69	1	11.1	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
32.64	5.0E-07	0.06	9.2	3.57	1	10.9	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
32.81	5.0E-07	0.07	10.3	3.77	1	11.9	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
32.97	5.0E-08	0.07	11.8	4.28	1	13.5	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
33.14	5.0E-08	0.06	18.5	4.70	1	20.1	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
33.30	5.0E-06	0.01	30.5	3.78	6	32.0	127.9	159.9	39.3	UnDef	UnDef	6.0	UnDef	15.6	31.3
33.46	5.0E-04	-0.02	40.1	1.88	7	41.5	53.5	95.0	26.1	38	42.1	1.0	-0.16	7.4	20.9
33.63	5.0E-05	-0.04	30.9	1.55	7	32.5	50.0	82.5	27.7	36	35.0	6.0	-0.12	7.8	20.5
33.79	5.0E-05	-0.06	18.9	2.06	6	20.6	82.6	103.2	39.2	32	30.0	6.0	-0.09	8.1	16.2
33.96	5.0E-05	-0.08	13.2	1.62	6	15.0	59.8	74.8	43.2	32	30.0	6.0	-0.04	5.9	11.7
34.12	5.0E-06	-0.10	10.1	2.28	4	12.0	48.0	60.0	53.6	UnDef	UnDef	3.0	UnDef	5.9	11.7
34.28	5.0E-07	-0.11	8.9	3.45	1	10.8	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
34.45	5.0E-08	-0.09	10.3	4.62	1	12.2	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
34.61	5.0E-06	-0.05	19.4	2.99	6	21.4	85.6	107.0	43.9	UnDef	UnDef	6.0	UnDef	10.5	20.9
34.78	5.0E-06	-0.06	18.1	3.09	6	20.1	80.3	100.4	45.8	UnDef	UnDef	6.0	UnDef	9.8	19.7
34.94	5.0E-06	-0.06	15.3	2.97	6	17.3	69.1	86.4	48.6	UnDef	UnDef	6.0	UnDef	8.5	16.9
35.10	5.0E-07	-0.08	10.2	3.95	1	12.2	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
35.27	5.0E-08	-0.07	10.7	6.15	1	12.7	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
35.43	5.0E-08	-0.03	25.9	4.87	1	28.2	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
35.60	5.0E-06	-0.02	44.5	3.84	6	47.2	153.0	200.1	33.6	UnDef	UnDef	6.0	UnDef	21.1	44.2
35.76	5.0E-05	-0.02	63.4	2.76	7	66.4	72.9	139.3	24.6	40	55.5	10.0	-0.27	12.6	38.6
35.92	5.0E-04	-0.02	83.2	2.05	7	86.8	47.8	134.6	18.3	42	63.2	1.0	-0.25	8.1	36.4
36.09	5.0E-03	-0.01	100.9	1.53	9	105.1	32.2	137.3	13.8	42	68.7	1.0	-0.23	4.4	30.1
36.25	5.0E-03	-0.01	107.2	1.36	9	111.8	27.0	138.8	12.3	42	70.5	1.0	-0.23	3.8	31.1
36.42	5.0E-02	-0.01	114.4	0.85	9	119.4	12.6	132.0	8.6	42	72.3	1.0	-0.19	1.5	24.8
36.58	5.0E-03	-0.01	92.4	1.08	9	97.0	21.7	118.7	11.8	42	66.4	1.0	-0.19	3.1	26.8
36.74	5.0E-03	0.00	66.6	0.85	9	70.6	19.8	90.4	13.2	40	57.3	1.0	-0.14	2.7	20.0
36.91	5.0E-04	-0.02	64.8	1.75	7	68.9	43.0	111.8	19.4	40	56.6	1.0	-0.20	7.1	29.6
37.07	5.0E-05	-0.03	51.7	3.21	6	55.4	99.6	155.0	29.1	38	50.4	10.0	-0.27	14.6	36.3
37.24	5.0E-07	-0.03	45.2	5.07	6	48.9	195.5	244.4	37.6	UnDef	UnDef	6.0	UnDef	31.9	63.8
37.40	5.0E-06	-0.04	40.8	4.44	6	44.4	177.5	221.9	37.1	UnDef	UnDef	6.0	UnDef	21.7	43.4
37.57	5.0E-05	-0.03	55.8	3.23	6	60.1	97.2	157.3	28.1	40	52.7	10.0	-0.28	14.8	38.4
37.73	5.0E-05	-0.04	40.7	3.06	6	44.4	111.0	155.5	31.7	38	44.0	6.0	-0.23	14.0	31.4
37.89	5.0E-08	-0.08	19.0	5.46	1	21.8	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
38.06	5.0E-08	-0.11	13.0	7.88	1	15.6	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
38.22	5.0E-06	-0.07	19.7	3.98	4	22.7	90.7	113.4	48.1	UnDef	UnDef	6.0	UnDef	11.1	22.2
38.39	5.0E-07	-0.09	15.3	3.98	1	18.1	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
38.55	5.0E-08	-0.13	10.9	4.59	1	13.5	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
38.71	5.0E-08	-0.08	16.4	5.74	1	19.3	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
38.88	5.0E-07	-0.05	25.2	4.24	4	28.6	114.5	143.1	44.5	UnDef	UnDef	6.0	UnDef	18.7	37.3
39.04	5.0E-06	-0.06	21.6	3.85	6	24.9	99.6	124.5	45.8	UnDef	UnDef	6.0	UnDef	12.2	24.4
39.21	5.0E-06	-0.09	15.8	3.79	4	18.7	74.9	93.7	51.9	UnDef	UnDef	6.0	UnDef	9.2	18.3
39.37	5.0E-08	-0.11	12.8	5.65	1	15.6	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
39.53	5.0E-08	-0.07	20.5	4.84	1	23.9	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
39.70	5.0E-07	-0.05	24.9	4.78	1	28.6	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
39.86	5.0E-07	-0.04	32.4	4.73	6	36.6	146.6	183.2	41.8	UnDef	UnDef	6.0	UnDef	23.9	47.8
40.03	5.0E-06	-0.03	49.4	3.64	6	54.8	130.7	185.6	31.4	UnDef	UnDef	6.0	UnDef	21.1	48.0

Gregg In Situ, Inc.
Interpretation Output - Release 1.00.17
Run No: 98-0817-1333-4799
Job No: 98-132
Client: LAW CRANDALL
Project: WOODLAND HILLS
Site: MOTION PICTURE
Location: SCPT-2
Cone: V. LANGHAAR
CPT Date: 98/27/07
CPT Time: 16:55
CPT File: 132SC02.COR
Northing (m): 0.000
Easting (m): 0.000
Elevation (m): 0.000

Water Table (m): 1.52 (ft): 5.0
Su Nkt used: 12.50
Averaging Increment (m): 0.0 (Every Data Point)
Phi Method : Robertson and Campanella, 1983
Dr Method : Jamiolkowski - All Sands
State Parameter M: 1.20
Used Unit Weights Assigned to Soil Zones
Values of 1.0E9 or UnDef are printed for parameters that are not valid for the material type (SBT)

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (tsf)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)	Ueq (tsf)	Cn	N60 (blows/ft)	(N1)60 (blows/ft)	Su (tsf)	CRR
0.16	17.5	2.00	11.45	0.0	3	111.4	0.01	0.01	0.00	2.00	16.8	33.5	1.40	0.00
0.33	141.7	3.20	2.26	-0.2	7	117.8	0.02	0.02	0.00	2.00	45.2	90.5	UnDef	0.00
0.49	120.8	4.02	3.33	-0.2	6	114.6	0.03	0.03	0.00	2.00	46.3	92.6	9.66	0.00
0.66	108.2	4.01	3.71	-0.4	6	114.6	0.04	0.04	0.00	2.00	41.4	82.9	8.65	0.00
0.82	94.1	3.83	4.07	0.2	5	114.6	0.05	0.05	0.00	2.00	45.1	90.1	7.53	0.00
0.98	81.8	3.09	3.77	-0.1	5	114.6	0.06	0.06	0.00	2.00	39.2	78.4	6.54	0.00
1.15	70.7	2.35	3.32	-0.2	6	114.6	0.07	0.07	0.00	2.00	27.1	54.2	5.65	0.00
1.31	65.4	2.29	3.49	0.2	5	114.6	0.08	0.08	0.00	2.00	31.3	62.7	5.23	0.00
1.48	61.7	2.15	3.48	-0.7	5	114.6	0.08	0.08	0.00	2.00	29.5	59.1	4.93	0.00
1.64	50.2	1.44	2.88	-0.9	6	114.6	0.09	0.09	0.00	2.00	19.2	38.5	4.01	0.00
1.80	43.7	1.22	2.80	-0.8	6	114.6	0.10	0.10	0.00	2.00	16.7	33.4	3.48	0.00
1.97	42.3	1.02	2.42	-1.8	6	114.6	0.11	0.11	0.00	2.00	16.2	32.4	3.37	0.00
2.13	40.3	0.95	2.36	-1.5	6	114.6	0.12	0.12	0.00	2.00	15.4	30.9	3.21	0.00
2.30	41.0	0.97	2.37	-2.2	6	114.6	0.13	0.13	0.00	2.00	15.7	31.4	3.27	0.00
2.46	38.2	0.93	2.44	-2.3	6	114.6	0.14	0.14	0.00	2.00	14.6	29.3	3.05	0.00
2.62	32.7	0.86	2.64	-1.7	6	114.6	0.15	0.15	0.00	2.00	12.5	25.0	2.60	0.13
2.79	26.4	0.91	3.45	-2.1	5	114.6	0.16	0.16	0.00	2.00	12.7	25.3	2.10	0.00
2.95	26.4	0.93	3.53	-2.1	5	114.6	0.17	0.17	0.00	2.00	12.6	25.3	2.10	0.00
3.12	25.0	0.88	3.53	-1.7	5	114.6	0.18	0.18	0.00	2.00	12.0	23.9	1.99	0.00
3.28	23.5	0.86	3.67	-2.3	4	114.6	0.19	0.19	0.00	2.00	15.0	30.0	1.86	0.00
3.44	23.1	0.76	3.30	-1.5	5	114.6	0.20	0.20	0.00	2.00	11.1	22.1	1.83	0.12
3.61	24.5	0.78	3.19	-0.8	5	114.6	0.21	0.21	0.00	2.00	11.7	23.5	1.95	0.12
3.77	22.6	0.73	3.24	-1.8	5	114.6	0.22	0.22	0.00	2.00	10.8	21.6	1.79	0.12
3.94	18.4	0.64	3.49	-1.6	4	114.6	0.23	0.23	0.00	2.00	11.7	23.5	1.45	0.12
4.10	17.3	0.45	2.60	-1.3	5	114.6	0.23	0.23	0.00	2.00	8.3	16.6	1.37	0.10
4.27	16.3	0.37	2.28	-1.0	5	114.6	0.24	0.24	0.00	2.00	7.8	15.6	1.28	0.10
4.43	14.4	0.27	1.88	-0.9	5	114.6	0.25	0.25	0.00	1.99	6.9	13.7	1.13	0.09
4.59	14.3	0.19	1.34	-0.8	6	114.6	0.26	0.26	0.00	1.95	5.5	10.7	1.12	0.09
4.76	14.0	0.21	1.50	-1.0	6	114.6	0.27	0.27	0.00	1.92	5.4	10.3	1.10	0.09
4.92	13.0	0.44	3.40	-1.2	4	114.6	0.28	0.28	0.00	1.88	8.3	15.6	1.02	0.14
5.09	13.8	0.56	4.07	-1.9	3	111.4	0.29	0.29	0.00	1.86	13.2	24.6	1.08	0.21
5.25	13.0	0.80	6.18	-3.1	3	111.4	0.30	0.29	0.01	1.85	12.4	23.0	1.01	0.00

Gregg In Situ, Inc.
Run No: 98-0817-1333-4799
CPT File: 132SC02.COR

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (tsf)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)	Ueq (tsf)	Cn	N60 (blows/ft)	(N1)60 (blows/ft)	Su (tsf)	CRR
5.41	13.8	0.97	7.06	-2.6	3	111.4	0.31	0.30	0.01	1.84	13.2	24.2	1.08	0.00
5.58	13.8	1.05	7.62	-4.8	3	111.4	0.32	0.30	0.02	1.82	13.2	24.1	1.08	0.00
5.74	13.2	1.07	8.11	-3.1	3	111.4	0.33	0.30	0.02	1.81	12.7	23.0	1.03	0.00
5.91	13.6	1.05	7.76	-2.6	3	111.4	0.34	0.31	0.03	1.80	13.0	23.4	1.06	0.00
6.07	14.1	1.09	7.76	-2.7	3	111.4	0.35	0.31	0.03	1.79	13.5	24.1	1.10	0.00
6.23	15.7	1.14	7.30	-3.0	3	111.4	0.36	0.32	0.04	1.78	15.0	26.6	1.22	0.00
6.40	14.1	1.08	7.66	-0.5	3	111.4	0.36	0.32	0.04	1.77	13.5	23.9	1.10	0.00
6.56	13.2	1.00	7.59	1.4	3	111.4	0.37	0.32	0.05	1.76	12.6	22.2	1.03	0.00
6.73	13.9	0.92	6.64	0.9	3	111.4	0.38	0.33	0.05	1.74	13.3	23.2	1.08	0.00
6.89	13.0	0.93	7.17	1.8	3	111.4	0.39	0.33	0.06	1.73	12.4	21.6	1.01	0.00
7.05	11.2	0.91	8.17	0.9	3	111.4	0.40	0.34	0.06	1.72	10.7	18.4	0.86	0.00
7.22	10.5	0.83	7.94	1.7	3	111.4	0.41	0.34	0.07	1.71	10.0	17.2	0.81	0.00
7.38	10.5	0.77	7.37	0.7	3	111.4	0.42	0.34	0.07	1.70	10.0	17.1	0.80	0.00
7.55	11.3	0.71	6.30	2.7	3	111.4	0.43	0.35	0.08	1.69	10.8	18.3	0.87	0.00
7.71	11.9	0.66	5.58	2.8	3	111.4	0.44	0.35	0.08	1.68	11.3	19.1	0.91	0.00
7.87	10.1	0.63	6.22	2.8	3	111.4	0.45	0.36	0.09	1.67	9.7	16.3	0.78	0.00
8.04	10.5	0.62	5.92	3.7	3	111.4	0.46	0.36	0.09	1.67	10.0	16.7	0.80	0.00
8.20	9.9	0.61	6.21	3.8	3	111.4	0.46	0.36	0.10	1.66	9.4	15.6	0.75	0.00
8.37	9.9	0.53	5.34	5.0	3	111.4	0.47	0.37	0.11	1.65	9.5	15.7	0.76	0.00
8.53	8.4	0.56	6.67	5.2	3	111.4	0.48	0.37	0.11	1.64	8.1	13.2	0.63	0.00
8.69	8.1	0.53	6.54	7.0	3	111.4	0.49	0.38	0.12	1.63	7.8	12.7	0.61	0.00
8.86	8.0	0.55	6.90	7.3	3	111.4	0.50	0.38	0.12	1.62	7.7	12.4	0.60	0.00
9.02	8.3	0.54	6.53	7.1	3	111.4	0.51	0.38	0.13	1.61	7.9	12.8	0.62	0.00
9.19	7.1	0.50	7.02	8.0	3	111.4	0.52	0.39	0.13	1.60	6.8	11.0	0.53	0.00
9.35	6.5	0.45	6.97	8.6	3	111.4	0.53	0.39	0.14	1.60	6.2	9.9	0.48	0.00
9.51	5.5	0.38	6.99	8.6	3	111.4	0.54	0.40	0.14	1.59	5.2	8.3	0.39	0.00
9.68	4.9	0.30	6.08	9.0	3	111.4	0.55	0.40	0.15	1.58	4.7	7.5	0.35	0.00
9.84	5.6	0.27	4.85	9.6	3	111.4	0.56	0.40	0.15	1.57	5.3	8.4	0.40	0.00
10.01	6.7	0.32	4.77	9.4	3	111.4	0.57	0.41	0.16	1.56	6.4	10.1	0.49	0.00
10.17	7.5	0.45	6.02	9.8	3	111.4	0.57	0.41	0.16	1.56	7.2	11.2	0.55	0.00
10.33	7.5	0.70	9.41	9.8	2	111.4	0.58	0.42	0.17	1.55	7.1	11.1	0.55	0.00
10.50	7.5	0.71	9.43	10.0	2	111.4	0.59	0.42	0.17	1.54	7.2	11.1	0.56	0.00
10.66	9.3	0.77	8.28	17.4	3	111.4	0.60	0.42	0.18	1.53	8.9	13.7	0.70	0.00
10.83	8.2	0.61	7.44	17.9	3	111.4	0.61	0.43	0.18	1.53	7.9	12.0	0.61	0.00
10.99	7.5	0.51	6.79	17.5	3	111.4	0.62	0.43	0.19	1.52	7.2	11.0	0.55	0.00
11.15	6.7	0.45	6.74	18.2	3	111.4	0.63	0.44	0.19	1.51	6.4	9.7	0.48	0.00
11.32	6.9	0.36	5.26	17.2	3	111.4	0.64	0.44	0.20	1.51	6.6	9.9	0.50	0.00
11.48	7.2	0.32	4.43	17.9	3	111.4	0.65	0.44	0.20	1.50	6.9	10.4	0.53	0.00
11.65	7.3	0.21	2.88	17.4	4	114.6	0.66	0.45	0.21	1.49	4.7	7.0	0.53	0.09
11.81	5.7	0.25	4.42	18.0	3	111.4	0.67	0.45	0.21	1.49	5.4	8.1	0.40	0.00
11.97	5.0	0.30	6.03	18.3	3	111.4	0.68	0.46	0.22	1.48	4.8	7.1	0.35	0.00
12.14	6.1	0.37	6.08	20.5	3	111.4	0.68	0.46	0.22	1.47	5.8	8.6	0.43	0.00
12.30	5.5	0.35	6.32	20.1	3	111.4	0.69	0.47	0.23	1.47	5.3	7.8	0.39	0.00
12.47	5.9	0.33	5.62	20.5	3	111.4	0.70	0.47	0.23	1.46	5.6	8.2	0.41	0.00
12.63	6.2	0.33	5.31	20.2	3	111.4	0.71	0.47	0.24	1.45	6.0	8.7	0.44	0.00
12.80	5.9	0.35	5.95	20.9	3	111.4	0.72	0.48	0.24	1.45	5.6	8.2	0.41	0.00
12.96	7.2	0.33	4.62	21.1	3	111.4	0.73	0.48	0.25	1.44	6.9	9.9	0.51	0.00
13.12	22.1	0.29	1.32	21.1	6	114.6	0.74	0.49	0.25	1.44	8.5	12.1	1.71	0.10
13.29	12.0	0.27	2.26	15.9	5	114.6	0.75	0.49	0.26	1.43	5.7	8.2	0.90	0.13
13.45	9.5	0.27	2.84	15.1	4	114.6	0.76	0.49	0.26	1.42	6.1	8.7	0.70	0.11
13.62	6.9	0.33	4.83	16.0	3	111.4	0.77	0.50	0.27	1.42	6.6	9.3	0.49	0.00
13.78	7.1	0.46	6.49	16.2	3	111.4	0.78	0.50	0.27	1.41	6.8	9.6	0.51	0.00
13.94	11.5	0.62	5.39	16.5	3	111.4	0.79	0.51	0.28	1.41	11.0	15.5	0.86	0.00
14.11	20.6	0.84	4.10	15.8	3	111.4	0.79	0.51	0.28	1.40	19.7	27.6	1.58	0.34

Gregg In Situ, Inc.
Run No: 98-0817-1333-4799
CPT File: 132SC02.COR

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (tsf)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)	Ueq (tsf)	Cn	N60 (blows/ft)	(N1)60 (blows/ft)	Su (tsf)	CRR
14.27	22.8	0.99	4.35	6.4	3	111.4	0.80	0.51	0.29	1.39	21.8	30.5	1.76	0.43
14.44	25.0	1.13	4.54	2.2	3	111.4	0.81	0.52	0.29	1.39	23.9	33.2	1.93	0.00
14.60	20.7	0.90	4.35	0.4	3	111.4	0.82	0.52	0.30	1.38	19.9	27.5	1.59	0.34
14.76	10.3	0.48	4.67	-2.5	3	111.4	0.83	0.53	0.30	1.38	9.9	13.6	0.76	0.00
14.93	6.3	0.29	4.59	-3.1	3	111.4	0.84	0.53	0.31	1.37	6.1	8.3	0.44	0.00
15.09	4.5	0.22	4.91	-3.4	3	111.4	0.85	0.53	0.32	1.37	4.3	5.9	0.29	0.00
15.26	4.6	0.36	7.80	-3.5	2	111.4	0.86	0.54	0.32	1.36	4.4	6.0	0.30	0.00
15.42	5.3	0.41	7.80	-3.0	3	111.4	0.87	0.54	0.33	1.36	5.0	6.9	0.35	0.00
15.58	8.5	0.69	8.12	-0.8	3	111.4	0.88	0.55	0.33	1.35	8.2	11.0	0.61	0.00
15.75	7.6	0.88	11.68	2.8	2	111.4	0.89	0.55	0.34	1.35	7.2	9.7	0.53	0.00
15.91	8.8	0.76	8.64	2.0	3	111.4	0.90	0.55	0.34	1.34	8.4	11.3	0.63	0.00
16.08	8.9	0.71	8.03	1.2	3	111.4	0.90	0.56	0.35	1.34	8.5	11.4	0.64	0.00
16.24	11.8	0.53	4.48	1.8	3	111.4	0.91	0.56	0.35	1.33	11.3	15.1	0.87	0.00
16.40	7.6	0.54	7.10	1.6	3	111.4	0.92	0.57	0.36	1.33	7.3	9.7	0.54	0.00
16.57	5.1	0.56	11.05	1.3	2	111.4	0.93	0.57	0.36	1.32	4.9	6.4	0.33	0.00
16.73	7.6	0.73	9.59	2.6	2	111.4	0.94	0.57	0.37	1.32	7.3	9.6	0.54	0.00
16.90	10.0	0.89	8.91	2.2	3	111.4	0.95	0.58	0.37	1.31	9.6	12.6	0.73	0.00
17.06	15.7	0.88	5.61	2.3	3	111.4	0.96	0.58	0.38	1.31	15.1	19.7	1.18	0.00
17.22	20.0	0.81	4.06	1.8	3	111.4	0.97	0.59	0.38	1.31	19.1	25.0	1.52	0.27
17.39	17.7	0.80	4.53	0.2	3	111.4	0.98	0.59	0.39	1.30	17.0	22.1	1.34	0.00
17.55	13.5	0.73	5.42	-0.1	3	111.4	0.99	0.59	0.39	1.30	12.9	16.8	1.00	0.00
17.72	10.2	0.67	6.60	-0.8	3	111.4	1.00	0.60	0.40	1.29	9.7	12.6	0.73	0.00
17.88	5.1	0.45	8.90	-0.5	2	111.4	1.00	0.60	0.40	1.29	4.9	6.3	0.33	0.00
18.04	3.7	0.18	4.87	-0.1	3	111.4	1.01	0.61	0.41	1.28	3.6	4.6	0.22	0.00
18.21	3.4	0.15	4.47	-0.6	3	111.4	1.02	0.61	0.41	1.28	3.2	4.1	0.19	0.00
18.37	3.0	0.14	4.71	0.5	3	111.4	1.03	0.61	0.42	1.28	2.9	3.6	0.16	0.00
18.54	2.3	0.15	6.55	0.0	2	111.4	1.04	0.62	0.42	1.27	2.2	2.8	0.10	0.00
18.70	2.9	0.16	5.46	0.1	3	111.4	1.05	0.62	0.43	1.27	2.8	3.6	0.15	0.00
18.86	3.4	0.13	3.82	0.0	3	111.4	1.06	0.63	0.43	1.26	3.3	4.1	0.19	0.00
19.03	2.9	0.21	7.16	0.5	2	111.4	1.07	0.63	0.44	1.26	2.8	3.5	0.15	0.00
19.19	4.3	0.24	5.54	1.0	3	111.4	1.08	0.63	0.44	1.26	4.2	5.2	0.26	0.00
19.36	4.6	0.25	5.44	1.0	3	111.4	1.09	0.64	0.45	1.25	4.4	5.5	0.28	0.00
19.52	4.6	0.23	4.96	1.6	3	111.4	1.10	0.64	0.45	1.25	4.5	5.6	0.28	0.00
19.68	4.6	0.20	4.39	1.1	3	111.4	1.11	0.65	0.46	1.24	4.4	5.4	0.28	0.00
19.85	3.7	0.19	5.12	1.6	3	111.4	1.11	0.65	0.46	1.24	3.6	4.4	0.21	0.00
20.01	3.8	0.22	5.75	1.7	3	111.4	1.12	0.65	0.47	1.24	3.7	4.5	0.22	0.00
20.18	4.1	0.29	7.03	1.7	3	111.4	1.13	0.66	0.47	1.23	4.0	4.9	0.24	0.00
20.34	6.0	0.61	10.24	1.4	2	111.4	1.14	0.66	0.48	1.23	5.7	7.0	0.39	0.00
20.51	5.4	0.70	12.94	1.7	2	111.4	1.15	0.67	0.48	1.22	5.2	6.4	0.34	0.00
20.67	9.6	0.68	7.12	6.8	3	111.4	1.16	0.67	0.49	1.22	9.2	11.2	0.67	0.00
20.83	6.8	0.55	8.10	6.4	3	111.4	1.17	0.67	0.49	1.22	6.5	7.9	0.45	0.00
21.00	6.4	0.38	5.93	7.3	3	111.4	1.18	0.68	0.50	1.21	6.1	7.5	0.42	0.00
21.16	4.8	0.24	4.96	7.4	3	111.4	1.19	0.68	0.50	1.21	4.6	5.6	0.29	0.00
21.33	4.4	0.20	4.58	7.6	3	111.4	1.20	0.69	0.51	1.21	4.2	5.1	0.25	0.00
21.49	4.0	0.23	5.77	7.8	3	111.4	1.21	0.69	0.51	1.20	3.8	4.6	0.22	0.00
21.65	6.6	0.66	9.96	7.8	2	111.4	1.21	0.69	0.52	1.20	6.4	7.6	0.43	0.00
21.82	36.0	1.00	2.79	4.7	6	114.6	1.22	0.70	0.53	1.20	13.8	16.5	2.78	0.21
21.98	16.8	1.02	6.08	-3.0	3	111.4	1.23	0.70	0.53	1.19	16.1	19.2	1.25	0.00
22.15	10.2	0.74	7.27	-4.3	3	111.4	1.24	0.71	0.54	1.19	9.8	11.6	0.72	0.00
22.31	12.4	1.11	9.00	-4.4	3	111.4	1.25	0.71	0.54	1.19	11.8	14.0	0.89	0.00
22.47	33.0	1.75	5.32	-4.0	3	111.4	1.26	0.72	0.55	1.18	31.6	37.4	2.54	0.00
22.64	53.3	1.82	3.42	-4.9	5	114.6	1.27	0.72	0.55	1.18	25.5	30.1	4.16	0.33
22.80	67.9	1.11	1.64	-6.0	7	117.8	1.28	0.72	0.56	1.18	21.7	25.5	UnDef	0.20
22.97	64.0	0.47	0.74	-7.3	8	120.9	1.29	0.73	0.56	1.17	15.3	18.0	UnDef	0.14

Gregg In Situ, Inc.
Run No: 98-0817-1333-4799
CPT File: 132SC02.COR

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (tsf)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)	Ueq (tsf)	Cn	N60 (blows/ft)	(N1)60 (blows/ft)	Su (tsf)	CRR
23.13	40.4	0.36	0.89	-8.5	7	117.8	1.30	0.73	0.57	1.17	12.9	15.1	UnDef	0.11
23.29	22.6	0.38	1.68	-8.9	6	114.6	1.31	0.74	0.57	1.16	8.7	10.1	1.70	0.13
23.46	10.5	0.35	3.35	-8.5	4	114.6	1.32	0.74	0.58	1.16	6.7	7.8	0.73	0.00
23.62	5.9	0.37	6.30	-8.6	3	111.4	1.33	0.75	0.58	1.16	5.6	6.5	0.36	0.00
23.79	7.9	0.54	6.87	-8.5	3	111.4	1.34	0.75	0.59	1.15	7.5	8.7	0.52	0.00
23.95	10.5	0.52	4.98	-9.0	3	111.4	1.35	0.75	0.59	1.15	10.0	11.6	0.73	0.00
24.11	8.9	0.44	4.98	-8.6	3	111.4	1.35	0.76	0.60	1.15	8.5	9.7	0.60	0.00
24.28	4.5	0.29	6.50	-8.2	3	111.4	1.36	0.76	0.60	1.15	4.3	4.9	0.25	0.00
24.44	2.9	0.22	7.62	-9.1	2	111.4	1.37	0.77	0.61	1.14	2.8	3.2	0.12	0.00
24.61	2.2	0.19	8.77	-9.1	2	111.4	1.38	0.77	0.61	1.14	2.1	2.4	0.06	0.00
24.77	3.7	0.19	5.14	-9.3	3	111.4	1.39	0.77	0.62	1.14	3.5	4.0	0.19	0.00
24.93	2.6	0.22	8.33	-8.6	2	111.4	1.40	0.78	0.62	1.13	2.5	2.9	0.10	0.00
25.10	4.3	0.24	5.53	-9.3	3	111.4	1.41	0.78	0.63	1.13	4.2	4.7	0.23	0.00
25.26	3.7	0.29	7.93	-9.1	2	111.4	1.42	0.79	0.63	1.13	3.5	4.0	0.18	0.00
25.43	4.7	0.30	6.36	-9.0	3	111.4	1.43	0.79	0.64	1.13	4.5	5.1	0.26	0.00
25.59	7.2	0.34	4.70	-6.9	3	111.4	1.44	0.79	0.64	1.12	6.9	7.8	0.46	0.00
25.75	6.9	0.41	5.95	-7.1	3	111.4	1.45	0.80	0.65	1.12	6.6	7.4	0.44	0.00
25.92	7.8	0.51	6.52	-7.4	3	111.4	1.46	0.80	0.65	1.12	7.5	8.4	0.51	0.00
26.08	8.9	0.54	6.07	-6.5	3	111.4	1.46	0.81	0.66	1.11	8.5	9.5	0.60	0.00
26.25	8.7	0.55	6.34	-7.6	3	111.4	1.47	0.81	0.66	1.11	8.3	9.3	0.58	0.00
26.41	10.0	0.54	5.40	-6.6	3	111.4	1.48	0.81	0.67	1.11	9.6	10.6	0.68	0.00
26.57	12.4	0.62	4.99	-6.7	3	111.4	1.49	0.82	0.67	1.11	11.9	13.2	0.88	0.00
26.74	12.0	0.68	5.69	-6.5	3	111.4	1.50	0.82	0.68	1.10	11.5	12.7	0.84	0.00
26.90	13.6	0.67	4.92	-6.6	3	111.4	1.51	0.83	0.68	1.10	13.1	14.4	0.97	0.00
27.07	14.2	0.71	5.00	-6.5	3	111.4	1.52	0.83	0.69	1.10	13.6	15.0	1.02	0.00
27.23	17.0	0.84	4.94	-6.8	3	111.4	1.53	0.83	0.69	1.09	16.3	17.9	1.24	0.00
27.39	18.8	1.08	5.75	-7.0	3	111.4	1.54	0.84	0.70	1.09	18.0	19.7	1.38	0.00
27.56	18.8	1.03	5.49	-6.4	3	111.4	1.55	0.84	0.70	1.09	18.0	19.6	1.38	0.00
27.72	19.2	1.02	5.33	-6.4	3	111.4	1.56	0.85	0.71	1.09	18.4	20.0	1.41	0.00
27.89	20.8	0.98	4.71	-6.4	3	111.4	1.56	0.85	0.71	1.08	20.0	21.6	1.54	0.00
28.05	20.9	1.08	5.17	-5.9	3	111.4	1.57	0.85	0.72	1.08	20.0	21.7	1.55	0.00
28.21	18.9	1.19	6.30	-7.3	3	111.4	1.58	0.86	0.72	1.08	18.1	19.6	1.39	0.00
28.38	16.8	1.08	6.43	-7.0	3	111.4	1.59	0.86	0.73	1.08	16.1	17.4	1.22	0.00
28.54	17.6	1.09	6.21	-6.5	3	111.4	1.60	0.87	0.74	1.07	16.9	18.1	1.28	0.00
28.71	20.5	1.27	6.20	-6.4	3	111.4	1.61	0.87	0.74	1.07	19.7	21.1	1.51	0.00
28.87	20.0	1.37	6.87	-7.1	3	111.4	1.62	0.87	0.75	1.07	19.1	20.5	1.47	0.00
29.04	17.0	1.35	7.94	-6.9	3	111.4	1.63	0.88	0.75	1.07	16.3	17.4	1.23	0.00
29.20	12.7	1.12	8.81	-6.7	3	111.4	1.64	0.88	0.76	1.06	12.2	13.0	0.89	0.00
29.36	13.7	0.93	6.82	-7.6	3	111.4	1.65	0.89	0.76	1.06	13.1	13.9	0.96	0.00
29.53	12.0	0.74	6.20	-7.8	3	111.4	1.66	0.89	0.77	1.06	11.5	12.2	0.83	0.00
29.69	10.8	0.69	6.41	-7.2	3	111.4	1.67	0.89	0.77	1.06	10.3	10.9	0.73	0.00
29.86	10.7	0.76	7.09	-7.1	3	111.4	1.67	0.90	0.78	1.06	10.3	10.9	0.73	0.00
30.02	11.7	0.70	6.01	-6.7	3	111.4	1.68	0.90	0.78	1.05	11.2	11.8	0.80	0.00
30.18	10.9	0.63	5.81	-6.6	3	111.4	1.69	0.91	0.79	1.05	10.4	10.9	0.73	0.00
30.35	11.0	1.10	9.98	-6.6	3	111.4	1.70	0.91	0.79	1.05	10.6	11.1	0.75	0.00
30.51	10.8	1.16	10.78	-6.9	3	111.4	1.71	0.91	0.80	1.05	10.3	10.8	0.73	0.00
30.68	14.2	1.06	7.48	-6.0	3	111.4	1.72	0.92	0.80	1.04	13.6	14.2	1.00	0.00
30.84	7.5	0.83	11.13	-5.2	2	111.4	1.73	0.92	0.81	1.04	7.2	7.5	0.46	0.00
31.00	5.8	0.61	10.53	-5.6	2	111.4	1.74	0.93	0.81	1.04	5.6	5.8	0.33	0.00
31.17	6.0	0.59	9.89	-5.6	2	111.4	1.75	0.93	0.82	1.04	5.7	5.9	0.34	0.00
31.33	7.1	0.50	7.03	-5.9	3	111.4	1.76	0.93	0.82	1.03	6.8	7.1	0.43	0.00
31.50	7.6	0.47	6.17	-5.9	3	111.4	1.77	0.94	0.83	1.03	7.3	7.6	0.47	0.00
31.66	6.4	0.44	6.84	-5.6	3	111.4	1.78	0.94	0.83	1.03	6.2	6.4	0.37	0.00
31.82	6.2	0.53	8.52	-5.6	3	111.4	1.78	0.95	0.84	1.03	6.0	6.1	0.36	0.00

Gregg In Situ, Inc.
Run No: 98-0817-1333-4799
CPT File: 132SC02.COR

Depth (ft)	AvgQt (tsf)	AvgFs (tsf)	AvgRf (tsf)	AvgUd (ft)	SBT	U.Wt. pcf	TStress (tsf)	EStress (tsf)	Ueq (tsf)	Cn	N60 (blows/ft)	(N1)60 (blows/ft)	Su (tsf)	CRR
31.99	10.4	0.60	5.76	-5.6	3	111.4	1.79	0.95	0.84	1.03	10.0	10.3	0.69	0.00
32.15	11.9	0.78	6.55	-5.7	3	111.4	1.80	0.95	0.85	1.02	11.4	11.7	0.81	0.00
32.32	12.1	1.15	9.55	-6.0	3	111.4	1.81	0.96	0.85	1.02	11.6	11.8	0.82	0.00
32.48	8.8	0.97	11.07	-6.0	2	111.4	1.82	0.96	0.86	1.02	8.4	8.6	0.56	0.00
32.64	9.8	0.81	8.27	-4.4	3	111.4	1.83	0.97	0.86	1.02	9.4	9.6	0.64	0.00
32.81	6.5	0.59	9.11	-4.6	2	111.4	1.84	0.97	0.87	1.01	6.2	6.3	0.37	0.00
32.97	5.1	0.52	10.24	-4.6	2	111.4	1.85	0.97	0.87	1.01	4.9	4.9	0.26	0.00
33.14	7.0	0.52	7.40	-5.3	3	111.4	1.86	0.98	0.88	1.01	6.7	6.8	0.41	0.00
33.30	6.8	0.37	5.43	-4.7	3	111.4	1.87	0.98	0.88	1.01	6.5	6.6	0.40	0.00
33.46	5.8	0.38	6.55	-4.7	3	111.4	1.88	0.99	0.89	1.01	5.6	5.6	0.31	0.00
33.63	7.0	0.63	9.06	-4.1	2	111.4	1.88	0.99	0.89	1.00	6.7	6.7	0.41	0.00
33.79	15.3	0.60	3.94	-5.1	3	111.4	1.89	0.99	0.90	1.00	14.6	14.7	1.07	0.00
33.96	8.8	0.46	5.22	-5.0	3	111.4	1.90	1.00	0.90	1.00	8.5	8.5	0.55	0.00
34.12	4.8	0.36	7.54	-4.9	3	111.4	1.91	1.00	0.91	1.00	4.6	4.6	0.23	0.00
34.28	5.8	0.47	8.16	-4.6	3	111.4	1.92	1.01	0.91	1.00	5.5	5.5	0.31	0.00
34.45	11.0	0.88	8.05	-5.4	3	111.4	1.93	1.01	0.92	0.99	10.5	10.4	0.72	0.00
34.61	17.9	1.33	7.46	-4.9	3	111.4	1.94	1.02	0.92	0.99	17.1	17.0	1.27	0.00
34.78	40.1	1.19	2.98	-4.8	5	114.6	1.95	1.02	0.93	0.99	19.2	19.0	3.05	0.46
34.94	49.5	0.88	1.78	-4.6	7	117.8	1.96	1.02	0.93	0.99	15.8	15.6	UnDef	0.16
35.10	45.5	0.93	2.05	-5.9	6	114.6	1.97	1.03	0.94	0.99	17.4	17.2	3.48	0.19
35.27	42.7	0.57	1.34	-5.6	7	117.8	1.98	1.03	0.95	0.98	13.6	13.4	UnDef	0.13
35.43	41.2	1.00	2.44	-6.0	6	114.6	1.99	1.04	0.95	0.98	15.8	15.5	3.13	0.26
35.60	34.4	1.01	2.95	7.8	5	114.6	2.00	1.04	0.96	0.98	16.5	16.1	2.59	0.00
35.76	18.4	1.07	5.83	6.7	3	111.4	2.01	1.05	0.96	0.98	17.6	17.2	1.31	0.00
35.92	20.5	1.19	5.81	10.1	3	111.4	2.01	1.05	0.97	0.98	19.7	19.2	1.48	0.00
36.09	26.9	1.32	4.91	11.1	3	111.4	2.02	1.05	0.97	0.97	25.8	25.1	1.99	0.00
36.25	33.4	1.15	3.46	11.5	5	114.6	2.03	1.06	0.98	0.97	16.0	15.5	2.51	0.45
36.42	40.2	1.09	2.72	10.6	6	114.6	2.04	1.06	0.98	0.97	15.4	14.9	3.05	0.38
36.58	58.8	0.87	1.48	7.1	7	117.8	2.05	1.07	0.99	0.97	18.8	18.2	UnDef	0.16
36.74	56.4	1.13	2.01	6.0	7	117.8	2.06	1.07	0.99	0.97	18.0	17.4	UnDef	0.20
36.91	19.5	0.90	4.62	6.0	3	111.4	2.07	1.07	1.00	0.96	18.7	18.0	1.40	0.00
37.07	25.6	0.40	1.57	5.1	6	114.6	2.08	1.08	1.00	0.96	9.8	9.4	1.88	0.21
37.24	19.7	0.51	2.59	3.7	5	114.6	2.09	1.08	1.01	0.96	9.4	9.1	1.41	0.15
37.40	11.7	1.03	8.83	4.8	3	111.4	2.10	1.09	1.01	0.96	11.2	10.7	0.77	0.00
37.57	27.0	1.21	4.50	4.1	3	111.4	2.11	1.09	1.02	0.96	25.8	24.7	1.99	0.00
37.73	27.1	1.34	4.96	2.5	3	111.4	2.12	1.10	1.02	0.96	26.0	24.8	2.00	0.00
37.89	36.7	1.17	3.19	2.1	5	114.6	2.13	1.10	1.03	0.95	17.6	16.8	2.77	0.00
38.06	61.8	1.32	2.14	1.5	7	117.8	2.14	1.10	1.03	0.95	19.7	18.8	UnDef	0.23
38.22	67.6	1.03	1.53	0.6	7	117.8	2.15	1.11	1.04	0.95	21.6	20.5	UnDef	0.18
38.39	72.5	1.38	1.91	0.6	7	117.8	2.16	1.11	1.04	0.95	23.2	21.9	UnDef	0.23
38.55	73.6	1.20	1.63	1.2	7	117.8	2.17	1.12	1.05	0.95	23.5	22.2	UnDef	0.20
38.71	85.2	1.10	1.29	-1.1	8	120.9	2.17	1.12	1.05	0.94	20.4	19.3	UnDef	0.20
38.88	103.5	1.76	1.70	-0.6	7	117.8	2.18	1.13	1.06	0.94	33.0	31.1	UnDef	0.31
39.04	79.1	2.00	2.53	7.5	6	114.6	2.19	1.13	1.06	0.94	30.3	28.5	6.15	0.34
39.21	57.1	2.04	3.58	7.3	5	114.6	2.20	1.14	1.07	0.94	27.3	25.6	4.39	0.00
39.37	61.6	2.01	3.27	-0.8	6	114.6	2.21	1.14	1.07	0.94	23.6	22.1	4.75	0.00
39.53	47.9	1.95	4.08	-5.5	5	114.6	2.22	1.14	1.08	0.93	23.0	21.5	3.66	0.00
39.70	38.9	2.32	5.96	-6.7	3	111.4	2.23	1.15	1.08	0.93	37.2	34.7	2.93	0.00
39.86	48.0	2.34	4.87	-8.5	4	114.6	2.24	1.15	1.09	0.93	30.6	28.5	3.66	0.00
40.03	44.5	1.77	3.99	-9.5	5	114.6	2.25	1.16	1.09	0.93	21.3	19.8	3.38	0.00
40.19	58.3	1.49	2.56	-10.5	6	114.6	2.26	1.16	1.10	0.93	22.3	20.7	4.48	0.30

Gregg In Situ, Inc.
Interpretation Output - Release 1.00.17
Run No: 98-0817-1333-4799
Job No: 98-132
Client: LAW CRANDALL
Project: WOODLAND HILLS
Site: MOTION PICTURE
Location: SCPT-2
Cone: V. LANGHAAR
CPT Date: 98/27/07
CPT Time: 16:55
CPT File: 132SC02.COR
Northing (m): 0.000
Easting (m): 0.000
Elevation (m): 0.000

Water Table (m): 1.52 (ft): 5.0
Su Nkt used: 12.50
Averaging Increment (m): 0.0 (Every Data Point)
Phi Method : Robertson and Campanella, 1983
Dr Method : Jamiolkowski - All Sands
State Parameter M: 1.20
Used Unit Weights Assigned to Soil Zones
Values of 1.0E9 or UnDef are printed for parameters that are not valid for the material type (SBT)

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs	Fc (%)	Phi (Deg)	Dr (%)	OCR	State Param	Del(n1)60	(N1)60cs
0.16	5.0E-08	0.00	1000.0	10.00	11	33.5	UnDef	UnDef	0.0	UnDef	UnDef	10.0	UnDef	UnDef	UnDef
0.33	5.0E-04	0.00	1000.0	2.26	12	271.5	UnDef	UnDef	0.0	50	95.0	1.0	-0.54	UnDef	UnDef
0.49	5.0E-05	0.00	1000.0	3.33	12	231.4	UnDef	UnDef	0.0	50	95.0	10.0	-0.67	UnDef	UnDef
0.66	5.0E-05	0.00	1000.0	3.71	12	207.2	UnDef	UnDef	0.0	50	95.0	10.0	-0.73	UnDef	UnDef
0.82	5.0E-06	0.00	1000.0	4.07	12	180.3	UnDef	UnDef	0.0	UnDef	UnDef	10.0	UnDef	UnDef	UnDef
0.98	5.0E-06	0.00	1000.0	3.77	12	156.8	UnDef	UnDef	0.0	UnDef	UnDef	10.0	UnDef	UnDef	UnDef
1.15	5.0E-05	0.00	1000.0	3.32	12	135.4	UnDef	UnDef	0.0	50	95.0	10.0	-0.67	UnDef	UnDef
1.31	5.0E-06	0.00	870.7	3.50	12	125.3	UnDef	UnDef	0.0	UnDef	UnDef	10.0	UnDef	UnDef	UnDef
1.48	5.0E-06	0.00	729.2	3.48	12	118.1	UnDef	UnDef	0.0	UnDef	UnDef	10.0	UnDef	UnDef	UnDef
1.64	5.0E-05	0.00	534.0	2.88	12	96.2	UnDef	UnDef	0.0	48	80.8	10.0	-0.53	UnDef	UnDef
1.80	5.0E-05	0.00	421.8	2.81	12	83.6	UnDef	UnDef	0.0	48	75.4	10.0	-0.50	UnDef	UnDef
1.97	5.0E-05	0.00	374.4	2.42	12	81.0	UnDef	UnDef	0.0	48	73.3	10.0	-0.45	UnDef	UnDef
2.13	5.0E-05	0.00	329.1	2.37	12	77.2	UnDef	UnDef	0.0	48	70.7	10.0	-0.43	UnDef	UnDef
2.30	5.0E-05	0.00	311.2	2.38	12	78.6	UnDef	UnDef	0.0	46	70.2	10.0	-0.42	UnDef	UnDef
2.46	5.0E-05	0.00	270.5	2.45	12	73.2	UnDef	UnDef	0.0	46	67.2	10.0	-0.41	UnDef	UnDef
2.62	5.0E-05	0.00	216.4	2.65	7	62.6	16.7	79.2	12.9	46	61.7	10.0	-0.40	3.8	28.8
2.79	5.0E-06	0.00	164.6	3.47	12	50.6	UnDef	UnDef	0.0	UnDef	UnDef	10.0	UnDef	UnDef	UnDef
2.95	5.0E-06	0.00	155.2	3.55	12	50.6	UnDef	UnDef	0.0	UnDef	UnDef	10.0	UnDef	UnDef	UnDef
3.12	5.0E-06	0.00	139.1	3.55	12	47.9	UnDef	UnDef	0.0	UnDef	UnDef	10.0	UnDef	UnDef	UnDef
3.28	5.0E-07	0.00	124.1	3.70	12	45.0	UnDef	UnDef	0.0	UnDef	UnDef	10.0	UnDef	UnDef	UnDef
3.44	5.0E-06	0.00	116.0	3.33	7	44.2	30.6	74.8	20.3	UnDef	UnDef	10.0	UnDef	7.6	29.7
3.61	5.0E-06	0.00	117.7	3.22	7	47.0	30.6	77.6	19.8	UnDef	UnDef	10.0	UnDef	7.7	31.2
3.77	5.0E-06	0.00	103.7	3.27	7	43.3	33.0	76.3	21.2	UnDef	UnDef	10.0	UnDef	8.0	29.7
3.94	5.0E-07	0.00	80.6	3.53	7	35.2	39.6	74.8	24.8	UnDef	UnDef	10.0	UnDef	11.6	35.1
4.10	5.0E-06	0.00	72.8	2.64	7	33.2	28.9	62.1	22.4	UnDef	UnDef	10.0	UnDef	6.8	23.4
4.27	5.0E-06	0.00	65.6	2.32	7	31.2	26.3	57.5	22.1	UnDef	UnDef	10.0	UnDef	6.3	21.8
4.43	5.0E-06	0.00	55.7	1.91	7	27.6	23.0	50.5	22.0	UnDef	UnDef	10.0	UnDef	5.4	19.1
4.59	5.0E-05	0.00	53.2	1.36	7	27.2	16.7	43.9	19.3	40	30.0	10.0	-0.16	3.3	14.0
4.76	5.0E-05	0.00	50.6	1.53	7	26.3	19.5	45.8	20.9	38	30.0	10.0	-0.16	3.7	14.1
4.92	5.0E-07	0.00	45.1	3.47	6	23.9	61.9	85.9	32.0	UnDef	UnDef	6.0	UnDef	12.8	28.5
5.09	5.0E-08	0.00	46.8	4.16	6	25.1	87.1	112.2	34.1	UnDef	UnDef	6.0	UnDef	23.2	47.8
5.25	5.0E-08	-0.01	43.4	6.33	1	23.5	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef

Gregg In Situ, Inc.
Run No: 98-0817-1333-4799
CPT File: 132SC02.COR

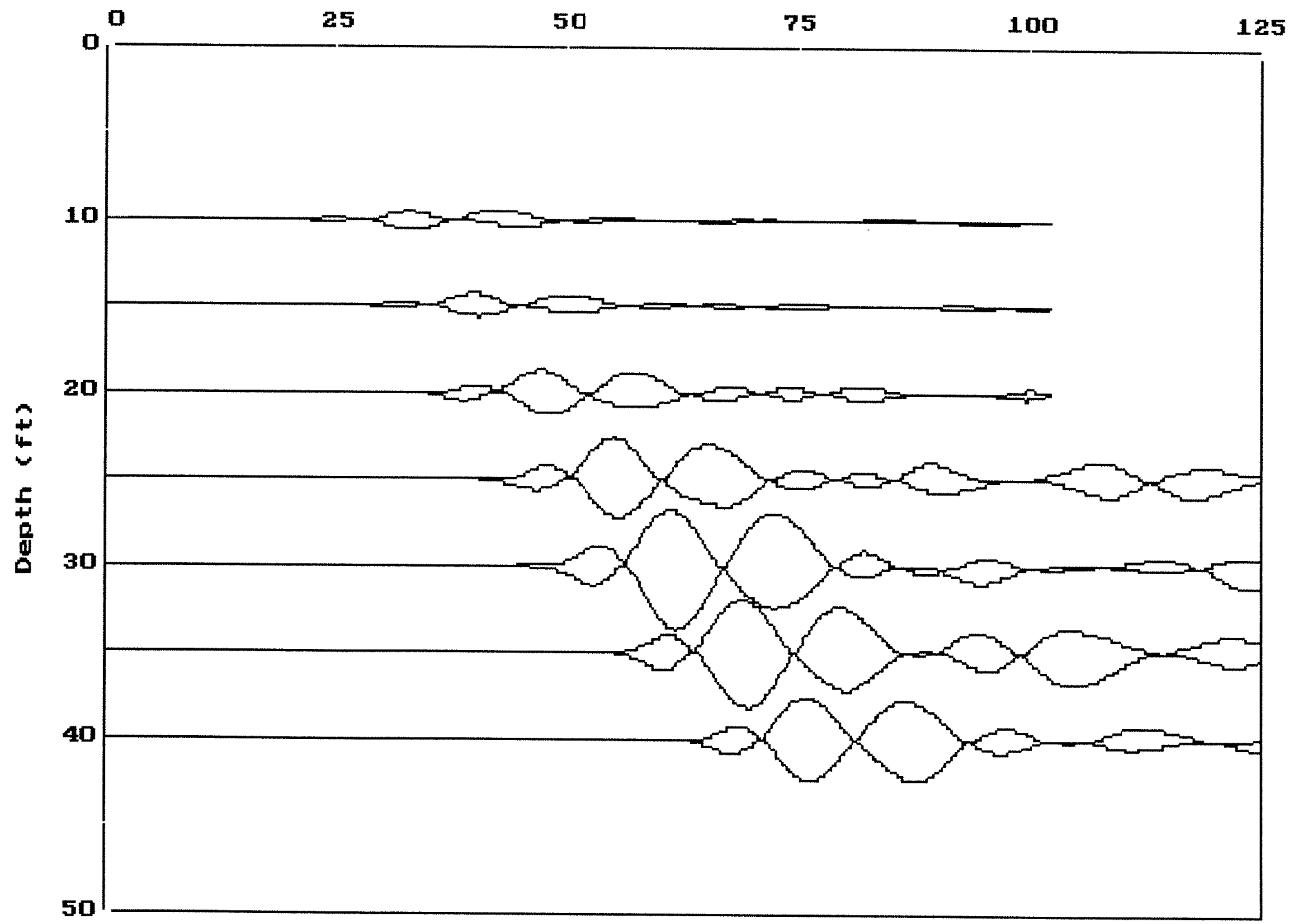
Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs	Fc (%)	Phi (Deg)	Dr (%)	OCR	State Param	Del(n1)60	(N1)60cs
5.41	5.0E-08	-0.01	45.4	7.22	1	24.8	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
5.58	5.0E-08	-0.01	44.9	7.80	1	24.7	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
5.74	5.0E-08	-0.01	42.4	8.31	1	23.5	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
5.91	5.0E-08	-0.01	42.9	7.95	1	23.9	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
6.07	5.0E-08	-0.01	44.0	7.95	1	24.7	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
6.23	5.0E-08	-0.01	48.3	7.47	1	27.2	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
6.40	5.0E-08	0.00	43.0	7.86	1	24.4	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
6.56	5.0E-08	0.00	39.5	7.81	1	22.7	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
6.73	5.0E-08	0.00	41.1	6.83	1	23.7	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
6.89	5.0E-08	0.00	37.9	7.39	1	22.1	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
7.05	5.0E-08	0.00	32.0	8.48	1	18.8	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
7.22	5.0E-08	0.00	29.6	8.26	1	17.6	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
7.38	5.0E-08	-0.01	29.2	7.67	1	17.5	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
7.55	5.0E-08	0.00	31.2	6.55	1	18.7	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
7.71	5.0E-08	0.00	32.4	5.80	1	19.5	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
7.87	5.0E-08	0.00	27.2	6.51	1	16.6	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
8.04	5.0E-08	0.00	27.8	6.19	1	17.1	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
8.20	5.0E-08	0.00	25.7	6.51	1	16.0	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
8.37	5.0E-08	0.01	25.7	5.61	1	16.0	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
8.53	5.0E-08	0.01	21.3	7.08	1	13.5	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
8.69	5.0E-08	0.01	20.3	6.96	1	13.0	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
8.86	5.0E-08	0.01	19.7	7.36	1	12.7	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
9.02	5.0E-08	0.01	20.2	6.96	1	13.1	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
9.19	5.0E-08	0.02	17.0	7.57	1	11.2	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
9.35	5.0E-08	0.02	15.1	7.58	1	10.1	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
9.51	5.0E-08	0.03	12.4	7.75	1	8.5	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
9.68	5.0E-08	0.03	11.0	6.84	1	7.6	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
9.84	5.0E-08	0.03	12.4	5.39	1	8.6	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
10.01	5.0E-08	0.02	15.1	5.20	1	10.3	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
10.17	5.0E-08	0.02	16.8	6.52	1	11.4	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
10.33	1.0E-15	0.02	16.5	10.00	1	11.3	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
10.50	1.0E-15	0.02	16.5	10.00	1	11.4	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
10.66	5.0E-08	0.04	20.5	8.85	1	14.0	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
10.83	5.0E-08	0.05	17.7	8.04	1	12.3	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
10.99	5.0E-08	0.05	16.0	7.40	1	11.2	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
11.15	5.0E-08	0.06	13.9	7.44	1	9.9	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
11.32	5.0E-08	0.05	14.1	5.80	1	10.1	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
11.48	5.0E-08	0.05	14.8	4.86	1	10.6	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
11.65	5.0E-07	0.05	14.8	3.16	4	10.7	42.7	53.4	50.2	UnDef	UnDef	6.0	UnDef	7.0	13.9
11.81	5.0E-08	0.07	11.0	5.01	1	8.2	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
11.97	5.0E-08	0.08	9.4	6.97	1	7.2	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
12.14	5.0E-08	0.08	11.7	6.85	1	8.8	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
12.30	5.0E-08	0.08	10.4	7.23	1	8.0	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
12.47	5.0E-08	0.08	11.1	6.38	1	8.4	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
12.63	5.0E-08	0.07	11.7	6.00	1	8.9	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
12.80	5.0E-08	0.08	10.8	6.78	1	8.3	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
12.96	5.0E-08	0.06	13.4	5.14	1	10.1	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
13.12	5.0E-05	0.02	43.9	1.36	7	31.0	24.6	55.6	21.6	38	33.7	6.0	-0.13	4.6	16.8
13.29	5.0E-06	0.02	22.9	2.42	6	16.7	66.9	83.6	37.9	UnDef	UnDef	6.0	UnDef	8.2	16.4
13.45	5.0E-07	0.02	17.7	3.09	6	13.3	53.0	66.3	46.2	UnDef	UnDef	6.0	UnDef	8.7	17.3
13.62	5.0E-08	0.04	12.2	5.44	1	9.5	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
13.78	5.0E-08	0.04	12.6	7.29	1	9.8	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
13.94	5.0E-08	0.02	21.2	5.78	1	15.9	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
14.11	5.0E-08	0.01	38.7	4.26	6	28.2	112.6	140.8	37.3	UnDef	UnDef	6.0	UnDef	27.6	55.1

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs	Fc (%)	Phi (Deg)	Dr (%)	OCR	State Param	Del(n1)60	(N1)60cs
14.27	5.0E-08	0.00	42.8	4.51	6	31.1	124.5	155.7	36.6	UnDef	UnDef	6.0	UnDef	30.5	60.9
14.44	5.0E-08	-0.01	46.6	4.69	6	33.9	135.8	169.7	35.9	UnDef	UnDef	6.0	UnDef	33.2	66.4
14.60	5.0E-08	-0.01	38.1	4.53	6	28.1	112.3	140.4	38.5	UnDef	UnDef	6.0	UnDef	27.5	55.0
14.76	5.0E-08	-0.04	18.0	5.09	1	13.9	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
14.93	5.0E-08	-0.07	10.4	5.29	1	8.5	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
15.09	5.0E-08	-0.12	6.8	6.05	1	6.0	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
15.26	1.0E-15	-0.11	7.0	9.58	1	6.2	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
15.42	5.0E-08	-0.10	8.1	9.34	1	7.0	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
15.58	5.0E-08	-0.05	14.0	9.05	1	11.3	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
15.75	1.0E-15	-0.04	12.1	10.00	1	10.0	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
15.91	5.0E-08	-0.04	14.3	9.61	1	11.6	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
16.08	5.0E-08	-0.04	14.3	8.94	1	11.6	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
16.24	5.0E-08	-0.03	19.4	4.86	1	15.5	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
16.40	5.0E-08	-0.05	11.8	8.08	1	9.9	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
16.57	1.0E-15	-0.08	7.3	10.00	1	6.6	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
16.73	1.0E-15	-0.04	11.6	10.00	1	9.9	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
16.90	5.0E-08	-0.03	15.7	9.84	1	12.9	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
17.06	5.0E-08	-0.02	25.4	5.97	1	20.2	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
17.22	5.0E-08	-0.02	32.4	4.27	6	25.5	102.2	127.7	40.2	UnDef	UnDef	6.0	UnDef	25.0	50.0
17.39	5.0E-08	-0.02	28.3	4.79	1	22.6	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
17.55	5.0E-08	-0.03	21.0	5.85	1	17.1	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
17.72	5.0E-08	-0.05	15.3	7.32	1	12.9	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
17.88	1.0E-15	-0.10	6.7	10.00	1	6.4	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
18.04	5.0E-08	-0.15	4.4	6.70	1	4.7	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
18.21	5.0E-08	-0.18	3.8	6.42	1	4.2	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
18.37	5.0E-08	-0.21	3.2	7.21	1	3.7	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
18.54	1.0E-15	-0.34	2.0	10.00	1	2.9	UnDef	UnDef	100.0	UnDef	UnDef	1.0	UnDef	UnDef	UnDef
18.70	5.0E-08	-0.23	3.0	8.50	1	3.6	UnDef	UnDef	100.0	UnDef	UnDef	1.0	UnDef	UnDef	UnDef
18.86	5.0E-08	-0.18	3.7	5.55	1	4.2	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
19.03	1.0E-15	-0.23	3.0	10.00	1	3.6	UnDef	UnDef	100.0	UnDef	UnDef	1.0	UnDef	UnDef	UnDef
19.19	5.0E-08	-0.13	5.1	7.36	1	5.3	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
19.36	5.0E-08	-0.12	5.5	7.12	1	5.6	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
19.52	5.0E-08	-0.11	5.5	6.49	1	5.7	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
19.68	5.0E-08	-0.12	5.4	5.79	1	5.6	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
19.85	5.0E-08	-0.16	4.0	7.32	1	4.5	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
20.01	5.0E-08	-0.15	4.1	8.13	1	4.6	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
20.18	5.0E-08	-0.14	4.6	9.67	1	5.0	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
20.34	1.0E-15	-0.09	7.3	10.00	1	7.2	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
20.51	1.0E-15	-0.10	6.4	10.00	1	6.5	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
20.67	5.0E-08	-0.03	12.5	8.10	1	11.4	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
20.83	5.0E-08	-0.05	8.4	9.78	1	8.1	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
21.00	5.0E-08	-0.05	7.7	7.27	1	7.6	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
21.16	5.0E-08	-0.08	5.4	6.58	1	5.7	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
21.33	5.0E-08	-0.09	4.6	6.31	1	5.2	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
21.49	5.0E-08	-0.10	4.0	8.26	1	4.7	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
21.65	1.0E-15	-0.05	7.8	10.00	1	7.8	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
21.82	5.0E-05	-0.01	49.7	2.89	7	42.1	68.6	110.7	28.2	38	42.5	6.0	-0.24	10.4	26.9
21.98	5.0E-08	-0.04	22.1	6.57	1	19.6	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
22.15	5.0E-08	-0.07	12.7	8.28	1	11.9	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
22.31	5.0E-08	-0.06	15.6	10.00	1	14.4	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
22.47	5.0E-08	-0.02	44.4	5.53	1	38.2	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
22.64	5.0E-06	-0.01	72.3	3.51	6	61.5	78.3	139.8	26.0	UnDef	UnDef	10.0	UnDef	16.2	46.3
22.80	5.0E-04	-0.01	92.0	1.67	7	78.1	29.9	108.0	15.4	42	60.2	1.0	-0.23	5.3	30.8
22.97	5.0E-03	-0.01	86.1	0.75	9	73.4	11.5	84.9	10.1	42	58.4	1.0	-0.15	1.7	19.6

Gregg In Situ, Inc.   Page: 4b
Run No: 98-0817-1333-4799
CPT File: 132SC02.COR

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs	Fc (%)	Phi (Deg)	Dr (%)	OCR	State Param	Del(n1)60	(N1)60cs
23.13	5.0E-04	-0.02	53.3	0.92	7	46.1	19.3	65.5	16.1	40	45.1	1.0	-0.12	3.4	18.5
23.29	5.0E-05	-0.04	28.9	1.79	7	25.8	53.5	79.3	30.3	36	30.0	6.0	-0.12	7.4	17.5
23.46	5.0E-07	-0.09	12.3	3.83	1	11.9	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
23.62	5.0E-08	-0.19	6.1	8.14	1	6.7	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
23.79	5.0E-08	-0.13	8.7	8.27	1	8.9	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
23.95	5.0E-08	-0.10	12.1	5.71	1	11.8	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
24.11	5.0E-08	-0.12	9.9	5.88	1	10.0	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
24.28	5.0E-08	-0.28	4.1	9.35	1	5.0	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
24.44	1.0E-15	-0.59	2.0	10.00	1	3.2	UnDef	UnDef	100.0	UnDef	UnDef	1.0	UnDef	UnDef	UnDef
24.61	1.0E-15	-1.13	1.0	10.00	1	2.4	UnDef	UnDef	100.0	UnDef	UnDef	0.8	UnDef	UnDef	UnDef
24.77	5.0E-08	-0.39	3.0	8.23	1	4.1	UnDef	UnDef	100.0	UnDef	UnDef	1.0	UnDef	UnDef	UnDef
24.93	1.0E-15	-0.72	1.6	10.00	1	2.9	UnDef	UnDef	100.0	UnDef	UnDef	1.0	UnDef	UnDef	UnDef
25.10	5.0E-08	-0.31	3.8	8.19	1	4.8	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
25.26	1.0E-15	-0.41	2.9	10.00	1	4.0	UnDef	UnDef	100.0	UnDef	UnDef	1.0	UnDef	UnDef	UnDef
25.43	5.0E-08	-0.28	4.2	9.11	1	5.2	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
25.59	5.0E-08	-0.15	7.3	5.87	1	8.0	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
25.75	5.0E-08	-0.16	6.8	7.53	1	7.6	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
25.92	5.0E-08	-0.14	8.0	8.00	1	8.6	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
26.08	5.0E-08	-0.12	9.2	7.27	1	9.7	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
26.25	5.0E-08	-0.12	8.9	7.63	1	9.5	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
26.41	5.0E-08	-0.10	10.5	6.34	1	10.9	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
26.57	5.0E-08	-0.08	13.4	5.67	1	13.5	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
26.74	5.0E-08	-0.08	12.7	6.51	1	12.9	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
26.90	5.0E-08	-0.07	14.7	5.54	1	14.7	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
27.07	5.0E-08	-0.07	15.3	5.60	1	15.3	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
27.23	5.0E-08	-0.06	18.6	5.43	1	18.3	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
27.39	5.0E-08	-0.05	20.6	6.26	1	20.1	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
27.56	5.0E-08	-0.05	20.5	5.99	1	20.0	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
27.72	5.0E-08	-0.05	20.8	5.80	1	20.4	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
27.89	5.0E-08	-0.05	22.7	5.10	1	22.1	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
28.05	5.0E-08	-0.05	22.6	5.60	1	22.2	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
28.21	5.0E-08	-0.05	20.2	6.88	1	20.0	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
28.38	5.0E-08	-0.06	17.7	7.11	1	17.7	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
28.54	5.0E-08	-0.06	18.5	6.83	1	18.5	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
28.71	5.0E-08	-0.05	21.7	6.73	1	21.5	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
28.87	5.0E-08	-0.05	21.0	7.48	1	20.9	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
29.04	5.0E-08	-0.06	17.6	8.78	1	17.8	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
29.20	5.0E-08	-0.09	12.6	10.00	1	13.3	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
29.36	5.0E-08	-0.08	13.6	7.75	1	14.2	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
29.53	5.0E-08	-0.10	11.6	7.19	1	12.4	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
29.69	5.0E-08	-0.11	10.2	7.59	1	11.2	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
29.86	5.0E-08	-0.11	10.1	8.40	1	11.1	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
30.02	5.0E-08	-0.10	11.1	7.02	1	12.0	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
30.18	5.0E-08	-0.11	10.1	6.88	1	11.2	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
30.35	5.0E-08	-0.11	10.3	10.00	1	11.3	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
30.51	5.0E-08	-0.11	9.9	10.00	1	11.0	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
30.68	5.0E-08	-0.08	13.6	8.52	1	14.5	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
30.84	1.0E-15	-0.17	6.2	10.00	1	7.6	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
31.00	1.0E-15	-0.24	4.4	10.00	1	5.9	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
31.17	1.0E-15	-0.23	4.5	10.00	1	6.1	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
31.33	5.0E-08	-0.19	5.7	9.33	1	7.2	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
31.50	5.0E-08	-0.17	6.3	8.02	1	7.7	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
31.66	5.0E-08	-0.22	5.0	9.44	1	6.5	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
31.82	5.0E-08	-0.23	4.7	10.00	1	6.3	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef

Depth (ft)	k (cm/s)	Bq	Qtn	Rfn	SBTn	Qc1N	DeltaQc1N	Qc1Ncs	Fc (%)	Phi (Deg)	Dr (%)	OCR	State Param	Del(n1)60	(N1)60cs
31.99	5.0E-08	-0.12	9.1	6.95	1	10.5	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
32.15	5.0E-08	-0.10	10.6	7.71	1	12.0	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
32.32	5.0E-08	-0.10	10.7	10.00	1	12.1	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
32.48	1.0E-15	-0.15	7.2	10.00	1	8.8	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
32.64	5.0E-08	-0.13	8.3	10.00	1	9.8	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
32.81	1.0E-15	-0.22	4.8	10.00	1	6.5	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
32.97	1.0E-15	-0.31	3.3	10.00	1	5.0	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
33.14	5.0E-08	-0.20	5.3	10.00	1	7.0	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
33.30	5.0E-08	-0.21	5.1	7.47	1	6.7	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
33.46	5.0E-08	-0.26	4.0	9.68	1	5.7	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
33.63	1.0E-15	-0.20	5.1	10.00	1	6.8	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
33.79	5.0E-08	-0.08	13.4	4.50	1	15.0	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
33.96	5.0E-08	-0.15	6.9	6.65	1	8.7	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
34.12	5.0E-08	-0.37	2.9	10.00	1	4.7	UnDef	UnDef	100.0	UnDef	UnDef	1.0	UnDef	UnDef	UnDef
34.28	5.0E-08	-0.27	3.8	10.00	1	5.6	UnDef	UnDef	100.0	UnDef	UnDef	1.5	UnDef	UnDef	UnDef
34.45	5.0E-08	-0.12	8.9	9.77	1	10.7	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
34.61	5.0E-08	-0.07	15.7	8.37	1	17.3	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
34.78	5.0E-06	-0.03	37.4	3.13	6	38.8	120.7	159.6	33.3	UnDef	UnDef	6.0	UnDef	17.1	36.1
34.94	5.0E-04	-0.02	46.4	1.86	7	47.8	49.1	97.0	24.0	38	46.1	1.0	-0.18	7.2	22.9
35.10	5.0E-05	-0.03	42.3	2.14	7	43.9	61.1	104.9	26.8	38	43.7	6.0	-0.18	9.8	27.0
35.27	5.0E-04	-0.03	39.5	1.40	7	41.2	39.1	80.2	23.2	38	41.8	1.0	-0.13	5.9	19.3
35.43	5.0E-05	-0.03	37.8	2.56	6	39.6	84.8	124.3	30.5	38	40.7	6.0	-0.19	11.5	27.0
35.60	5.0E-06	-0.02	31.1	3.13	6	33.0	131.8	164.8	36.2	UnDef	UnDef	6.0	UnDef	16.1	32.3
35.76	5.0E-08	-0.05	15.7	6.55	1	17.6	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
35.92	5.0E-08	-0.04	17.6	6.44	1	19.6	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
36.09	5.0E-08	-0.03	23.6	5.31	1	25.7	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
36.25	5.0E-06	-0.02	29.6	3.68	6	31.7	127.0	158.7	39.4	UnDef	UnDef	6.0	UnDef	15.5	31.1
36.42	5.0E-05	-0.02	35.9	2.87	6	38.1	109.2	147.4	32.8	38	39.7	6.0	-0.20	12.9	27.8
36.58	5.0E-04	-0.01	53.2	1.54	7	55.7	38.9	94.6	20.4	40	50.5	1.0	-0.17	6.3	24.5
36.74	5.0E-04	-0.01	50.7	2.09	7	53.3	55.5	108.8	24.1	38	49.2	1.0	-0.20	8.1	25.5
36.91	5.0E-08	-0.05	16.2	5.17	1	18.4	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
37.07	5.0E-05	-0.04	21.8	1.70	6	24.1	87.0	111.1	34.3	34	30.0	6.0	-0.09	9.1	18.5
37.24	5.0E-06	-0.05	16.3	2.90	6	18.6	74.2	92.8	46.9	UnDef	UnDef	6.0	UnDef	9.1	18.2
37.40	5.0E-08	-0.09	8.8	10.00	1	11.0	UnDef	UnDef	100.0	UnDef	UnDef	3.0	UnDef	UnDef	UnDef
37.57	5.0E-08	-0.04	22.8	4.88	1	25.3	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
37.73	5.0E-08	-0.04	22.8	5.38	1	25.3	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
37.89	5.0E-06	-0.03	31.5	3.39	6	34.3	137.1	171.3	37.2	UnDef	UnDef	6.0	UnDef	16.8	33.5
38.06	5.0E-04	-0.02	54.0	2.22	7	57.5	59.3	116.8	24.0	40	51.4	1.0	-0.21	8.7	27.5
38.22	5.0E-04	-0.02	59.1	1.58	7	62.9	39.3	102.2	19.4	40	54.0	1.0	-0.18	6.5	27.0
38.39	5.0E-04	-0.01	63.2	1.97	7	67.3	49.2	116.5	20.8	40	55.9	1.0	-0.21	7.9	29.8
38.55	5.0E-04	-0.01	63.9	1.68	7	68.1	41.4	109.6	19.2	40	56.3	1.0	-0.20	6.9	29.1
38.71	5.0E-03	-0.01	74.0	1.33	7	78.7	30.7	109.4	15.5	40	60.4	1.0	-0.19	4.1	23.3
38.88	5.0E-04	-0.01	89.9	1.74	7	95.4	39.6	135.0	16.0	42	65.9	1.0	-0.24	7.0	38.1
39.04	5.0E-05	-0.01	68.0	2.61	7	72.8	67.9	140.7	23.1	40	58.2	10.0	-0.26	12.3	40.8
39.21	5.0E-06	-0.02	48.3	3.73	6	52.4	135.8	188.2	32.0	UnDef	UnDef	6.0	UnDef	21.1	46.7
39.37	5.0E-05	-0.02	52.1	3.39	6	56.4	109.3	165.7	29.7	40	50.9	10.0	-0.28	15.5	37.6
39.53	5.0E-06	-0.03	39.9	4.28	6	43.9	175.4	219.3	36.9	UnDef	UnDef	6.0	UnDef	21.5	42.9
39.70	5.0E-08	-0.04	31.9	6.32	1	35.5	UnDef	UnDef	100.0	UnDef	UnDef	6.0	UnDef	UnDef	UnDef
39.86	5.0E-07	-0.03	39.7	5.10	6	43.8	175.0	218.8	39.8	UnDef	UnDef	6.0	UnDef	28.5	57.1
40.03	5.0E-06	-0.03	36.5	4.20	6	40.5	162.0	202.5	38.0	UnDef	UnDef	6.0	UnDef	19.8	39.6
40.19	5.0E-05	-0.03	48.3	2.67	7	52.9	80.6	133.6	27.6	38	49.0	6.0	-0.23	12.6	33.3



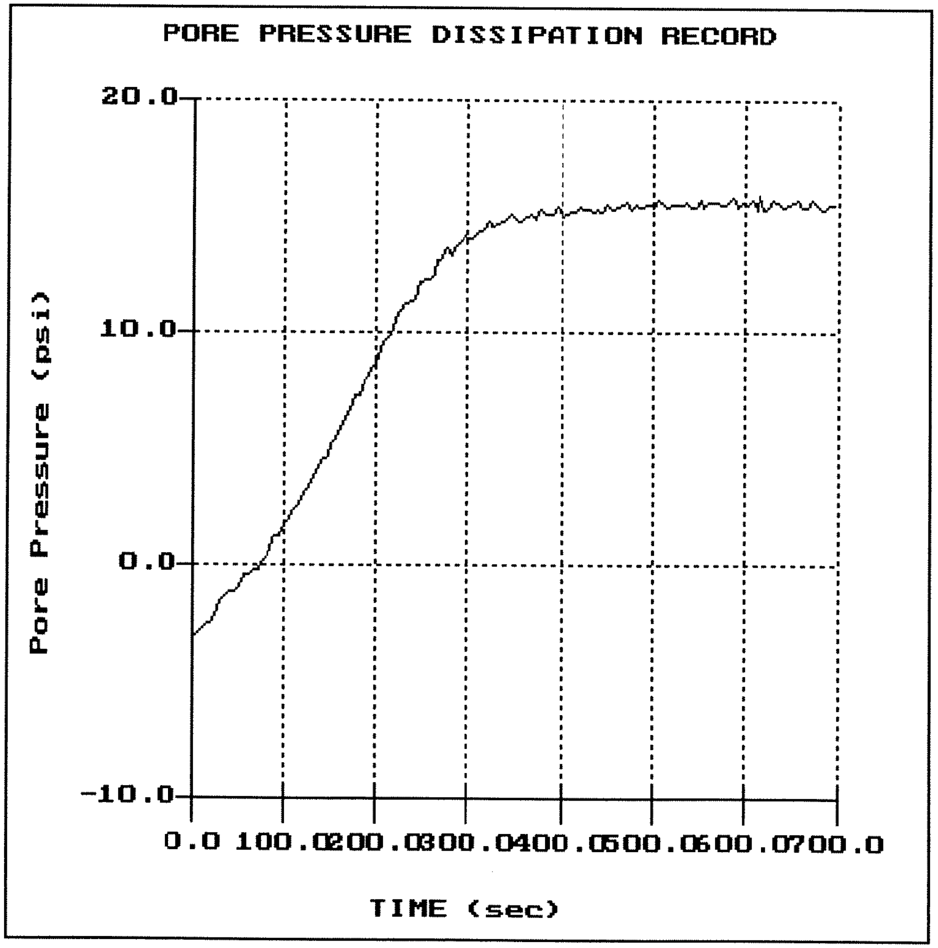
SCPT-2

LAW CRANDALL

Site: MOTION PICTURE
Location: SCPT-2

Engineer: V. LANGHAR
Date:07:27:98 16:55

File: 132SC02.PPD
Depth (m): 10.80
(ft): 35.43
Duration : 695.0s



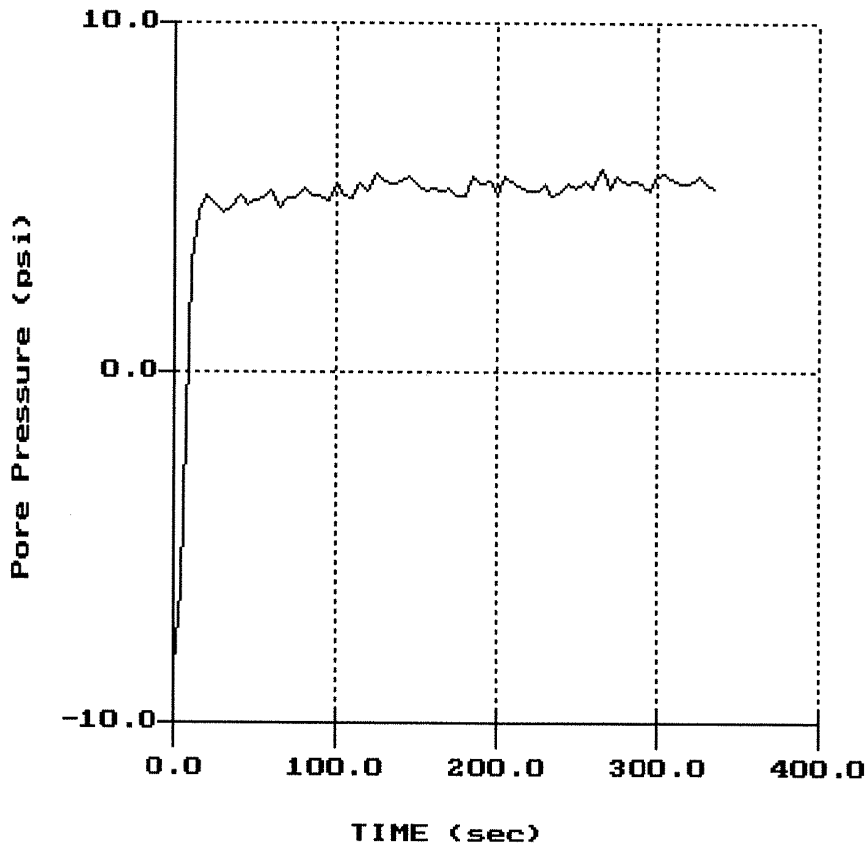
LAW CRANDALL

Site: MOTION PICTURE
Location: CPT-1

Engineer: V. LANGHAR
Date:07:27:98 11:02

File: 132C01.PPD
Depth (m): 5.60
(ft): 18.37
Duration : 335.0s

PORE PRESSURE DISSIPATION RECORD

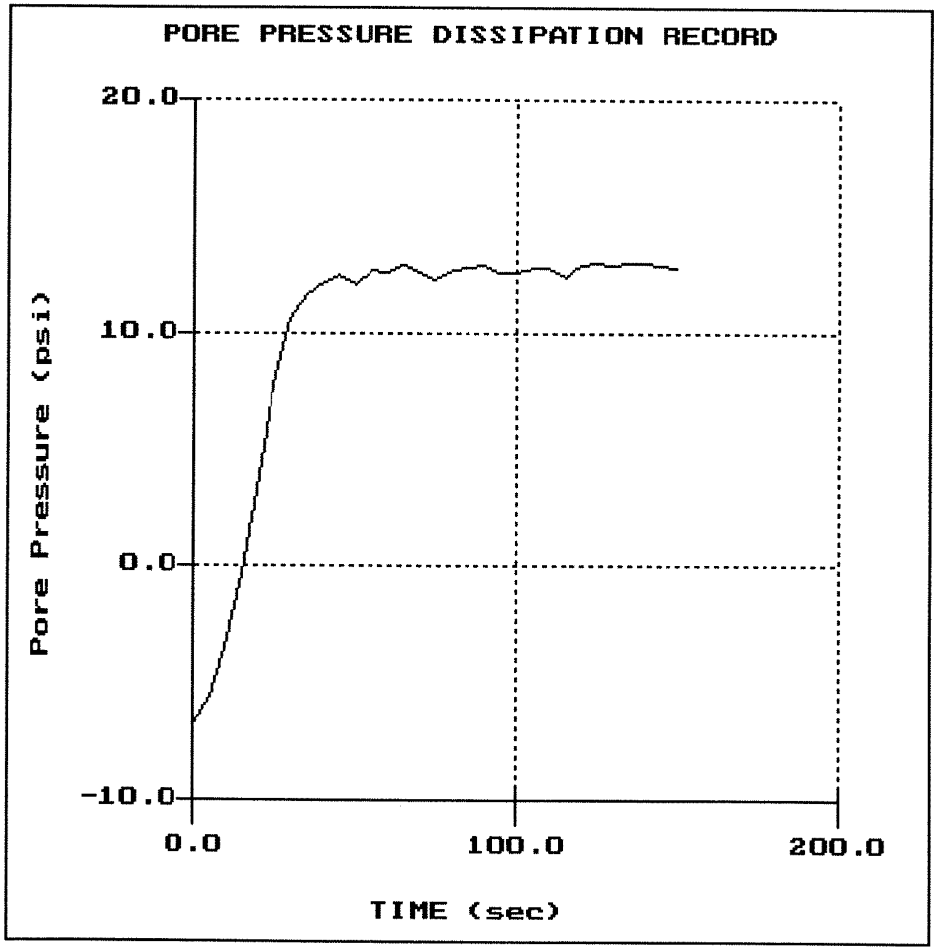


LAW CRANDALL

Site: MOTION PICTURE
Location: CPT-1

Engineer: V. LANGHAR
Date:07:27:98 11:02

File: 132C01.PPD
Depth (m): 11.15
(ft): 36.58
Duration : 150.0s



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REPORT OF GEOTECHNICAL EVALUATION
FOR ENVIRONMENTAL IMPACT REPORT
PROPOSED BUILDING ADDITIONS
23450 CALABASAS ROAD
LOS ANGELES, CALIFORNIA
FOR THE
MOTION PICTURE AND TELEVISION FUND
(OUR JOB NO. E-84362)

December 5, 1984

Engineering Technology, Inc.
14148 Magnolia Boulevard
Sherman Oaks, California 91423

(Our Job No. E-84362)

Attention: Mr. James L. Brock

Gentlemen:

Our "Report of Geotechnical Evaluation for Environmental Impact Report, Proposed Building Additions, 23450 Calabasas Road, Los Angeles, California, for the Motion Picture and Television Fund" is herewith submitted. The scope of the study was planned in collaboration with Mr. James L. Brock.

With respect to geologic and seismic hazards, the site is considered as safe as any within the area. No faults are known to exist within the site; accordingly, the possibility of surface rupture of the site due to faulting is considered remote. Although the site could undergo violent ground shaking in the event of a major earthquake, this hazard is common to Southern California and the effects of shaking can be minimized by proper structural design and construction.

The results of our study are presented in the report. Please contact us if you have any questions regarding this report, or if we can be of further service to you on this project.

Yours very truly,

LeROY CRANDALL AND ASSOCIATES

by Glenn A. Brown

Glenn A. Brown, C.E.G. 3
Director of Geological Services

GAB-TL/D72
(3 copies submitted)

REPORT OF GEOTECHNICAL EVALUATION
FOR ENVIRONMENTAL IMPACT REPORT
PROPOSED BUILDING ADDITIONS
23450 CALABASAS ROAD
LOS ANGELES, CALIFORNIA
FOR THE
MOTION PICTURE AND TELEVISION FUND

SCOPE

This report presents the results of our evaluation of the geologic and seismic conditions of the subject site. The evaluation was authorized to provide the necessary geotechnical information to meet EIR requirements for the proposed development.

Our study included a field reconnaissance on the adjacent to the site on November 30, 1984, as well as office analysis of published and unpublished literature pertinent to the study area. The City of Los Angeles Seismic Safety Plan (1975) and the County of Los Angeles Seismic Safety Element (1974) were reviewed as part of the literature analyses. We recently performed a geotechnical investigation which covered a large part of the site; the results were presented in our report dated April 27, 1984 (our Job No. AE-84074). We previously performed foundation investigations for other buildings within the complex. Information from these prior investigations were utilized to the extent possible in the preparation of this report.

Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical engineers and geologists practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this report.

PROPOSED DEVELOPMENT

The proposed expansion of the Motion Picture and Television Country Home will include a two-story hospital with basement, a two-story operations building, lodge and dining facilities, apartment buildings and cottage retirement facilities. Cut and fill grading will be utilized to establish the desired grades. It is anticipated that the maximum excavation depth will be approximately 13 feet for the hospital basement. The maximum depth of fill will be on the order of six feet also in the vicinity of the hospital.

SITE CONDITIONS

The subject property is situated immediately south of the intersection Valley Circle Boulevard and the Ventura Freeway in the City of Los Angeles, California. It is bounded on the northwest by Calabasas Road, the northeast by Mulholland Drive, the southwest and south by El Cajon Avenue and the east by Val Mar Road. The southwest boundary of the site also constitutes the boundary of the City of Los Angeles and Los Angeles County.

The northern two-thirds of the site is relatively level, rising from approximate elevation 925 feet in the north to approximate elevation

950 above sea level towards the south. The remaining one-third at the south end is dominated by an isolated bedrock knoll which rises approximately 25 feet above the surrounding terrain.

The property is occupied by the existing buildings of the Motion Picture Country Home at the north end and is partially paved and landscaped. The remainder of the site consists of recently plowed fields in the central portion, and essentially natural terrain at the south.

GEOLOGIC AND SEISMIC CONDITIONS

GENERAL

The site is located on the southwestern edge of the San Fernando Valley within the Transverse Ranges geomorphic province of Southern California. The site lies at the northerly base of the Santa Monica Mountains.

Within the area of the San Fernando Valley, the Santa Monica Mountains are underlain successively from east to west by Cretaceous granitic rock (vicinity of Griffith Park and Hollywood Hills), older metamorphic phylite and fine grained schist of the Jurassic age Santa Monica Slate (vicinity of Sepulveda Canyon), and finally, a thick section of complexly folded and faulted sedimentary and volcanic rocks of marine origin varying from late Cretaceous through Tertiary age (west of Woodland Hills). The site is situated within the last group of rocks.

Site geology is depicted on Plate 1, Geologic Map. The relationship of the site to regional geologic features is shown on Plate 2, Regional Geology. Plate 3, Local Geology, shows the geology and topography in the vicinity of the site. Plate 4, Regional Seismicity, indicates the locations of major faults and earthquake epicenters in Southern California.

GEOLOGIC MATERIALS

Borings ranging in depth from 5 to 38 feet (from previous investigations) indicate that artificial fill exists over the site. The natural soils that underlie the site consist of recent alluvial deposits of silty sands and clays. The alluvium is underlain by a shale and sandstone sequence of the upper Miocene Modelo Formation.

The shale was encountered in 12 of the 28 borings at depths ranging from 9½ to 36½ feet. Bedding planes within the shale have a generally northern dip of 12 to 20 degrees with occasional jointing parallel to strike and a 70 degree dip to the south. The variation in the depth to shale is most likely due to erosion of its surface prior to deposition of the overlying alluvium. In general, the depth to shale increases towards the main valley floor.

The Modelo Formation consists of approximately 4,550 feet of shale, siltstone, and sandstone. Beneath the Modelo Formation are the Miocene Topanga and Vaqueros Formations, and other Tertiary rocks, Cretaceous sandstones and conglomerates, and a basement of Jurassic plutonic and Triassic metamorphic rocks.

GROUND WATER

The site is in Section 23, Township IN, Range 17W on the edge of the San Fernando Hydrologic Subarea in Los Angeles County. Data from Spring 1980 ground water contour map indicate a depth to ground water of about 25 feet in the valley northeast of the site.

During our previous site exploration in March of 1984 water levels were noted in the various borings at depths varying from 8 feet below ground surface to 17 feet below ground surface.

GEOLOGIC HAZARDS

The geologic hazards at the site are essentially limited to those caused by earthquakes. The major cause of damage from earthquakes is the result of violent shaking from earthquake waves; damage due to actual displacement or fault movement beneath a structure is much less frequent. The violent shaking would occur not only immediately adjacent to the earthquake epicenter, but within areas for many miles in all directions.

Faults

The numerous faults in Southern California include active, potentially active and inactive faults. The criteria for these major groups were established by the Association of Engineering Geologists (1973). No faults or fault associated features were observed on or adjacent to the site during the field reconnaissance. No known faults underlie the site. The site is not within a City of Los Angeles Special Studies Zone, nor within an Alquist-Priolo Special Studies Zone. In our opinion, there is very little probability of surface rupture due to faulting occurring beneath the site.

The active fault nearest the site is the Malibu Coast Fault, located 7.5 miles to the south. Some seismologists and geologists believe that the 1973 Point Mugu earthquake was a result of movement along this fault, and it is, therefore, considered active.

Other active faults include the Newport-Inglewood Fault Zone, the San Fernando Fault Zone, the Raymond Fault, the Whittier Fault, and the major San Andreas Fault Zone at respective distances of 14 miles southeast, 14.5 miles north-northeast, 22 miles east, 30 miles east, and 36 miles north-northeast of the site.

The nearest potentially active fault is the Chatsworth Fault, located about four miles north of the site. This is a northeasterly trending fault which places Miocene Modelo Formation in contact with Cretaceous sandstones (California State Water Rights Board, 1962).

Other nearby potentially active faults include the Northridge Hills Fault, 8.5 miles north-northeast, the Santa Monica-Hollywood Fault Zone at 10 miles southeast of the site, and the Santa Susana Fault, 10.5 miles to the north.

<u>Ground Shaking</u>

Movement on any of the above-described active or potentially active faults may cause ground shaking at the building site.

Several postulated design earthquakes were selected for study. These earthquakes, their associated fault, estimated Richter magnitude, distance from the project site, estimated ground acceleration levels, and estimated duration at the site are indicated in the table on the following page. The duration of strong shaking is defined as that time period during which the acceleration is greater than 0.05g (Bolt, 1973).

GROUND SHAKING EFFECTS

Design Earthquake	Fault	Estimated Magnitude	Distance from Fault to Site (Miles)	Estimated Ground Acceleration		Estimated Duration (Seconds)
				Peak	Sustained	
Maximum Credible:						
Distant	San Andreas	8.3	36	0.21g	0.21g	24
Local	Malibu Coast	7.0	7.5	0.40g	0.28g	25
Maximum Probable:						
Local	Malibu Coast	6.5	7.5	0.33g	0.20g	18

Flooding, Tsunamis and Seiches

Although the site is flanked on the east and west by two flood prone channels (USGS, 1974) which drain in a northerly direction from the Santa Monica Mountains, it is not considered to be in a flood prone area itself. The site is located 4.6 miles south of the Chatsworth Reservoir and 3.1 miles south-southwest of the Los Angeles River, neither of which present a danger.

As the site is not within a coastal area, the risk of damage from earthquake induced sea waves called tsunamis need not be considered.

The site is not located downslope of any large bodies of water that would adversely affect the site in the event of earthquake induced failure or seiches (oscillations in a body of water due to earthquake shaking).

Stability

The site is not located in an area of known ground subsidence. Accordingly, the potential for subsidence occurring beneath the site is considered remote.

As stated the northerly two-thirds of the site is relatively flat lying ground. No apparent slope stability problems were noted nor are they anticipated. The knoll at the south end is underlain by moderately well-bedded shale and siltstone beds which dip between 5 and 10 degrees towards the northeast. Although no indications of slope instability was noted in this area during our visit, there is the potential for failure along northerly and easterly facing slopes on this knoll. Any development in this area should take this into consideration and if necessary provide means of stabilization for natural and/or cut slopes.

The property is not known to be on or in the path of any existing potential landslide. Lurching (movement at right angles to steep slopes during strong ground shaking) is not anticipated.

Liquefaction

Liquefaction is the process by which saturated, loosely compacted fine sands undergo a transformation from a solid to a liquid state as a result of pore water pressure increase caused by intense ground shaking.

Liquefaction potential has been found to be the greatest where the ground water level is shallow and loose fine sands occur within a depth of about 50 feet or less. Liquefaction potential decreases with increasing grain size and clay and gravel content, but increases as the ground acceleration and duration of shaking increase.

Due to the nature of the underlying soils, the potential for liquefaction is considered low. Although sandy layers do exist and the water has been measured in borings to be within 8 to 17 feet of ground surface, the sands are typically relatively dense, based on sampler blow counts, standard penetration blow counts, and density tests. They are therefore considered to have low susceptibility to liquefaction, as are the interbedded silts and clays.

CONCLUSIONS

The location of the property in relation to known active faults indicates that the site is not exposed to greater seismic risk than any other location within the San Fernando Valley. The effects of ground shaking will be mitigated if the buildings are designed and constructed in conformance with current building codes and engineering practice. Northerly and easterly facing natural slopes of the existing bedrock knoll at the south end of the property expose daylighted bedding planes which could be susceptible to future sliding. Cut slopes oriented towards the north and east along this knoll would also expose adverse geologic structure requiring stabilization measures. There are no other geologic hazards which would affect this project.

Based on our evaluation, it is our opinion that the site is suitable for the intended land use. No significant difficulties are anticipated in excavating for the planned basements; conventional earth-moving equipment may be used for excavating. Water was measured in borings drilled in the area of the proposed hospital at depths of about 13 to 17 feet below existing grade, with a basement excavation planned at 13 feet. The ground water conditions relating to this and other excavations should be evaluated during grading to provide proper recommendations concerning dewatering and/or drainage.

The soils at the planned excavated levels and within compacted fill areas should provide adequate support for the proposed buildings on spread-type foundations.

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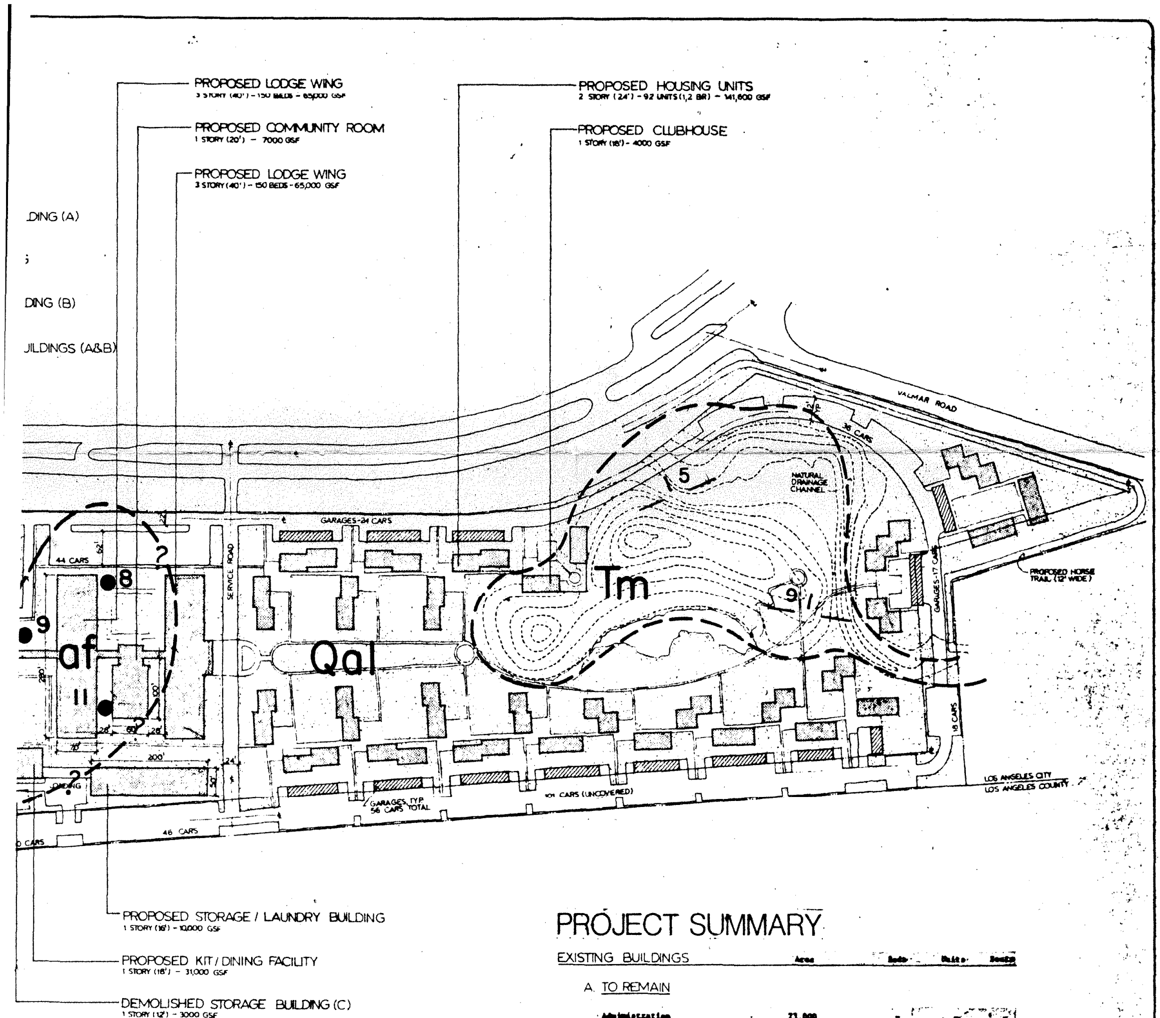
The following Plates are attached and complete this report:

Plate 1 -------- Geologic Map

Plate 2 -------- Regional Geology

Plate 3 -------- Local Geology

Plate 4 -------- Regional Seismicity



BUILDING

ADDITION

PROJECT SUMMARY

EXISTING BUILDINGS	Area	Beds	Units	Seats
A. TO REMAIN				
Administration	23,000	–	3	–
Nursing Wings	38,000	139	–	–
Country House (Recreation, Dining)	11,500	–	–	–
Cottages	32,000	–	56	–
Lodge	22,500	–	40	–
Theater	9,100	–	–	242
Mechanical Plant	1,550	–	–	–
Maintenance Building	7,800	–	–	–
Subtotal	135,450	139	99	242
B. TO BE DEMOLISHED				
Clinic	3,800	–	–	–
"ABCD" Nursing Wings	33,200	36	–	–
Lodge Wing	7,000	–	21	–
Offices (A)	2,800	–	–	–
Offices (B)	870	–	–	–
Offices (C)	860	–	–	–
Storage (A + B)	1,950	–	–	–
Storage (C)	3,000	–	–	–
Service	1,480			
Subtotal	55,040	36	21	–
Total, Existing Buildings (A + B)	190,400	175	119	242

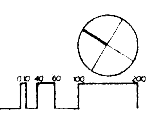
PROPOSED BUILDINGS	Area	Beds	Units	Seats
SNF Hospital	83,000	80	–	–
Nursing Wing	75,000	80	–	–
Lodge Wing (A)	65,000	–	150	–
Lodge Wing (B)	65,000	–	150	–
Cottages	21,000	–	38	–
Housing Units	141,600	–	92	–
Administration	38,000	–	–	–
Gift Shop	100	–	–	–
Kitchen/Dining	31,000	–	–	–
Clubhouse	4,000	–	–	–
Community Room	7,000	–	–	–
Services Building	1,800	–	–	–
Storage/Laundry	10,000	–	–	–
Maintenance Additions	2,500	–	–	–
Subtotal	545,000	160	430	–
TOTALS (Existing to Remain + Proposed)	680,450	299	534	242

PARKING — 491 CARS TOTAL

?— — GEOLOGIC CONTACT, inferred based on borings; queried where questionable

5 — STRIKE AND DIP OF BEDDING; adapted from City of Los Angeles Geologic Maps (Reference: SCAEG, 1982)

● 9 — Location of 1984 Boring (AE-84074)

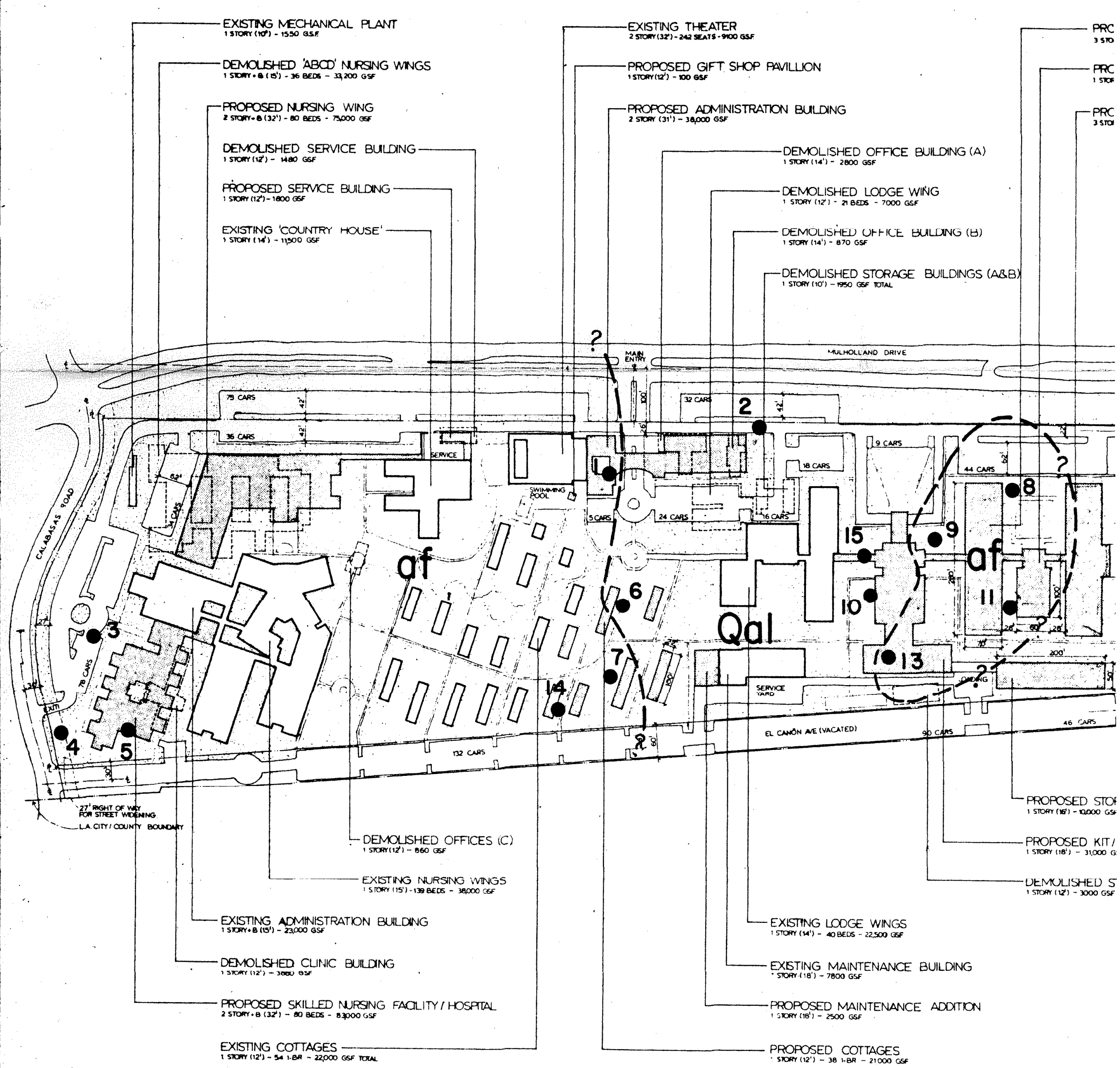


GEOLOGIC MAP

SCALE 1" = 200'

LeROY CRANDALL AND ASSOCIATES

PLATE I



LEGEND

▭	EXISTING BUILDINGS TO REMAIN
⬚	EXISTING BLD'GS TO BE DEMOLISHED
▭	PROPOSED BUILDINGS
▭	LANDSCAPED AREA
▨	PROPOSED GARAGES

EXPLANATION

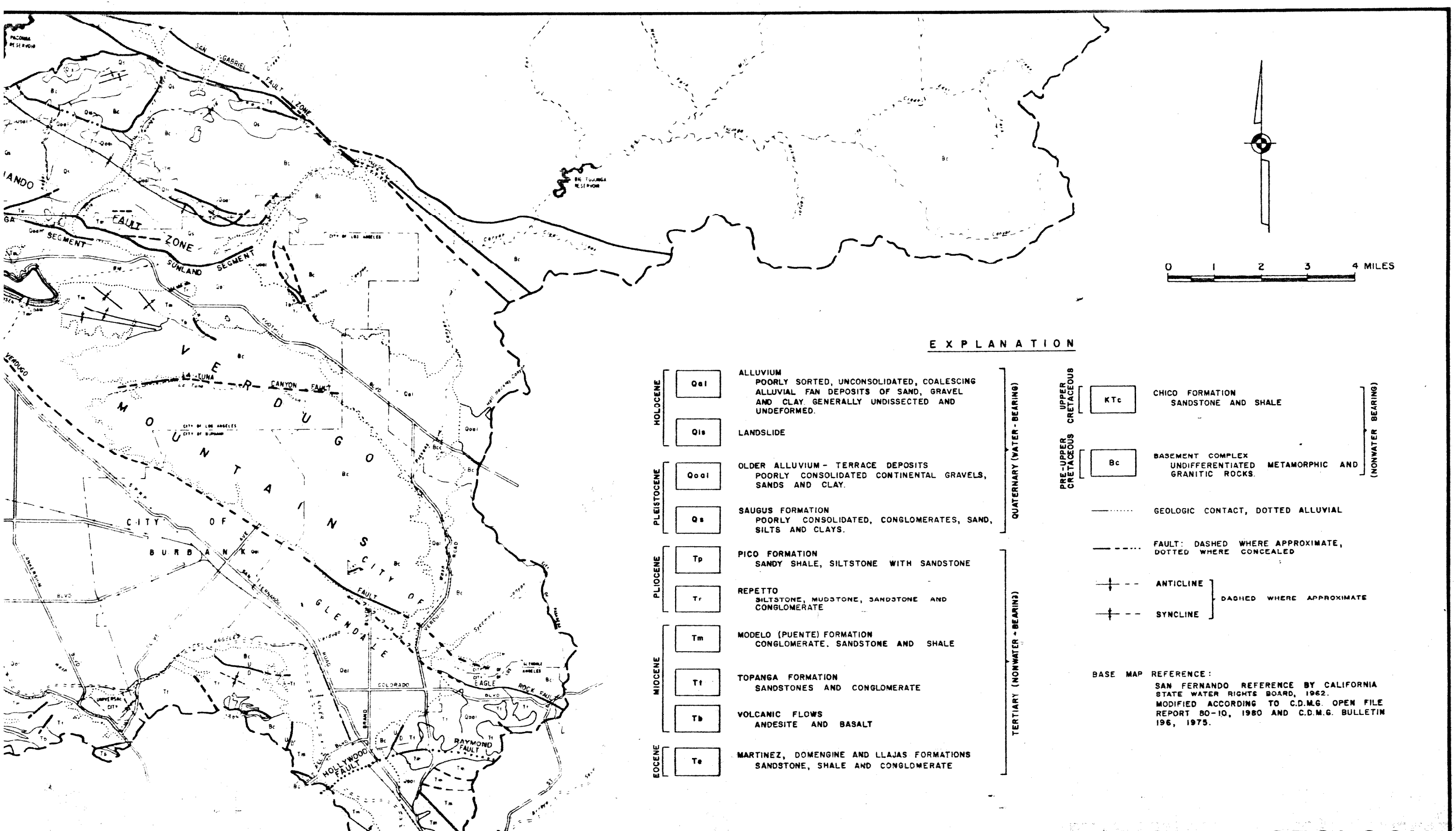
af	ARTIFICIAL FILL
Qal	ALLUVIUM
Tm	MODELO FORMATION

GEOLOGIC CONTA
inferred based on
queried where qu

5 STRIKE AND DIP
adapted from Cit
Angeles Geologic
(Reference: SCA

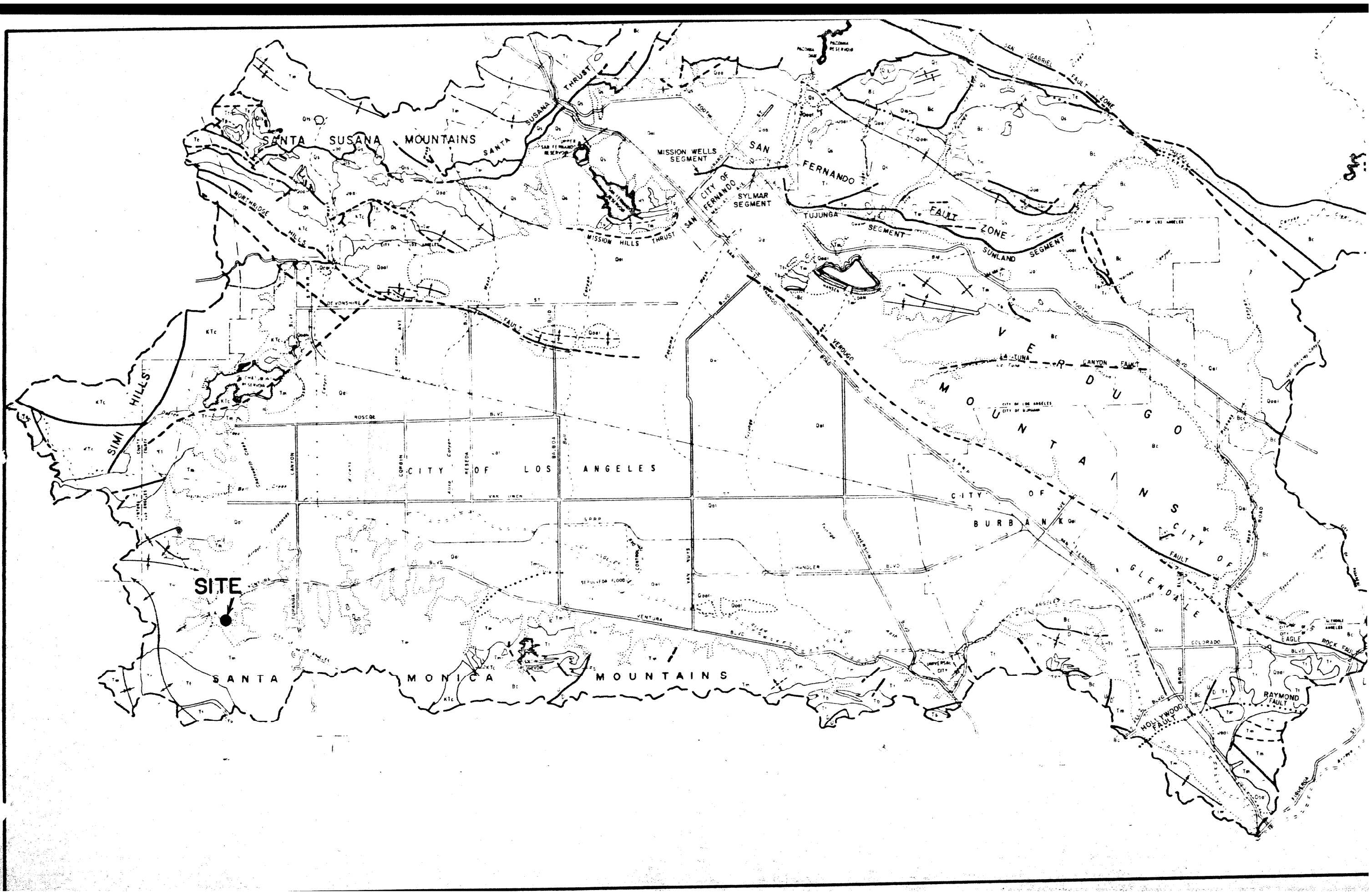
9 Location of 198
(AE-84074)

REFERENCE:
SITE PLAN (ISSUED 9-10-84) BY
BOBROW / THOMAS AND ASSOCIATES.

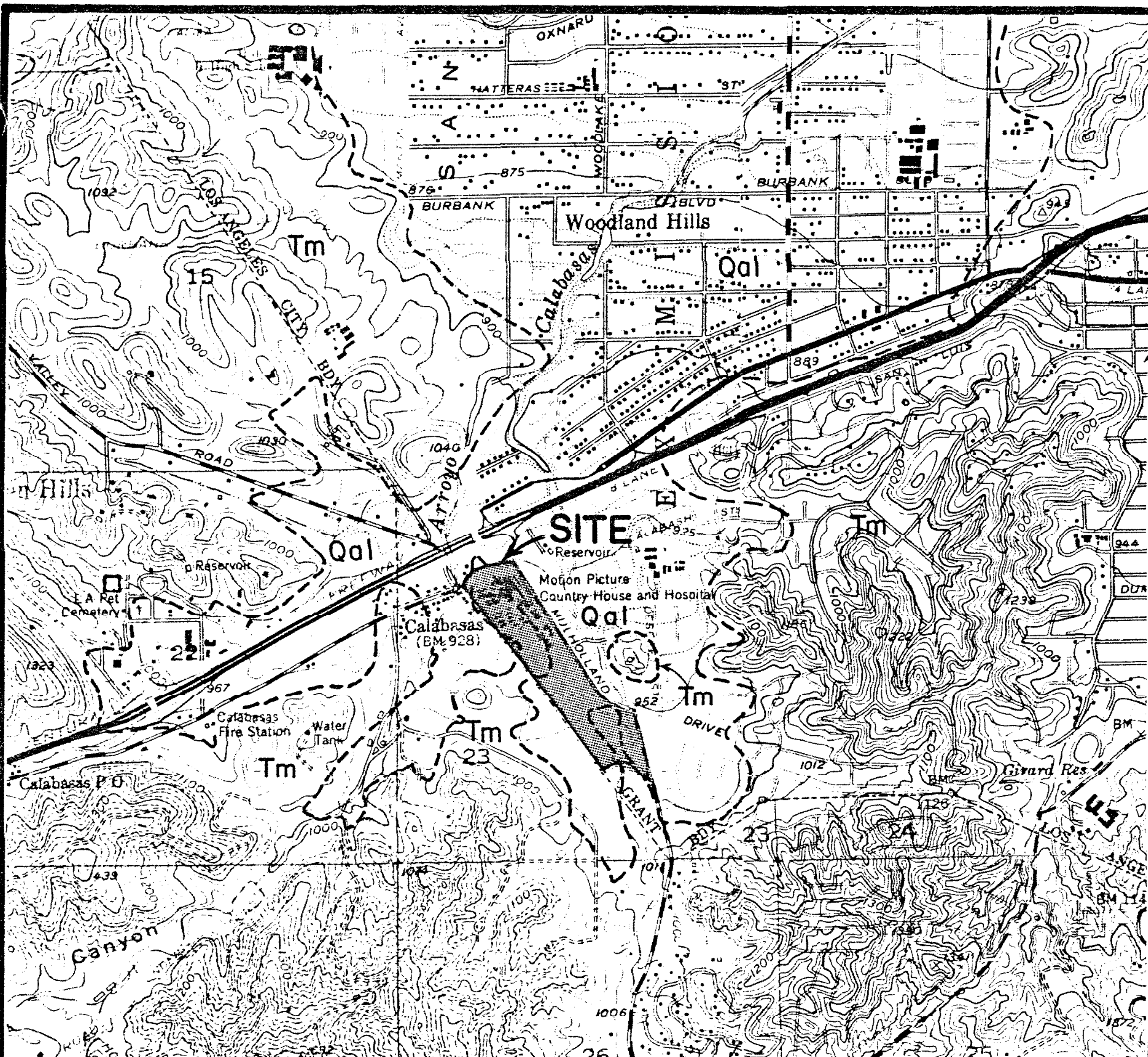


REGIONAL GEOLOGY

LEROY CRANDALL AND ASSOCIATES



SANTA SUSANA MOUNTAINS
SANTA SUSANA THRUST
MISSION WELLS SEGMENT
SAN FERNANDO FAULT ZONE
CITY OF SAN FERNANDO
SYLMAR SEGMENT
TUJUNGA SEGMENT
SUNLAND SEGMENT
MISSION HILLS THRUST
SIMI HILLS
VERDUGO MOUNTAINS
LA TUNA CANYON FAULT
CITY OF LOS ANGELES
CITY OF BURBANK
CITY OF GLENDALE
SITE
SANTA MONICA MOUNTAINS
HOLLYWOOD FAULT
RAYMOND FAULT
EAGLE ROCK FAULT



EXPLANATION

Qal	ALLUVIAL DEPOSITS
Tm	MODELO FORMATION
----	GEOLOGIC CONTACT

REFERENCES :

BASE MAP FROM U.S.G.S. CALABASAS AND CANOGA PARK 7.5' QUADRANGLES 1952 , PHOTOREVISED 1967 .

GEOLOGY ADAPTED FROM KEW (1924) AND GELOGIC MAPS OF THE SANTA MONICA MOUNTAINS COMPILED BY S.C.A.C.G. (1982).

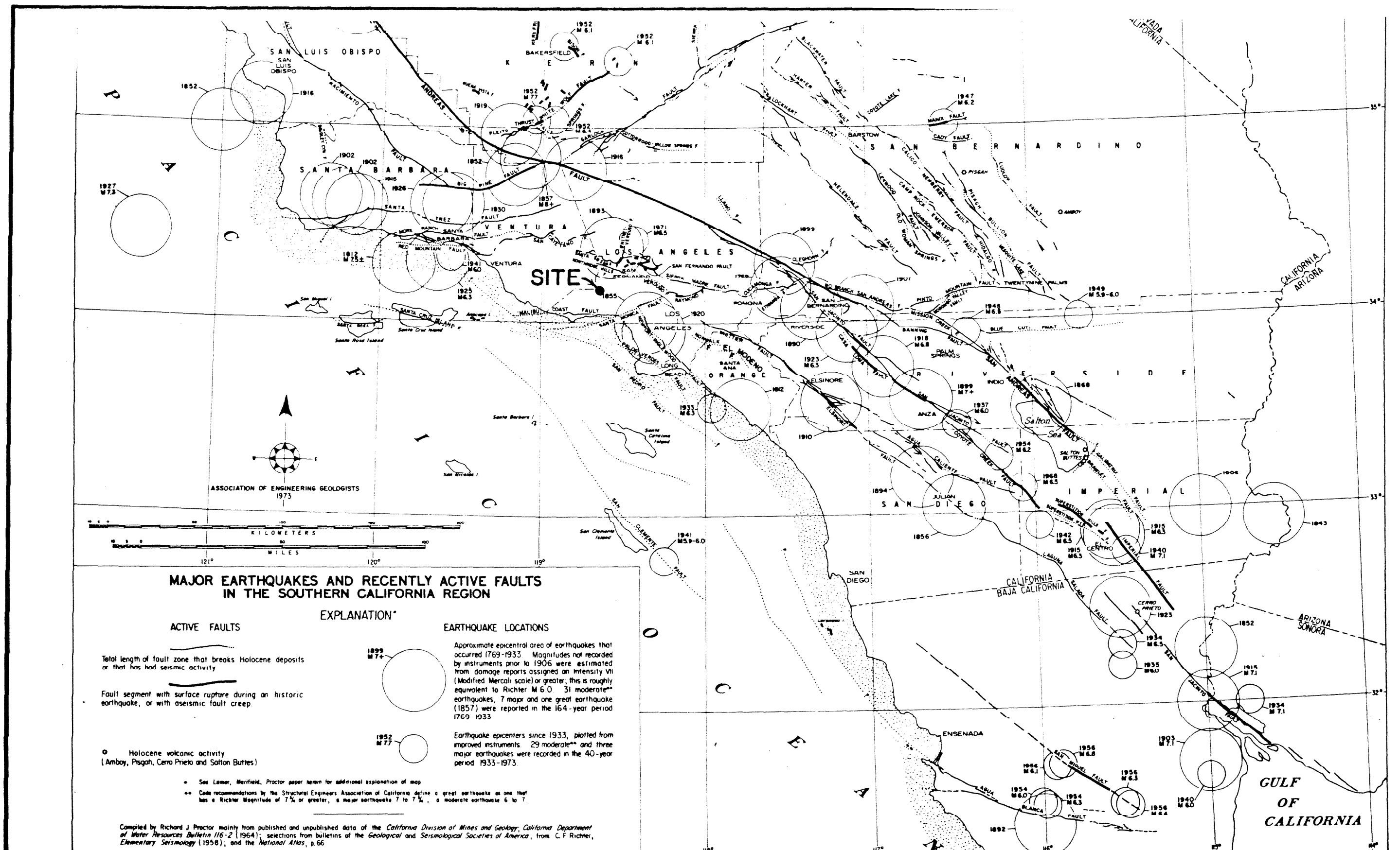
LOCAL GEOLOGY

SCALE 1" = 2000'

LeROY CRANDALL AND ASSOCIATES

PLATE 3

JOB E-84362 DATE 12-4-84 D" Todd O.E. SCTC CHKD.



REGIONAL SEISMICITY

LeROY CRANDALL AND ASSOCIATES

PLATE 4