F-3 Fault Activity Investigation for NE Corner of Yucca and 1800 Argyle Avenue



The Robert Green Company 3553 Fortuna Ranch Road Encinitas, CA 92024

November 7, 2014

Attention: Mr. Patrick J. Russell,

Vice President of Development

Subject: Response to City of Los Angeles Geology Report

Correction Letter Dated October 1, 2014 (Log# 85580)

NE Corner of Yucca Street and Argyle Avenue

1800 Argyle Avenue,

Hollywood Area, City of Los Angeles, California

GDC Project No. LA-1175A

Dear Mr. Russell:

GROUP DELTA CONSULTANTS, INC. (GDC) is pleased to present our responses to the 10 items listed in the City of Los Angeles Department of Building and Safety (**LADBS**) Geology Report Correction Letter for the 1800 Argyle Avenue site report, dated September 7, 2014. These corrections appear in our revised report, dated November 7, 2014.

The following lists the LADBS Correction Letter items and GDC's appropriate responses:

Item 1:

This item contains requests to correct the included Geologic Map (Figure 10), as follows:

- Extend the map to the north to show all the exploration points (C-1 and C-2).
- b) Correct the geologic contacts to reflect what was found in the subsurface exploration. A few examples of inconsistencies include the contacts shown on the map do not match with Cross-Section L-L', as well as other areas south of the site (primarily on Site 2).
- c) Show the extent of the faults encountered in the subsurface exploration (offsite) to where they are estimated to be buried or truncated by younger deposits.
- d) Show all of the cross-section and transect lines.

Response:

Items 1a through 1d have been compiled onto a corrected geologic map that is attached to this revised report as Figure 11. GDC references these items extensively in the text as they appear in trench logs and related sections.

Item 2:

Correct all of the cross-sections to reflect the corrected geologic map and the subsurface data. The fact that the cross-sections are titled "schematic" shall not be used as a reason to show inconsistent geologic interpretation. Extend Cross-Section L-L' to the east to beyond the eastern property line.

Response:

The corrected cross—sections are contained in the revised report as referenced, including Cross-Section L-L' that is now to scale and extended to the east.

Item 3:

A Local Fault Map (Figure 13) appears to be provided based on a request by the LADBS review letters for Sites 2 and 3. The department figure shows the Argyle and Yucca fault strands as mapped on the California Geologic Survey's preliminary A-P zone map (shown on Plate 1 of the report). However, the consultant apparently does not agree with the State map and has uncovered evidence that would justify a revised map. The intention of the previous comment regarding a separate fault map was for the consultant to provide an aerial map as they interpret. The interpretation should be based on their own investigation the interpretation should be based on their own investigation and research of the local area; including analysis of existing geologic literature, etc. Revise Figure 13 accordingly and zoom out to an area that includes strands of the Hollywood fault that possible based on analysis outlined above.

Response:

The revised report contains a map showing the GDC interpretation of local fault pattern. As noted in Item 5, below, and in Section 3.4 in the referenced report, fractured and near vertical Modelo Formation in the north part of Site 4 as opposed to the generally low to moderate dips of the south limb suggests that a fault affecting at least the Modelo Formation lies north of the study site. This fault could be responsible for upwarp of the anticline as discussed in the revised report. It is thus inferred that the traditionally mapped trace of the Hollywood Fault lies north of the study site, but its trace is not known well enough for GDC to put on a map. Projections away from hard data at the study site are not well constrained and should be taken as speculative rather than fact.



Its location awaits further regional exploration by others. In sum, Figure 13 shows the GDC geologic interpretation as far as supported by known observations and investigations.

Item 4:

The Geomorphic Features Map (Figure 5), based on the 1926 U.S. Geological Survey topography is unclear. Revise the figure a more detailed scale that shows (and labels) the truncated ridges in the area as well as other significant geomorphic features. Show the Cahuenga, Beechwood and Brush Canyon fans. Include the location of the Yucca Street Anticline. The figure could assist in interpreting the local faulting as requested in the above comment.

Response:

A revised map and discussion thereof is in the revised report.

Item 5:

Describe the inclinations of the various lithologic contacts, bedding planes, and other structural features observed in the core borings. Discuss how the angle of the contacts and bedding planes may relate to the folding documented at the site, Provide more description of the bedrock, including shearing and deformation observed.

Response:

The features are both illustrated in cross-sections and discussed in the text of the revised report. For example, north of Yucca Street, bedding within the Modelo Formation dips almost vertically as shown in core samples, in contrast to the low to moderate dips near the anticlinal axis and on its south limb. The cores were not oriented with respect to north, therefore, the directions of dips are indeterminate. The Modelo Formation along Argyle Avenue is thus in distinct angular conformity with the overlying more gently dipping Pleistocene older alluvium and mudflow deposits. Much of the Modelo deformation obviously took place long before deposition of the Pleistocene units. The steepened limb of the Yucca Street Anticline could indicate long (>~300ka) ceased deformation along a Hollywood Fault strand north of Site 4, as shown on Cross-Section K-K' (Plate 13). It is thus inferred that the traditionally mapped trace of the Hollywood Fault lies north of the study site, but its trace is not known well enough for GDC to put on a map. Its location awaits further regional exploration by others. In sum, Figure 13 shows the GDC geologic interpretations based on the literature, tectonic-geomorphic assessment and recent detailed subsurface investigations and Figure 5 shows the GDC regional fault map based on presently available information.

Item 6:



The borings logs for "Green Trench" borings B1 to B5 (Plates A-41a to A-45c) appear to be repeated on Plates A-79 to A-94, whicha ppear inconsistent. Remove the incorrect set of logs.

Response:

The correct logs are now in the revised report.

Item 7:

Provide unit designations on the bucketauger logs (Plates A49a to A-50a).

Response:

The logs now include unit designations.

Item 8:

There appears to be several inconsistencies between the boring logs and he cross-sections. In addition, there appears to be some arbitrary unit contacts shown on the logs. .A few examples are listed below

- a) Unit contacts as indicated on the boring logs B-8 and B-9 are different than what is shown on Cross-Section L-L'.
- b) Boring 7 is not shown on Cross-Section L-L'. Based on the log of B-7, a significant change in strtigraphy may be occurring in the area.
- c) The contact between the "upper sand" and the "mudflow" appears arbitrary in boring logs B-2 to B-5, where there are several 7.5YR clayey sand above the mudflow contact. In B-8, it seems like the contact should be at 28 feet and at 15 feet in B-9.
- d) Cross-Sections J-J' and K-K' overlap and coincided for about 20 feet on Plate 1. The geologic contacts do not match and the "debris flow" deposits abruptly disappears.

Response:

- a) Revision of Cross Section L-L' (originally drawn in a schematic manner), as well as redefinition of the stratigraphic section have been accomplished since issuance of the September 7, 2014 report. The revised report incorporates those revisions.
- b) B-7 is now shown. Based on the latest stratigraphic interpretation, B-7 is consistent with the interpreted subsurface geology. Borings in the area of B-3, B-4 and B-7, for example, are on on or near the west slope of Argyle Channel so that, as explained below and in the text, depending where the boring is located on the cross-section, the depth and thickness of various units will vary.



- c) The contact between the upper sand and the mudflow appears arbitrary in boring logs B-2 to B-5, where there are several layers of 7.5YR clayey sands above the mudflow contact. In B-8, it the contact should be at 28 feet and at 15 feet in B-9.
- d) Since issuance of the September 7, 2014 report, the stratigraphic section has been revised and such is reflected in the cross-sections. The elevations of unit contacts differ on the two sections. They Very because of their positions on the Argyle Channel slope. Cross-Section L-L' shows the geometry of same.

Item 9:

Discussion of anticline faults. See attached Correction Letter.

Response:

The revised report includes discussion of the presence of bending-moment and lateral shear faults, and how they were coeval.

Item 10:

Revise the conclusions and reccomendations based on the above corrections, if necessary, recommendations are listed in the revised report.

Response:

Revised conclusions and recommendations are in the revised report.

GDC appreciates the opportunity to provide geotechnical and geological services for this project. Should you have any questions, please call at 310 320-5100.

Yours Sincerely,

GROUP DELTA CONSULTANTS, INC.

Mickael F. Mills, CEG/994

Engineering Geologist Consultant

Michael D. Reader, P.E., GE CEO, Principal Engineer

Steven H. Kolthoff, CEGK 955 Exp. 8/31/15

Engineering Geologist Consultant

Distribution: Addressee (1), LADBS (1)



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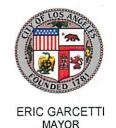
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GEOLOGY REPORT CORRECTION LETTER

October 1, 2014

LOG # 85580 SOILS/GEOLOGY FILE - 2 LIQ/AP

Robert Green Company 3553 Fortuna Ranch Road Encinita, CA 92024

TRACT:

Grand View Boulevard (MP 7-22)

LOT(S):

21 (Arb 2)

LOCATION:

1800 N. Argyle Avenue

CURRENT REFERENCE

REPORT

DATE(S) OF

REPORT/LETTER(S)

No.

DOCUMENT

PREPARED BY

Geology Report

LA-1175A

09/07/2014

Group Delta

Oversized Doc(s).

The Grading Division of the Department of Building and Safety has reviewed the referenced report that presents a fault rupture investigation at 1800 Argyle Avenue for the future devolvement of the property. The site is currently occupied by a vacant office building with a partially subterranean parking structure. According to the report, Group Delta is conducting a total of four fault investigations in the site area. The subject site has been designated as "Site 4".

The property is located within a Preliminary Earthquake Fault Zone that was established (January 8, 2012) by the California Geological Survey for the Hollywood fault (on the USGS 7.5 minute Hollywood Quadrangle). A strand of the Hollywood fault ("Argyle Strand") is shown on the State's map to be located west and south of the property.

The investigation included an exploration trench within the subterranean parking structure at the eastern portion of the site. A transect of CPT soundings, continuous core borings and a two bucket-auger borings was located west of the site in Argyle Avenue. Data from offsite projects (Sites 2 and 3) were also used for the geologic analysis of the site.

The review of the subject report can not be completed at this time and will be continued upon submittal of an addendum to the report which shall include, but not be limited to, the following:

- 1. The following comment contains items to correct the included Geologic Map (Figure 12):
 - a. Extend the map to the north to show all of the exploration points (C-1 and C-2).

- b. Correct the geologic contacts to reflect what was found in the subsurface exploration. A few examples of inconsistencies include the contacts shown on the map do not match with Cross Section L-L', as well as other areas south of the site (primarily on Site 2).
- c. Show the extent of the faults encountered in the subsurface exploration (offsite) to where they are estimated to be buried or truncated by younger deposits.
- d. Show all of the cross sections and transect lines.
- 2. Correct all of the cross sections to reflect the corrected geologic map and the subsurface data. The fact that the cross section are titled "schematic" shall not be used as a reason to show inconsistent geologic interpretation. Extend Cross Section L-L' to the east to beyond the eastern property line.
- 3. The Local Fault Map (Figure 13) appears to be provided based on a request in the previous Department review letters for Sites 2 and 3. The figure shows the Argyle and Yucca fault strands as mapped on the California Geologic Survey's preliminary A-P Zone map (shown o also n Plate 1 of the report). However, the consultant apparently does not agree with the State map and has uncovered evidence that would justify a revised map. The intention of the previous comment regarding a separate fault map was for the consultant to provide an areal fault map that shows the local segment of the Hollywood Fault as they interpret. The interpretation should be based on their own investigation and research of the local area; including analysis of geomorphology from aerial photographs and old topographic maps, and analysis of existing geologic literature, etc. Revise Figure 13 accordingly and zoom out to an area that includes strands of the Hollywood fault that possible based on the analysis outlined above.
- 4. The Geomorphic Features Map (Figure 5), based on the 1926 U.S. Geological Survey topography, is unclear. Revise the figure at a more detailed scale that shows (and labels) the truncated ridges in the area, as well as other significant geomorphic features. Show the Cahuenga, Argyle, Beachwood and Brush Canyon fans. Include the location of the Yucca Street Anticline. This figure could assist in interpreting the local faulting as requested in the above comment.
- 5. Describe the inclinations of the various lithologic contacts, bedding planes, and other structural features observed in the core borings. Discuss how the angle of the contacts and bedding planes may relate to the folding documented at the site. Provide more description of the bedrock, including shearing and deformation observed.
- 6. The boring logs for "Green Trench" borings B1 to B5 (Plates A-41a to A-45c) appear to be repeated on Plates A-79 to A-94, which appear inconsistent. Remove the incorrect set of logs.
- 7. Provide unit designations on the bucket auger logs (Plates A49a to A-50c).
- 8. There appears to be several inconsistencies between the boring logs and the cross sections. In addition, there appears to be some arbitrary unit contacts shown on the logs. A few examples are listed below:

- a. Unit contacts as indicated on the boring logs B-8 and B-9 are different than what is shown on Cross Section L-L'.
- b. Boring B-7 is not shown on Cross Section L-L'. Based on the log of B-7, a significant change of stratigraphy may be occurring in the area.
- c. The contact between the "upper sand" and the "mudflow" appears arbitrary in boring logs B-2 to B-5, where there are several 7.5YR clayey sand above the mudflow contact. In B-8, it seems like the contact should be at 28 feet and at 15 feet in B-9.
- d. Cross Sections J-J' and K-K' over lap and coincided for about 20 feet on Plate 1. The geologic contacts do not match and the "debris flow" deposits abruptly disappears.

Based on these inconsistencies, the geologic interpretation presented in the cross section does not appear to be that well documented. Additional exploration may be warranted.

- 9. The report indicates that the faults observed have normal displacement (hanging wall down) and are likely to be local "bending moment" structures that are typically not through-going, relatively shallow, and non-seismogenic. However, observations documented on the trench log indicate the bedding thicknesses and patterns do not match that well across all of the faults. This suggests a significant amount of lateral slip could have occurred (see station 58 to 60 for an example). In addition, the fault at station 20 to 22 indicates compression as well as lateral movement. Provide additional discussion regarding the fault origins and tectonic setting based on these observations. Consider the typical complexity of strike-slip fault zones, including en échelon patterns, folds related to constraining step-overs of major splays.
- 10. Revise the conclusions and recommendations based on the above corrections, if necessary.

The geologist is encouraged to contact the undersigned reviewer if any of the above comments are unclear or require further explanation. A meeting to discuss the review issues may be scheduled if desired.

DANIEL C. SCHNEIDEREIT

Engineering Geologist Associate II

DCS/dcs Log No. 85580 213-482-0480

cc: Group Delta, Project Consultant LA District Office



Fault Activity Investigation

1800 Argyle Avenue

NE Corner of Yucca Street and Argyle Avenue

Hollywood District, City of Los Angeles, California

GDC Project No. LA-1175A

November 10, 2014 (Supersedes 9-7-14 Report)
GDC Project No. LA-1175A



The Robert Green Company 3553 Fortuna Ranch Road Encinitas, CA 92024

November 10, 2014

Attention:

Mr. Patrick J. Russell,

Vice President of Development

Subject:

Fault Activity Investigation

NE Corner of Yucca Street and Argyle Avenue

1800 Argyle Avenue

Hollywood Area, City of Los Angeles, California

GDC Project No. LA-1175A

Dear Mr. Russell:

Group Delta Consultants (GDC) is pleased to submit this Revised Fault Activity Investigation report for the proposed 1800 Argyle Avenue ("Argyle" or "Green") site in the Hollywood District of the City of Los Angeles. Under the Alquist-Priolo (AP) Earthquake Fault Zoning Act of 1972, the City of Los Angeles, Department of Building and Safety, and the California Mining and Geology Board issued a Preliminary Review Map showing several inferred "active faults" that are part of the Hollywood Fault Zone. The preliminary zone encompassed the Argyle site, and thus required geologic standard-of-practice investigation. Although the zoning was then still preliminary, the City of Los Angeles required that all sites within the zone be investigated in conformance with the AP Act. GDC has thus completed a standard-of-practice geological investigation based on the Preliminary Map. On November 7, 2014, the State issued the Official Map depicting a different pattern. Nonetheless, the breadth of the geological investigation yielded information permitting assessment of the newly mapped fault strands in accordance with the AP Act. In sum, the GDC investigation illustrates that faults either do not exist onsite or are demonstrably "not active" according to current State of California definitions.

GDC appreciates the opportunity to provide geotechnical and geological services for this project. Should you have any questions, please call at 310-320-5100.

No. CEG 994

E OF CALIFO

Yours Sincerely,

GROUP DELTA, CONSULTANTS, INC.

Michael F. Mills, CEG 994, exp. 2/29/16

Engineering Geologist Consultant

Michael D. Reader, P.E., GE

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Distribution:

LADBS (1)

TECHNICAL SUMMARY

Based on the GDC geologic investigations at and near 1800 Argyle Avenue ("Argyle"), this firm concludes that, from a fault rupture potential viewpoint, the project site is suitable for development.

The investigation included:

- Initial evaluation of published reports, aerial photographs, and other pertinent geologic information, and advancement and interpretation of 20 CPT-soundings, 9 core borings and 2 bucket-auger borings up to 60 feet deep.
- Observation and documentation of one 90 foot long trench placed within the existing onsite parking structure as shown on Plate 1 and Photograph 1. The trench trended northsouth and was up to 16 feet deep.
- The geologic information gathered at the Argyle site was correlated and extrapolated to the geologic structure and numeric/relative dates of sediments identified in the adjacent properties (Plate 1).

Principal findings for the Argyle site are:

- Up to perhaps ten feet of artificial fill caps Holocene channel deposits and upper Pleistocene mudflow and older alluvium sediments judged to be at least 30-35ka and 300ka (thousands of years old), respectively. These deposits rest on bedrock of the Miocene-aged Modelo Formation. The GDC CPT-soundings, borings, and trench encountered Pleistocene and Holocene sediments useful for determining the presence or absence of an AP-defined active fault; in essence, a fault that has ruptured the ground surface or near-surface in the last ~11,700 years.
- A heretofore unknown anticline (fold) underlies the site and its surroundings. The folding
 affects the bedrock and the older alluvium, but it is covered by unbroken and unwarped
 ~30-35ka mudflows overlain by ~8ka-12ka Argyle "Channel Sands."
- The onsite exploratory trench exposed small-displacement (<2 feet), south-dipping generally normal, bending-moment faults, some of which also show oblique lateral-slip both associated with the formation of the anticline.
- These faults affect the older alluvium at Argyle. But, importantly, the at least 30-35ka mudflow is not affected, nor do the small faults extend great distances from the anticline.



For example, the faults on the south limb of the anticline and those on the north limb trend toward GDC core hole-CPT traverses along Argyle Avenue Site 2 exploration trenches and core hole-CPT traverses, yet the faults are absent in those explorations.

- The GDC comparison and extrapolation of the geology exposed in Sites 2 and 3.
- CPT-traverses and trenches southwest and south, respectively, of Argyle showed that anticlinal folding and that coeval slip along the anticline faults ceased prior to deposition of mudflows at least 30-35ka.
- Based on site-specific and nearby investigations, GDC finds that no active faults exist
 within the subject site nor within 50 feet of the site boundaries. Therefore, the site is
 suitable for development according to the requirements of the State of California AlquistPriolo Act and the City of Los Angeles.
- No structural setbacks pertaining to potential fault rupture are required for the site.



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1.0 INTRODUCTION

This report presents the Group Delta Consultants, Inc. (GDC) Fault Activity Investigation of the "Argyle" site on the northeast corner of Yucca Street and Argyle Avenue in the Hollywood District of the City of Los Angeles (Plate 1). This report provides maps, cross-sections, numeric and relative dating assessments, and interpretations consistent with current geologic standards of practice applicable to an Alquist-Priolo (AP) Earthquake Fault Investigation. The AP Act was initiated in early 1972. It requires geologic investigations for faults identified by the California Geologic Survey (CGS) as "sufficiently active and well-defined."

Several major California faults have been placed in AP "Earthquake Fault Zones" that require site specific investigations (for example, the San Andreas and the Newport-Inglewood systems). Accordingly, based on ongoing compilation of documented or suspected fault activity, the California Geological Survey (CGS) then places additional faults, now including the Hollywood Fault Zone, in such zones. The inferred fault zones are then reviewed by local geological and other knowledgeable parties. When warranted, the zone is officially approved by the controlling agency, the State Mining and Geology Board.

From literature compilation and independent interpretation, the CGS placed the Hollywood Fault Zone within a Preliminary Earthquake Fault Zone (Figure 1). The map designates this as a "fault that has had surface or near surface ground rupture within the last 11,700 years (Holocene Epoch)". The CGS also postulated individual "active fault" strands within the Hollywood Fault Zone. Of particular interest is a strand, herein informally deemed the "Argyle Strand," inferred to be west and south of the Argyle site (Site 4, Figure 1). The CGS interpretation stems mainly from their observations of fault exploratory trenches info groundwater level differentials recorded in two nearby geotechnical borings (GDC, 2006) and on topographic expression, namely, a south-facing slope south of the study site (Plate 1; Figure 1).

The recent AP zonation requires site specific geologic investigations. The investigations must inherently confirm or deny the age and/or existence of any AP-defined faults on or within 50 feet of the property and should follow current geologic "standards-of-practice." Procedurally, the City of Los Angeles is the lead agency that will approve the Argyle site investigation. The California Geological Survey will review this report and give its opinion to the State Mining and Geology Board and to the City of Los Angeles Department of Building and Safety.



1.1 PROPERTY DESCRIPTION

The Argyle site is bound on the north by the southbound onramp to the Hollywood Freeway, on the west by Argyle Avenue, on the east by a parking lot and the Hollywood Freeway, and on the south by Yucca Street (Figure 1) in the Hollywood District of the City of Los Angeles. The site is currently improved by an unoccupied office building and parking structure (Photograph 1). In general, the site is near planar and ascends about ten feet to the east.

This document also refers to recent GDC investigations of the subject and adjacent sites. These are enumerated on Plate 1 as follows: Site 1 – Millennium, Site 2 – Yucca, Site 3 – Champion, and Site 4 – Argyle or Green.

1.2 PURPOSE

This study specifically evaluates whether CGS inferred strands of the Hollywood Fault Zone might constrain redevelopment of Site 4 (Argyle). Accordingly, this investigation follows current State, City, and professional geological standards required to assess the possible AP-defined active faults.

1.3 SCOPE

To initially evaluate the presence or absence of near-surface faults, GDC advanced continuous and undisturbed soil cores and Cone Penetrometer Tests (CPT) soundings (Plate 1; Appendix A). GDC also reviewed pertinent aerial photographs, geologic and topographic maps, peer-reviewed published articles, and proprietary geotechnical reports. Additionally, GDC reconnoitered the site and its environs for geomorphic evidence of possible surface fault ruptures.

GDC placed 20 CPT-soundings, 9 core borings, 2 bucket-auger borings, and 1 fault trench (Plate 1). The trench, approximately 90 feet long and up to about 16 feet deep, was used to calibrate the cores and CPT-soundings. The trench was also used to examine near-surface sediments, capping soil (pedogenic) profiles, and geologic structure.

The Argyle site (Plate 1; Figure 12) is capped by estimated ~300ka "older alluvium." These sediments are locally displaced by a few site-specific anticline-related bending-moment and shear faults. These were dated by conservative projection across Argyle Avenue into the 35 feet deep trenches at Sites 1 and 2 (Plates 1 through 6), west to CPT-borehole transects along Argyle Avenue, and south to a trench in Site 3 (Plate 1). The findings of those investigations directly bear on the subject investigation and are incorporated into the Site 4 study.

In summary, the GDC investigation included:

 Retention of Dr. Roy J. Shlemon to assist GDC with analysis of the local Quaternary geology, soil stratigraphy and paleoseismology, and to provide an independent QA



assessment of the investigation (Appendix B). In this report GDC uses the term "soil" as a pedogenic (weathering) feature and as a tool for dating sediments. It is not used in reference to engineering material.

- Review and analysis of relevant geotechnical and geologic investigations, published geologic and geotechnical maps and reports. Specific references are documented in Section 6. This includes careful review, interpretation, and extrapolation of geologic information from adjacent Sites 1, 2, and 3 (Plate 1).
- Interpretation of vertical stereo and oblique aerial photographs from the 1920's and 1930's archived with the Continental Aerial collection and the Spence collection at UCLA.
- Geomorphological and geologic reconnaissance.
- Coordination with the owner, with Underground Service Alert (USA), and with the City of Los Angeles Department of Building and Safety to locate utilities and to coordinate the logistics of the field investigation.
- Initial site observation to assess existing conditions relative to the planned development. Prior to drilling the cores or pushing the CPT's, initial advancement of a hand auger to 5 feet was performed to satisfy USA requirements.
- Advancing 20 in-line CPT-soundings up to 60 feet deep along a north-south transect along Argyle Avenue north of Yucca Street by Middle Earth, Inc. and Gregg In Situ, Inc. Logs and interpretations of the CPT data are given in Appendix A. Locations are given on Plate 1. Plates 12 and 13 are Cross-Sections (J-J' and K-K') interpreted from the CPTsoundings, core borings and bucket-auger borings.
- Drilling 9 in-line core holes to ~60 feet deep between the CPT soundings along the aforementioned north-south transect, and a short east-west transect (Borings B-8 and B-9) across Argyle Avenue (Plate 1). This was carried out by Gregg Drilling, Inc., using an 8.75 inch diameter hollow stem auger with a 3 inch diameter and 5 foot long split coring barrel down the auger annulus. The recovered cores were placed in 2.5 foot long cardboard core boxes and transported to the GDC laboratory for further examination. Core logs are provided in Appendix A. Locations are indicated on Plate 1.
- Advancing 2 bucket-auger borings near the intersection of Argyle Avenue and Yucca Street (Plate 1).
- Excavating one exploratory trench in the parking area below the existing structure (Photograph 1). The trench was about 90 feet long, and up to 16 feet deep. This trench



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allowed pertinent extrapolation of soil core and CPT data for analysis of sediments and geologic structure. Location of the trench is indicated on Plate 1 and the log is Plate 11.

- Brushing and scraping of the trench walls, setting up of level string lines, and geologic logging and photographing of the trench.
- Illustration of the subsurface structure and stratigraphy with CPT and soil core logs on geologic Cross-Sections J-J', K-K', L-L' and M-M' (Plates 12, 13, 14 and 15) and the trench log (Cross-Section I-I') as shown on Plate 11.
- Preparation and summary of GDC findings and conclusions with attachments and appendices.

2.0 PREVIOUS AND CURRENT INVESTIGATIONS

2.1 PREVIOUS INVESTIGATIONS

Previous geologic mapping and investigations were based mainly on a few outcrops in the area, on geomorphic expression, and groundwater differentials among water wells. Based on the limited, site-specific data (Hoots, 1930; Hoots and Kew, 1931; Dolan, 1997, 2000; Dibblee, 1988), the California Geological Survey recently published (2014) and submitted a Draft Fault Evaluation Report (FER 253, 2014a) to complement the preliminary AP map for the Hollywood 7.5 Quadrangle. And then on November 7, the CGS (2014b) issued an 'official' A-P map showing a revised location of the Argyle Strand (Figure 1).

The Preliminary FER 253 depicts an inferred active (Holocene) trace of a Hollywood Fault ("Argyle Strand", Figure 1) as trending across the Yucca Street site, just southwest of the study site, whereas the official map depicts the strand as trending east about coincident with Yucca Street and terminating just east west of Vine Street (Figure 1).

As documented in the readily available literature, site-specific fault activity and geotechnical investigations in the area similarly addressed the potential impact of the Hollywood Fault (Law, 2000; GeoPentech, 2001, 2005; Leighton, 2011; City of Los Angeles, 2009; Langan, 2011, 2012).

2.2 PRESENT INVESTIGATION

Thus far few, if any, site specific investigations have relied on trench exposures to evaluate the presence and activity-level of a postulated Hollywood Fault. Most assessments were based solely on interpretation of CPT core transects, downhole logging of large diameter borings, and tectonic-geomorphic modeling. Therefore, this and nearby investigations by GDC (2014a, 2014b) are the first to use trenches to investigate the presence or absence of one or more inferred splays of the Hollywood Fault (CGS, 2014a, b). The investigation was based on the CGS preliminary fault locations. However, the breadth of the investigation permits GDC to assess the new strand (CGS,



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2014b) in a manner appropriate for an AP investigation. The investigation included the following tasks.

2.2.1 CONE PENETRATION TESTS

The site exploration was initially conducted with CPT soundings and core borings. CPT's were centered every 10 feet and pushed up to a depth of 60 feet or to refusal. The tip and side resistance of the CPT cone was recorded and plotted on applicable cross-sections (see Plates 1, 2, 4, 9, 12, 13, and 14); the field data are contained in Appendix A.

2.2.2 CONTINUOUS CORE AND BUCKET AUGER BORINGS

Bucket auger borings (2) and most of the core borings (6) were placed between CPT's to calibrate the subsurface geology.

Borings B-8 and B-9 were later placed in an east-west manner across Argyle Avenue to confirm the GDC geologic model (Plate 1). Cores were drilled using an 8.75 inch hollow stem auger with a 3 inch diameter core barrel. The barrel was placed down the annulus of the auger and pushed about 3 to 4 inches in front of the bit as the auger was advanced. The barrel was connected and held stationary with respect to the rig rotary head system by a series of rods that pushed the barrel ahead of the bit to prevent the barrel from spinning. This resulted in collection of relatively undisturbed continuous core samples. The cores provide a physical view of the subsurface soil conditions used to calibrate the CPT data.

The cores in the upper sandy sediments were drilled in 2.5 foot runs to optimize recovery. Where the drilling recovery exceeded 90%, as in clayey sediments and bedrock, the runs were increased to 5 feet. The cores were placed in boxes, field logged, and returned to the GDC laboratory for detailed logging. After analysis, the core information was combined with the CPT data to calibrate the CPT's to the sediments recovered (Plate 1, Plates 12, and 13).

The bucket auger borings were placed to confirm the presence of Pleistocene mudflows and other stratigraphy useful for dating local sediments. Despite impediments such as utility lines and groundwater, GDC successfully demonstrated that the Pleistocene mudflow deposits exist north of Yucca Street. All boring logs are provided in Appendix A.

2.2.3 TRENCHING

2.2.3.1 1800 ARGYLE AVENUE TRENCH

This north-trending 90 foot long trench was placed directly below part of the existing structure (Plate 1) to identify the presence or absence of possibly active faults. The up to 16 foot deep trench was benched to enhance stability and to provide exposures useful for geological logging. The log is attached as Plate 11.



2.2.3.2 CHAMPION TRENCH

One fault trench was excavated at the Champion site south of the subject site (Site 3; Plates 1 and 8). It was oriented north-south to intersect possible projected splays of the inferred Argyle Strand of the Hollywood Fault Zone as mapped by CGS (2014; Figure 1). Prior to excavation, Underground Services Alert (USA) located all underground utilities. The 120 foot long, 7 to 8 foot deep trench (GDC, 2014b) was placed between an existing onsite apartment building and Argyle Avenue (Photograph 1). The trench was shored in accord with CAL-OSHA requirements.

2.2.3.3 YUCCA TRENCHES

GDC placed two trenches (west and east) at the Yucca site (Site 2) southwest of Site 4 (Figure 1; Plates 1, 3, 5 and 6) that proved vital to interpretations and conclusions regarding the presence or absence of active faults at Sites 3 and 4. These two trenches are explained in greater detail in the following sections.

2.2.3.4 WEST TRENCH

The west trench was the first of two trenches excavated on the Yucca site (Site 2). The top 13 feet along the west side of the trench were cut with a 1:1 slope to the first bench. Benches 2 through 4 were excavated with ~4 foot vertical walls to the bottom of the trench. This benching improved the stability of the trench and provided good exposures for logging (Plate 3, Cross-Section B-B'). The eastern side of the trench was sloped at 1:1 horizontal to vertical from top to bottom. The trench was up to 35 feet deep.

2.2.3.4 EAST TRENCH

A second trench was excavated to the east to further evaluate sediment properties and age. Because the pre-Holocene sediments were shallow, the trench was excavated to a depth of about 15 feet, at its deepest. The Pleistocene older alluvium encountered in the trench was very hard and dense, and it was benched with 4-5 foot vertical walls. The trench was oriented N-S, overlapped the west trench, and extended about 50 feet south of the property line of Site 2 onto Site 1 (Plate 1). This lower part of the trench exposed south-dipping beds of older alluvium (Plates 5 and 6). Near Station 00+84, a bedding plane slip fault attributed to flex during folding is capped by upper Pleistocene mudflow sediments. Assessment of the age of folding and slip on associated faults stems to a great degree from evaluation of this feature.

2.2.4 SOIL-STRATIGRAPHIC AGE ESTIMATES

As documented in Appendix B, the west trench at Site 2 exposed the thalweg of the Argyle Channel and an overlying 30 foot thick sequence of interbedded, grossly fining-upward fluvial sediments within the Argyle Channel. Soil-stratigraphic measurements and descriptions show that the Argyle Channel sediments are capped by a remnant, very slightly developed surface soil,



replete with four, intercalated interval buried paleosols, ranging in relative development from very slight to slight. Based on calibration with numerically dated soils elsewhere in Mediterranean climates, the cumulative time of soil weathering for formation of the channel sediments is an estimated ~8-10ka.

The Argyle Channel incises underlying, relatively impermeable mudflow deposits that bear a truncated, moderately developed buried paleosol (Appendix B). This soil, with its distinct translocated clay films, represents another ~8ka-15ka of weathering. Additionally, the abrupt unconformity between the base of the channel and the underlying clay suggests onset of Argyle Channel deposition during an epoch of regional pluviality, conservatively estimated as ~12ka-16ka (marine isotope stage 2). From a pedogenic standpoint, the cumulative age of the trench-exposed Argyle Channel and the underlying clay exceeds ~15ka.

2.2.5 RADIOCARBON DATING

Four conventional radiocarbon dates from the east and west trenches (Yucca-1, Yucca-2, Yucca-4 and Mill-1) in the Argyle Channel sediments were collected (Site 2, Plate 1) to evaluate the numeric age of the Argyle Channel sediments. The west trench samples, Yucca-1 (~4,310ybp) and Yucca-2 (~4,100ybp), are suspect, owing to the high potential for younger contamination by modern groundwater and to the likely re-deposition of older "organic sediment" resulting in an unreliable old age. In the east trench, sample Yucca-3 could not be dated; Yucca-4 yielded a ~4,170ybp age.

The east trench was extended south to evaluate active fault potential on the adjacent property and to establish a 50 foot buffer zone. Charcoal samples collected and identified as Yucca-4 and Mill-1 on the west wall of the east trench yielded radiocarbon dates of ~4,170ybp and ~4,280ybp, respectively (GDC, 2014a). Other samples (Mill-2 though Mill-7) were retained for age assessments of sediments on the adjacent property, Site 1 (Plate 1) to the south.

3.0 GEOLOGIC FRAMEWORK

3.1 REGIONAL GEOLOGIC SETTING

3.1.1 STRUCTURE

The Santa Monica Mountains began uplift in the Jurassic, and intermittent tectonic movement continues to the present (Hoots, 1930; Hoots and Kew, 1931; Dibblee, 1991). By the middle Miocene, deformation affected Topanga sediments, resulting in simple, west-plunging folds. Later, in response to continued movement of San Andreas plate boundary faults, high-angle normal offset gave rise to an incipient Hollywood Fault Zone.

Periodic faulting since the late Miocene produced more complex deformation replete with locally intense folding. In the study area, the southeastern limbs of local folds were displaced downward



along the Hollywood Fault Zone. By the onset of the Quaternary, many folds were buried by episodic, climatically controlled alluvial deposits that covered most of the study area. Starting at least by mid-Quaternary time, the surface expression of local left-lateral and thrust faults (left-oblique) were generally buried by continuing region-wide alluviation. Great relief was generally expressed along major south-trending canyons that incised the alluvial cap(s), only to be again partially filled in response to regional change in climate.

3.1.2 HOLLYWOOD FAULT

The Hollywood Fault Zone forms the general boundary separating the LA Basin (Hollywood Subbasin) from the Transverse Ranges on the north and the Peninsular Ranges on the south (CGS, 2014). From west to east, the Hollywood Fault is generally divided into five segments all characterized by left-lateral oblique slip (Figure 9). The preliminary inferred eastern terminus of Segment 2 trends southeast across Site 2 and then east immediately south of Site 3 (Figure 1; CGS, 2014). This is the Argyle Strand of GDC (2014a). Now, the official strand parallels Yucca Street west of Site 4. The west end of Segment 3 is inferred to trend southwest to the southeast of Site 4 and then to "die out" southeast of the subject site (Site 4; Figure 1).

The locations and relative activity of the Hollywood Fault segments stem mostly from the investigations of Dolan and others (1997, 2000) who based their conclusions mainly on geomorphic expression, possible offset of alluvial fans flanking the southern Santa Monica Mountains, previous geotechnical studies by LA Metro, and differences in groundwater levels as depicted in geotechnical borings.

Based on the California Division of Mines and Geology (CDMG) Open-File Report in 2006, GDC (2006), during a geotechnical investigation of the Site 2 area, encountered groundwater in its borings B-1 and B-2 at depths of 24 and 44 feet, respectively. During its recent investigation, GDC (2014a) found that in the Yucca West Trench a mudflow stratum was wet near and below the contact with the Argyle Channel Deposits at ~27 feet below ground surface (bgs). Free water occurred at about ~35 feet bgs.

The east and west trench exposures demonstrate the presence of many confining beds intercalated into the host deposits. Perched water on beds of different elevations likely gives rise to the 20 foot vertical differences of piezometric surfaces recorded in adjacent, on-site geotechnical borings. This separation was the likely basis for the CGS postulated presence of a Hollywood Fault, "Argyle Strand" (CGS, 2014a). Again, from the site-specific trench exposures, GDC documents that the local perched water levels are not caused by any inferred fault.



3.2 TECTONIC-GEOMORPHIC SETTING

3.2.1 REGIONAL ANALYSIS

Hoots and Kew (1931; Figure 3) initially identified a "bedrock fault" about 2,000 feet north of Site 4 (Figure 3) inferred to be a strand of the Hollywood Fault Zone. The fault characteristically superposed Miocene Topanga Formation rocks over the younger upper Miocene Modelo Formation (Hoots and Kew, 1931).

Recently, fault locations have been based on tectonic geomorphic expression (for example, CGS, 2014 (summary); Crook and others, 1983; Dolan and others, 2000, 2000a; Dolan and Pratt, 1997; Dolan and others, 1997; Tsutsumi and others, 2001; United States Geological Survey, 2005). It is only trench exposures that provide locations as well as relative activity information useful for dating last time of surface rupture.

Nevertheless, GDC also analyzed the geomorphic and topographic expression of the northern Los Angeles Basin/Hollywood area that encompasses Site 4 and its environs. For example, the USGS Burbank 7.5' Quadrangle (1926 edition; reprinted in 1941) depicts west-to-east topographic breaks and truncated ridges that mark the traditional trend of the Hollywood Fault north of Site 4 (Figures 5, 7, and 8). Presumably, the topography stemmed from surface rupture. However, the on-going GDC investigations of Sites 1, 2, and 3 (GDC, in progress, 2014a, 2014b) show that the truncated ridge immediately south of Site 3 is likely erosional and not fault related.

From the geomorphic expression, as well as from trench exposures and core data, GDC reconstructed general landscape evolution in the area over the past ~300ka. In brief, throughout the Quaternary, regional changes in climate and vegetation resulted in deep channel cutting, partial alluvial filling, and locally later re-incision.

The most recent regional depositional event is expressed geomorphically by late Pleistocene and Holocene alluvial fans that emerge from the mouths of three canyons at Argyle Avenue, Vine Street, and Beachwood Drive. These are informally called the "Argyle," "Cahuenga" and "Beechwood" fans, respectively (Figure 6). As exposed in the Yucca (Site 2) trenches, the Argyle Fan includes a distinct basal channel (thalweg and basal gravel beds) and overlying mid-Holocene distributaries. The eastern distributaries lapped against a now-buried "channel wall" mantled with older mudflow and debris flow deposits (Plate 2).

A pre-Holocene channel similarly extended immediately southwest and west of Site 4 as indicated by sediments exposed in the Yucca East trench and in adjacent cores. The channel incised into the base of ~300ka "older alluvium" (Qoal) that once extended across the entire area but is now surficially preserved only at the Argyle and Champion sites (Plate 1). The eastern boundary of this channel was then filled with likely climatically controlled up-channel slope and



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side slope mudflows (Qm). As shown in the Yucca trenches, the mudflows typically mantle the Miocene Formation and older alluvium and underlie the basal Argyle (Holocene) channel deposits (Plate 2, Cross-Section A-A).

3.2.2 AERIAL PHOTOGRAPH ASSESSMENT

GDC also interpreted aerial photographs to evaluate the possible presence of Hollywood Fault strands (Dolan and others, 1997, 2000) that potentially could affect the Argyle property (Site 4). Specifically reviewed were oblique aerial photos from the UCLA Benjamin and Gladys Thomas Air Photo archives and Continental Aerial Photo collections. The aerial photographs show that the area south of the truncated ridges, usually given as evidence of fault surface breaks, was graded and developed prior to the dates of the flights, thereby eliminating geomorphic expression of inferred faulting in the immediate area.

3.3 LOCAL GEOLOGIC SETTING

Site 4 (Argyle), except for western margin where younger alluvium is present, lies on pre-Holocene older alluvium (Qoal) that rests on bedrock of the Modelo Formation (Tm; Figures 9 and 10). The older alluvium, and to some degree the underlying Modelo Formation, form the west-facing slope of Argyle Canyon. After channel incision, younger deposits useful for determining fault ages were laid down in the Argyle Channel, including Pleistocene older alluvium (Qoal) and mudflows (Qm), and Holocene sand deposits (Qs).

None of the younger sediments useful for dating last fault slip were exposed at Site 4. However, their presence at the Yucca (Site 2) trenches permits conservative projection of the trends of the related Site 3 and 4 fold and faults into the Yucca site area used for soil-stratigraphic dating (GDC, 2014a). Thus by association of the geologic structure and stratigraphy, fold/fault projections can be made from Site 2 to Sites 3 and 4.

3.3.1 STRATIGRAPHY

GDC described and otherwise analyzed site-specific core and trench-exposed sediments according to their physical properties and relative soil profile development (Appendix B). GDC recognizes three useful mappable units deposited above bedrock (Figure 10): the upper sands of the "Argyle Channel" deposits (Qs), an immediately underlying mudflow (Qm), and a lower complex of interbedded older alluvium (Qoal). These, in turn, are underlain by Miocene Modelo Formation (Tm). GDC describes the sequences starting from the youngest (Artificial Fill) to the oldest (bedrock) as documented in the trench logs, cores, and CPT's (Plates 1 through 7; Figure 10).



3.3.1.1 ARTIFICIAL FILL (Qaf)

Surficial artificial fill blankets the areas explored at Argyle. In general, where encountered, the fill was excavated with little difficulty and proved little hindrance to excavation.

3.3.1.2 HOLOCENE SAND (Qs) (ARGYLE CHANNEL DEPOSITS)

The sands and gravels of the Argyle Sand were and are derived from Santa Monica Mountains terrane and were transported south down canyons as broad alluvial deposits (Figure 6). The Argyle Sands, in general, are poorly to well sorted. The quartz sand grains are generally subrounded and frosted indicating impact with other Argyle Channel sediments during fluvial transportation. This sand occurs mostly in the western part of the site in the now-sediment-filled Argyle Channel (Figure 12; Plates 12 through 14). At the study site, the sand unconformably overlies Pleistocene mudflow deposits (Appendix B; Plates 11 through 14).

The Argyle Sand was dated using soil-stratigraphic and radiocarbon methods. These deposits consist of loose to moderately dense, gradationally bedded and sub-rounded to sub-angular sands with local, weakly cemented gravely sands. Slightly to moderately developed paleosols occur within the sands and gravels (Appendix B). The sands and gravels are mostly basaltic and meta-quartzite with some granitic clasts. The granitic gravels and cobbles are mostly decomposed in place forming angular gruss. The sand ranged from fine- to coarse-grained with occasional fine- to medium-grained gravel and cobbles and weathered silty soil horizons. Gravels and cobbles were concentrated along unconformities and bottoms of cut and fill channels, identifying grossly fining-upward sedimentation sequences. Both clastic sands and gravels units were occasionally capped with buried paleosols that reflect alternating epochs of deposition and relative landscape stability (Appendix B).

3.3.1.3 PLEISTOCENE MUDFLOW DEPOSITS (Qm); SITE 2 AND BORINGS NORTH OF YUCCA STREET

The Argyle Channel sands are immediately underlain by almost ubiquitous and clearly identifiable mudflows (Qm), as exposed in nearby Site 2 trenches (GDC, 2014a) and in core holes along Argyle Avenue immediately west of Site 4 (Figure 12). Mudflow deposits occur in the now-buried Argyle Channel, but are absent on the elevated interfluve on which most of the study site lies (Figure 12). The deposits are in angular unconformity with both the Modelo Formation and the older alluvium, and are unconformable with the overlying Argyle Sand.

Typically, the mudflows are stiff silts and clays with abundant sand and some fine-grained gravel. Locally, the lower part of the unit is richer in clay. Along the north part of Site 4 (Cross-Section K-K'), the upper part of the section seemingly has a larger sand fraction, perhaps because of locally derived side slope mudflow derived from the older alluvium or a change in upstream



source or flow velocity. The mudflow deposits are significantly enriched in clay compared to both the older alluvium and the well-stratified sands of the Argyle Sands.

General grain-size and stratigraphic position indicate the mudflows initially filled an incised canyon. That is, the fine-grained nature of the deposits has been interpreted to indicate that they emanated from the upper reaches of Argyle Canyon and filled the lower part of the canyon and were thence incised by modern Argyle Canyon Flow. They now appear to drape over a paleotopography formed by modest erosion into the folded older alluvium deposits, but are themselves internally horizontal. The Argyle Sands that unconformably overlie the mudflow deposits have significant channel incisions into them.

The mudflow deposits have been pedologenically dated as minimally at least 30-35ka based on several soil development descriptions. The Site 2 trenches provide the best evidence of the age and characteristics of the unit. For example, a remnant buried paleosol in a Site 2 trench was measured and described (Appendix B). The paleosol is typified by few, thin, reddish brown clay films that line ped faces and bridge mineral grains, characteristics indicative of weathering for at least ~12-15ka. The soil itself may be much older, for the upper part with diagnostic horizons is eroded, incised by basal gravel and coarse-sand of the overlying Argyle Channel deposits. Accordingly, as documented in east trench exposures, typical mudflow deposits that were not reworked bear more strongly developed paleosols, typically ~30ka or more in age.

The mudflow clay (Qm), exposed in the Site 2 east trench, is at least ~30ka and unconformably caps the older alluvium deposits (Qoal). The mudflows on the bottom of the west trench are mainly derived from reworking of the ~30ka paleosol as discussed in Appendix B and from eroded sediments that flowed down Argyle Channel. To the south, along Cross-Section A-A', as observed in core boring B-2, the mudflow (Qm) which caps the older alluvium deposits (Qoal) within the east trench has been recognized as the ~30ka paleosol. Because the mudflow sediments (as described in the east and west trenches, CPT's, and soil cores) have different age intervals but similar origins, they have been mapped as one unit (Qm).

The section of the mudflow deposit in the west trench is uncomformable with the overlying Argyle Sand and was found to have a relative weathering date of ~12ka to 15ka along the unconformable contact with the Argyle Sand. The unconformity between the Sand "Argyle Channel" (Qs) and underlying mudflows was clearly observed in the trenches, and in most cores and CPT's where it is a distinct marker separating Holocene and Pleistocene sediments.

The distinct mudflow core samples and unique CPT signatures show that the unit is traceable from Site 2 up Argyle Channel north of Site 4, and are thus useful for determining the presence or absence of faults along Cross-Sections L-L' and K-K'.



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3.3.1.4 OLDER ALLUVIUM (Qoal); SITES 3 AND 4

The Site 4 (Argyle) trench exposed older alluvium composed of consolidated non-marine sand, silt, and gravel beds (Plate 10). Based on the CPT-soil core transects (Plates 12 and 13), the older alluvium lies in angular unconformity with the Miocene Modelo Formation bedrock. Bedding planes within the Modelo are almost vertical whereas the older alluvium, though involved with folding, dips less steeply. Distinctly bedded gravelly, sandy, and reddish silty beds typify the older alluvium. Generally, alternating sequences include coarse-grained, sometimes cobbly, sand overlain by finer grained silt beds (Photograph 2).

The unit is a vestige of a once extensive alluvial plain later incised by local south-trending canyons. The older alluvial deposits are judged to be ~300ka or older (Appendix B), and thus provide excellent key beds for determining the presence or absence of faults.

In sum, based to a great degree on extrapolation of stratigraphy exposed in the Yucca and Champion trenches, as well as abundant CPT-soundings and core holes, GDC (2014a, 2004b) reconstructed a regional model for landscape evolution and age for Site 3 and Site 4.

3.3.1.5 MIOCENE BEDROCK (Tm); SITES 2, 3, AND 4

The bedrock underlying this site is the Miocene Modelo Formation as mapped by Hoots and Kew (1931). The local Modelo Formation is generally soft, light-gray to brown, well bedded shale with isolated hard platy siliceous shale and massive to thin beds of sandstone, siltstone, and massive conglomeratic sandstones. Volcanic ash also occurs. Modelo Formation observed in soil cores are typically thin sequences of gray to greenish gray sandstone, siltstone, and claystone below a weathered zone of variable thickness.

At Site 4, the upper weathered bedrock near its contact with the older alluvium is plastic to stiff and lacks sedimentary and pedological structure. With depth, the Modelo Formation is gradually oxidized as typified by dark gray to black, thinly bedded sandstone, claystone, and fissile clayey shale.

Based on core samples taken north of Yucca Street, the formation is seemingly strongly deformed as evidenced by distorted beds that are nearly vertical. The bedrock is thus in angular unconformity with the more moderately dipping older alluvium that in turn is overlain by unconformable and undeformed upper Pleistocene mudflow deposits (Plates 11, 12 and 13).

3.4 LOCAL STRUCTURE

The Holocene Argyle Sand was inherently disturbed during the coring process. However, the underlying contact with the Pleistocene mudflow deposits and older alluvium proved to be an abrupt, continuous and unbroken erosional unconformity. In contrast to the Modelo and older



alluvium, the capping Holocene Argyle Sand and the Pleistocene mudflow deposits are relatively tabular and not faulted.

3.4.1 YUCCA STREET ANTICLINE

Investigations of Argyle (Site 4) and nearby properties to the west and south, respectively (Sites 2 and 3), show an anticline with an axis almost coincident with Yucca Street (Figure 12 and Plate 1). This structure is a low amplitude local fold; however, alternatively, it might be the "crest" of a larger regional anticline. A more complete characterization awaits more data from other investigations in the central Hollywood area. For description, GDC deems the fold as the "Yucca Street Anticline."

The Yucca Street Anticline was first recognized in Site 3 and 4 trenches (Plates 1, 8, and 11; GDC, herein). The Site 3 trench exposed near-horizontal older alluvium in the north (near Yucca Street) that increasingly dips 15 to 30+ degrees to the south in the southern part of the trench (Plates 1 and 8). Trenches on Site 2 (Plates 3, 5, and 6) revealed south-dipping Pleistocene debris flows younger than the Site 3 older alluvium. In contrast, exposures to the north at Site 4 exposed north-dipping older alluvium (Plate 11), thereby defining an anticline with an axis about coincident with Yucca Street. The general geologic relationships are schematically illustrated in Plate 10.

Based on the site-specific exposures and from models of such folds, GDC reasonably infers that the anticline owes its origin mainly to regional transpression, likely along the offsite Hollywood Fault. This reasoning is exemplified in Site 2 Cross-Sections A-A' and B-B'-B" that depict the folded sediments and their relation to overlying — and unbroken — upper Pleistocene and Holocene deposits (Photograph 4). A stereonet plot of the bedding attitudes at Sites 3 and 4 shows them consistent with a fold that trends west-northwest (Figure 11).

3.4.2 FAULTS

A set of small-displacement non-active faults associated with the Yucca Street Anticline bear on this assessment of fault activity levels. Additionally, the GDC investigations also found geologic structures that seemingly provide clues to local regional faults, possibly the Hollywood Fault Zone.



3.4.2.1 BENDING MOMENT/SHEAR FAULTS

Site 3 and 4 trenches exposed several low-displacement, south-dipping faults with stratigraphic separations of less than about two feet (Plates 8 through 10, and 13). Photograph 3 illustrates a typical Argyle fault. These likely stem from two separate but coeval stress fields. In crosssection the faults clearly are a product of dilation during folding and are thus "bending-moment" faults stemming solely from localized stress fields that are active only during the folding event(s) (Billings, 1956; Zolnai, 1986; Yeats 1986). For example, at Site 4, the faults dip characteristically south toward the fold axis near Yucca

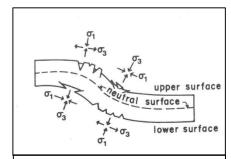


Figure A. Bending-moment faults showing local stress fields. Note: Upper surface faults cannot propagate below the neutral surface (Yeats, 1986).

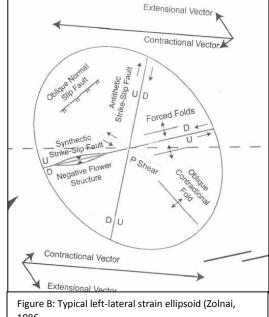
Street; at Site 3, south of the subject site, the faults dip north toward the axis.

These are shallow-rooted non-active faults that form on the upper surfaces of anticlines as portrayed in Figure A from Yeats (1986). For example, in the Argyle trench (Plate 11) GDC logged three faults that die out with depth within the trench, thereby suggesting that the bendingmoment faults are shallow rooted.

Also present in the trench (Plate 11) are scattered well-developed joints that seemingly are

complements to the faults. They plot on the stereograph (Figure 11) as possible complements.

Stratigraphic mismatches of beds across some faults strongly suggest a lateral component of slip (Plates 8 and 11). The Yucca Street Anticline is a generally leftoblique transpressional stress field as exemplified by the Hollywood Fault. And its trend is consistent with the much-cited classical strain ellipsoid of a left-lateral system (Figure B). GDC concludes that the anticline stems from left-lateral shear perhaps related to the Hollywood Fault that historically has been mapped north of the study site. In sum, the lateral component is consistent with its past tectonic environment. These are thus shear faults resultant to now-ceased stress that gave rise to the now-inactive Yucca Street Anticline.



1986.



The California Community Fault Model (Meigs and others, 2008) lists the Hollywood Fault to have a reverse slip rate of about 0.7mm/yr and a lateral slip rate of 0.6mm/yr and the preferred WGCEP model (2006; from Meigs and others) is 0.5mm/yr vertical slip and .0.4 lateral slip. The overall estimated slip is near 1:1. Although individual faults within the Hollywood Fault Zone might not possess the same ratio, judging from lack of distortion and mastication of the older alluvium along fault traces, GDC deduces that lateral slip was perhaps no more than a few feet.

Billings (1956; Figure C) depicted similar faults as "shear joints" or "fractures" along which relative small displacements occur. The dominant trends at Site 4 are northeast-southwest. Assuming the fault attitudes measured near the ground surface in the trenches represent the entire fault planes, the principal trends are not parallel to the anticline axis. One fault in the Argyle trench shows a reverse rather than normal component. This might result from stratigraphic mismatches. Or conversely Sylvester

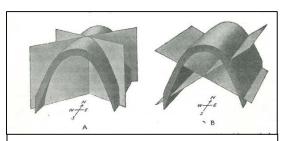


Figure C. Idealized representation of shear joints and faults associated with anticlines. From Billings (1956).

stratigraphic mismatches. Or conversely, Sylvester (1988) noted that such reverse faults can occur in a generally dilatational environment.

These Site 3 and 4 faults are seen neither in the Site 2 trenches (Figure 13) nor in associated CPT-soil core cross-sections. GDC thus concludes that the Site 3 and 4 trench faults either do not displace the Site 2 sediments that are, minimally, 30ka, or are kinematically and geographically limited to the anticline crest and die out laterally and vertically.

Figure 13 illustrates the current GDC interpretation of the local geologic structure based on review of earlier published and proprietary reports, aerial photograph review, and tectonic geomorphologic assessment. In particular, recent detailed GDC subsurface investigations of the subject site and nearby Sites 1, 2 (GDC, 2014) and 3 (in progress) brought forth abundant previously unknown subsurface information on which to base GDC interpretations.

3.4.2.2 ARGYLE STRAND

The Argyle Strand shown on the AP Official Map (Figure 1) now trends east nearly coincident with Yucca Street and then terminates west of Argyle Avenue. Investigation of Site 2 ("Yucca") revealed that the previously "preliminary" (CGS, 2014a,b) Argyle Strand of the Hollywood Fault Zone, if extant, does not displace Pleistocene sediments that are at least 300ka. Site 2 exploration trenches, CPT-soundings and core holes (GDC, 2014a) clearly demonstrate same. Logs of the trenches and CPT-borehole cross-sections (following text) demonstrate the absence of the inferred Argyle Strand to the depths explored.



Fault Activity Investigation NE Corner of Yucca Street and Argyle Avenue 1800 Argyle Avenue GDC Project No. LA-1175A

Cross-sections J-J', K-K, L-L', M-M' and N-N'' (Plates 12 through 16) located along and across Argyle Avenue and north of Yucca Street in essence cover the Site 4 and at least 50 feet north and south of the study site. These show Modelo Formaton overlain by Pleistocene older alluvium, Pleistocene mudflows and the Argyle Channel sands. Along the northern run of K-K, older alluvium fingers in between the Modelo Formation and overlying mudflow deposits at about elevation 385 feet above sea level. See Cross-section L-L' for example. The location of the older alluvium is consistent with the stratigraphic elevation encountered in B-9.

It must be noted that the north end of J-J' and the south end OF k-k' (with an about 20 feet overlap) do not match, thus giving the appearance of discontinuity. However, the transects are not parallel to the wall of the Argyle Channel, rather the transect was slightly askew to the wall. This resulted in the plotting of the geologic contacts lower that if the transect had paalleled the wall. Cross-Section L-L, shows how the apparent elevations of the contacts are out of context at the ends of the two cross-sections. Hence GDC constructed Cross-Section N-N' nearer the thalweg of Argyle Channel (Plates 1 and 16). Here, the run parallel to the ends of J-J' and K-K'. This demonstrate that the discontinuity is artificial. And that the stratigraphy is continuous and not faulted near the discontinuity.

By inspection, the upper Pleistocene mudflow deposits are laying unconformably on Modelo Formation and older alluvium in a normal manner. The deposits are unbroken along the runs of L-L', K-K' and N-N'. Transects show demonstrate the absence of Holocene faults along their lengths.

North of Yucca Street, bedding within the Modelo Formation dips almost vertically as shown in core samples. The cores were not oriented with respect to north; therefore, the directions of dips are indeterminate. The Modelo Formation along Argyle Avenue is thus in distinct angular conformity with the overlying more gently dipping Pleistocene older alluvium and mudflow deposits. Much of the Modelo deformation obviously took place long before deposition of the Pleistocene units. The steepened limb of the Yucca Street Anticline could indicate long (>~300ka) ceased deformation along a Hollywood Fault strand north of Site 4 and Cross-Section K-K' (Plate 13). It is thus inferred that the traditionally mapped trace of the Hollywood Fault lies north of the study site, but its trace is not known well enough for GDC to put on a map. Its location awaits further regional exploration by others. In sum, Figure 13 shows the GDC geologic interpretations based on the literature, tectonic-geomorphic assessment and recent detailed subsurface investigations and Figure 5 shows the GDC regional fault map based on the literature, tectonic-geomorphic assessment and recent detailed subsurface investigations and Figure 5 shows the GDC regional fault map based on presently available information.



3.4.3 DATE OF LAST FAULT SLIP/FOLDING

Growth of the fold and slip along the associated bending-moment faults ceased prior to at least ~35ka, based on trench documentation in the adjacent Yucca (Site 2) area. Geological information obtained from both the Site 2 and 3 studies southwest and south provides data for analysis of fault and fold geometry and age. The faults exposed at Site 3 (Plate 8 and 10) that are kinetically linked to those in the Argyle trench (Plate 11), if projected west to Site 2, would intercept deep trenches and CPT- core hole transects. As documented in Plates 3 through 6, no such faults were observed. Rather, one slip-surface (likely a non-active flexural slip

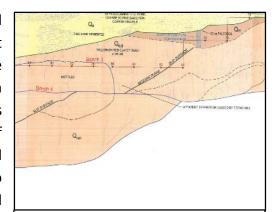


Figure D. Site 2. West wall of east trench (GDC, 2014a) showing bedding plane fault and south-dipping older alluvium (Qoal) truncated by Pleistocene mudflow deposits (Qm).

fault) and a fold limb are now shown to be demonstrably overlain by an unbroken or folded mudflow (Qm) that bears a remnant buried paleosol at least 30-35ka (Appendix B). Likewise, Cross-Sections J-J' and K-K' along Argyle Avenue west of Site 4 show that the upper Pleistocene mudflows and overlying sands are unaffected by faulting.

In sum, the upper Pleistocene mudflows and overlying Argyle Channel deposits (Qs) sediments are not disrupted by either faults or folds. Even conservatively, the displacements of the Argyle older alluvium took place prior to 30-35ka; therefore, the faults are not active according to Alquist-Priolo definitions.

Further, the nature of the Yucca Street fold indicates that the older alluvium strata are progressively younger to the south. Based on the beds exposed in Site 3, the strike is east-west and should be similarly exposed at the east trench walls. They trend slightly more southerly than the bedding, and would intersect the east trench where strata of similar age to those faulted in Site 3 would be below the trench bottom. The Older Alluvial strata that are exposed are younger than the faults because they are farther out on the outer limb of the fold. No north dipping faults occur, but a south-dipping sheared bedding plane was mapped, which is unconformably overlain by the Mud Flow Deposit unit (Cross-Section C-C', D-D; Appendix B; Appendix D, Photo 12).

The presence of "younger" older alluvium strata in the east trench, occurring directly on strike from Site 3 and with similar dips, but unfaulted, leads to the conclusion that the faults in the Older Alluvium of Site 3 are older than the Older Alluvium in the east trench, and as such have been inactive since ~30ka.

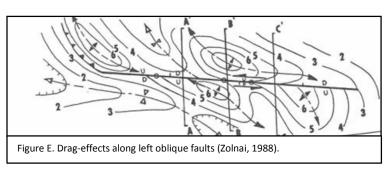


3.4.4 CAUSATION OF FOLD/FAULTS

Owing to the paucity of regional deep subsurface information, the kinematics for the formation of the Yucca Street Anticline remain enigmatic. However, the GDC investigations now provide much new information regarding evolution of the Hollywood Fault system.

Several hypotheses might explain origin of the Yucca Street Anticline. One is that it is a local fold on the upper plate of a south-vergent thrust fault. Recent GDC investigations at Sites 1 and 2 (GDC, 2014a, 2014b) placed trenches, borings, and CPT-lines across reasonable northwest and west projections of a postulated fault near the base of an escarpment along Carlos Avenue, east of Argyle Avenue. The explorations exposed or encountered only unbroken upper Pleistocene (Appendix B) sediments; any faults therefore are demonstrably pre-Holocene. It follows then that the Carlos Avenue escarpment owes its presence to geologic processes other than fault surface rupture along a foot slope fault.

A second hypothesis is that the anticline originated from a short duration perturbation in the stress-strain pattern along the Hollywood Fault. Inferentially, a short term pulse of transpression might have led to shear folding or, rather, the



fold is part of the strain along an oblique fault, such as the Hollywood Fault. Figure D in accordance with Zolnai (1988) is one of but many renditions of same.

3.4.5 LOCAL FAULT MAP

Figure 13 is a local fault map based on both the literature and new information gained from subsurface investigations of Sites 1 through 4. It should be realized that subsurface information away from those sites is at best sparse. Thus, the map is open to ongoing interpretation as more information is gathered by others at other sites. A summary of the current GDC interpretation is as follows. If those two faults are discounted, or at least the Argyle Strand, the structural geometry near Segment 2 and 3 (Figure 13) is typified by either a small left step or no step. The left step that the presence of the Argyle Strand implies is not consistent with the local geometry. A left step in a fault with left lateral slip would be an area prone to dilation. However, the Yucca Street Anticline is interpreted to be a product of local left-lateral transpression. Folding is constrained between 300ka and 30ka.

The location and trend of the Yucca Street Anticline is consistent with through going, rather than left-stepped, Segments 2 and 3 of the Hollywood Fault Zone. Additionally, strongly tilted Modelo



beds north of Yucca Street also argue for a fault north of Site 4. The age of formation of the anticline is between ~300ka and 30ka.

In sum, GDC encountered neither the Argyle nor Yucca Strands of the Hollywood fault zone within the limits of its subsurface exploration; if extant at the study sites, they are pre-Holocene. A west-northwest anticline that involves all units older than about 30ka-35ka about parallels Yucca Street (Plate H-H' and Figure 12).

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on detailed investigation of Site 4 and three adjacent properties in the Yucca-Argyle area of Hollywood that included fault trenches, CPT-soundings, and soil cores, GDC concludes that:

- 1. The Argyle site (Site 4) is underlain by ~300ka "older" alluvial deposits that are tilted and locally separated up to ~2 feet vertically by small faults that stem from warping of a southeast-trending anticline ("Yucca Street Anticline"). Some of the faults have stratigraphic mismatches suggesting an apparent lateral component of slip common to areas of transpression. No younger "datable" sediments overlie the older alluvium at the Argyle and Site 3 trench sites.
- 2. The Argyle faults are, however, dated by reasonable projection into the trench exposures at the Champion site (Site 3; GDC, 2014a, 2014b) south of Yucca Street and the Yucca site (Site 2; 2014a), across Argyle Street to the southwest, and into the Site 3 trench to the south (GDC, 2014b).
- 3. The southern anticline fold limb and a slip surface exposed in the Yucca East trench (GDC, 2014a) is covered by a horizontal, unbroken mudflow that bears a moderately developed paleosol estimated to be at least ~30ka-35ka old. The mudflow, in turn, is overlain by another ~12ka sequence of "Argyle Channel" sand, thus indicating that last site-specific deformation occurred prior to at ~40ka ago.
- 4. Based on structural and sedimentary modeling, the Argyle faults most likely originated in a stress system of combined tension along the dilating Yucca Street Anticline axis and concurrent left-lateral stress that initiated and continued left-lateral slip until the lateral stress ceased at least 3 years before present. Typically, such faults are neither active nor of regional extent.
- 5. Last displacement of the Argyle site faults and the genetically associated Champion site faults therefore took place prior to the Holocene, and hence are "not active" according to present State of California definition.
- 6. CPT/core hole transects along Argyle Avenue west of Site 4 (Plates 12 and 13) illustrate a complex, active erosion and deposition (cut-fill) environment within and near Argyle channel. However adequate stratigraphic continuity along the transects demonstrates the absence of Holocene and upper Pleistocene faults.



7. No active faults exist within the subject site or within 50 feet of the site boundaries, based mainly on extensive exploration of Site 2. Therefore, the site is suitable for development according to the requirements of the State of California Alquist-Priolo Act and the City of Los Angeles.



5.0 LIMITATIONS

The overall assessment of the geologic and fault hazard conditions, in this report, reflects GDC's professional opinions and is intended for the use by The Robert Green Company, and its design consultants. This report has been prepared solely for assessing seismic impact on the proposed development and may not contain sufficient information for environmental (hazardous waste) and geotechnical (foundation) purposes. The recommendations shall not be extrapolated to areas not covered by this report, or used for other facilities, without the review and approval of GDC and from The Robert Green Company. This report or any portion of this report may be provided to state, county or city agents for informational purposes only.

The GDC investigation and evaluations were performed in accordance with generally accepted local standards using that degree of care and skill ordinarily exercised under similar circumstances by reputable engineering geology and 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.



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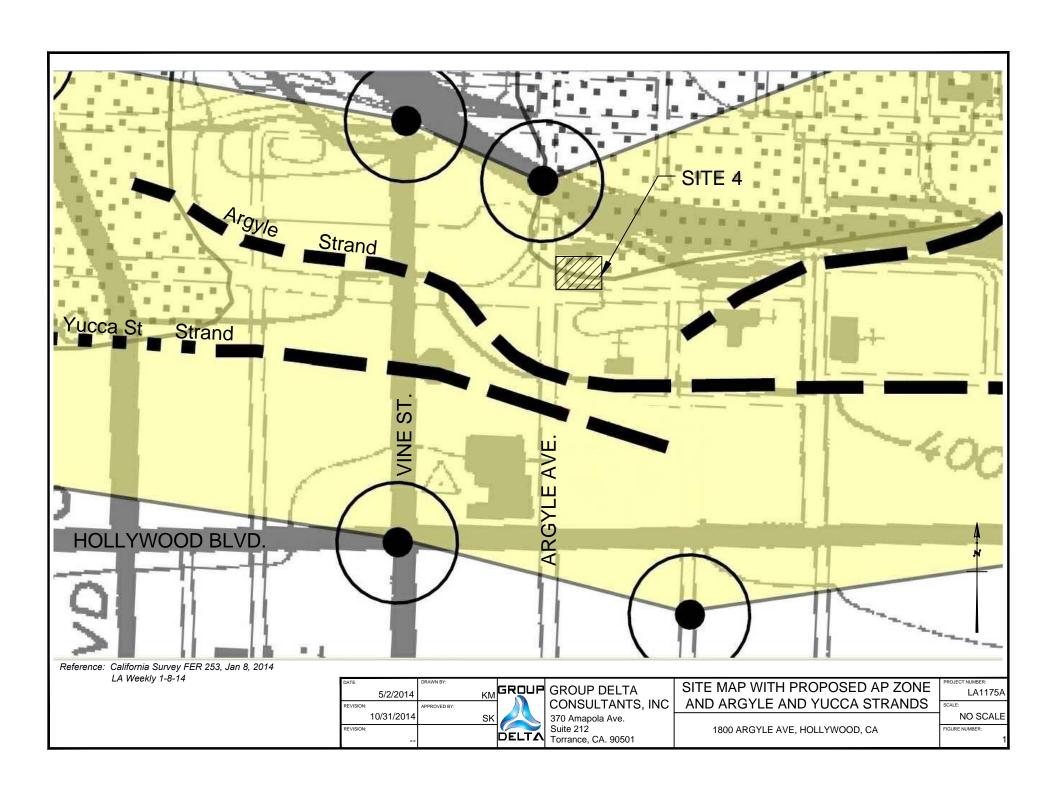
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FIGURES



Figure 1	Site Map Showing Proposed AP Zone
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Figure 2	CGS Quaternary Geologic Map
Figure 3	Local Geology Map, Hoots and Kew (1931)
Figure 4	Major Faults and Historical Seismicity
Figure 5	Burbank 6' Quadrangle, Showing Geomorphic Features, 1926, Reprint, 1941
Figure 6	Hollywood Fault Geomorphic Features, FER 253
Figure 7	Spence 1930 Oblique Aerial Photo Showing Geomorphic Features
Figure 8	Continental 1954 Aerial Photo Showing Geomorphic Features
Figure 9	Hollywood Fault Segment Plan
Figure 10	Stratigraphic Section
Figure 11	Stereographic Plot of Structural Geologic Elements
Figure 12	Geologic Map (in back pocket)
Figure 13	Hypothesized Hollywood Fault Segment Plan







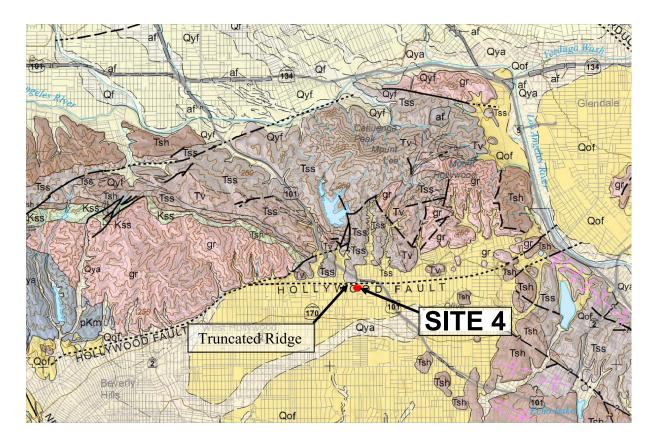


Figure 2: Regional geologic map of the area. Scale ~1:100,000. (California Geological Survey, Quaternary Geology Map of the Los Angeles 34x60 Quadrangle).

ſ	4/21/2014	DRAWN BY:		GROUP DELTA	CGS QUATERNARY GEOLOGIC MAP	PROJECT NUMBER: LA1175A
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	REVISION:		DELTA	Suite 212 Torrance, CA. 90501	1800 ARGYLE AVE, HOLLYWOOD, CA	FIGURE NUMBER:



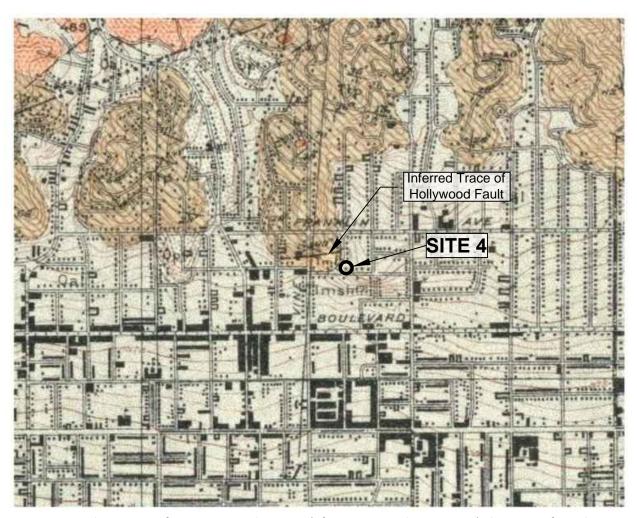
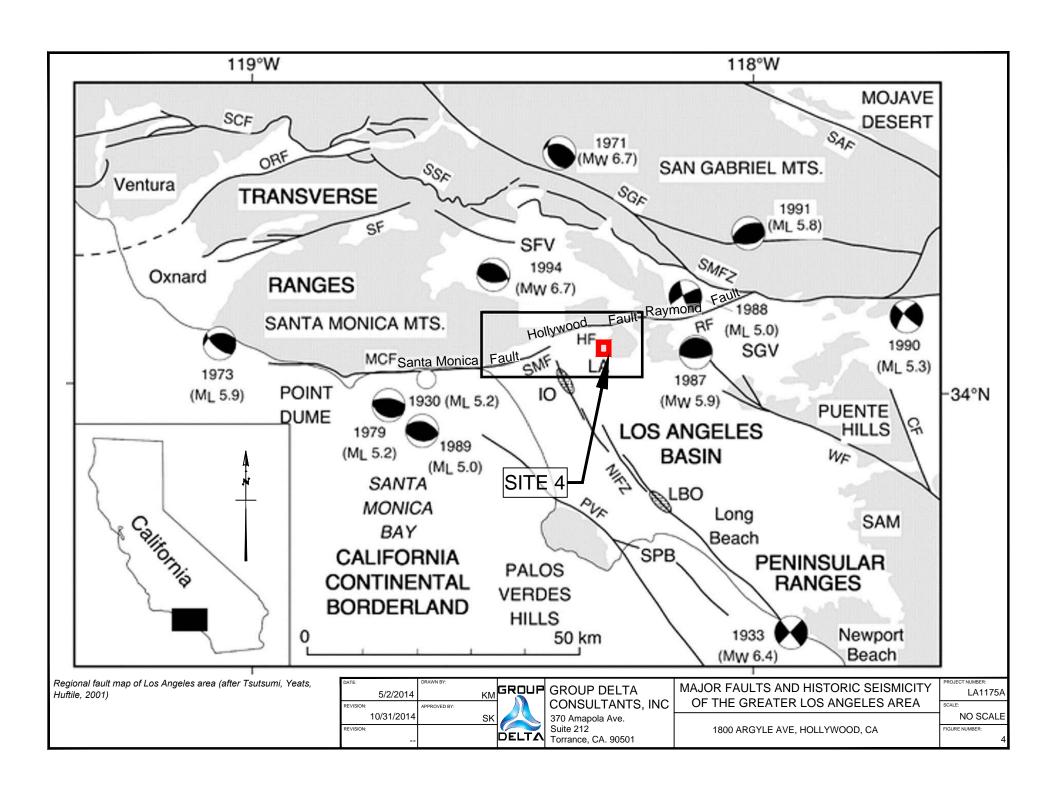
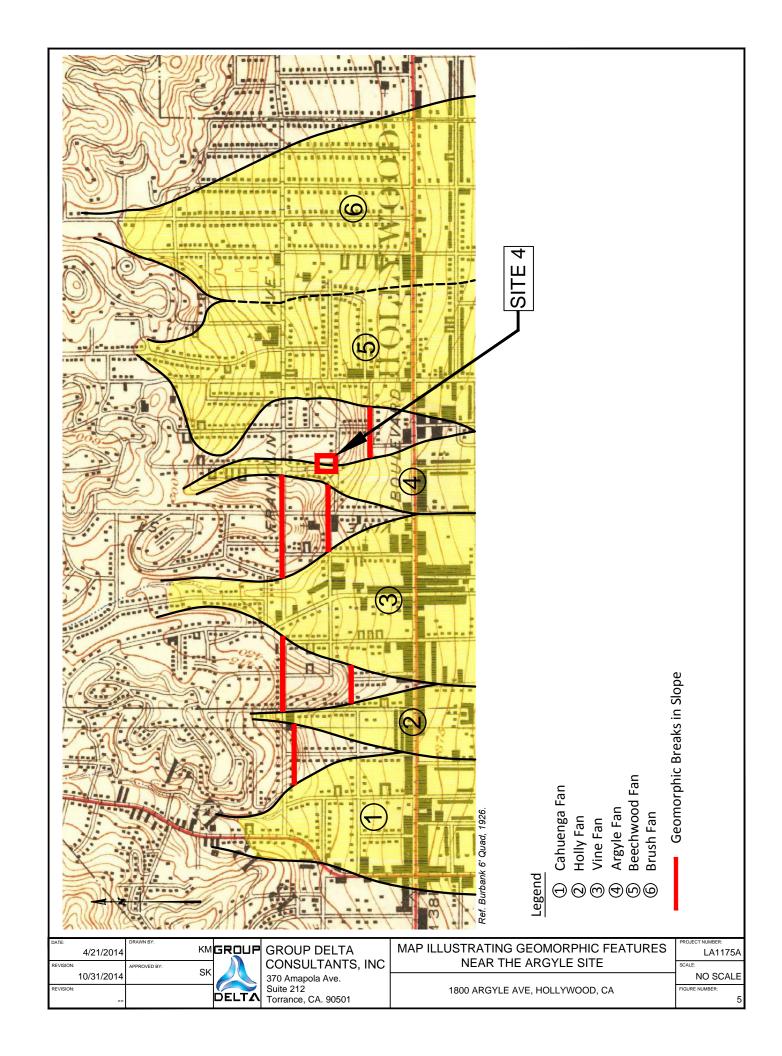


Figure 3: Geologic map of Yucca site and vicinity (after Hoots and Kew, 1931) showing inferred trace of a Hollywood Fault separating Modelo (T_m) , and Topanga (T_p) Formations, granite rocks, and alluvium (Q_{al}) .

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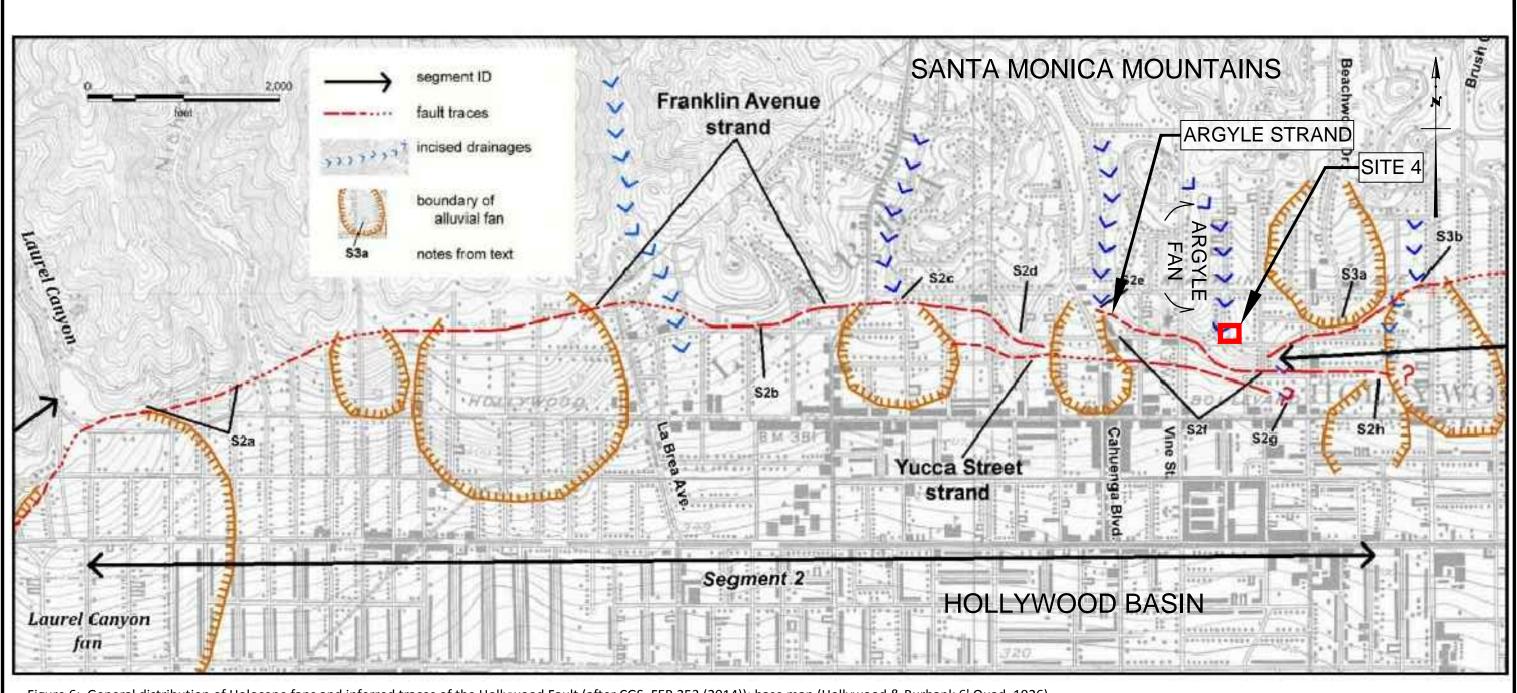


Figure 6: General distribution of Holocene fans and inferred traces of the Hollywood Fault (after CGS, FER 253 (2014)); base map (Hollywood & Burbank 6' Quad, 1926)

DATE: 4/9/2014	DRAWN BY:	KM GROUP	GROUP DELTA	HOLLYWOOD FAULT GEOMORPHIC	PROJECT NUMBER:
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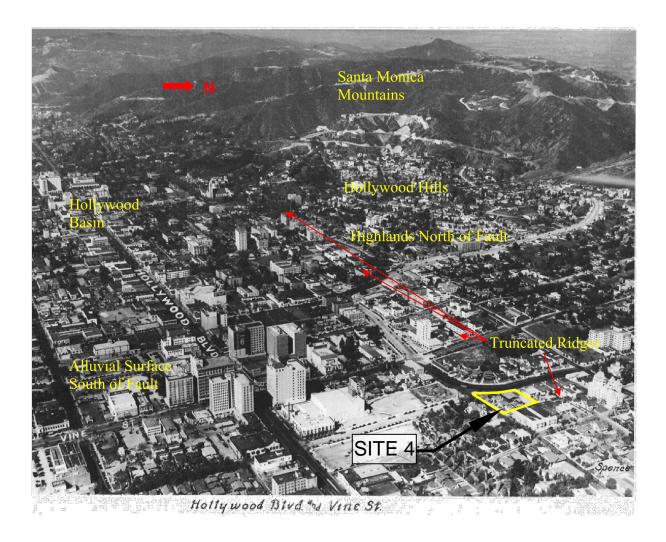


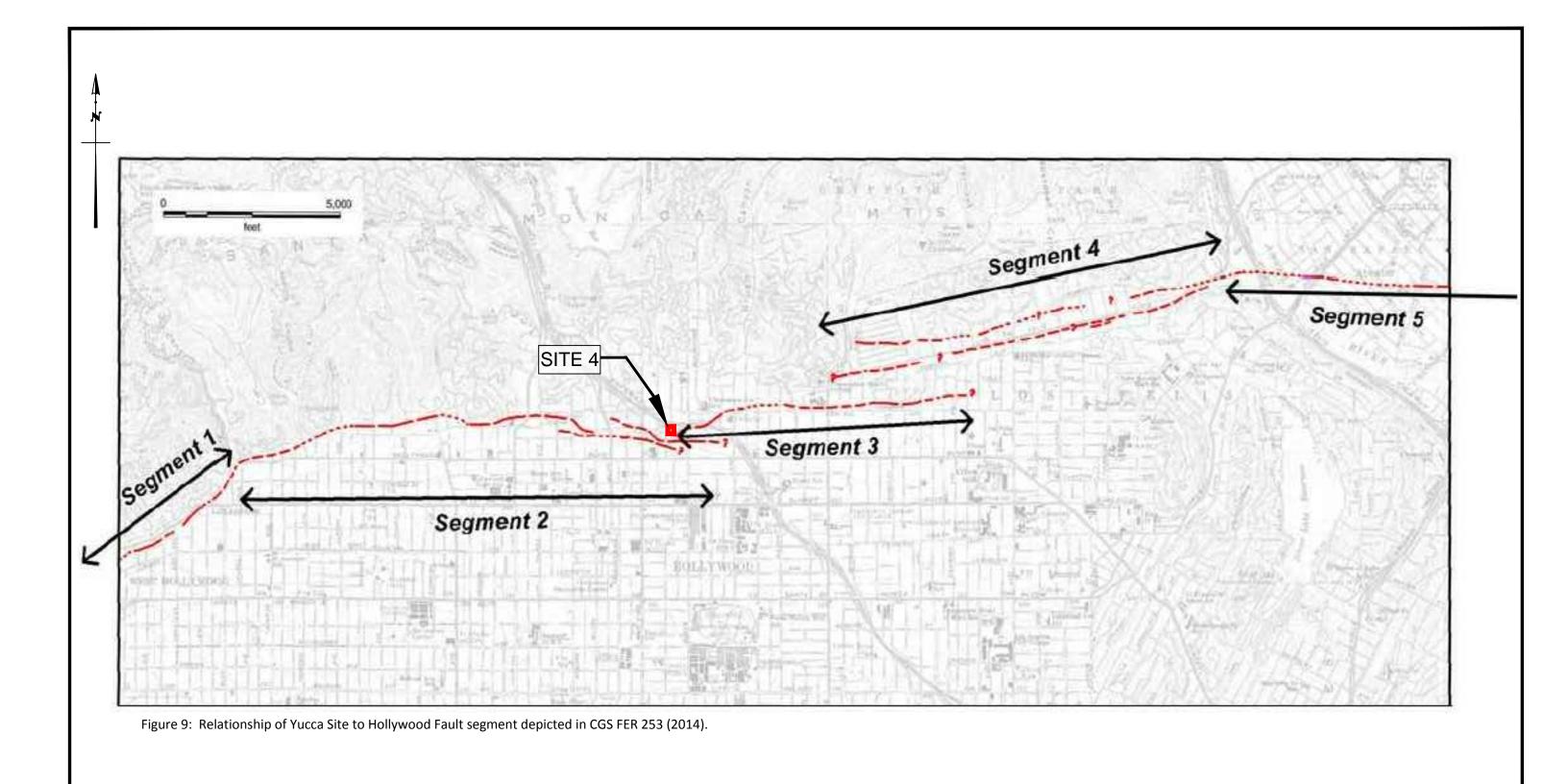
Figure 7: Approximate lineaments of the truncated ridges (red dashed line). (Spence Collections, 3-2-31, The Benjamin and Gladys Thomas Air Photo Archives, UCLA).

4/21/2014	DRAWN BY:	GROUP	GROUP DELTA	SPENCE 1930 OBLIQUE AERIAL PHOTO	PROJECT NUMBER: LA1175A
REVISION:	APPROVED BY:		CONSULTANTS, INC	SHOWING GEOMORPHIC FEATURES	SCALE:
10/31/2014	SN.		370 Amapola Ave.		NO SCALE
REVISION:		DELTA	Suite 212	1800 ARGYLE AVE, HOLLYWOOD, CA	FIGURE NUMBER:
		DELIZ	Torrance, CA. 90501		/



Figure 8: Approximate linear expression separating alluvial basin from Hollywood Highlands (red dashed line) based on aerial photo analysis. See Figure 6 for other geomorphic details. Scale unknown. (Continental Aerial Photo, 10-27-54).

4/21/2014	DRAWN BY:	GROUP	GROUP DELTA	CONTINENTAL 1954 AERIAL PHOTO	PROJECT NUMBER: LA1175A
REVISION:	APPROVED BY:		CONSULTANTS, INC	SHOWING GEOMORPHIC FEATURES	SCALE:
10/31/2014	SN		370 Amapola Ave.		NO SCALE
REVISION:			Suite 212	1800 ARGYLE AVE, HOLLYWOOD, CA	FIGURE NUMBER:
		DELIZ	Torrance, CA. 90501		8



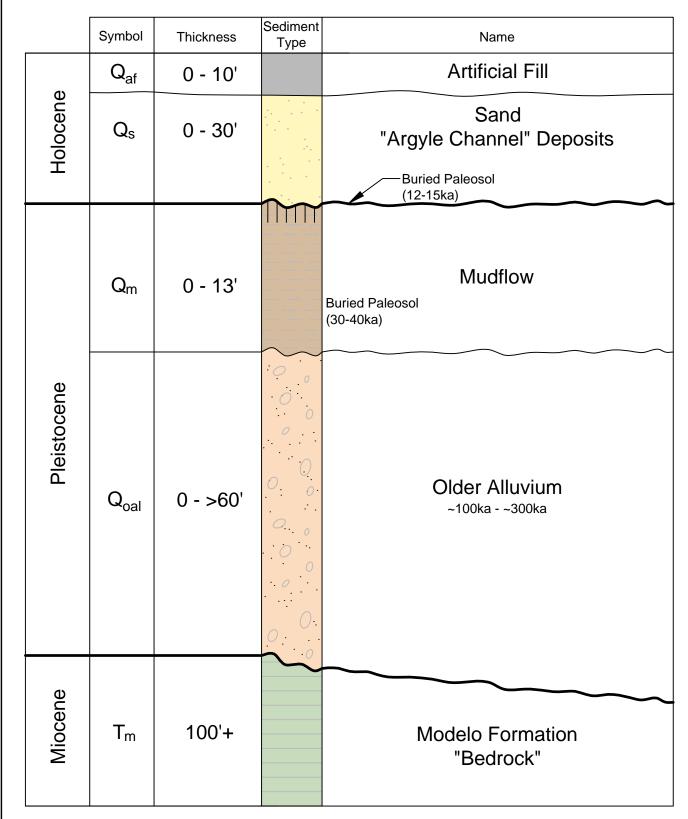
DAT		DRAWN BY:	GROUP	GROUP DELTA	
	4/9/2014	KM		l .	HOLLYWOOD FAULT SEGMENT PLAN
REV	ISION:	APPROVED BY:		CONSULTANTS, INC	
	10/31/2014	SK		370 Amapola Ave.	
REV	/ISION:			Suite 212	1800 ARGYLE AVE, HOLLYWOOD, CA
			DELIA	Torrance, CA. 90501	

LA1175A

NO SCALE

FIGURE NUMBER:

LOCAL STRATIGRAPHIC SECTION



STEREOGRAPHIC PROJECTION

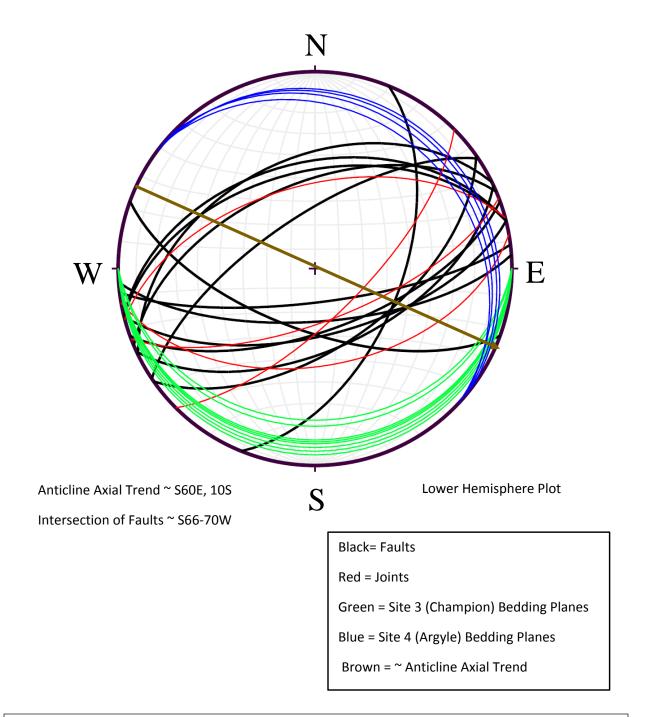
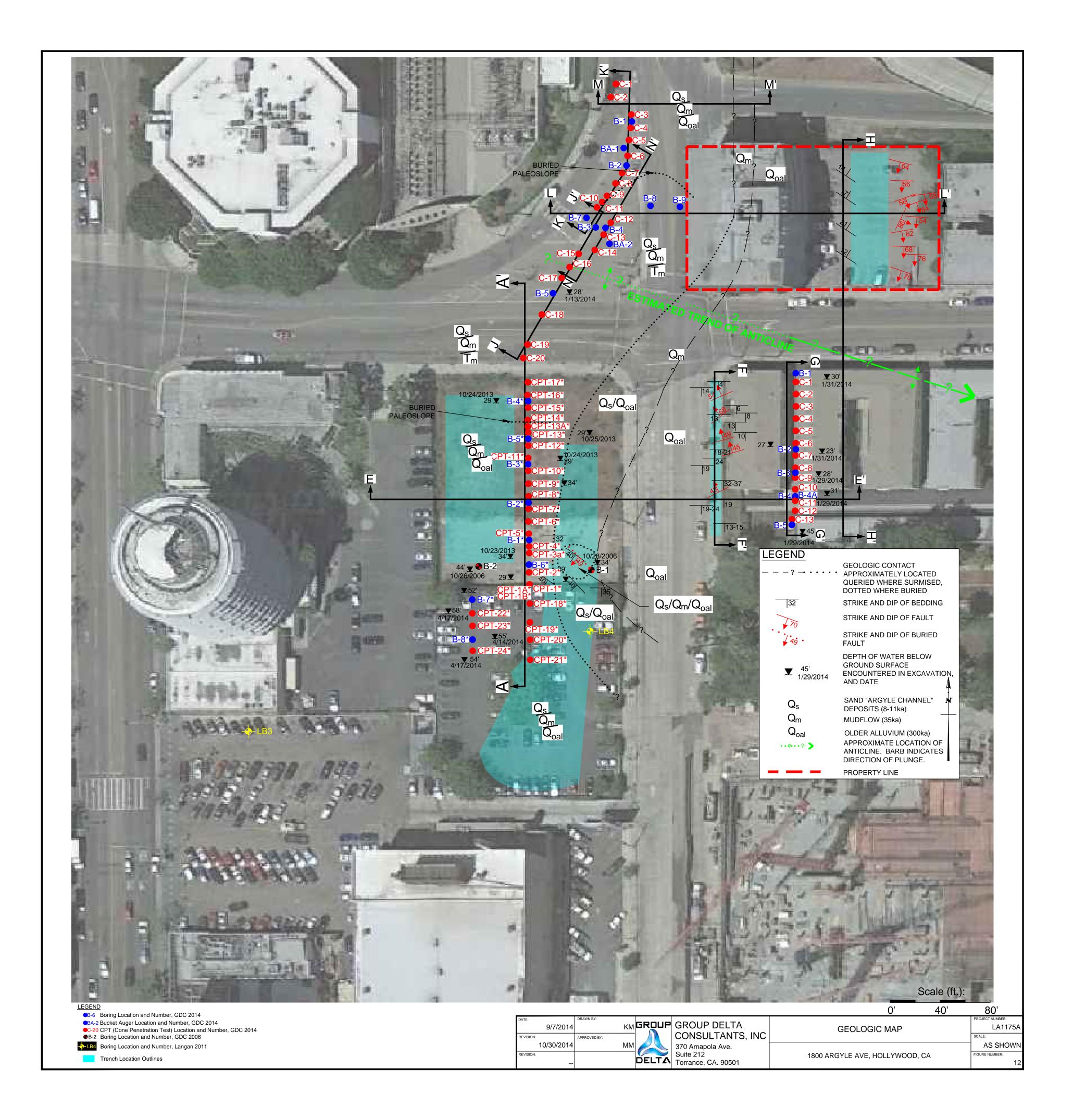
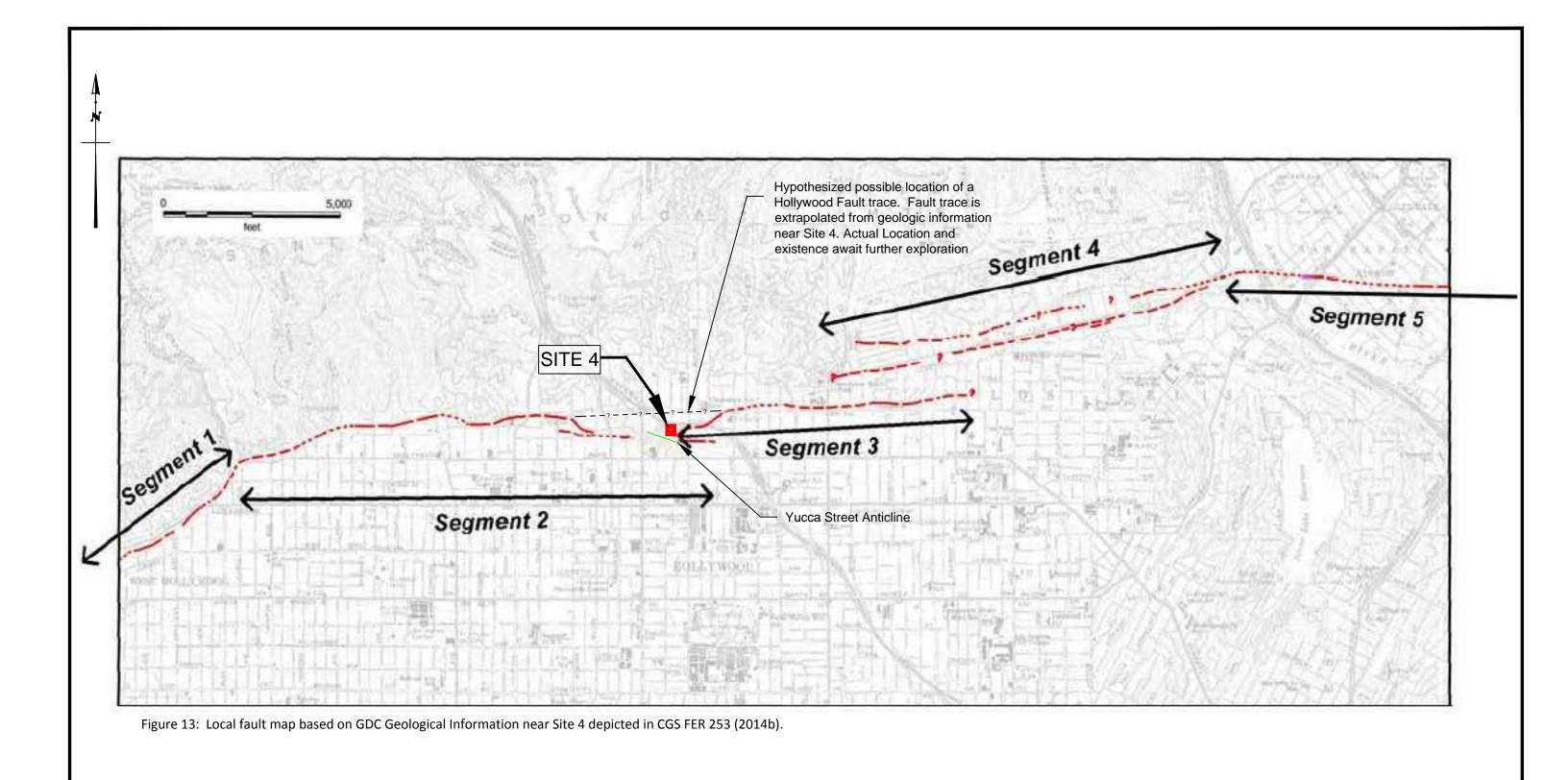


Figure 11. Stereo plot of faults, joints and bedding planes at 1800 Argyle Ave. (Site 4)

November 6, 2014 LA 1175A





DATE: 4/9/2014 REVISION:	DRAWN BY: APPROVED BY:		GROUP DELTA CONSULTANTS, INC	HYPOTHESIZED HOLLYWOOD FAULT SEGMENT PLAN	PROJECT NUMBER: LA1175
10/31/2014 REVISION:		SK	370 Amapola Ave. Suite 212 Torrance, CA. 90501	1800 ARGYLE AVE, HOLLYWOOD, CA	NO SCAL

November 10, 2014 Page 29

PLATES



Plate 1	Boring, CPT, and Trench Locations
CITE 2 (V)	
SITE 2 (Yucca)	
Plate 2	Cross Section A-A' (CPT/Soil Core) (Back Pocket of Report)
Plate 3	Cross-Section B-B' (West Trench) (Back Pocket of Report)
Plate 4	Cross Section B-B'-B" (West Trench and Logs) (Back Pocket of Report)
Plate 5	Cross-Section C-C' (East Trench – East Side) (Back Pocket of Report)
Plate 6	Cross-Section D-D' (East Trench – West Side) (Back Pocket of Report)
Plate 7	Cross-Section E-E' (East-West Schematic)
SITE 3 (Champ	<u>ion</u>)
Plate 8	Cross-Section F-F' (Champion Trench) (Back Pocket of Report)
Plate 9	Cross Section G-G' (Champion CPT/Soil Core)
SITE 4 (Argyle	or Green)
Plate 10	Cross-Section H-H' (Champion-Argyle or Green) Schematic
Plate 11	Cross-Section I-I' (Argyle Trench) (Back Pocket of Report)
Plate 12	Cross Section J-J' (Argyle CPT/Soil Core)
Plate 13	Cross-Section K-K' (Argyle CPT/Soil Core
Plate 14	Cross-Section L-L' (Argyle East-West)
	, ,,

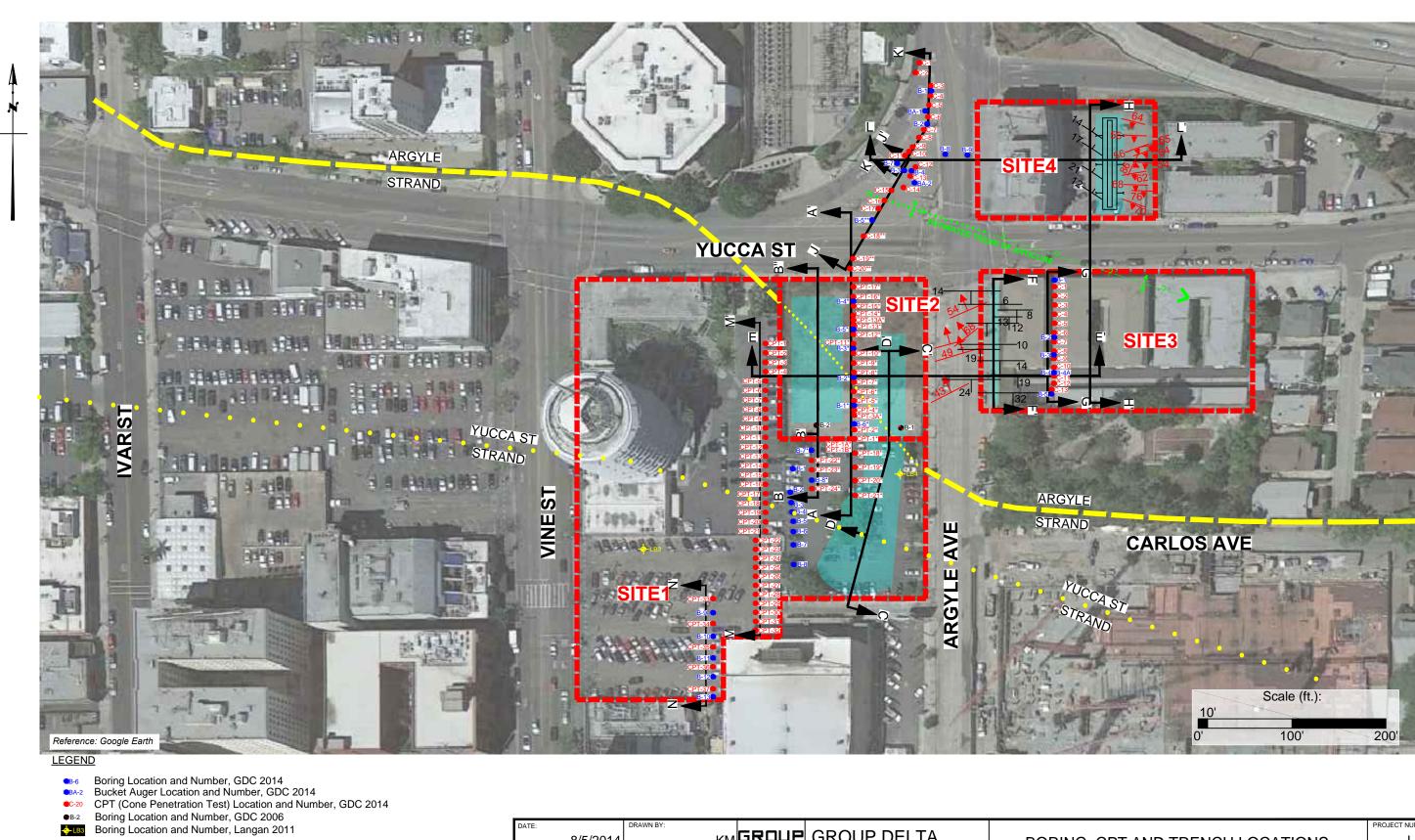
Cross-Section M-M' (North Argyle East-West

Cross-Section N-N' (Argyle North-South)



Plate 15

Plate 16



Trench Location Outlines

Strike and Dip of Faults. Barbs shortened owing limited space.

Strike and Dip of Bedding

Approximate location of anticline. Barb indicates direction of plunge.

DATE:		DRAWN BY:		
	8/5/2014		KM	G
REVISION:		APPROVED BY:		
	9/4/2014		MR	
REVISION:				
	10/31/2014			ם

ROUP	GROUP DELTA CONSULTANTS, INC
	CONSULTANTS, INC.
	370 Amapola Ave.

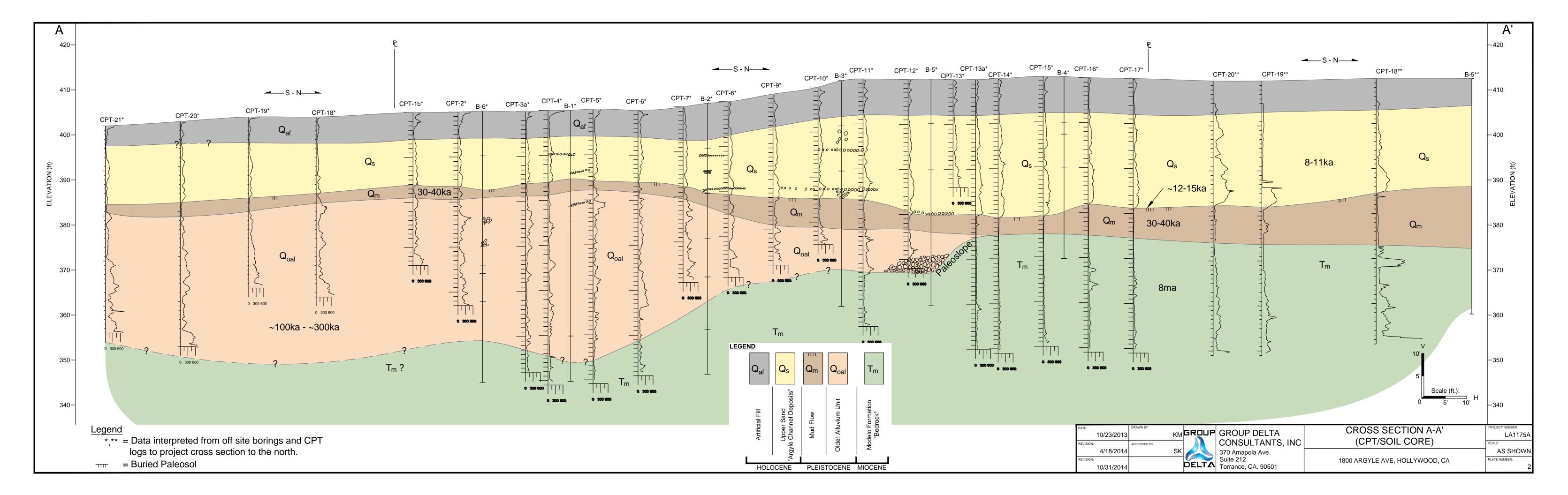
Suite 212 Torrance, CA. 90501

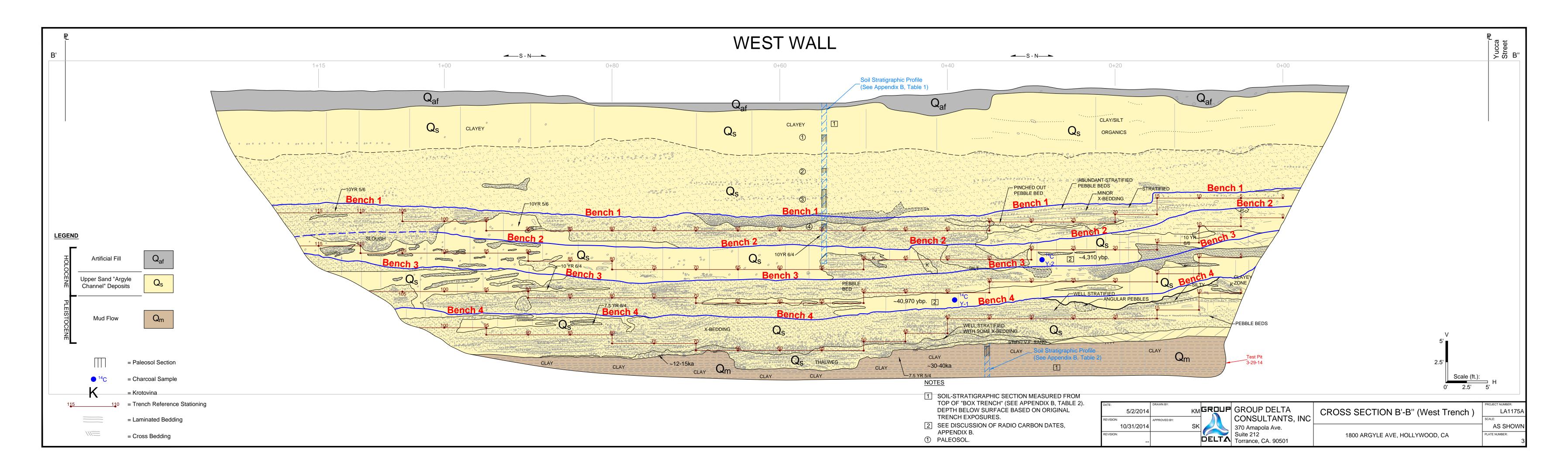
BORING, CPT AND TRENCH LOCATIONS	
----------------------------------	--

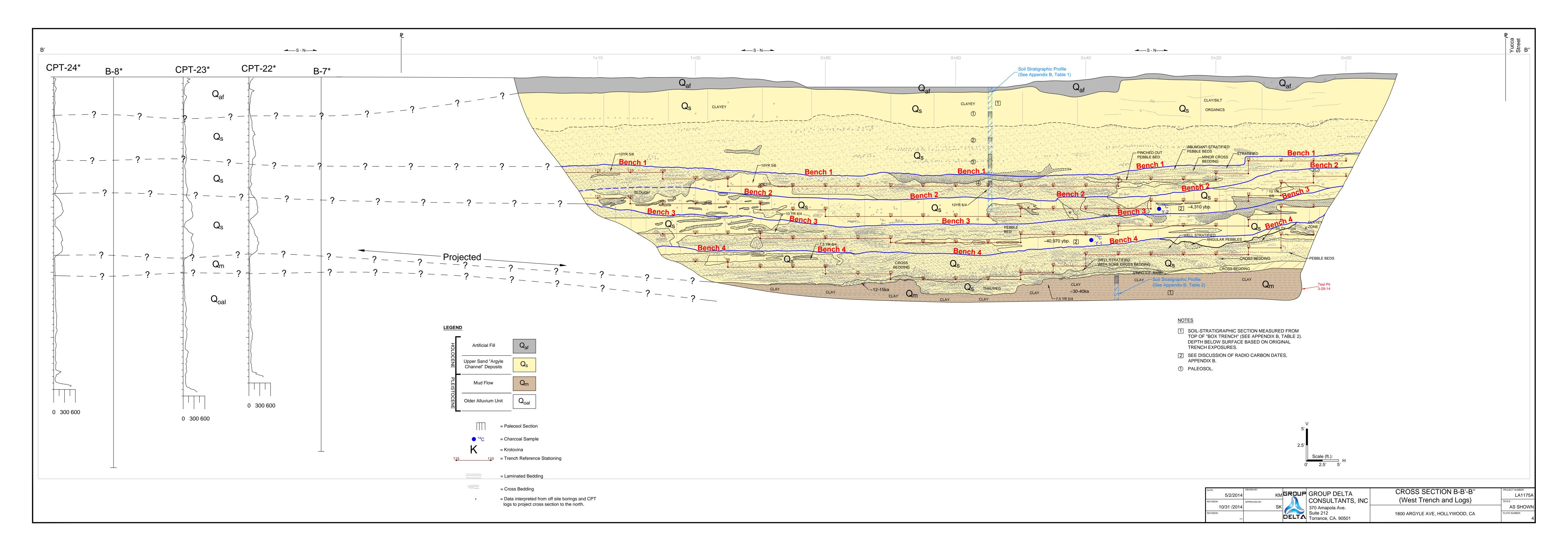
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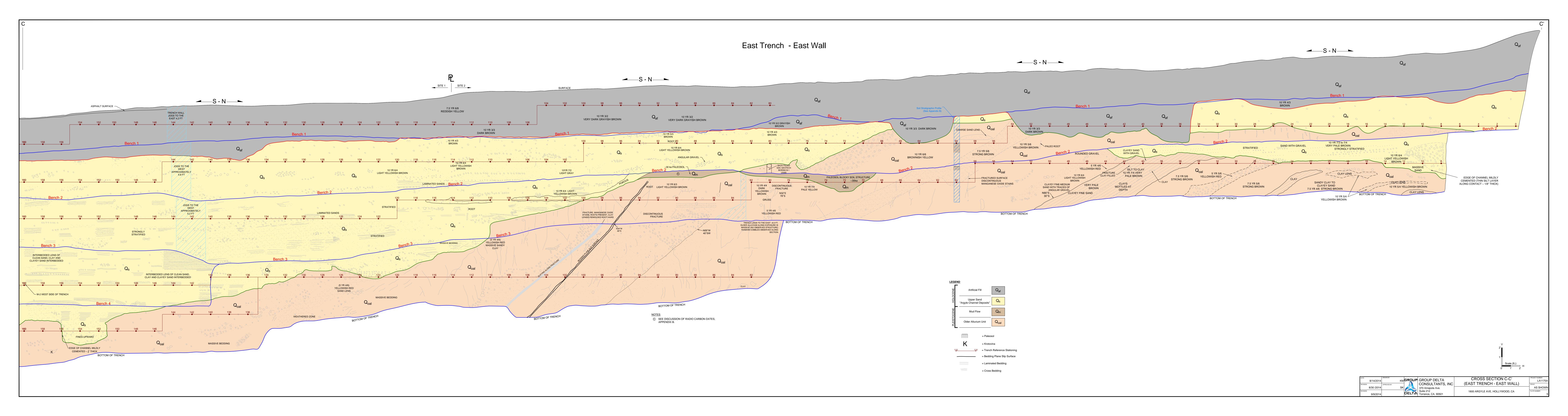
-			
	PROJECT NUMBER:		
	LA1191A		
	SCALE:		
_	A C CLIOVA/N		
	AS SHOWN		

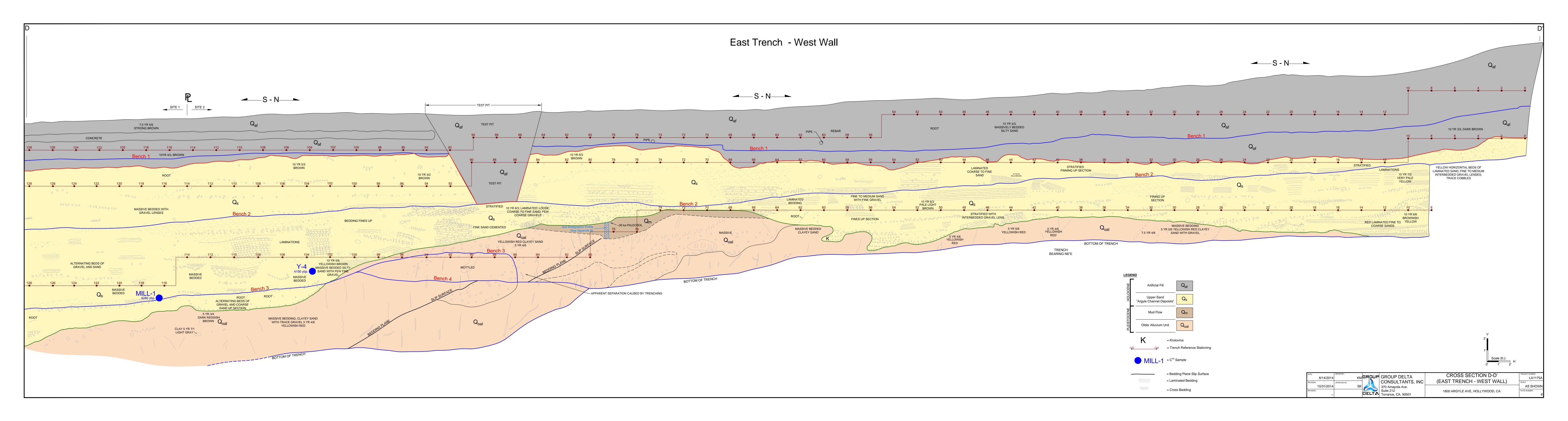
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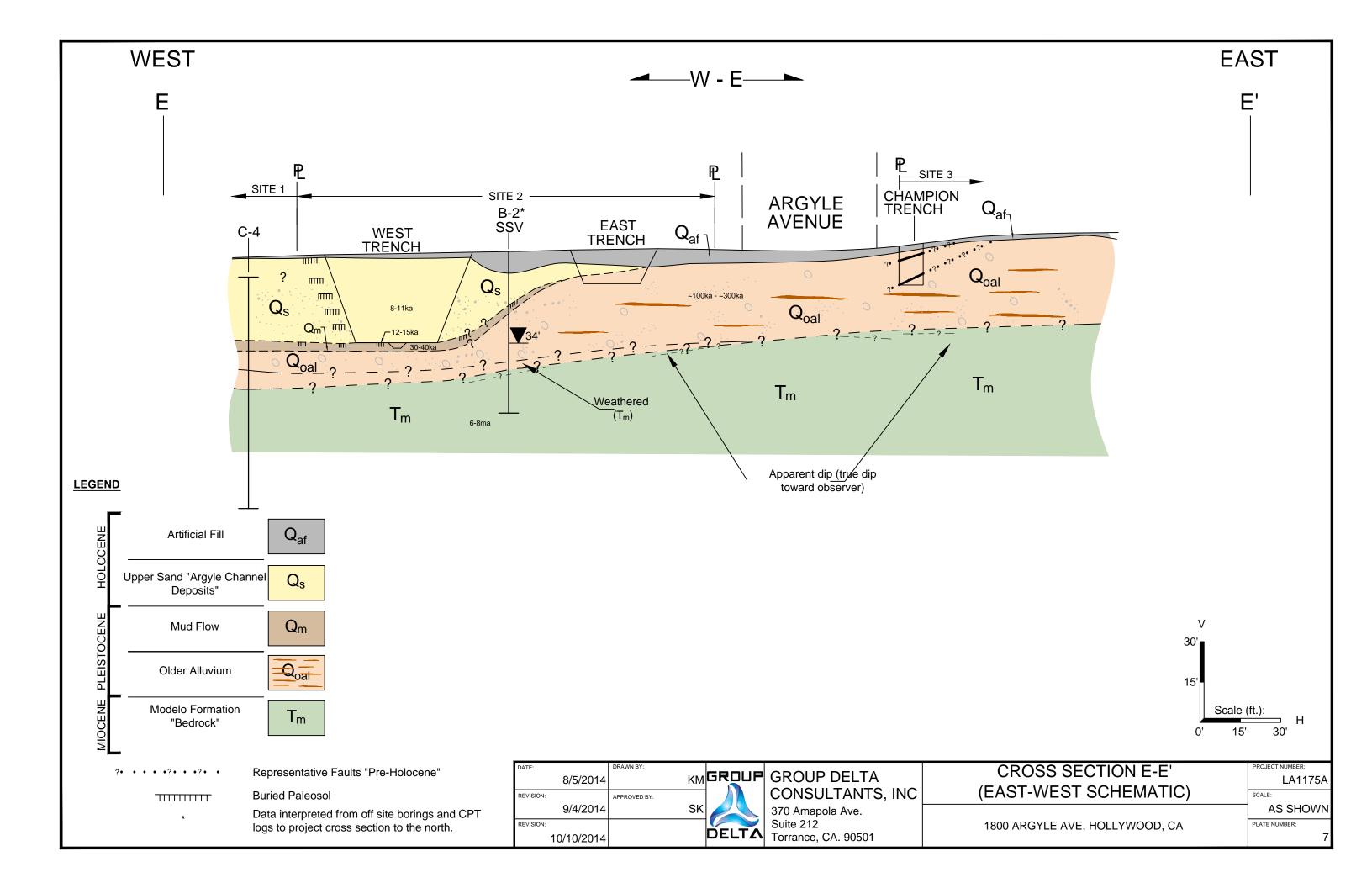


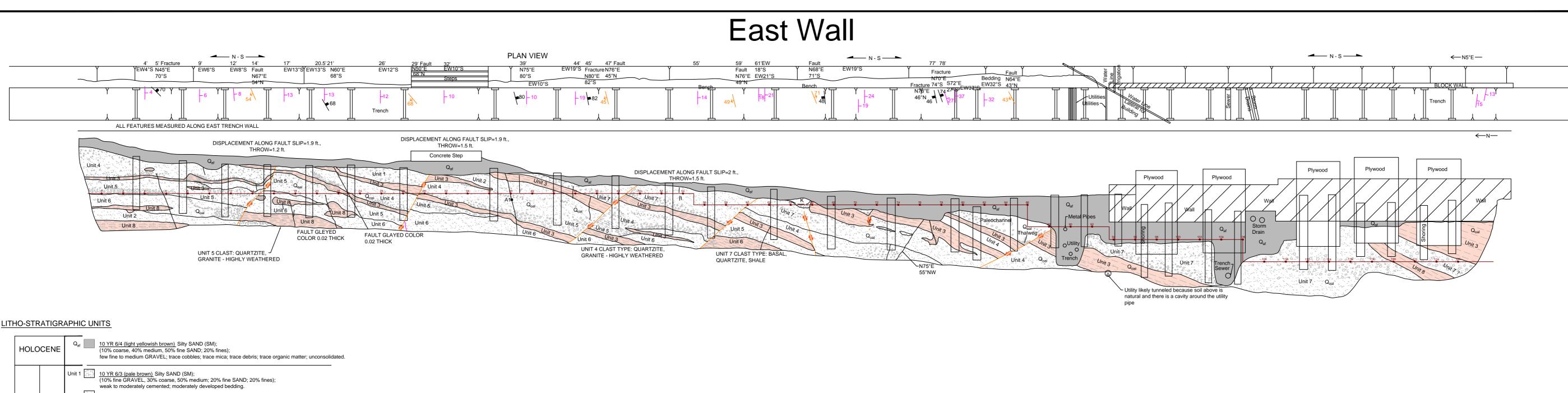












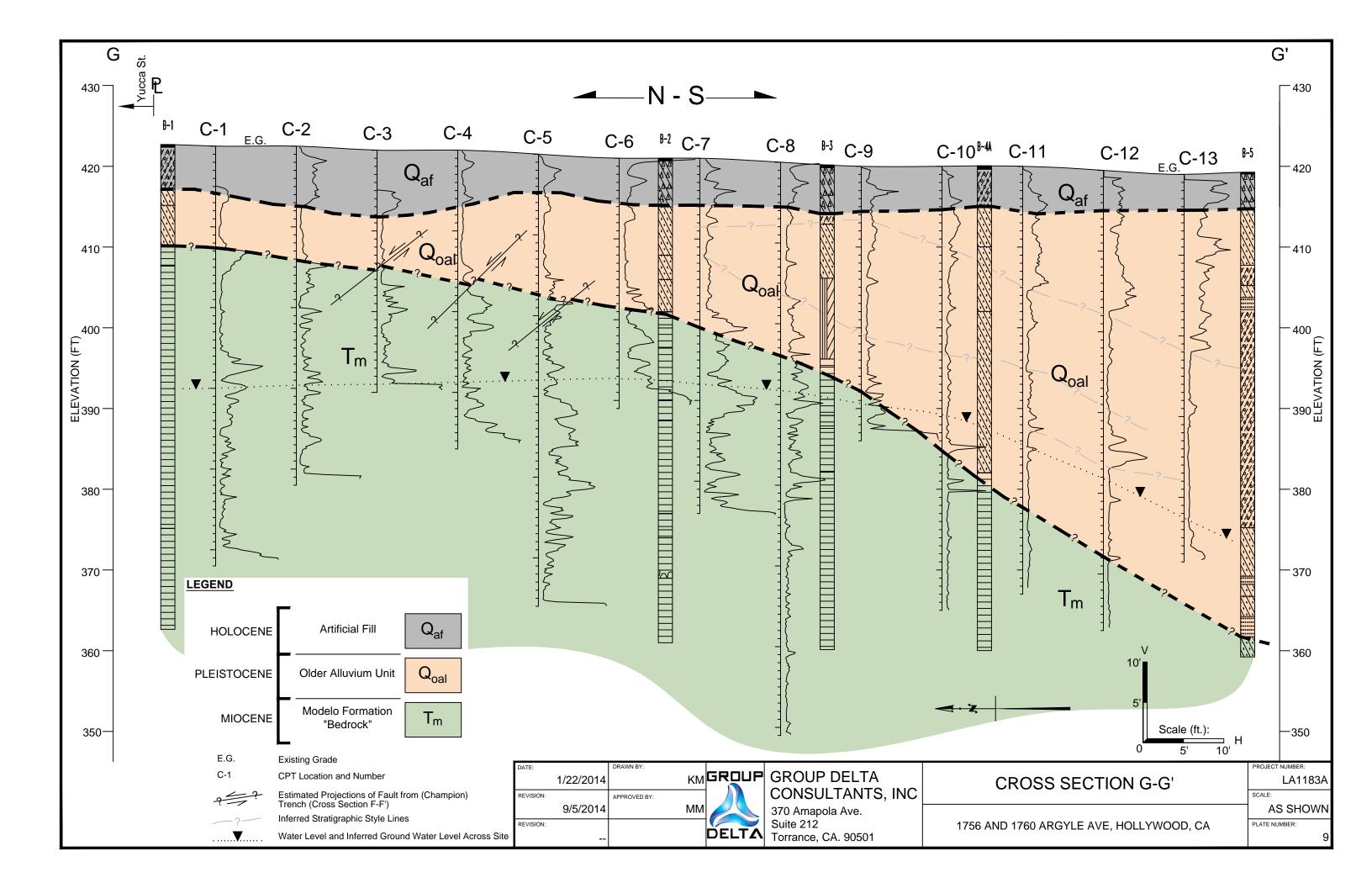
	few fine to medium GRAVEL; trace cobbles; trace mica; trace debris; trace organic matter; unconsolidated.	
OLDER ALLUVIUM Q _{oal}	10 YR 6/3 (pale brown) Sitty SAND (SM); (10% fine GRAVEL, 30% coarse, 50% medium; 20% fine SAND; 20% fines); weak to moderately cemented; moderately developed bedding. 10 YR 6/6 (brownish yellow) SAND with SILT (SP-SM); (90% fine SAND, 10% SILT); massive; moderately to well cemented. 13 10 YR 8/2 (very pale brown) Sandy CLAY (CL); (15% very fine SAND); moderately well to well indurated blocky. 14 2 7.5 YR 6/8 (reddish yellow) Sitty SAND (SM); (10% coarse, 15% medium, 50% fine SAND; 20% fines); fine GRAVEL; trace cobbles; poorly developed bedding. 15 3 7.5 YR 5/6 (strong brown) Cobble Conglomerate; (10% coarse, 10% fine GRAVEL; trace cobbles; 10% coarse, 20% medium, 30% fine SAND; 20% fines); cobbles are subrounded and deposited in lenses, poorly cemented. 16 7.5 YR 4/6 (strong brown) SAND with SILT (SM); (10% medium, 80% fine SAND; 10% fines); poorly cemented, massive, holds moisture. 17 10 YR 6/4 (light yellowish brown) SAND (SP); (trace coarse GRAVEL, few fine GRAVEL, 15% coarse SAND, 30% medium SAND, 50% fine SAND); GRAVEL is subrounded, weakly cemented, friable, moderately well stratified, discontinuous lenses of fine to coarse GRAVEL. Sharp contacts above and below unit. 18 7.5 YR 4/6 (strong brown) mottled with 10 YR 6/3 (pale brown) Sandy CLAY to CLAY (CL); (10% - 20% fine SAND, 80% - 90% CLAY);	Legend Bedding Fracture / Joint Fault and direction of movement K Krotovina Trench Reference Stationing

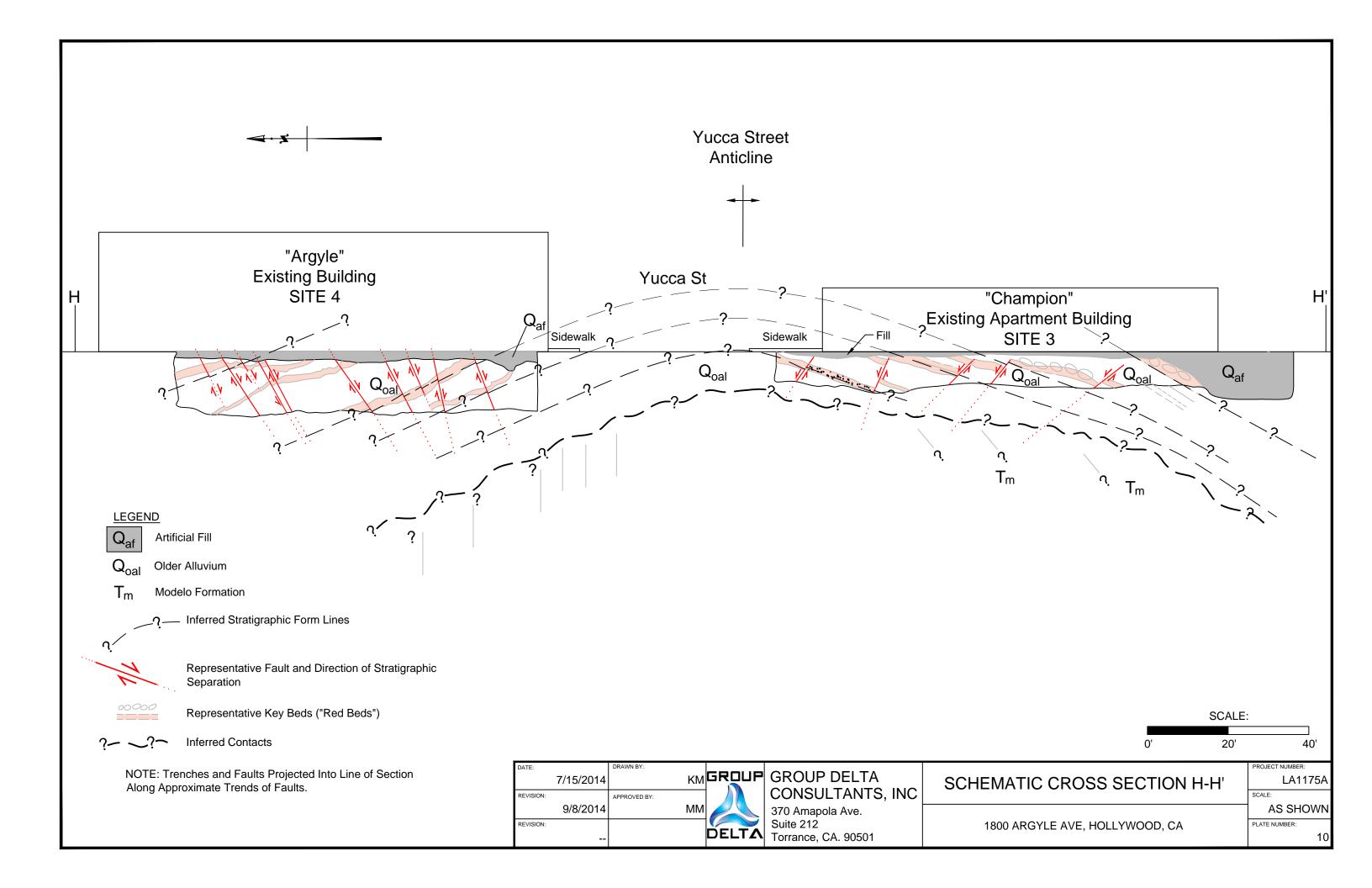
DATE:		DRAWN BY:		
	5/2/2014		KM	ROUP
REVISION:		APPROVED BY:		
	9/8/2014		SK	
REVISION:				
			L	DELTA

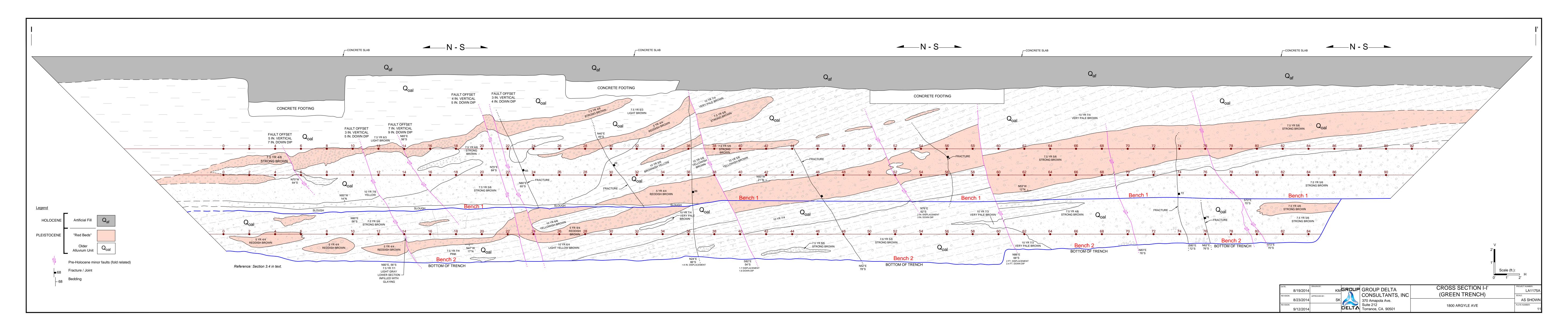
	GROUP DELTA CONSULTANTS, INC	CROSS SECTION F-F' (CHAMPION TRENCH)
<u>'</u>	370 Amapola Ave. Suite 212 Torrance, CA. 90501	1800 ARGYLE AVE, HOLLYWOOD, CA

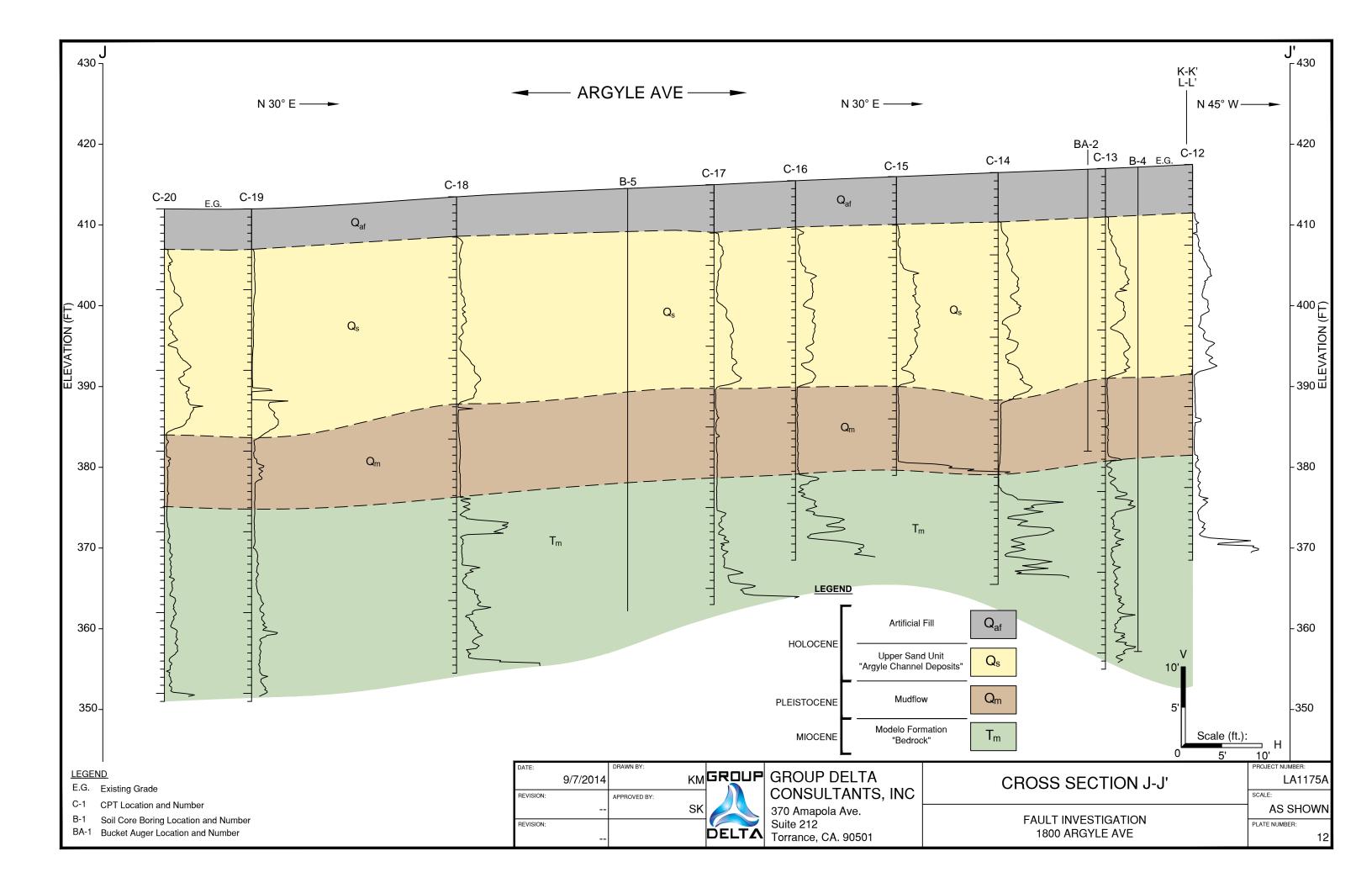
LA-1175

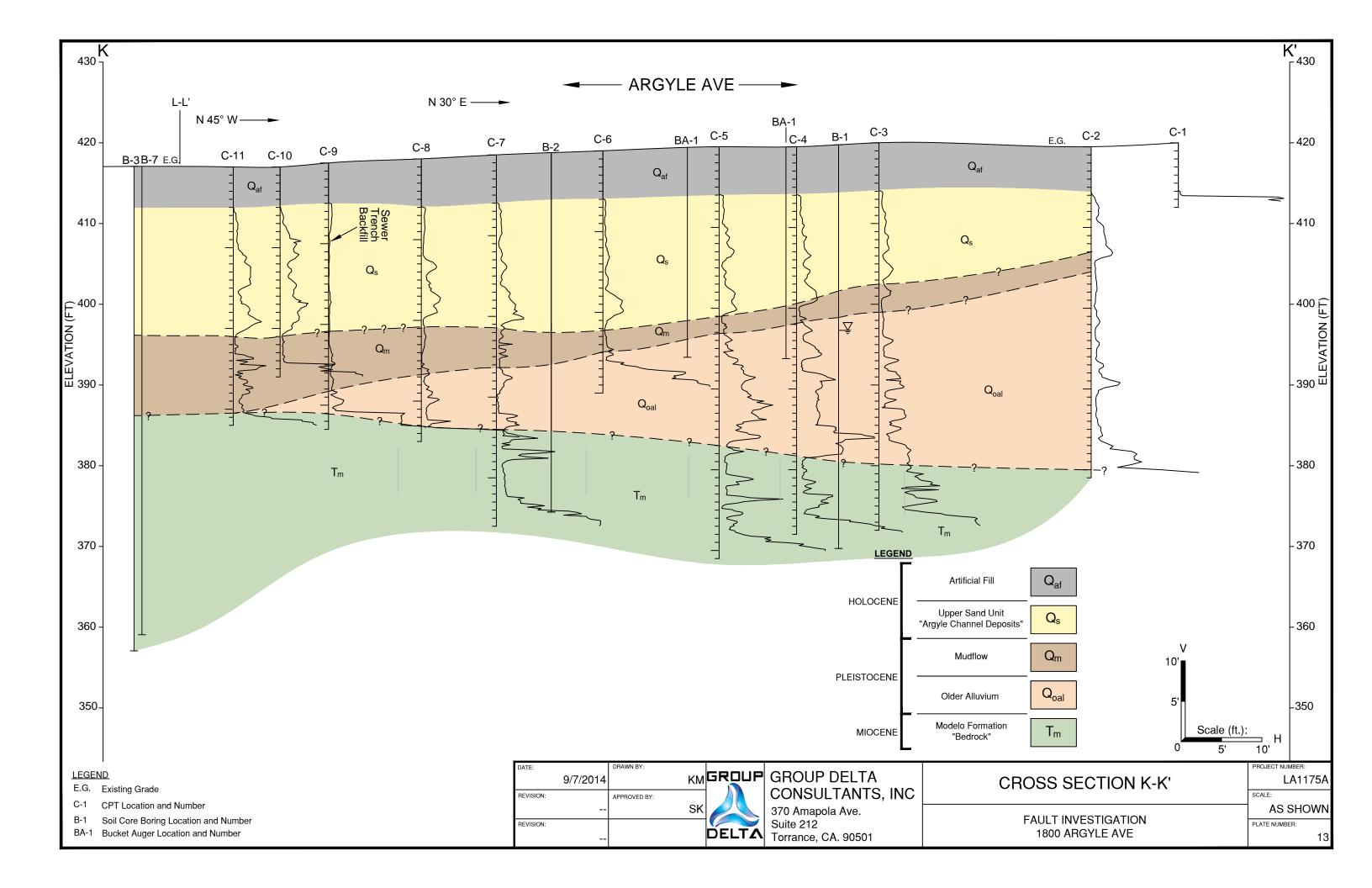
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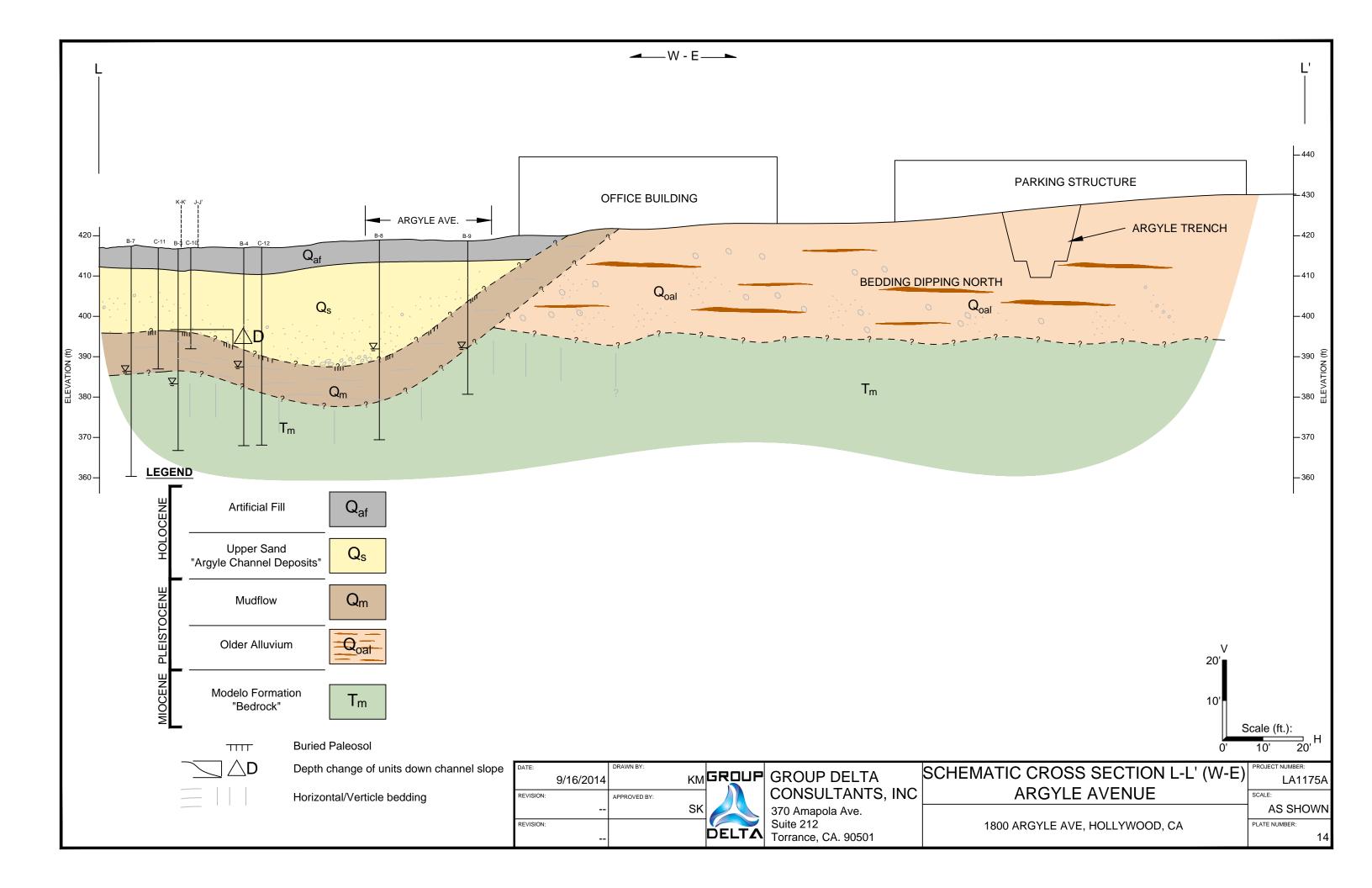


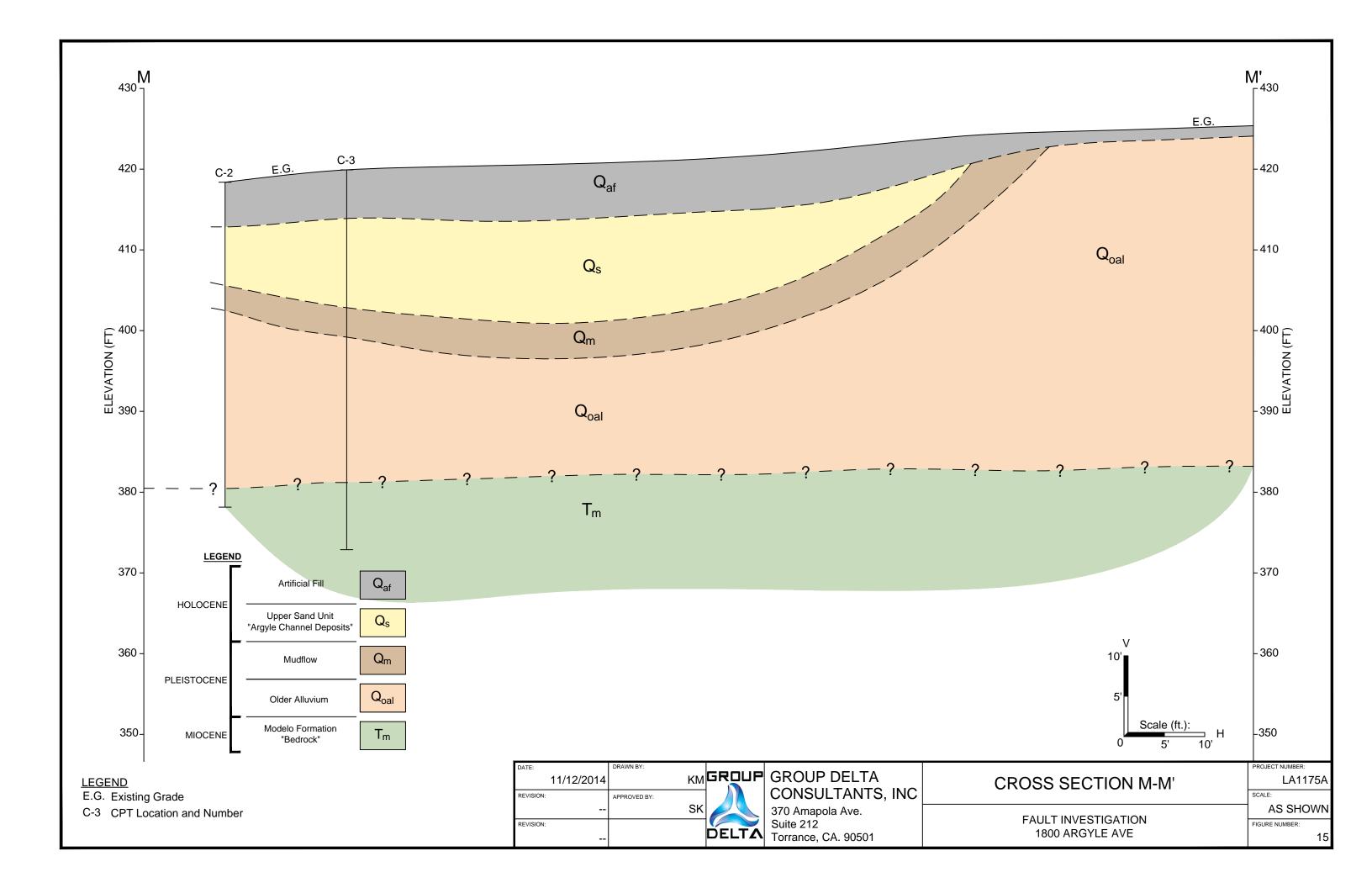


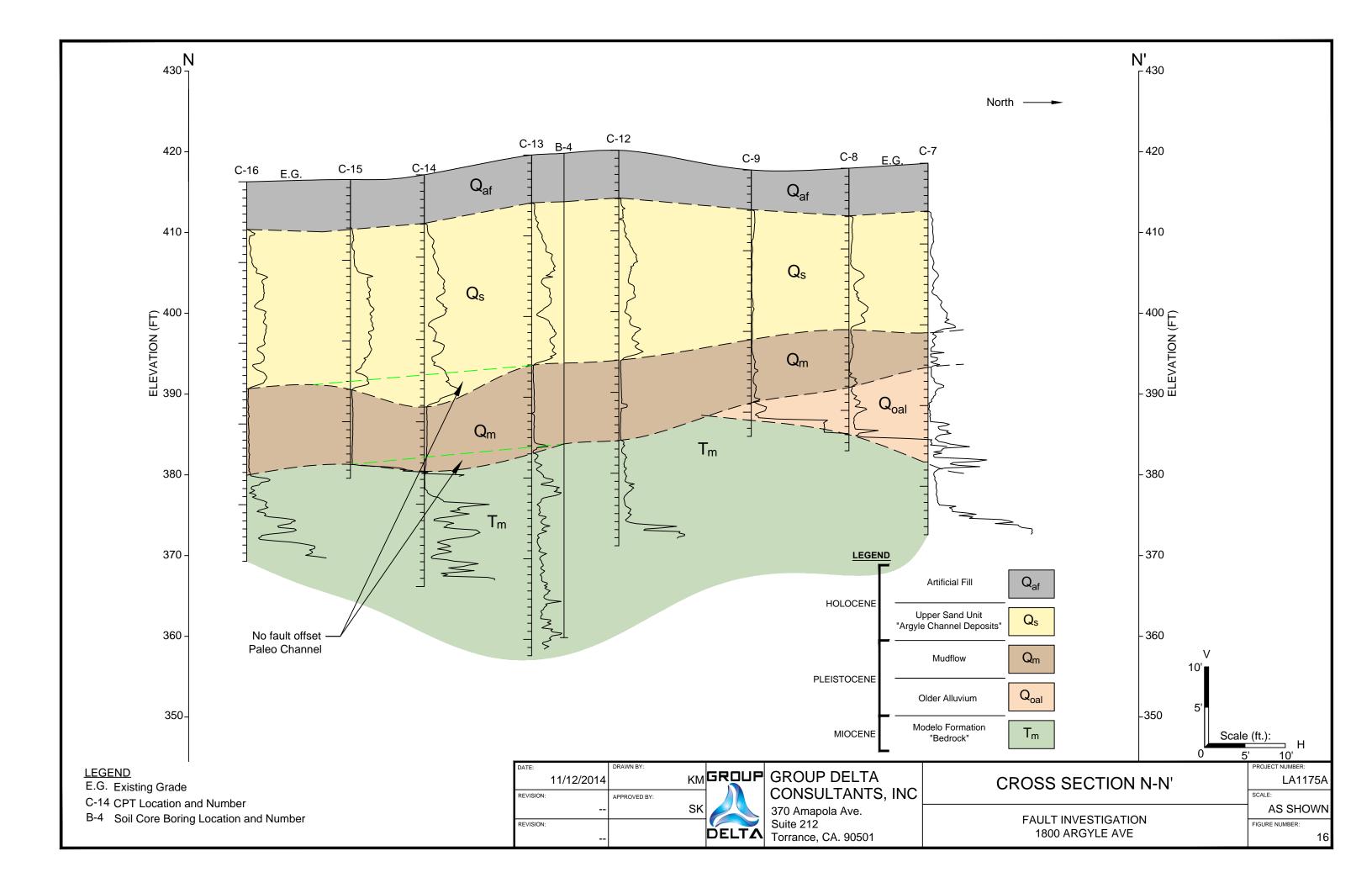












Fault Activity Investigation November 10, 2014 NE Corner of Yucca Street and Argyle Avenue 1800 Argyle Avenue GDC Project No. LA-1175A

APPENDIX A: FIELD EXPLORATION - CPT DATA AND SOIL CORE LOGS SITE 4

Page 31



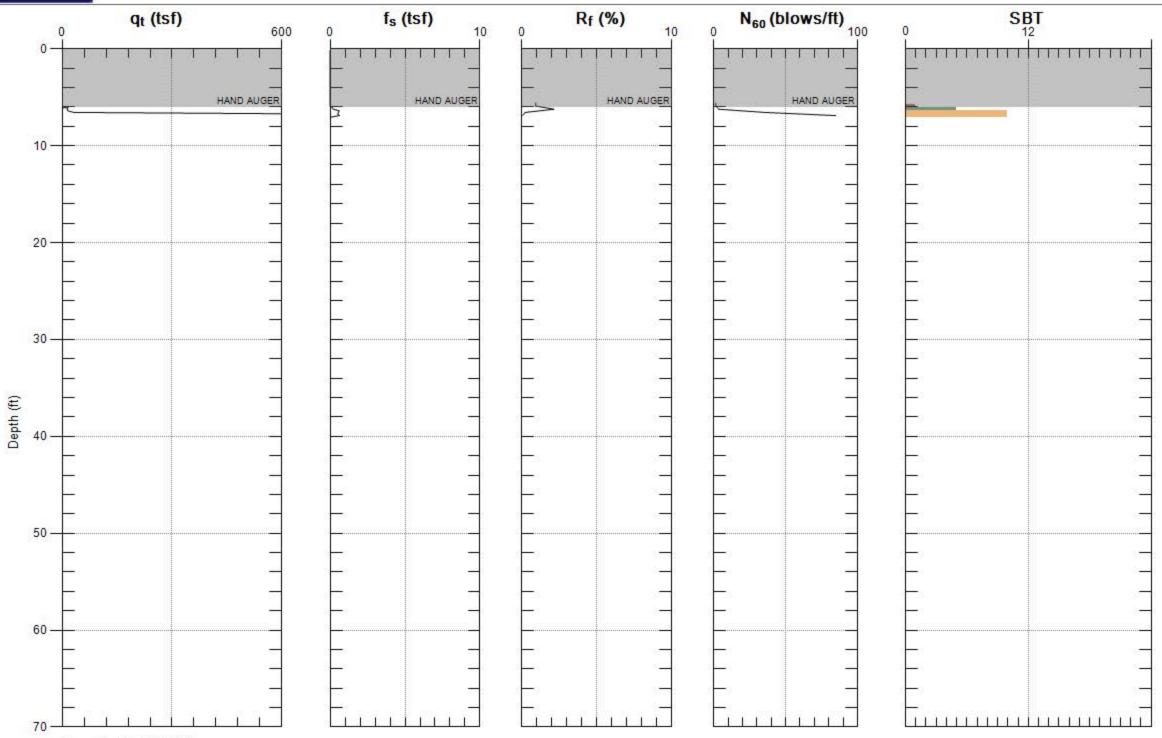


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Sounding: C-1

Engineer: S.KOLTHOFF

Date: 12/30/2013 09:33



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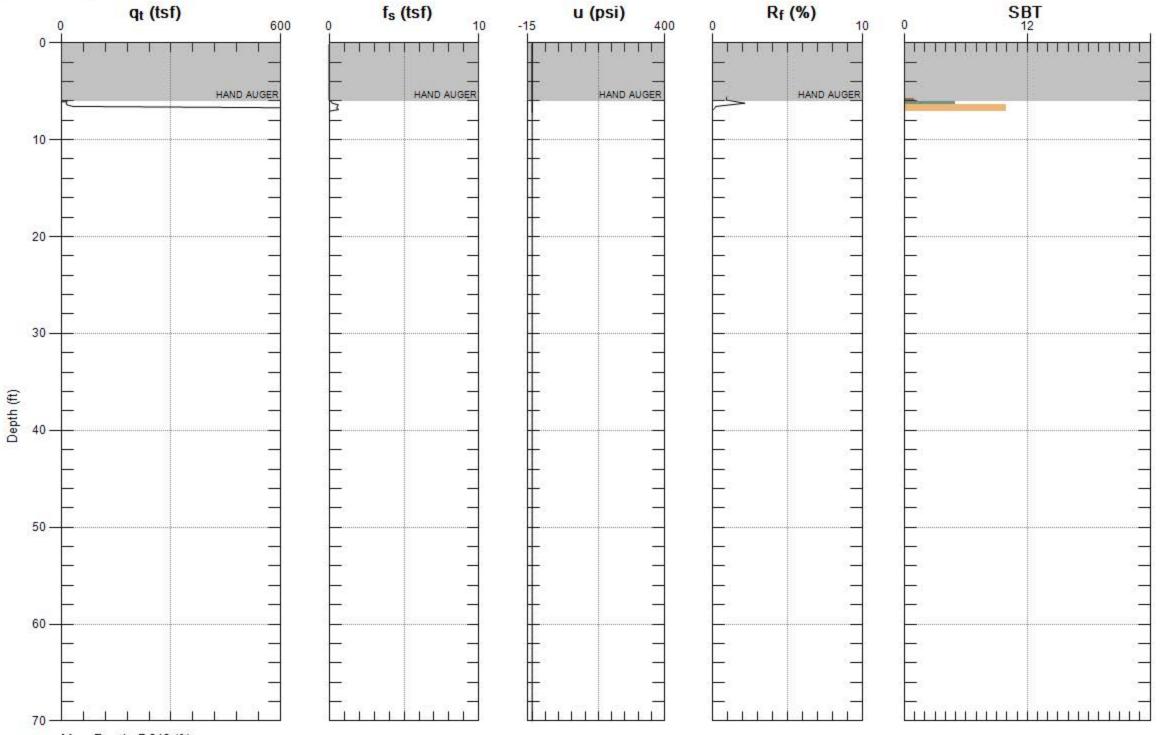


Site: 1800 ARGYLE AVE.

Sounding: C-1

Engineer: S.KOLTHOFF

Date: 12/30/2013 09:33



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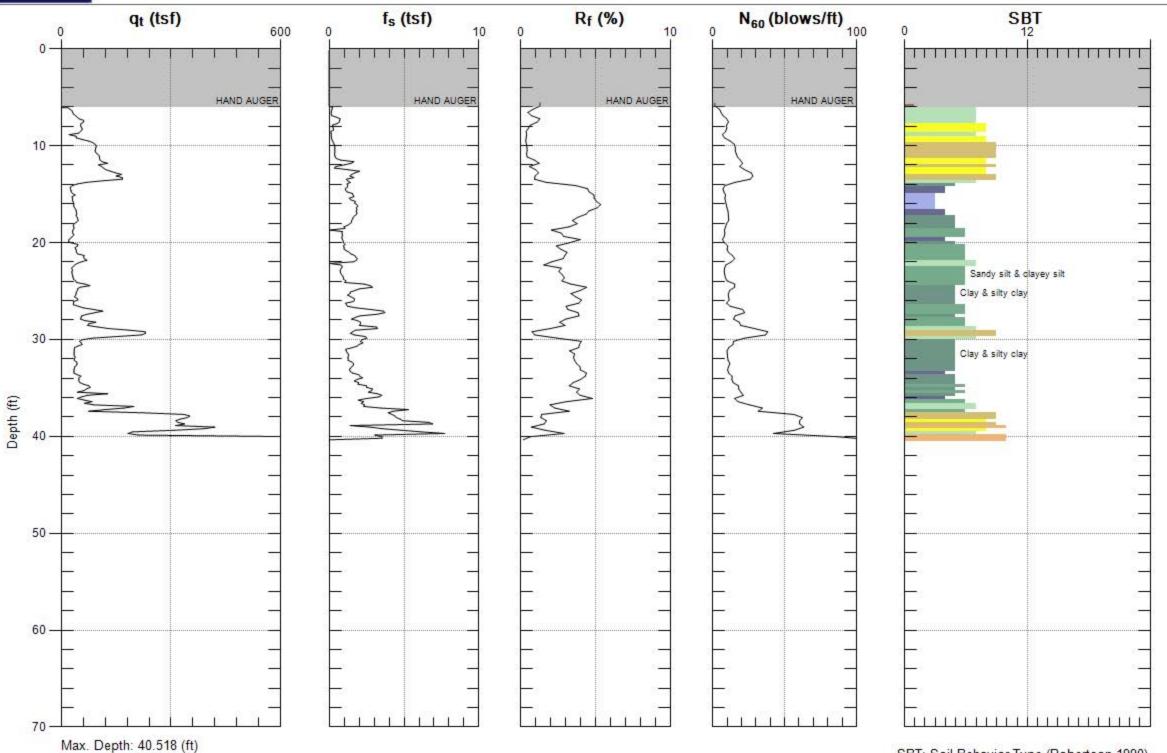


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Sounding: C-2

Engineer: S.KOLTHOFF

Date: 12/30/2013 09:58



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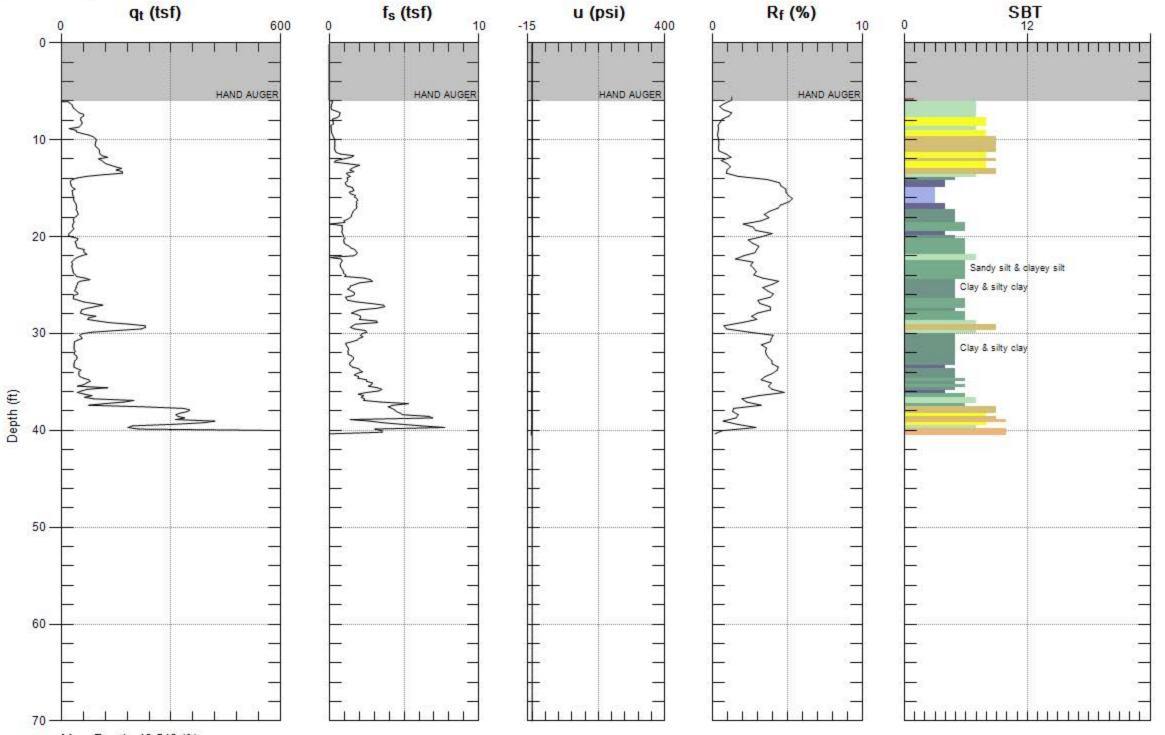


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Sounding: C-2

Engineer: S.KOLTHOFF

Date: 12/30/2013 09:58



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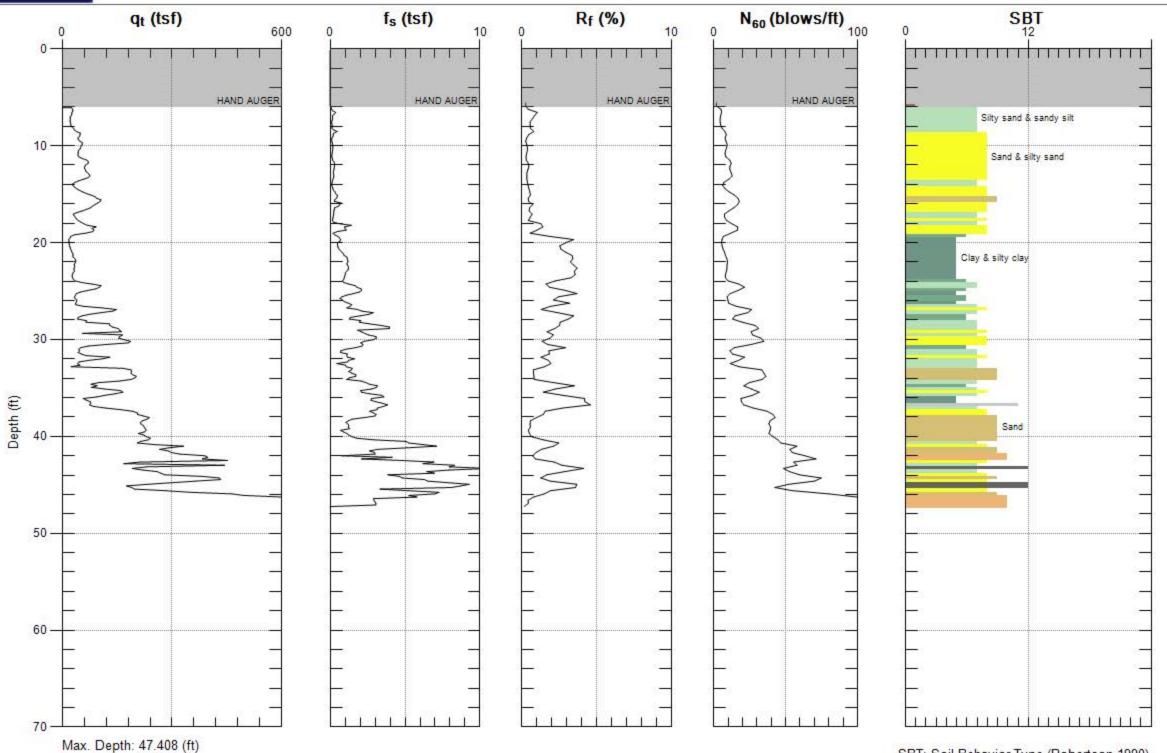


Site: 1800 ARGYLE AVE.

Sounding: C-3

Engineer: S.KOLTHOFF

Date: 12/30/2013 11:40



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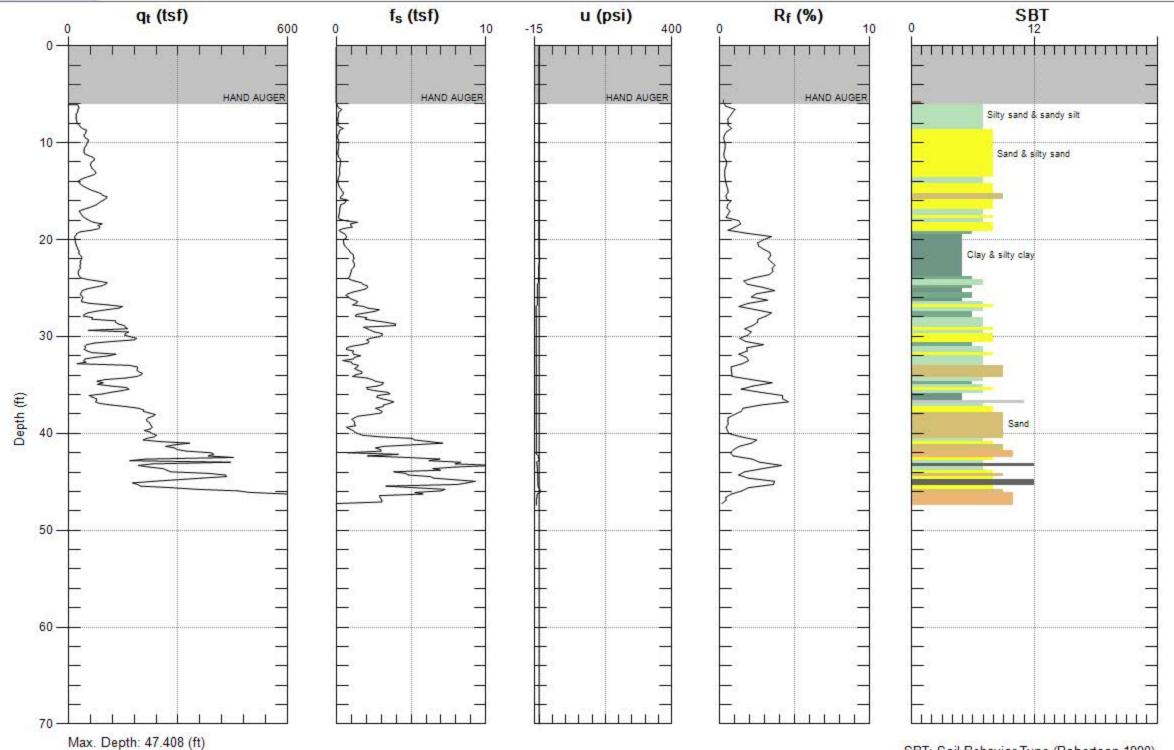


Site: 1800 ARGYLE AVE.

Sounding: C-3

Engineer: S.KOLTHOFF

Date: 12/30/2013 11:40



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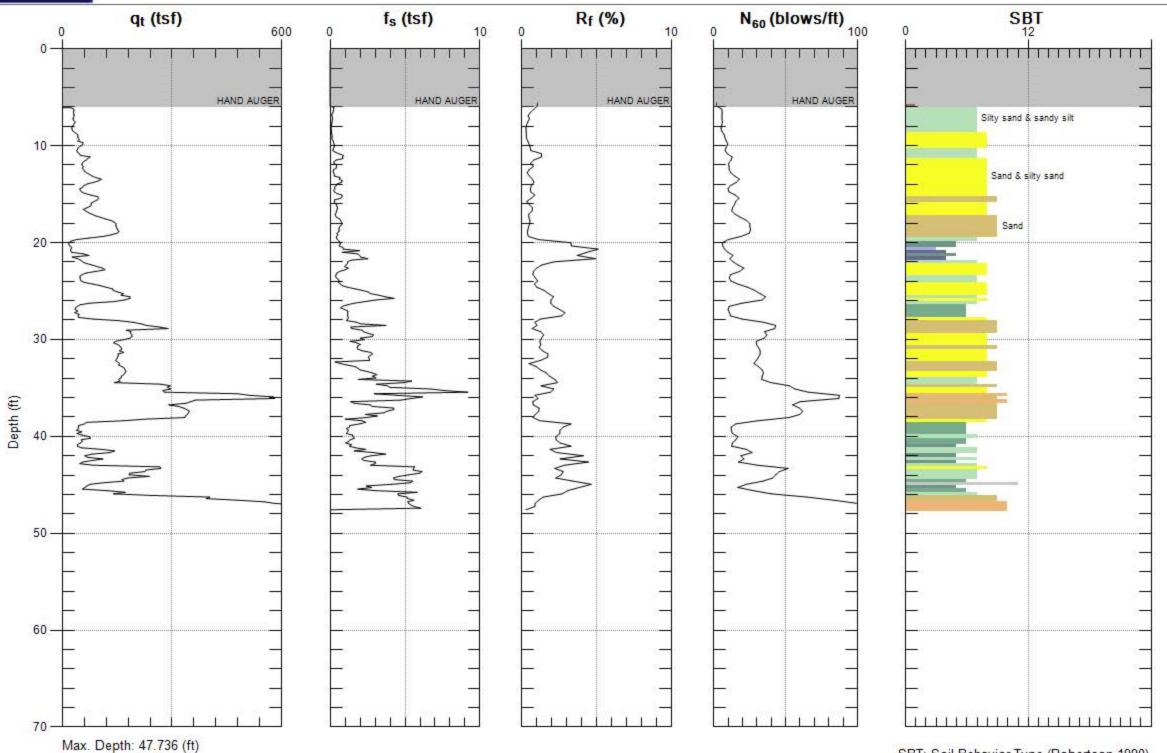


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Sounding: C-4

Engineer: S.KOLTHOFF

Date: 12/31/2013 08:40



Avg. Interval: 0.328 (ft)

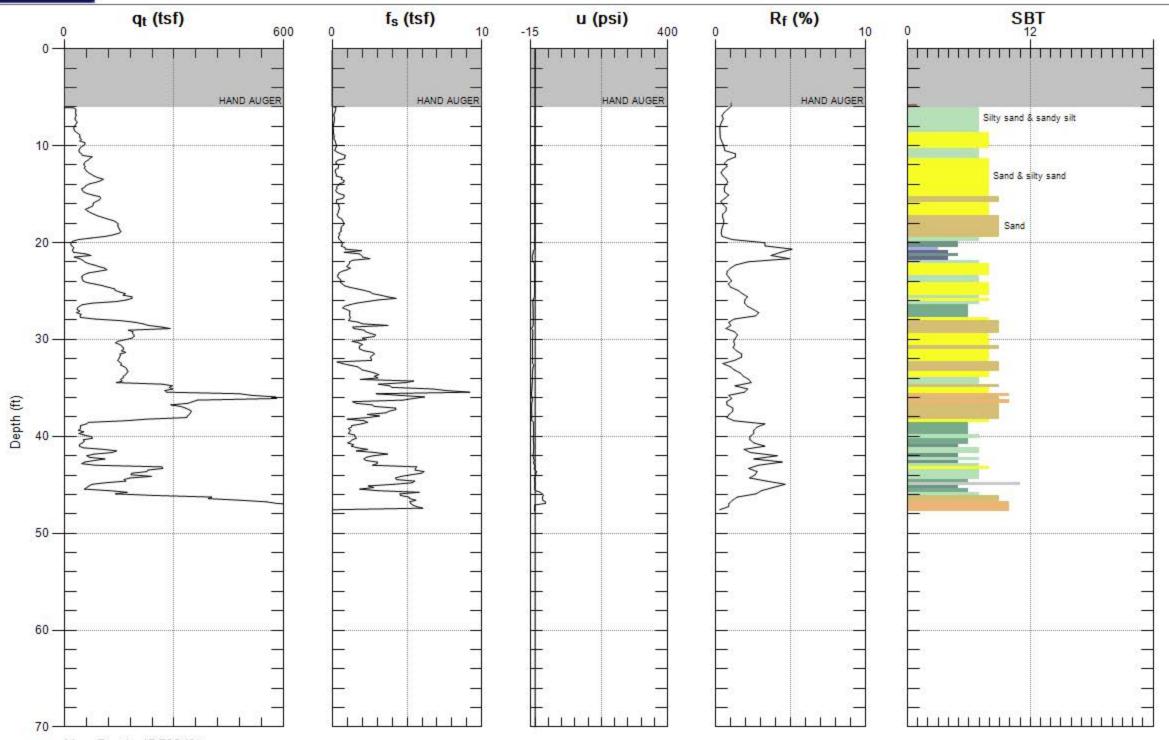


Site: 1800 ARGYLE AVE.

Sounding: C-4

Engineer: S.KOLTHOFF

Date: 12/31/2013 08:40



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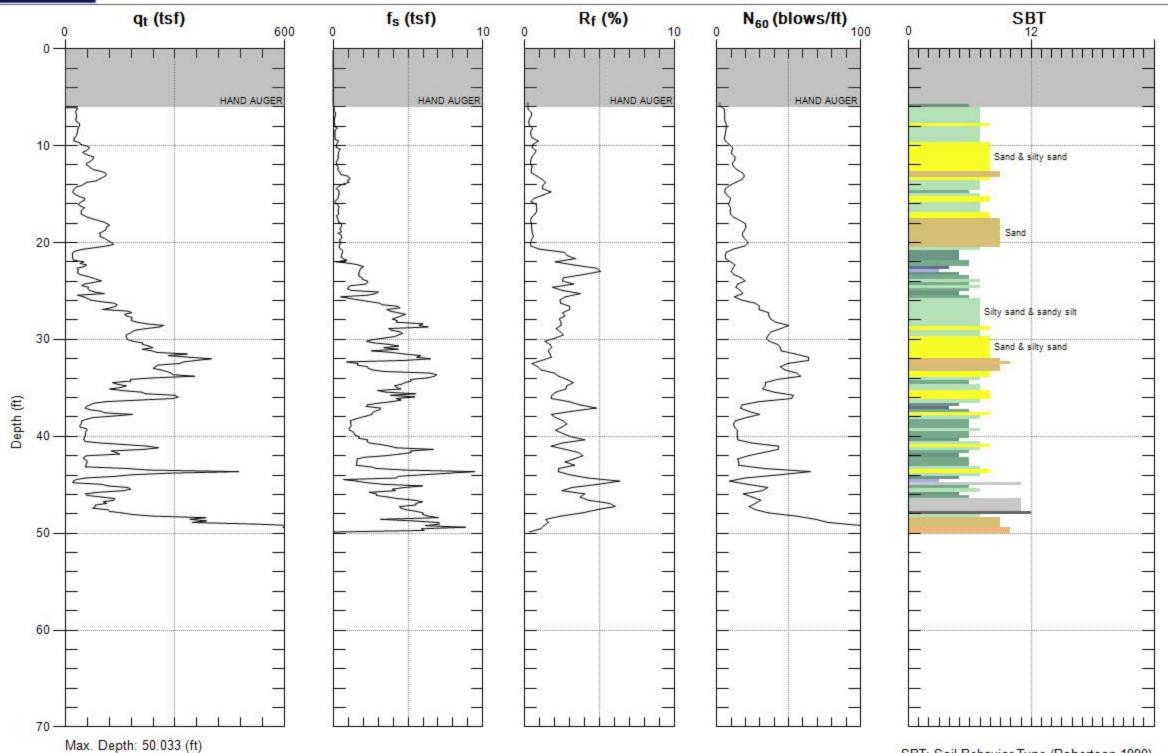


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Sounding: C-5

Engineer: S.KOLTHOFF

Date: 12/31/2013 09:59



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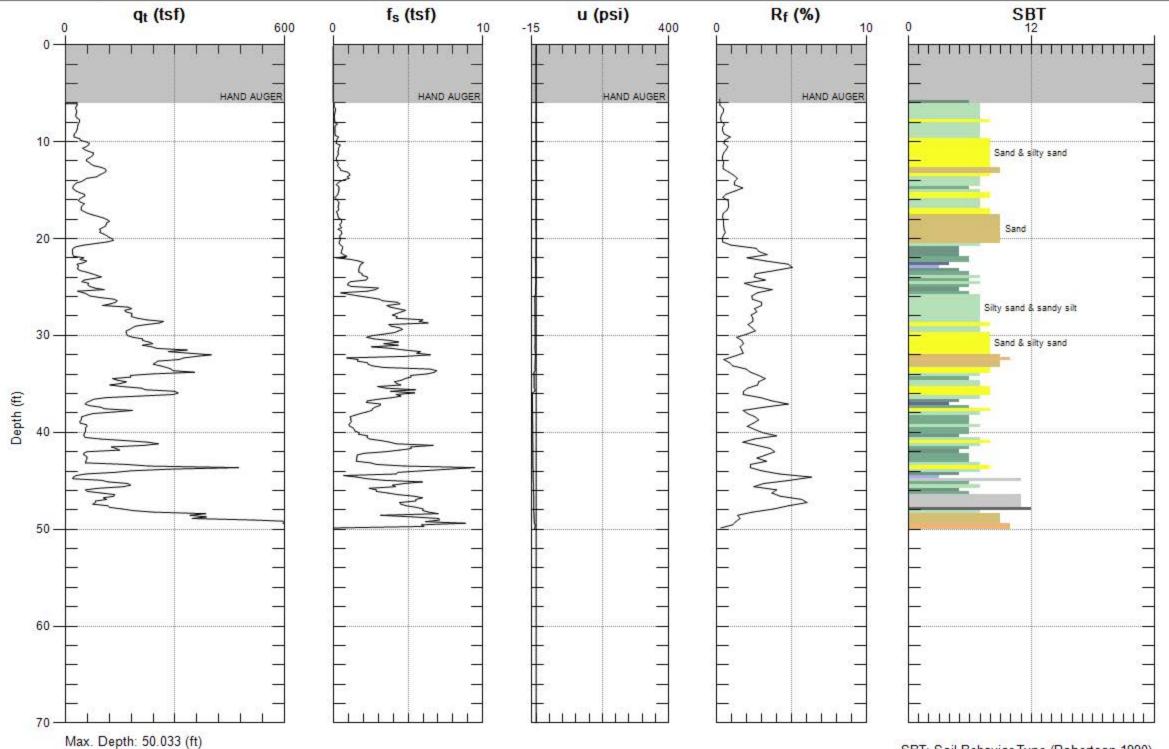


Site: 1800 ARGYLE AVE.

Sounding: C-5

Engineer: S.KOLTHOFF

Date: 12/31/2013 09:59



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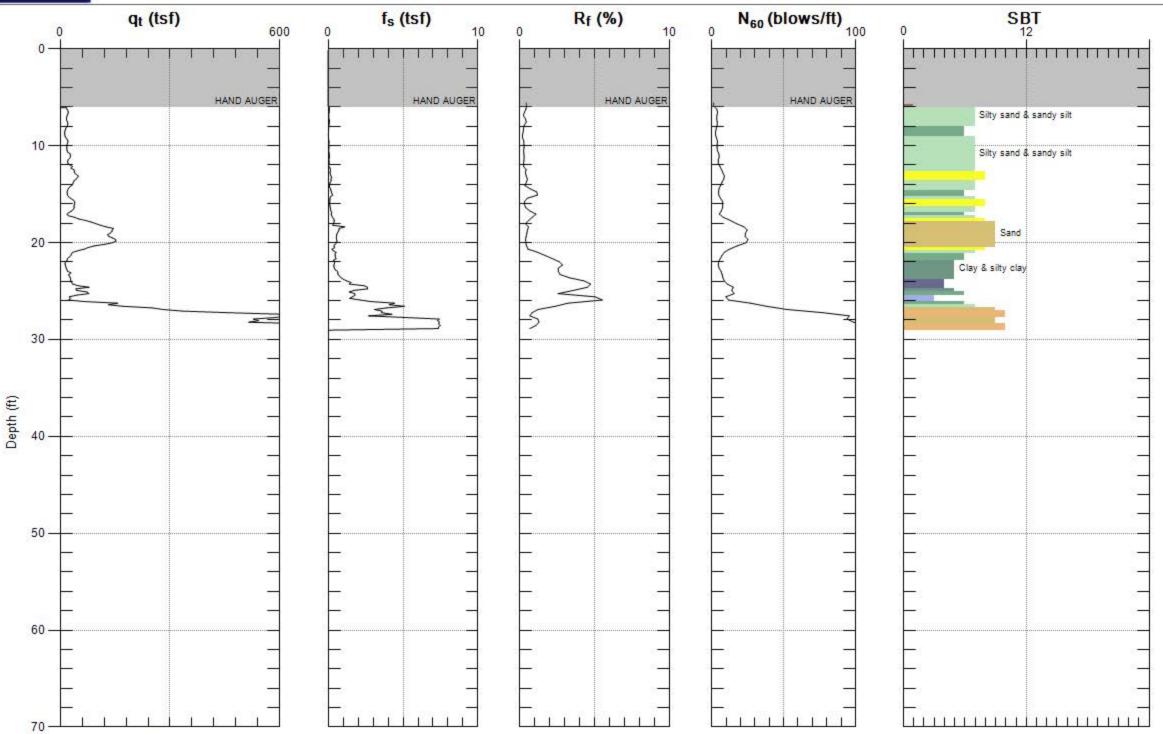


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Sounding: C-6

Engineer: S.KOLTHOFF

Date: 12/31/2013 10:46



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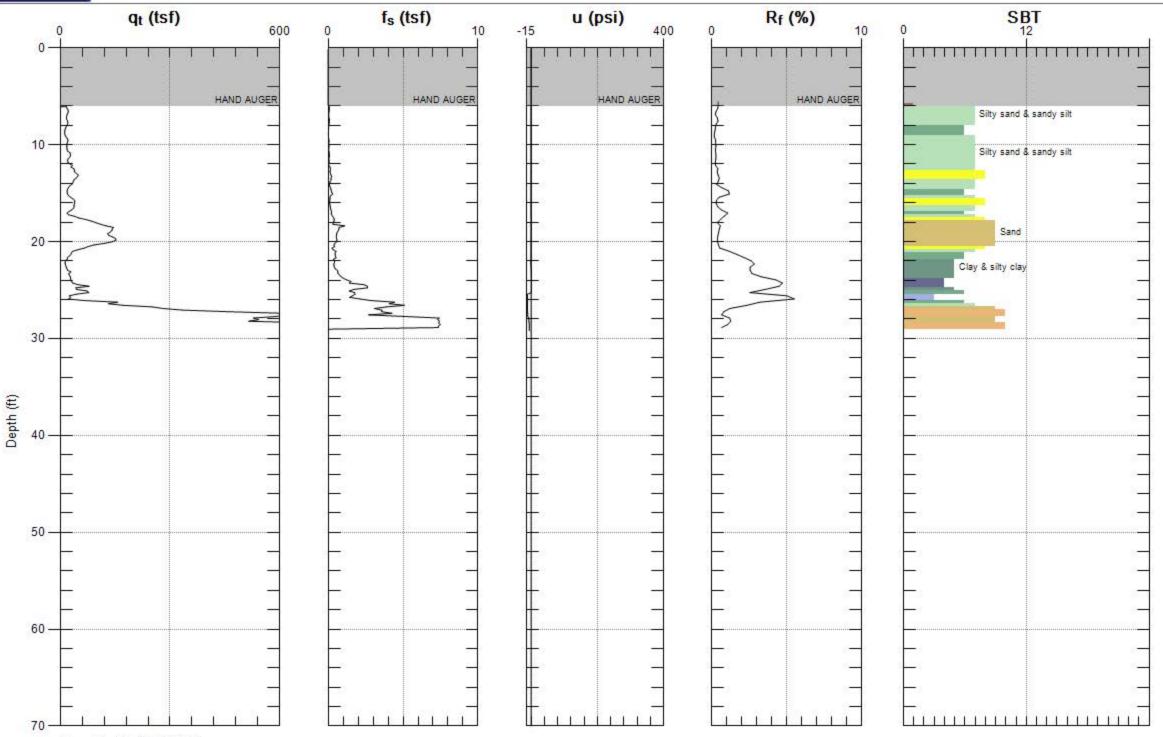


Site: 1800 ARGYLE AVE.

Sounding: C-6

Engineer: S.KOLTHOFF

Date: 12/31/2013 10:46



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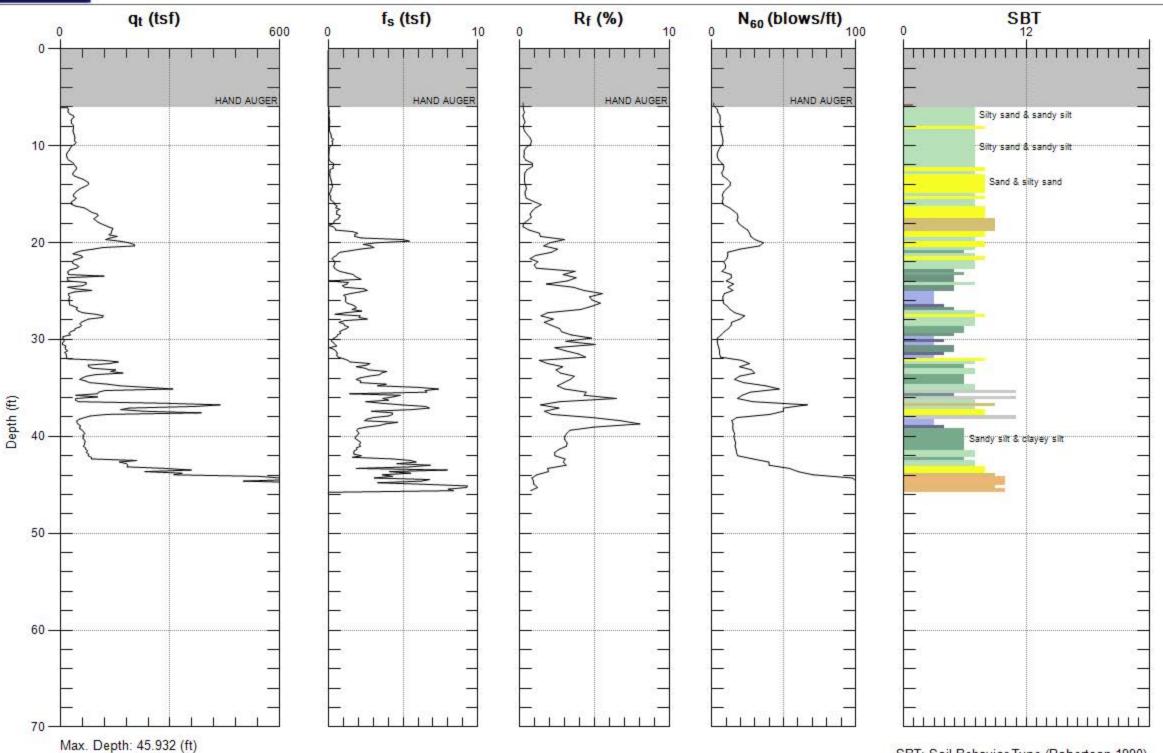


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Sounding: C-7

Engineer: S.KOLTHOFF

Date: 12/31/2013 12:07



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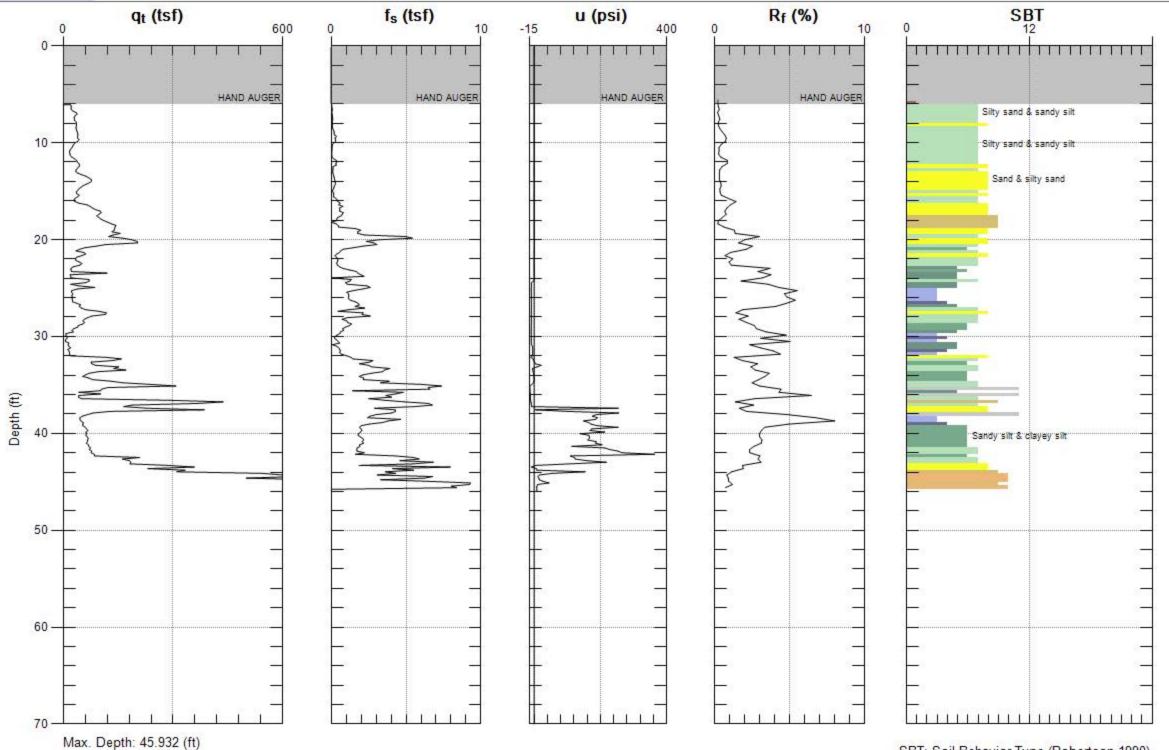


Site: 1800 ARGYLE AVE.

Sounding: C-7

Engineer: S.KOLTHOFF

Date: 12/31/2013 12:07



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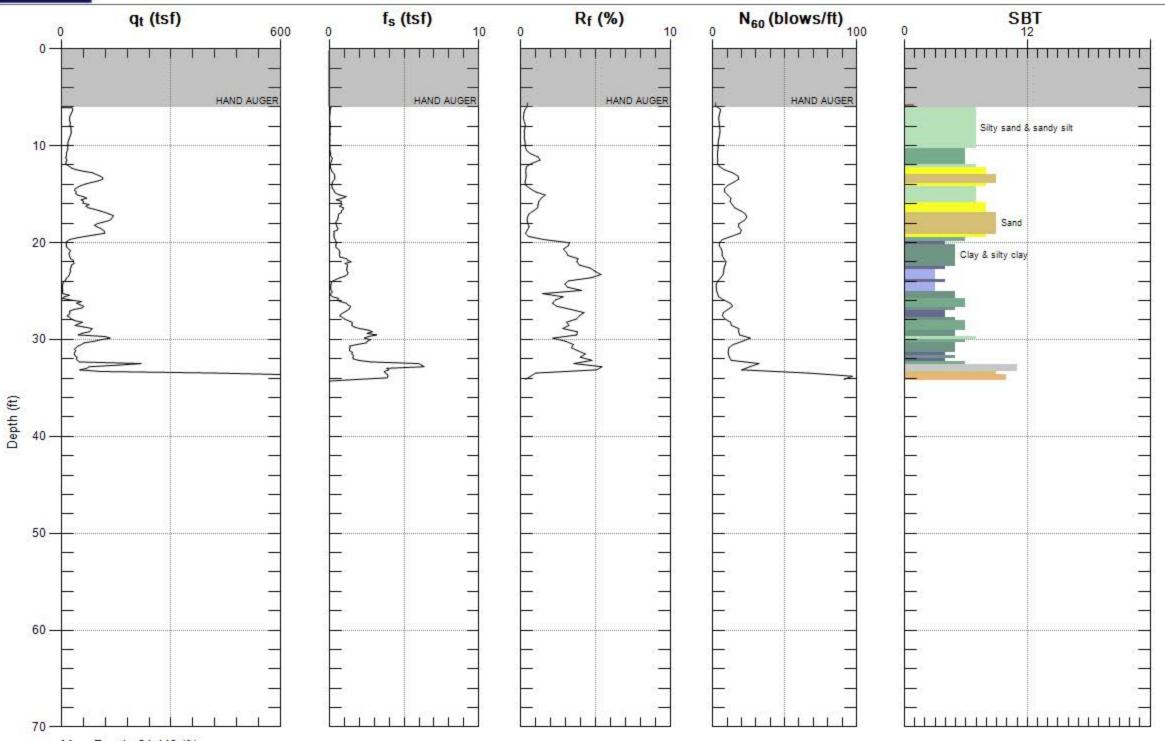


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Sounding: C-8

Engineer: S.KOLTHOFF

Date: 12/31/2013 01:06



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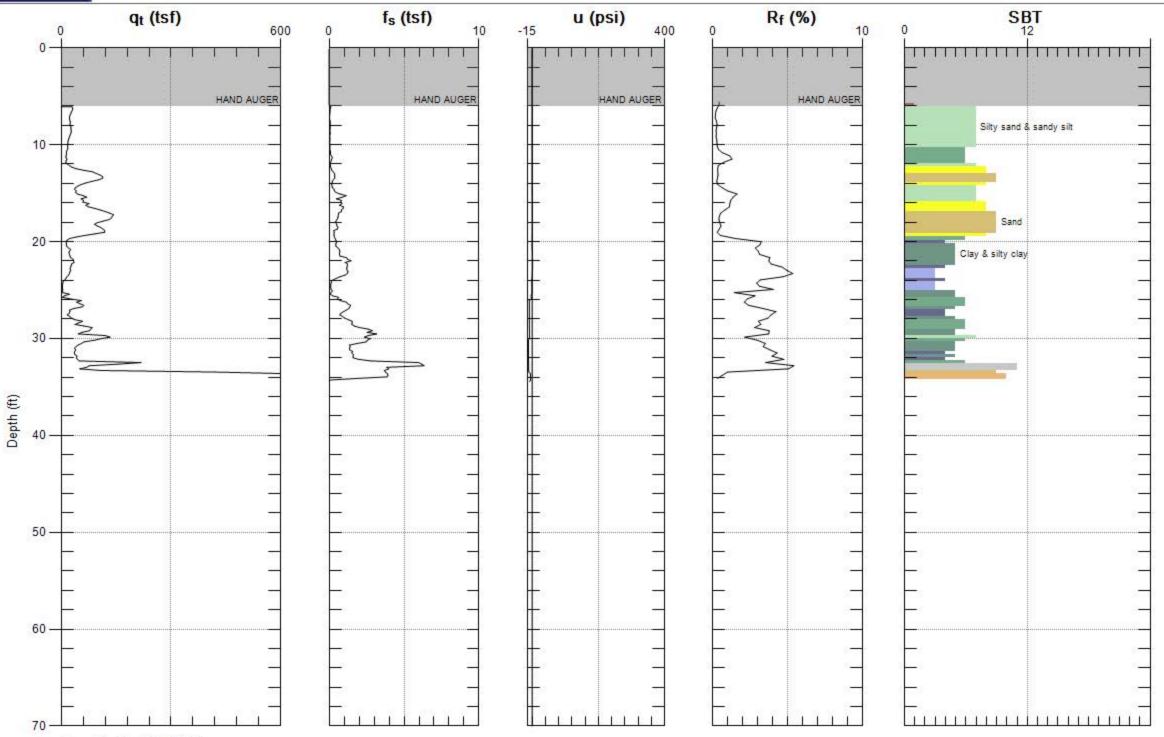


Site: 1800 ARGYLE AVE.

Sounding: C-8

Engineer: S.KOLTHOFF

Date: 12/31/2013 01:06



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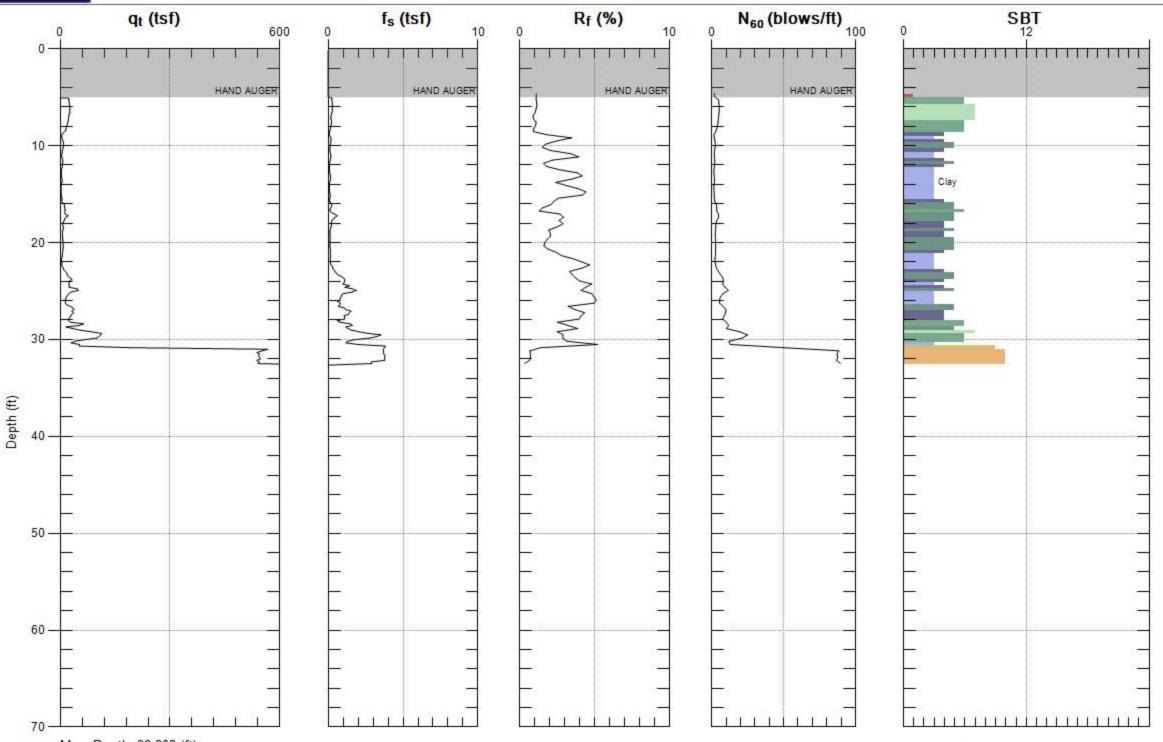


Site: 1800 ARGYLE AVE.

Sounding: C-9

Engineer: S.KOLTHOFF

Date: 1/2/2014 09:19



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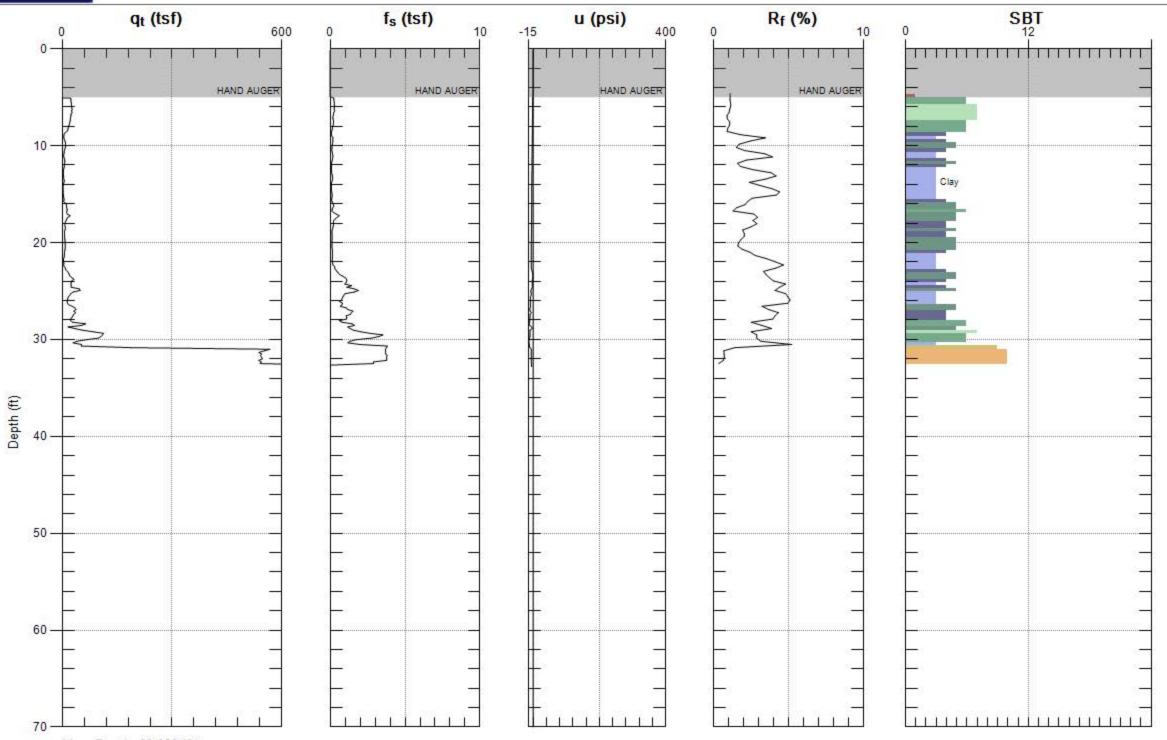


Site: 1800 ARGYLE AVE.

Sounding: C-9

Engineer: S.KOLTHOFF

Date: 1/2/2014 09:19



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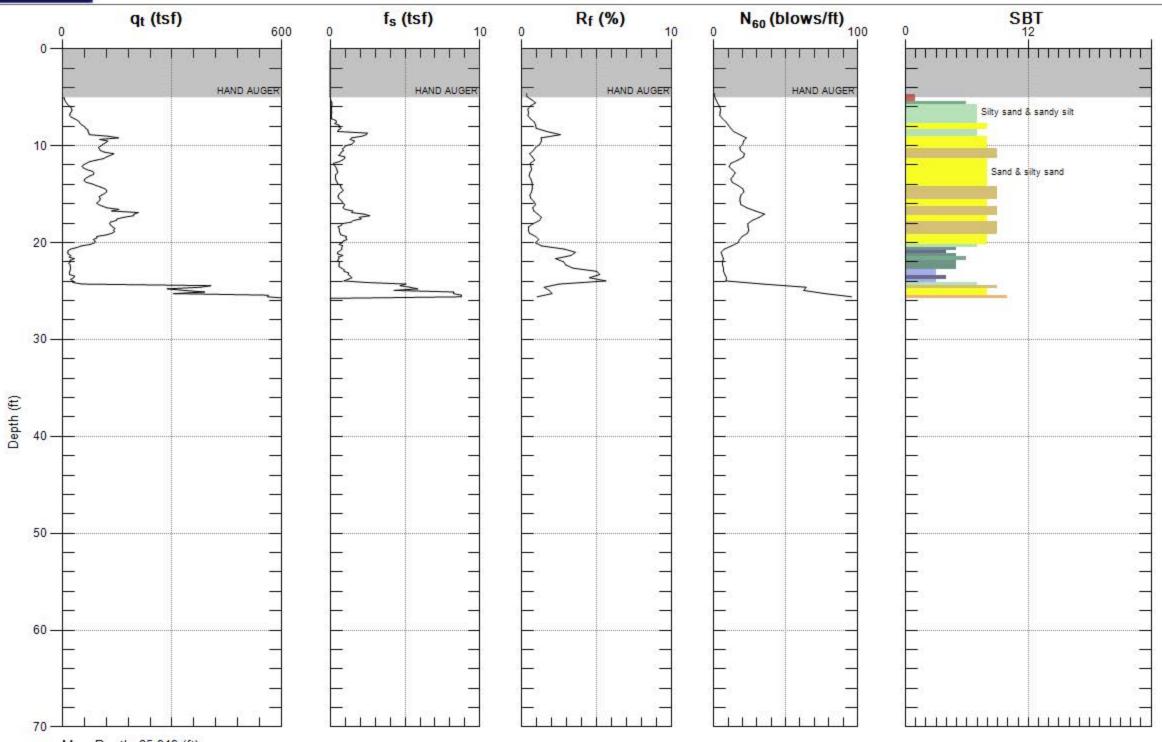


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Sounding: C-10

Engineer: S.KOLTHOFF

Date: 1/2/2014 10:35



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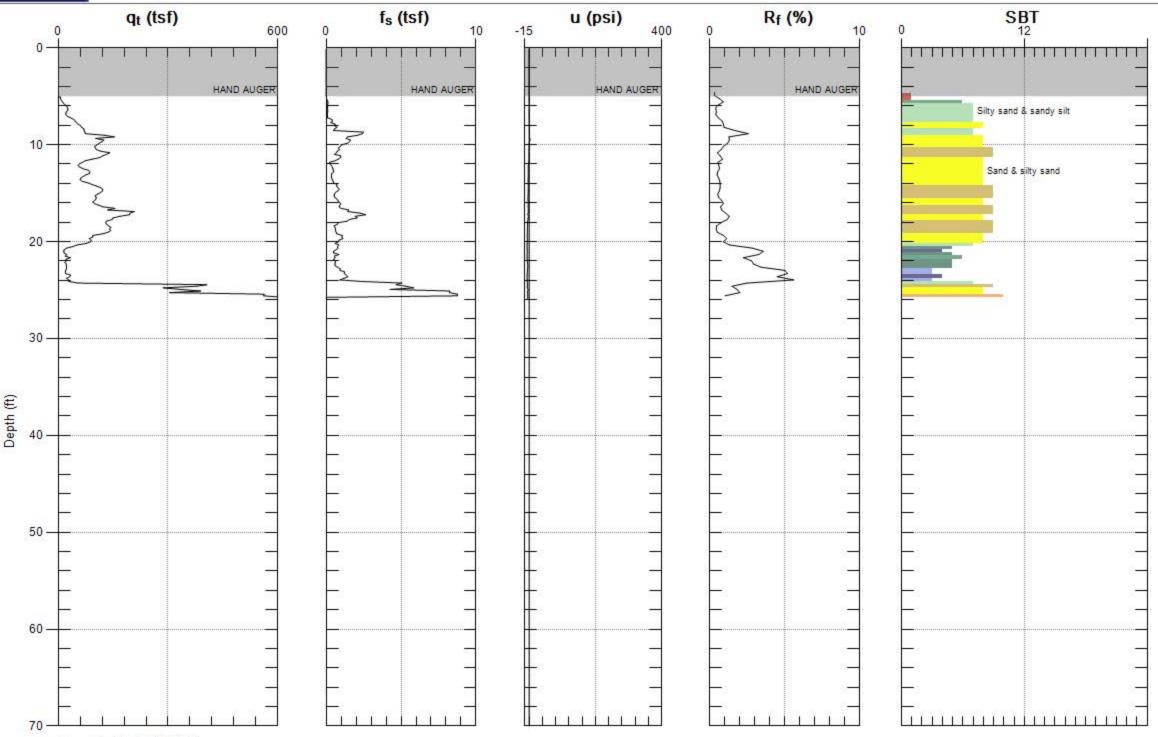


Site: 1800 ARGYLE AVE.

Sounding: C-10

Engineer: S.KOLTHOFF

Date: 1/2/2014 10:35



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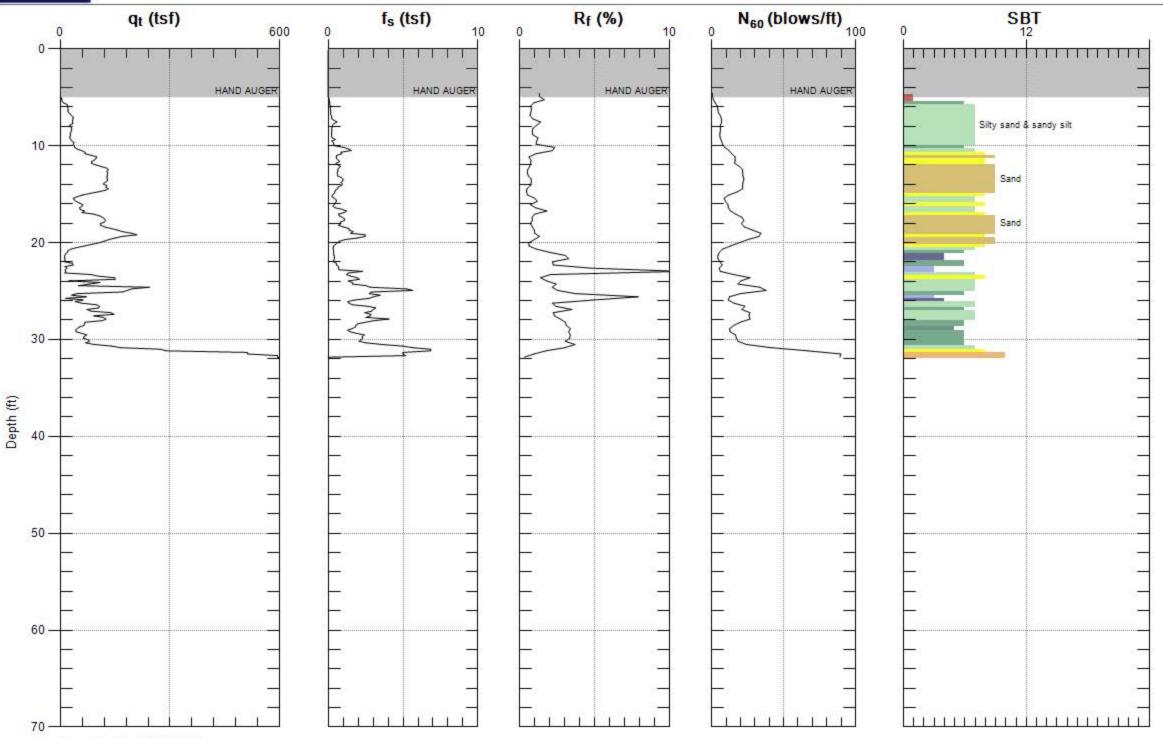


Site: 1800 ARGYLE AVE.

Sounding: C-11

Engineer: S.KOLTHOFF

Date: 1/2/2014 11:17



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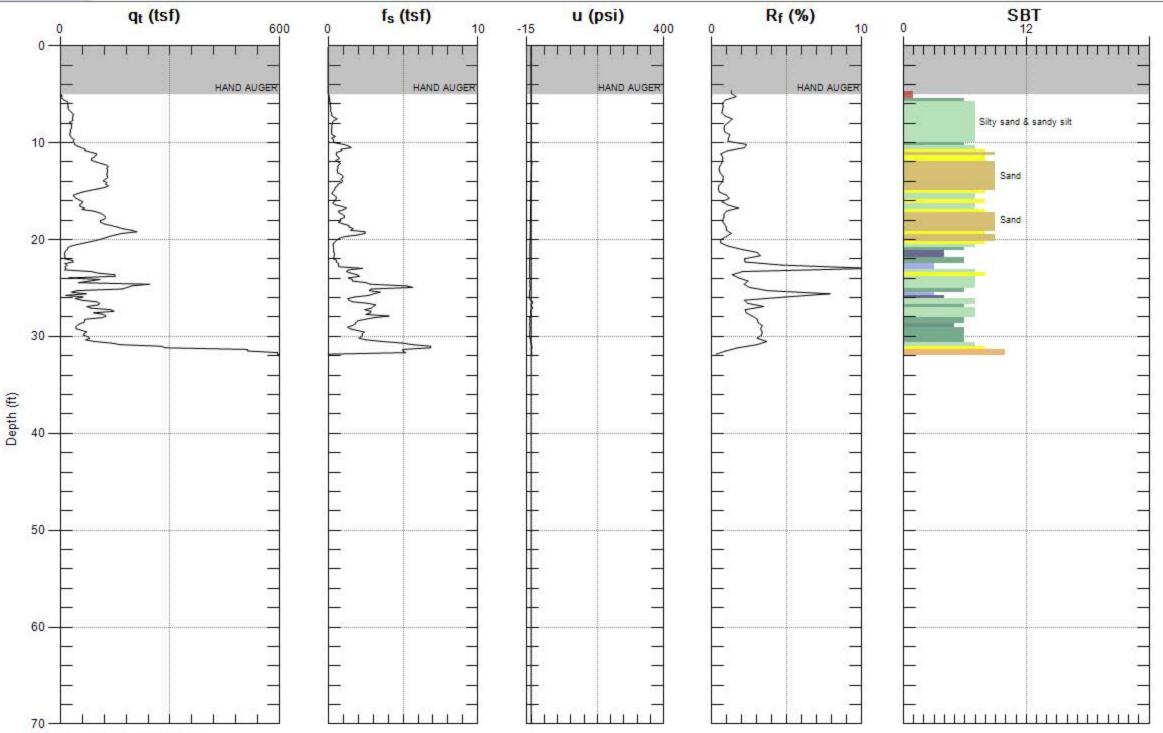


Site: 1800 ARGYLE AVE.

Sounding: C-11

Engineer: S.KOLTHOFF

Date: 1/2/2014 11:17



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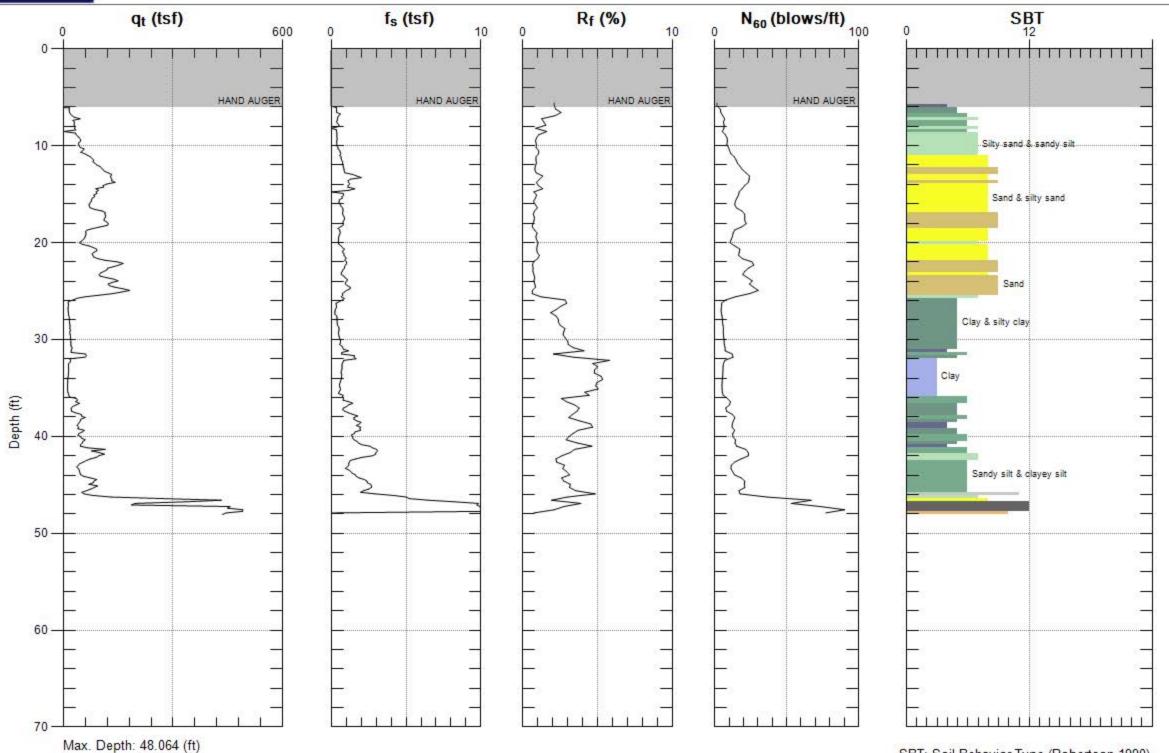


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Sounding: C-12

Engineer: S.KOLTHOFF

Date: 1/3/2014 10:40



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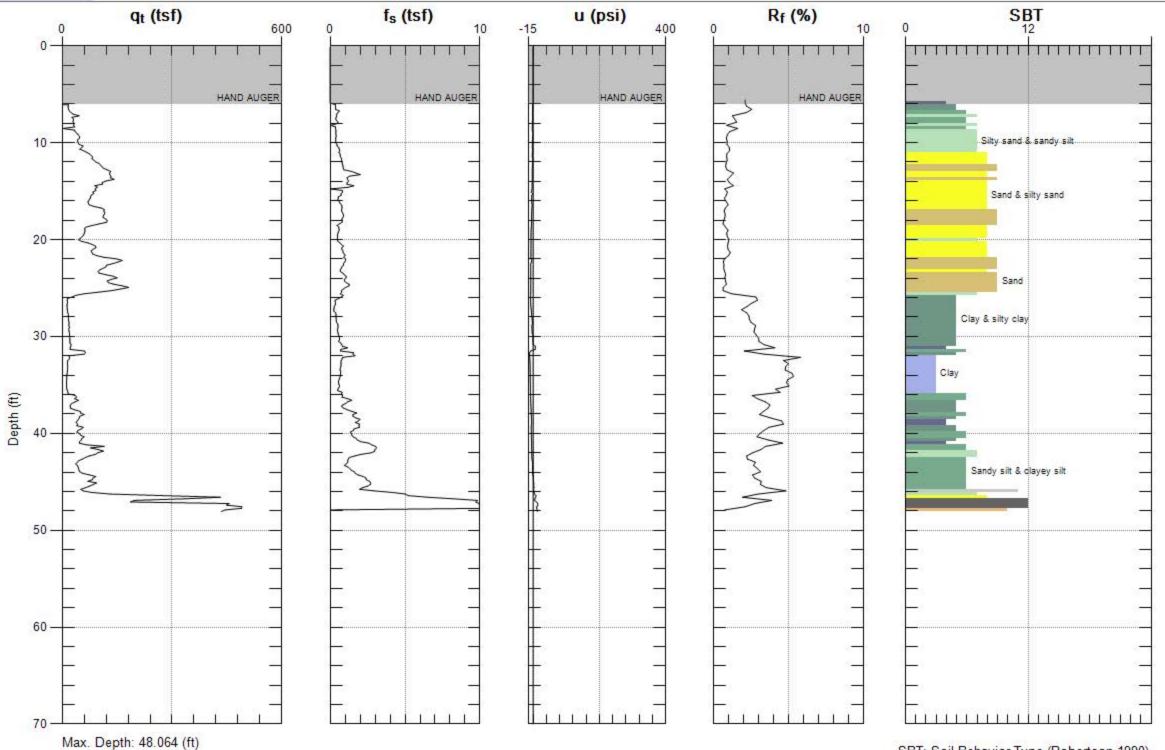


Site: 1800 ARGYLE AVE.

Sounding: C-12

Engineer: S.KOLTHOFF

Date: 1/3/2014 10:40



Avg. Interval: 0.328 (ft)

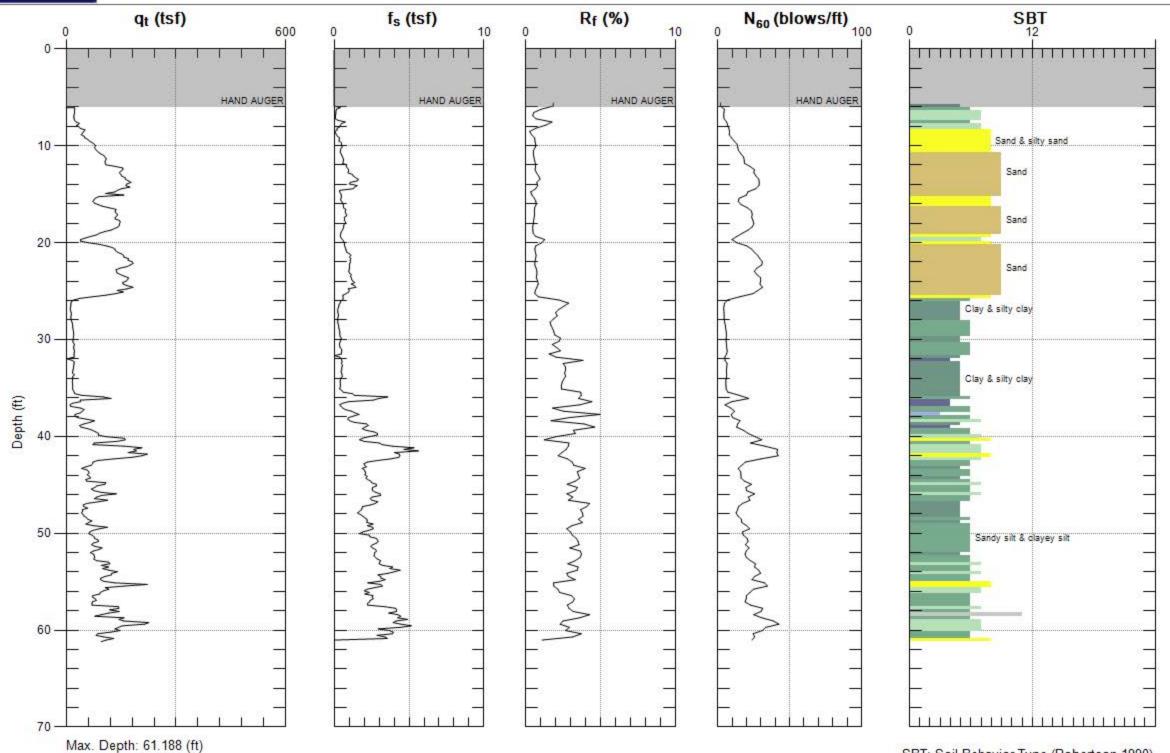


Site: 1800 ARGYLE AVE.

Sounding: C-13

Engineer: S.KOLTHOFF

Date: 1/3/2014 12:00



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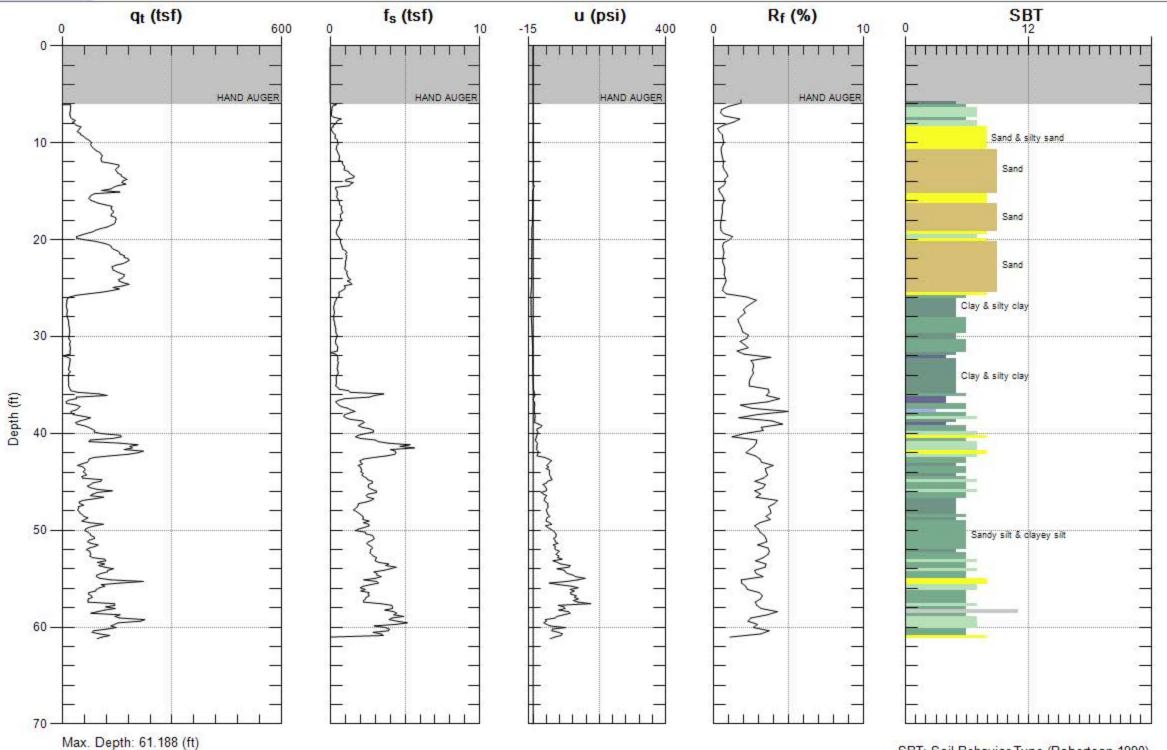


Site: 1800 ARGYLE AVE.

Sounding: C-13

Engineer: S.KOLTHOFF

Date: 1/3/2014 12:00



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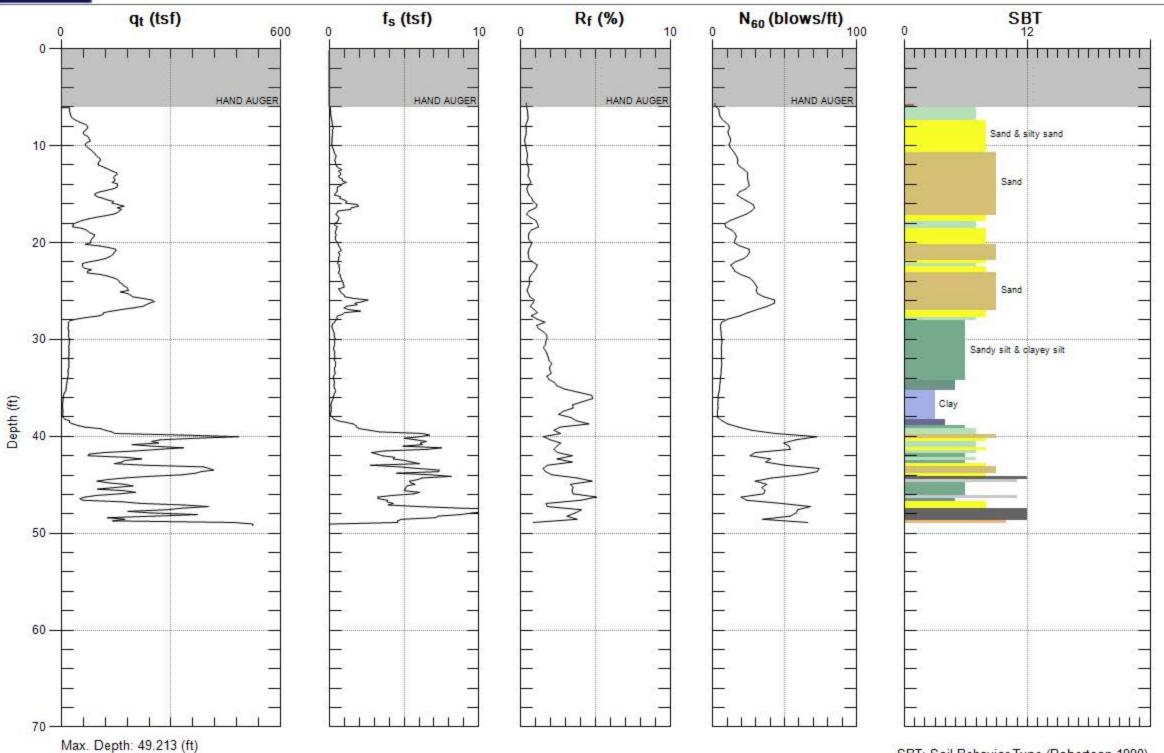


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Sounding: C-14

Engineer: S.KOLTHOFF

Date: 1/3/2014 12:50



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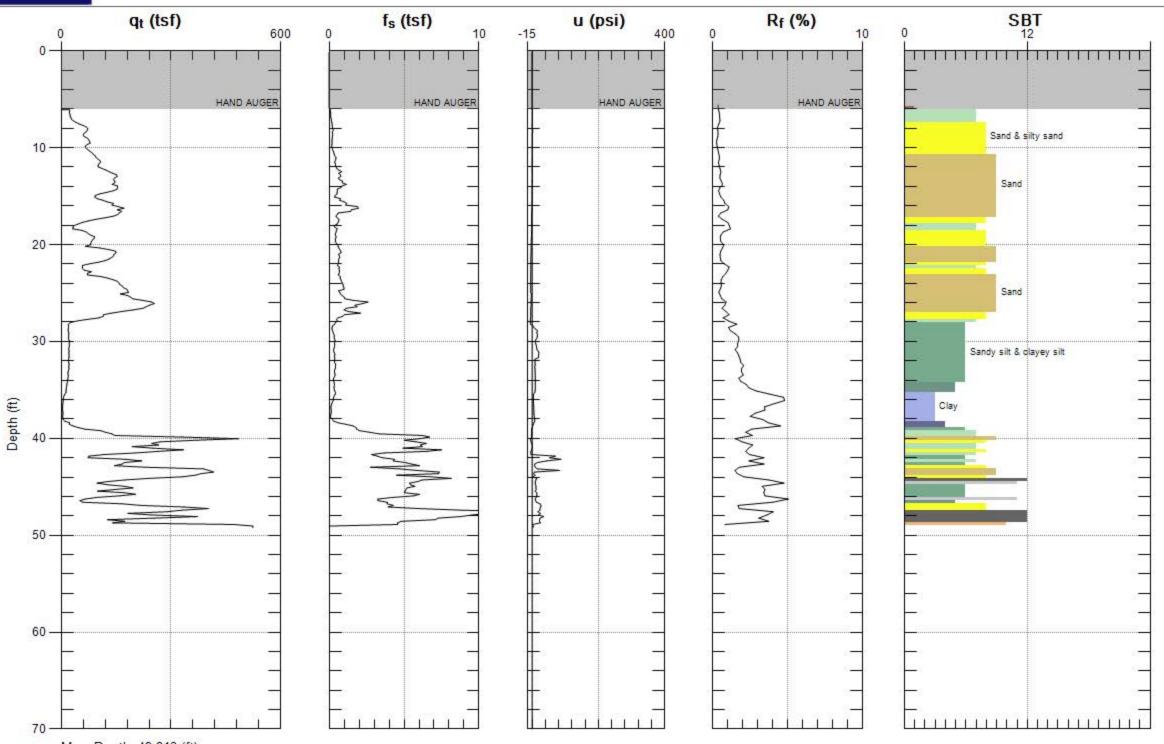


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Sounding: C-14

Engineer: S.KOLTHOFF

Date: 1/3/2014 12:50



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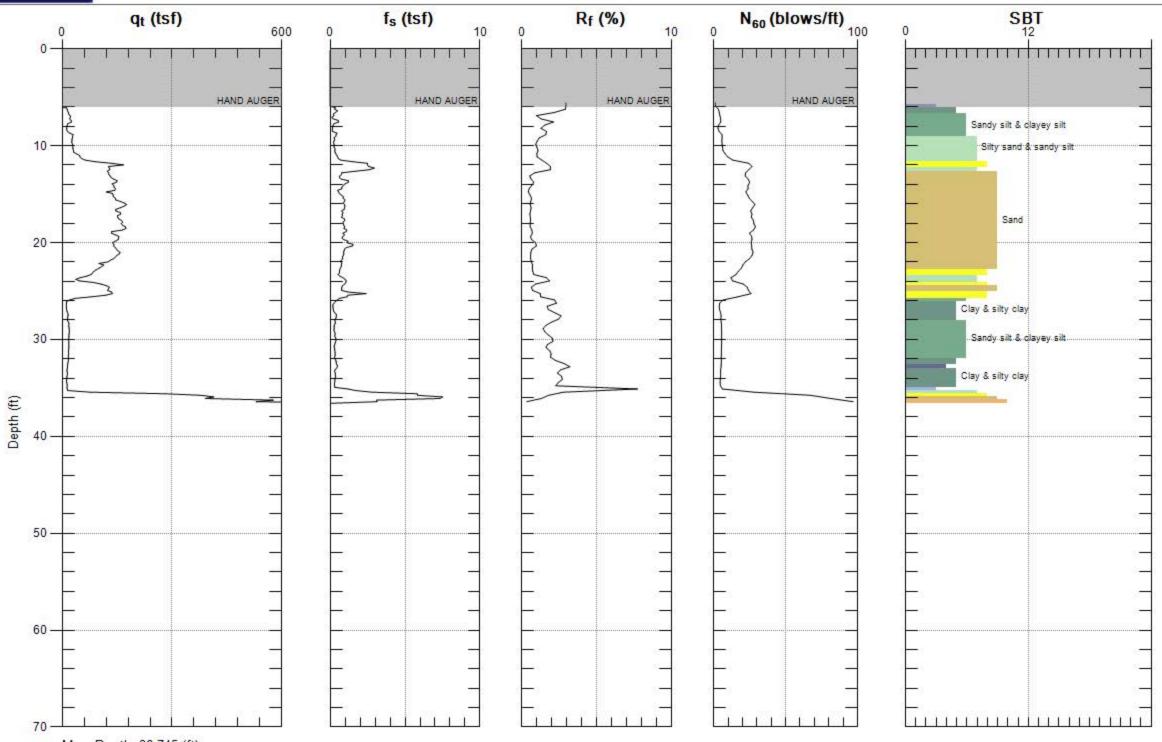


Site: 1800 ARGYLE AVE.

Sounding: C-15

Engineer: S.KOLTHOFF

Date: 1/3/2014 01:31



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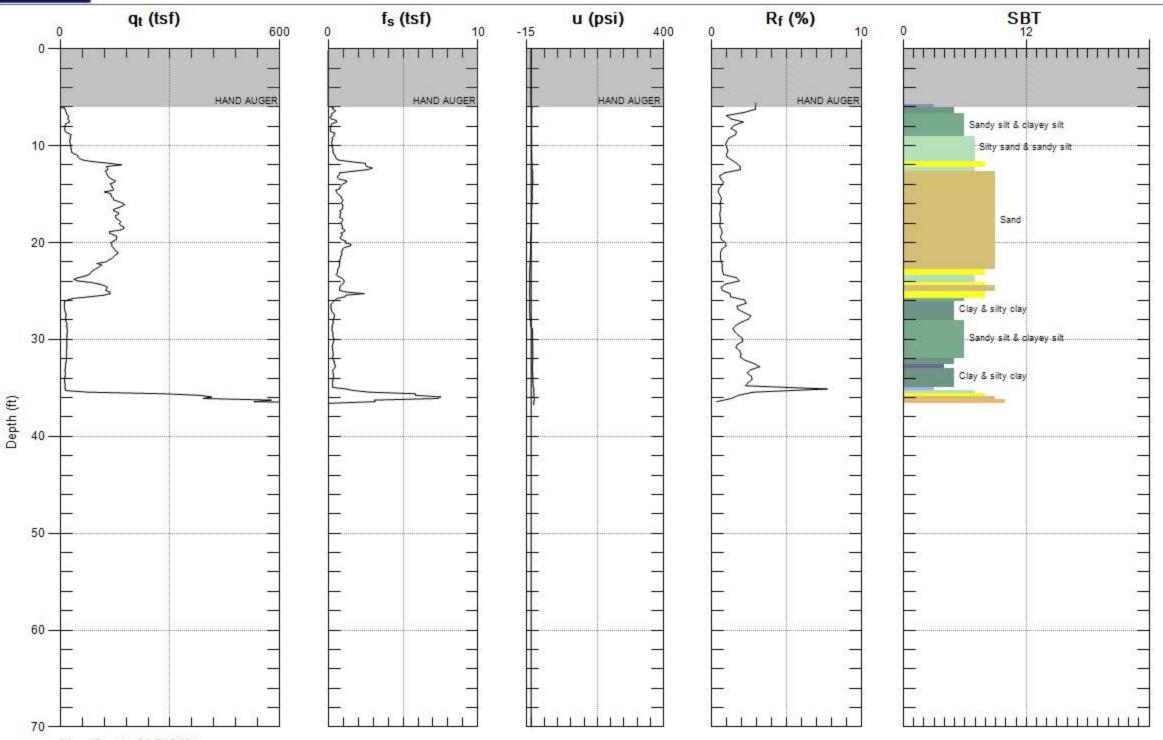


Site: 1800 ARGYLE AVE.

Sounding: C-15

Engineer: S.KOLTHOFF

Date: 1/3/2014 01:31



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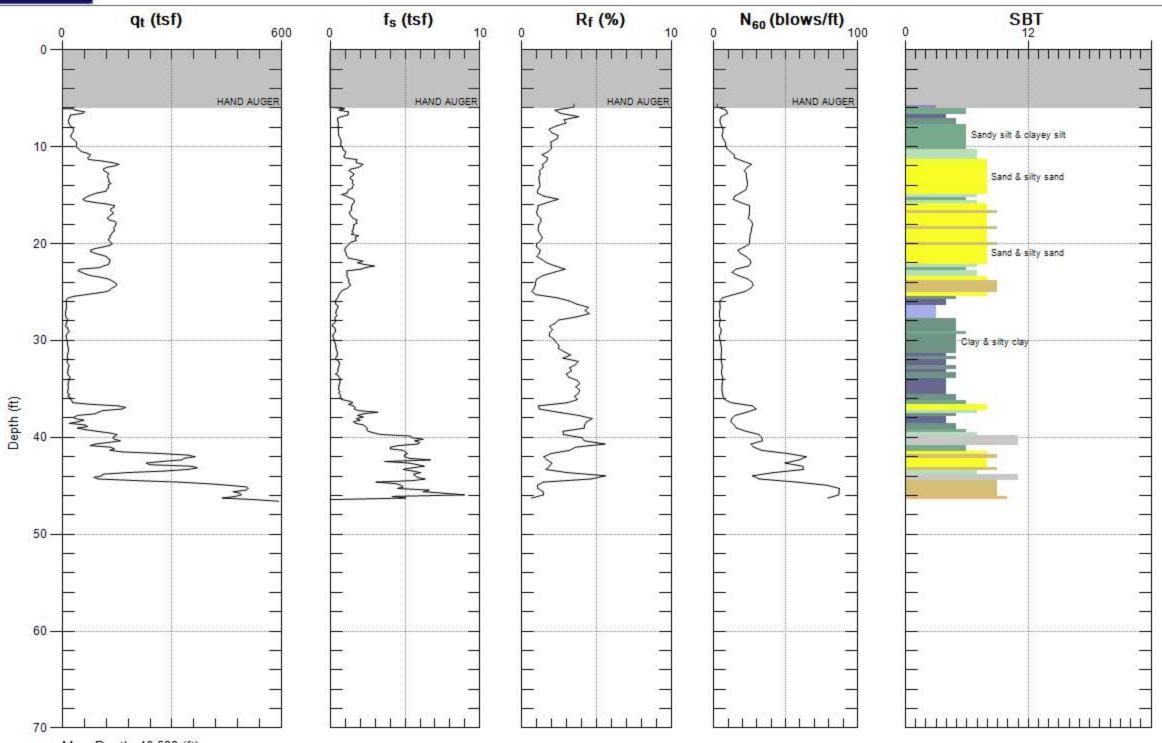


Site: 1800 ARGYLE AVE.

Sounding: C-16

Engineer: S.KOLTHOFF

Date: 1/3/2014 02:15



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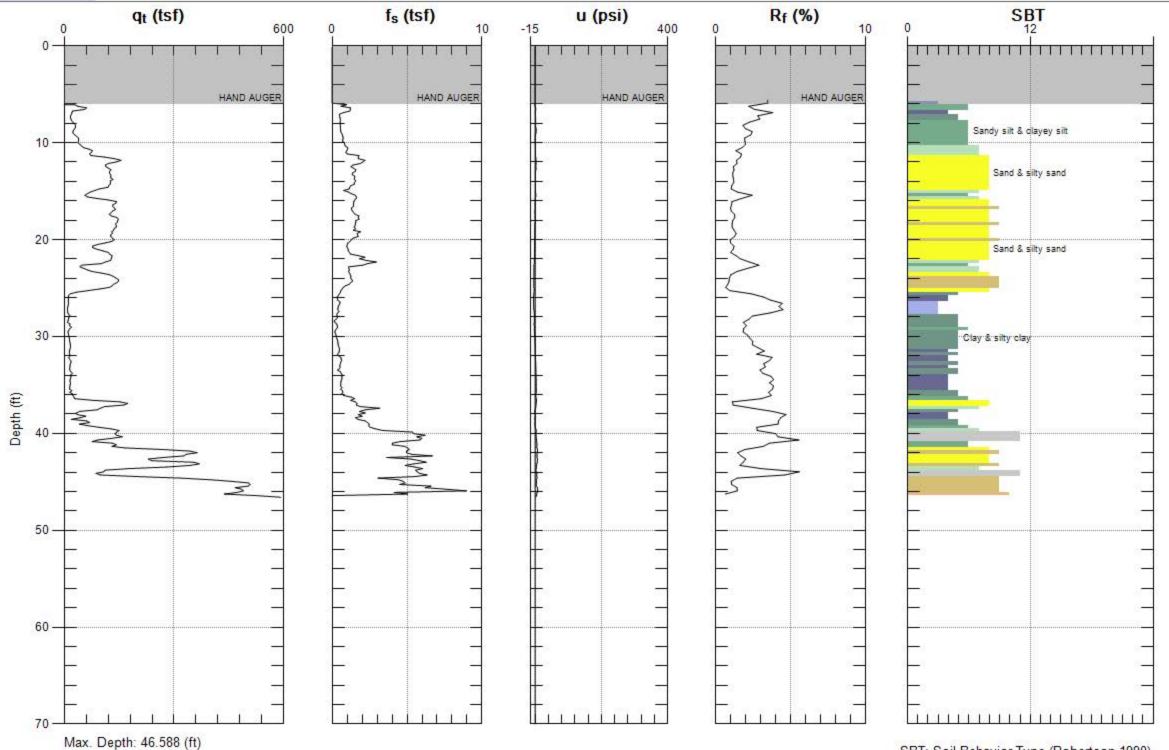


Site: 1800 ARGYLE AVE.

Sounding: C-16

Engineer: S.KOLTHOFF

Date: 1/3/2014 02:15



Avg. Interval: 0.328 (ft)

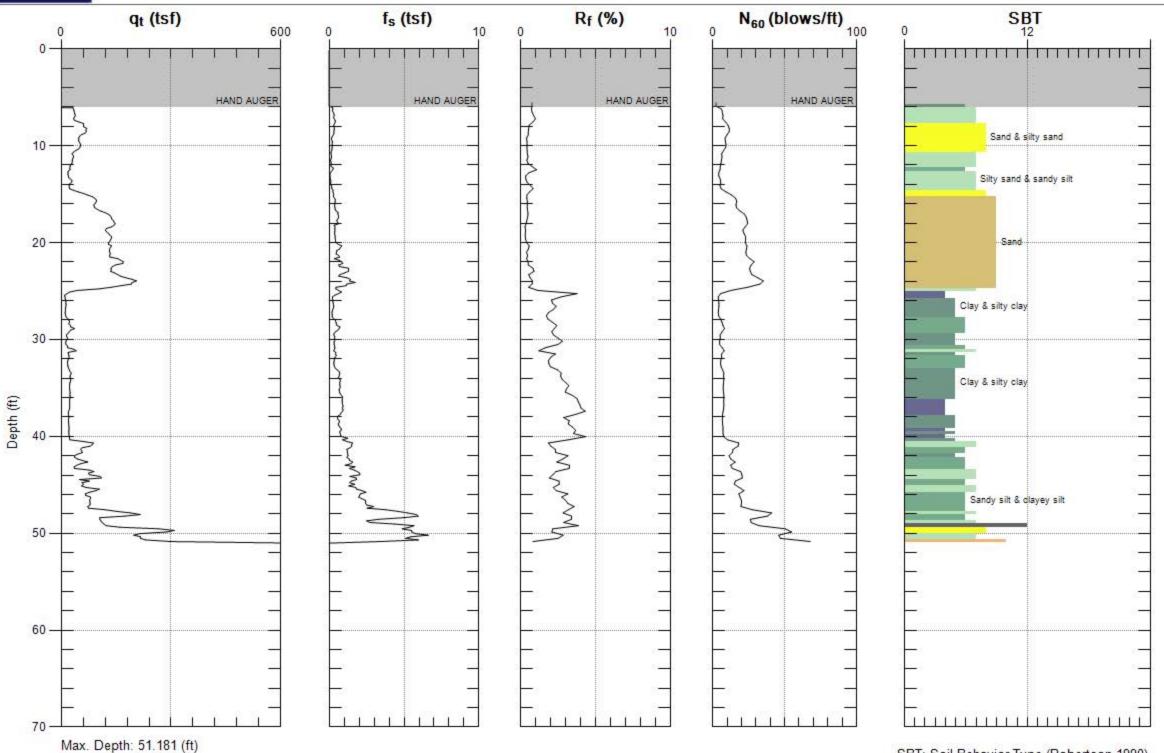


Site: 1800 ARGYLE AVE.

Sounding: C-17

Engineer: S.KOLTHOFF

Date: 1/6/2014 09:42



Avg. Interval: 0.328 (ft)

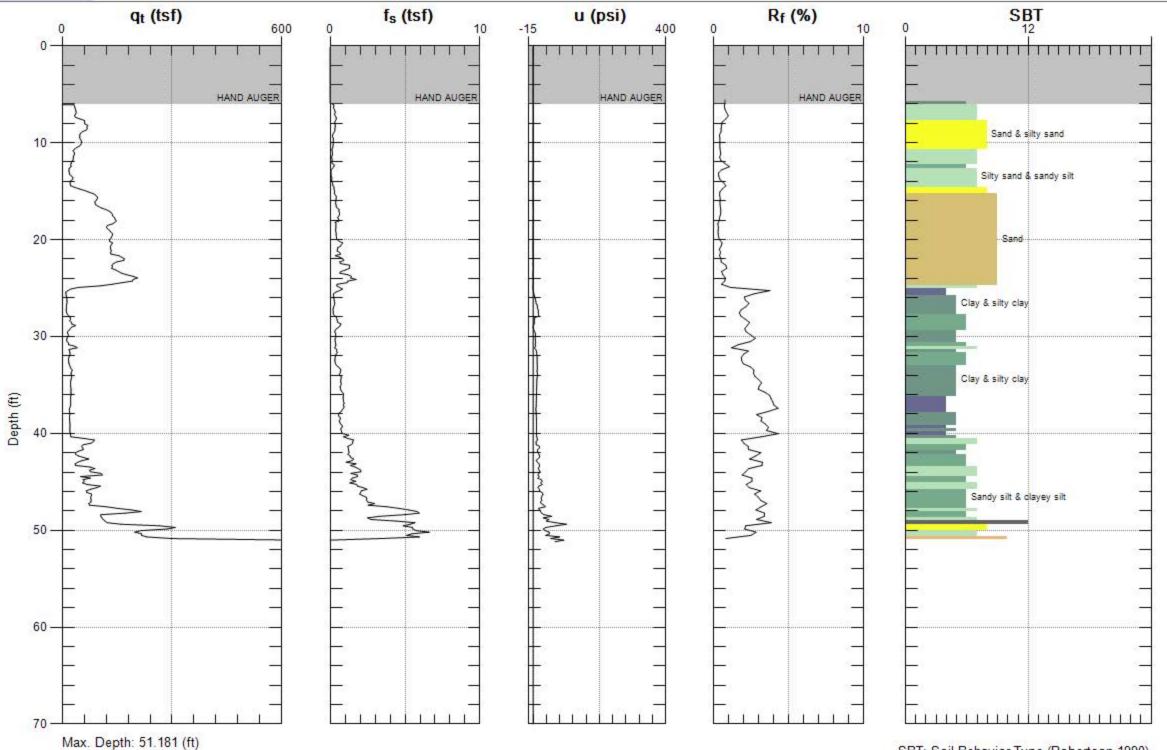


Site: 1800 ARGYLE AVE.

Sounding: C-17

Engineer: S.KOLTHOFF

Date: 1/6/2014 09:42



Avg. Interval: 0.328 (ft)

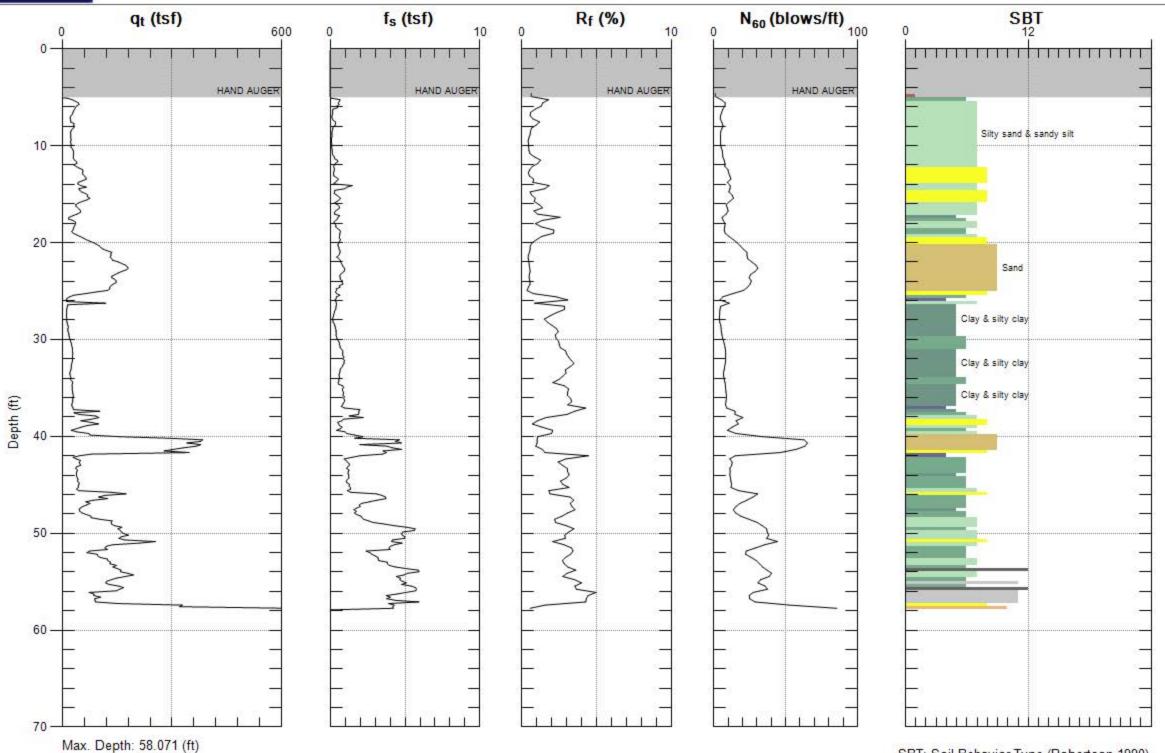


Site: 1800 ARGYLE AVE.

Sounding: C-18

Engineer: S.KOLTHOFF

Date: 1/6/2014 10:55



Avg. Interval: 0.328 (ft)

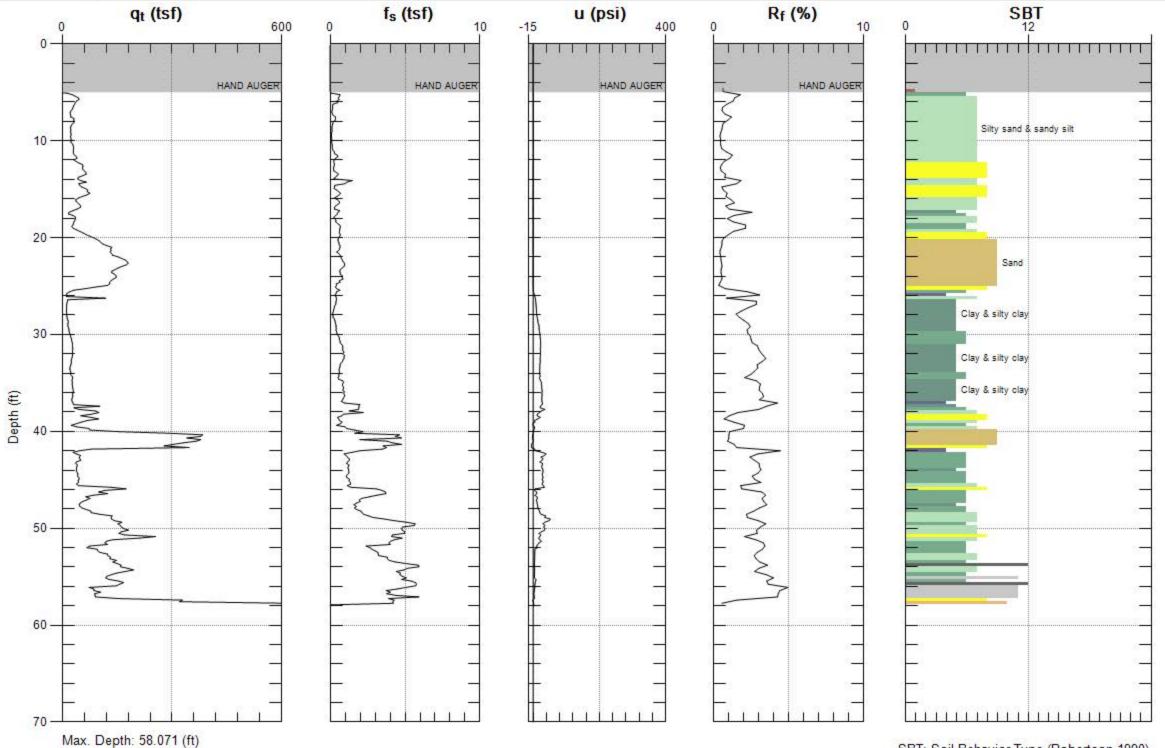


Site: 1800 ARGYLE AVE.

Sounding: C-18

Engineer: S.KOLTHOFF

Date: 1/6/2014 10:55



Avg. Interval: 0.328 (ft)



Avg. Interval: 0.328 (ft)

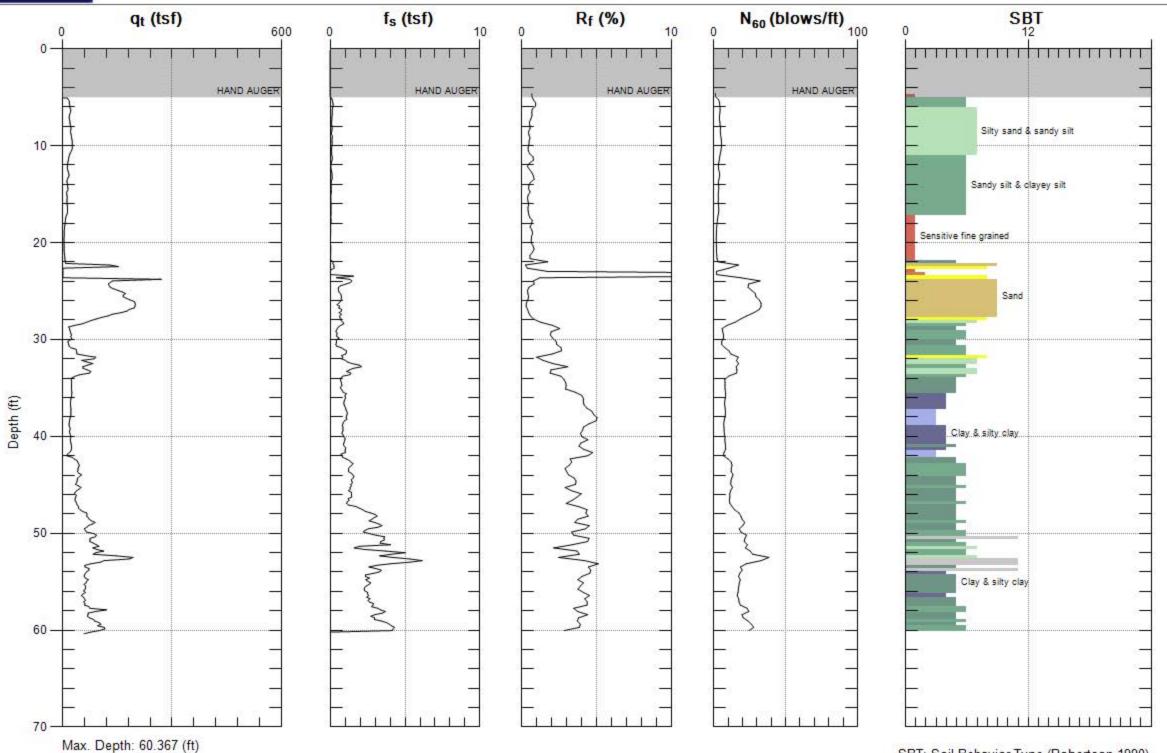
GROUP DELTA

Site: 1800 ARGYLE AVE.

Sounding: C-19

Engineer: S.KOLTHOFF

Date: 1/6/2014 12:24



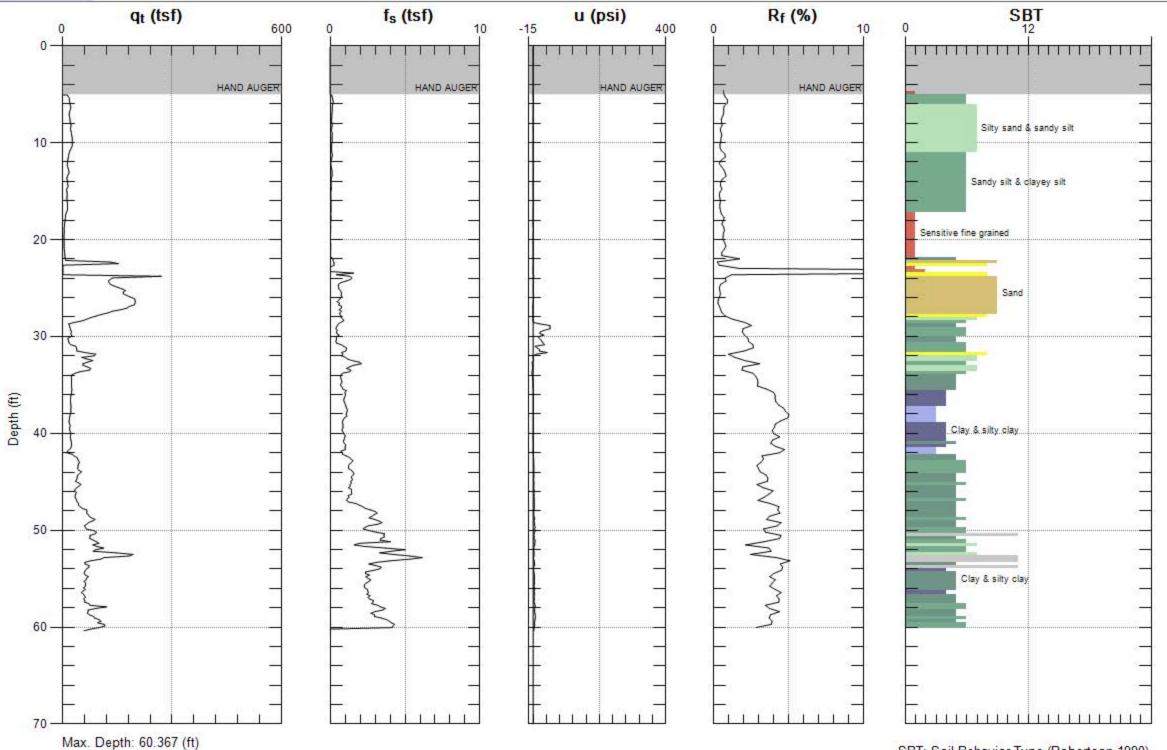


Site: 1800 ARGYLE AVE.

Sounding: C-19

Engineer: S.KOLTHOFF

Date: 1/6/2014 12:24



Avg. Interval: 0.328 (ft)

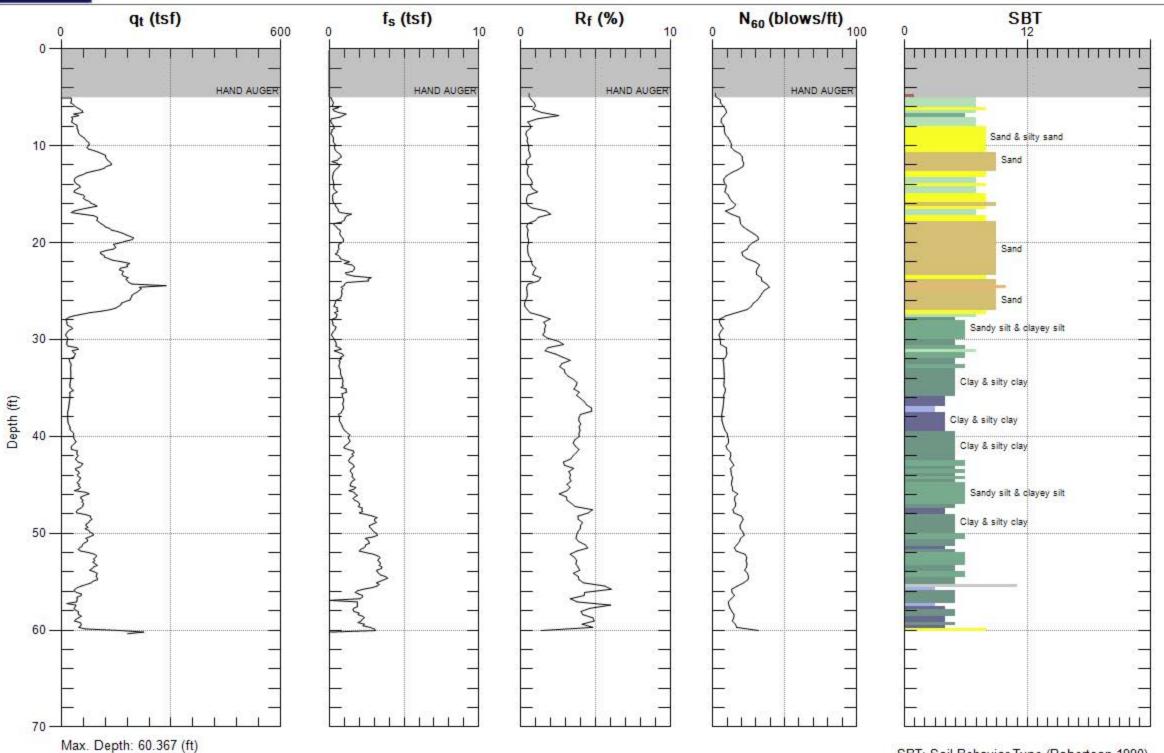


Site: 1800 ARGYLE AVE.

Sounding: C-20

Engineer: S.KOLTHOFF

Date: 1/6/2014 01:11



Avg. Interval: 0.328 (ft)

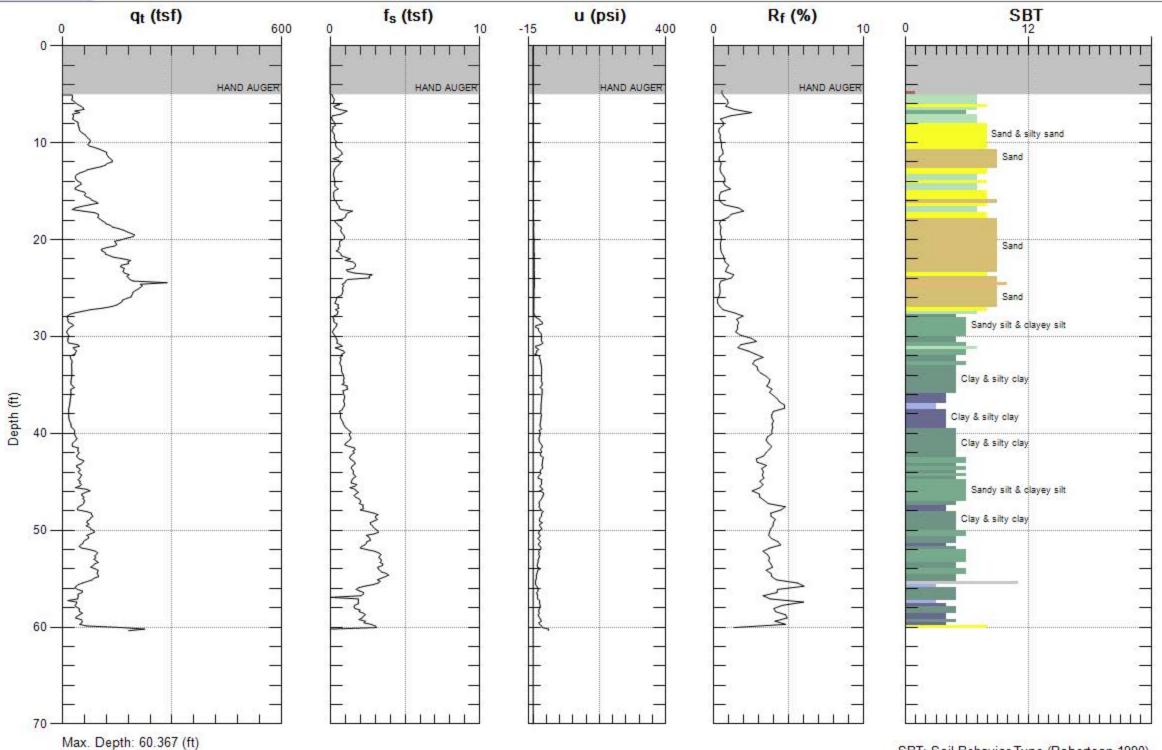


Site: 1800 ARGYLE AVE.

Sounding: C-20

Engineer: S.KOLTHOFF

Date: 1/6/2014 01:11



Avg. Interval: 0.328 (ft)

_0	G O	F	C)R	E	BO	RIN	$\exists \mid$	PROJECT NAME Green Trench	PROJEC	T NUMBER			ORING B-1	
SITE	LOCA	TION	ı						DATE(S) DRILLED	LOGGEI	D BY			HEET N	0.
1800) Argyle	Ave	nue,	Holly	/woo	d, Ca			1/09/14 to 01/09/14	TPO			1	of 3	
DRIL	LING N	/ETH	IOD						DRILL BIT SIZE/TYPE		CHECKED	BY			PTH DRILLE
HSA									8"		SK		(fee	<u> </u>	50
DRIL	L RIG	TYPE	Ξ						DRILLED BY		INCLINATION	ON FI	ROM V	ERTICA	AL/BEARING
CME									Gregg In-Situ Drilling			0			
	ARENT e encou			DWA	TER	DEP ⁻	ТН				APPROXIN (feet)		SURF 19.2	ACE EL	EVATION
СОМ	MENTS	3									BOREHOL			L	
	1											S	oil Cut	tings	
	(£)			so	IL C	ORE		<u>}</u>				STS	RΥ	E, OUR	
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESC	CRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTES
	-								Approximately 11 inches Asphali	<u>.</u>					
	_							\A	ARTIFICIAL FILL (Qaf)			-			
	_							W.	Sandy SILT , dark brown, moist, with rootlets.	fine to medi	um sand,				
	-							\searrow	Hand augered, not logged the fir	st 5 feet.					
	-4 15							A A	Railroad ties and ballast encount	ered.					
5	_								Clayey to Silty SAND, 10yr 5/4	yellowish bro	 wn.	-			
	-	1	:	24/30				800	UPPER SAND UNIT (Qs)						
								6/9 ø/0.	Clayey to Silty SAND, 10yr 4/4 brown), moist, fine to medium sa	(dark yellowi	sh				
	-							6/9/	few fine gravels, mild to moderat	ely develope	ed soil.				
	_410	2	:	22/30				6%							
10															
10	_							V /0,							
	L	3		24/30	ı			6%							
		ا	•	- -√30	,			8/0							
	-							20/		-		_			
									SAND , 10yr 5/4 (yellowish brow medium sand, some coarse sand						
		4	:	26/30						3					
	_405								Clevey CAND 75 - 4/4/1	to double	<u></u>	-			
15	-								Clayey SAND, 7.5 yr 4/4 (brown moist, fine to medium grained sa few fine gravel, moderate soil de	nd, few coar					
-		5	:	24/30					SAND, 10 yr 5/4 (Yellowish brow medium sand, some coarse sand gravel.						
•	-							///	MUDFLOW (Qm)			-			
	-4 00	6	;	30/30					Sandy CLAY, 7.5 yr 4/3 (Brown) sand, few coarse sand, few fine cobbles.						
ROU	GF	Ç	92 /	Argo	ona	ut, \$	ONSU Suite 1 A 926	20	THIS SUMMARY APPLIANTS, INCOFTHIS BORING AND SUBSURFACE CONDIT LOCATIONS AND MAY WITH THE PASSAGE OF PRESENTED IS A SIMPLE CONDITIONS ENCOUN	AT THE TIME TIONS MAY D CHANGE AT OF TIME. THE PLIFICATION	E OF DRILLING IFFER AT OTH THIS LOCATIO E DATA	IER DN	FI	GURI	E A-41

DELTA

Aliso Viejo, CA 92656

_0	G O	F	C)R	E	BO	RIN	G	PROJECT NAME Green Trench	PROJEC	T NUMBER			oring B-1	
SITE	LOCA	TION	ı						DATE(S) DRILLED	LOGGE	BY			HEET N	0.
1800) Argyle	e Ave	nue	, Holly	woo	d, Ca			1/09/14 to 01/09/14	TPO			2	of 3	
DRIL	LING N	/IETH	HOD						DRILL BIT SIZE/TYPE		CHECKED	BY			PTH DRILL
HSA									8"		SK		(fee		50
	L RIG	TYPE	Ε						DRILLED BY		INCLINATIO	ON F	ROM \	/ERTICA	L/BEARIN
СМЕ									Gregg In-Situ Drilling			0			
	ARENT encou	_		IDWA	TER	DEP ⁻	ГН				APPROXIM (feet)		SURF 19.2	ACE EL	EVATION
СОМ	MENTS	3									BOREHOLE			L	
												S	oil Cut	tings	
	(£)			SO	IL C	ORE						STS	≿	nto R	
DEPTH (ft)	ELEVATION (#)			%	o;		ш~					PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD
EPTI	/ATI	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ	R.Q.D., %	FRACTURE DRAWING/ NUMBER	로	MATERIAL DES	CRIPTION		ÆR	ORA TES	ILL F ERS	NOTE
□		ND.	XOX	S	AC.	J.O.:	RAC IUMI	5				ACF	LAB.	DR	
_			3	REC	FR	Ľ.	E □ <					<u> </u>		_	
-	-	7		22/30				\\\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.	OLDER ALLUVIUM (Qoal)						
-	H							//		a Brown\ ~-	ict fine				
-								[;;	Clayey SAND, 7.5 yr 4/6 (Strong to medium sand, little coarse sand)	nd, few fine g	ravels,				
		8		22/30					trace coarse gravel, trace cobble	es.					
5	_395							/;							
-25	L							[;							
	_														
=	-	9		19/30				9/0/	Silty SAND, 7.5 yr 5/6 (Strong E to coarse sand, some fine sand,	Brown), wet, r	medium	1			
-	L							6/2	to coarse sand, some tine sand,	nace line gra	avei.				
_				-				6/9/							
	_							8%							
-	390							9/2							
30								9/0							
-	_							6%							
-	<u> </u>	10		30/30				8/0							
_															
				-				9/2							
-	-								SAND, 7.5 yr 4/6 (Strong Brown), wet, medic	ım to	1			
	_385	11		26/30					coarse sand. Clayey SAND, 7.5 yr 4/4 (Brown	mostly find		-			
35								(;)	some medium sand, few coarse	sand, few fin	e gravel,				
SS	<u> </u>							Δ	- trace coarse gravel and cobbles Gravelly SAND, 7.5 yr 2.5/3 (Ve		n),/	1			
-	L	12		30/30					medium to coarse sand, some fi coarse gravel, few cobbles.	ne sand, som	e fine to				
_				50/50					coaise graver, rew connies.						
_	<u> </u>			$ \!\!\!-\!\!\!\! $				\(\frac{\lambda}{\lambda}\)	Silty SAND, 7.5 yr 4/4 (Brown),	wot fine as					
-	L							6/8	SIRY SAND, 1.5 yr 4/4 (Brown),	wet, iiie san	u.				
_		13		30/30					SAND , 7.5 yr 4/4 (Brown), wet,	mostly fine to					
	_380								medium sand, few coarse sand. MODELO FORMATION (Tm)						
ROI	JP			_		ļ			THIS SUMMARY APPL	IES ONLY AT	THE LOCATIO	N N			
1	GF	ROI	JP	DE	LT/	A C	ONSU	LT/	NTS, INCOF THIS BORING AND	AT THE TIME FIONS MAY D	OF DRILLING.	ER			
		Ç	92 .	Argo	ona	ut, S	Suite 1	120	LOCATIONS AND MAY WITH THE PASSAGE O	CHANGE AT	THIS LOCATIO	N	FI	GURE	E A-41
				_		_	A 926		PRESENTED IS A SIMI CONDITIONS ENCOUN	PLIFICATION		۸L	1		

_O	G C	F	CC)R	E	BO	RINC	\exists	PROJECT NAME Green Trench	PROJEC	NUMBER		- 1	ORING B-1	
	LOCA								DATE(S) DRILLED	LOGGED	ВҮ		s	HEET N	0.
) Argyle			Holly	ywoo	d, Ca		\perp	1/09/14 to 01/09/14	TPO	CHECKER	DV		of 3	PTH DRI
DRIL HSA	LING N	VIE IT	UD						DRILL BIT SIZE/TYPE 8"		SK	ΒY		et)	50 50
	L RIG	TYPI	E						DRILLED BY		INCLINATION	ON F	ROM	VERTICA	
СМЕ									Gregg In-Situ Drilling			0			
	ARENT e encou			DWA	TER	DEP.	ТН				APPROXIM (feet)	ATE	SURF	ACE EL	EVATIO
	MENT:										BOREHOLE		19.2 CKFIL	.L	
													oil Cu		
				so	IL C	ORE						ဟ		<u>α</u>	
(#) H	ELEVATION (ft)				<u> </u>			790				PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIEI
DEPTH (ft)	VATIC	Š.	Š.	RECOVERY, %	FRAC. FREQ.	% '.0	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DES	CRIPTION		ÆR.	ORA	ILL R ERS/	NOT
□	ELE	RUN NO.	BOX NO.	COVI	SAC.	R.Q.D., %	RAC RAW NUMI	5				PACI	AB.	DR	
				RE	Ä		<u> </u>								
_									SILTSTONE, mottled 10 yr 6/1	(Gray) and 7.5	5 yr 5/6				
									(Strong Brown), moist, some fire	ne sand.	-				
_	-	14		50/60					SANDSTONE, 7.5 yr 5/6 (Stromedium grained sand.	ng Brown), wet	, fine to				
_	L	'		20,00					SILTSTONE, mottled 10 yr 6/1	(Gray) and 7.5	yr <u>5</u> /6				
_	_375								(Strong Brown), moist, some file	ne sand.	•				
- 45															
-4 0	-														
-	<u> </u>														
_	L														
_		15	(60/60											
	_														
_	370														
- 50	_								Total Depth: 50 ft bgs						
_									Groundwater: Encountered at 2 drilling)	23.5 ft (Measur	ed after				
									Boring backfilled with tamped s	oil cuttings.					
-	-														
-	<u> </u>														
_	_365														
- 55															
	_														
_	-														
_	L														
_															
_	<u> 360 </u>														
ROU	JP								THIS SUMMARY APP	LIES ONLY AT	THE LOCATION	N	1		
1	GF								ANTS, INCOF THIS BORING AN SUBSURFACE COND	D AT THE TIME DITIONS MAY DI	OF DRILLING. FFER AT OTH	ΕR			
							Suite 1		LOCATIONS AND MA WITH THE PASSAGE	Y CHANGE AT OF TIME. THE	THIS LOCATIO DATA	N	F	IGURI	E A-4
ELA	ΓA		Alis	so \	/iej	o, C	A 926	56	PRESENTED IS A SIN CONDITIONS ENCOU		JE THE ACTUA	AL			
ONSHINE													1		

SITE	LOCA	TION	ı				RIN		PROJECT NAME Green Trench DATE(S) DRILLED	LOGGE	T NUMBER		SI	ORING B-2 HEET No	0.
	Argyle				/woo	d, Ca		_	1/09/14 to 01/09/14	TPO	OUEOVED	D\/			PTH DRILL
DRIL HSA	LING N	/IEIF	Ю						DRILL BIT SIZE/TYPE 8"		SK	Bĭ	(fee		44.5
	L RIG	TYPE	Ξ						DRILLED BY		INCLINATION	ON F	ROM V	ERTICA	
СМЕ	95								Gregg In-Situ Drilling			0			
	ARENT e encou	_		IDWA	TER	DEP.	ГН	-			APPROXIN (feet)		SURF 17.4	ACE EL	EVATION
СОМ	MENTS	3									BOREHOL		CKFIL oil Cut		
	(#)			so	IL C	ORE		_			•	TS	≿	Ljin R	
DEPTH (ft)	ELEVATION (#)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DES	CRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTE:
									Approximately 8 inches Asphalt						
								$\langle \hat{\chi} \rangle$	ARTIFICIAL FILL (Qaf)			1			
	415								Sandy SILT , dark brown, moist with rootlets.	, fine to medi	um sand,				
									Hand augered.						
5															
	-								<u>UPPER SAND UNIT (Qs)</u>						
	_	1	;	20/30					Clayey SAND, 7.5 yr 4/3 (Brown medium sand, few coarse sand,	n), moist, fine few fine grav	e to vel.				
_	_410							0/0/	Silty SAND, 7.5 yr 5/6 (Strong I medium sand, some coarse san	Brown), mois	t, fine to	1			
	_	2		11/30	ı			8/0	cobbles.	u, iew iirie gi	avei, iiace				
-	-							9/9/							
-10								8/0							
		3		24/30	ı			6%							
				T "39				6/0		~ -					
	4 05			$\left - \right $					SAND, 7.5 yr 5/6 (Strong Brown medium sand, some coarse san	d, mild soil	το				
-	L	4		20/20					development from 12 to 12.5 ft b	ogs.					
•	L	4		20/30	,										
15				$\left - \right $											
-									Clayey SAND, 7.5 yr 4/4 (Brown medium sand with some coarse			1			
	-	5		24/30					medium sand with some coarse	sanu, nace i	me gravel.				
-	_400			<u> </u>											
-															
-		6	;	22/30					SAND, 7.5 yr 5/4 (Brown), mois sand with some coarse sand, tra			_			
ROU	JP GF	Ç	92 /	Argo	ona	ut, S	ONSU Suite 1 A 926	20	THIS SUMMARY APPL OF THIS BORING AND SUBSURFACE CONDI LOCATIONS AND MAY WITH THE PASSAGE OF PRESENTED IS A SIM	OAT THE TIME TIONS MAY D CHANGE AT OF TIME. THE	E OF DRILLING IFFER AT OTH THIS LOCATIO E DATA	IER DN	FI	GURI	E A-42

92 Argonaut, Suite 120 Aliso Viejo, CA 92656

LO	GC)	CC	JΚ		30	RINC	フ	Green Trench					ORING B-2	
	LOCA								DATE(S) DRILLED	LOGGED	ВҮ		s	HEET N	0.
	0 Argyle			Holly	wood	d, Ca		\perp	1/09/14 to 01/09/14	TPO	CHECKER	DV.		of 3	PTH DRI
DRIL HSA	LING N	VIE I F	שטו						DRILL BIT SIZE/TYPE 8"		SK	ВY	(fe		44 44
	L RIG	TYPE	E					+	DRILLED BY		INCLINATION	ON F	ROM \	/ERTICA	
CME	95								Gregg In-Situ Drilling			0			
	ARENT e encou)WA	TER	DEP1	ГН				APPROXIM (feet)			ACE EL	EVATIO
	IMENT:		-								BOREHOLE		17.4 CKFIL	L	
													oil Cut		
	<u> </u>			SOI	L C	ORE						ဖွ		~	
Œ H	ELEVATION (ft)			%	o		ш~	LITHOLOGY				PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIEI
DEPTH (ft)	VATI	RUN NO.	BOX NO.	ΈRΥ	FRE	R.Q.D., %	TUR! VING IBER	된	MATERIAL DESC	CRIPTION		KER	3ORA TES	RILL F	NOT
		RUN	BOX	RECOVERY, %	-RAC. FREQ.	R.Q.	FRACTURE DRAWING/ NUMBER					PAC	LAE	MET	
				꿉	ĬĒ.										
_		7		1/30											
_				1/30											
	395								MUDFLOW (Qm)						
_	_							<i> ;;</i>	Clayey SAND, 7.5 yr 4/3 (Brown trace medium and coarse graine), moist, fine d sand, trace	sand, fine				
_		8	30	0/30					gravel. Sandy CLAY, 7.5 yr 4/2 (Brown	, moist, fine s	and,				
_25								<u> </u>	few medium sand, trace fine grade Clayey SAND, 7.5 yr 5/3 (Brown	vel, cobble at	25 feet.	-			
_									_ medium sand, few coarse sand,	few fine grave	el. / [—]				
	_	9	30	0/30					Sandy CLAY, 7.5 yr 5/3 (Brown few medium sand, trace coarse	sand, few fine	gravel.				
_	_390							<i>``</i> ;	OLDER ALLUVIUM (Qoal)						
_									Clayey SAND, 7.5 yr 4/3 (Brown medium sand some coarse sand	i), moist-wet, , some fine to	fine to coarse				
_		10	16	6/30				<i></i>	gravel, few cobblesGround Water						
_30									-Ground Water						
	-														
_	_	11	22	2/30				<i>``</i> ;							
-	_385														
_								<i> .</i> ,							
_		12	0)/30				<u> [;]</u>							
	-								MODELO FORMATION (Tm)						
_35	_								SILTSTONE , mottled 10 yr 6/1 ((Strong Brown), moist-wet, with		yr 5/6				
_		13	30	0/30											
_	000														
_	380		\vdash												
	_														
_	_														
GRO1	ΙΈΡ								THIS SUMMARY APPL	ES ONLY AT	THE LOCATION	N	<u> </u>		
	GF	२०।	UP [DEI	LT <i>A</i>	A CO	ONSU	LT/	NTS, INCOF THIS BORING AND SUBSURFACE CONDIT	AT THE TIME TONS MAY DI	OF DRILLING. FFER AT OTH	ER			
							Suite 1		LOCATIONS AND MAY WITH THE PASSAGE O	CHANGE AT THE	THIS LOCATIC DATA	N	FI	GUR	E A-4
1	111		ΔΙίο	~ \/	'ioic		A 926	56	PRESENTED IS A SIMI		OF THE ACTUA	۸L			

_0	G C	F	C	DR	E	BO	RINC	∣خ	PROJECT NAME Green Trench	I KOULU	NUMBER			ORING B-2	
	LOCA								DATE(S) DRILLED	LOGGED	ВҮ		S	HEET N	0.
) Argyle			, Holly	ywoo	d, Ca		\perp	1/09/14 to 01/09/14	TPO	CHECKEE	DV.		of 3	PTH DRI
DRIL HSA	LING N	VIE TH	HUD						DRILL BIT SIZE/TYPE 8"		SK SK	ВY	(fe		44 44
	L RIG	TYPI	E						DRILLED BY		INCLINATION	ON F	ROM \	/ERTICA	
CME									Gregg In-Situ Drilling			0			
	ARENT e encou			DWA	TER	DEP.	TH				APPROXIM (feet)			ACE EL	EVATIO
СОМ	MENTS	S									BOREHOLI		17.4 CKFIL	L	
													oil Cut		
				so	IL C	ORE						S		<u>~</u>	
(H)	ELEVATION (ft)				l			790				PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIE
DEPTH (ft)	VATIC	ON	Š.	RECOVERY, %	FRAC. FREQ.	7., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESC	CRIPTION		KER.	ORA	ILL R ERS/	NO
Ω	EE	RUN NO.	BOX NO.	COV	₹AC.	R.Q.D., %	RAC NUM	=				PAC	LAB	DR	
				R	芷		L U								
_															
	-														
_	375	14	١,	60/60											
_				00,00											
_															
- 45									Total Depth: 44.5 ft bgs (Refusa	l)		-			
0	_								Groundwater: Encountered at 29 drilling)	ft (Measured	after				
_	_								Boring backfilled with tamped so	il cuttings.					
_	_370														
_															
_	_														
_	-														
_5 0	_														
_															
_															
	_365														
_	-														
_	L														
- 55															
_															
	_														
_	360														
_															
_															
									<u> </u>						
ROU	JP G	5Uا	IJP	DF	T/	۸ (۲	ONSIII	ΙΤ	THIS SUMMARY APPL	IES ONLY AT AT THE TIME	THE LOCATION OF DRILLING	N		_	
			ง วา	ےر ۵۲۵۰		- Ut	Suite 1	20	NTS, INCOF THIS BORING AND SUBSURFACE CONDI- LOCATIONS AND MAY	CHANGE AT	THIS LOCATIO	ER N		را ال	– , ,
				_			A 926		WITH THE PASSAGE OF PRESENTED IS A SIMI	OF TIME. THE PLIFICATION (DATA		[GURI	= A-4
									CONDITIONS ENCOUN						

_0	G O	F	C)R	ΕI	BO	RIN	G	PROJECT NAME Green Trench	PROJEC	T NUMBER			ORING B-3	
SITE	LOCA	TION	I						DATE(S) DRILLED	LOGGE	BY			HEET N	0.
1800) Argyle	e Ave	nue,	, Holly	/woo	d, Ca			1/10/14 to 1/10/14	TPO			1	of 3	
DRIL	LING N	/IETH	IOD						DRILL BIT SIZE/TYPE	•	CHECKED I	вү			PTH DRILLI
HSA									8"		SK		(fee	,	49
	L RIG	TYPE	Ξ.						DRILLED BY		INCLINATIO	N FI	ROM V	ERTICA	L/BEARING
СМЕ									Gregg In-Situ Drilling			0			
	ARENT e encou	-		DWA	TER	DEP ⁻	ГН				APPROXIMA (feet)	ATE	SURF	ACE EL	EVATION
COM	MENTS	2									BOREHOLE		17.2		
COIVI	MENTS	,									BOKEHOLE		oil Cut		
	Œ			SO	IL C	ORE		_				ST	l≿	"; R	
DEPTH (ft)	ELEVATION (#)			%	ø		ш ~	LITHOLOGY				PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD
EPT	VATI	RUN NO.	Ŏ.	RECOVERY, %	-RAC. FREQ	R.Q.D., %	FRACTURE DRAWING/ NUMBER	뒫	MATERIAL DES	CRIPTION		KER	OR/	ILL F ERS	NOTES
	ELE	N N N	BOX NO.	000	AC.	7.Q.	RAC	=				PAC	PB	DR	
	<u>L</u>			RE	H.		<u></u>								
									Approximately 8 inches Asphalt						
	L							X	ARTIFICIAL FILL (Qaf)						
	145							1/2/	Sandy SILT, dark brown, moist	, fine to mediu	ım sand,				
	4 15							A	with rootlets.						
	<u> </u>							X.	Hand augered.						
								X							
_								[.X)							
5	<u> </u>							*							
-		1		22/30				0/0	UPPER SAND UNIT (Qs)						
		'		22/30				K .	— Silty SAND, 7.5 yr 4/4 (Dark Br medium sand, few coarse sand	own), moist, f	ine to				
-	4 10							7.	_ Clavey SAND, 7.5 yr 3/2 (Dark	Brown), mois	t, fine to				
-	L							6/6	medium sand, few coarse sand Silty SAND, 7.5 yr 4/6 (Strong						
		2		17/30				ø /o.	medium to coarse sand, some f coarse gravel, trace cobbles.	ine sand, trac	e fine and				
									coarse graver, trace cobbles.						
-10	-							6/0							
-								6/9							
		3		22/30				0/0							
	_405							2/2		,					
-	L								SAND, 7.5 yr 5/8 (Strong Brown coarse sand, few fine sand, few	n), moist, med fine gravel, tr	lium to ace				
		4	:	20/30					cobbles.						
	<u> </u>														
15	<u> </u>			$\left\ \cdot \right\ $				0/0	Silty SAND, 7.5 yr 4/6 (Strong						
-								6/0	medium sand, few coarse sand	•					
		5	:	24/30				();	Clayey SAND, 7.5 yr 4/3 (Brow medium sand, trace coarse san		to				
-	_400							[]	•						
-	L							0/0	Sand to Silty SAND, 7.5 yr 4/6 fine to medium sand, few coars	(Strong Brow	n), moist, d. few fine				
		6	:	24/30				8/0	gravel	- granica san	., ion iiio				
-	-			"				6/%							
	<u> </u>								SAND, 7.5 yr 5/6 (Strong Brown	n), medium to	coarse		igsqcut		
GROU	GF						ONSU Suite 1		THIS SUMMARY APPL INTS, INCO THIS BORING AND SUBSURFACE CONDI LOCATIONS AND MA' WITH THE PASSAGE PRESENTED IS A SIM	O AT THE TIME TIONS MAY D / CHANGE AT OF TIME. THE	E OF DRILLING. IFFER AT OTHE THIS LOCATION EDATA	ER N	FI	GURI	E A-43

DELTA CONSULTANTS

LOC	3 O	F	C	DR	E	ВО	RIN	G	PROJECT NAME Green Trench	PROJEC	T NUMBER			ORING B-3	
SITE L	LOCA	TION							DATE(S) DRILLED	LOGGE	BY			HEET N	0.
1800	Argyle	Ave	nue,	Holly	woo	d, Ca			1/10/14 to 1/10/14	TPO				of 3	
DRILL	ING N	METH	IOD						DRILL BIT SIZE/TYPE		CHECKED	BY	TO (fee		PTH DRILL
HSA									8"		SK				49
DRILL		ГҮРЕ	•						DRILLED BY		INCLINATION		ROM V	/ERTIC	AL/BEARIN
CME 9									Gregg In-Situ Drilling			0			
APPA None				DWA	TER	DEP	ТН				APPROXIM (feet)			ACE EL	EVATION
COMN	/FNTS										BOREHOLI		17.2		
0011111		•									BOKETIOE		oil Cut		
				SO	ı C	ORE									
(£)	ELEVATION (ft)	I						<u></u> }				PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	
DEPTH (ft)	TIO	o.	o.	۲۲, %	EQ.	%	옮う.	000	MATERIAL DES	CRIPTION		X	RAT	RA SS/H	FIELD NOTES
DEF	.EV∌	RUN NO.	BOX NO.	VEF	出い	R.Q.D., %	CTU	LITHOLOGY				CKE	ABO TE	JRIL ETEF	NOTE
	ш	R	BC	RECOVERY, %	-RAC. FREQ.	R.6	FRACTURE DRAWING/ NUMBER	-				PA	د	⊒≅	
	_			~					sand, few fine sand, few fine gra	avel.					
- [_		10/00					MUDFLOW (Qm)						
	_	7		19/30											
·	_395							1.	Clayey SAND, 7.5 yr 4/2 (Brow few medium sand, few fine grav	n), moist, fine el.	sand,				
. [_								grav						
		8	;	30/30				1							
·	-							1							
25	_								Silty SAND, 7.5 yr 6/8 (Reddish	Brown) moi	st to wet	-			
								6%	fine sand.	וייייטוק, וווטו	or to Wet,				
·	_	9	;	30/30				8 1	1						
.	_390							68							
								64							
	_			00/0				6/							
-	_	10	;	30/30											
30															
	_								MODELO FORMATION (Tm)		,-	-			
-	_	11	:	28/30					CLAYSTONE, 7.5 yr 5/8 (Stron wet, some fine sand.	g Brown), mo	ist to				
.	_385								Sandy SILTSTONE, mottled 7.	5 yr 5/8 (Stror	′				
	—აoე 								Brown) and 7.5 yr 7/1 (Light Gra Sandy Siltstone/Claystone, 7.5			-			
·	_								Brown), manganese oxide stain		·9				
. [12	;	30/30											
35															
35	-														
-		13		18/30											
		13		10/30											
·	_380														
-	_							E							
		14	:	24/30				E							
-	_							E							
DOT	T								TILLO OLIMANONI CON	IEO ONII V 7E	THE LOCATIO	<u> </u>	<u> </u>		
ROU	FGF	ROL	JP	DE	LT	A C	onsu	LT	THIS SUMMARY APPL ANTS, INCOFTHIS BORING AND	AT THE TIME	OF DRILLING				
							Suite 1		LOCATIONS AND MAY	CHANGE AT	THIS LOCATION			CLID	= A 40
(•					WITH THE PASSAGE PRESENTED IS A SIM	OF TIME. THE	DATA		[GUKI	E A-43
TI M			Alis	so V	'iei	o. C	A 926	356	CONDITIONS ENCOU						

SITE	G C	TION	1					اق ا	PROJECT NAME Green Trench DATE(S) DRILLED	LOGGED	BY		s	ORING B-3 HEET No. 13	0.
	O Argyle				ywoo	d, Ca			1/10/14 to 1/10/14 DRILL BIT SIZE/TYPE 8"	TPO	CHECKED SK		TO (fe	TAL DE et)	PTH DRIL 49
DRIL CME	L RIG	TYPI	E						DRILLED BY		INCLINATIO		ROM \	/ERTIC/	AL/BEARII
	ARENT	GR	OUN	IDWA	TER	DEP.	TH		Gregg In-Situ Drilling		APPROXIM	0 ATF	SURF	ACE EL	FVATION
	encou										(feet)		17.2	AOL LL	LVAIION
COM	MENTS	3									BOREHOLE				
								1				S	oil Cut	ttings	
	(£)			so	IL C	ORE		>				STS	≿	Lin N	
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DES	CRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIEL NOT
_	275														
	_375	15		48/60											
_	-														
_	-														
_45	_														
_															
_	070	16		42/42											
	_370	10		12,72											
_	-														
_	_														
_5 0	_								Total Depth: 50 ft bgs						
_									Groundwater: Encountered at 3 drilling)		after				
_	365								Boring backfilled with tamped so	oil cuttings.					
	_303														
_	_														
_	-														
– 55	_														
_															
_	360														
	_360														
_	-														
_	-														
GRO	TP								THIS SUMMARY APPL	IES ONI Y AT T	HE LOCATION	N	<u> </u>		
	GF	२०।	UP	DE	LT/	A C	ONSU	LT	ANTS, INCOF THIS BORING AND SUBSURFACE CONDI) AT THE TIME TIONS MAY DII	OF DRILLING. FFER AT OTHI	ΕR			
		(92	Arg	ona	ut, \$	Suite 1	120	LOCATIONS AND MAY WITH THE PASSAGE	CHANGE AT 1 OF TIME. THE	THIS LOCATIO DATA	N	FI	GURI	E A-4
,	1		Δli	دم ۱	/ioi	· ·	A 926	356	PRESENTED IS A SIM CONDITIONS ENCOU		F THE ACTUA	\L			

0	G O	F	C)R	ΕI	BO	RIN	G	PROJECT NAME Green Trench	PROJEC	T NUMBER			ORING B-4	
SITE	LOCA	ΓΙΟΝ	l						DATE(S) DRILLED	LOGGE	D BY			HEET N	0.
) Argyle			, Holly	woo	d, Ca			1/10/14 to 1/10/14	TPO			1	of 4	
RIL	LING N	IETH	IOD						DRILL BIT SIZE/TYPE	1	CHECKED	BY			PTH DRILLI
ISA									8"		SK		(fee	,	60
	L RIG	ГҮРЕ	•						DRILLED BY		INCLINATIO		ROM V	/ERTIC	AL/BEARING
CME									Gregg In-Situ Drilling			0			
	ARENT encou	-		DWA	TER	DEP	ГН				APPROXIM (feet)	ATE	SURF	ACE EL	EVATION
	MENTS										BOREHOLE		16.5	1	
JOIVII	MENTS	,									BOKEHOLI		oil Cut		
														90	
	Œ.			SO	L C	ORE		>				ST	≿	ᄯ	
DEРТН (ft)	ELEVATION (ft)			%	oj.		Ш :>	-				PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD
EPT	VATI	RUN NO.	Ŏ.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	HOL	MATERIAL DES	SCRIPTION	l	KER	OR/	ILL F	NOTES
۵	ELE	ا ا	BOX NO.	20 \	AC.	Z.Q.F	RAW LUMI	5				PACI	FB	DR	
		_	ш	REC	FR	Ľ.						-		_	
	_								Approximately 8 inches Aspha	lt.					
								X	ARTIFICIAL FILL (Qaf)			1			
	_415							12	Silty SAND to Sandy SILT, 7.	5 yr 4/4 (Brow	n), moist,				
	<u> </u>							1	mostly fine to medium sand, fe gravels with rootlets.	w coarse sand	I, few fine				
									Hand augered.						
	_							A	_						
	_								-Chunks of asphalt						
5								A.							
									HDDED CAMB HOTE (C.)			-			
	<u>-4</u> 10	1	2	22/30				6/0	UPPER SAND UNIT (Qs)						
	L l							8/0	Silty SAND, 7.5 yr 4/4 (Brown), moist, mostl	V				
								6/%	medium to coarse grained san fine gravel	d, some fine s	and. few				
	-	2		18/30				8/0/	ille graver						
	_							6/9							
10				-				0/0/							
	-							6/2							
	_405	3	:	20/30				/° /° /° /° /° /° /°							
								6/0							
								6/0/							
	<u> </u>			00/00				0/9							
		4		20/30				6/0							
5								8 % /9/							
	-							0,0							
	_400	5	:	20/30				6/0	-Mild soil development						
	-400							6%							
								Ø /o	SAND with Silt, 7.5 yr 5/8 (Sti	ong Brown). v	 vet,	-			
									medium to coarse sand, some coarse gravel.	fine sand, few	fine to				
	_	6	:	20/30					coarse graver.						
	-							9 /0), wet, fine to r	nedium	-			
ROI	JP							100		•		N	Ή		
	GF	ROL	JP	DE	LT/	A C	DNSU	LT/	THIS SUMMARY APF ANTS, INCOF THIS BORING AN SUBSURFACE COND	ID AT THE TIMI	OF DRILLING.	ER			
							Suite 1		LOCATIONS AND MA	Y CHANGE AT	THIS LOCATIO	N.	FI	GURI	E A-44
				_					WITH THE FASSAGE	. VI IIIVIL. IDI					

92 Argonaut, Suite 120 Aliso Viejo, CA 92656

_0	G O	F	C)R	E	BO	RIN	\exists	PROJECT NAME Green Trench	PROJEC	T NUMBER			ORING B-4	
SITE	LOCA	TION	ı						DATE(S) DRILLED	LOGGE	D BY		_	HEET N	0.
) Argyle			, Holly	/woo	d, Ca			1/10/14 to 1/10/14	TPO			2	of 4	
	LING N								DRILL BIT SIZE/TYPE		CHECKED	BY			PTH DRILLE
HSA									8"		SK		(fee		60
	L RIG	TYPE	Ξ						DRILLED BY		INCLINATION	ON F	ROM \	/ERTIC	AL/BEARING
CME									Gregg In-Situ Drilling			0			
	ARENT e encou			DWA	TER	DEP.	ТН				APPROXIM (feet)		SURF 16.5	ACE EL	EVATION
СОМ	MENTS	3									BOREHOLE		CKFIL oil Cut		
														ungs	
(#)	(#) Z			<u> </u>	IL C	ORE		_ }				ESTS	ORY 3	TE, OUR	
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESC	RIPTION	I	PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTES
	_							0 /0, 6.0	sand, few coarse sand, few fine of	gravel.					
	_395	7	:	22/30					SAND with Silt, 7.5 yr 5/6 (Stron medium to coarse sand, some fin gravel.	ng Brown), n ne sand, few	noist, fine				
	-			0.4/00					Clayey SAND (SC), 7.5 yr 4/6 (S medium to coarse sand, some fir gravel.	trong Brown te sand, few	n), wet, fine	_			
25		8		24/30					SAND, 7.5 yr 5/6 (Strong Brown) medium sand, some coarse sand	, wet, fine to I, trace fine	gravel.	_			
-	390	9	;	30/30					MUDFLOW (Qm)			-			
	_								Clayey SAND, 7.5 yr 4/4 (Brown mostly fine sand, few medium sa), moist to w nd, few fine	et, gravels.				
		10	:	28/30											
30	205														
-	_385							1.	Sandy CLAY, 2.5 yr 8/1 (Pale Br			-			
-	_	11		60/60					Clayey SAND, 10 yr 5/8 (Yellowi to medium sand.			_			
35															
	_380								MODELO FORMATION (Tm)			1			
	_	12	,	56/60					Sandy SILTSTONE, mottled 10 yr 5/6 (Strong Brown), moist, with	yr 6/1 (Gray n fine sand.) and 7.5				
-															
ROU	GF	Ç	92 /	Argo	ona	ut, :	ONSU Suite 1 A 926	20	THIS SUMMARY APPLII ANTS, INCOF THIS BORING AND SUBSURFACE CONDIT LOCATIONS AND MAY WITH THE PASSAGE O PRESENTED IS A SIMP CONDITIONS ENCOUN	AT THE TIMI IONS MAY D CHANGE AT F TIME. THI LIFICATION	E OF DRILLING. DIFFER AT OTH THIS LOCATIC DATA	ER ON	FI	GURI	Ē A-44 ∣

DELTA CONSULTANTS

_00	G O	F	C	OR	Ε	ВО	RIN	G	PROJECT NAME Green Trench	PROJEC	Γ NUMBER			ORING B-4	
SITE	LOCA	TION	1						DATE(S) DRILLED	LOGGED	BY			HEET N	0.
	Argyle				ywoo	d, Ca			1/10/14 to 1/10/14	TPO				3 of 4	
	LING N	/ETI	HOD	1					DRILL BIT SIZE/TYPE		CHECKED	BY	TO (fe		PTH DRILLI
HSA									8"		SK INCLINATION	N F	١,	•	60 N. (DEADIN)
	L RIG	TYP	E						DRILLED BY		INCLINATIO		ROW V	VERTICA	AL/BEARING
CME			~!!	IDVALA	TED	DED:	-		Gregg In-Situ Drilling			0			
	ARENT encou			IDWA	ILK	DEP	IH				APPROXIMA (feet)			ACE EL	EVATION
COM	MENTS	3									BOREHOLE		16.5 CKFII	ı	
													oil Cut		
	(£)			so	IL C	ORE						LS	 	. E	
(#)	ELEVATION (ft)			%	بن			LITHOLOGY				PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD
DEPTH (ft)	/ATI	RUN NO.	9 S	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	무	MATERIAL DES	CRIPTION		ŒR	ORA TES	ILL R ERS,	NOTES
8	ELE)	3	BOX NO.	O.	ار ارد ا	Q.	SAW	=				AC	LAB	DRI	
		14		REC	FR	~	문 등 조								
	_								40 ft continuous Modelo Formati	ion (Tm)					
-	_375								-						
. [5,5							E							
}	_	13		60/60				E	-						
-															
- [
1E	_														
45	_							F							
-															
}	_370														
-		14		60/60											
-								F	-						
_	_														
	_														
-50				-											
_	_														
}	_365							E	-						
-		15		EAIGO											
_ [_	13		54/60											
-	_														
- [E	1						
55				-					_						
}	_							E							
-	_360														
-															
_	_	16		60/60				F	-						
	_														
-									-						
			L												
ROU	JP G	ر د	ΙIΡ	DE	. —— T.	Δ (*)	ONSII	ΙT	THIS SUMMARY APPL ANTS, INCOFT THIS BORING AND	IES ONLY AT	THE LOCATION OF DRILLING	٧			
7									SUBSUKFACE CUNDI	HONS WAT DI	FFER AT OTHE	ER N			
	\mathbb{Q}	,		_			Suite '		WITH THE PASSAGE (OF TIME. THE	DATA		FI	iGURI	E A-44
m			Ali	so \	/iei	o. C	A 926	356	CONDITIONS ENCOUN		OF THE ACTUA	\L			

_0	G O	F	C	ЭR	E	ВО	RIN	G	PROJECT NAME Green Trench	PROJEC	Γ NUMBER			ORING B-4	
SITE	LOCA	TION	ı						DATE(S) DRILLED	LOGGED	ВҮ			HEET N	0.
	O Argyle				ywoo	d, Ca			1/10/14 to 1/10/14	TPO	OUEOVED			of 4	DTU DDU I F
DRIL HSA	LING N	/IETH	HOD						DRILL BIT SIZE/TYPE 8"		SK	ВҮ	(fe		PTH DRILLE 60
	L RIG	TYPE	<u> </u>						DRILLED BY		INCLINATIO	N F	ROM \	/ERTIC	
CME									Gregg In-Situ Drilling			0			
	ARENT e encou			IDWA	ATER	DEP.	TH				APPROXIMA (feet)			ACE EL	EVATION
СОМ	IMENTS	3									BOREHOLE		16.5 CKFIL	L	
									I			S	oil Cut	ttings	
	(#)			so	IL C	ORE						STS	۲۲	UR UR	
DEРТН (ft)	ELEVATION (ft)).		٧, %	g	%	# <i>9</i> %	LITHOLOGY	MATERIAL DESC	RIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD
DEP.	-EVA	RUN NO.	BOX NO.	RECOVERY, %	S. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	¥	MATERIAL DESC			CKE	ABOR TE)RILL ETER	NOTES
		RL	BC	RECC	FRAC.	R.0	PRA					РА	ב	¥	
	_								Total Depth: 60 ft bgs Groundwater: Encountered at 29	ft (Magazina	Loftor				
•	_355								drilling) Boring backfilled with tamped so	•	ı aner				
									boning backlilled with tamped so	ıı cuttings.					
	-														
	_														
65															
	050														
	_350														
_															
	-														
-	_														
-70	L														
	345														
	-														
-	-														
-															
75															
	_340														
	-														
-	_														
-	L														
Dec									I	======			ı		
ROU	GF								THIS SUMMARY APPLI ANTS, INCOF THIS BORING AND SUBSURFACE CONDIT SUBSURFACE CONDIT	AT THE TIME TONS MAY DI	OF DRILLING. FFER AT OTHE	ΞR			
		Ś	92 <i>i</i>	Arg	ona	ıut, 🤄	Suite 1	20	LOCATIONS AND MAY WITH THE PASSAGE C PRESENTED IS A SIMF	F TIME. THE	DATA		FI	GURI	E A-44

GROUP DELTA CONSULTANTS, IN COST THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING.
SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

_0	G C	F	C)R	E	BO	RIN	\exists	PROJECT NAME Green Trench	PROJEC	T NUMBER		- 1	ORING B-5	
_	LOCA								DATE(S) DRILLED	LOGGED	ВҮ		SI	HEET No	0.
) Argyle			Holly	/W00	d, Ca			1/13/14 to 1/13/14	TPO	CHECKED	DV			PTH DRILLE
DRIL HSA	LING N	METH	HOD						DRILL BIT SIZE/TYPE 8"		SK	BY	(fee		52
	L RIG	TYPI							DRILLED BY		INCLINATIO	ON F	ROM V	/ERTICA	
CME	_								Gregg In-Situ Drilling			0			
	ARENT e encou			DWA	TER	DEP.	ТН				APPROXIM (feet)			ACE EL	EVATION
СОМ	MENTS	s									BOREHOLE		15 CKFIL	 L	
												S	oil Cut	tings	
					^	0 05									
Œ.	(#)		l		IL C	ORE		გ				STS	LABORATORY TESTS	TE, OUR	
DEPTH (ft)	Į Į	o.	o.	۲۲, %	EQ.	%	滿 ^万	OLO	MATERIAL DESC	CRIPTION		R	RAT(L RA	FIELD NOTES
DEF	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY				PACKER TEST	ABO!	DRILL RATE, METERS/HOUR	NOTES
	🖬	RU	BO	ECO	-RAC	R.O.	PRA DR/	_				PA		ME	
				- X					Approximately 8 inches Asphalt.						
_	L							Ŕ,	Artificial Fill (Qaf)						
								13	Sandy SILT, dark brown, moist, with rootlets.	fine to mediu	m sand,				
-															
=	-														
_									Hand augered the first 5 feet.						
-5	_410														
-	_	1		29/30					UPPER SAND UNIT (Qs)						
		'	'	29/30				<i>(;)</i>							
_									Clayey SAND, 7.5 yr 3/4 (Dark E — medium sand, trace coarse sand	, few fine gra	vel. , –				
-	-								SAND with Silt, 7.5 yr 5/6 (Stror sand, trace medium and coarse	ng Brown), m sand, trace fil	oist, fine ne gravel.				
_	_	2		17/30					,	•	J				
-10	405							/ ;	Clayey SAND, 7.5 yr 3/4 (Dark E						
-10	_405							<u>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</u>	medium sand, trace coarse sand	, few fine gra	vel.				
-	-	3	:	25/30					SAND with Silt, 7.5 yr 5/4, mois sand, few fine gravel.		/-				
_	L			,					Clayey SAND, 7.5 yr 3/4 (Dark E) medium sand, trace coarse sand						
									Sand with Silt, 7.5 yr 5/4 (Brown	n), moist, fine	to				
-	_								medium sand, few coarse sand, cobbles.	iew iine grav	ei, trace				
-	H	4		18/30					Layer of fine gravel Clayey SAND, 7.5 yr 3/4 (Dark B	Brown), moist	 . fine to				
-15	_400							7.	medium sand, trace coarse sand	, trace grave	, trace				
. •	.50								SAND with Silt, 7.5 4/6 (Strong						
-	<u> </u>	5	:	25/30					medium sand, few coarse sand, cobbles.	tew fine grav	el, trace				
_	L														
-				10/00											
_	-	6		19/30											
_															
ROU	JP C	י א	IP	DE	1 T	۸ ۲	ONGII	I T	THIS SUMMARY APPLI	ES ONLY AT	THE LOCATION	N		·	
									SUBSURFACE CONDIT LOCATIONS AND MAY	IONS WAT DI	FFER AT OTHE	=1		O	
	$\langle\!\langle$			_			Suite 1		WITH THE PASSAGE C	F TIME. THE	DATA		FI	GUR	E A-45
ATAT D	n 4		Alis	so \	/iei	o. C	A 926	56	CONDITIONS ENCOUN			_	1		

DELTA CONSULTANTS

LO	GC)			DC	RING	ןכ	Green Trench					B-5	
	LOCA							DATE(S) DRILLED	LOGGED	ВҮ		S	HEET N	0.
			nue, Ho	llywo	od, Ca	1	_	1/13/14 to 1/13/14	TPO	T			of 3	
DRIL HSA	LING N	/IETH	IOD					DRILL BIT SIZE/TYPE 8"		SK SK	BY	TO (fe	TAL DE et)	PTH DF 5
	L RIG	TYPE					\dagger	DRILLED BY		INCLINATION	ON F	ROM V	/ERTIC	
СМЕ								Gregg In-Situ Drilling			0			
	ARENT e encou	_	DUNDW ed	ATE	R DEP	TH				APPROXIM (feet)			ACE EL	EVATIO
	IMENTS									BOREHOLE		15 CKFIL	L	
	1											oil Cu		
	Ç.		S	OIL (CORE	Ē					ပြ	_	يّ	
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESC	RIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIE NO
		RUN	BO	-RAC.	R.Q.	FRAC DRAN NUN	=				PAC	[Ā	ME	
			12	+-	+		0 0 0 0 0							
_	-	7	23/3	30			\;\;	Clayey SAND/Silty SAND, 7.5 y	4/6 (Strong	Brown),	-			
_	_						8/0	fine to medium sand, few coarse Silty SAND, 7.5 yr 4/6 (Strong B	rown), moist,	fine to				
_							6, 9 8 /0,	medium sand, some coarse sand						
_	L	8	18/3	30			6/0							
_							[.]	MUD FLOW (Qm)						
<u> 25 </u>	_390							Clayey SAND, 7.5 yr 4/6 (Strong wet, fine to medium sand, trace of	Brown), moi	st to trace fine /	-			
_	-	9	30/3	30			1	\gravel. Clayey SAND to Sandy CLAY, 7		/				
_	_						<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>	moist to wet, fine sand, some me coarse sand, traces of peat.	dium sand, tr	ace				
_								-2.5 yr 3/1 (Black), slight hydroca	rbon odor					
		10	28/3	30				-Ground Water						
_							1.	-10 yr 3/4 (Dark Yellowish Brown)					
_30	_385			-										
_	-													
_	_						(),							
_		11	60/6	6 0			(;)							
							<i>[</i> ;;							
_														
_35	_380							MODELO FORMATION (Tm)			1			
_	-							Weatherd Sandy SILTSTONE, n (Brown), 2.5 yr 3/6 (Dark Red), a	nottled 7.5 yr	4/2				
_	-							Yellow), moist.	nu 10 yl 10/8 (USIIIWUIGI				
_		12	60/6	60										
_														
GRO	UP			-	-		<u> </u>	THIS SUMMARY APPLI	ES ONLY AT 1	THE LOCATION	N	<u> </u>		
7	GF							NTS, INCOF THIS BORING AND SUBSURFACE CONDIT	AT THE TIME IONS MAY DII	OF DRILLING. FFER AT OTH	ER			
		Ç	92 Arç	gon	aut,	Suite 1	20	LOCATIONS AND MAY WITH THE PASSAGE O PRESENTED IS A SIMP	F TIME. THE	DATA		FI	GURI	E A-
1	~		Δliso	\/iح	in C	CA 926	56	CONDITIONS ENCOUN		, IIIL ACTU	\L	1		

_0	G C	F	C)R	Ε	BO	RINC	\exists		PROJECT	NUMBER				
									DATE(S) DRILLED	LOGGED	ВҮ		S	HEET N	Ο.
				Holly	ywoo	d, Ca			1/13/14 to 1/13/14	TPO					D
	LING N	ИЕТЬ	HOD						DRILL BIT SIZE/TYPE 8"			BY			PTH DRI 52
	L RIG	TYPE	 E					+	<u> </u>			ON F	ROM V	/ERTIC	
			-						Gregg In-Situ Drilling			0			
				DWA	TER	DEP.	TH				_	ATE	SURF	ACE EL	EVATIO
			u								` ′				
COM	WIEN I										BUKEHULE		_		
	t)			so	IL C	ORE						မှ		<u>~</u>	
DEPTH (ft)	ELEVATION (f	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DES	CRIPTION		PACKER TEST	LABORATOR' TESTS	DRILL RATE, METERS/HOU	FIE NOT
				α.											
-	_														
-	<u> </u>	13		50/60											
_	-			<i>,</i> 30					Silty SANDSTONE, 7.5 yr 5/8 (Strong Brown)					
_	_									- /					
- 45	_370								Weathered Sandy SILTSTONE	mottled 7.5 y	r 4/2	-			
-								Ē	(Brown), 2.5 yr 3/6 (Dark Red), a Yellow).	ыпа ти уғ 6/8 (Drownish				
_									7.5 vr 2.5/4 (Plook)						
_	-	44		50/00				E	-1.5 yi 2.5/1 (Black)						
_	L	14		სს/ხს					-Sand Lens. 7.5 vr 7/1 (Light Gr	av), approxima	atelv 1"				
_	L								thick, fine sand	277 TF 25000	•				
_50	365														
-50															
-	<u> </u>	15	1	4.5/2	0										
_	-								Total Depth: 52 ft has						
_	L								Groundwater: Encountered at 28	3 ft (Measured	after				
_									Boring backfilled with tamped so	il cuttings.					
_															
-55	_360														
_	F														
_	L														
_															
_	_														
IDOI	ID								THIS CHAMARY ARRI	IEC ONI V AT		<u></u>	<u> </u>		
iKUl	GF	२०।	UP	DE	LT	4 C	ONSU	LT	THIS SUMMARY APPL NTS, INCOF THIS BORING AND SUBSURFACE CONDI	IES UNLY AFT AT THE TIME TIONS MAY DI	THE LOCATION OF DRILLING. FFER AT OTHI	N ER			
									LOCATIONS AND MAY	CHANGE AT	THIS LOCATIO	N.	FI	GURI	E A-4
1800 Argyle Avenue, Hollywood, Ca															
اللتار	LA				•								1		

_0	G O	F	CC)R	ΕI	BO	RIN	G	PROJECT NAME Green Trench	PROJEC	T NUMBER			ORING B-7	
_	LOCA Argyle	_		Holly	woo.	d. Ca			DATE(S) DRILLED 8/5/2014 to 8/5/2014	LOGGED	ВҮ		SI	HEET Not 3	0.
	LING N			Tiony	WOO	a, Oa			DRILL BIT SIZE/TYPE	10	CHECKED	BY	то	TAL DE	PTH DRILL
HSA									8"		SK		(fee	et)	58
DRIL	L RIG	TYPE	•						DRILLED BY		INCLINATIO	ON FI	ROM V	ERTIC/	AL/BEARIN
Marl	M-12								Gregg In-Situ Drilling			0			
	ARENT e encou			DWA	TER	DEP.	TH				APPROXIM (feet)	ATE	SURF	ACE EL	EVATION
	MENTS										BOREHOLE		15.9	1	
	ped Dri		Due 1	to Re	fusal	at 58	; '				BOKEHOLI		oil Cut		
		<u> </u>				ORE									
Œ	Z E			%				}				EST	S S	ATE, HOUF	EIEI D
DEPTH (ft)	ELEVATION (#)	RUN NO.	BOX NO.	RECOVERY, 9	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESC	CRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTES
									Asphalt at surface.						
	<u>415</u>							\triangle	ARTIFICIAL FILL (Qaf)			-			
	L							12	Sandy SILT, dark brown, moist,	fine to medic	m sand				
								N/	with rootlets.	io to medio	Juliu,				
•								X	Hand auger down to 5.5 feet.						
•	<u> </u>							(Z)							
5															
-	440								UPPER SAND UNIT (Qs)			-			
-	4 10	1	ł	12/30					Silty SAND, 10 yr 4/4 (Dark Yell	owich Brown) moist	1			
-	-								mostly fine to medium SAND, so	me FINES, fe	ew coarse				
_									SAND, trace fine GRAVEL. SAND with SILT, 10 yr 5/6 (yello	owish brown)	, moist;				
		2		15/30					mostly fine to medium SAND, fev FINES, trace fine GRAVEL.	v coarse SAN	ND, few				
-		_		15/30					,						
10	<u> </u>								-Cobble layer						
_	405							$\ \cdot \ $	Ouble layer						
•		3	ł	12/30					-Trace fine to coarse gravel						
-	_														
	<u> </u>								Poorly Graded SAND, 10 yr 5/moist, mostly fine to coarse SAN	6 (Yellowish D. few fine G	Brown), RAVFI				
	L	4	ŀ	16/30					trace coarse GRAVEL, trace FIN	ES.	,				
•									Silty SAND , 10 yr 5/6 (Yellowis mostly fine to medium SAND, fev	sh Brown), mo	oist, ND. trace				
15	<u> </u>								fine to coarse GRAVEL, trace FII 10 yr 4/6 (Dark Yellowish Brown)	NES.	,				
-	4 00			10/06					TO yI 7/0 (Daik TellOWISH DIOWII)						
	L	5	1	12/30											
-											,				
-	<u> </u>								SAND with SILT , 10 yr 6/6 (Yell mostly fine to medium SAND, fev	v coarse SAN					
_	L	6	ļ	18/30					fine to coarse GRAVEL, trace FII	NES.					
ROU	JP GF	g)2 A	٩rg٥	ona	ut, \$	ONSU Suite 1 A 926	120	THIS SUMMARY APPLI ANTS, INCOF THIS BORING AND SUBSURFACE CONDIT LOCATIONS AND MAY WITH THE PASSAGE C PRESENTED IS A SIMF	AT THE TIME TONS MAY DI CHANGE AT OF TIME. THE	OF DRILLING. FFER AT OTHI THIS LOCATIO DATA	ER ON	FI	GURI	E A-46

_0	G O	F	COF	RΕ	BC	RIN	G	PROJECT NAME Green Trench	PROJEC	Γ NUMBER		- 1	ORING B-7	
SITE	LOCA	TION	l					DATE(S) DRILLED	LOGGED	ВҮ		S	HEET N	0.
			nue, Ho	lywo	od, Ca	ı		8/5/2014 to 8/5/2014	то				of 3	
	LING N	/IETH	IOD					DRILL BIT SIZE/TYPE 8"		CHECKED	BY	TO (fe	TAL DE et)	
HSA		TVDE	<u> </u>							SK INCLINATION	ON F	١,	•	AL/BE
	. L RIG [•] M-12	1 T PE	=					DRILLED BY Gregg In-Situ Drilling			0			, _ , _ ,
		GRO	DUNDW	ATEF	R DEP	TH		5.5gg III Sita Dillilling		APPROXIM		SURF	ACE FI	EVAT
	encou			-						(feet)		15.9		_ + 17(1)
	IMENTS									BOREHOLE			L	
Stop	ped Dri	lling I	Due to R	efusa	al at 58	B'		T			S	oil Cu	ttings	
			S	OIL C	ORE	<u>.</u>					ဖွ		_ ~	
<u>#</u>	ELEVATION (ft)		%	Ι.	1		796				PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FI
DEPTH (ft)	/ATIC	ŏ.	Ö, X,	-REG	%:	URE ING/	LITHOLOGY	MATERIAL DE	SCRIPTION		ER.	ORA-	LL R	N
	ELEV	RUN NO.	BOX NO.	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	=				ACK	LAB(DRI	
			REC B	FR	<u>~</u>	E.P. Z					"		_	
_	_395	7	12/3	d				MUD FLOW (Qm)			-			
_	-							Clayey SAND to Sandy CLA	Y , 10 yr 4/4 (Da	rk				
	L		_	-				Yellowish Brown), moist, most some FINES, trace fine GRAV	ly fine to mediu	m SAND,				
_								Como i integ, dado inio Oltav						
_	-	8	2/30											
-25	_													
	200													
-	_390	9	26/3	d				No recovery due to cobble in s	shoe.					
_	-													
				-				Clayey SAND to Sandy CLA	Y , 10 yr 5/6 (Ye	llowish	1			
_		40	00/0					Brown), moist, mostly fine SAI coarse GRAVEL.	ND, some FINE	S, trace				
-		10	28/3	١										
_30	_			_				Clayey SAND , 10 yr 5/8 (Ye	llowish Prougn)					
	_385							mostly fine SAND, some FINE	S, trace fine G	RAVEL.				
_								-Ground Water			_			
-								MODELO FORMATION (Tm)		a				
_	L	11	43/6	ď				Sandy Clay, 7.5 yr 6/8 (Red (Light Greenish Gray), moist,	mostly FINES,	Gley 7/1 some fine				
								SAND, trace fine GRAVEL, m	ottled.					
-														
-35				-				Iron oxid staining	Name 1 1 2	- 10				
_	_380							Sandstone, 10 yr 7/1 (Light G (Yellowish Brown), wet, fine g	rained with clay	matrix,				
								well bedded, abundant rounder and weathered feldspar grains	ed to well round	ed quartz				
_		12	60/6											
_	-	12	00/0	1			E	10 yr 7/3 (Very Pale Brown) a	nd 10 vr 4/3 (Br	own)				
_								mottled.	10 yr 7/0 (DI	·····)				
ROU	[]P			+	+	+		THIS SUMMARY API	PLIES ONLY AT	THE LOCATION	N	<u> </u>		
1100	GF	ROI	JP DE	ELT	A C	ONSU	LT	ANTS, INCOF THIS BORING AN	ND AT THE TIME	OF DRILLING.				
		Ç	92 Arç	jona	aut,	Suite 1	20	LOCATIONS AND MA WITH THE PASSAGI	AY CHANGE AT	THIS LOCATIO	N	F	GURI	E A
			Aliso	Viei	io (CA 926	356	PRESENTED IS A SI	MPLIFICATION (λL			•
THE !	ľA			رد،	٥, ٥	020		3331110110 21100	- · · - · · - · ·			1		

,		$\mathcal{C}($	JK	E	BC	RIN	∣خ	PROJECT NAME Green Trench	PROJECT	NOWIDER			ORING B-7	
								DATE(S) DRILLED	LOGGED	ву				0.
				ywoo	d, Ca		_	8/5/2014 to 8/5/2014	ТО	T				
ING N	IETH	IOD						DRILL BIT SIZE/TYPE 8"			ВΥ			PTH DRILLI 58
. RIG 1	ГҮРЕ	=						DRILLED BY Gregg In-Situ Drilling			N FI 0	ROM V	/ERTIC	
			DWA	TER	DEP	ТН				APPROXIMA (feet)			ACE EL	EVATION
										BOREHOLE	ВА	CKFIL		
ed Dril	ling l	Due	to Re	fusa	l at 58	B'	Ι				S	oil Cut	tings	
(£			so	IL C	ORE		<u>}</u>				STS	RY	E, OUR	
ELEVATION	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	ПТНОГО	MATERIAL DES	CRIPTION		PACKER TE	LABORATO TESTS	DRILL RAT METERS/HC	FIELD NOTE:
_375														
_														
	13	;	38/60)										
_														
-														
-														
_370														
-														
-	14	(60/60											
_														
_								late the shift of Oleve 0.5 VD 0.5/NJ	DiI.)					
_365								Interbedded Gley 2.5 YR 2.5/N (Віаск)					
_														
	15		60/60											
-														
-														
-							E							
_360														
-														
-														
-								Total Depth: 58.0 ft bgs Groundwater: Encountered at 31 Boring backfilled with tamped cu	I ft bgs ttings.					
/ I F 1 8	RIG - 1-12 RENT SECOND (II) NOILE A 375 - 375 - 376	RIG TYPE I-12 RENT GRO ENTS Ed Drilling 375 - 13 - 370 - 14 - 365 - 15	RIG TYPE I-12 RENT GROUN encountered IENTS ed Drilling Due (#) NON NO A A A A A A A A A A A A A A A A A A A	RIG TYPE I-12 RENT GROUNDWA PRICE TO THE ITEM TO THE I	RIG TYPE I-12 RENT GROUNDWATER PICOUNTERED SOIL C SOIL C ON NO SOIL C ON SOIL C O	Argyle Avenue, Hollywood, Caling METHOD RIG TYPE I-12 RENT GROUNDWATER DEPencountered RENTS Ed Drilling Due to Refusal at 58 ON NO SOIL CORE Who Soil Core A 375 A 38/60 A 4 60/60 A 5 60/60 A 5 60/60 A 6 60/60 A 6 60/60	Argyle Avenue, Hollywood, Ca ING METHOD RIG TYPE I-12 RENT GROUNDWATER DEPTH encountered IENTS and Drilling Due to Refusal at 58' SOIL CORE NON NO. O. O	Argyle Avenue, Hollywood, Ca ING METHOD RIG TYPE I-12 RENT GROUNDWATER DEPTH Encountered IENTS Ed Drilling Due to Refusal at 58' SOIL CORE WOX NO.	Argyle Avenue, Hollywood, Ca ING METHOD RIG TYPE RIG TYPE P-12 RENT GROUNDWATER DEPTH Ancountered SOIL CORE ON NOT WAS A GO ON A WAY OF A GO ON A G	Argyle Avenue, Hollywood, Ca ING METHOD DRILL BIT SIZE/TYPE 8" PRICE PRICE 8" RIG TYPE PRICE PRICE 8" RIG TYPE PRICE PRICE	Argyle Avenue, Hollywood, Ca NG METHOD DRILL BIT SIZE/TYPE 8° RIG TYPE 12 DRILLED BY Gregg In-Situ Drilling RENT GROUNDWATER DEPTH Incountered SOIL CORE SOIL SOON SOIL CORE SOIL C	Argyle Avenue, Hollywood, Ca No METHOD No METHOD BRILL BIT SIZE/TYPE SK RIG TYPE 12 Gregg In-Situ Drilling APPROXIMATE BENT GROUNDWATER DEPTH encountered BOREHOLE BA ST BOREHOLE BA SOIL CORE ON AND	Argyle Avenue, Hollywood, Ca 8/5/2014 to 8/5/2014 TO RIG METHOD Brill Bit SizertyPE 8/5	Argyle Avenue, Hollywood, Ca

_0	G O	F	CC	DR	ΕI	ВО	RIN	G	PROJECT NAME Green Trench	PROJEC	T NUMBER			ORING B-8	
SITE	LOCA	TION							DATE(S) DRILLED	LOGGE	D BY			HEET N	0.
) Argyle			Holly	woo	d, Ca			8/4/2014 to 8/4/2014	то			1	of 3	
	LING N								DRILL BIT SIZE/TYPE		CHECKED	BY			PTH DRILLE
HSA									8"		SK		(fee	et)	50
DRIL	L RIG	TYPE	•						DRILLED BY		INCLINATION	ON F	ROM V	ERTIC/	L/BEARING
Marl	M-12								Gregg In-Situ Drilling			0			
	ARENT e encou			DWA	TER	DEP ⁻	ТН				APPROXIM			ACE EL	EVATION
СОМ	MENTS	3									BOREHOLI		18.3 CKFIL	L	
												S	oil Cut	tings	
_	(#)			SO	IL C	ORE		_				STS		U,T R	
DEPTH (ft)	ELEVATION (#)			, %	ġ.	.0	ш,ъ	LITHOLOGY	MATERIAL REC	COURTICE		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD
ÉPT	VAT	RUN NO.	BOX NO.	RECOVERY, %	-RAC. FREQ	R.Q.D., %	FRACTURE DRAWING/ NUMBER	본	MATERIAL DES	CKIPTION		KER	30R/ TES	ERS	NOTES
	ELE	N N	30X	00	AC.	7.Q.I	RAC EM EM	=				PAC	E	DR	
			_	RE			<u> </u>								
	_								Asphalt at surface.						
	_							X	ARTIFICIAL FILL (Qaf)			1			
	_							\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Sandy SILT, dark brown, mois with rootlets.	st, fine to mediu	um sand,				
	4 15							X	Hand auger down to 5.5 feet.						
								Z)							
_								\bigvee							
5	L								UPPER SAND UNIT (Qs)			1			
		$ $		07/00					Silty SAND, 7.5 yr 4/6 (Strong	Brown), moist	, mostly				
		1	1	27/30					fine to medium SAND, some F trace fine GRAVEL, gradationa	INES, few coal	rse SAŃD,				
	_								Trace into Ottavel, gradationa	to or Oivi.					
	440														
	_410	2		22/30					SAND with SILT, 10 yr 5/4 (Ye			1			
	<u> </u>	-							mostly fine to medium SAND, s trace FINES, trace fine GRAVE	some coarse S					
10									HAGO I HALO, HAGE HITE GRAVE	, micacous.					
	<u> </u>	3		18/30					-Increase in moisture, increase	in coarser SA	ND and				
									GRAVELS.						
	405								% SAND fines to 14 ft bgs.						
	L	4	1	20/30					% SAND coarsens						
15	_								,5 5 2 554155115						
J	-								CAND WITH OUT 10 1/2/5	anda Walley III					
	L	5		20/30					SAND with SILT, 10 yr 4/6 (Da moist, mostly fine to medium S	AND, some co					
		$ $	1	5,50					SAND, trace FINES, trace fine	GRAVEL.					
	-														
	_400														
		6		24/30					Clayey SAND to Sandy CLAY	7, 10 yr 4/4 (Da	ark				
	-								Yellowish Brown), moist, mostly medium SAND, few FINES, tra	y tine SAND, f ice coarse SAN	ew /¯ ND. /				
DO	TD					ļ		111.1				N.			
ROI	GF	ROL	JP	DE	LT/	4 C	ONSU	LT	THIS SUMMARY APP ANTS, INCOF THIS BORING AN	D AT THE TIME	OF DRILLING				
2							Suite 1		LOCATIONS AND MA	Y CHANGE AT	THIS LOCATION			כווטי	= / 17
				•					WITH THE PASSAGE PRESENTED IS A SIN			ΑL	"	GURI	E A-47
EL.	ГΑ		Alis	so V	'iejo	o, C	A 926	i56	CONDITIONS ENCOU						

DELTA CONSULTANTIS

_O(G O	F	C	ЭR	ΕI	ВО	RIN	G	PROJECT NAME Green Trench	PROJEC	T NUMBER		- 1	ORING B-8	
SITE	LOCA	TION	1						DATE(S) DRILLED	LOGGED	ВҮ		S	HEET N	0.
1800) Argyle	Ave	enue	, Holly	/woo	d, Ca			8/4/2014 to 8/4/2014	ТО				of 3	
	LING N	/ETH	HOD						DRILL BIT SIZE/TYPE		CHECKED	BY	TO (fee		PTH DRILLE
HSA									8"		SK	N E	,	<u> </u>	50 AL/BEARING
	. L RIG ⁻ M-12	IYPE	=						DRILLED BY Gregg In-Situ Drilling		INCLINATIO	0	IXOIVI V	LICTIO	LIBEANING
	ARENT	GRO	OUN	IDWA	TER	DEP	TH		Gregg III Gita Dilling		APPROXIM		SIIDE	ACE EL	EVATION
	encou										(feet)		18.3	ACL LL	LVATION
СОМ	MENTS	3									BOREHOLE	ЕВА	CKFIL	L	
								1	<u> </u>			S	oil Cut	tings	
	£			so	IL C	ORE						2	>	jR	
Œ T	EVATION (ft)			%	а			LITHOLOGY				PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD
DEPTH (ft)	VATI	Š.	Š.	ERY,	FRE(7., %	rure /ing Ber	밀	MATERIAL DESC	CRIPTION		ÆR	ORA TES	ILL F ERS	NOTES
	ELE	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	5				PACI	LAB	DR MET	
			_	뀖	Ä	_	<u> </u>	1,,,,,	01/4 04ND 40 - 7/2 (1/4 11 11						
	_								Silty SAND, 10 yr 5/6 (Yellowish mostly fine to medium SAND, so	n Brown), moi me FINES, tr	st, ace /				
	_	7	:	26/30					\coarse SAND. SAND with SILT, 10 yr 5/6 (Yell	owish Brown	/), moist,				
									mostly fine to medium SAND, so trace FINES, trace fine GRAVEL	me coarse S	AND,				
	60-														
	_395	8		22/30											
-	-														
25															
-															
	_	9		11/30											
-									-Groundwater						
-	_390							H	CLAY with SAND, 5 yr 4/3 (Rec	ish Brown). v					
_		10		27/30				1	fine SAND, few medium SAND, coarse SAND, few fine GRAVEL	ew FINES, tr	ace				
	_								COAISC GAIVE, ICW IIIC GIVAVEL						
-30	_								MUD FLOW (QM)						
-		11		28/30					Clayey SAND to Sandy CLAY,	7.5 yr 4/3 (Br	own),				
_		• •		20,00					wet, mostly fine to medium SAN few FINES, trace fine GRAVEL.						
	-								10 yr 3/2 (Very Dark Grayish Bro Clayey SAND, 7.5 yr 4/6 (Strong						
-	_385								wet, fine to medium sand, trace gravel.	coarse sand,	trace fine				
-		12		16/30					gravoi.						
35															
	-														
-	_	13		19/30					Sandy CLAY, 10 yr 6/4 (Light Y			1			
-									mottled with 10 yr 6/6 (Brownish FINES, few fine SAND, trace coa	arse SAND.	шоыу				
-															
	380	14		40/30											
-	_			3,33											
ROU	JP GF						ONSU Suite 1		THIS SUMMARY APPL ANTS, INCOF THIS BORING AND SUBSURFACE CONDIT LOCATIONS AND MAY WITH THE PASSAGE (PRESENTED IS A SIMI CONDITIONS ENCOUN	AT THE TIME TIONS MAY DI CHANGE AT OF TIME. THE	OF DRILLING. FFER AT OTHI THIS LOCATIO DATA	ER N	FI	GURI	E A-47

				OR	Ε	ВО	RIN	G	PROJECT NAME Green Trench		T NUMBER			ORING B-8	
_	Argyle			Holly	woo	d Ca			DATE(S) DRILLED 8/4/2014 to 8/4/2014	TO LOGGEI	D BY			HEET No.	0.
	LING N				ywoo	u, Ca			DRILL BIT SIZE/TYPE	10	CHECKED	BY			PTH DRILL
HSA									8"		SK		(fee		50
	L RIG	TYPI	E						DRILLED BY		INCLINATION		ROM \	/ERTIC	AL/BEARIN
Marl I	M-12 ARENT	GP	OLIN	אעוו	TEP	DED.	TU		Gregg In-Situ Drilling		ADDDOVIN	0	01105	40F FI	EV/ATION
	encou					DL.	•••				APPROXIM (feet)		30KF 18.3	ACE EL	EVAIION
COMI	MENTS	3									BOREHOLI			L	
								1				S	oil Cut	tings	
	£			so	IL C	ORE						LS	≿	E	
DЕРТН (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL D	ESCRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTE:
				~					MODELO FORMATION (Tr	1)					
-									Clayey SAND to Sandy CL	 AY , 10 yr 4/2 (Da	ark				
-	_								Grayish Brown) mottled with Brown), wet, mostly fine SAI	10 yr 5/6 (Yellov	vish				
	_	15		60/60					coarse SAND.						
-	_375														
-	_								10 yr 3/1 (Very Dark Gray)						
45															
-	_														
	_														
-		16		60/60					Claystone to Siltstone, 10 with sandstone lenses 5 yr 4	yr 2/1 (Black) int	erbedded	1			
-	_370	.0		00,00					with sandstone lenses 5 yr 4	i (Dark Gray).					
-															
-50	_														
									Total Depth: 50.0 ft bgs						
-	_								Groundwater: Encountered a Boring backfilled with tampe	t 27 ft bgs					
-	_								Doming succession than tamps	a caugo.					
-	365														
_	303														
-55															
-	_														
-															
_	_														
-	_360														
-	_														
DOL	ID								THIS SUMMARY A	DDI IES ONI V AT	THE LOCATIO	N.	 		
GROU	GF						ONSU Suite 1		THIS SUMMARY A ANTS, INCOF THIS BORING A SUBSURFACE CO LOCATIONS AND I	AND AT THE TIME NDITIONS MAY D MAY CHANGE AT	OF DRILLING IFFER AT OTH THIS LOCATION	ER	FI	GHRI	E A-47
				_			A 926		WITH THE PASSAI PRESENTED IS A CONDITIONS ENC	SIMPLIFICATION	OF THE ACTU	AL	' '	J J 1 (1	_ /\ +/

DELTA CONSULTANTS

LO	GO	'	C(JK	E	BC	RINC	∫دُ	PROJECT NAME Green Trench	INOULU	T NUMBER			ORING B-9	
	LOCA							\top	DATE(S) DRILLED	LOGGE	ВҮ		S	HEET N	0.
	0 Argyle			Holly	ywoo	d, Ca			8/4/2014 to 8/4/2014	то	T			of 2	
DRII HSA	LING N	/IETI	HOD						DRILL BIT SIZE/TYPE 8"		SK SK		(fe	et)	PTH DR I 37
	L RIG	TYP	E					T	DRILLED BY		INCLINATION		ROM \	/ERTICA	AL/BEAF
	M-12		0115	Diarr	T	D==-	T II		Gregg In-Situ Drilling			0			
	ARENT e encou			υWA	IER	DEP	I H				APPROXIM (feet)			ACE EL	EVATIO
CON	MENTS	3									BOREHOLI		19 CKFIL	L	
								1				S	oil Cut	tings	
	£ £			so	IL C	ORE						LS	 <u>≻</u> .	_K	
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL	DESCRIPTION		PACKER TEST	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIE NO
				ш					Asphalt at surface.						
_	-							Á	ARTIFICIAL FILL (Qaf)			-			
_	-							\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Sandy SILT, dark brown, with rootlets.	moist, fine to medic	ım sand,				
_	-							Z	Hand auger down to 5.5 fe	eet.					
_	_415														
_5	_								UPPER SAND UNIT (Qs)			-			
_				20/00					Silty SAND, 10 yr 5/4 (Ye	llowish Brown), drv	to moist,				
_		1		26/30					mostly fine to medium SAI coarse SAND, trace fine G	ND, some FINES, to	ace				
_			-												
_	140	2		19/30											
_	_410														
_10	_								- CAND WE CHE TO 57	C (Vollanda L Dan)		-			
_	-	3		25/30					SAND with SILT, 10 yr 5/ moist, mostly fine to mediu few fine GRAVEL, trace F	um SAND, few coar					
_	_								iew iiile GRAVEL, liace F	IIVLO.					
_	-														
_	4 05	4		21/30											
_15									MUD FLOW (Qm)			-			
-									Clayey SAND to Sandy C moist, mostly fine SAND, s	CLAY, 2.5 yr 4/4 (B	rown),				
-		5		31/30					SAND, trace coarse SANE Clayey SAND to Sandy (D, trace fine GRAVE	L.				
_			-						Brown), mostly medium S. FINES, few coarse SAND.	AND, few coarse S.					
_	_							//	Clayey SAND to Sandy Commoist, mostly fine SAND, s	CLAY . 7.5 vr 6/1 (G	ray),	-			
_	_400	6		27/30					SAND, trace coarse SAND	D, trace fine GRAVE	EL at 18'.				
ממו	LID							//	THIS CUMMASS	ADDITE ON VAT	THE LOCATIO	L NI	<u> </u>		
RO	GF	RO	UP	DE	LT	A C	ONSU	LT/	NITC IN MOFTHIS BORING	TAPPLIES ONLY AT G AND AT THE TIME CONDITIONS MAY D	OF DRILLING				
		,	92 <i>A</i>	٩rg	ona	ut,	Suite 1	20	LOCATIONS AN WITH THE PASS	D MAY CHANGE AT SAGE OF TIME. THE	THIS LOCATION DATA	N	FI	GURE	Ξ A-4
	1		Δlic	so ۱	/iei	o C	A 926	56	PRESENTED IS CONDITIONS EN	A SIMPLIFICATION	JE THE ACTU	۸L			

LO	G C	F	CC	R	ΕI	BO	RIN	G	PROJECT NAME Green Trench	PROJECT	NUMBER			ORING B-9	
SITE	LOCA	TION	1						DATE(S) DRILLED	LOGGED	ВҮ		s	HEET N	Ο.
	Argyle			Holly	woo	d, Ca		+	8/4/2014 to 8/4/2014	ТО	CHECKED	RV		of 2	ртн п
HSA	LING N	nc I f	שטו						B" SIZE/TYPE		SK	10	(fe		PIND
	L RIG	TYPI	E					\top	DRILLED BY		INCLINATION	ON F	ROM \	/ERTIC	
	M-12								Gregg In-Situ Drilling			0			
	ARENT e encou			JWA	IEK	DEP	IH				APPROXIM (feet)		SURF 19	ACE EL	EVATI
СОМ	MENTS	3									BOREHOLI		-	L	
	1							1				S	oil Cut	tings	
_	Œ			SOI	IL C	ORE		_				STS	.χ	U.S.	
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DES	CRIPTION		PACKER TEST	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FI NC
				<u> </u>	_				Grannitic Cobbles- highly weath	ered.					
_	-	7	3	1/30					Clayey SAND to Sandy CLAY,	10 yr 5/6 (Yel	lowish	-			
_	F								Brown) and 10 yr 6/1 (Gray) mo mostly fine SAND, some mediui	m SAND, few I	FINES,				
_	_								trace fine to coarse GRAVEL, tr	ace COBBLES	o.				
_	_395	8	3	1/30					MODEL O FORMATION (T.			_			
–2 5	L								MODELO FORMATION (Tm)	oiot mooth	n, fina				
-20									Siltstone , 10 yr 8/1 (White), m SAND, some FINES.	oist, mostly ve	ry fine				
_	_	9	3:	2/30					Siltstone and Sandstone, 10 y	r 8/1 (M/bite) m		-			
_	_								with 5 yr 7/8 (Yellow) and 7.5 yr very weathered, residual beddin	6/6 (Reddish	yellow),				
_	-								veins and nodules, thin bedded. Siltstone, 10 yr 6/1 (Gray) mott		, -	-			
_	_390	10	3	1/30					(Brownish Yellow), moist-wet, m						
_30	_									r 5/8 (Vallauda	h Brown)				
_	L								Siltstone and Sandstone, 10 y mottled with 5 yr 7/8 (Yellow) ar weathered, residual bedding, so	nd 10 yr 8/1 (G	ray), very				
									and nodules, thin bedded.	ine carbonate	VOITIS				
_		11	5	2/60											
_	_														
_	_385														
_35	F			_											
_	<u></u>														
_															
												-			
_	380								Total Depth: 37.5 ft bgs Groundwater: Encountered at 2 Boring backfilled with tamped cu						
GROU	JP GF	Ç	92 A	Argo	ona	ut, S	ONSU Suite 1 A 926	20	THIS SUMMARY APPL ANTS, INCOF THIS BORING AND SUBSURFACE CONDI LOCATIONS AND MAY WITH THE PASSAGE OF PRESENTED IS A SIM CONDITIONS ENCOU	O AT THE TIME TIONS MAY DII CHANGE AT TO OF TIME. THE PLIFICATION O	OF DRILLING FFER AT OTH THIS LOCATIC DATA	ER N	FI	GURI	E A-

LOG OF CORE BORING								G	PROJECT NAME Fault Investigation 1800 Argyle				BORING BA-1				
	LOCA		ı						DATE(S) DRILLED	LOGGED	BY		I	HEET Not 2	0.		
	wood, L ING N		HOD					\dashv	7/9/2014 to 7/9/2014 SS DRILL BIT SIZE/TYPE CHECKE								
Bucket Auger DRILL RIG TYPE EZ Bore											SK (feet						
									DRILLED BY Roy Brothers		INCLINATIO	ON F	ROM \	/ERTIC	AL/BEARING		
	RENT encou	_		DWA	TER	DEP	TH		,		APPROXIM (feet)	ATE	SURF	ACE EL	EVATION		
COMI	MENTS	3									BOREHOLE	ЕВА	CKFIL	L			
	(#)			so	IL C	ORE		 -				TS	\ \\\	ni D R			
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESC	CRIPTION		PACKER TEST	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTES		
									12" Asphalt Concrete Pavement.								
									8" Ballast Railwood ties, wood.		_						
									Artificial Fill (Qaf)								
-								4	Sandy Fat CLAY (CH); dark brogue GRAVEL; medium to high plastic	wn; moist; few city.	, -						
-									Upper Sand Unit (Qs)								
-5									Clayey SAND (SC); dark brown; coarse SAND.	moist; mostly	fine to						
_										10							
									Redder brown; increase in SANRoots, massive; no bedding.	ID.							
-									- Rounded and angular GRAVEL	. fragments: gi	ranite						
-									rock fragments. Some chunks of Silty CLAY (CI								
-									uphole roots. Silty SAND (SM); yellow brown;		· /						
-10									SAND; few coare GRAVEL, subi	ounded to rou	inded .						
-																	
-									- Coarse SAND lense; discontinu	ious; gradatioi 	nai 						
-									Poorly-Graded SAND with GRAD brown; moist; some CLAY.	AVEL (SP) ye	llow						
15									Sandy Lean CLAY (CL); mediur	n brown; mois	 t; fine						
_15									to coarse SAND; few fine GRAV – subrounded; CLAY bed less than	EL, rounded to n 12" thick.	· /-						
-									Silty SAND (SM); medium dense moist; mostly fine to coarse SAN	e; yellow brow	n; EL. less						
-									than 1" diameter; moderately cer - Massive.		_,						
_																	
-																	
ROU	JP _							[]	THIS SUMMARY APPLI	ES ONLY AT T	HE LOCATION	N					
7	GF								ANTS, INCOF THIS BORING AND SUBSURFACE CONDIT	AT THE TIME (TONS MAY DIF	OF DRILLING. FER AT OTH	ER					
		Ś	92 /	٩rg	ona	ut, :	Suite '	120	LOCATIONS AND MAY WITH THE PASSAGE O PRESENTED IS A SIMF	F TIME. THE I	DATA		FI	GURI	E A-49		
	~		Alis						I PRESENTED IS A CIMIL			4.1					

LOG OF CORE BORING						ВО	RIN	G	PROJECT NAME Fault Investigation 1800 Argyle	NUMBER		BORING BA-1				
SITE	LOCA	TION							DATE(S) DRILLED LOGGED BY			SHEET NO.				
	wood,								7/9/2014 to 7/9/2014	SS	T			of 2		
	LING N		IOD						DRILL BIT SIZE/TYPE		CHECKED E	3Y	(fee		PTH DRILLI 26	
	et Auge L RIG		=						DRILLED BY		SK INCLINATIO	N FF	ROM V	/ERTIC	_	
EZ Bo	_		_						Roy Brothers							
	RENT			DWA	TER	DEP	ТН				APPROXIMA	ATE	SURF	ACE EL	EVATION	
	encou MENTS		:u								(feet)		N/FII			
JOIVII	WIENTS	•									BOREHOLE	ВА	, KFIL	L		
	(ft)			so	IL C	ORE						TS	۲۲	J.R		
DЕРТН (ft)	ELEVATION (ft)			, %	g	\o	出沙~	LITHOLOGY	MATERIAL DECC	PUDTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD	
DEPT	≡VAT	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	원	MATERIAL DESC	RIPTION		CKER	BOR, TES	RILL TERS	NOTES	
		R.	BO)	ECO	RAC	R.Q	FRAC DRA					PA(≤	MED		
\dashv				R				1//	Clayey SAND / Sandy CLAY (So	C/CL)						
									Mud Flow (Qm)							
									Sandy CLAY with GRAVEL (CL) stiff: mediu	m					
									brown; moist; some fine to coarse GRAVEL, rounded to subangular	SAND; few						
									diameter; slow dip; undulatory co	ntact.	10 4					
									CLAY (CL); some GRAVEL; som subangular.	ie SAND; an	gular to					
25									Older Alluvium (Qoal)							
									- Moderately cemented; fine to co		fines					
									increase down section, trace GRA - Becomes wet.	AVEL.						
									Total depth 26 ft.							
30																
30																
35																
ROU	JP C	יטו	IP	DE	 T/	۸ ۲۰	ONGI	 T	THIS SUMMARY APPLIE	ES ONLY AT	THE LOCATION OF DRILLING	I		•		
7									LOCATIONS AND MAY	CHANGE AT	THIS LOCATION		 	O. 15.	- ^ 40	
(((5	72 F	¬ı g	ond	uı, i	Suite	120	WITH THE PASSAGE O PRESENTED IS A SIMP	F TIME. THE	DATA		[GURI	E A-49	

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LOG OF CORE BORING								G	PROJECT NAME Fault Investigation 1800 Argyle	BORING BA-2 SHEET NO.					
_	wood,	_	•						DATE(S) DRILLED 7/10/2014 to 7/10/2014	LOGGED SS	זם		-	of 3	
	LING N		HOD						DRILL BIT SIZE/TYPE	CHECKED BY TOTAL DEPTH DRI					
Bucket Auger DRILL RIG TYPE EZ Bore											SK		(fe		35
									DRILLED BY Roy Brothers		INCLINATIO	ON F	ROM	ERTICA	L/BEARING
APPARENT GROUNDWATER DEPTH									Roy brothers		APPROXIM	ΔTF	SURF	ACE EL	EVATION
None encountered											(feet)	A1L	JUNI	AOL LL	LVAIION
COMMENTS											BOREHOLE	ЕΒΑ	CKFIL	L	
t)	l (ft)				IL C	ORE						STS)RY	TE, DUR	
DЕРТН (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DES	CRIPTION		PACKER TESTS	LABORATO TESTS	LABORATORY TESTS DRILL RATE, METERS/HOUR	FIELD NOTES
_									3.5" Asphalt. Artificial Fill (Qf) - 3.5" - 10" Clayey SILT (ML-CL)						
									- Asphalt Dark brown Clayey Silt Asphalt						
- -5									Upper Sand Unit (Qs) 3.5' - 4' Clayey SAND; stiff; me moist; gravelly.						
-									Clayey SAND stiff; medium brownoist. 5.5' Contact between fill and alluundulatory contact						
-									 Clayey SAND (SC); loose to med brown; moist; mostly fine to med coarse SAND; trace fine to coarse subrounded; micaceous. Upper Sand Unit (Qs) 	ium SAND: so	gray _ ome 	-			
-10 -									Clayey SAND red brown; mostly SAND; little CLAY content; some Soft SAND; 5% fine to coarse G subangular.	grass. GRAVEL, roun	ded to				
-									Silty SAND (SM); olive brown; n medium SAND; some coarse SA GRAVEL; trace fine to coarse G micaceous; gradational contact;	ND; few coar RAVEL, subro	se				
- -15									Note: (other log reads) Clayey S - Trace coarse GRAVEL, subrou gradational contact; - 9'-10' trace cobbles.		ous;	-			
- -									SAND/Silty SAND; yellow brown GRAVEL, rounded to subrounded 10'- 14' SAND; mostly medium to SILT (SP-SM); loose to medium SAND with SILT (SP-SM); light fine to medium SAND; few coarse GRAVEL, subrounded.	ed. o coarse SANI dense. brown; moist;	D; little _ mostly	_			
_									-Cleaner SAND - Trace cobbles (west side); grar to rounded; weathered; gradation						
ROU	GF						ONSU Suite		THIS SUMMARY APPL ANTS, INCOF THIS BORING AND SUBSURFACE CONDI- LOCATIONS AND MAY	AT THE TIME FIONS MAY DII	OF DRILLING. FFER AT OTH	ER		CL 10.	- A 50 -
				_					WITH THE PASSAGE OF PRESENTED IS A SIMI	OF TIME. THE PLIFICATION C	DATA		[GUKI	E A-50 a
L TT	'Α		Alis	50 \	/iej	o, C	A 926	556	CONDITIONS ENCOUN	ITERED.					

LOG OF CORE BORING SITE LOCATION HOllywood, CA DRILLING METHOD						ВО	RIN	G	PROJECT NAME Fault Investigation 1800 Argyle	PROJEC	T NUMBER			BORING BA-2			
									DATE(S) DRILLED	LOGGEI SS	BY		SHEET NO.				
									7/10/2014 to 7/10/2014		2 of 3 TOTAL DEPTH DRILLE						
Bucket /			ЮВ						DRILL BIT SIZE/TYPE		CHECKED	BY	(fee		35		
DRILL I			<u> </u>						DRILLED BY		SK INCLINATION	N F	ROM V	ERTICA			
EZ Bore			_						Roy Brothers								
APPAR None er				DWA	TER	DEP	ТН				APPROXIM	ATE	SURF	ACE EL	EVATION		
СОММЕ	ENTS	i									BOREHOLE	ВА	CKFIL	L			
				so	IL C	ORE						တ		~			
Œ	N E							ქ გ				PACKER TEST	LABORATORY TESTS	ATE, HOUF	EIEL D		
DEРТН (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DES	MATERIAL DESCRIPTION				DRILL RATE, METERS/HOUR	FIELD NOTES		
									III - Coarser SAND; slight harder d III 13' - 14' Minor caving Sandy Gra III GRAVEL (SP); loose; moist; mo III coarse SAND; fine to coarse GR III angular; sharp horizontal contact	avel layer; SA stly medium AVEL, subro	to unded to						
25									Silght caving; medium to coarse 11(1" to 1.5" thick section) 14.3' Sand with SILT (SP-SM) 14.5' Clayey SAND/ Silty SANI bed; trace GRAVEL, angular to ight grayish brown; moist to vising slight mica. Grades to Silty SAND. Poorly-Graded SAND with SIL medium dense; light grayish brown mostly fine to coarse SAND; trace GRAVEL, subrounded, sharp common undulatory. Sand with GRAVEL; CLAY sea 17' to 19.5' Medium to coarse SAND; with GRAVEL. SAND; very moist; mostly medium few GRAVEL, subrounded to row subrounded cobble. Clayey SAND (SC); moist to we gradational contact; micaceous. -Channel deposit. Contact varies Clayey SAND (SC); stiff; moist if grained; gradational contact N65 borehole. SILT layer; stiff; N65°W85°. Poorly-Graded SAND (SP) light mostly fine to medium SAND; fee Silty SAND (SM); light brown to to wet; mostly fine to medium SAND; for GRAVEL, well rounded. Sandy CLAY; fine grained SAND; SAND; trace fine GRAVEL (SM) GRAVEL, well rounded. Sandy CLAY; fine grained SAND; subangular. Mud Flow (Qm)	Dimedium den subangular. Idium dense; vet; trace coaular to subangular to coase fine to coantact, horizor am. SAND; few finum to coarse unded. It; mostly fine s around hold o wet; mostly fine s around hold o wet; mostly so wet; mostly for w coarse SAI brownish graw coars	se; thin						
	GR	ç)2 A	٩rg	ona	ut, S	ONSU Suite 1 A 926	120	THIS SUMMARY APPL ANTS, INCOF THIS BORING AND SUBSURFACE CONDI- LOCATIONS AND MAY WITH THE PASSAGE (PRESENTED IS A SIM CONDITIONS ENCOUR	AT THE TIME FIONS MAY D CHANGE AT OF TIME. THE PLIFICATION	OF DRILLING. IFFER AT OTHE THIS LOCATIO DATA	≣R N	FI	GURE	E A-50		

CITE				DR	RE	BC	RIN	G	PROJECT NAME Fault Investigation 1800 Argyle		T NUMBER				BORING BA-2 SHEET NO.			
	LOCA wood,		ı						DATE(S) DRILLED 7/10/2014 to 7/10/2014	LOGGED SS	ВА			of 3	o .			
DRIL	LING N et Auge	ИЕТН	HOD						DRILL BIT SIZE/TYPE		CHECKED SK	ВҮ	TOTAL DEPTH DRILLE (feet) 35					
	L RIG		E						DRILLED BY Roy Brothers		INCLINATION FROM VERTICAL/BEARING							
	ARENT encou			DWA	ATER	DEP	TH				APPROXIN (feet)	IATE	SURF	ACE EL	EVATION			
COM	MENT	S									BOREHOL	ЕВА	CKFIL	.L				
Œ	(L)		ı		OIL C	ORE	i.	_ _ ჯ				STS	JRY	TE, OUR				
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DES	CRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTES			
- - - - - - - - - - - -									CLAY; sandy CLAY; stiff; brow sharp horizontal contact; trace sharp horizontal contact; wet; \$ fine GRAVEL; brown to dark br - Water Free water seeping Saturated CLAY Total depth 35'.	fine GRAVEL. Sandv CLAY: st								
- - - -55 - -																		

YUCCA-ARGYLE APARTMENTS - CHAMPION SITE SE CORNER OF YUCCA STREET AND ARGYLE AVENUE 1756 AND 1760 ARGYLE AVENUE, HOLLYWOOD DISTRICT, CITY OF LOS ANGELES, CALIFORNIA, CPT AND BORING LOGS, 2014.

Figure A - 1

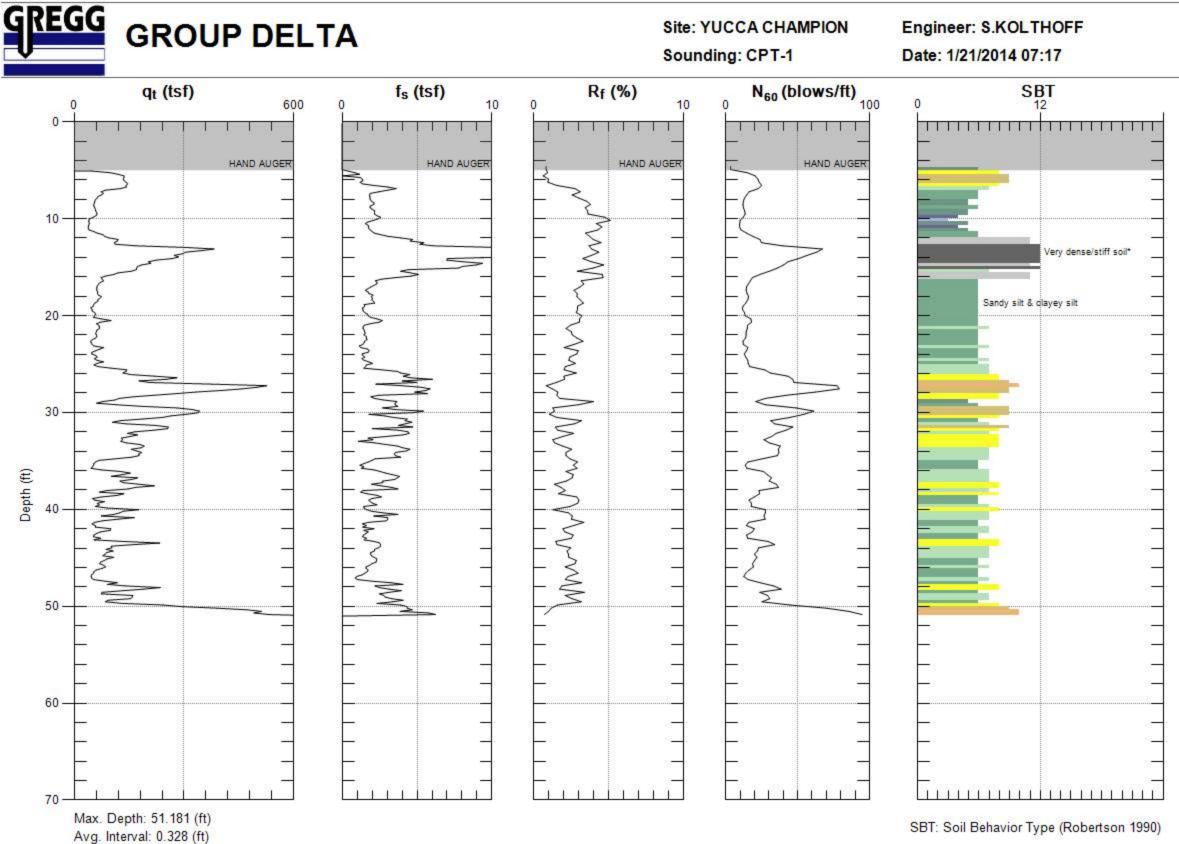


Figure A - 2

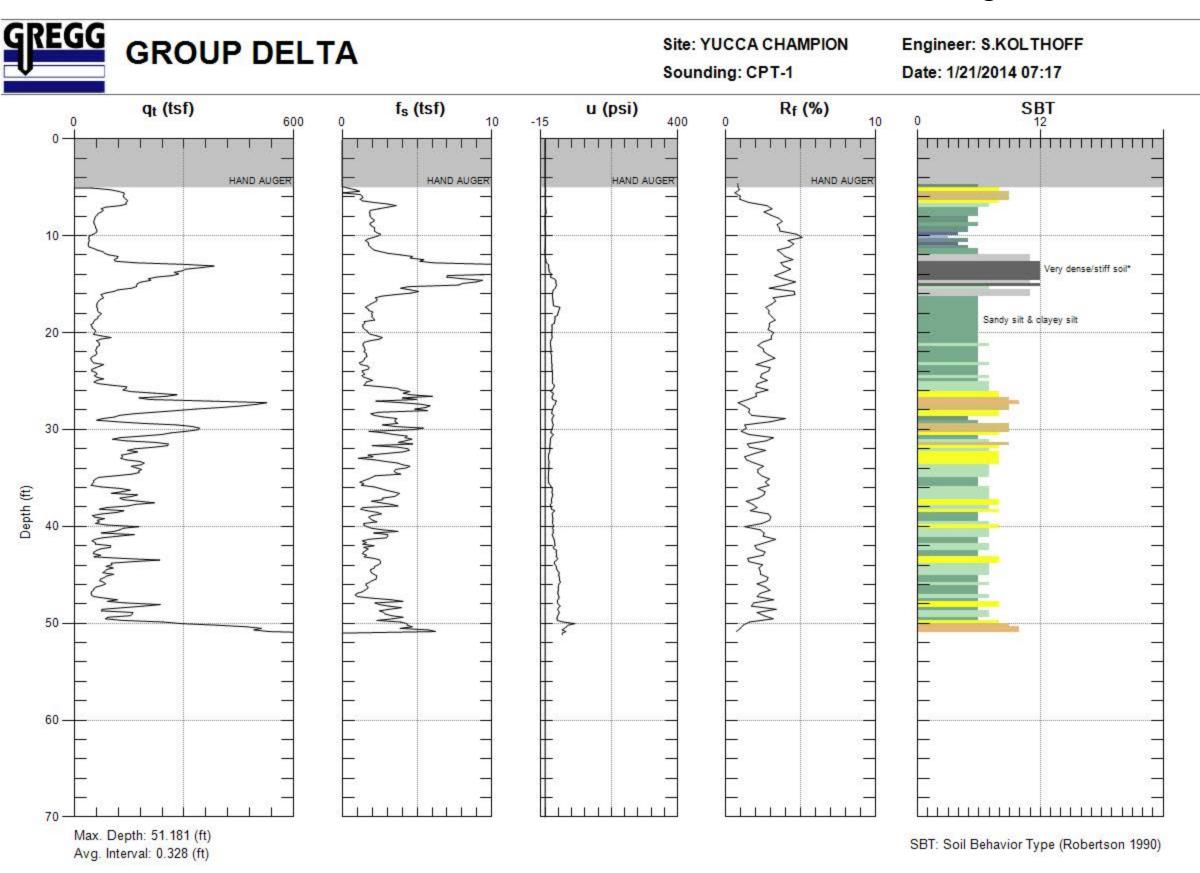


Figure A - 3

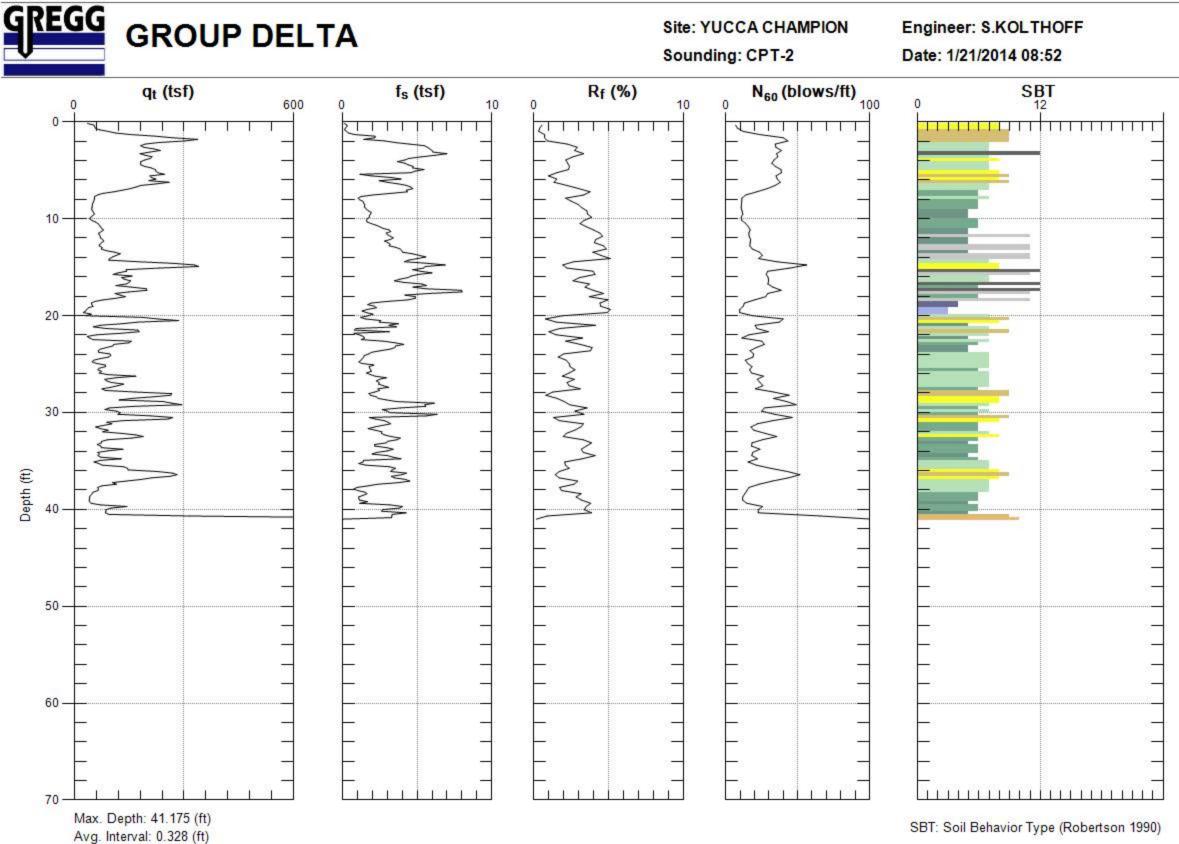


Figure A - 4

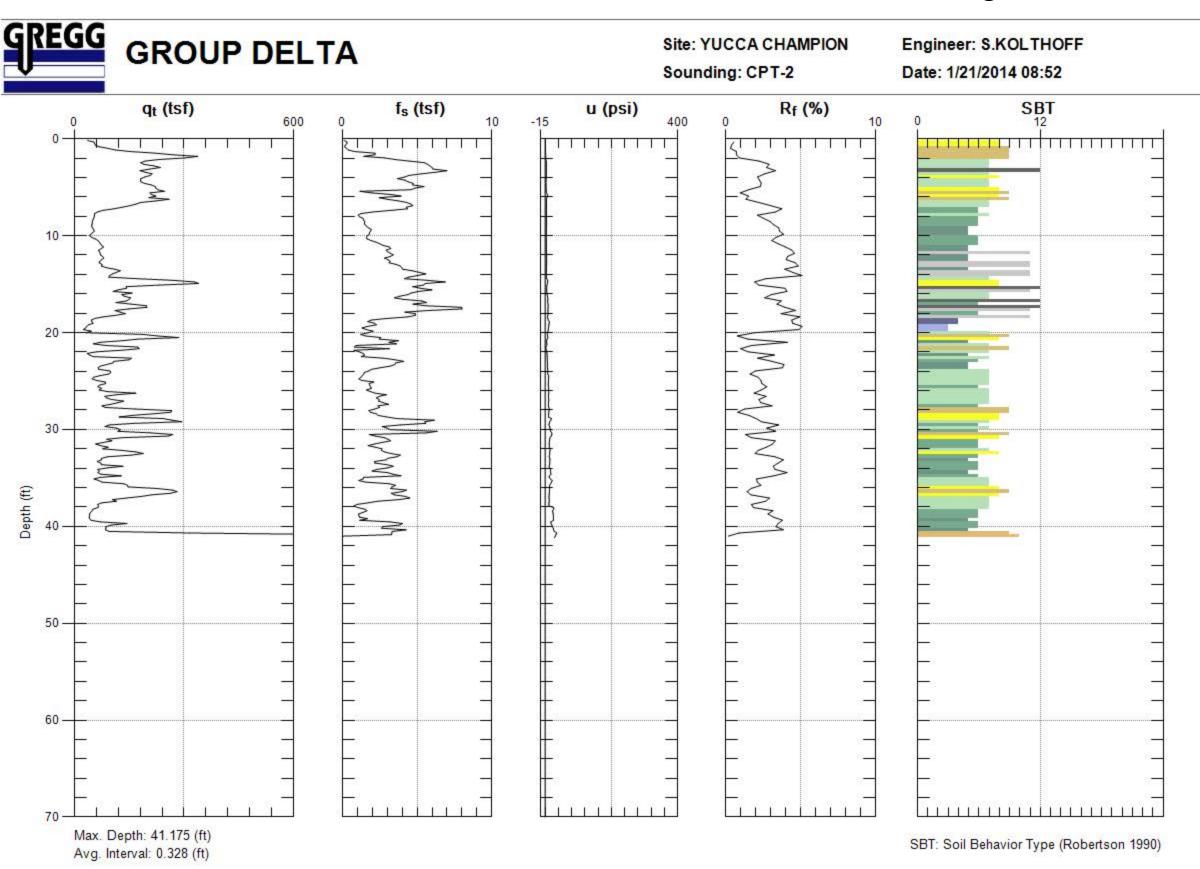


Figure A - 5

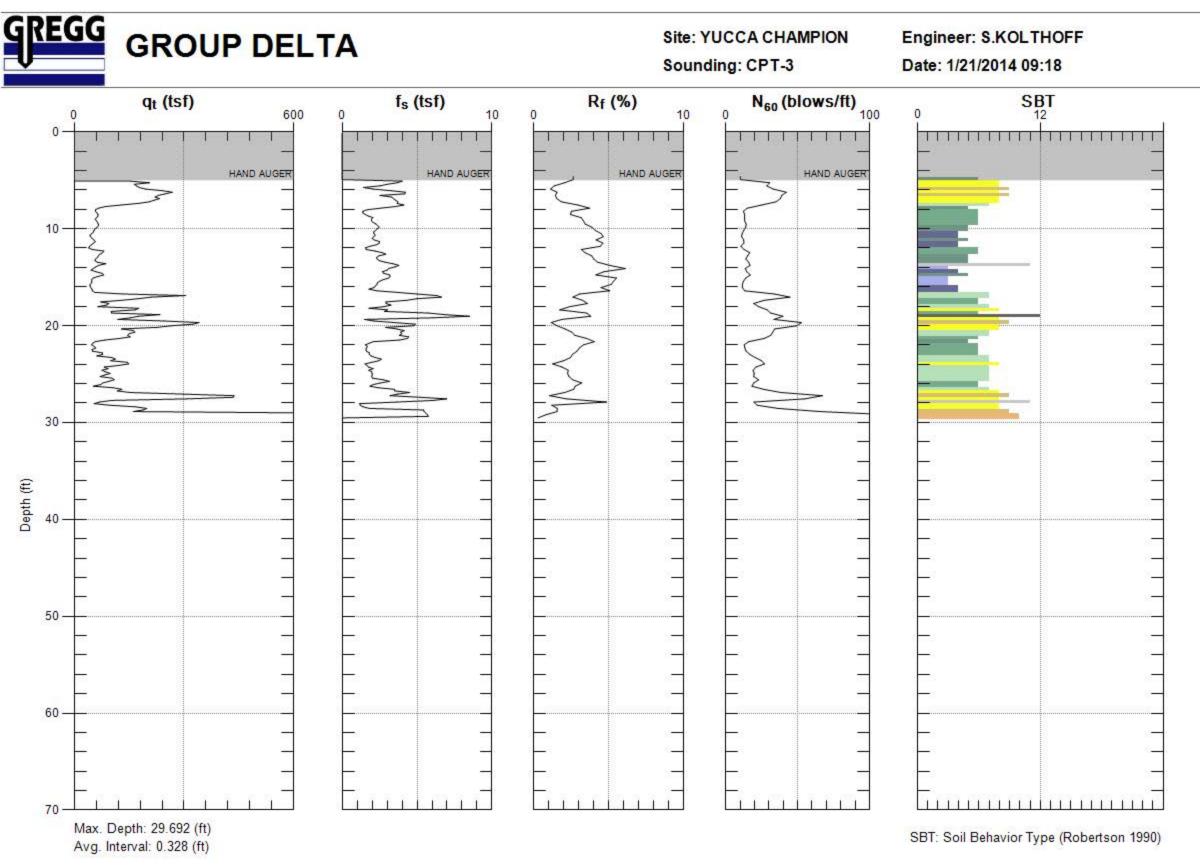


Figure A - 6

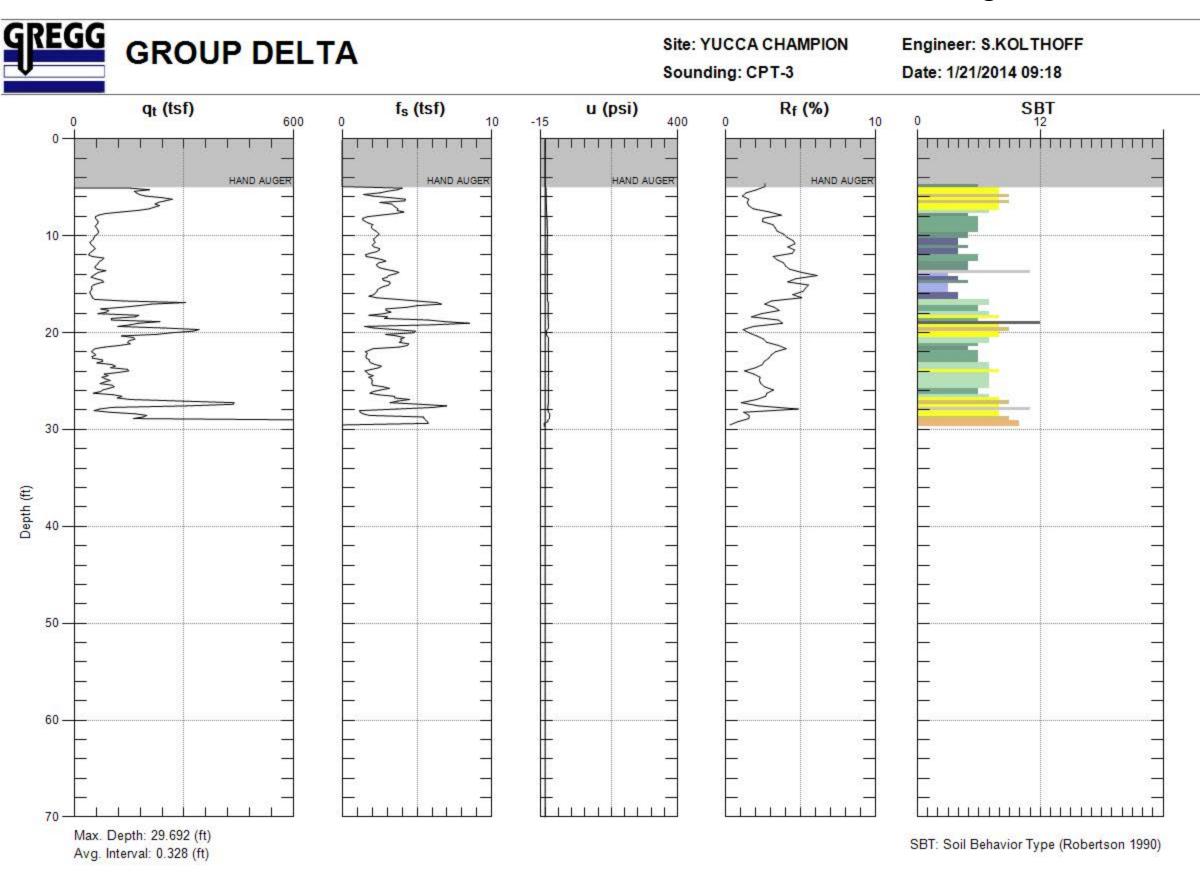


Figure A - 7

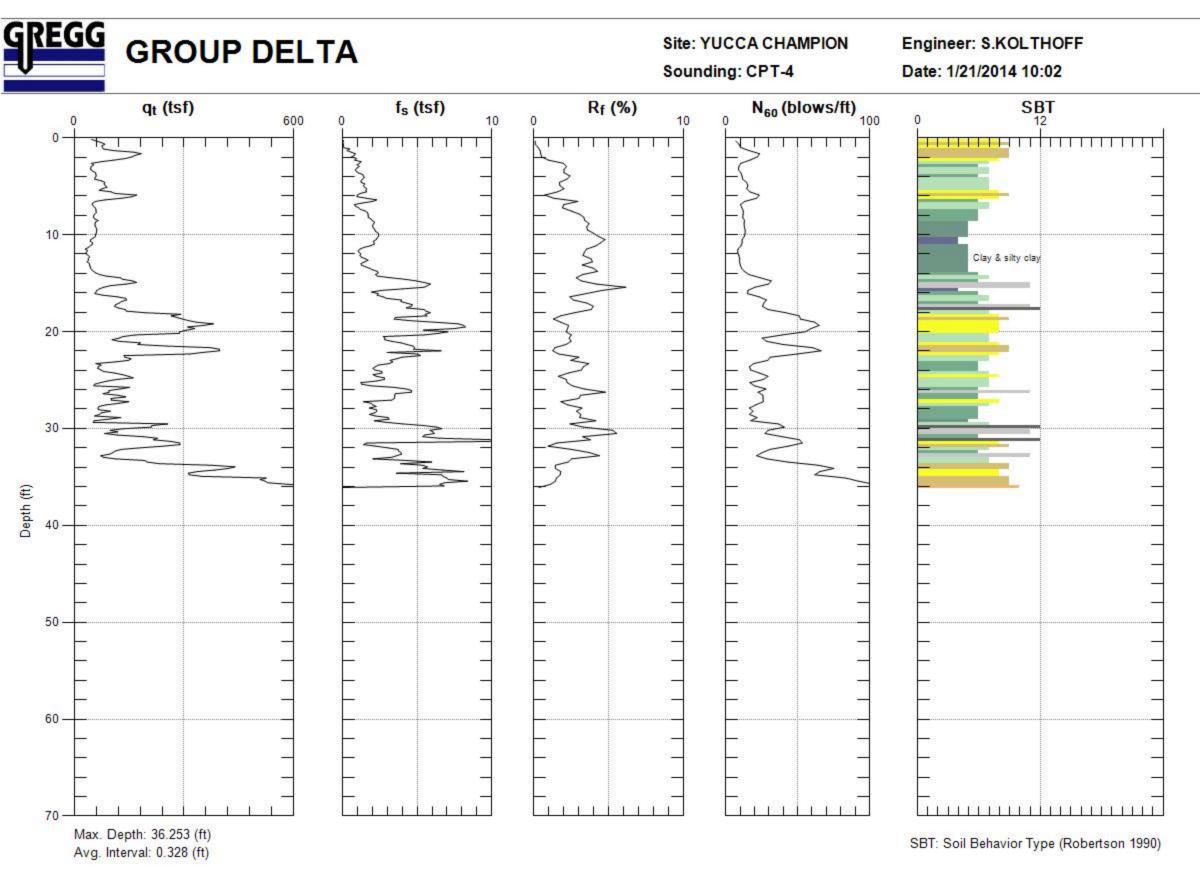


Figure A - 8

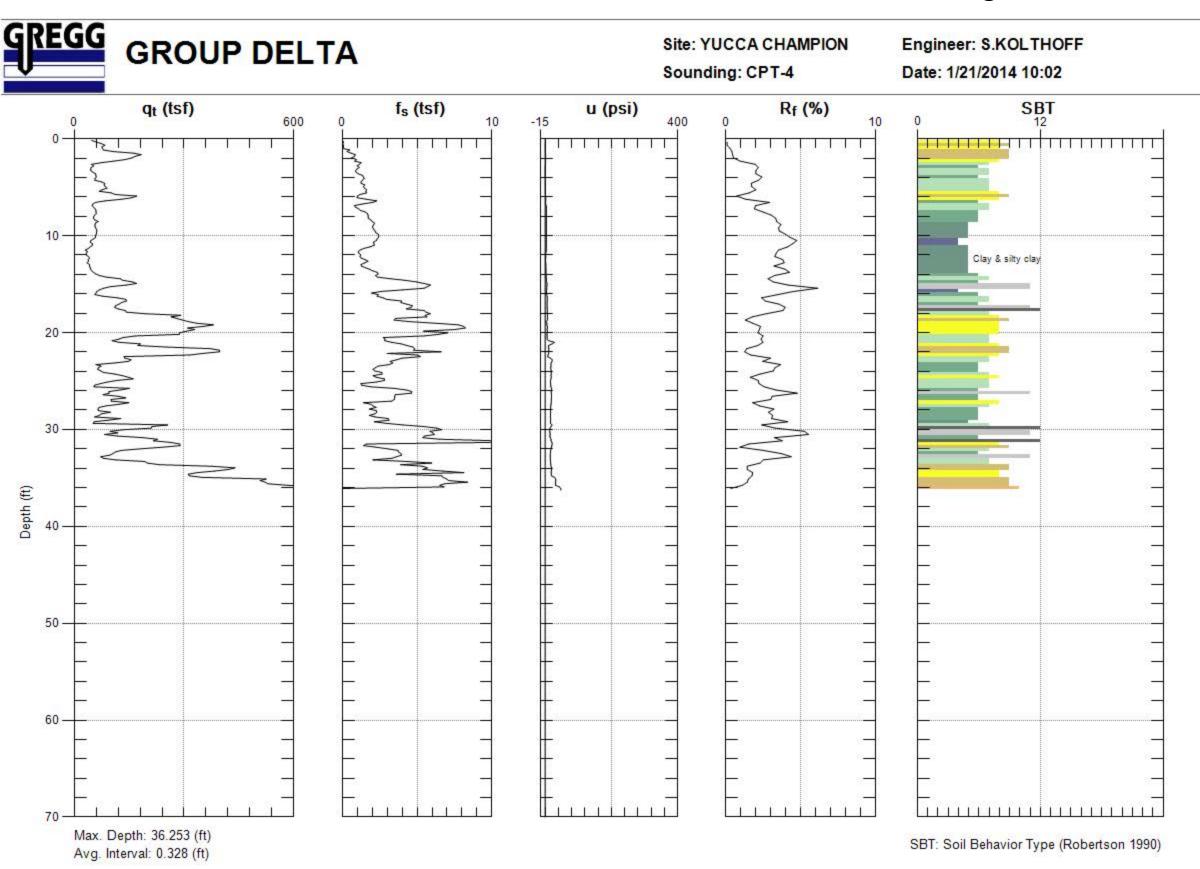


Figure A - 9

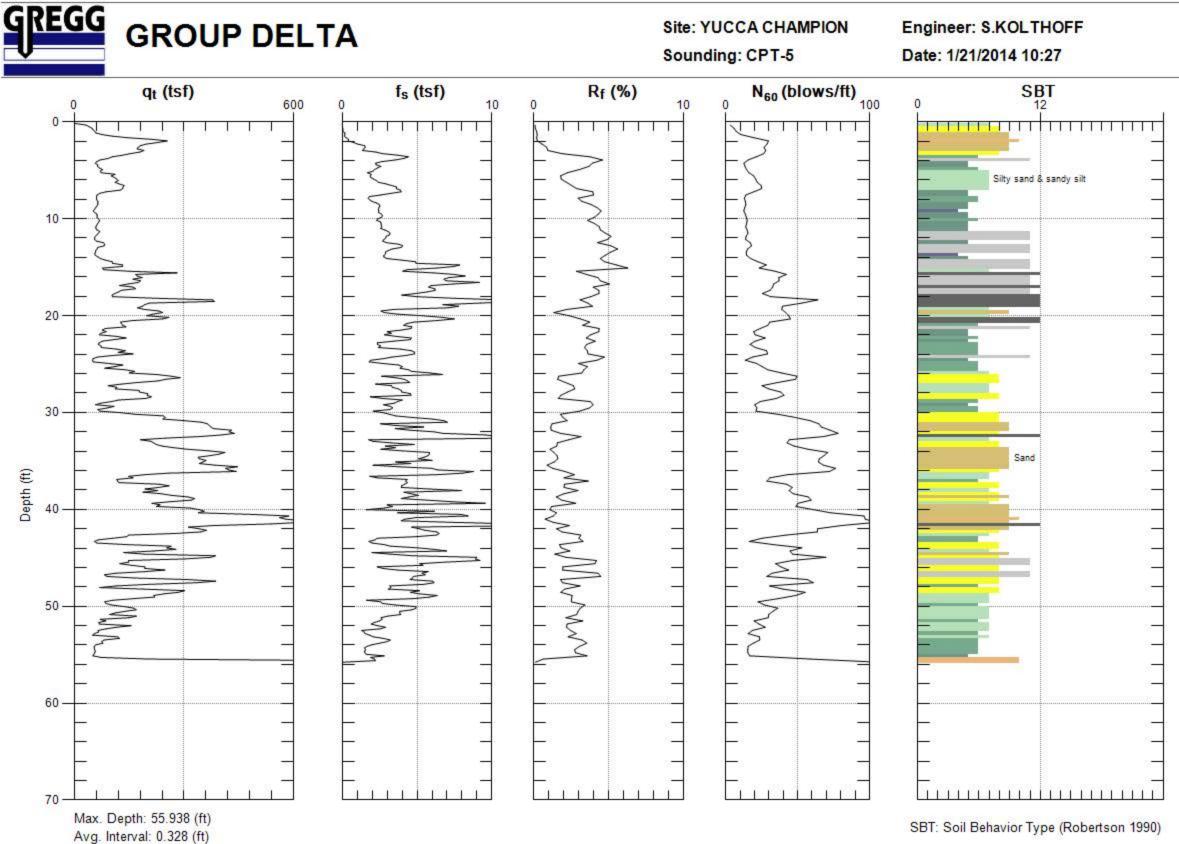


Figure A - 10

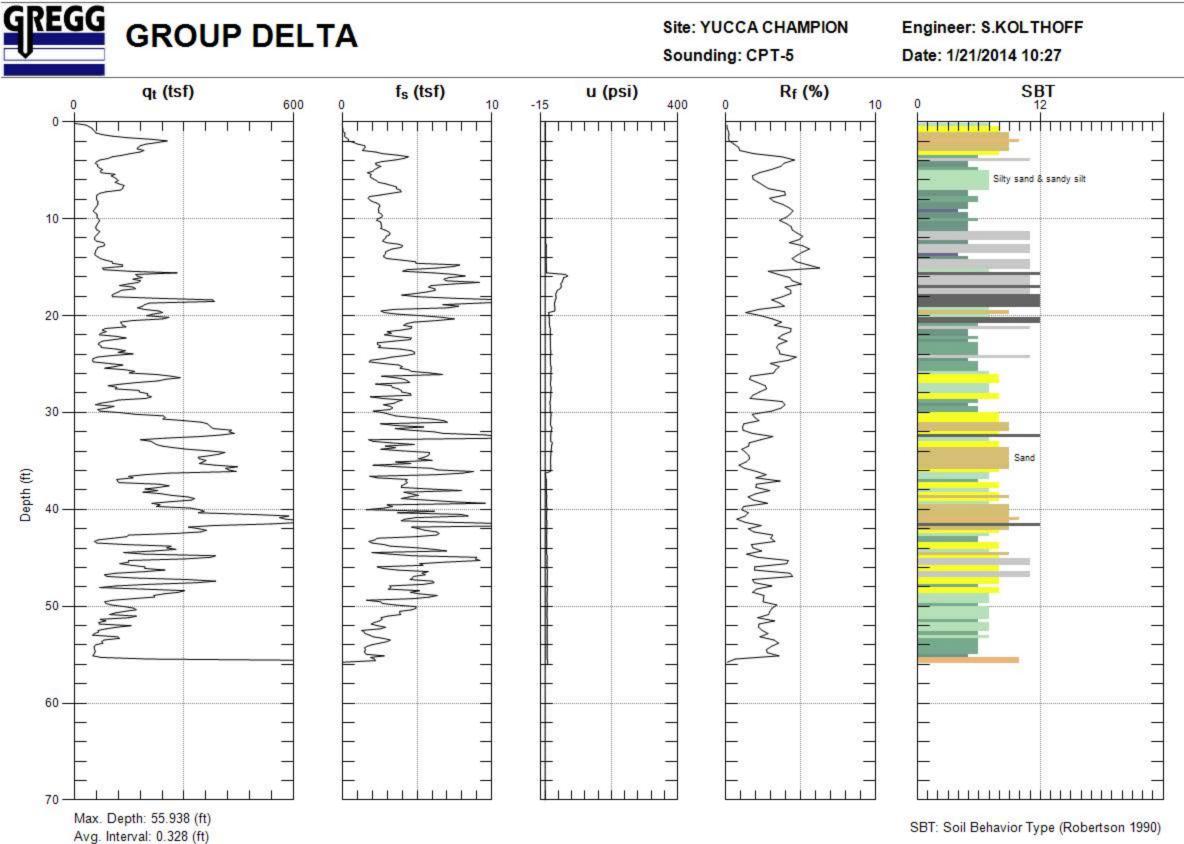


Figure A - 11

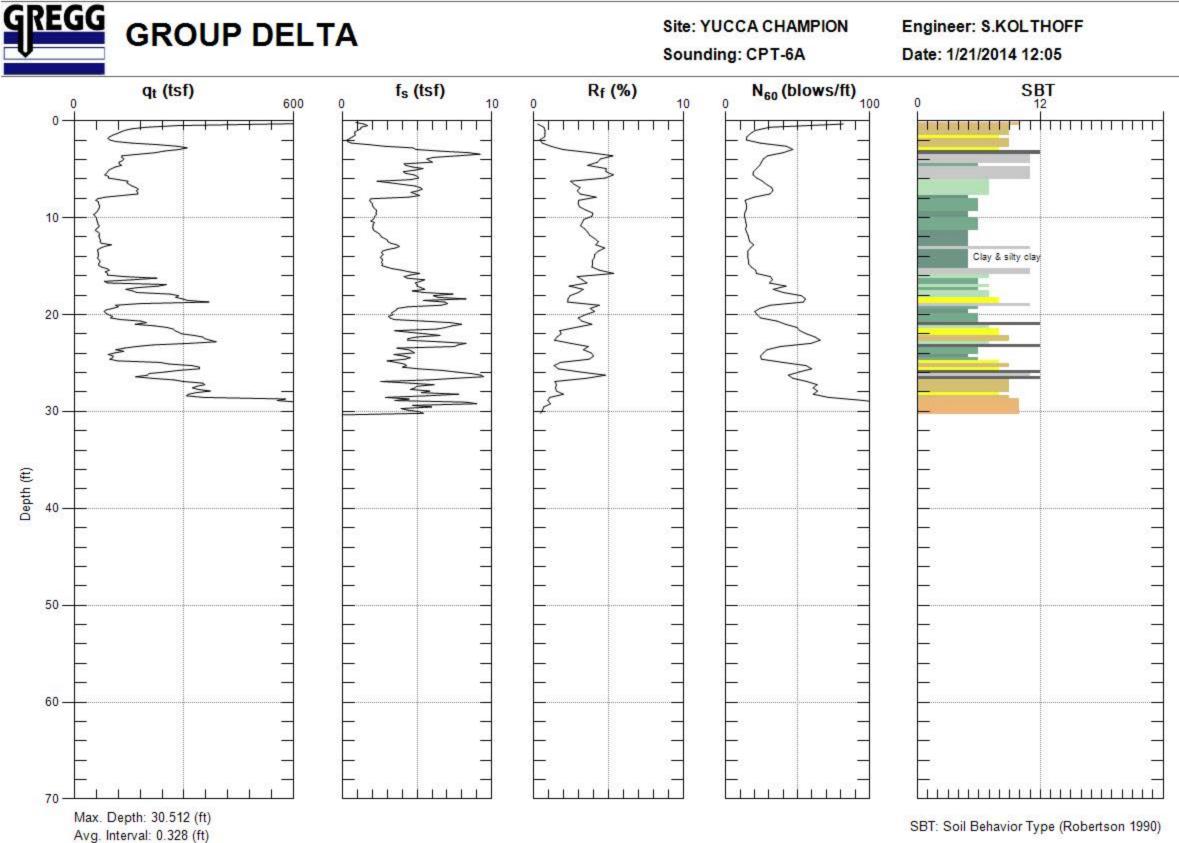


Figure A - 12

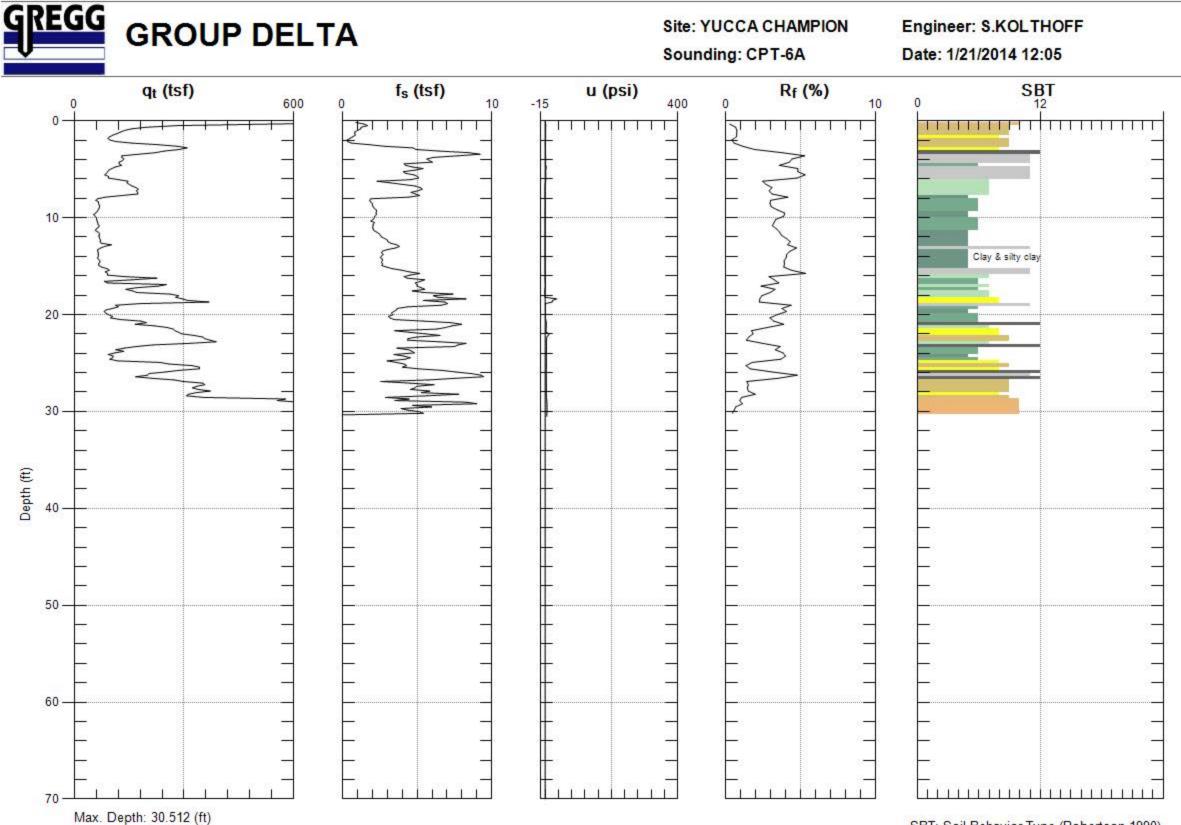


Figure A - 13

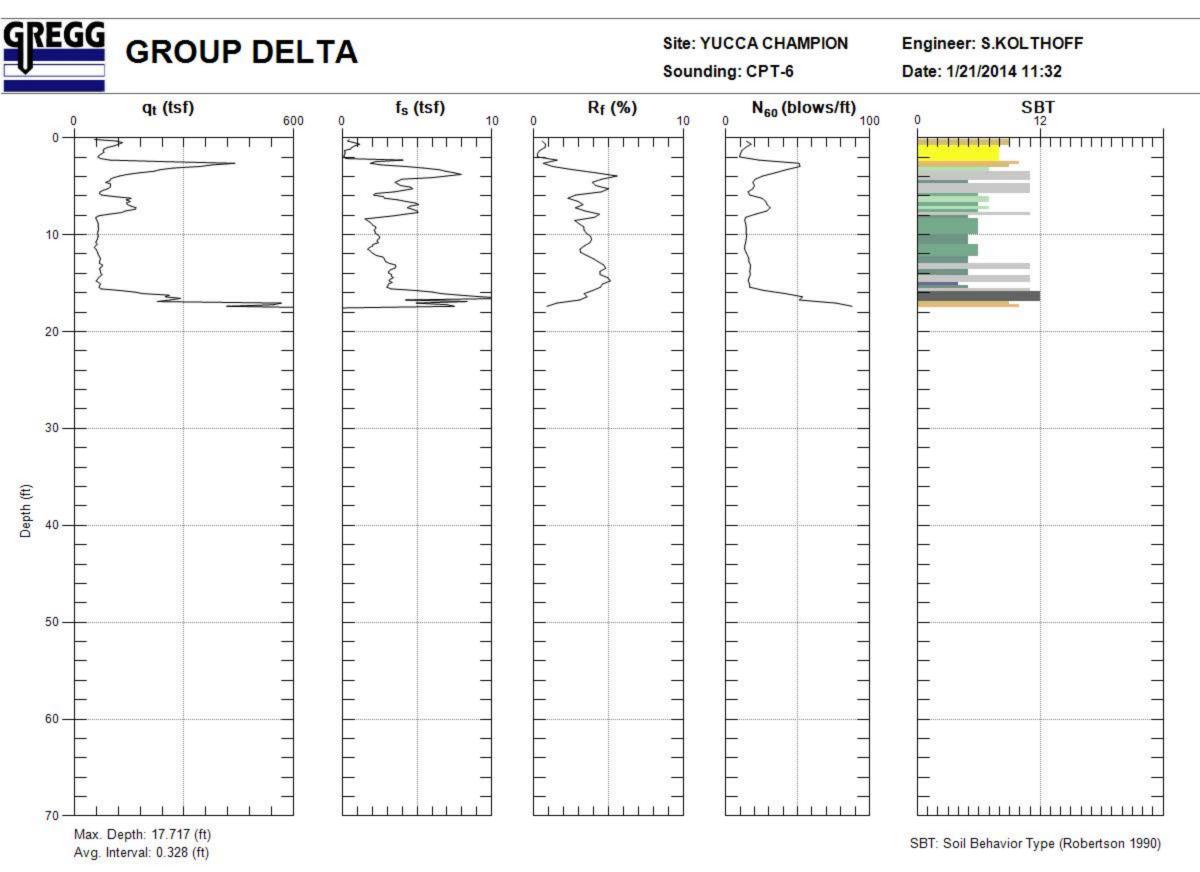


Figure A - 14

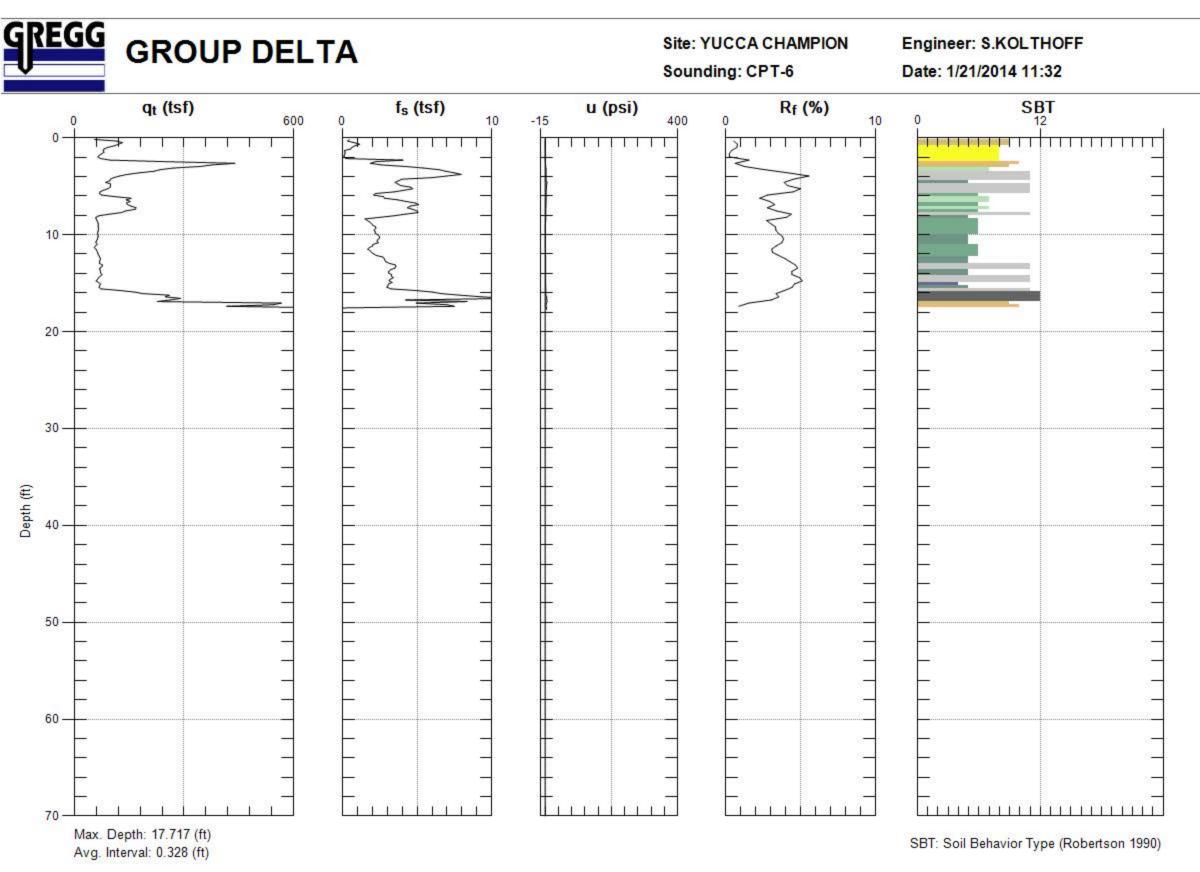


Figure A - 15

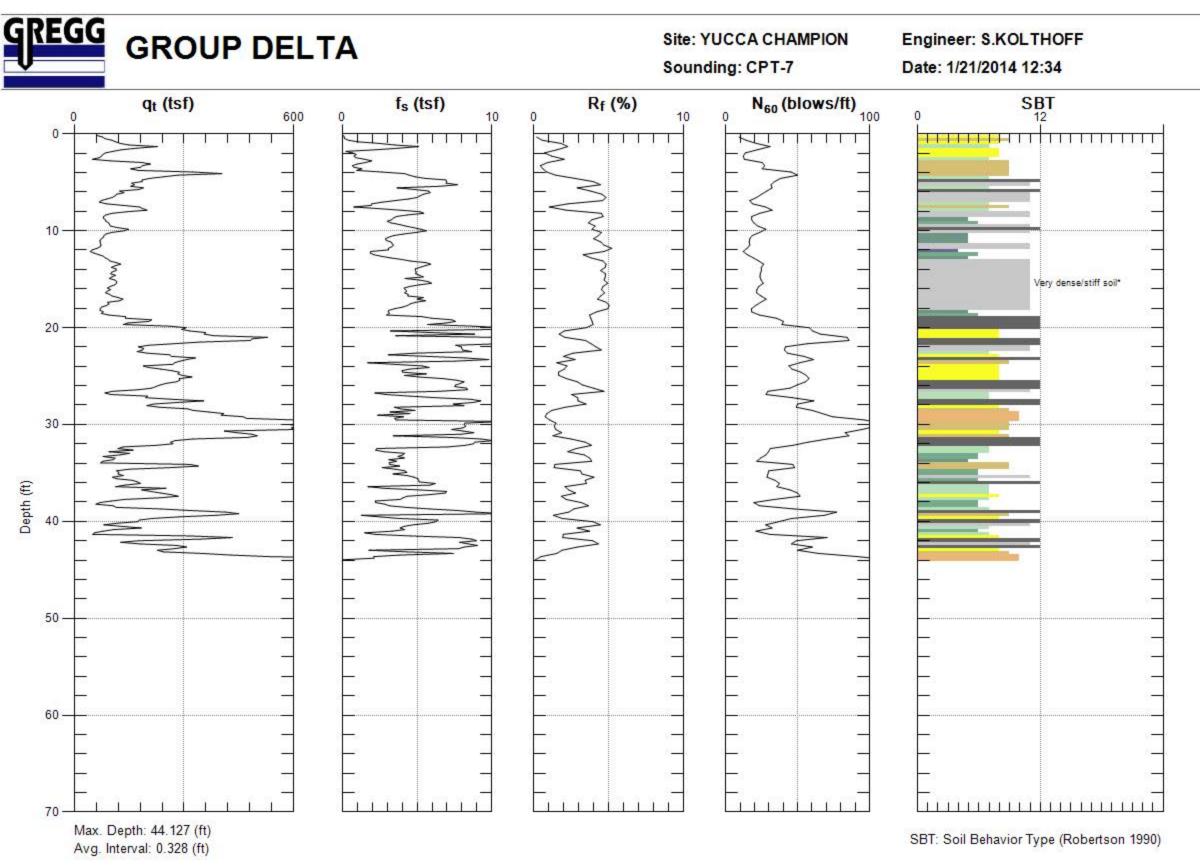


Figure A - 16

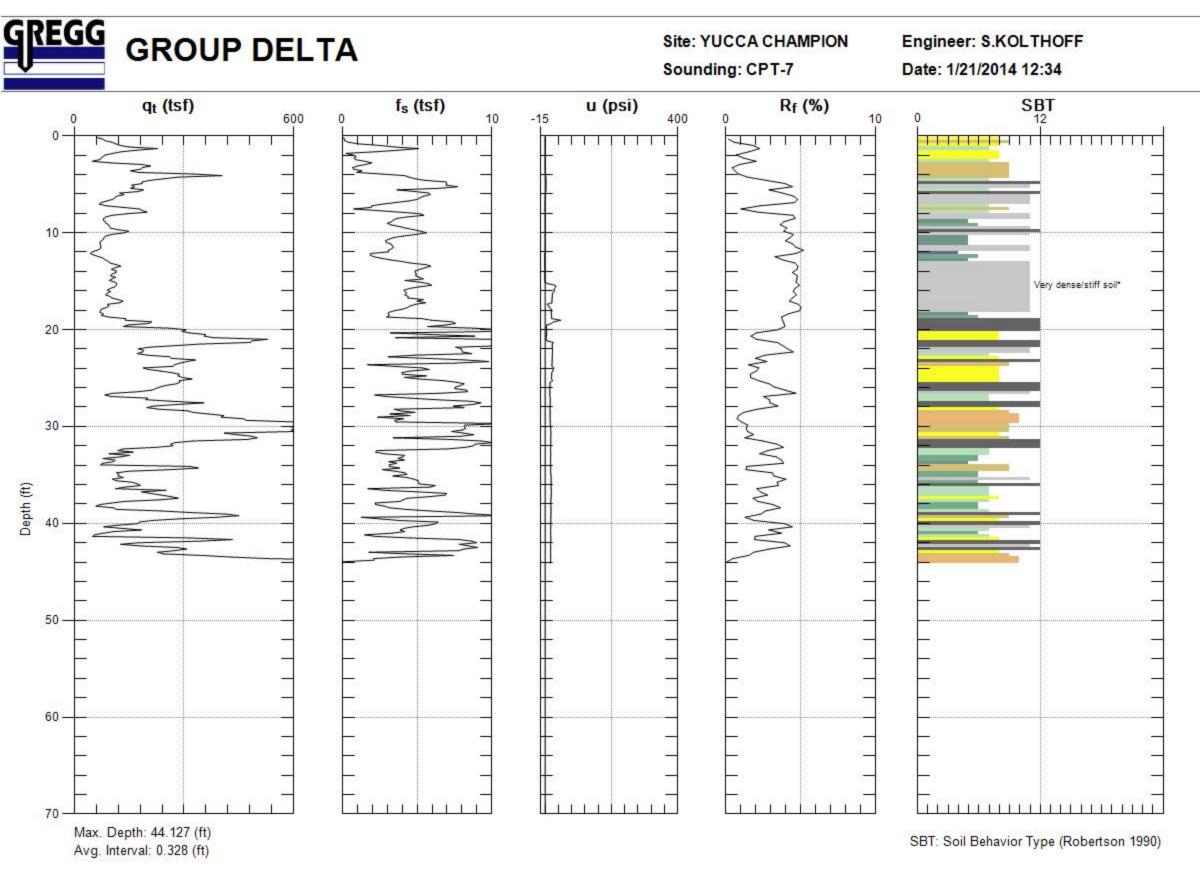


Figure A - 17

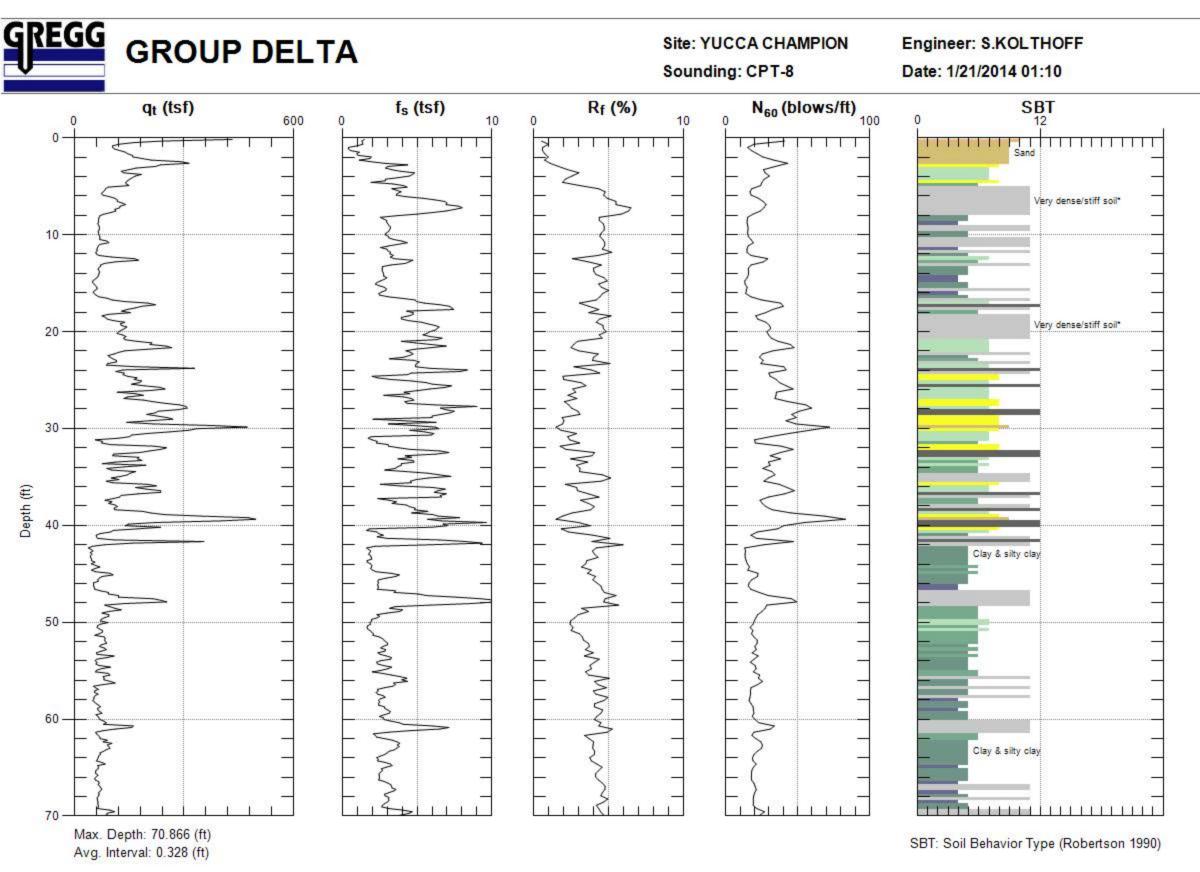


Figure A - 18

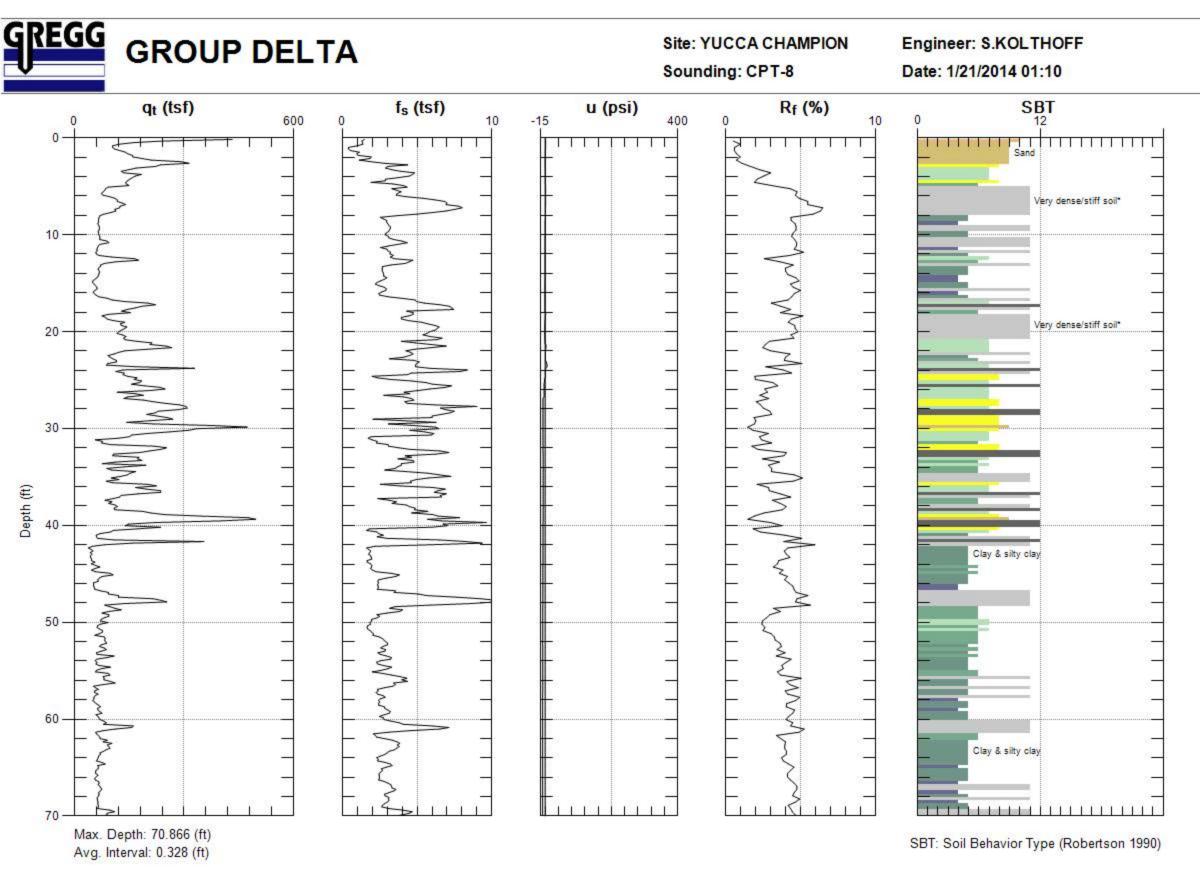


Figure A - 19

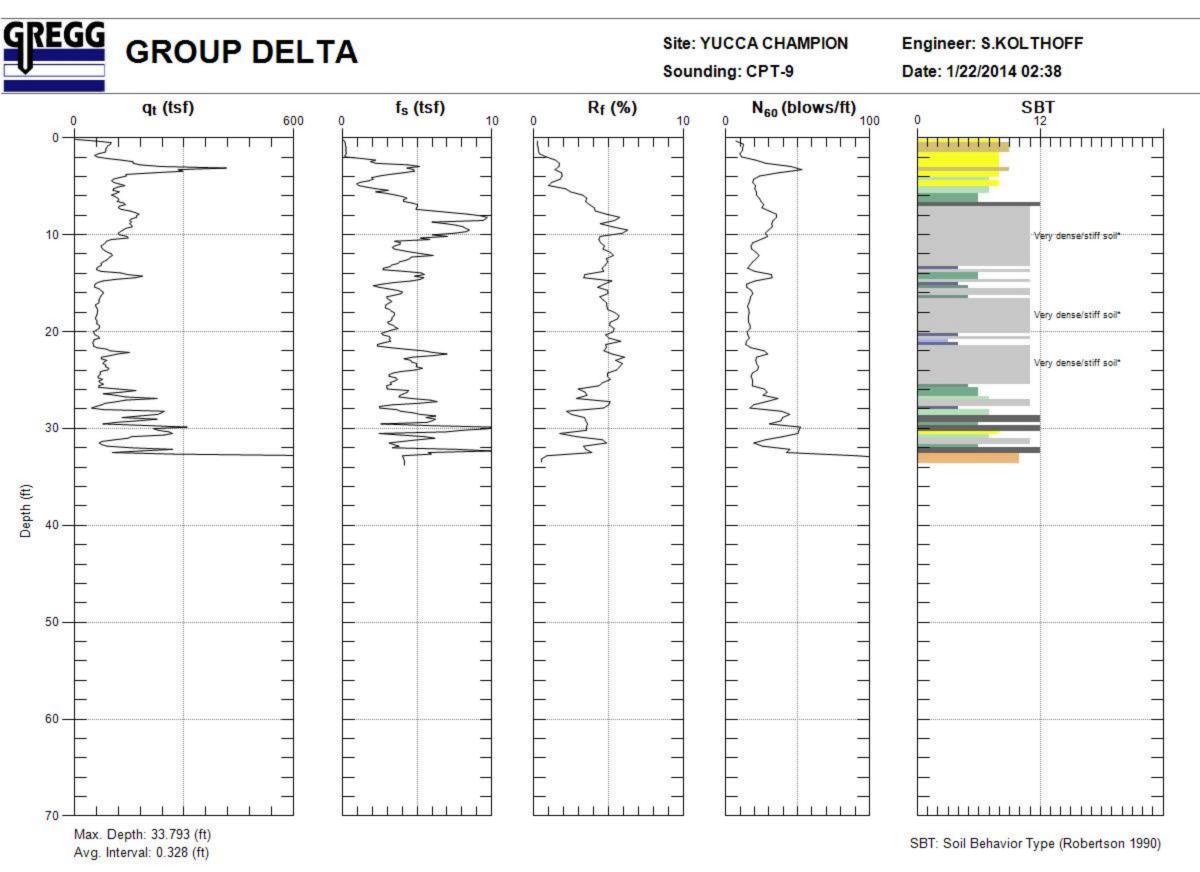


Figure A - 20

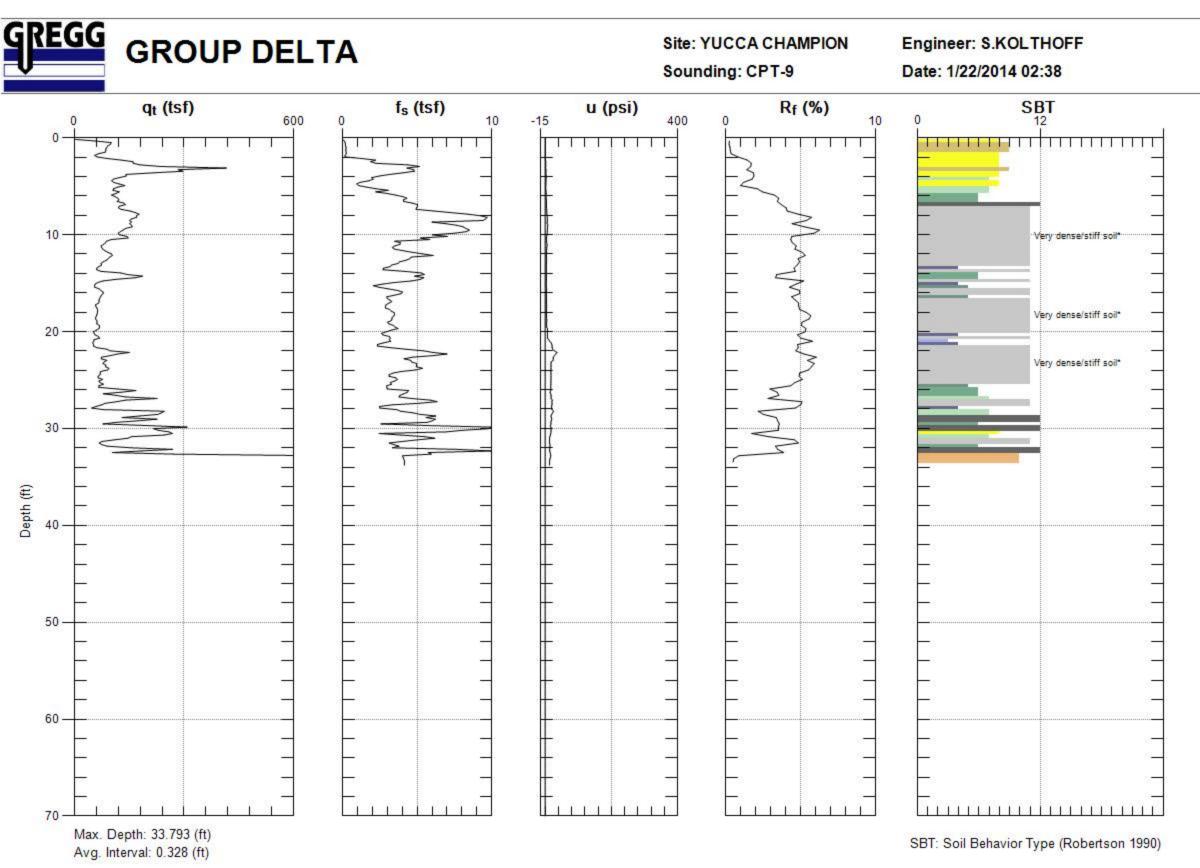


Figure A - 21

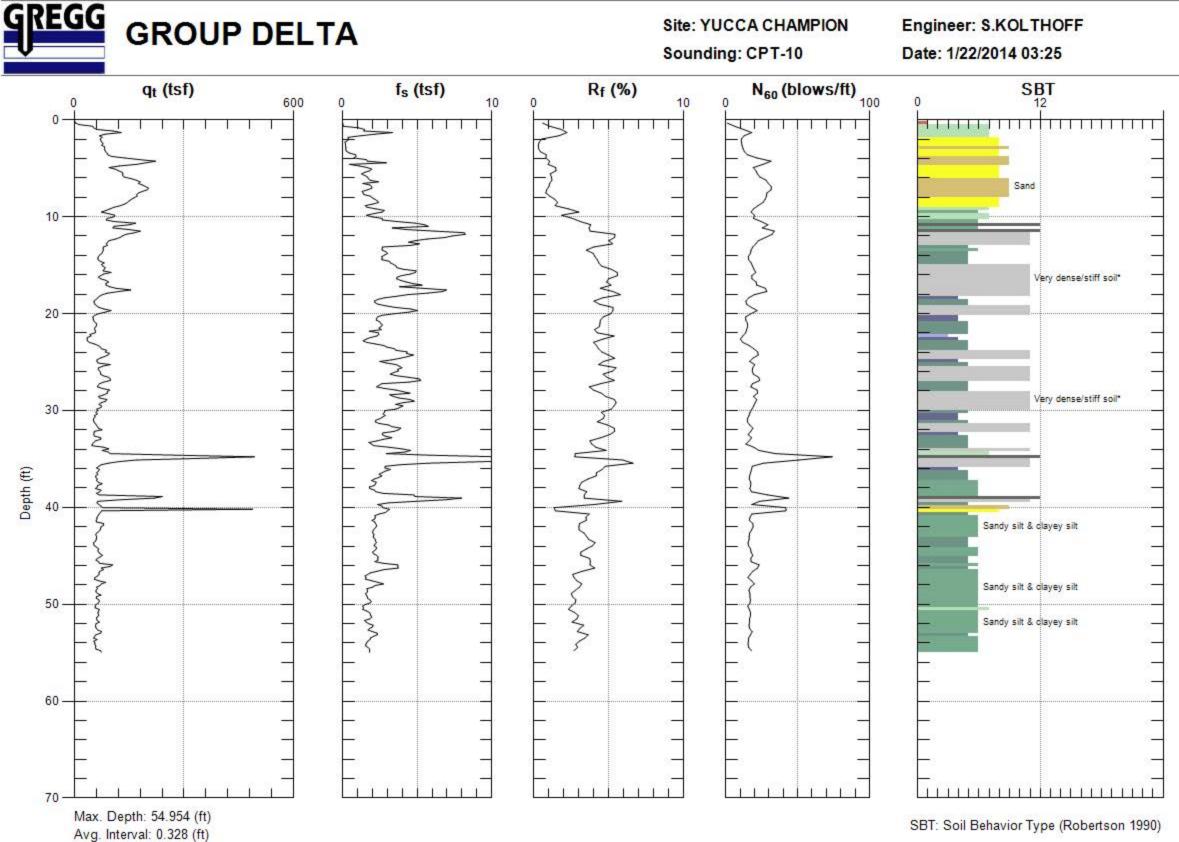


Figure A - 22

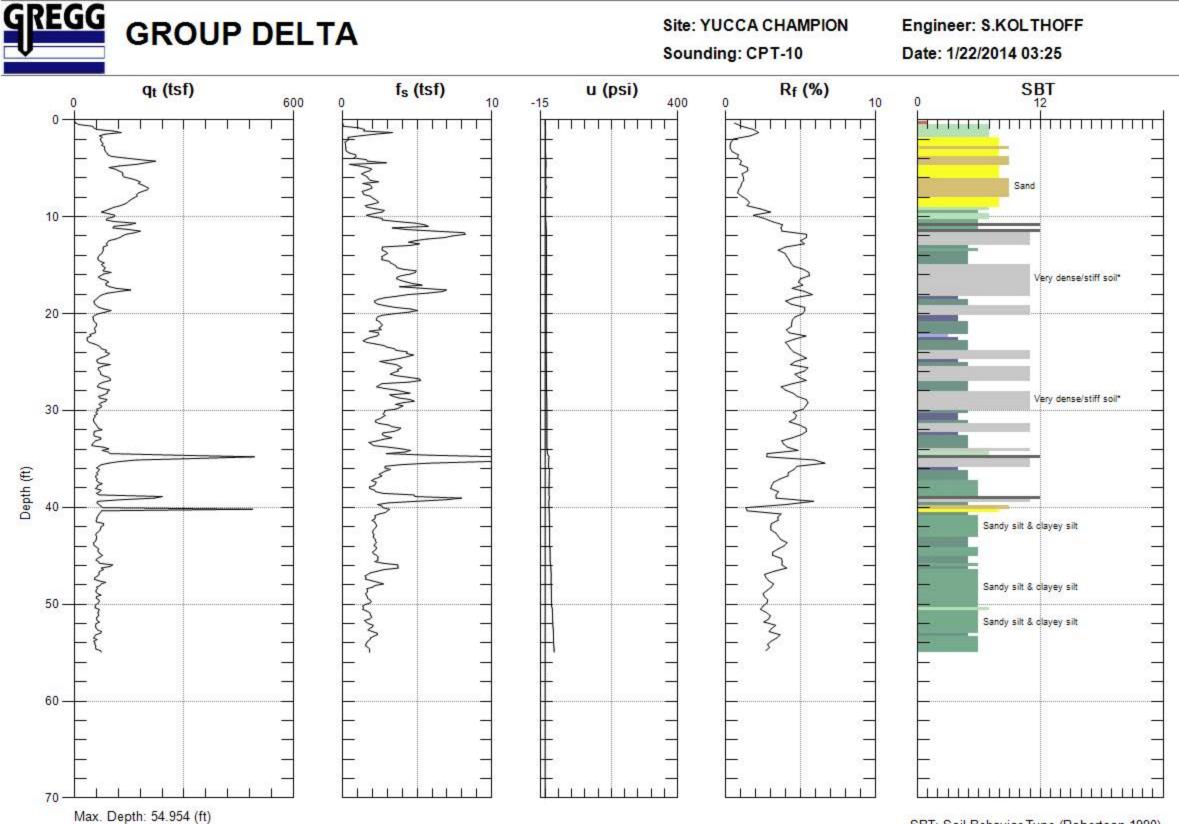


Figure A - 23

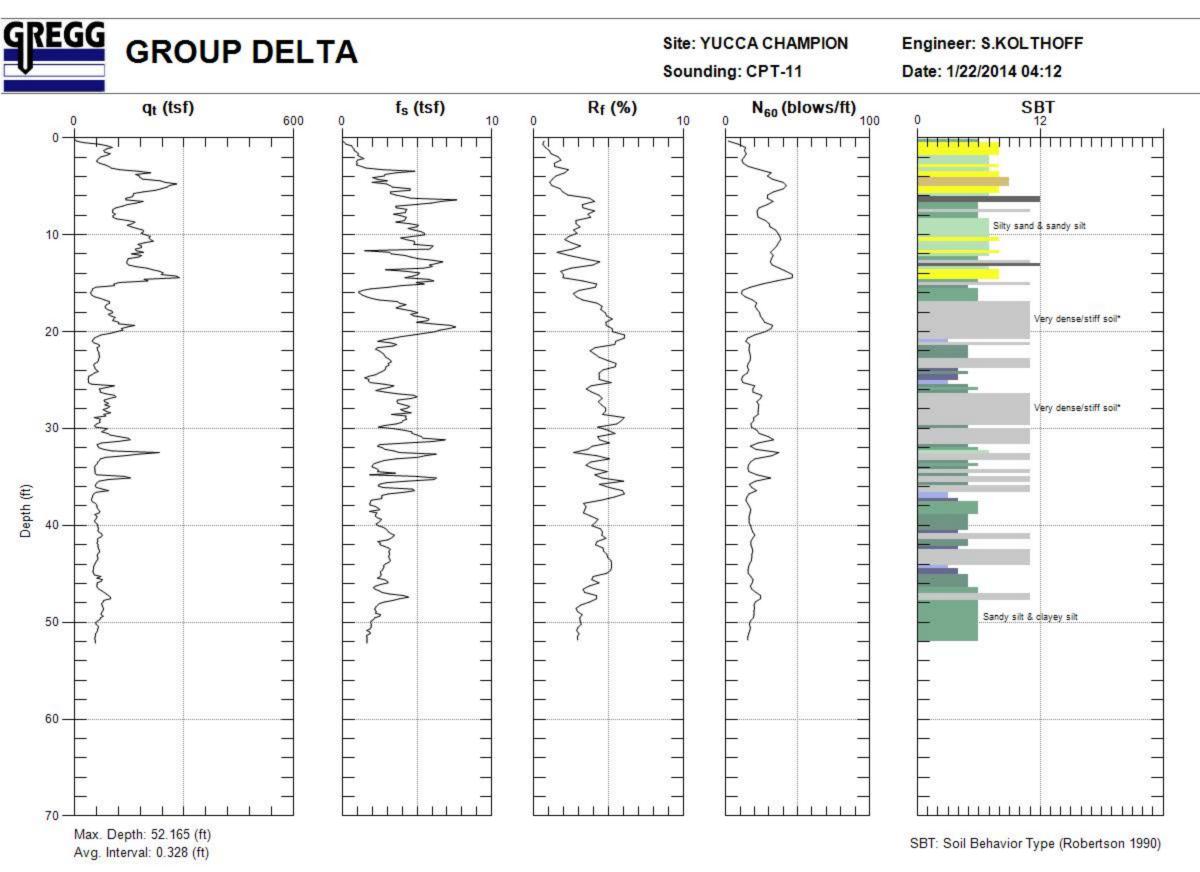


Figure A - 24

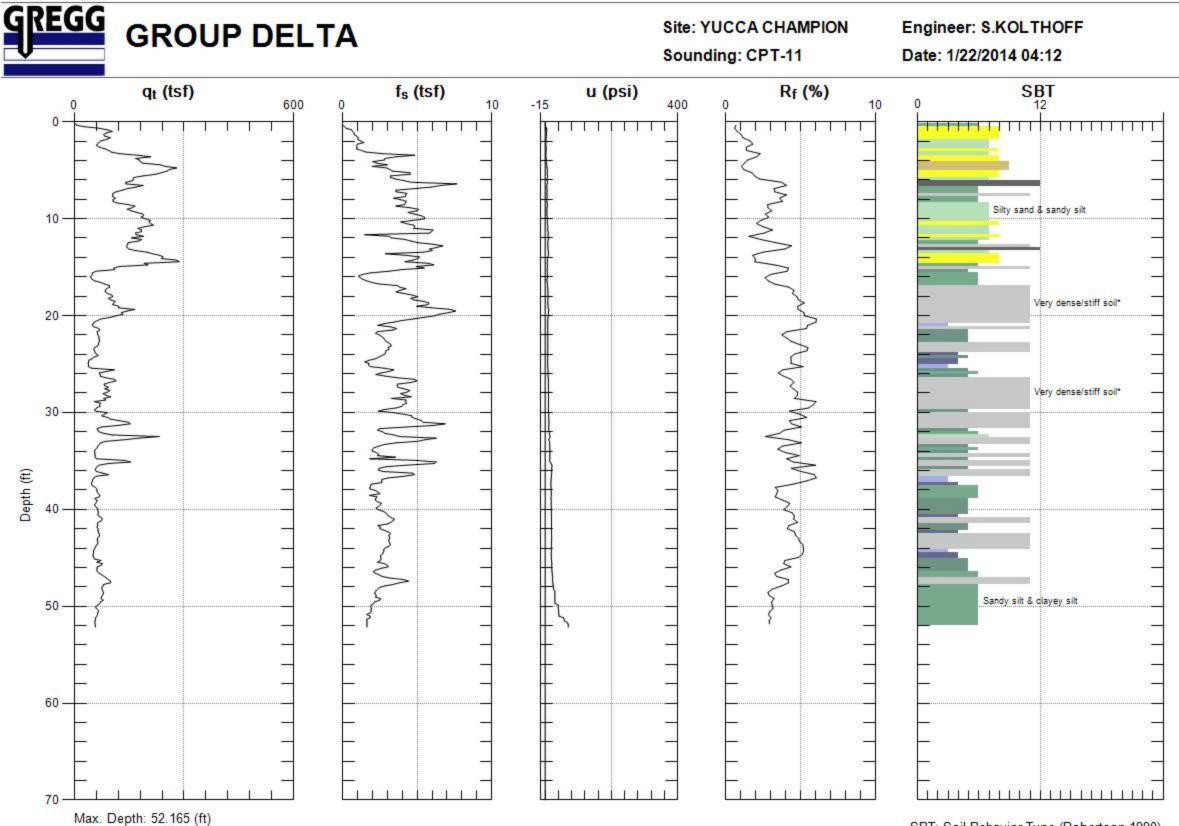


Figure A - 25

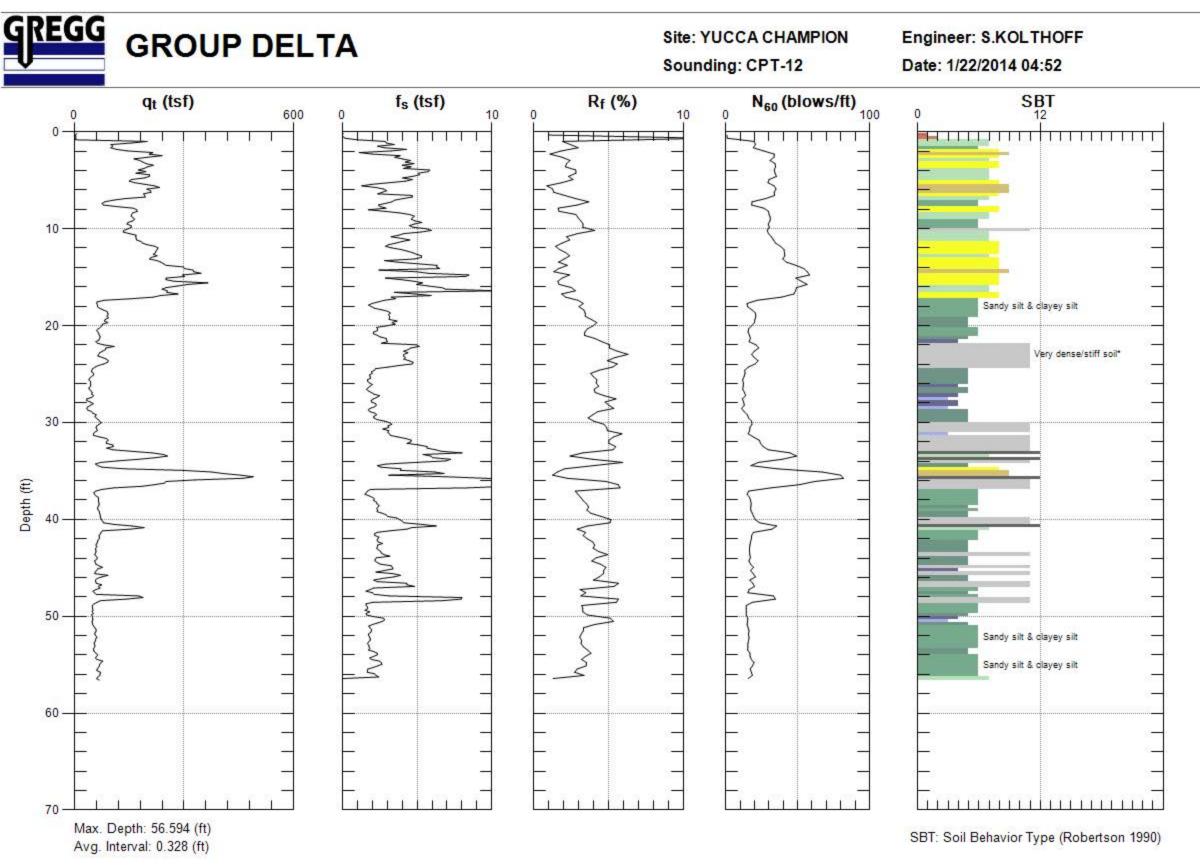


Figure A - 26

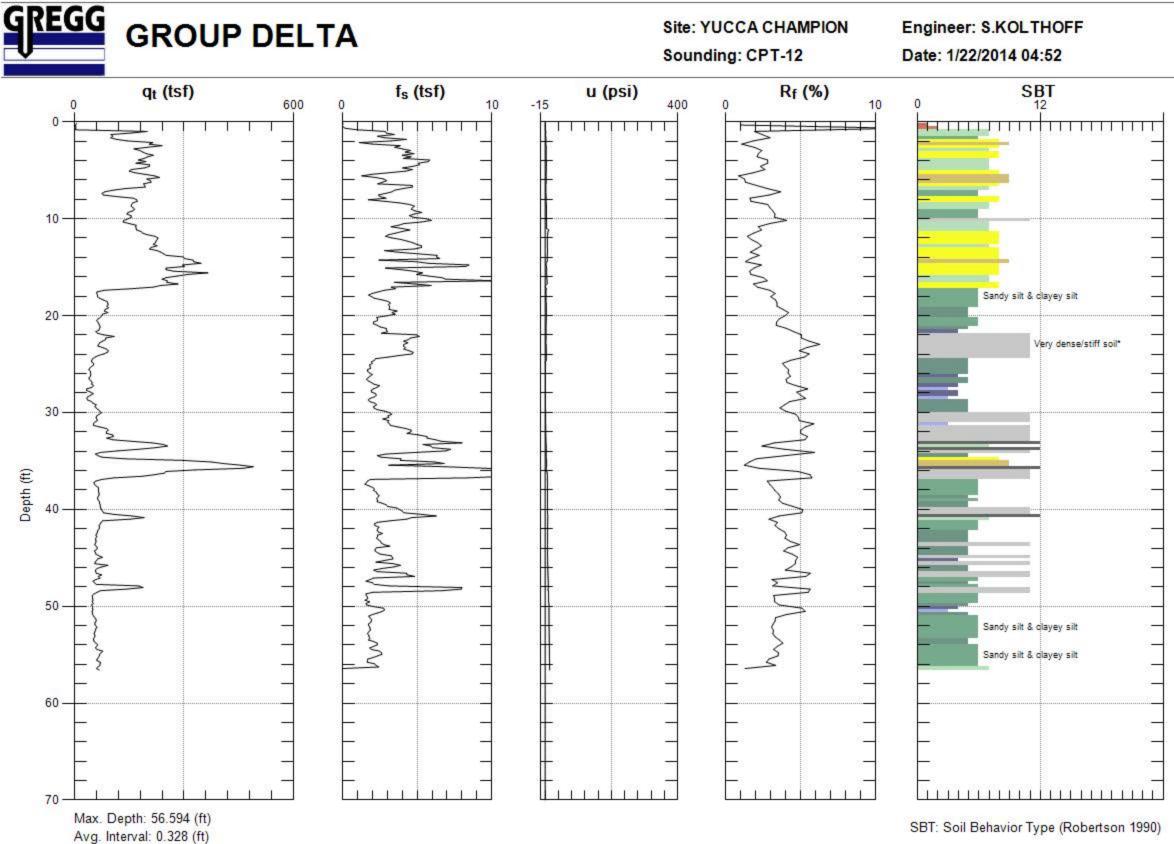


Figure A - 27

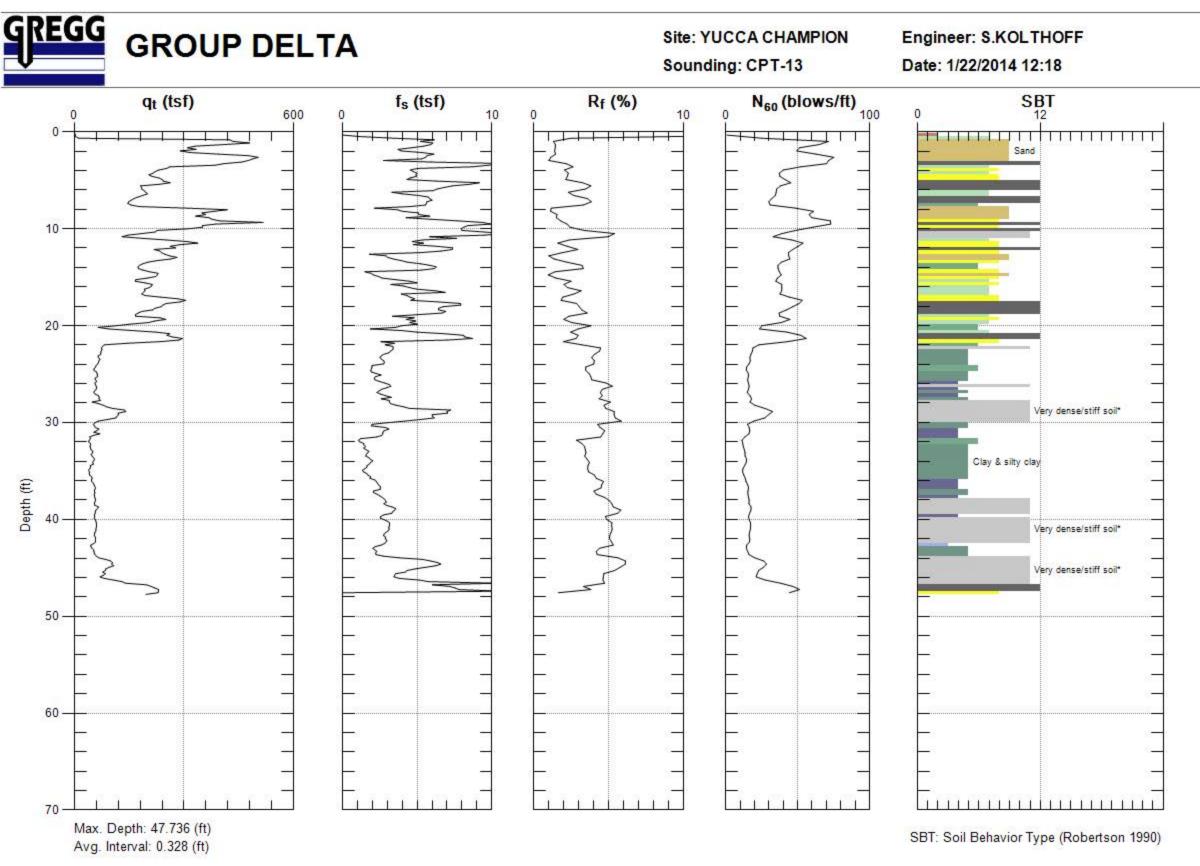
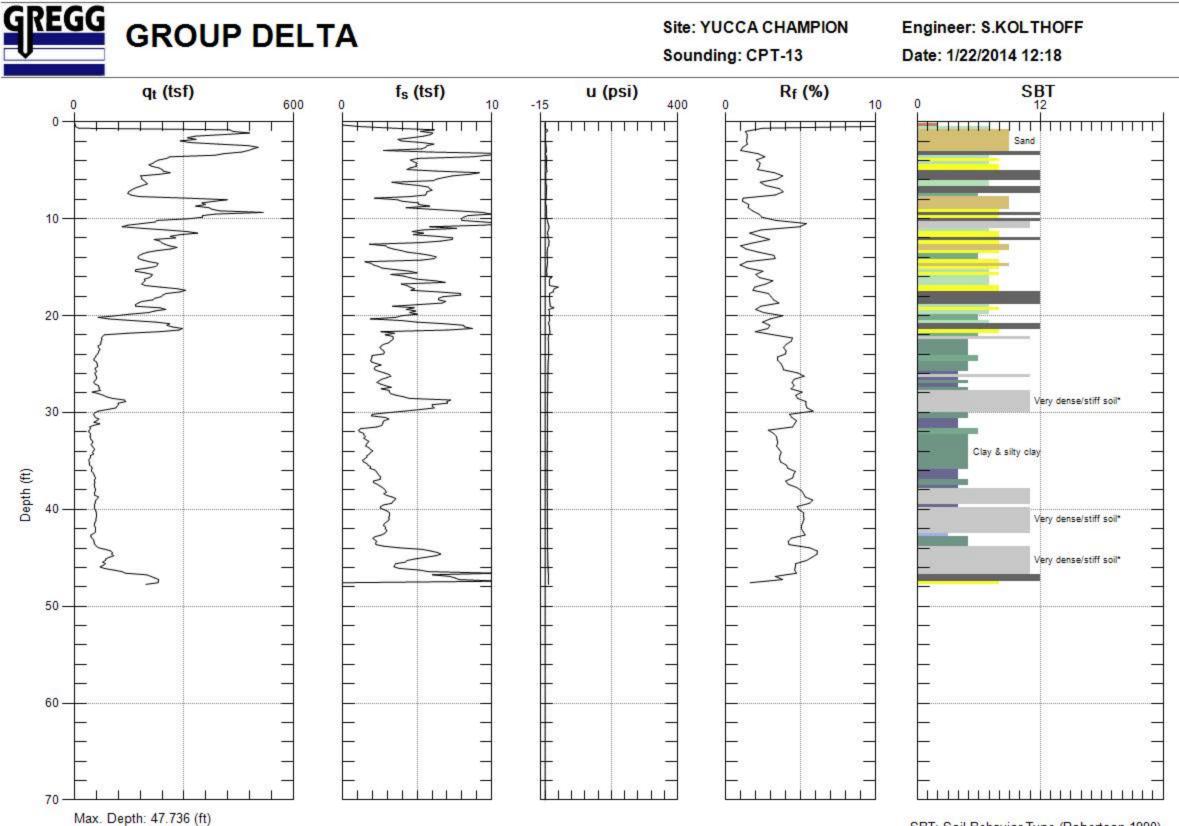


Figure A - 28



_O	G C	F	C)R	E	ВО	RIN	G	PROJECT NAME Yucca & Agryle Fault Investigati		T NUMBER			ORING B-1		
	LOCA		-						DATE(S) DRILLED	LOGGED	ВҮ	SHEET NO. 1 of 4				
	ca and . LING N			ollyw	ood,	Са			1/31/14 to 1/31/14 DRILL BIT SIZE/TYPE	ТО	CHECKED	DV			PTH DRILLE	
	.LING N w Stem		_						6"		SK	Dī	(feet) 60			
	L RIG								DRILLED BY			ON F	ROM \	/ERTIC	AL/BEARING	
	M12								Gregg In-Situ Drilling			0				
	ARENT e encou			DWA	ATER	DEP.	ГН				APPROXIN (feet)			ACE EL	EVATION	
COM	MENTS	S									BOREHOL		18 CKFIL	L		
												S	oil Cut	tings		
	SOIL CORE					ORE		<u>}</u>				STS	RY	E, JUR		
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DES	CRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTES	
								8/0	Approximately 3.5 inches of Asp	halt		+				
	-									5 VD 6/9 /D-	ddieh					
	-							8/0	Silty SAND to Clayey SAND, 7.5 YR 6/8 (Reddish							
	<u>415</u>							8%								
								8 /c								
5	_							8 /c								
	-								Older Alluvium (Qoal)							
	L								Clayey SAND, 7.5 YR 5/6 (Stromoist, fine to medium grained s	and, some coa	imid to arse					
	_410		1						sand, trace fine gravel and cobb Sandy Clay to Clayey Sand	ottled 5 YR 7/	1					
									(Yellowish red) and 5 YR 7/1 (L moist, some fine gravel and coa developed soil.	gnt Gray), nu rse sand, wel	mia to 					
									developed soil.							
10								1.								
	-							<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>								
	_							<i> ;;</i>								
	-405		2						Modelo Formation (TM)							
									Sandstone, Siltstone, Claysto brown) to 7.5YR 7/1 (light gray)							
									oxidation, some caliche.	aminy bedded	a, 30111 0					
5	-								Poorly Graded Sand, Silt and (Yellowish Brown) to 10 YR 6/1	Clay10 YR 7/	6					
	-								mostly sand, cobbles and grave							
	L															
	_400		3													
ROI	UP		<u> </u>		·-			. -	THIS SUMMARY APPL	IES ONLY AT	THE LOCATIO	N	1			
7	GF						ONSU Suite 1		ANTS, INCOF THIS BORING AND SUBSURFACE CONDI LOCATIONS AND MAY WORTH THE BASSAGE	CHANGE AT	THIS LOCATION	IER DN	FI	GURI	E A-29	
				_			A 926		WITH THE PASSAGE PRESENTED IS A SIM CONDITIONS ENCOU	PLIFICATION (AL	' '	JUIN	_ /\ _J (
EL.	ΓA		_\ \	3U \	v i c ji	J, C	A 320	000	CONDITIONS ENCOU	VILILLU.						

SITE	G O	TION	ı				RIN	3	PROJECT NAME Yucca & Agryle Fault Investigation DATE(S) DRILLED 1/31/14 to 1/31/14		T NUMBER		s	ORING B-1 HEET N	0.
	LING N				ooa,	Ca			DRILL BIT SIZE/TYPE	10	CHECKED	BY			PTH DRILL
	w Stem								6"		SK		(fe	et)	60
	L RIG								DRILLED BY		INCLINATIO	ON F	ROM \	VERTICA	L/BEARIN
Marl									Gregg In-Situ Drilling			0			
	ARENT encou			DWA	TER	DEP	ГН				APPROXIM (feet)			ACE EL	EVATION
СОМ	MENTS	3									BOREHOLE		18 CKFIL	.L	
	ı											S	oil Cut	ttings	
	£			SO	IL C	ORE						SI	 ≻	- 표	
DEPTH (ft)	ELEVATION (#)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESC	RIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTE:
									Modelo Formation (Tm)						
	_														
	_														
	_395		4												
•															
	_														
25	_														
•															
	_														
	_														
	_390		5												
	_							E							
30	_								Conditions Ciliaters Clausters	7 5VD 7/4	(light				
									Sandstone, Siltstone, Claystone gray), wet, thinly bedded, some ox	idation.	(iigi ii				
								E							
	_														
	_385		6												
•								E							
35	_														
								E							
-	_		7												
-	380		′												
-															
ROU	JP GF	ROI	JP	DE	LT	A C	ONSU	LT	THIS SUMMARY APPLIE ANTS, INCOF THIS BORING AND A SUBSURFACE CONDITION	T THE TIME	OF DRILLING.				
<u></u>				_			Suite 1 A 926		LOCATIONS AND MAY O WITH THE PASSAGE OF PRESENTED IS A SIMPL CONDITIONS ENCOUNT	HANGE AT TIME. THE IFICATION (THIS LOCATIO DATA	N	FI	IGURI	E A-29

DELTA

)R	E	BO	RIN	G	PROJECT NAME Yucca & Agryle Fault Investigatio	n	NUMBER			ORING B-1	•	
	LOCA			مال میر		Co			DATE(S) DRILLED 1/31/14 to 1/31/14	TO LOGGED	ВҮ		SHEET NO. 3 of 4			
	ca and LING N			ollyw	00a,	Ca			DRILL BIT SIZE/TYPE	10	CHECKED	TOTAL DEPTH DRILLE				
	w Stem								6"		SK		(fe		60	
	L RIG M12	TYPI	E						DRILLED BY Gregg In-Situ Drilling		INCLINATIO	ON F	ROM \	/ERTIC	AL/BEARING	
	ARENT e encou			DWA	TER	DEP.	TH	·			APPROXIM (feet)		SURF	ACE EL	EVATION	
COM	IMENT	S									BOREHOLE		CKFIL oil Cut			
	ı,		SOIL CORE													
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESC	CRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTES	
	-		8													
	_375		0													
15				-												
	_															
	_															
	_370		9						Interbedded Sandstone, Siltsto	ne and Clay	stone7.5					
									YR 7/1 (Strong Brown) to 7.5 YR fine grained sand, some oxidation	7/1 (Light Gi 1.	ay), wet,					
50	_															
	_															
			10													
	365															
	-															
55	_			-												
			11													
	_360		' '													
ROI	GI								THIS SUMMARY APPLI ANTS, INCOF THIS BORING AND SUBSURFACE CONDIT LOCATIONS AND MAY	AT THE TIME IONS MAY DI	OF DRILLING. FFER AT OTH	ER				
				_			Suite 1		WITH THE PASSAGE O	F TIME. THE	DATA		FI	GURI	E A-29	
et r	T A		Alis	so \	√iei	o, C	A 926	556	CONDITIONS ENCOUN			-				

SITE	LOCA	TION	ı				RIN	G	PROJECT NAME Yucca & Agryle Fault Investigation DATE(S) DRILLED	LOGGE	T NUMBER		s	BORING B-1 SHEET NO. 4 of 4				
	ca and . LING N				ood,	Ca		_	1/31/14 to 1/31/14 DRILL BIT SIZE/TYPE	ТО	CHECKED	TOTAL DEPTH DRILLE						
	w Stem								6"	SK	٠.	(feet) 60						
	L RIG								DRILLED BY		INCLINATION FROM VERTICAL/BEARING							
Marl	M12								Gregg In-Situ Drilling			0						
	ARENT e encou			DWA	TER	DEP.	TH				APPROXIM (feet)	ACE EL	EVATION					
СОМ	MENTS	3							BOREHOLE					BACKFILL Soil Cuttings				
	(£)			so	IL C	ORE						LS	<u>}</u>	.: R				
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESC	CRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTE:			
-									Total Depth: 60 Ft Groundwater: Encountered at 30 Boring backfilled with tamped soi patched.	Ft il cuttings an	d asphalt							
-	_355																	
-																		
-65	_																	
-	_																	
-	350																	
_	_																	
70	_																	
-	_																	
-	_																	
	_345																	
75																		
-	_																	
-	_340																	
-	_																	
ROU	JP GF						ONSU Suite		THIS SUMMARY APPLI ANTS, INCOF THIS BORING AND SUBSURFACE CONDIT LOCATIONS AND MAY WITH THE PASSAGE C PRESENTED IS A SIMF	AT THE TIME TIONS MAY D CHANGE AT OF TIME. THE	E OF DRILLING IFFER AT OTH THIS LOCATIO E DATA	ER)N	 FI	GURI	E A-29			

92 Argonaut, Suite 120 Aliso Viejo, CA 92656

_()(G C) 	C(JR	ĽE	BC	RIN	ٍاخ	PROJECT NAME Yucca & Agryle Fault Investigati		T NUMBER			ORING B-2			
SITE	LOCA	TION	ı						DATE(S) DRILLED	LOGGED	ВҮ		SHEET NO.				
Yuco	a and	Argy	le, H	ollyw	ood,	Ca			1/30/14 to 1/30/14	TO		1 of 4					
DRIL	LING N	NETH	HOD						DRILL BIT SIZE/TYPE		CHECKED	BY	(foot)				
	w Stem								6"		SK INCLINATION	ON E	'	<u> </u>	60		
DRIL Marl	L RIG	TYPI	Ξ						DRILLED BY		INCLINATIO		KOW V	VERTICA	AL/BEAKING		
	ARENT	. CP	OLIN.	DWA	TED	DED	TU		Gregg In-Situ Drilling		ADDDOVIN	0	OUDE	A OF FL	EVATION.		
	encou	_			VI LIV	DLI	•••				APPROXIM (feet)		50KF 15	ACE EL	EVAIION		
СОМ	MENTS	S									BOREHOLI			L			
												S	oil Cut	ttings			
				80	C	ORE											
(£	(£)				IL C	JOKE	I	 				PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR			
DEPTH (ft)	ELEVATION (#)	o o	Ö.	۲۲, %	ZEQ.	%	품질形	LITHOLOGY	MATERIAL DES	CRIPTION		R T	RAT(L RA	FIELD NOTES		
DEF	-EV∌	RUN NO.	BOX NO.	VEF	FRAC. FREQ	R.Q.D., %	FRACTURE DRAWING/ NUMBER	<u>F</u>				CKE	ABO	SRIL	NOTE		
		교	BC	RECOVERY, %	FRA	R.(PR/ DR.					PA		ΔĒ			
				UĽ.	 -				Asphalt			 					
_	_							\$	Artificial Fill (Qaf) Silty SAND, 7.5 YR 5/8 (Strong	n Brown) mo	iet						
									mostly medium to coarse sand,	some fine sar	nd, some						
-	_							Z,	fines, little fine to coarse gravel,	trace cobbles	i.						
-	_							×									
								Z,									
-								·×									
-5	_410							1/2									
_	_							(%)									
								[./	Older Alluvium (Qoal)								
-			4					<i>(,)</i>	Clayey SAND, 7.5 YR 5/6 (Stro grayish mottling, moist, fine san	ng Brown) wit	h						
-	_		1					<i>'</i> .'.	grayisii mottiing, moist, iiile san	u.							
	_							1.	-Trace fine gravel								
-10	_405																
_								<i> </i> ;;									
	_							1.	-Polished surfaces								
-	_							1	Sandy CLAY, 5 YR 4/6 (Yellow	ish Red), dry	to moist,						
-			2					1.	fine sand.								
								[·;									
-	_							//									
-15	4 00								Caliche ,10 YR 7/6 (Yellow), lay	vers of well do	venned						
								1.	carbonate.	cis oi well de	veop e u						
-								1.									
-	_							<i>[:/:</i>									
_	_		3					//									
								[:/;									
-	_							<u> </u>	Modelo Formation (Tm)			1					
ROU	GF						ONSU Suite 1		THIS SUMMARY APPL ANTS, INCOF THIS BORING AND SUBSURFACE CONDI LOCATIONS AND MAN WITH THE PASSAGE) AT THE TIME TIONS MAY DI / CHANGE AT	OF DRILLING FFER AT OTH THIS LOCATIO	ER	FI	GURI	E A-30		
				_			A 926		PRESENTED IS A SIM	PLIFICATION (AL	'				

	G O			DR	E	ВС	RIN	G	PROJECT NAME Yucca & Agryle Fault Investigation DATE(S) DRILLED		T NUMBER			BORING B-2 SHEET NO.			
_	a and	_		ollyw	ood,	Са			1/30/14 to 1/30/14	TO		2	2 of 4				
	LING N		-		,				DRILL BIT SIZE/TYPE		CHECKED	то	TOTAL DEPTH DRILLE				
Hollov	w Stem	ı Aug	ger						6"	SK (feet) 60							
DRIL	L RIG	TYPI	E						DRILLED BY		INCLINATION	ON F	ROM \	/ERTIC	L/BEARIN		
Marl I	M12								Gregg In-Situ Drilling			0					
	ARENT encou			DWA	TER	DEP	TH				APPROXIM	ATE	SURF	ACE EL	EVATION		
	MENTS										(feet)		15				
COIVII	MENIS	•									BOREHOLE		oil Cut				
€ SOIL CORE												TS	۲۸	L L			
DЕРТН (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESC	RIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTE		
-	_								Sandstone, 10YR 7/8 (Yellow), d fine to medium sand, abundant ca Modelo Formation (TM) cont	ry to moist, irbonate infil	mostly lling.						
	_		4						Clayey Sandstone, 7.5 YR 8/1 (V 6/8 (Reddish Yellow), dry to moist medium sand, abundant carbonat	, mostly fine	.5 YR e to						
-25	— —390								Sandstone, 7.5 YR 6/8 (Reddish wet, mostly fine to medium sand, infilling in joints.								
-	_		5						-Layer of Clayey Sandstone, 7.5 \infilling -Wet, 7.5 YR 5/6 (Strong Brown)	/R 5/8 with o	carbonate						
30	— —385								-Mottled 10 YR 6/8 (Brownish Yell (White)	,							
-	_								Clayey Sandstone, 7.5 YR 5/8 (S fine to medium sand, minor white	Strong Browi mottling.	n), wet,						
-	_ _ _		6						Sandstone, mottled 7.5 YR 8/1 (\ 5/8 (Strong Brown), wet, fine to m								
35	<u></u> 380																
-	<u> </u>		7						-Becomes 10 YR 6/6 (Brownish Y -Layer of Clayey Sandstone, 7.5 Y Yellow), carbonate infilling of fract	/R 6/8 (Red	dish						
ROU	GF						ONSU Suite		THIS SUMMARY APPLIE ANTS, INCOF THIS BORING AND A SUBSURFACE CONDITI LOCATIONS AND MAY WITH THE PASSAGE OF PRESENTED IS A SIMPLE	AT THE TIME ONS MAY DI CHANGE AT FTIME. THE	OF DRILLING. FFER AT OTH THIS LOCATIC DATA	ER ON	 FI	GURI	E A-30		

-00	9 0	F	CC)R	E	BC	RIN	G	PROJECT NAME Yucca & Agryle Fault Investigatio	PROJECT	NUMBER			ORING B-2	
SITE L	OCA	TION	l						DATE(S) DRILLED	LOGGED	ВҮ		s	HEET N	0.
Yucca				ollyw	ood,	Ca			1/30/14 to 1/30/14	ТО	l			of 4	DTI. DDII. E
	ING N		_						DRILL BIT SIZE/TYPE 6"		CHECKED	BY	(fe		PTH DRILLEI 60
	Stem							+	DRILLED BY		SK INCLINATION	N FI	ROM \	/ERTIC	AL/BEARING
/arl M			-						Gregg In-Situ Drilling			0			
	RENT			DWA	TER	DEP	TH		00 0		APPROXIM	ATE	SURF	ACE EL	EVATION
lone (encou	ntere	ed								(feet)	4	15		
COMN	IENTS	5									BOREHOLE				
								1					oil Cut	tings	
	£			so	IL C	ORE						LS	>-	, 목	
Œ I	ELEVATION (ft)			%	l ö			LITHOLOGY				PACKER TEST	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD
DEPTH (ft)	VATI	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	무	MATERIAL DESC	RIPTION		KER	ORA TES	ILL F ERS	NOTES
		RUN	BOX	COV	ζAC.	R.Q.I	RAC	=				PAC	LAE	MET	
				R	芷			_							
	_														
-	_														
	_		8												
-	_								Sandy Claystone, mottled 7.5 Yl	R 8/1 (White)	and 7.5				
45 -	_370	-							YR 5/8 (Strong Brown), wet, fine	sand.					
	_														
	_								Sandstone, 7.5 YR 5/6 (Strong E sand.	Brown), wet,	fine				
-	_								Sandy Claystone to Clayey Sar	dstone mott	led 7.5				
	_		9						YR 8/1 (White) to 7.5 YR 5/8 (Street to medium sand.	ong Brown),	wet, fine				
	_														
50 -	_365	-													
	_							7 -	Conglements Bod						
									Conglomerate Bed						
·	_		10						Sandy Claystone to Clayey Sar YR 4/1 (Dark Gray) and 7.5 YR 5	dstone mott	led 7.5				
. -	-								wet, mostly fine sand.	70 (Strong bi	OWII),				
	_														
55 -	_360														
.	_														
	_														
			11												
-	_														
.	_								-Sand lense with carbonate infille	d fracture					
									-Sand lense with cardonate infille	u naciufe					
ROU	GF						ONSU Suite 1		THIS SUMMARY APPLIE ANTS, INCOF THIS BORING AND A SUBSURFACE CONDIT LOCATIONS AND MAY WITH THE PASSAGE O PRESENTED IS A SIMP	AT THE TIME IONS MAY DI CHANGE AT	OF DRILLING. FFER AT OTHI THIS LOCATIO DATA	≣R N	FI	GURI	E A-30 (

				DR	E	ВО	RIN	G	PROJECT NAME Yucca & Agryle Fault Investigat	ion	T NUMBER			ORING B-2	•
	LOCA a and			ollyw,	nod	Ca			DATE(S) DRILLED 1/30/14 to 1/30/14	TO LOGGEI) BY			HEET NO of 4	0.
	LING N			Olly VV	Jou,	<u>Ca</u>			DRILL BIT SIZE/TYPE	10	CHECKED	BY			PTH DRILL
Hollov	w Stem	n Aug	jer						6"		SK		(fe		60
	L RIG	TYPE	Ξ						DRILLED BY		INCLINATION		ROM \	/ERTICA	AL/BEARIN
Marl I	M12 ARENT	. CP(אוור	DWA	TED	DED.	TU		Gregg In-Situ Drilling		ADDDOVIN	0	01105	40F FI	EV/ATION
	encou					DL.	•••				APPROXIM (feet)		30KF 15	ACE EL	EVAIION
СОМІ	MENTS	3									BOREHOLE			L	
												S	oil Cut	tings	
£	(ft)			so	IL C	ORE	1	_				STS	RY	E, SUR	
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DES	CRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTE:
-				ш.					Total Depth: 60 Ft Groundwater: Encountered at 2 Boring backfilled with tamped c patched.	7 Ft uttigns and as	phalt				
- -65	 350														
-	_														
-70	 345														
-	_														
- -75	— —340														
-															
- }	_														
-	_														
-	_														
ROL	JP GF								THIS SUMMARY APPI ANTS, INO F THIS BORING ANI SUBSURFACE COND LOCATIONS AND MA	O AT THE TIME ITIONS MAY D	OF DRILLING. IFFER AT OTH	ER		0115	- 4 00
	((,	12 F	ત્રાg(JI 19	ıuı, i	Suite	ı∠U	WITH THE PASSAGE				1 H	GUKE	E A-30

LO	G O	F	C	DR	RE	BC	RIN	G	PROJECT NAME Yucca & Agryle Fault Investigation		NUMBER			ORING B-3	
	LOCA								DATE(S) DRILLED	LOGGED	ВҮ		S	HEET N	0.
	ca and				ood,	Ca		_	1/30/14 to 1/30/14	ТО				of 4	DT: -
	. LING N w Stem								DRILL BIT SIZE/TYPE 6"		SK	ВY	(fe	TAL DE et)	РТН О
	L RIG								DRILLED BY		INCLINATION	ON F	ROM \	/ERTIC	
Marl	M12								Gregg In-Situ Drilling			0			
	ARENT encou			IDW <i>A</i>	ATER	DEP	TH				APPROXIM	ATE	SURF	ACE EL	EVAT
	MENTS										(feet)		14 CKEII		
CON	WILIVI	,									BOKEHOLI		oil Cut	_	
				00	^										
(#)	E N		ı		I	ORE		 \S				PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	
DEPTH (ft)	ELEVATION (#)	ō.	o.	RECOVERY, %	FRAC. FREQ.	% ,	JRE NG/	LITHOLOGY	MATERIAL DESC	RIPTION		ER T	RAT	L RA RS/H	FI NO
DE	ILEV,	RUN NO.	BOX NO.	OVE	C. F	R.Q.D., %	FRACTURE DRAWING/ NUMBER	自				ACK	ABC	DRIL 1ETE	
	"	~	Δ.	REC	FR/	~	. 듀뮤z					-	_	2	
								Á	<u>Asphalt</u> Artificial Fill (Qaf)						
_	_							\Z'	Silty SAND, 7.5 YR (Strong Brownedium to coarse sand, some fir	vn), moist, m	ostly ine				
_	-							13	gravel, trace cobbles.	-,					
_	L							/							
	_410							X							
_	410							.X							
_5	-			1				X							
_	_							**	Older Alluvium (Qoal)						
								6/8		Drown) maio	t mooth.				
_			1					*	fine sand.		-				
_	_							<i>[</i>	Clayey SAND, 7.5 YR 5/8 (Stror mostly fine sand, trace fine grave	g Brown), mo I.	oist,				
_	- 405														
_10															
_															
-	-							1	-Few medium sand and trace coa	arse sand					
_	L		2												
	_400							1							
_	400								Sandy Clay, mottled 7.5 YR 6/8 7.5 YR 7/1 (Light Gray), moist, fi	(Reddish yell	ow) to le				
– 15	-			1					staining, polished surface along I weathered.	pedding, very					
_	L														
_	L														
			3						-Carbonate infilled fractures						
_	_														
_	_395														
GRO	JP	<u>-</u>	IJÞ	DF		ΔΩ	ONSII	ΙT	THIS SUMMARY APPLI	ES ONLY AT T AT THE TIME	THE LOCATION OF DRILLING	N			
7									LOCATIONS AND MAY	CHANGE AT	THIS LOCATIO	⊏⋉		OI IDI	_ ^
				_			Suite 1		WITH THE PASSAGE C PRESENTED IS A SIMP	F TIME. THE LIFICATION C	DATA		[GURI	⊨ A-
			Alis	so \	viei	o, C	A 926	556	CONDITIONS ENCOUN	TERED.			1		

-00	j O	F	CC)R	E	BC	RIN	G	PROJECT NAME Yucca & Agryle Fault Investigation		NUMBER			ORING B-3	
SITE	LOCA	TION	ı						DATE(S) DRILLED	LOGGED	ВҮ		-	HEET N	Ο.
Yucc	a and	Argy	le, H	ollyw	ood,	Ca			1/30/14 to 1/30/14	ТО				of 4	
	LING N		_						DRILL BIT SIZE/TYPE		CHECKED I	3Y	TO		PTH DRILLE
	v Stem								6"		SK	N E	Ι,	<u> </u>	60 L/BEARING
DRILI Marl N	L RIG	TYPI	=						DRILLED BY Gregg In-Situ Drilling		INCLINATIO	0	COIVI V	LKIICA	LIBEARING
	RENT	GR	OUN	DWA	TFR	DFP	TH		Gregg In-Sita Drilling		APPROXIMA		CUDE	ACE EL	EVATION
	encou					J	•••				(feet)		30KF 14	ACE ELI	EVATION
СОМ	MENTS	3									BOREHOLE			L	
-		1						1				S	oil Cut	tings	
				so	IL C	ORE						Ś		<u>~</u>	
Œ	ELEVATION (ft)			%	نہا			- 26				PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD
DEPTH (ft)	ATIC	ō.	Ŏ.	RECOVERY, %	-RAC. FREQ.	% :	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESCR	RIPTION		ER 1	JRA7 EST	LL R	NOTES
	ELEV	RUN NO.	BOX NO.	OVE	Š.	R.Q.D.,	ACT	5				ACK	LABC	DRII	
		<u> </u>	В	REC	FR/	<u>~</u>	E.P.					ъ		2	
.									-Coarsening sand, carbonate infilli	ng fractures					
.	_								-						
			4												
-	_														
-	_390								Modelo Formation (Tm)						
25															
									Sandstone, mottled 7.5 YR 8/2 (P	inkish White	e) and				
-									7.5 YR 6/8 (Reddish Yellow), mois to medium sand.		' /				
.									Clayey Sandstone, mottled 7.5 YI Brown) with 7.5 YR 7/1 (Light Gray	R 5/6 (Stron	g vet				
			5						mostly fine sand with some mediur oxide staining.	m sand, trac	e black				
									Oxide Stairing.						
-	_385								Sandstone mottled 7.5 YR 5/6 (Str						
30									7.5 YR 7.1 (Light Gray), wet, most sand, few fine to coarse gravel, tra	ly fine to me ace cobbles.	dium trace				
									black peat.	,					
-									Clayey Sandstone, 7.5 YR 5/8 (Simostly fine to medium sand with a						
-									cobble layer and lamination of san	dstone.					
_			6					E	Clayey Sandstone, mottled 7.5 Yl Brown) and 7.5 YR 8/1 (Gray), wet						
									\medium sand, abundant carbonate		/				
-	_380														
35	_														
	_														
-	_		_						-Sandstone Layer						
-			7						Clayer Sandstone to Condi Olo	votono	tlad 7.5				
	275								Clayey Sandstone to Sandy Cla YR 5/8 (Strong Brown) and 7.5 YR	7/1 (Light (Gray),				
-	_375							E	wet, mostly fine to medium sandsto infilling of fractures.	one, carbon	ate				
DOL	ID									C ON!! V AT 3	UE LOCATION		l l		
ROU	GF	ROI	JΡ	DE	LT	A C	ONSU	LT	THIS SUMMARY APPLIES ANTS, INCOFTHIS BORING AND A	T THE TIME	OF DRILLING.				
							Suite 1		LOCATIONS AND MAY C	HANGE AT	THIS LOCATION		FI	GHR	E A-31
		•	•	. 9					WITH THE PASSAGE OF	ilivi⊏. IHE	DATA		1 ' '		_ /\"U

	G O)R	Εl	ВО	RIN	G	PROJECT NAME Yucca & Agryle Fault Investigatio DATE(S) DRILLED		F NUMBER BY			ORING B-3 HEET N	0.
	a and			ollvw	ood. (Са			1/30/14 to 1/30/14	TO	2.		3	of 4	
	LING N			J,					DRILL BIT SIZE/TYPE		CHECKED E	BY	то	TAL DE	PTH DRILLI
	w Stem								6"		SK		(fee		60
	L RIG								DRILLED BY		INCLINATIO	N F	ROM V	/ERTIC	
Marl I			_						Gregg In-Situ Drilling			0			
APP	ARENT	GRO	OUN	DWA	TER	DEP	TH				APPROXIMA		SIIDE	ACE EI	EVATION
None	encou	ntere	ed								(feet)		14	AOL LL	LVAIION
СОМ	MENTS	3									BOREHOLE			L	
												S	oil Cut	tings	
£	Œ			so	IL C	ORE		_ ل				PACKER TESTS	잝	Ē, OUR	
DЕРТН (ft)	ELEVATION (#)	ارا		′, %	ġ	Q.	3.6%	LITHOLOGY	MATERIAL DESC	POIDTION		<u>=</u>	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD
EPI		RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	울	WATERIAL DESC	KIPTION		Ä	SSR	ZIL ER	NOTE
	E	R.	ВОХ	CO	AC.	ő.	RAC	=				PAC	ğ	ME	
				R	F		<u> </u>								
	_								-Well cemented zone						
			8												
	_														
	_370														
45	_														
	_														
			9												
	365														
50															
	_														
	L														
			10												
	<u> </u>														
	<u> 360 </u>														
55	_														
	L														
								E							
	_								-Gravel and Cobble Layer						
	L		11					E	•						
-	_355														
ROU	GF								THIS SUMMARY APPLI OF THIS BORING AND SUBSURFACE CONDIT						
				_			Suite <i>1</i> A 926		LOCATIONS AND MAY WITH THE PASSAGE O PRESENTED IS A SIMP CONDITIONS ENCOUN	F TIME. THE LIFICATION (DATA		FI	GURI	E A-31

	G O			DR	Ε	ВО	RIN	G	PROJECT NA Yucca & Agi	ryle Fault Investigation		RY			ORING B-3 HEET N	O.
_	a and			ollyw	ood,	Са			1/30/14 to 1/3		TO	Σ.		4	of 4	
DRIL	LING N	/ETH	HOD						DRILL BIT S	IZE/TYPE		CHECKED	BY	TO (fee		PTH DRILL
	w Stem								6"			SK	ON F	1,		60
DRIL Marl	L RIG	TYPI	Ξ						Gregg In-Site			INCLINATION	ON F	KOW V	ERTICA	AL/BEAKIN
	ARENT	GR	OUN	DWΔ	TFR	DED.	ТН		Gregg in-Sitt	Drilling		APPROXIM		CURE	ACE EL	EVATION
	encou						•••					(feet)		30KF. 14	ACE EL	EVAIION
СОМ	MENTS	3										BOREHOLI			L	
	I								1				S	oil Cut	tings	
(2	(£)			so	IL C	ORE		>					STS	RΥ	E, OUR	
DEPTH (ft)	ELEVATION (#)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	YEO IOHTI I		MATERIAL DESC	RIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTE:
- - -65 - -70 - -75	350 								Boring ba patched.	ater: Encountered at 28 ckfilled with tamped cut	tings and asp	ohalt				
GROU	JP GF	(92 /	Arg	ona	ut, :	ONSU Suite A 92	120)	THIS SUMMARY APPLIE OF THIS BORING AND A SUBSURFACE CONDITI LOCATIONS AND MAY (WITH THE PASSAGE OI PRESENTED IS A SIMP	AT THE TIME IONS MAY DI CHANGE AT F TIME. THE	OF DRILLING FFER AT OTH THIS LOCATIC DATA	ER ON	 FI	GURI	E A-31

DELTA

_0	G O	F	C)R	E	BO	RIN	3	PROJECT NAME Yucca & Agryle Fault Investigation		NUMBER			ORING B-4	
SITE	LOCA	TIOI	N						DATE(S) DRILLED	LOGGED	ВҮ		S	HEET N	0.
	ca and			ollyw	ood,	Ca			1/29/14 to 1/29/14	ТО	T	_		of 2	
	LING N								DRILL BIT SIZE/TYPE 6"		CHECKED	BY	TO (fe	TAL DE	PTH DR 30
	w Stem								DRILLED BY		SK INCLINATION	ON F	ROM \	/ERTICA	
Marl			-						Gregg In-Situ Drilling			0			
	ARENT			DWA	ATER	DEP.	ТН				APPROXIM	ATE	SURF	ACE EL	EVATIC
	encou		₽d								(feet)		13		
COM	MENTS	• 									BOREHOLE		CKFIL oil Cut		
	£			so	OIL C	ORE						LS	>-	Ä	
DEPTH (ft)	ELEVATION (#)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESC	RIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIE NO
								Ŕ	Asphalt Artificial FIII (Qaf)						
-								\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Silty SAND, 7.5 YR 5/8 (Strong medium sand, little fine gravel, tr	Brown), mois ace cobbles.	t, fine to				
_	_410							X	5 ,						
-								X							
_								(X)							
_5	-							X.	Clayey SAND7.5 YR 4/6 (Strong	Brown). moi	st,				
_								<u> ;;</u>	medium to coarse sand, some fir coarse gravel, trace cobbles.	e sand, few	ine to				
									3 , 332233						
_			1					<u> ;;</u>							
_	4 05														
_	-							\;\;\;	Older Alluvium (Qoal)						
_10									Clayey SAND, 7.5 YR 5/8 (Stron	g Brown), mo	oist, fine				
_								[<u>;</u>	to medium sand, little coarse san trace cobbles.	d, some fine	gravel,				
								6.0	Silty SAND, 7.5 YR 5/8 (Strong medium to coarse sand, some fir	Brown), mois	t, e fine				
_	_		2					K	gravel. Clayey SAND, 7.5 YR 5/8 (Stron						
_	-400		_					<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>	medium to coarse sand, some fir gravel.	e sand, trace	e fine				
_	L							<i> :/:</i>	grav o i.						
– 15															
-10									-No recovery						
_								1							
_	-														
_	_395		3					<i> ;;</i>							
_								<i>[;;</i>							
-								<i> ;;</i>							
ROU	UP _							•	THIS SUMMARY APPLI	ES ONLY AT	THE LOCATION	↓ N			
	GF								NTS, INCOFTHIS BORING AND SUBSURFACE CONDIT LOCATIONS AND MAY	IONS WAT DI	FFERALUIN	⊏K.		0/ 15	
		,		_			Suite 1		WITH THE PASSAGE O PRESENTED IS A SIMP	F TIME. THE LIFICATION (DATA		FI	GUR	⊢ A-3
	ГА		Alis	so \	Viej	o, C	A 926	56	CONDITIONS ENCOUN						

SOIL CORE			NO.
Hollow Stem Auger DRILL RIG TYPE Marl M12 APPARENT GROUNDWATER DEPTH None encountered SOIL CORE WHEN BY A CONTROL OF BY A		OTAL DE	EPTH DRILLI
DRILLED BY Marl M12 APPARENT GROUNDWATER DEPTH None encountered SOIL CORE ON NOT ON A WAR OF THE BERN OF THE BE	,,,,	eet)	36
MATERIAL DESCRIPTION SOIL CORE SOIL CORE ON NO BRANCO B	ROM	VERTIC	
None encountered COMMENTS SOIL CORE SOIL CORE ON NOW BEACH OF BACK			
SOIL CORE SUBJECTION SOIL CORE SUBJECTION MATERIAL DESCRIPTION SUBJECTION Modelo Formation (Tm) Sandy Claystone to Clayey Sandstone mottled 7.5 YR 4/6 (Strong Brown) and 7.5 YR 6/1 (Gray), moist, fine to medium sand, trace coarse sand, trace cobbles.		FACE EI	LEVATION
MATERIAL DESCRIPTION Modelo Formation (Tm) Sandy Claystone to Clayey Sandstone mottled 7.5 YR 4/6 (Strong Brown) and 7.5 YR 6/1 (Gray), moist, fine to medium sand, trace coarse sand, trace cobbles.	CKFIL	LL uttings	
Modelo Formation (Tm) Sandy Claystone to Clayey Sandstone mottled 7.5 YR 4/6 (Strong Brown) and 7.5 YR 6/1 (Gray), moist, fine to medium sand, trace coarse sand, trace cobbles.			
Sandy Claystone to Clayey Sandstone mottled 7.5 YR 4/6 (Strong Brown) and 7.5 YR 6/1 (Gray), moist, fine to medium sand, trace coarse sand, trace cobbles.	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTE:
YR 4/6 (Strong Brown) and 7.5 YR 6/1 (Gray), moist, fine to medium sand, trace coarse sand, trace cobbles.			
390			
390			
30			
-Thin layer of Sandstone, wet, medium to coarse sand			
- 6 6 6			
·			
35 _			
Very hard drilling			
Total Depth: Refusal at 36 ft Groundwater: Encountered at 31 Ft			
7 Boring backfilled with tamped cuttings and concrete			
375 patched.			
- -			
THIS SUMMARY APPLIES ONLY AT THE LOCATION	<u> </u>		
GROUP DELTA CONSULTANTS, IN COFT THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA	 F	IGUR	E A-32

DELTA

-00	3 O	F	C)R	E	ВО	RIN	G	PROJECT NAME Yucca & Agryle Fault Investigation		T NUMBER			ORING B-4A	
	LOCA								DATE(S) DRILLED	LOGGED	ВҮ			HEET N	0.
	a and			ollyw	ood,	Ca			1/31/14 to 1/31/14	ТО				of 4	
	LING N								DRILL BIT SIZE/TYPE		CHECKED	BY	TO (fe		PTH DRILLE
	v Stem								6"		SK INCLINATION	ON F	SOM /	/ /FRTIC	60
≀RILI ∕larl N	L RIG ⁻	IYPI	=						DRILLED BY Gregg In-Situ Drilling		INCLINATION	0	(OW)	LICTION	LIBEANING
	RENT	GR	OUN	DWA	TFR	DFP	TH		Gregg III-Gita Dilling		APPROXIM		CLIDE	ACE EL	EVATION
	encou	_									(feet)		30 KF 13	ACE EL	EVAIION
СОМІ	MENTS	3									BOREHOLE			L	
												S	oil Cut	tings	
				60		ODE									
æ	(H)		<u> </u>		IL C	ORE		ჯ				PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	
DEPTH (ft)	Į Į	o.		,≪	Ö.	%	품/9 ~	OLO	MATERIAL DESC	RIPTION		R H	RAT(S/H	FIELD
DEP	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	-RAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY				CKE	\BOF	RILLI TEF	NOTES
	П	R.	BO	ECO	:RAC	R.G	FRA DR/	-				PA	<u>י</u>	ME	
				ız.	_				Asphalt						
	_							0/0	Artificial Fill (Qaf)						
								8/0	Silty SAND, 7.5 YR 5/8 (Strong E	Brown), mois	t, mostly				
ŀ	_							6%	fine to medium sand, little fine gra	ivei, trace co	oddies.				
-	_410							6/0							
								6/5							
ļ								0 /							
;	_							K	Older Alluvium (Qoal)			-			
								1%							
									Clayey SAND7.5 YR 4/6 (Strong	Brown), moi	ist,				
ŀ	_		1					1	mostly medium to coarse sand, so fine to coarse gravel, trace cobble	ome ime san es.	iu, iew				
	_405		'					[;;							
								1							
Ī	_							1.							
10								\\\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.	Clayey SAND, 7.5 YR 5/8 (Strong	g Brown), mo	oist,				
								1.	mostly fine to medium sand, few of fine gravel, trace cobbles.	coarse sand,	, trace				
									ino gravor, trace coppies.						
}	_		2					1							
-	- 400		_					[;;							
Ì								1.							
5	_														
	_							1							
								[:/	-Becomes 7.5 YR 4/4 (Reddish B	rown)					
ŀ	_		3					1							
	_395		3					1	Clayey Sand to Sandy Claye	ottlad 7 5 VD	9 5/Q				
								1	Clayey Sand to Sandy Clays me (Strong Brown) and 7.5 YR 7/1 (L	ight Gray), n	noist,				
ļ	_							1.	mostly fine grained sand, few metrace fine gravel, some silt.	dium to coar	se sand,				
207	TD							17.			THE LOOK =: -	<u> </u>	<u> </u>		
ROU	GF								THIS SUMMARY APPLIE OF THIS BORING AND A SUBSURFACE CONDITIONS AND MAY LOCATIONS AND MAY	AT THE TIME IONS MAY DI	OF DRILLING. FFER AT OTH	ER		O. 12.	- 4 00
							Suite 1 A 926		WITH THE PASSAGE OF PRESENTED IS A SIMP CONDITIONS ENCOUNT	F TIME. THE LIFICATION (DATA		[GUKI	E A-33

DELTA CONSULTANTS

SITE	G O	TION	ı				RIN	G	PROJECT NAME Yucca & Agryle Fault Investigation DATE(S) DRILLED 1/31/14 to 1/31/14		T NUMBER		s	ORING B-4A HEET No.	0.
	LING N			Ollyw	oou,	<u>Ca</u>			DRILL BIT SIZE/TYPE	10	CHECKED	BY	- 1		PTH DRILL
Hollo	w Stem	n Aug	jer						6"		SK		(fe	<u> </u>	60
DRIL Marl	L RIG	TYPE	•						DRILLED BY		INCLINATION	ON F I 0	ROM \	/ERTICA	AL/BEARIN
	ARENT	GRO	OUN	DWA	TFR	DFP	ГН		Gregg In-Situ Drilling		APPROXIN		CLIDE	ACE EL	EVATION
None	encou	ntere	d								(feet)		13	AOL LL	LVAIION
COM	MENTS	3									BOREHOL		CKFIL oil Cut		
				so	IL C	ORE									
(#) T	JJ) NO			%	ı			- 66				TEST	TOR)	ATE, HOU	FIELD
DEPTH (#)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY,	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESC	RIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	NOTES
-	_														
								<i>(</i> ;;							
			4												
-	390														
-	_								 -5 YR 4/4 (Reddish Brown) and 5 white carbonate infilling. 	YR 6/1 (Gr	ay), with				
-25															
-	_							1.							
-	_		5					<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>							
_	385		5												
_															
00															
-30	_														
-	_							<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>	Ground Water @ 31 ft.						
-	_							1:							
_	_380		6					! ;;							
-															
-35	-														
_	<u> </u>							1	-Mottled 10 YR 6/6 (Brownish Yell	ow) and 10	YR 7/1				
_								<i>(.)</i>	(Light Gray), abundant carbonate		/!				
	075		7					1:							
-	375 								Modelo Formation (TM) Sandstone, Siltstone, Claystone brown) to 7.5YR 7/1 (light gray), the oxidation.	10YR 6/1 (Sninly bedde	Strong d, some				
ROU	JP GF	(92 /	Arg	ona	ut, S	ONSU Suite 1 A 926	20	THIS SUMMARY APPLIE ANTS, INCOF THIS BORING AND A SUBSURFACE CONDITIONS AND MAY O WITH THE PASSAGE OF PRESENTED IS A SIMPL CONDITIONS ENCOUNT	T THE TIME ONS MAY D HANGE AT TIME. THE IFICATION	OF DRILLING IFFER AT OTH THIS LOCATION DATA	IER DN	FI	GURI	E A-33

92 Argonaut, Suite 120 Aliso Viejo, CA 92656 SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

	G O			DR	E	ВО	RIN	G	PROJECT NAME Yucca & Agryle Fault Investigation DATE(S) DRILLED	PROJECT	T NUMBER			ORING B-4A HEET N	O.
	ca and			ollyw	nnd	Ca			1/31/14 to 1/31/14	TO	, 61		- 1	of 4	•
	LING N				oou,	Ca		$^+$	DRILL BIT SIZE/TYPE	10	CHECKED	RV	то	TAL DE	PTH DRILLE
									6"			. .	(fe		60
	w Stem										SK INCLINATION)N FI	ROM \	/FRTIC/	
Marl	_	IYP	=						DRILLED BY		INOLINATIO	0		Littion	(L) DEARWING
		00	- I II I	D\4/4	TED	DED:	T. .		Gregg In-Situ Drilling						
None	ARENT e encou	ntere		DWA	AIEK	DEP	IH 				APPROXIM (feet)	4	13		EVATION
СОМ	MENTS	S									BOREHOLE		CKFIL oil Cut		
	(ft)			SO	IL C	ORE		\ -				TS	२४	UR	
DEPTH (ft)	ELEVATION (#)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESC	RIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTES
				ı.					Modelo Formation (TM)cont						
-	-														
•			8												
	_370		J												
45															
.5															
	_														
	_		9												
	365		9												
	-														
50															
50															
	L														
-	-														
	_360		10												
	-														
55	_			1											
	L														
	<u> </u>														
_	_355		11												
-	_														
ROU	GF								THIS SUMMARY APPLIE ANTS, INCOF THIS BORING AND A SUBSURFACE CONDITI	ES ONLY AT AT THE TIME IONS MAY D	THE LOCATION OF DRILLING.	N ER			
				_			Suite 1 A 926		LOCATIONS AND MAY (WITH THE PASSAGE OF PRESENTED IS A SIMPLE CONDITIONS ENCOUNT	F TIME. THE LIFICATION (DATA		FI	GURI	E A-33

92 Argonaut, Suite 120 Aliso Viejo, CA 92656 SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

SITE	G C LOCA	TION	ı				RIN	G	PROJECT NAME Yucca & Agryle Fault Investigatio DATE(S) DRILLED 1/31/14 to 1/31/14		BY		S	ORING B-4A HEET No. of 4	0.
	LING N				oou,	Ca			DRILL BIT SIZE/TYPE	10	CHECKED I	BY			PTH DRILLI
	w Stem								6"		SK	٠.	(fee		60
	L RIG								DRILLED BY		INCLINATIO	N F	ROM V	/ERTIC	L/BEARIN
Marl	M12								Gregg In-Situ Drilling			0			
	ARENT e encou			DWA	TER	DEP.	ТН				APPROXIMA			ACE EL	EVATION
СОМ	MENT	3									BOREHOLE	ВА			
												S	oil Cut	tings	
(#)	ON (ft)				1	ORE		>00				rests	TORY S	ATE, HOUR	FIELD
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESC	RIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	NOTE:
-	_								Total Depth: 60 Ft Groundwater: Encountered at 31 Boring backfilled with tamped cut patched.		ohalt				
_	350														
_															
-65															
-															
-															
_	_345														
_	L														
-70	L														
-	L														
-															
-	_340														
-															
-75															
-	_														
-	_														
_	_335														
_	_														
ROU	UP GF	ROI	JP	DE	LT	A C	ONSU	LT	THIS SUMMARY APPLI ANTS, INCOF THIS BORING AND SUBSURFACE CONDIT	AT THE TIME	OF DRILLING.				
				_			Suite 1 A 926		LOCATIONS AND MAY WITH THE PASSAGE O PRESENTED IS A SIMP CONDITIONS ENCOUN	CHANGE AT F TIME. THE LIFICATION (THIS LOCATION DATA	N	FI	GURI	E A-33

LOG OF CORE BORING									PROJECT NAME Yucca & Agryle Fault Investigatio	NUMBER		- 1	BORING B-5			
SITE	LOCA	TIOI	N						DATE(S) DRILLED	ВҮ		SHEET NO.				
	ca and				ood,	Са			1/29/14 to 1/29/14	то	1 of 4					
	LING N								DRILL BIT SIZE/TYPE 6"		CHECKED	BY	TO (fe		PTH DRI	
Hollow Stem Auger DRILL RIG TYPE Marl M12									DRILLED BY		SK INCLINATION	ON F	١,	•	60 AL/BEAR	
									Gregg In-Situ Drilling			0				
	ARENT			DWA	TER	DEP1	ГН		-		APPROXIM	ATE	SURF	ACE EL	EVATIO	
	encou		ed								(feet)		10			
COM	MENTS										BOREHOLE		CKFIL oil Cut			
	æ æ			SC	IL C	ORE						ACKER TESTS	<u></u>	Ξ. K		
DEPTH (ft)	ELEVATION (#)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	FRACTURE DRAWING/ NUMBER LITHOLOGY	MATERIAL DESC	MATERIAL DESCRIPTION			LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIE NOT	
								X	Asphalt Artificial Fill (Qaf)							
_								Ž	Silty SAND, 7.5 YR 4/3 (Brown),	moist, mostl	y fine					
_	-							Z,	sand, few medium sand, some fir trace cobbles.	e to coarse	gravel,					
_	F							X.								
_								Ž,								
_5	_405							1	Older Alluvium (Qoal)			-				
	405								Clayey SAND 7.5 YR 4/6 (Strong	g Brown), mo	ist,					
_									mostly fine to medium sand, som fine gravel.	e coarse san	d, some					
_	-							<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>								
_	L		1													
_																
_10	_400							<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>								
-10																
_	_								Condu Old Township 1 40 MD T/2	Dala Dai	a.a.d					
_	-		2						Sandy SILT, mottled 10 YR 7/3 (7.5 YR 5/8 (Strong Brown), moist	raie Brown), , mostly fine	and sand,					
_	L		2					8 % /%	trace fine gravel.							
_	L							8%	01	D `						
– 15	_395							<i> \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>	Clayey SAND, 7.5 YR 4/6 (Stron mostly fine to medium sand, som	g Brown), mo e cobbles an	oist, d gravel.					
-13								\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	SAND, 7.5 YR 5/8 (Strong Brown	n), moist mo	stlv					
_	_								medium to coarse sand, few fine	gravel, trace	cobbles.					
_	-							Ø /o	Silty SAND, 7.5 YR 4/6 (Yellowis	sh Brown), m	oist,					
_	L		3					6/2	mostly fine sand, trace fine grave	l.						
_	L															
								6%								
; ROU	UP		<u> </u>	<u></u>	· -	•		<i>y</i> ∕°	THIS SUMMARY APPLIE	ES ONLY AT T	THE LOCATION	N	Τ			
	GF								ANTS, INCOFTHIS BORING AND A SUBSURFACE CONDIT LOCATIONS AND MAY	IONS WAT DI	FERALUIN	EK.		0.15	- ^ -	
		,		_			Suite 1		WITH THE PASSAGE O PRESENTED IS A SIMP	F TIME. THE LIFICATION C	DATA		1	GURI	E A-3	
TIT I	ГΑ		Alis	so \	√iej(o, C	A 926	56	CONDITIONS ENCOUN	TERED.						

)F (CC	R	ΕI	BO	RIN	G	PROJECT NAME Yucca & Agryle Fault Investigatio	NUMBER	NUMBER			BORING B-5			
SITE LOCA								DATE(S) DRILLED	LOGGED	BY		SHEET NO.				
Yucca and DRILLING			llywo	ood, (Ca			1/29/14 to 1/29/14 DRILL BIT SIZE/TYPE	ТО	CHECKED I	RV.	2 of 4 TOTAL DEPTH DRILLE				
Hollow Ster								6"		SK		(fee		60		
DRILL RIG Marl M12	TYPE							DRILLED BY Gregg In-Situ Drilling		INCLINATIO	ON FI	ROM V	/ERTICA	AL/BEARING		
APPAREN None enco			OWA	TER	DEP.	TH				APPROXIMA (feet)		SURF 10	ACE EL	EVATION		
COMMENT	S									BOREHOLE		CKFIL oil Cut	_			
£			so	IL C	ORE											
DEPTH (ft) ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESC		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTES			
	_	5														
30 —380 — — — — — 35 —375		6					\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Buried Paleosol , Mottled 5YR 3 Brown) to 5YR 6/1 (Gray).	3/3 (Dark Red	dish						
ROUP		7					0/9/0/9/0/9/0/9/0/9/0/9/0/9/0/9/0/9/0/9	THIS SUMMARY APPLII NTS, INCOF THIS BORING AND SUBSURFACE CONDIT	ES ONLY AT T	THE LOCATION	1					

-00	G O	F	C)R	E	BC	RIN	\exists	PROJECT NAME Yucca & Agryle Fault Investigation PROJECT NUMBER				BORING B-5				
SITE L	LOCA	TION	1						DATE(S) DRILLED	ВҮ	 3Y			SHEET NO.			
Yucca	a and	Argy	le, H	ollyw	ood,	Са			1/29/14 to 1/29/14		3 of 4						
DRILLING METHOD									DRILL BIT SIZE/TYPE CHECK				ED BY TOTAL DEPTH DRILLE (feet)				
Hollow									6"		SK INCLINATION	ON E	,		60		
DRILL Marl M	_	TYPI	E						DRILLED BY Gregg In-Situ Drilling		INCLINATIO		KOW V	ERIIGA	AL/DEAKING		
APPA		GR	OLIN	DW 4	TFR	DEP	ТН		Gregg in-Situ Drilling		APPROXIM	0	CUDE	40F FI	FVATION		
None		_		D 117	\	D L.	•••				(feet)		30KF 10	ACE EL	EVAIION		
COMM	/ENTS	3									BOREHOLI			L			
												S	oil Cut	tings			
	æ			SO	IL C	ORE						ပ	>	.α			
Œ T	ELEVATION (ft)			%	l d			LITHOLOGY				PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD		
DEPTH (ft)	VATI	Š.	Š.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	된	MATERIAL DESC	RIPTION		ÆR	ORA TES	ILL R ERS,	NOTES		
	ELE	RUN NO.	BOX NO.	SOVE	AC.	3.Q.F	RAW	5				PAC	LAB	DR			
				Ä	R												
								6/6									
-	_							8 /o									
-	_							6/0									
	_		8					9/0									
								6/2									
- -	_							×.	Clayey Sand, 5 YR 5/6 (Yellowis	h Brown), m	oist,	-					
45	_365							1.	mostly fine to medium sand, few fine gravel.	coarse sand,	trace						
									Ground water @ 45 ft.								
-	_							1.									
- -	_																
			9					<i>[;;</i>									
								1.	-Mottled 5YR 5/6 (Yellowish Brown	vn) to 5YR 6	/1 (Gray)						
-	-							<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>									
50	_360							\\\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.	01.75.\\D.0\\0.\\0.\\0.\\0.\\0.\\0.\\0.\\0.\\			_					
									Sand, 7.5 YR 6/2 (Strong Brown) medium to coarse sand, some fin	, wet, mostly e sand, few	fine						
-	_								gravel. Clayey Sand, 5YR 4/4 (Reddish	Brown) mott	led with	1					
- -	_							[./	7.5YR 6/2 (Pinkish Gray), wet, me	ostly fine to r	nedium						
			10					1	sand, trace coarse sand, trace fin Clayey Sand, 5YR 4/4 (Reddish		mostly						
	-							[;;	fine sand, few medium sand.								
- -	_							!									
55 -	_355							<u>;;</u>	015//0.5/0.0/. !! !! 5		and the second second						
									Sand 5YR 5/6 (Yellowish Brown) to coarse sand, some fine sand, f	wet, mostly ew fine grav	meaium el.						
-	_									-							
- -	_																
			11					\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Modelo Formation (Tm)								
	_							1.	Sandy Claystone5YR 4/4 (Redd	ish Brown). v	wet,						
-	_							<i>[:]</i>	mostly fine sand, some fines.	,,							
								1.									
ROU	P GF						ONSU Suite 1		THIS SUMMARY APPLIE ANTS, INCOFTHIS BORING AND A SUBSURFACE CONDIT LOCATIONS AND MAY	AT THE TIME IONS MAY DI CHANGE AT	OF DRILLING FFER AT OTH THIS LOCATIO	ER	 	CHIDI	E A-34		
(·			A 926		WITH THE PASSAGE O PRESENTED IS A SIMP CONDITIONS ENCOUN'	LIFICATION (λL	[JUNI	_ ^-34		

LOG OF CORE BORING SITE LOCATION Yucca and Argyle, Hollywood, Ca							RIN	G	PROJECT NAME Yucca & Agryle Fault Investigation DATE(S) DRILLED 1/29/14 to 1/29/14		T NUMBER	BORING B-5 SHEET NO. 4 of 4				
DRILLING METHOD						Ca			DRILL BIT SIZE/TYPE	CHECKED	BY			PTH DRILL		
Hollow Stem Auger									6"		SK		(fe		60	
	L RIG								DRILLED BY		INCLINATION	ON F	ROM \	/ERTIC	AL/BEARIN	
Marl									Gregg In-Situ Drilling			0				
	ARENT e encou			DWA	ATER	DEP.	TH				APPROXIM (feet)		SURF 10	ACE EL	EVATION	
СОМ	MENTS	3									BOREHOLE		CKFIL oil Cut			
	æ æ			so	IL C	ORE										
DEPTH (ft)	ELEVATION (#)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESC	CRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, METERS/HOUR	FIELD NOTES	
-	_		Total Depth: 60 Ft Groundwater: Encountered at 45 Ft Boring backfilled with tamped cuttings and asp patched.							sphalt						
-	_															
-	_															
65	_345															
-	_															
-	_															
-	_															
-	_															
-70	_340															
-	-															
-	F															
-	-															
	-															
75	_335															
-	-															
-	F															
_	_															
-	-															
ROU	UP GF						ONSI Suite		THIS SUMMARY APPLIANCE CONDITIONS AND MAY WITH THE PASSAGE OPRESENTED IS A SIMP	AT THE TIME TONS MAY D CHANGE AT OF TIME. THE	E OF DRILLING. IFFER AT OTH THIS LOCATIC E DATA	ER ON	 FI	GURI	E A-34	

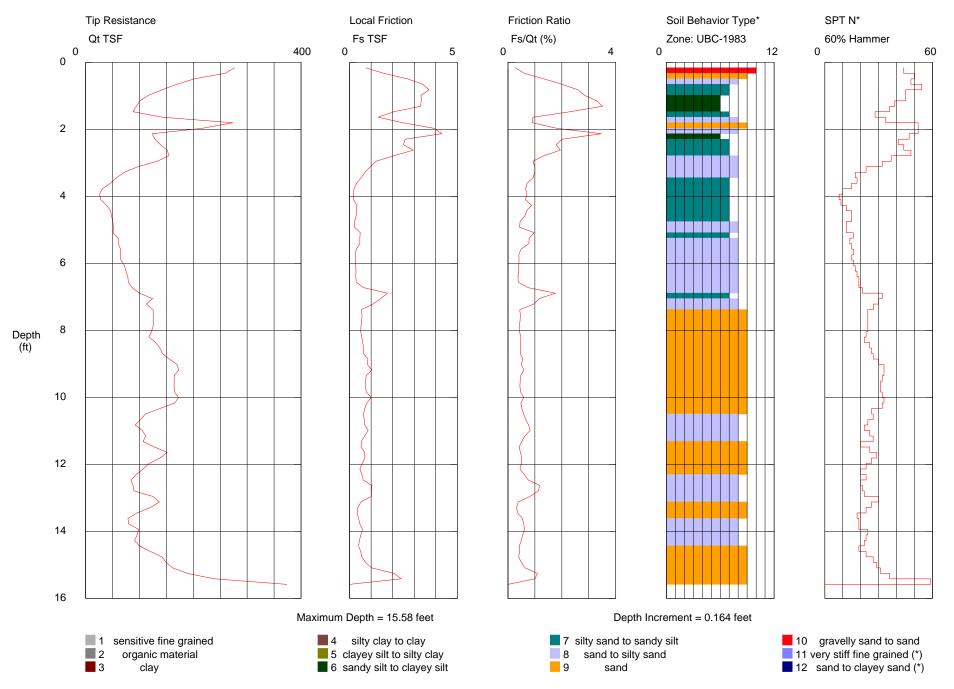
92 Argonaut, Suite 120 Aliso Viejo, CA 92656 FAULT ACTIVITY INVESTIGATION 6230 YUCCA STREET, SW CORNER OF YUCCA STREET AND ARGYLE AVENUE HOLLYWOOD AREA, CITY OF LOS ANGELES, CALIFORNIA, CPT and BORING LOGS.

Appendix A-1 *

Operator: SA-RA

Sounding: CPT-01 *
Cone Used: DSG1104

CPT Date/Time: 10/21/2013 8:11:11 AM



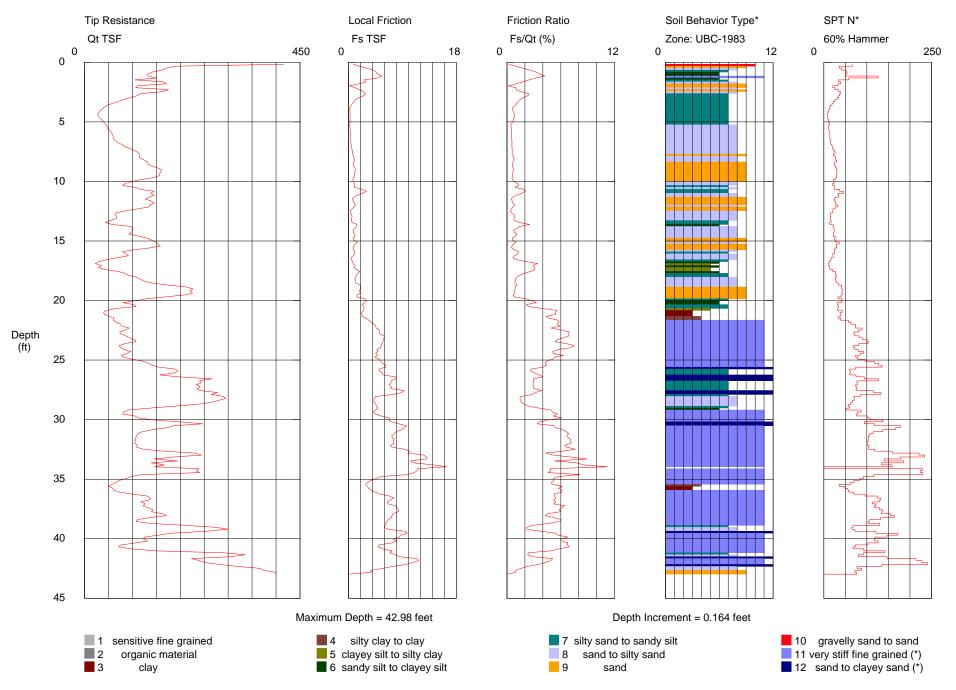
Appendix A-2 *

Operator: SA-RA

CPT Date/Time: 10/21/2013 9:27:58 AM Location: Yucca

Sounding: CPT-01A *
Cone Used: DSG1104

Job Number: LA-1161

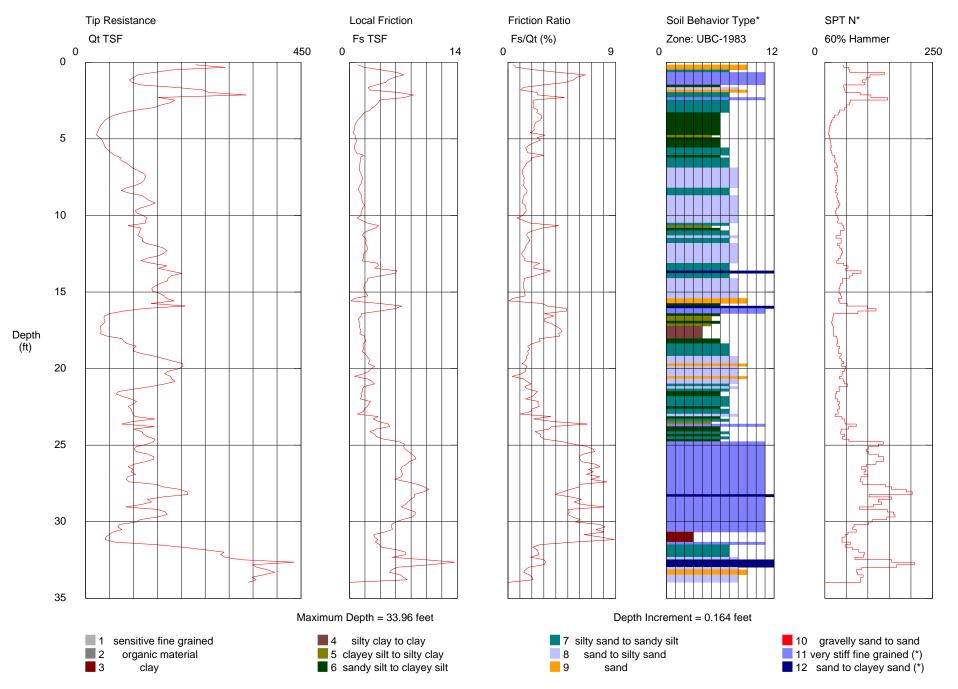


Appendix A-3

Operator: SA-RA

Sounding: CPT-01b*
Cone Used: DSG1104

CPT Date/Time: 10/22/2013 3:53:44 PM

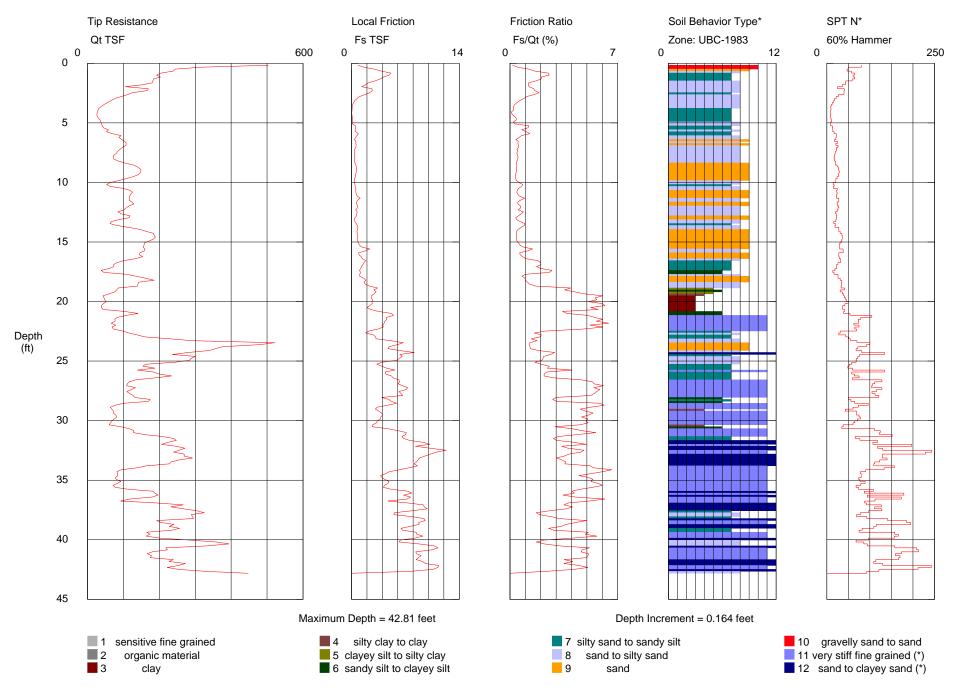


Appendix A-4 *

Operator: SA-RA

CPT Date/Time: 10/21/2013 8:34:23 AM

Sounding: CPT-02*
Cone Used: DSG1104



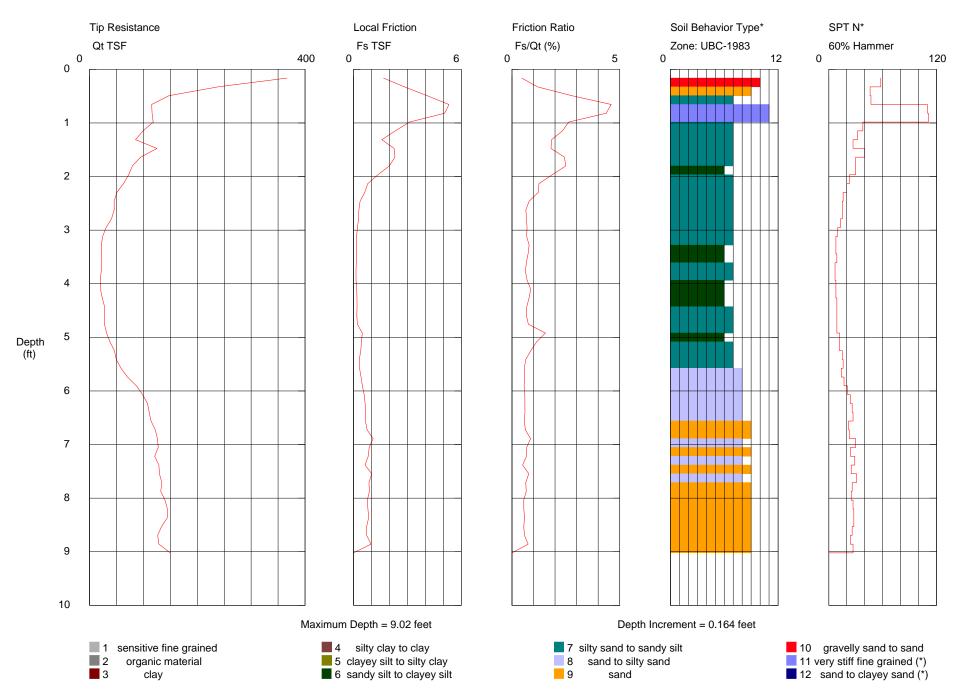
Appendix A-5 *

Operator: SA-RA

CPT Date/Time: 10/21/2013 9:12:06 AM Location: Yucca

Sounding: CPT-03*
Cone Used: DSG1104

Job Number: LA-1161

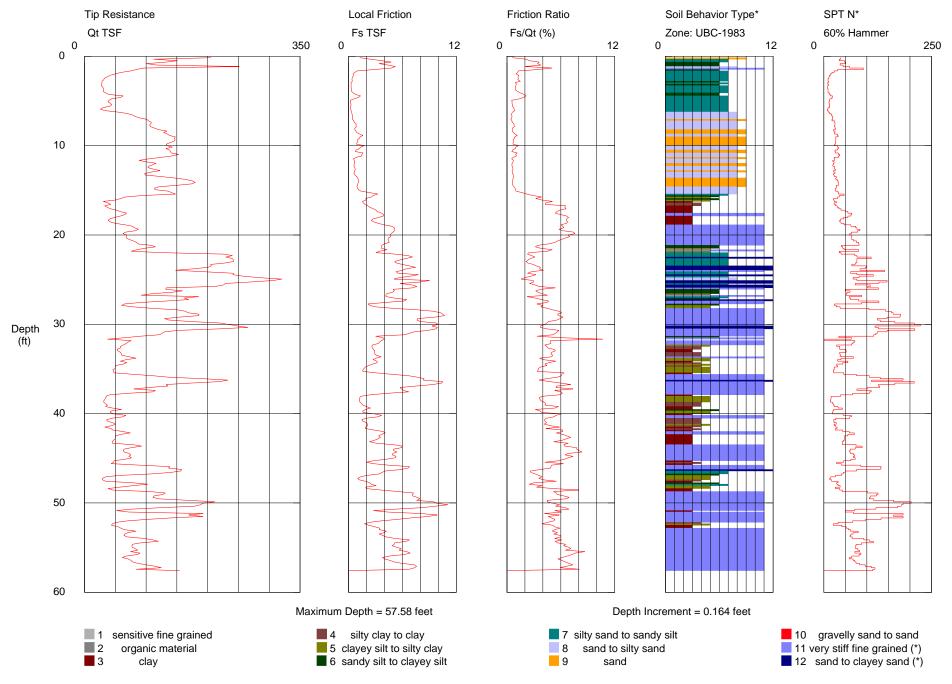


Appendix A-6

Operator: SA-RA

Sounding: CPT-03a*
Cone Used: DSG1104

CPT Date/Time: 10/21/2013 10:23:37 AM

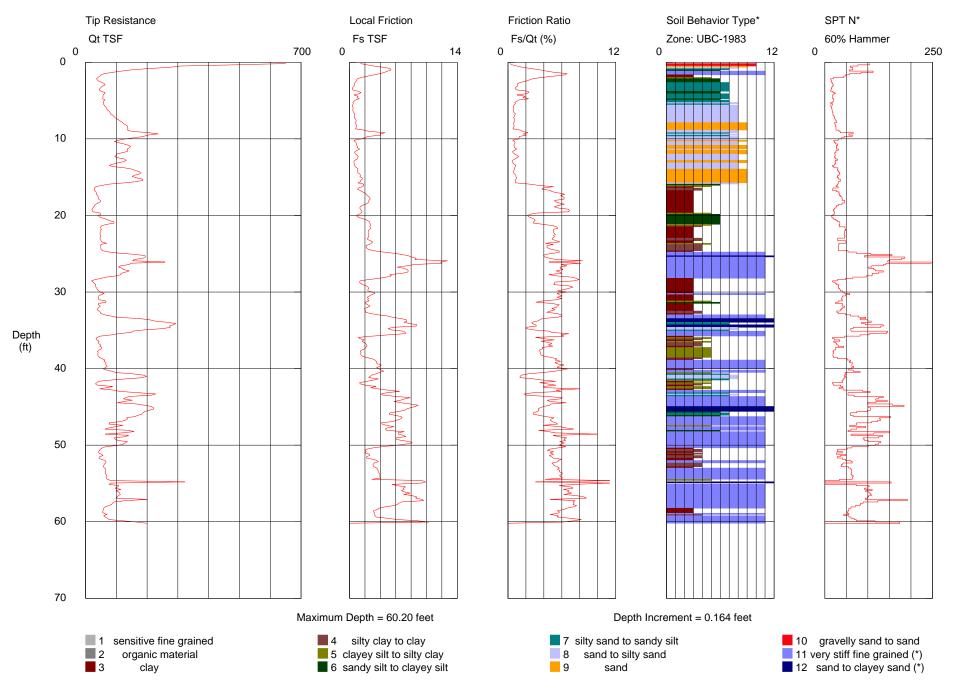


Appendix A-7 *

Operator: SA-RA

CPT Date/Time: 10/21/2013 11:12:33 AM

Sounding: CPT-04*
Cone Used: DSG1104

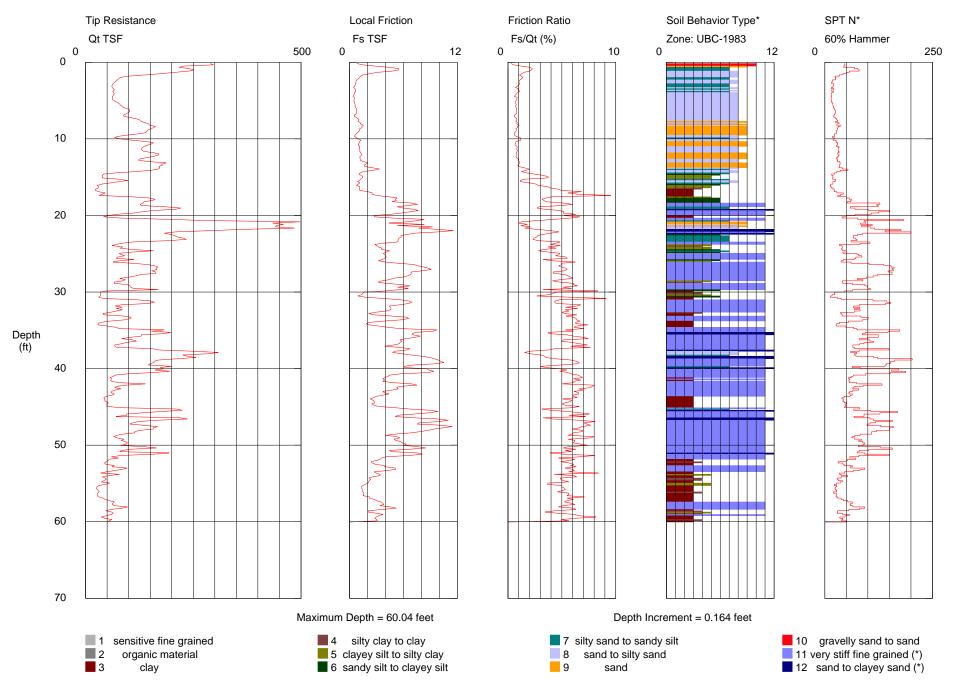


Appendix A-8 *

Operator: SA-RA

CPT Date/Time: 10/21/2013 12:11:51 PM

Sounding: CPT-05*
Cone Used: DSG1104

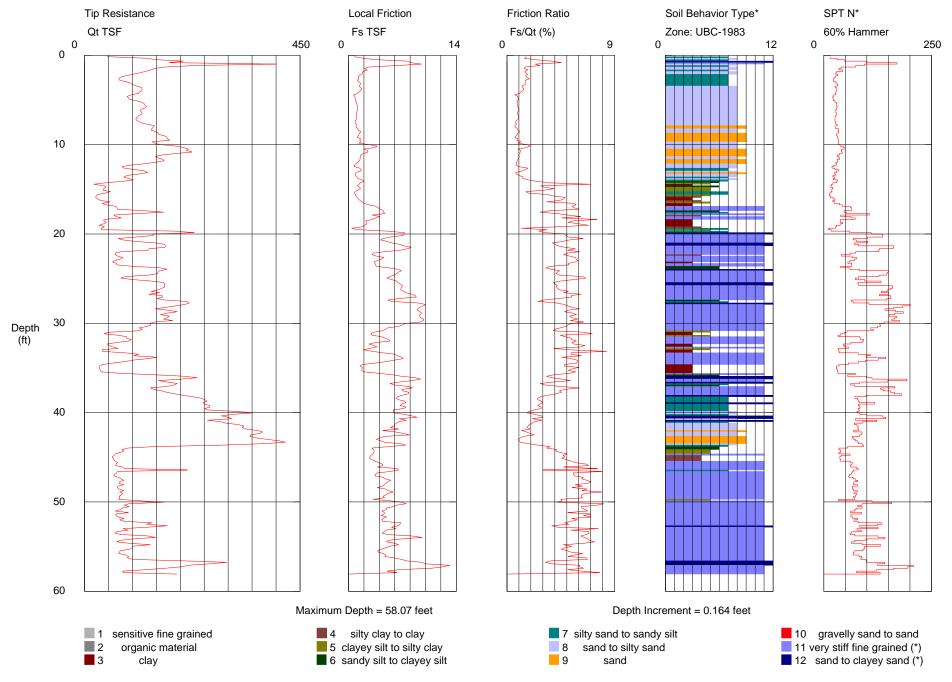


Appendix A-9 *

Operator: SA-RA

Sounding: CPT-06*
Cone Used: DSG1104

CPT Date/Time: 10/21/2013 1:31:39 PM

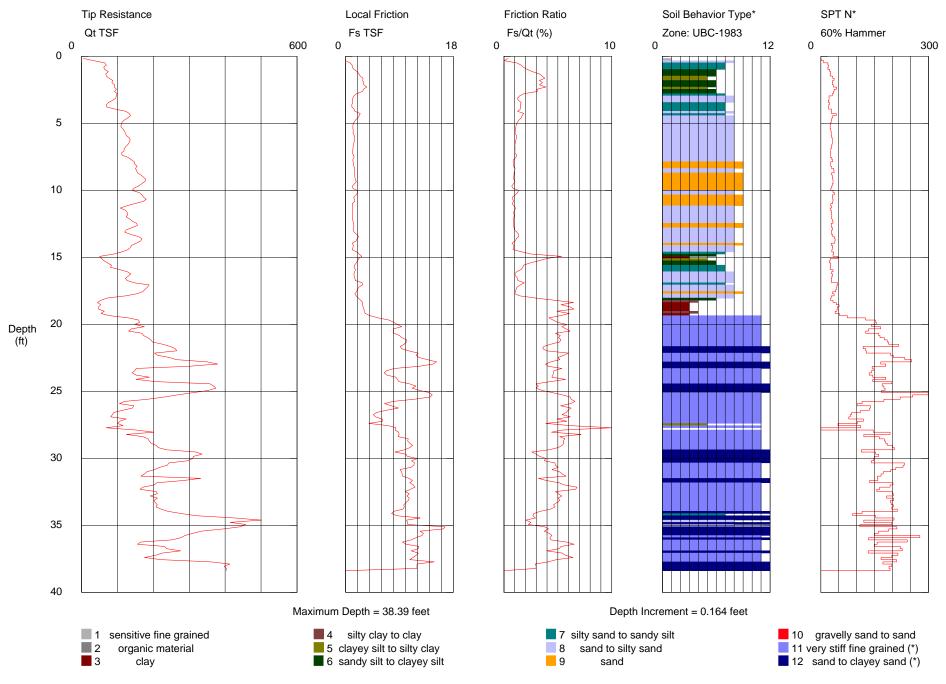


Appendix A-10^{*}

Operator: SA-RA

Sounding: CPT-07*
Cone Used: DSG1104

CPT Date/Time: 10/21/2013 2:32:23 PM

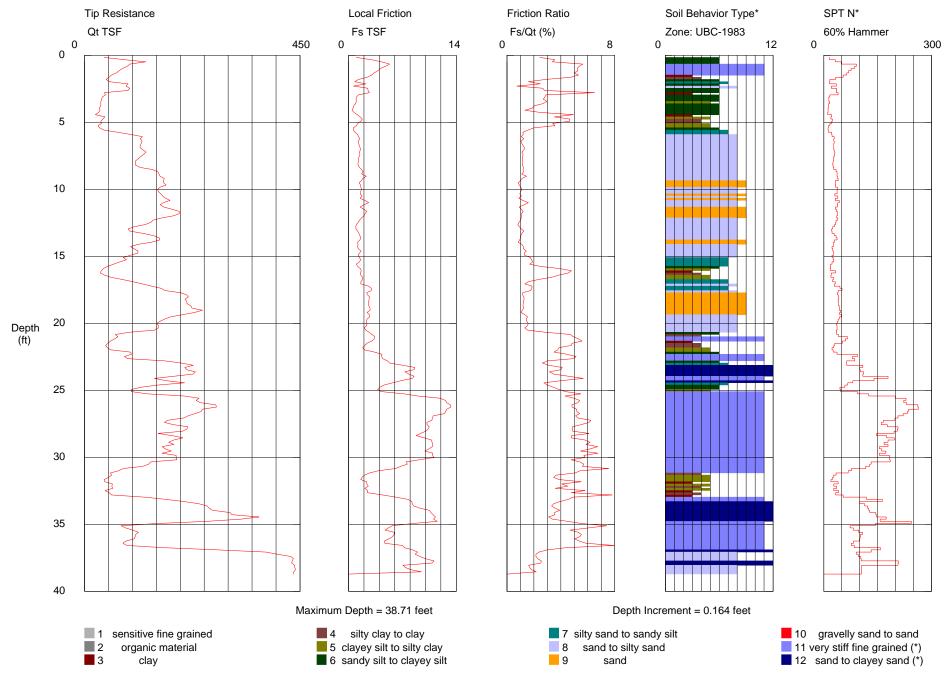


Appendix A-11 *

Operator: SA-RA

CPT Date/Time: 10/22/2013 7:23:38 AM

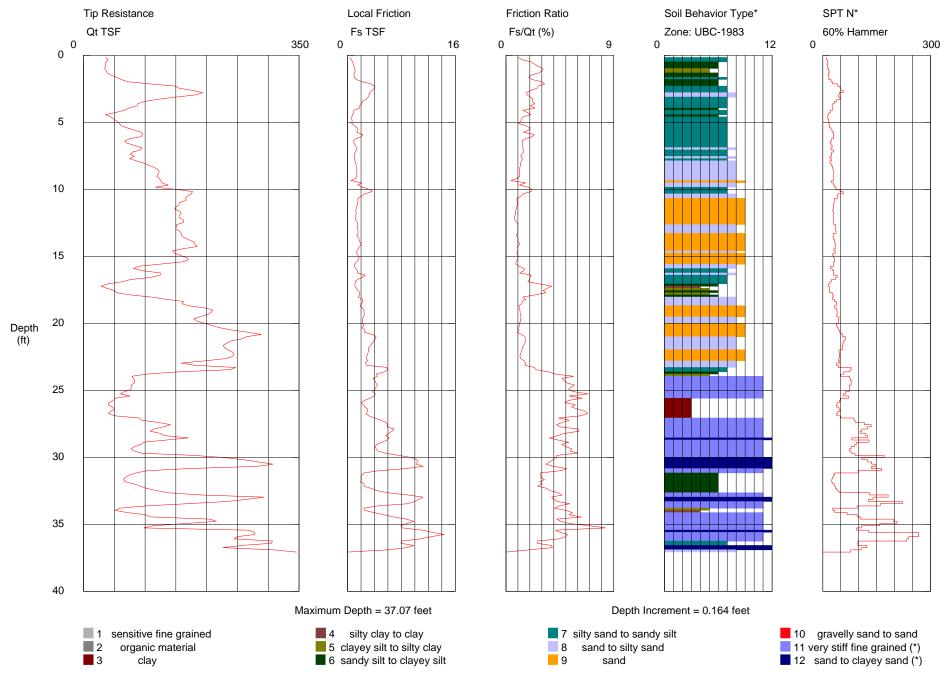
Sounding: CPT-08*
Cone Used: DSG1104



Operator: SA-RA

Sounding: CPT-09*
Cone Used: DSG1104

CPT Date/Time: 10/22/2013 8:25:25 AM

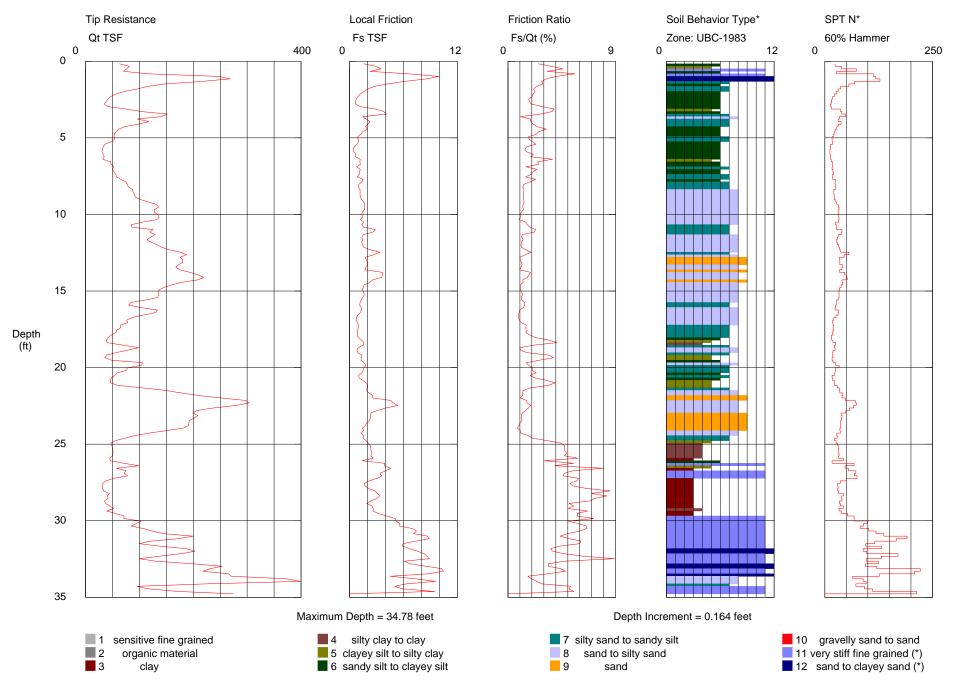


Appendix A-13 *

Operator: SA-RA

Sounding: CPT-10*
Cone Used: DSG1104

CPT Date/Time: 10/22/2013 9:00:01 AM

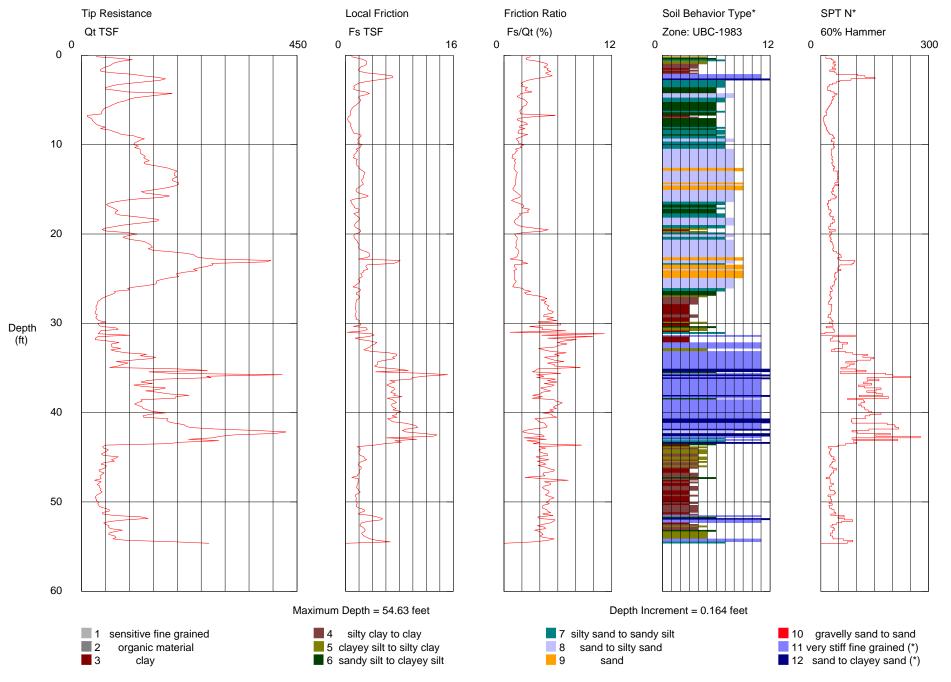


Appendix A-14 *

Operator: SA-RA

Sounding: CPT-11*
Cone Used: DSG1104

CPT Date/Time: 10/22/2013 9:34:03 AM

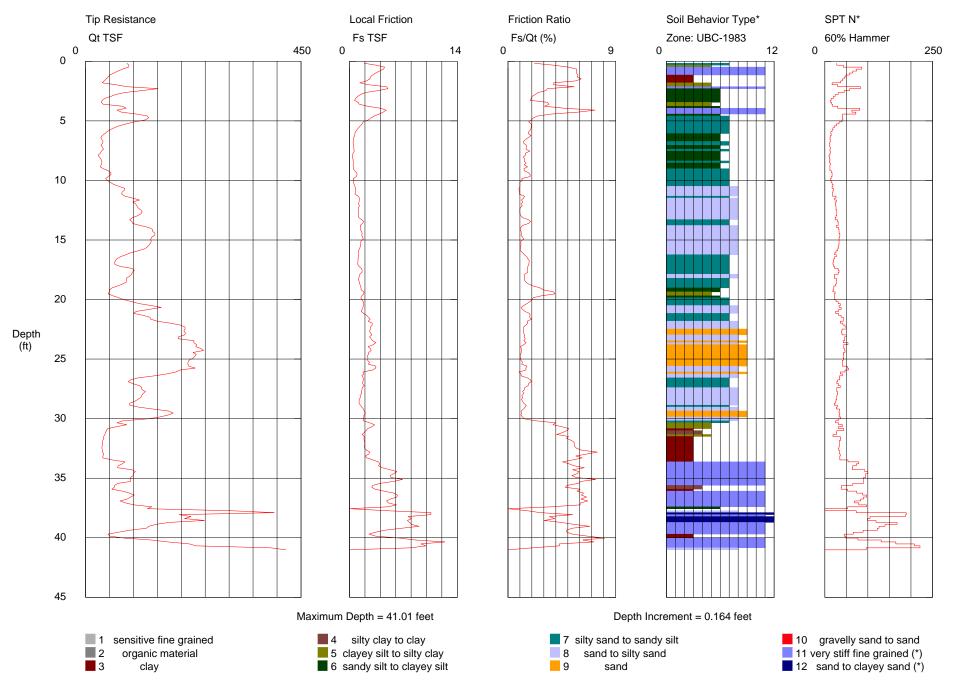


Appendix A-15

Operator: SA-RA

Sounding: CPT-12*
Cone Used: DSG1104

CPT Date/Time: 10/22/2013 10:16:04 AM

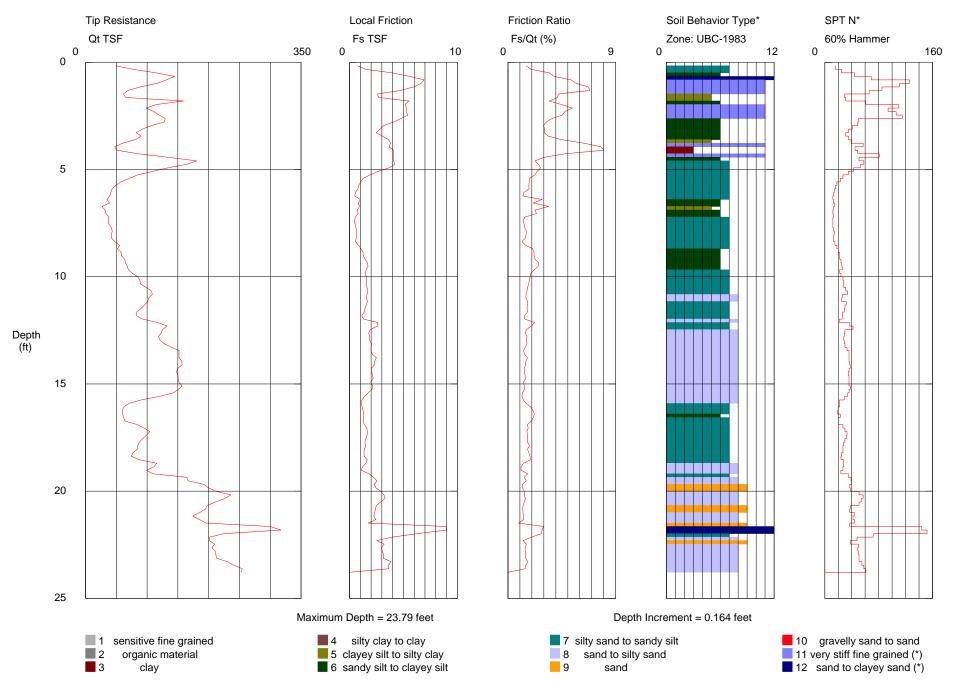


Appendix A-16 *

Operator: SA-RA

Sounding: CPT-13*
Cone Used: DSG1104

CPT Date/Time: 10/22/2013 10:50:40 AM

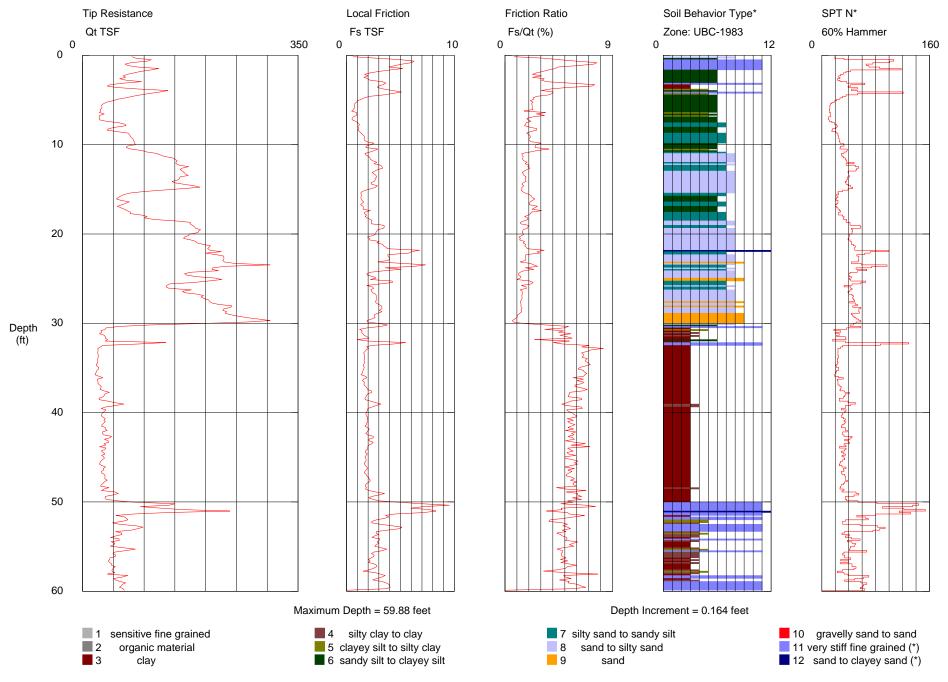


Appendix A-17 *

Operator: SA-RA

Sounding: CPT-13a*
Cone Used: DSG1104

CPT Date/Time: 10/22/2013 3:00:14 PM

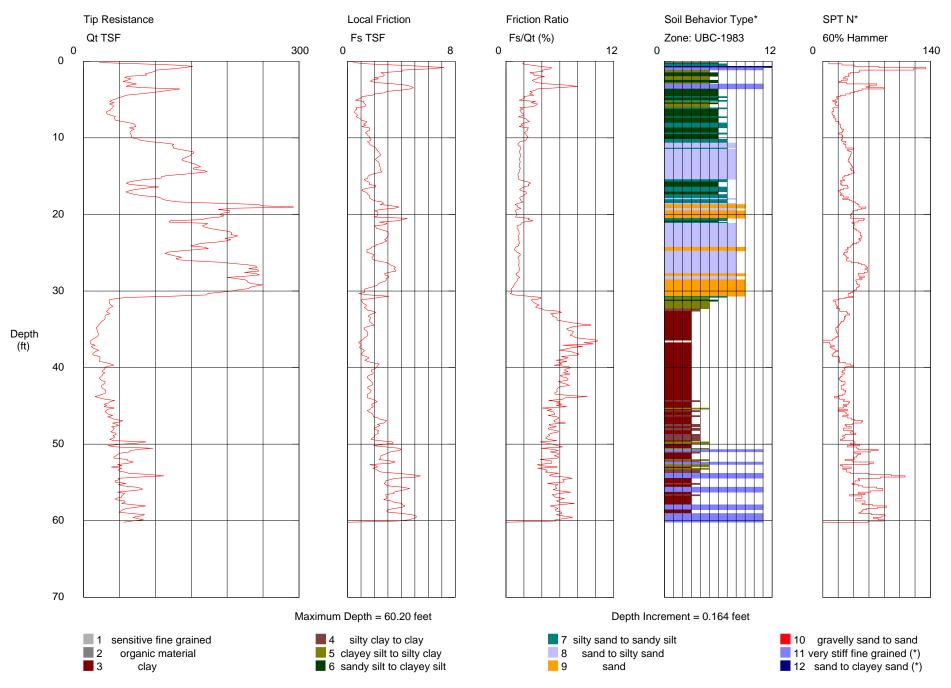


Operator: SA-RA

CPT Date/Time: 10/22/2013 11:18:28 AM Location: Yucca

Sounding: CPT-14*
Cone Used: DSG1104

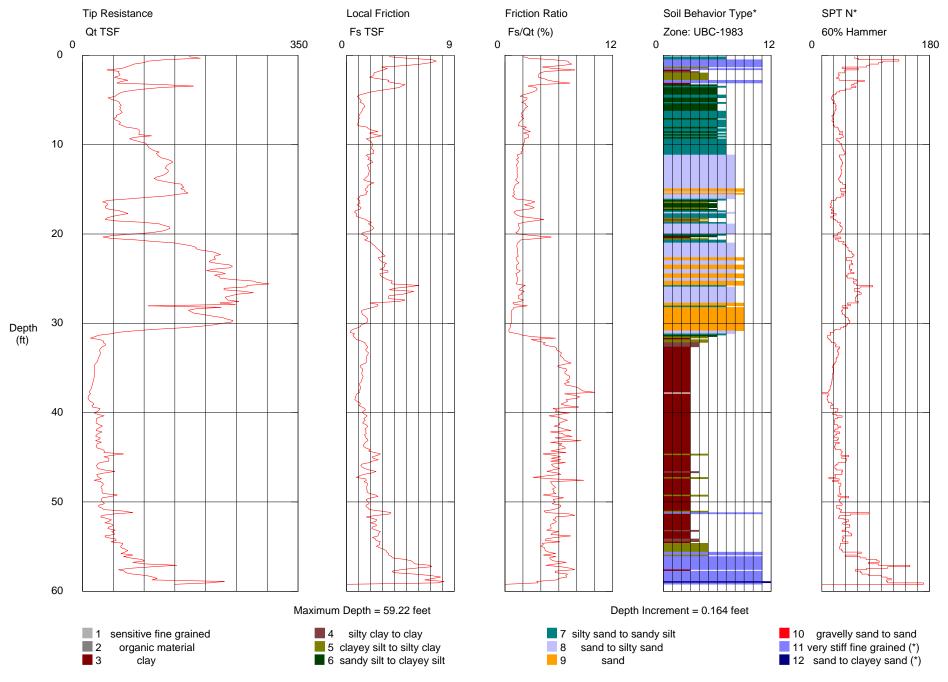
Job Number: LA-1161



Operator: SA-RA

Sounding: CPT-15*
Cone Used: DSG1104

CPT Date/Time: 10/22/2013 12:36:31 PM



Group Delta Consultants

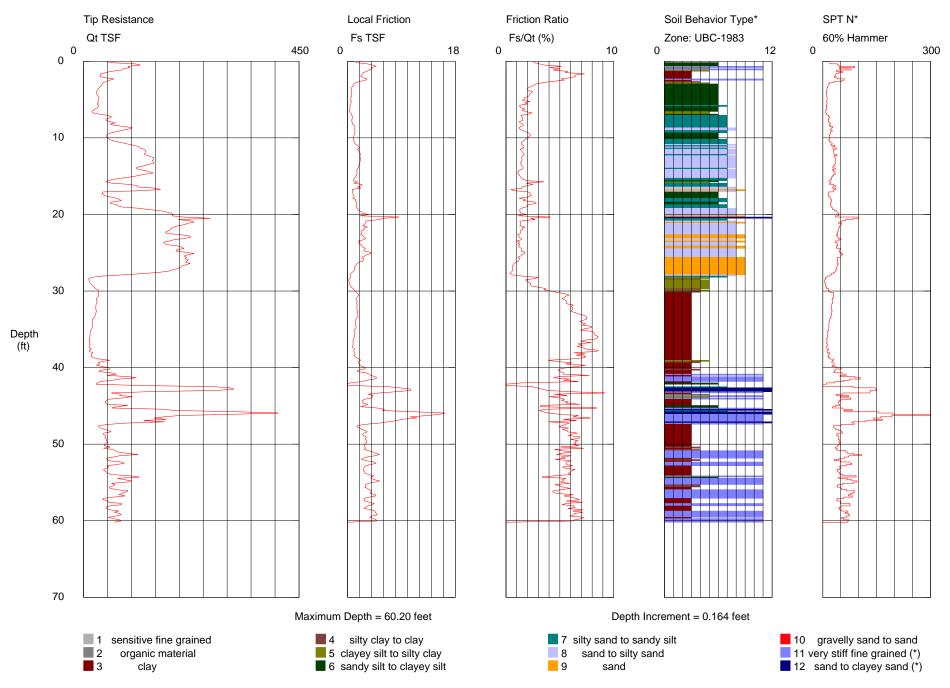
Appendix A-20 *

Operator: SA-RA

Sounding: CPT-16*
Cone Used: DSG1104

CPT Date/Time: 10/22/2013 1:23:21 PM

Location: Yucca Job Number: LA-1161



Group Delta Consultants

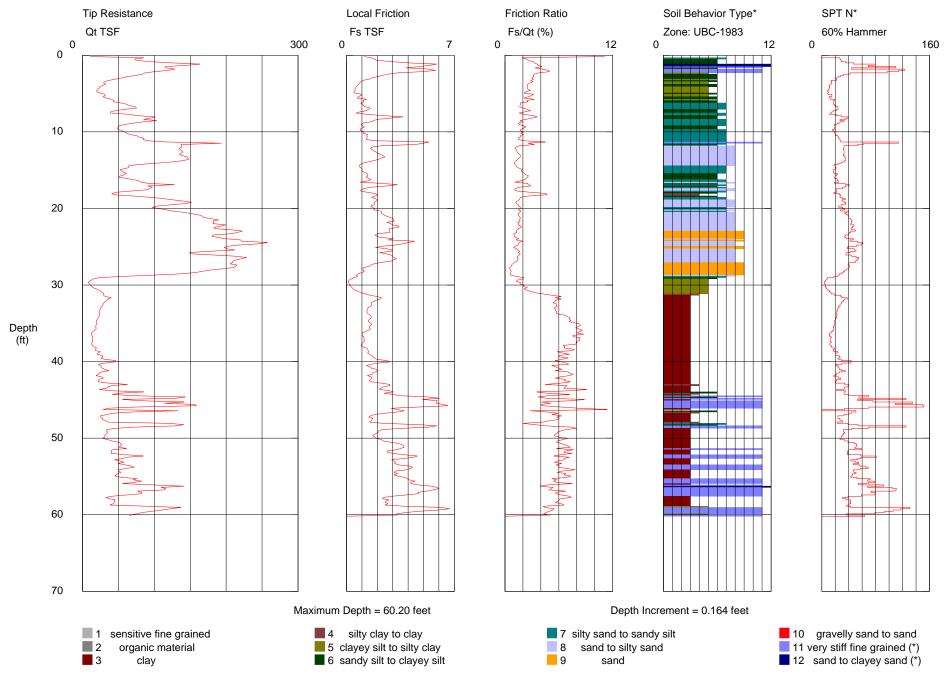
Appendix A-21^{*}

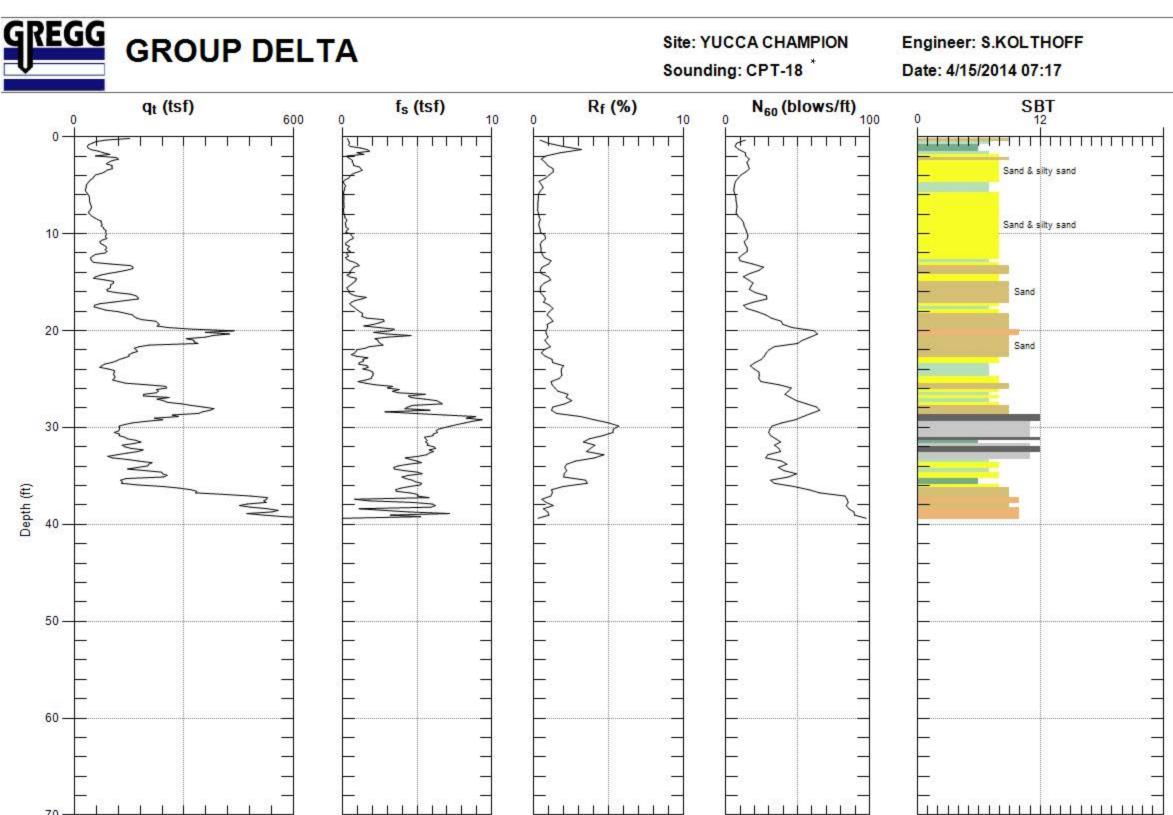
Operator: SA-RA

Sounding: CPT-17*
Cone Used: DSG1104

CPT Date/Time: 10/22/2013 2:11:19 PM

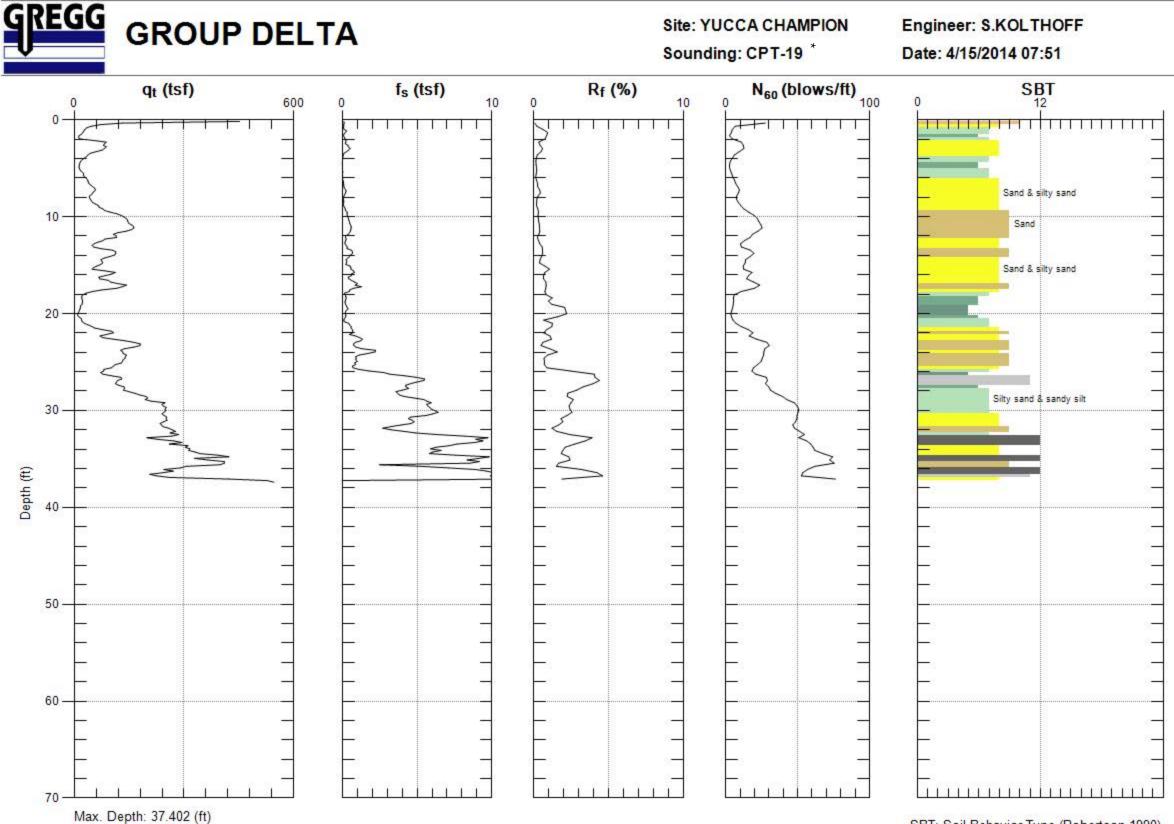
Location: Yucca Job Number: LA-1161





Max. Depth: 39.534 (ft)

Avg. Interval: 0.328 (ft)



Avg. Interval: 0.328 (ft)

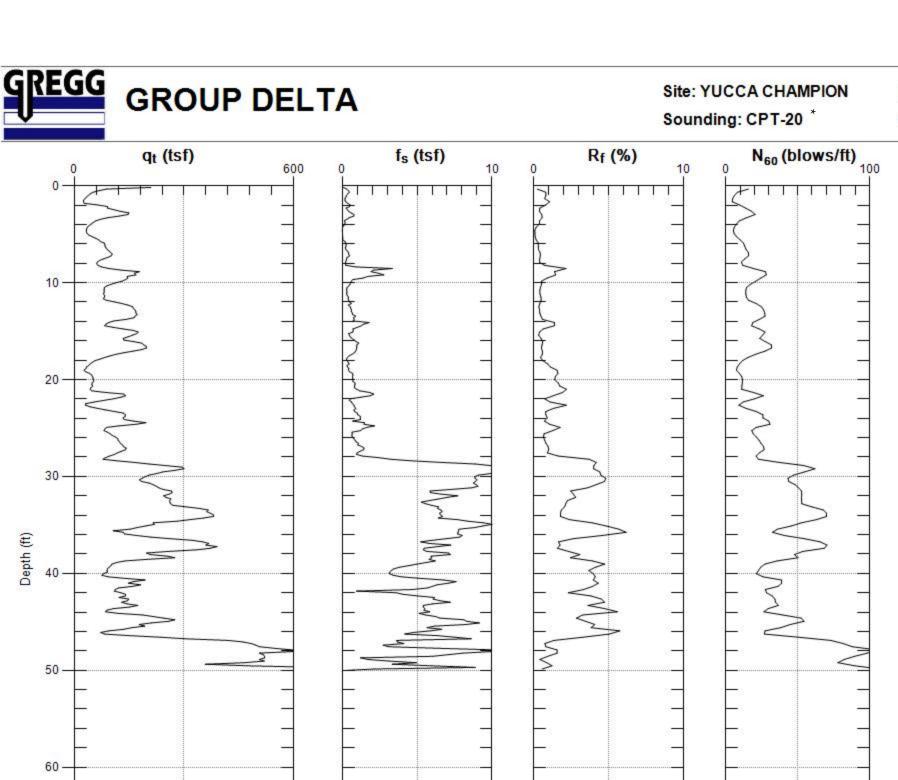
SBT 12

Sand & silty sand

Sand

Sand

Sand & silty sand

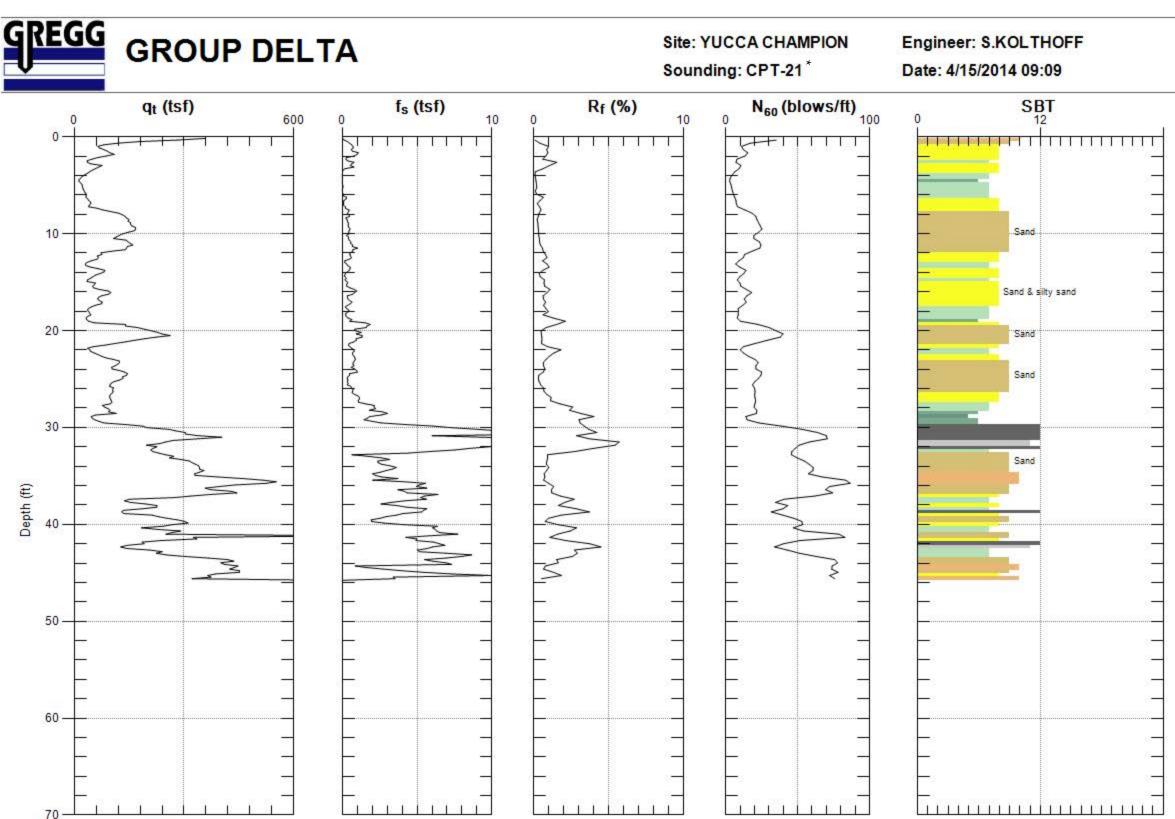


Max. Depth: 50.197 (ft)

Avg. Interval: 0.328 (ft)

Engineer: S.KOLTHOFF

Date: 4/15/2014 08:24



Max. Depth: 45.932 (ft)

Avg. Interval: 0.328 (ft)

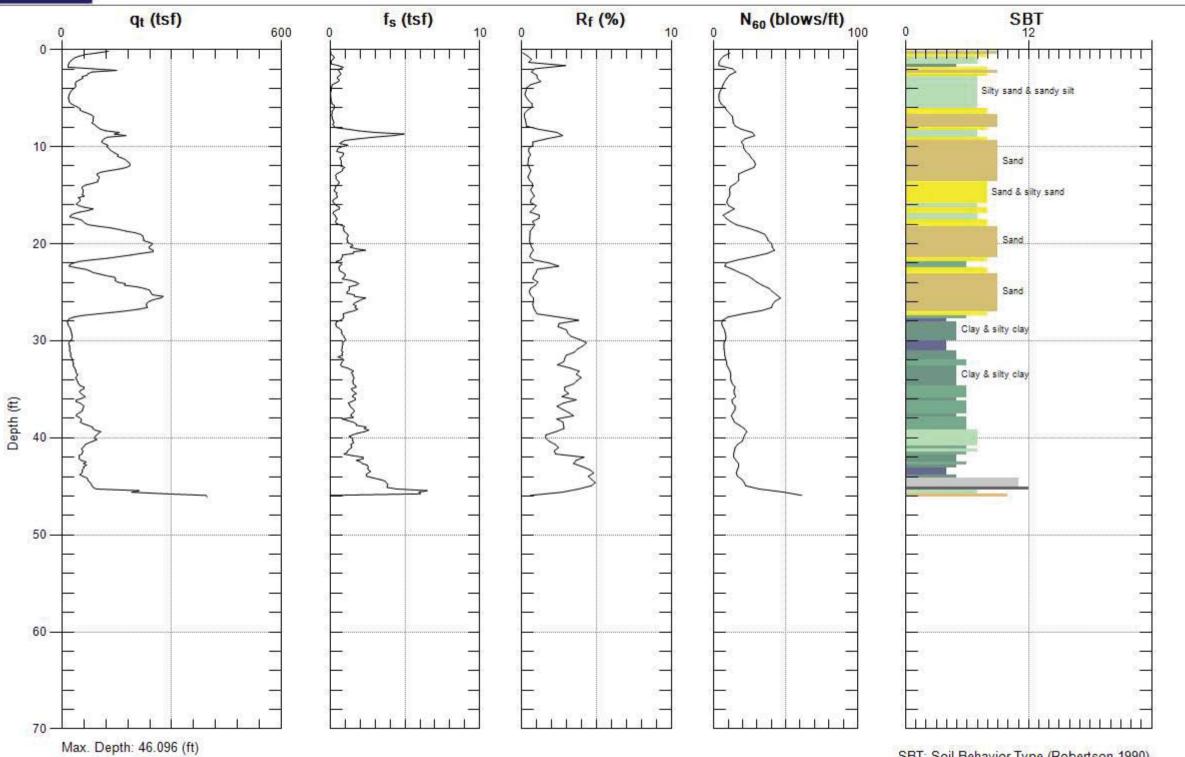


Avg. Interval: 0.328 (ft)

GROUP DELTA

Site: YUCCA CHAMPION Sounding: CPT-22 *

Engineer: S.KOLTHOFF Date: 4/15/2014 12:02



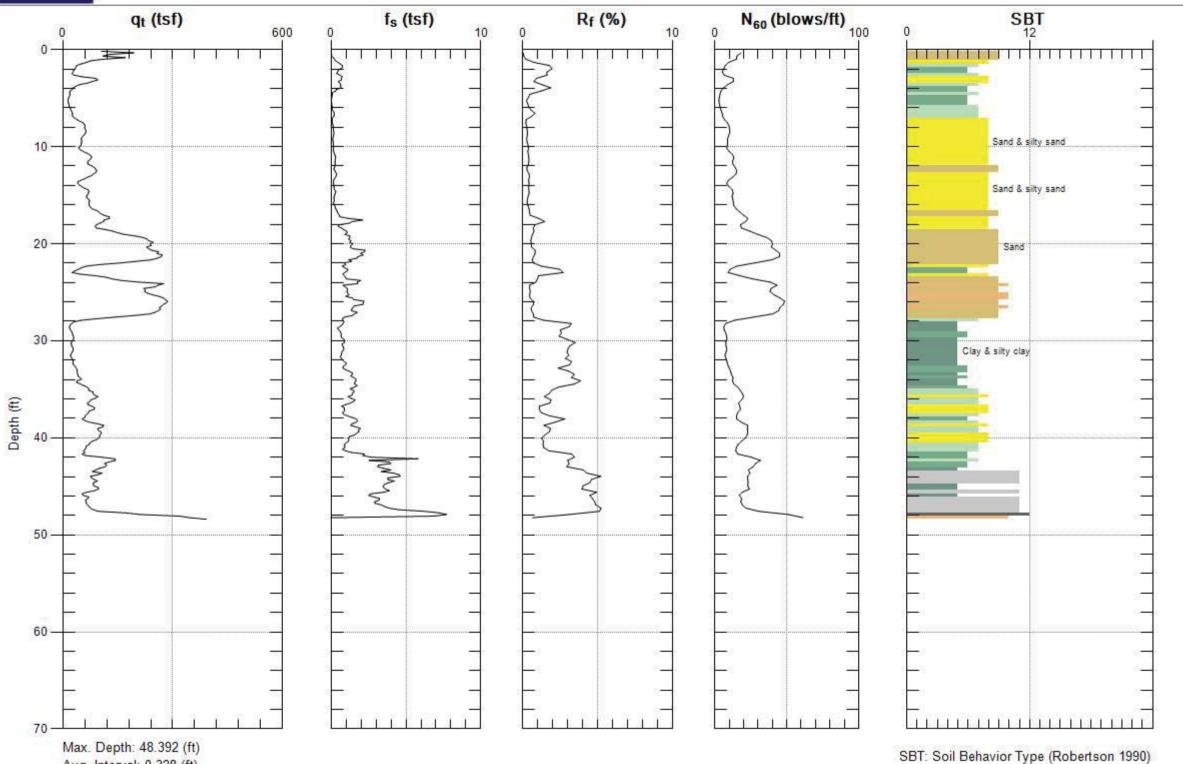


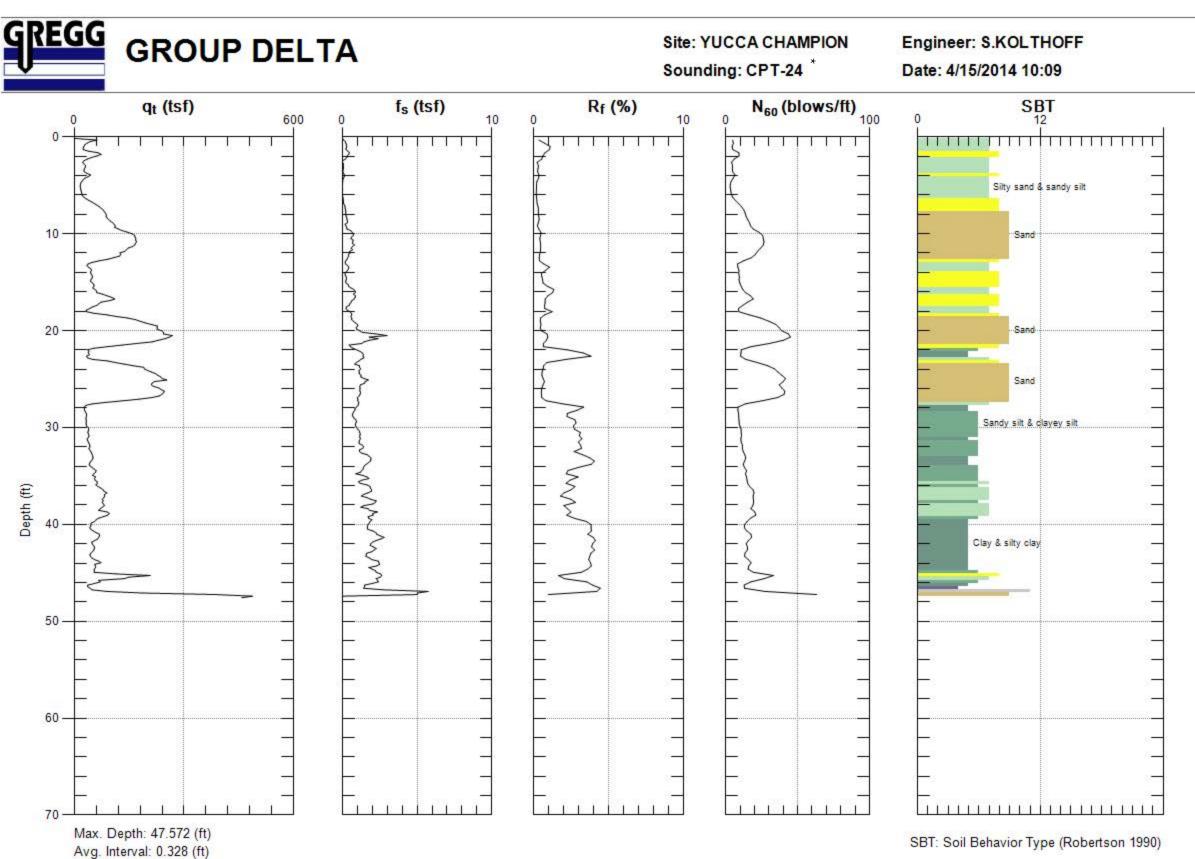
Avg. Interval: 0.328 (ft)

GROUP DELTA

Site: YUCCA CHAMPION Sounding: CPT-23*

Engineer: S.KOLTHOFF Date: 4/15/2014 11:25





00	G O	F	C)R	Ε	BC	RIN	3	PROJECT N	AME	PROJEC LA-1161	T NUMBER			ORING B-1*	
SITE	LOCA	TION	ı						DATE(S) DR	ILLED	LOGGE				HEET NO).
6230	Yucca	Stre	et, F	Hollyv	vood,	Ca			10/23/13 to 1		SS			1	of 4	
DRILL	ING N	/IETH	HOD						DRILL BIT S	SIZE/TYPE		CHECKED	BY		OTAL D	EPTH DRILLI
	v Stem								8"			SK	N F	`	,	60 L/BEARING
DRILI CME	RIG T	TYPE	Ε						DRILLED B			INCLINATIO				L/BEAKING
		GRO	OUN	DWA	TFR	DFP	TH (feet)		Gregg In-Sit	u Dhiing		APPROXIM		degree		=VATION
33		0				J	111 (1001)					(feet)		06 06	AOL LLI	ZVAIION
COM	/IENTS	3										BOREHOLE			L	
									I			Soil Cutting	S			
				RO	CK (CORE	.						ဟ			
(£)	ELEVATION (ft)							}					TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD
DEPTH (ft)	/ATIC	NO.	NO.	RECOVERY, %	FRAC. FREQ	% :.	FRACTURE DRAWING/ NUMBER	LITHOLOGY		MATERIAL DE	SCRIPTION		ŒR.	ORA'	ILL R	NOTES
	ELE	RUN NO.	BOX NO.	SOVE	AC. I	R.Q.D.,	RAW	=					PACKER	LAB.	PE	
			П	REC	FR	Ľ.	造									
								/ . /		at surface. gered to 5 feet bgs.		_				
-	4 05							//		Fill (Qaf)						
-	-								Sandy S	ILT, dark brown, mo	ist, fine to medic	ım sand.				
								<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>								
	_							<i>!:</i> !								
	_															
5								1.								
	400							<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>								
	_400	1						•	UPPER S	SAND UNIT (Qs)						
-	-							000	SAND, C	Coarse to fine graine	d, some silt and	fine				
				2.1/5					samples	umid to dry, granitic to be highly weather	ed with phenocr	ysts				
		2						000	weatherir and meta	ng to angular sand g a-quartzite gravels fo	rains. Volcanic und in the depor	(basalt?) sit were				
	_	_						000		to sub-rounded with ce. Abundant sub-ro						
10	_									ed outer surface sug						
	_395								10110 3/3	o (biowii).						
	000	3														
-	-			0 = /=												
-	_			2.5/5						SAND, some fine gra	vels humid box					
		4						(;)		h fingers or cut with		u iU				
	_							<i>[;;</i>								
15	-							1	MUD FLO	OW (Qm)						
.	_390							1.		SAND, grading down	to silty sand. me	oist to				
		5						<i>[:]</i>		YR 4/4 reddish brow						
-	_			3.5/5				<u> ``</u>								
-	-			J.0/0				1	OLDER A	ALLUVIUM (Qoal)						
	_	6						1		SAND, some fine gra	vale hard to hro	ak with				
									fingers a		vois, naiu to Die	an willi				
ROU	P GR						NSULT Suite B	AN	TS, INC.	THIS SUMMARY AF OF THIS BORING A SUBSURFACE CON LOCATIONS AND M WITH THE PASSAG PRESENTED IS A S	ND AT THE TIME IDITIONS MAY D IAY CHANGE AT E OF TIME. THE	OF DRILLING. IFFER AT OTHI THIS LOCATIO DATA	ER N	 FI	GURE	E A-31 a

DELTA

LO	G C	F	C	ЭR	Ε	ВО	RIN	G	PROJECT NAME SSV		PROJECT LA-1161A	NUMBER			ORING B-1 *	
SITE	LOCA	TION	N						DATE(S) DRILLED		LOGGED	BY			HEET N	0.
) Yucca				vood.	Ca		_	10/23/13 to 10/23/13		SS	ı			of 4	
	LING N								DRILL BIT SIZE/TYPE 8"	=		CHECKED	BY		OTAL D eet)	EPTH DRILL 60
	w Stem											SK	ON F	ROM V	/ERTIC	AL/BEARING
CME	_	116	_						DRILLED BY Gregg In-Situ Drilling					degree		
APP . 33	ARENT	GR	OUN	IDWA	TER	DEP	TH (feet)					APPROXIM (feet)	ATE	SURF		EVATION
COM	IMENTS	3										BOREHOLE		06 CKFIL	L	
								1				Soil Cutting	ıs 			
£	(£)		1	RO	CK (CORE	Ī	<u></u>					STS	ВY	'nЖ	
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATE	RIAL DESC	RIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES
	_385							<i> </i>								
		7							Clayey SAND, sor volcanic with some	meta quartzite	e, humid to m	noist,				
				2.6/5				<i>[</i>]	crumbles into chun zone at the base (2	iks between iin 23 feet).	gers, 3-inch	gravei				
-	-															
_		8						1.								
0.5																
-25								<i>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>	Sandy to Silty CL	AY, moist, plas	tic, 10YR 4/4	1 (dark	1			
-	_380	9							yellowish brown), r gray).	nottled to TUYF	k 6/1 (light gi	ay to				
_								1,								
			-	4/5												
-								1.								
-	_	10						11/2								
30																
-30								1.	Clayey SAND, fine	grained sand.						
-	_375	11														
								1.								
				3.5/5					SAND to Clayey S brown), in contact	SAND , wet, 10Y with silty clay a	'R 4/6 (stronet 34 feet, 7.5	g YR 4/6				
-								1.	(strong brown)Ground water							
-	-	12														
35	L							//	 							
									Clayey SAND, mo 2.5 Y 5/4 (light oliver)	ttled 7.5 YR 4/6 e brown), sand	6 (strong bro mostly fine	wn) to to silt				
-	_370	13						\\ ;	throughout.	,,	. ,					
_	_							1.								
			-	2.8/5				<i>[</i> ; <i>]</i>								
_								1.								
-	-	14														
								1,								
RO	UP		JP I	DEI	TΔ	CO	ד ווופע	- Δ N		MMARY APPLIE BORING AND A						
7									SUBSUR	FACE CONDITI	ONS MAY DI	FFER AT OTH	ER		O. 15.	- 4 6 4 :
		•				•	Suite B		WITH TH	IE PASSAGE OF	TIME. THE	DATA		Fl	GURI	E A-31 k
	'		Irv	ine	CA	92	2618			ONS ENCOUNT						

LO	G C	F	CC	DR	Εl	30	RIN	3	PROJECT NAME SSV	PROJEC LA-1161A	T NUMBER			ORING B-1 *	
_	LOCA								DATE(S) DRILLED	LOGGED	ВҮ			HEET Not 4	0.
	Yucca		-	lollyw	ood,	Ca			10/23/13 to 10/23/13 DRILL BIT SIZE/TYPE	SS	CHECKED	RV			EPTH DRILL
	w Stem		_						8"		SK	ы		eet)	60
	L RIG								DRILLED BY			ON F	ROM V	ERTICA	AL/BEARING
CME									Gregg In-Situ Drilling				degree		
APP / 33	ARENT	GR	OUN	DWA	TER	DEP.	TH (feet)				APPROXIN (feet)		SURF 06	ACE EL	EVATION
COM	MENTS	3									BOREHOL Soil Cutting		CKFIL	L	
				RO	ск с	ORE					,				
Œ	N (ft							}				LEST	TORY S	ATE, OUR	FIELD
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DES	CRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	NOTES
		R.	ВО	RECC	FRA(R.O.	FRA DRA					PA	ם		
	005								CLAY to Silty CLAY, moist, har angular blocks, squeezes when	pinched betw	een				
_	365	15							fingers, 5Y 5/2 (olive gray), coa for 2-inches and at tip.	rse sand at 43	3.5 feet				
_	-			- /-											
_	_			5/5											
_	_	16													
45															
_45				_					SAND to Clayey SAND, wet to sand sub-rounded to sub-angula	saturated, sor	ne silt,	1			
_	360	17							with trace of mica and heavy min (brown).	nerals, 7.5 YF	2 5/4				
_	_								(Stown).						
_				2.8/5											
		18													
_															
_5 0	_								Silty to Sandy CLAY to Clayey	SIL Ţ7.5 YR	4/4	1			
_	355	19							(brown).						
_	_	10													
				2.6/5											
_		20													
_		20							Gravel and Sand Conglomera	e poorly cem	ented,	-			
- 55	L							۵ ۵	angular to subangular clast.						
_	_350								MODEL C FORMATION (T.)						
									MODELO FORMATION (Tm)	du	_				
_		21		5/5					SILTSTONE, wet, thinly bedded	with sandstoi	ie.				
_	_														
_	_														
GROU	GF							AN	TS, INC. THIS SUMMARY APPL OF THIS BORING AND SUBSURFACE CONDITIONS	AT THE TIME ΓΙΟΝЅ MAY DI	OF DRILLING FFER AT OTH	i. IER			
						•	Suite B 2618		LOCATIONS AND MAY WITH THE PASSAGE C PRESENTED IS A SIM CONDITIONS ENCOU	OF TIME. THE PLIFICATION (DATA		FI	GURI	E A-31

32 Mauchly, Suite B Irvine, CA 92618

LOG OF CORE BORING	PROJECT NAME SSV	PROJECT LA-1161A	NUMBER			ORING B-1*	
SITE LOCATION	DATE(S) DRILLED	LOGGED	ВҮ		S	HEET N	0.
6230 Yucca Street, Hollywood, Ca	10/23/13 to 10/23/13	SS			4	of 4	
DRILLING METHOD	DRILL BIT SIZE/TYPE	·	CHECKED I	вү			EPTH DRILLE
Hollow Stem Auger	8"		SK		(f	eet)	60
DRILL RIG TYPE	DRILLED BY		INCLINATIO	N FR	OM V	/ERTIC	L/BEARING
CME 95	Gregg In-Situ Drilling			0 d	egree	es	
APPARENT GROUNDWATER DEPTH (feet) 33			APPROXIMA (feet)	ATE S	_	ACE EL	EVATION
COMMENTS			BOREHOLE	ВАС	KFIL	L	
			Soil Cuttings	s			
ROCK CORE				ESTS	ORY S	ATE, JUR	

Į										301	ii Cuttings	•			
	Ð	(ft)			RO	CK C	ORE	Ξ	<u>></u> ;			STS	RY	म्,ह्र	
	DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESCRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES
	_	_345								Total Depth: 60 Feet bgs Groundwater: Encountered at 33 Feet Boring backfilled with tamped cuttings					
•	_	_													
	 65	_													
	_	_340													
4	_	_													
GDT 10/23/1	 70	_													
GPJ ROCK2.	_	_335 _													
OCK CORES.	_	_													
OGS WITH R	 75	_													
161 BORING L	- -	_330 _													
RE_ENG_REV LA-1161 BORING LOGS WITH ROCK CORES.GPJ ROCK2.GDT 10/23/14	_	_													
EŅ.															

GROUP DELTA CONSULTANTS, INC.

32 Mauchly, Suite B Irvine, CA 92618

DELTA

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE A-31 d*

_O	GC	F	C	ЭR	Ε	BC	RIN	G	PROJECT NAM SSV	ΛE	PROJECT LA-1161A	NUMBER		- 1	ORING B-2*	
SITE	LOCA	TION	١					\dagger	DATE(S) DRIL	LED	LOGGED			S	HEET N	O .
	O Yucca				vood,	Ca			10/23/13 to 10/	23/13	SS	1			of 4	
	LING N								DRILL BIT SIZ	E/TYPE		CHECKED	BY		OTAL D	EPTH DRILL
	w Stem											SK	ON F	١,	•	60 L/BEARING
CME	_		_						DRILLED BY Gregg In-Situ	Drilling				degree		
	ARENT	GR	OUN	IDWA	TER	DEP	TH (feet)		33 - 2			APPROXIM				EVATION
34												(feet)		07		
COM	IMENTS	3										BOREHOLI		CKFIL	L	
	I	Π						1				Soil Cutting	js 	1		
	(£			RO	CK (ORE	≣	\ -					STS	l ≿	₁	
DEPTH (ft)	NOI			%,	g	۰,0	ш»	LITHOLOGY		AATEDIAL DEGG	DIDTION		PACKER TEST	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD
ЭЕРТ	ELEVATION	RUN NO.	BOX NO.	RECOVERY,	FRAC. FREQ	R.Q.D., %	FRACTURE DRAWING/ NUMBER	1		MATERIAL DESC	KIPTION		 XER	BOR, TES	SILL EET/I	NOTES
_	=======================================	RU	BO	000	RAC.	R.Q.	-RAC DRAI	=					PAC	\$		
				8	<u> </u>				Asphalt at s	ourface						
								1	Hand auge	red to 5 feet bgs.			-			
-								[;;	Artificial F							
_	-4 05							1	Sandy SIL	r , dark brown, moist,	fine to mediu	m sand				
_	_							[:/								
_								1.								
_5	-							<i>[::</i>								
_								1.								
	400	1														
_	_400			1.5/5				1								
_	-							•••	UPPER SA	ND UNIT (Qs)			-			
_	L	2														
40								000								
_10									SAND, coa	rse to fine grained, so nid to dry, granitic grav	ome silt and fi	ine				
_	-	3		1.25/	5				samples to	be highly weathered v	with phenocry	/sts				
_	395			0,					and meta-o	to angular sand grain uartzite gravels found	in the depos	it were				
			-						$-$ \ the surface	sub-rounded with slig . Abundant sub-round	ded quartz sa	nd grains /	-			
_								1	\ \ \ \ with frosted	outer surface sugges es throughout 10YR 4	ting fluval in	origin. /				
_	-	4		2/2.5					Clayey SA	ND, humid, mild soil d	evelopment,	'				
_15								\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	wormholes	ith fingers, abundant in holes coated with cla	y.					
-									5YR 4/4 (re	NGLOMERATE, with oddish brown) grading	down to a cla	ayey				
_		5	2	.2/2.	5			• • • •	sand minus	gravel 7.5 YR 5/4 (br I wormholes, platy frac	own). Abund	ant /				
_	_390								` \perpendicu	lar to core barrel.		/				
_	L							,,,,	gravel, hum	rse to fine grained, so nid to dry, granitic grav	els were four	nd in				
-		6	,	2/2	Ĺ			°°°	weathering	be highly weathered to angular sand grain	s. Volcanic (basalt?)				
-	-	6	2	2.2/2.					and meta-o	uartzite gravels found sub-rounded with slig	in the depos	it were				
	L							000		. Abundant sub-round						
ROI	UPGF	: N	JP I	DFI	ΤΔ	CO	NSIII T	ΓΔΝ		THIS SUMMARY APPLIEDF THIS BORING AND A					_	
										SUBSURFACE CONDIT OCATIONS AND MAY	IONS MAY DI	FFER AT OTH	ER		O1 10 1	- ^ ^
		•				•	Suite B)	١	VITH THE PASSAGE OPRESENTED IS A SIMP	F TIME. THE	DATA		FI	GURE	E A-32
	1		Irvi	ine	$C.\Delta$	92	2618			CONDITIONS ENCOUN				1		

LO	G O	F	C	ЭR	Ε	BO	RIN	G	PROJECT NA	AME	PROJECT LA-1161A	NUMBER			ORING B-2*	
SITE	LOCA	TION	ı						DATE(S) DR	ILLED	LOGGED	ВҮ			HEET N	0.
) Yucca				vood,	Ca			10/23/13 to 1		SS	T			of 4	
	LING N		_						DRILL BIT S	IZE/TYPE		CHECKED	BY		OTAL D	EPTH DRILLE
	w Stem								8"			SK INCLINATION	N F	Ι,	•	60 AL/BEARING
CME	. L RIG 1	IYP	=						Gregg In-Site			IIIO E III A		degree		ALJ DEARING
		GRO	OUN	IDWA	TER	DEP	TH (feet)	<u> </u>	Orogg III Oli	a Diming		APPROXIM				EVATION
34							(,					(feet)		07		
COM	MENTS	3										BOREHOLE Soil Cutting		CKFIL	L	
((ft)			RO	CK (ORE	<u> </u>	_ - ≿					STS	RY	ᆔᄶ	
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY		MATERIAL DESC	CRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES
_	385	7		2.8/3				//://://	suggestin		4 (Dark Yello	wish				
- - 25		8		2.8/3					developm fingers 7. siltstone v reddish cl (Reddish	AND to Silty Claysligh nemnt, crumbles in to blo 5 YR 4/6 (Strong Brown with layers of gravel con lay infilling the gravel, m Brown) and 10YR 6/1 (ocky pieces b i), with claystoglomerate ar nottled 5YR 4	petween one and and				
_	380	9	2	2.2/2.	5				Clayey S	ALLUVIUM (Qoal) AND and Gravemix of sof weathered bedrock,	sands and gr clay, and silt	ravel estone.				
- 30		10	2	2.5/2.	5											
_	375	11	2	2.4/2.	5											
_ _ _35		12	2	2.4/2.	5				-Ground v	water						
_	370	13	2	.25/2	.5											
_		14	2	.15/2	.5				Increase	in clay, and weathered l	bedrock.					
GROU	UP GF	3	32	Maı	uch	ly, S	NSUL ⁻ Suite E 2618		TS, INC.	THIS SUMMARY APPLI OF THIS BORING AND SUBSURFACE CONDIT LOCATIONS AND MAY WITH THE PASSAGE O PRESENTED IS A SIMP CONDITIONS ENCOUN	AT THE TIME TONS MAY DI CHANGE AT F TIME. THE PLIFICATION O	OF DRILLING. FFER AT OTHE THIS LOCATIO DATA	ER N	FI	GURI	E A-32 b*

_0	G C	F	C	ЭR	Ε	BC	RIN	G	PROJECT NAME SSV	PROJECT LA-1161A	NUMBER			ORING B-2*	
SITE	LOCA	TION	ı						DATE(S) DRILLED	LOGGED	ВҮ		S	HEET N	0.
6230) Yucca	a Stre	et, F	Hollyv	vood	, Ca			10/23/13 to 10/23/13	SS			3	of 4	
	LING N w Stem								DRILL BIT SIZE/TYPE 8"		CHECKED SK	BY		OTAL D	EPTH DRILL 60
	L RIG								DRILLED BY			ON F	ROM \	/ERTIC	AL/BEARING
CME									Gregg In-Situ Drilling			0	degree	es	
	ARENT	GRO	OUN	DWA	TER	DEP	TH (feet)				APPROXIM	ATE	SURF	ACE EL	EVATION
34											(feet)	4	07		
COM	MENTS	S									BOREHOLE Soil Cutting		CKFIL	L	
	£			RO	CK (CORE	<u> </u>				1	မှ	_		
(<u>#</u>)	J) NC			%	بخ		1115	+ ₹				TEST	TOR'	ATE, OUR	FIELD
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DE	SCRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	NOTES
								.00							
-		15	2	.5/2.	5				Weathered Zone		- — — — — -				
-	<u> 365 </u>			_											
_		16	2	2.3/2.	5										
_									MODELO FORMATION (Tm)			1			
4 5	_			-					Siltstone and Sandstone we mudstone.	t, thinly interbed	ded				
_	_	17	-	2.5/2.					muusione.						
_	360	'	2	1.5/2.	D										
		\vdash													
_															
-	_	18	2	.5/2.	Þ										
-50	_			_											
_															
	055	19	2	.5/2.	5										
-	_355														
-	-														
_	<u> </u>	20	2	35/2	5										
-55				L											
00															
_	_														
_	_350														
_	_	21		5/5											
_	_														
ROU	JP								THIS SUMMARY AP				<u> </u>		
>	GF								OF THIS BORING AT SUBSURFACE CON LOCATIONS AND M	ND AT THE TIME DITIONS MAY DI	OF DRILLING. FFER AT OTH	ER			
						-	Suite B	}	WITH THE PASSAG PRESENTED IS A S	OF TIME. THE	DATA		FI	GURI	E A-32
	*		1		\sim	00	2618		CONDITIONS ENCO		JI THE ACTUA	\L	1		

LO	G C	F	C	DR	Ε	ВО	RINC	3	PROJECT NAME SSV	PROJECT LA-1161A	T NUMBER			ORING B-2*	
SITE	LOCA	TION	1						DATE(S) DRILLED	LOGGED	ВҮ		S	HEET N	Ο.
6230) Yucca	Stre	et, F	lollyv	vood,	Ca			10/23/13 to 10/23/13	SS			4	of 4	
	LING I		_						DRILL BIT SIZE/TYPE 8"		CHECKED SK	BY	1 -	OTAL D	DEPTH DRILLE
DRIL CME	_	RIG TYPE							DRILLED BY Gregg In-Situ Drilling		INCLINATIO	-	ROM \	_	AL/BEARING
APP / 34	ARENT	RENT GROUNDWATER DEPTH (feet				DEP	TH (feet)	·			APPROXIM (feet)		SURF	ACE EL	EVATION.
СОМ	MENT	S									BOREHOLE	ЕΒΑ	CKFIL	L	
											Soil Cutting	js			
·	(ft)			RO	CK C	ORE		٠,				TESTS	RY	ய் 🗠	
DEPTH (ft)	ELEVATION (#)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DE	SCRIPTION		PACKER TES	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES

Total Depth: 60 Feet bgs Groundwater: Encountered at 34 Feet Boring backfilled with tamped cuttings -345 -65 -340 GDC_ROCK_CORE_ENG_REV LA-1161 BORING LOGS WITH ROCK CORES.GPJ ROCK2.GDT 10/23/14 _335 -75 -330 GROUP

GROUP DELTA CONSULTANTS, INC.

32 Mauchly, Suite B Irvine, CA 92618

THIS SUMMARY APPLIES ONLY AT THE LOCATION
OF THIS BORING AND AT THE TIME OF DRILLING.
SUBSURFACE CONDITIONS MAY DIFFER AT OTHER
LOCATIONS AND MAY CHANGE AT THIS LOCATION
WITH THE PASSAGE OF TIME. THE DATA
PRESENTED IS A SIMPLIFICATION OF THE ACTUAL
CONDITIONS ENCOUNTEDED. CONDITIONS ENCOUNTERED.

FIGURE A-32 d*

_0	G O	F	C)R	Ε	ВО	RIN	\exists	PROJECT NA	AME	PROJECT LA-1161A	T NUMBER			ORING B-3 *	
SITE	LOCA	TION	1						DATE(S) DRI	ILLED	LOGGED	ВҮ		S	HEET N	0.
) Yucca			Hollyv	vood,	Ca			10/24/13 to 1	0/24/13	SS				of 3	
	LING N								DRILL BIT S	IZE/TYPE		CHECKED	BY		OTAL D	EPTH DRILLE
	w Stem							_	8"			SK INCLINATION	N FI	`		50 AL/BEARING
DRIL CME	L RIG	TYPE	E						Gregg In-Situ			INCLINATIO		degree		ALIBEARING
		GRO	OUN	DWA	TER	DEP	ΓΗ (feet)		Oregg III-Oll	d Drilling		APPROXIMA				EVATION
29							(,					(feet)		09		21/11/01/
СОМ	MENTS	3										BOREHOLE			L	
	1							1	1			Soil Cuttings	s			
	_			RO	CK (CORE	:						W			
Œ	N (#)			8	<u> </u>			 ≽					EST(ORY 3	ATE, JUR	F:=: -
DEPTH (ft)	ELEVATION (#)	RUN NO.	BOX NO.	RECOVERY, 9). FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	ПТНОСОСУ		MATERIAL DESC	RIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES
		RUI	BO	RECO	FRAC.	R.Q	FRA(DRA						PA(ΓÀ	QH	
								/ ;	Asphalt a	t surface. ered to 5 feet bgs.						
	_							//	Artificial							
	_								Sandy SI	LT, dark brown, moist, f	fine to mediu	m sand.				
								<i>(</i>);								
								[;								
	405							<i>()</i> ;								
5	_							·/·								
<u>.</u>								1								
		1	1	.5/2.	5			<i>'.';</i>								
	_															
	_								(IPPER S	SAND UNIT (Qs)						
	_400	2		2/2.5						,	me cilt and fi	ne				
	100								gravel to	parse to fine grained, sou cobbles thoughout, hum	id to dry, gra	nitic				
10	_							000	phenocry	samples were highly w sts weathering to angula	ar sand to fin	e gravel.				
	_	3	1	.5/2.	5				brown, al	fine clayey sands 10YR bundant quartz and mic	a. Volcanic	(basalt?)				
		١	,	.5/2.					and meta sub-round	-quartzite gravels depos ded with slight to no wea	sits were rou athering on th	nded to ne				
								000	surface.	Abundant sub-rounded of outer surface sugges	quartz sand	grains				
-	_								Clayey zo	ones throughout 10YR 4	/4 dark yello	wish				
	395	4	1	.5/2.	5				Siowii.							
15								000								
. 5																
	_	5	1	.1/2.	[5											
	_							000								
		ا ا		2/2					-l aver of	Clayey SAND, humid, n	nild soil deve	lonment				
-	390	6		.2/2.	١			000	crumbles	with fingers, abundant r	ootlet casts	and				
ROU	<u>L</u>							000	wormnole	s, holes coated with cla	y, approxima	itely 1.5				
ROI	JP ■ GF	ROL	JP [DEL	.TA	COI	NSULT	'AN	TS, INC.	THIS SUMMARY APPLIE OF THIS BORING AND	AT THE TIME	OF DRILLING.				
2							uite B		, -	SUBSURFACE CONDIT	CHANGE AT	THIS LOCATION			CHDI	E A-33 a
						-				WITH THE PASSAGE O PRESENTED IS A SIMP	LIFICATION (L	ر ا	GUKI	∟ A-33 8
ר די	ΓA		Irvi	ne,	CA	92	618			CONDITIONS ENCOUN	TERED.	OF THE ACTUA	·L			

DELTA

T. Hollywoo DD T WNDWATE ROCK ON XON ON XON ON XON 1.5/2.5	CORI		LITHOLOGY	DATE(S) DRILLED 10/24/13 to 10/24/13 DRILL BIT SIZE/TYPE 8" DRILLED BY Gregg In-Situ Drilling MATERIAL DES	SCRIPTION	CHECKED SK	0 ATE 4 E BA	T (f) ROM \ degree SURF	feet) /ERTICA es FACE EL	EPTH DRILL 50 AL/BEARING
ROCK ON COR STATE OF THE PROPERTY OF THE PROP	CORI	E		DRILL BIT SIZE/TYPE 8" DRILLED BY Gregg In-Situ Drilling MATERIAL DES		SK INCLINATION APPROXIM (feet) BOREHOLE	ON F 0 ATE 4 E BA	T (f	FOTAL D feet) /ERTICA SACE EL	50 AL/BEARING EVATION FIELD
ROCK SOR	CORI	E		8" DRILLED BY Gregg In-Situ Drilling MATERIAL DES	SCRIPTION	SK INCLINATION APPROXIM (feet) BOREHOLE	ON F 0 ATE 4 E BA	degree SURF 09 CKFIL	feet) VERTICA PS VACE EL	50 AL/BEARING EVATION FIELD
ROCK SOURCE STATE	CORI	E		DRILLED BY Gregg In-Situ Drilling MATERIAL DES	SCRIPTION	APPROXIM (feet)	0 ATE 4 E BA	ROM \ degree SURF 09 CKFIL	VERTICA es FACE EL	EVATION FIELD
ROCK S, YON YOU SOON YOU SECONDARY 1.5/2.5	CORI	E		Gregg In-Situ Drilling MATERIAL DES	SCRIPTION	APPROXIM (feet)	0 ATE 4 E BA	SURF 09 CKFIL	es FACE EL	EVATION FIELD
ROCK S, YON YOU SOON YOU SECONDARY 1.5/2.5	CORI	E		MATERIAL DES	SCRIPTION	(feet)	ATE 4 E BA	SURF 09 CKFIL	L	FIELD
ROCK S, YON YOU SOON YOU SECONDARY 1.5/2.5	CORI	E			SCRIPTION	(feet)	4 E BA	09 CKFIL	L	FIELD
2.4/2.5	%0		LITHOLOGY		SCRIPTION		E BA	CKFIL		
2.4/2.5	%0				SCRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	
2.4/2.5 1.5/2.5	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOG		SCRIPTION		PACKER TES	LABORATOR	DRILL RATE FEET/HOUF	
1.5/2.5				feet in thickness						
1.5/2.5							1			
1 1/2 5			l° ° 1							
1 1/2 E				Clayey SAND to Silty CLAYn	natrix mostly gr	avel				
II. I/∠.Đ				conglomerate with reddish clay (strong brown), mottled to 10YI MUD FLOW (Qm)	r infilling gravel R 6/1 (light gra	, 5YR 4/6 y to gray).	-			
2.5/2.5				(Yellowish Brown)Ground water						
3.0/3.0				Sandy CLAY, mild soil develop fine gravel, 7.5 YR 3/2 (dark br fingers, moist to wet.	oment, with tra own) crumbles	ce of between				
				OLDER VITTIVITM (Ocal)						
2.0/2.0				Conglomerate clayey sand ma	atrix, mostly gr meta-quartzite,	avel and 7.5 YR				
2.0/2.5				,						
1.75/2.5										
	3.0/3.0 2.0/2.0 2.0/2.5 1.75/2.5	3.0/3.0 2.0/2.0 2.0/2.5 1.75/2.5	3.0/3.0 2.0/2.0 2.0/2.5 1.75/2.5	2.0/2.0 2.0/2.5 1.75/2.5	2.5/2.5 3.0/3.0 Sandy CLAY, mild soil develop fine gravel, 7.5 YR 3/2 (dark bringers, moist to wet. OLDER ALLUVIUM (Qoal) Conglomerate clayey sand macobbles size clasts, abundant red. 2.0/2.5 1.75/2.5 THIS SUMMARY APP	2.5/2.5 -Ground water Sandy CLAY, mild soil development, with training gravel, 7.5 YR 3/2 (dark brown) crumbles fingers, moist to wet. OLDER ALLUVIUM (Qoal) Conglomerate clayey sand matrix, mostly gracobbles size clasts, abundant meta-quartzite, 4/4 (Brown to Dark Brown) THIS SUMMARY APPLIES ONLY AT	3.0/3.0 Sandy CLAY, mild soil development, with trace of fine gravel, 7.5 YR 3/2 (dark brown) crumbles between fingers, moist to wet. OLDER ALLUVIUM (Qoal) Conglomerate clayey sand matrix, mostly gravel and cobbles size clasts, abundant meta-quartzite, 7.5 YR 4/4 (Brown to Dark Brown) THIS SUMMARY APPLIES ONLY AT THE LOCATION	2.0/2.5 (Yellowish Brown). -Ground water Sandy CLAY, mild soil development, with trace of fine gravel, 7.5 YR 3/2 (dark brown) crumbles between fingers, moist to wet. OLDER ALLUVIUM (Qoal) Conglomerate clayey sand matrix, mostly gravel and cobbles size clasts, abundant meta-quartzite, 7.5 YR 4/4 (Brown to Dark Brown) 1.75/2.5 THIS SUMMARY APPLIES ONLY AT THE LOCATION	2.5/2.5 -Ground water Sandy CLAY, mild soil development, with trace of fine gravel, 7.5 YR 3/2 (dark brown) crumbles between fingers, moist to wet. OLDER ALLUVIUM (Qoal) Conglomerate clayey sand matrix, mostly gravel and cobbles size clasts, abundant meta-quartzite, 7.5 YR 4/4 (Brown to Dark Brown) 2.0/2.5 THIS SUMMARY APPLIES ONLY AT THE LOCATION	2.5/2.5 -Ground water Sandy CLAY, mild soil development, with trace of fine gravel, 7.5 YR 3/2 (dark brown) crumbles between fingers, moist to wet. OLDER ALLUVIUM (Qoal) Conglomerate clayey sand matrix, mostly gravel and cobbles size clasts, abundant meta-quartzite, 7.5 YR 4/4 (Brown to Dark Brown) 2.0/2.5 THIS SUMMARY APPLIES ONLY AT THE LOCATION

32 Mauchly, Suite B Irvine, CA 92618

LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

				OR	E	ВС	RIN	G	PROJECT NAME SSV	LA-1161				ORING B-3* HEET N	0
6230	LOCA O Yucca LING N	Stre	eet, I		vood,	Са			DATE(S) DRILLED 10/24/13 to 10/24/13 DRILL BIT SIZE/TYPE	SS SS	CHECKED	BY	3 T	3 of 3	O. DEPTH DRILI
	w Stem								8" DRILLED BY Gregg In-Situ Drilling		SK		'	VERTICA	50 AL/BEARIN O
APP 29	ARENT		OUN	IDWA	TER	DEP	TH (feet)	ı	Gregg III-Gita Dillilling		APPROXIM (feet)	ATE 4	SURF	ACE EL	EVATION
COM	IMENTS	S 						1	I		Soil Cutting		CKFIL	. L	
(ft)	(#) Z		1	RO %	Ι.	ORE		 ≿g				ESTS	ORY	VTE,	
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, 9	FRAC. FREQ	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERI	AL DESCRIPTION	I	PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES
_		15	2	2.0/2.	5				Clayey SAND to Silty of clay 7.5 R 3/6 (dark	SAND with fine gravered).	rel streaks				
_			-						MODELO FORMATION	ON (Tm) one, thinly bedded, we	st .				
- -45	_365 _	16	2	2.5/2.	5				Siltstone 10YR 6/4 (liq claystone 5Y6/1 (gray	ht yellowish brown) ar	id				
-	_														
_	 360	17	3	3.75/5	.0										
_50 _	_								Total Depth: 50 Feet I Groundwater: Encour Boring backfilled with	tered at 29 Feet					
_	 355														
–55 –	_														
- -	 350														
GROT	UP GF								ITS, INC. OF THIS BO SUBSURFA	ARY APPLIES ONLY A' RING AND AT THE TIM CE CONDITIONS MAY	E OF DRILLING. DIFFER AT OTH	ER			
DEL!	(ΓΑ						Suite B 2618	,	WITH THE F PRESENTE	S AND MAY CHANGE AT PASSAGE OF TIME. TH D IS A SIMPLIFICATION S ENCOUNTERED.	E DATA		FI	IGUR	E A-33

_O	G O	F	C	DR	Ε	BO	RIN	$\exists $	PROJECT NA	AME	PROJECT LA-1161A	T NUMBER		- 1	ORING B-4*	
SITE	LOCA	TION	N						DATE(S) DRI	LLED	LOGGED	BY		_	HEET N	0.
6230) Yucca	Stre	eet, F	Hollyv	vood,	Ca			10/24/13 to 1		SS			1	of 3	
DRIL	LING N	ΛΕΤΗ	HOD					İ	DRILL BIT S	IZE/TYPE		CHECKED	BY			EPTH DRILL
Hollo	w Stem	n Aug	ger						8"			SK		'	feet)	40
DRIL	L RIG	TYPI	E						DRILLED BY	•		INCLINATIO	ON FI	ROM \	/ERTIC	AL/BEARING
CME									Gregg In-Situ	u Drilling				degree		
APP . 29	ARENT	GR	OUN	IDWA	TER	DEP	ΓΗ (feet)					APPROXIM (feet)		SURF	ACE EL	EVATION
COM	MENTS	3										BOREHOLE			L	
		1						1				Soil Cutting	s			
Ð	(£)			RO	CK (CORE	<u> </u>	<u>\</u>					STS	RY	교 교	
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY		MATERIAL DESC	RIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES
	_			_				<i>``</i> ;	Asphalt at Hand aug	ered to 5 feet bgs.						
	410							1		LT, dark brown, moist, f	ine to medi	ım sand				
	710							<i> </i> ;;	Junay 31		to mould	oana.				
	-															
								1.								
_								<i>[</i> , <i>i</i>								
5	_			\vdash				<i>(</i> ;)								
	L		.	07.0	_			1.								
	405	1	1	.67/2	၁											
	_405							//								
	<u> </u>							\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.\.		AND UNIT (Qs)						
		2	1	83/2	5			;/ /*.	•	<i>-</i> '	التحدد المستسيسة	-4-				
									Silty SAN	ID , dry, brown, some roc	its and rootle	ets.				
10	-			<u> </u>				*	Silty to C	layey SAND, some grav	vel to 1 inch.	Clavev	-			
	400	3	1	.17/2.	.5				zones thro gravel in I brown). -Mild soil	oughout, fine sand with tast two feet, 10 YR 4/4 development, sand with	trace of 1/4 in trace of 1/4 i	nch ish ix, 10 YR				
								<i>\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ </i>		Yellowish Brown), friable AY, coarse to fine grain			-			
	<u> </u>							//	fine grave	I to cobbles throughout,	humid to dr	y, granitic				
	L	4	1	17/2	5			! ;	gravel gra	ighly weathered to gruss ins. Zones of fine claye	y sands 10	YR 4/6				
									(dark yello	owish brown), abundant (basalt?) and meta-quar	quartz and	mica.				
15	_			\vdash				//	were roun	ided to sub-rounded with	n slight to no)				
	L	_		22/0	_			\.\ .\.	quartz saı	g on the surface. Abund nd grains with frosted ou		iiiu c u				
	205	5	1	.33/2	э			()	suggestin	g fluvial in origin.						
	395			<u> </u>				1%		development, 10 YR 4/6	(Dark Yello	wish				
	H							[,	DIOWII), a	pproximately 6" thick.						
		6	1	67/2	5			! ;								
								1.	B 411.1	developer - 1 40 VD 1/2	· /D / !!					
D.C.	IID		ļ	<u> </u>				<u> </u>	-Mild soil	development, 10 YR 4/6			<u> </u>	<u> </u>		
ROI	GF	ROL	JP I	DEL	TΑ	COI	NSULT	AN	TS, INC.	THIS SUMMARY APPLIE OF THIS BORING AND A	AT THE TIME	OF DRILLING.				
2							uite B		,	SUBSURFACE CONDITI	CHANGE AT	THIS LOCATIO		_,	CHE	= A 24 -
						•				WITH THE PASSAGE OF PRESENTED IS A SIMPI	LIFICATION (۸L	"	GUKI	E A-34 a
TOT !	ПА		Irvi	ne,	CA	ر 92	618			CONDITIONS ENCOUNT						

				ЭR	E	ВО	RIN	G	PROJECT NA	AME	PROJEC LA-1161	T NUMBER			ORING B-4*	
	LOCA								DATE(S) DRI		LOGGE) BY			HEET Notes	0.
	Yucca				wood,	Ca		4	10/24/13 to 1	0/24/13	SS					
	LING N								DRILL BIT SI	IZE/TYPE		CHECKED	BY	- 1	OTAL D	EPTH DRILL
	w Stem							_	8"			SK INCLINATION	ON E	1 ,	•	40 AL/BEARING
	L RIG	TYPI	E						DRILLED BY			INCLINATIO				AL/BEARING
CME									Gregg In-Situ	u Drilling		ļ		degree		
APP<i>A</i> 29	ARENI	GR	OUN	IDW <i>A</i>	ATER	DEP	TH (feet)					APPROXIM (feet)	IATE	SURF	ACE EL	EVATION
COM!	MENTS	•										BOREHOLI		12 CKEII		
JOIVII	WILNIS	,										Soil Cutting		CKFIL	L	
												T Con Catang				
£	(ft)		1	RO	CK (ORE	<u> </u>	<u>}</u>					PACKER TESTS	RY	'nÆ	
Ĕ	ELEVATION (ft)	<u>.</u>	٠.	۲, %	ģ	%	200	LITHOLOGY		MATERIAL DES	CDIDTION		12	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD
DEPTH (ft)	VAT	S S	8	ĒR	FR	D., 9	VINC	본		MATERIAL DE	CKIP HON		A A	SSR	SILL ET/	NOTES
_	ELE	RUN NO.	BOX NO.	RECOVERY,	FRAC. FREQ	R.Q.D., %	FRACTURE DRAWING/ NUMBER	=					PAC	\(\bree \)	문표	
				RE	FR		_ E0_									
								1.	Brown), a	pproximately 6" thick						
	_	7	1	33/2	5			1.								
	200	'	'	.55/2	.5			//								
	390							1//	-Mild soil	development, 10 YR	4/6 (Dark Yello	owish				
	_							1/;	Brown), a	pproximately 6" thick						
		8	1	.58/2	5			1.								
	_	0	1	100/2	.5			()		development, 10 YR		owish				
25								//		pproximately 6" thick						
								1.								
-	_	9	.	1.5/2.	5			<i>[','</i>								
	_385	ا ا			Ĭ			1.								
								1,								
-	_							1/;	CAND ~	oderatly well develor	and soil whom	sandy				
		10	1	08/2	.5				color rang	ges from 10 YR 3/3 (c	lark brown) to	10 YR 3/6				
ŀ	_		'	30,2				(;;		ow brown), breaks int on sand grains.	o angular bloc	ks, clay				
30	L .							1.	Ground v	vater						
									MUD FLC	OW (Qm)						
	_	11	1	42/2	.5				Sandy CL	_AY, fine to medium	grained with so	ome				
	380		'	_,_	-				clayey saı	nd, 7.5 YR 4/4 (brow	າ).					
	330															
	_															
		12	1	.5/2.	5											
	_							11								
5	<u> </u>								MODELO	FORMATION (Tm)			-			
												- Calcon C				
	_	13	2	.5/2.	5					and Claystone, very some carbonate vein:						
	_375								2.5 Y 5/6	(light olive brown) to						
									bedded, v	vet.						
ŀ	_								1							
	_	14	2	.5/2.	5											
									-							
OT	ID				-			<u> </u>		THIS SUMMADY ADD	DI IEQ ONI V AT	THE LOCATION	N.	<u> </u>		
ROL	GF	ROL	JP I	DEL	-TA	COI	NSULT	AN	TS, INC.	THIS SUMMARY APP OF THIS BORING AN	D AT THE TIME	OF DRILLING				
7							Suite B			SUBSURFACE CONE LOCATIONS AND MA	Y CHANGE AT	THIS LOCATIO		_,	CHDI	= A 24 L
						•				WITH THE PASSAGE PRESENTED IS A SII			ΑL	"'	GUKI	E A-34 I
ELT	14		Irv	ıne,	CA	92	2618			CONDITIONS ENCO						

LO	G C	F	CO	RE	BC	RIN	G	PROJECT NAME SSV	PROJECT LA-1161A	T NUMBER			ORING B-4*	
SITE	LOCA	TION	l					DATE(S) DRILLED	LOGGED	ВҮ		S	HEET N	Ο.
6230	Yucca	a Stre	et, Hol	lywoo	d, Ca			10/24/13 to 10/24/13	SS			3	3 of 3	
DRIL	LING N	METH	IOD				İ	DRILL BIT SIZE/TYPE	<u>'</u>	CHECKED	BY		_	EPTH DRILLE
Hollov	w Stem	n Aug	er					8"		SK		(feet)	40
DRIL	L RIG	TYPE	•					DRILLED BY		INCLINATION	ON F	ROM V	VERTICA	AL/BEARING
CME	95							Gregg In-Situ Drilling			0	degree	es	
APP 29	RENT	GRO	OUND	VATE	R DEP	TH (feet)				APPROXIM (feet)		SURF	ACE EL	EVATION
COMI	MENTS	S								BOREHOLI	ЕΒΑ	CKFIL	.L	
										Soil Cutting	IS			
	£		R	оск	CORI	E	>				STS	≿	ui o	
DEPTH (ft)	EVATION (ft)	JN NO.	OX NO.	C. FREQ.		ACTURE AWING/ JMBER	LITHOLOG	MATERIAL DE	SCRIPTION		ACKER TESTS	ABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES

ļ										30	on Cuttings	<u> </u>			
	.	l (ft)				CK C	ORE	<u> </u>	_ - - - - - - -			STS	КY	h, K	
	DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DESCRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES
	_	_								Total Depth: 40 Feet bgs Groundwater: Encountered at 29 Feet Boring backfilled with tamped cuttings					
	_	_370 _													
	_45 _	_													
	_	365 													
10/23/14	_														
ROCK2.GDT	_50 _	_													
ORES.GPJ I	_	360 													
/ITH ROCK C	_	_													
ING LOGS V	_55 _	_													
A-1161 BOR	_	_355 _													
RE_ENG_REV LA-1161 BORING LOGS WITH ROCK CORES.GPJ ROCK2.GDT 10/23/14	_	_													
Щ															

GROUP DELTA CONSULTANTS, INC.

32 Mauchly, Suite B Irvine, CA 92618 THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

FIGURE A-34 c

				DR	Ε	ВО	RIN	G	PROJECT NA		LA-1161				ORING B-5 * HEET N	0.
	LOCA Yucca			Hollvv	hoov	Ca			DATE(S) DRI 10/25/13 to 1		LOGGE	ז ש ע:			of 3	.
DRIL	LING N	/ETH	IOD	ionyv	v 00u,	Ou			DRILL BIT S		00	CHECKED SK	ВҮ		OTAL D	DEPTH DRILLE
	L RIG								DRILLED BY	,		_	ON F	ROM V	/ERTIC	AL/BEARING
CME									Gregg In-Situ	u Drilling				degree		
APP /29	ARENT	GRO	OUN	DWA	TER	DEP	ΓΗ (feet)					APPROXIM (feet)			ACE EL	EVATION.
СОМ	MENTS	3										BOREHOLE		11 CKFIL	L	
	ı								1			Soil Cutting	ıs			
	₽			RO	CK C	ORE	<u> </u>						ဟု	>		
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY		MATERIAL D	ESCRIPTIOI	N	PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES
	_410			ш.				· . · ·	Asphalt at Hand aug	ered to 5 feet bgs.						
										LT, dark brown, m	oist, fine to med	ium sand.				
										, ,	,	-				
								<i> </i> ;;								
	_							1								
5	_															
	_405		1	67/2.	5			1.								
		1	1.	01/2.	Э											
		2		2/2.5				/	UPPER S	AND UNIT (Qs)						
	_			2/2.5					Silty SAN	ID , dry, brown, with	roots and rootle	ets.				
10	_								SAND, C	oarse to fine grain	ed, some gravel	, humid to	-			
	_400	3	1.	75/2.	5				dry, grave 1/2 inch c decompos found in s	els scattered througonsisting mostly of sing clasts of grani amples to be highl	ghout from fine of volcanic (basal te. The granitic y weathered wit	grained to 1 t?) to clasts were h				
									Volcanic (sts weathering to a basalt?) gravels for	ound in the depo	sit were				
•		4	1	67/2.	5				ູ່ on the sui	o sub-rounded with face. Abundant s	ub-rounded qua	rtz sand				
	_	4	1.	01/2.	5				grains wit origin.	h frosted outer sur	race suggesting	tiuvial in				
15	_								•							
	_395	5	1	.5/2.	_				•							
	_	١	,	.∪/∠.:												
									🕽 angular co	development, frial ontact with sand be	elow, approxima	ers, tely 6"				
-		6	1	75/2.	5				thick. 10 \	YR 4/4 (Dark Yello	wisn Brown).					
	_	٥	1.	1 3/2.	3											
ROU	ΙΡ							°°°.	9	THIS SUMMARY A	.PPLIES ONLY A	T THE LOCATION	N	<u> </u>		
5	GR								ITS, INC.	OF THIS BORING SUBSURFACE CO	AND AT THE TIMINDITIONS MAY	IE OF DRILLING. DIFFER AT OTHI	ER			
		3	32 I	Mau	ıchl	ly, S	uite B			LOCATIONS AND WITH THE PASSA PRESENTED IS A	GE OF TIME. TH	IE DATA		FI	GURI	E A-35 a
	1		lrv/i	no	\cap	92	618			CONDITIONS ENC		OI THE ACTUR	\L			

CITE	LOCA			JK		ЬΟ	RIN	G	DATE(S) DRI	LLED	LA-1161				B-5* HEET N).
	Yucca			lollvv	vood.	Ca			10/25/13 to 1		SS	БВІ			of 3	
DRIL	LING N	/IETH	IOD	,					DRILL BIT S			CHECKED I	ВҮ		OTAL D	EPTH DRILL
	L RIG								DRILLED BY					ROM V		L/BEARING
APP /29	ARENT	GR	DUNI	DWA	TER	DEP	TH (feet)				APPROXIM	ATE	SURF		EVATION
СОМ	MENTS	3										BOREHOLE	ВА	11 CKFIL	L	
												Soil Cutting	S			
(ft)	(#) Z					ORE	<u> </u>	_ }g					ESTS	ORY S	UR,	
DЕРТН (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	ПТНОГОСУ		MATERIAL D	ESCRIPTION	I	PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES
_	_390	7	1.	75/2	5											
_		8	1.	83/2	5				0 0 0							
-25	_		-						o o o							
_	_385 _	9	1.	92/2	5				°							
_	_	10	1.	75/2.	.5				SAND, W	development, app	grained with som	e coarse				
_30 _	 380	11	2.	08/2	5				grained, g	ined gravel with n ravel well to sub-r me gravel mostly zone well washed,	ounded, sand me consisting of vol	eanic and				
-			-						-Ground V							
- 2F	_	12	2	.5/2.	5			4	(Yellowish Silty SAN developed	ID to Sandy Silty d soil, wet, yelds in	CLAY, moderate	y bulled apart				
-35 -	 375	13		3/3				^ ^	OLDER A Gravel ar	pase of soil on gra ILLUVIUM (Qoal) ad Cobble Congle composition, top of	omerate, granitio	and				
-	_		-						\matrix sim	nilar to the soil about the soil abo	ove.	/				
_		14	1	.33/2	2											
GROU	JP GF						NSUL Suite E		ITS, INC.	THIS SUMMARY A OF THIS BORING SUBSURFACE CO LOCATIONS AND WITH THE PASSA PRESENTED IS A	AND AT THE TIM ONDITIONS MAY I MAY CHANGE AT GE OF TIME. TH	E OF DRILLING. DIFFER AT OTHE THIS LOCATIO E DATA	ER N	FI	GURI	E A-35 b

_0	G C	F	C	ЭR	Ε	ВО	RIN	G	PROJECT NA	AME	PROJECT LA-1161A	NUMBER			ORING B-5*	
	LOCA								DATE(S) DR		LOGGED	BY			HEET N	0.
) Yucca				vood,	Ca		_	10/25/13 to 1		SS	1			of 3	
	LING N		-						DRILL BIT S	IZE/TYPE		CHECKED	BY		OTAL D eet)	EPTH DRILL
	w Stem							+				SK	ON F	ROM V	/ERTIC	50 AL/BEARING
CME	_	1161	_						Gregg In-Site					degree		
APP /29	ARENT	GR	OUN	IDWA	TER	DEP	TH (feet)	<u> </u>		<u> </u>		APPROXIM (feet)	IATE	SURF		EVATION
СОМ	MENTS	S										BOREHOLE	ЕВА	11 CKFIL	L	
				DO	014.6	2005						Soil Cutting				
(#) -	ON (ff)					ORE		>					TESTS	TORY S	ATE, OUR	FIELD
DEPTH (ft)	ELEVATION (#)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY		MATERIAL DES	CRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	NOTES
								.00	Clayey S	SAND with GRAVEL we cobbles.	et, poor core	ecovery				
_	_370							%								
_	_	15		1.33/5	5											
_	_			.00/0				∞	MODELO	FORMATION (Tm)			-			
_	_								Clayston	e, well bedded with so	ome siltstone	and fine				
4 5	_								sandston	e, trace large granitic c	obbles.					
_	365															
_		16		5/5												
_	_			0,0												
_	_															
50																
_ 50									Total Dep	oth: 50 Feet bgs	0.51		1			
_	360									ater: Encountered at 2 ackfilled with tamped cu						
_																
_																
-	_															
- 55	_															
_	<u>_355</u>															
_	_															
_	_															
_	_															
GROU	JP GF								TS, INC.	THIS SUMMARY APPL OF THIS BORING AND SUBSURFACE CONDI	AT THE TIME TIONS MAY DI	OF DRILLING. FFER AT OTH	ER			
		(32	Maı	ıch	ly, S	uite B			WITH THE PASSAGE	OF TIME. THE	DATA		FI	GURI	E A-35 (
	"		Irvi	ine.	CA	92	2618			PRESENTED IS A SIM CONDITIONS ENCOU		JE THE ACTUA	٩L			

_O	G C	F	C	ЭR	E	BO	RIN	$\exists \mid$	PROJECT NA	AMÉ	PROJEC LA-1161	T NUMBER A			ORING B-6*	
SITE	LOCA	TION	1						DATE(S) DR	LLED	LOGGE	D BY		SI	HEET N	0.
6230) Yucca	Stre	et, F	Holly	wood,	Ca			10/25/13 to 1	0/25/13	SS			1	of 4	
DRIL	LING N	/ETH	HOD						DRILL BIT S	IZE/TYPE	<u>'</u>	CHECKED	BY			EPTH DRILL
Hollo	w Sterr	ı Aug	ger						8"			SK		`	eet)	60
	L RIG	TYPI	E						DRILLED BY			INCLINATIO	ON F	ROM V	ERTIC!	AL/BEARING
CME									Gregg In-Situ	u Drilling				degree		
APP 29	ARENT	GR	OUN	IDW <i>A</i>	ATER	DEP	ΓH (feet)					APPROXIM (feet)			ACE EL	EVATION
СОМ	MENTS	3										BOREHOLE		05 CKFIL	L	
												Soil Cutting			_	
£	(£)		ı	RO	CK	CORE		<u></u> ≿					STS	ᇫ	'n,ξ	
DEРТН (ft)	ELEVATION (ft)	:	<u>.</u>	RECOVERY, %	Ö.	%	₩,9,8	LITHOLOGY		MATERIAL D	ESCRIPTION	I	PACKER TEST	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD
DEP	EVA	RUN NO.	BOX NO.	VER	H.	R.Q.D., %	WIN	ΙĔ			2001111 1101	-	CKE	BOF TE	RILL	NOTES
	ᆸ	<u>8</u>	BO	000	FRAC. FREQ	S. Q.	FRACTURE DRAWING/ NUMBER	_					PA	💆		
	-			₩.					Asphalt a	t surface						
_	L							<i>[';</i>	Hand aug	ered to 5 feet bgs.			1			
								[;	Artificial							
	<u> </u>							[;;	Sandy SI	LT, dark brown, m	oist, fine to med	um sand.				
								1.								
								·;								
-								<i>(,)</i>								
5	_400							<i>'</i>								
								1								
-		1		2/2.5	;				UPPER S	AND UNIT (Qs)			1			
-	-							<u> </u>		ID, dry, brown, with			-			
_	L								SAND, sa guartz an	and grains mostly r d feldspar, quartz g	ounded to well rarains frosted inc	ounded licating				
			,	F0/0	_				fluvial in o	origin, increase in a	ngular decompo	sing				
-	-	2	1	.58/2	.5				near top.	Volcanic gravel su	b rounded, frest					
-10	395									10YR 5/3 (Brown) development, sand		trix.				
									•							
-	_	3	1	.5/2.	5				•							
-	_								•							
-					_				•							
-	-	4	1	.83/2	15				•							
-15	_390								•							
-								·	•							
-	<u> </u>	5	1	42/2	5											
_	<u></u>								· -Well soil fracture.	development, grav	el-sand layer, pl	aty				
								• • • •	Approx. 4							
-								• • • •	MUD FLC -Mild soil	development, sand	I with clayey ma	trix, platy				
_	-	6	1	.92/2	.5				fracture,	10 YR 4/3 (Brown t	o Dark Brown).	• •				
								:	OLDER A	LLUVIUM (Qoal)						
ROU	JP GF	ROL	JP I	DEL	TA	CO	NSULT	AN	TS, INC.	THIS SUMMARY A OF THIS BORING SUBSURFACE CO	AND AT THE TIM	E OF DRILLING.				
		(32	Maı	uch	ly, S	uite B			LOCATIONS AND WITH THE PASSA	MAY CHANGE AT	THIS LOCATIO		FI	GURI	E A-36 a
						-	618			PRESENTED IS A CONDITIONS ENC	SIMPLIFICATION		٨L		-	'

LO	G C	F	CO	RE	Ξ	30	RIN	3	PROJECT NAME SSV		R OJECT -1161A	NUMBER			ORING B-6*	
SITE	LOCA	TION	1						DATE(S) DRILLED	LC	OGGED	BY			HEET N	0.
6230) Yucca	Stre	et, Holl	ywc	od,	Са			10/25/13 to 10/25/13	SS	3	I			of 4	
	LING N		_						DRILL BIT SIZE/TYPE			CHECKED	BY		OTAL D eet)	EPTH DRILL
	w Sterr								8"			SK INCLINATION	ON E	`	,	60 L/BEARING
	L RIG	TYPI	E						DRILLED BY			INCLINATIO				LIBEARING
CME		- CD		/ A T		DED:	TII (64)		Gregg In-Situ Drilling			ADDDOVIM		degree		EVATION.
29			OUNDV	VAI	EK	DEP	TH (feet)					APPROXIM (feet)		05	ACE EL	EVAIION
COM	MENTS	8										BOREHOLE Soil Cutting		CKFIL	L	
			ь	^	v c	ODE										
Œ	ON (ff)			_	. 1	ORE		} 26≺					ESTS	S	ATE, OUR	EIEL D
DEPTH (ft)	ELEVATION (#)	RUN NO.	BOX NO.	, ,	FRAC. FREQ	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL	DESCRIP	TION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES
_		7	2.5/						Clayey SAND-Mild soil de some silt, 7.5 YR 4/4, brove platy fracture, sand sub ro- quartz, dark minerals and	wn to dark brounded to sul mica.	own, blo b anglul	ocky to ar mix of				
-									Gravel Conglomerate, of inches, rounded to sub rounded quartz frosted gravely	unded, volca	nic origi	n, sands				
_	_	8	2.5/	2.5				7	mixed within. Cobble Conglomerate, c	obbles most	lv volcar	nic in				
-25	_380			_					origin.		,					
-		9	2.25	/2.5				\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Clayey SAND, friable with majority well inundated with 4/4 (brown).	n fingers in th th a blocky fi	nin beds racture,	, 7.5 YR	_			
_	_								Mild soil development, sand blocky fracture, sands rou YR 4/3 (reddish brown).	nded, some	angular	grains, 5				
-30	375	10	2.5/	2.5				۵ ۵ ۵	Gravel to Cobble Conglomatrix, conglomerate grar - Ground Water			andy				
-	_	11	2.5/	2.5					Sandy Clay to Clayey Sa angular meta quartzite gra 2.5YR 5/4 (light olive brow	vels though	out, mo	ttled				
_	_								brown).							
-	_	12	2.5/	2.5					Gravel to Cobble Congleto sub rounded volcanic to	omerate grav	vels sub	angular	-			
_35 _	370 	13	2.25	_ /2 5				0 (gravel decomposing and f little pressure. Gravelly SAND with inte to fine grained with fine gr	riable betwerbedded Classined gravel	en finge ay sands , both sa	rs with / - s coarse and and				
_				-				0 0 0 (gravel rounded to sub rou (brown), clay beds mottled 7.5YR4/4 (brown). -Gravel Bed							
_	_	14	2/2	2.5)								
GROU	JP GF	;		au	chl	y, S	Suite B		THIS SUMMARY OF THIS BORIN SUBSURFACE (LOCATIONS AN WITH THE PASS PRESENTED IS CONDITIONS EI	G AND AT THE CONDITIONS D MAY CHAN SAGE OF TIM A SIMPLIFIC	IE TIME MAY DII IGE AT T IE. THE ATION C	OF DRILLING. FFER AT OTH THIS LOCATIC DATA	ER ON	FI	GURI	E A-36 k

OG (CO	R	ΕI	ВО	RIN	G	PROJECT NAME SSV	LA	-1161A				ORING B-6*	•
SITE LOCA 6230 Yuco		d Lie	dlynn	,004	Co			DATE(S) DRILLED 10/25/13 to 10/25/13	LO SS	OGGED	BY		-	HEET No of 4	O.
DRILLING			niyw	700u,	Ca			DRILL BIT SIZE/TYPE	30	•	CHECKED	ВҮ	_		EPTH DRILL
Hollow Ste								8"			SK		(f	eet)	60
DRILL RIG	TYPE							DRILLED BY			INCLINATIO	N FI	ROM V	/ERTIC	L/BEARING
CME 95								Gregg In-Situ Drilling					degree		
APPAREN 29	T GRO	UND	WA	TER	DEP	TH (feet)					APPROXIMA (feet)		SURF 05	ACE EL	EVATION
COMMEN	rs										BOREHOLE Soil Cutting		CKFIL	L	
ı,		F	RO0	CK C	ORE							ည	>		
DEPTH (ft) ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIA	L DESCRIP	TION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES
			<u>~</u>	F			0	-Clay Bed							
- -	15	2 3	3/2	5			0 (
		2.0	0,2.				O								
	\vdash	-					0	-Sand Bed							
) (0							
_	16	2.3	3/2	5			o C	-Gravel Bed -Clay Bed							
45360	,						0 (
							>0	-Sand Bed							
	17	2.4	2/2	5			。 C								
-							0 (
							Ø								
	18	2.5	5/2.5	5			0 /								
								Gravel Conglomerate overlying bedrock.	, decomposing	granitic	gravels				
50 –355	· 		_				۵ ۵	, ,							
_	10	١,	5/2.5					MODELO FORMATIO	N (Tm)						
	19	4.5),∠.E	,				Sandstone, fine graine abundant rounded to w	d with clay mat	rix, well	bedded,				
		-						weathered feldspar gra	nins.						
-															
<u> </u>	20	2.5	5/2.5	5											
55 <u> </u>	,														
- -															
_	21	5	5/5												
ROUP								THIS SUMMA	ARY APPLIES OF	NLY AT 7	THE LOCATION	J	<u> </u>		
G	ROU	P D	EL	TA	COI	NSULT	ΓAΝ	TS. INC. OF THIS BOT	RING AND AT THE CE CONDITIONS	IE TIME	OF DRILLING.				
	32	2 M	lau	ıchl	y, S	uite B		LOCATIONS WITH THE PA	AND MAY CHAN ASSAGE OF TIM	IGE AT 1	THIS LOCATIO		FI	GURI	E A-36 d
///								PRESENTED							

_O	G C	F	C	OR	Ε	ВО	RIN	G	PROJECT NAME SSV		PROJECT LA-1161A	NUMBER			ORING B-6 *	
SITE	LOCA	TION	ı						DATE(S) DRILLED		LOGGED	BY			HEET N	0.
623) Yucca	Stre	et, F	Hollyv	vood,	, Ca			10/25/13 to 10/25/13		SS				of 4	
DRIL	LING N	/ETH	HOD						DRILL BIT SIZE/TYPE			CHECKED	BY		OTAL D	EPTH DRILL
Hollo	w Sten	n Aug	ger						8"			SK		'	<u> </u>	60
DRIL CME	L RIG	TYPI	Ε						DRILLED BY			INCLINATIO	_	ROM V	-	AL/BEARING
		GR	OUN	DWA	TER	DEP	TH (feet)		Gregg In-Situ Drilling			APPROXIM (feet)	ATE	SURF		EVATION
COM	MENTS	3										BOREHOLE		05 CKFIL	L	
												Soil Cutting				
	Œ			RO	CK (CORE	.						13	>-		
DEPTH (ft)) NO			%	ارخ			LITHOLOGY					TES	TOR IS	DRILL RATE, FEET/HOUR	FIELD
Ë) AT	ŏ.	Ŏ.	RY,	'RE(% :	URE ING	무	MATERIAL [DESC	RIPTION		ER.	ORA TES	LL R	NOTES
8	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	-RAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	5					PACKER TESTS	LABORATORY TESTS	DRI	
				Ä	胀		E0-									
_	L								Total Depth: 60 Feet bsg Groundwater: Encountered							
									Boring backfilled with tamp	ed cutt	ings					
-	_															
_	_															
_	L															
-65	340															
-	_															
_																
_	_															
-	_															
-70	_335															
-																
-	_															
_																
-																
-75	_330															
-	<u> </u>															
_	L															
-																
-	-															
-	_															
RO	JP GF	ROL	JP I	DEL	TA	CO	NSULT	AN	THIS SUMMARY OF THIS BORING SUBSURFACE C	AND A	T THE TIME	OF DRILLING.				
		(32 I	Maı	uchl	ly, S	Suite B		LOCATIONS AND WITH THE PASS	MAY C	CHANGE AT	THIS LOCATIO		F	GURI	E A-36 c
							2618		PRESENTED IS A	SIMPL	LIFICATION (F THE ACTUA	٨L			

32 Mauchly, Suite B Irvine, CA 92618

DELTA

THIS SUMMARY APPLIES ONLY AT THE LOCATION OF THIS BORING AND AT THE TIME OF DRILLING. SUBSURFACE CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

_0	G O	F	C	DR	Ε	BO	RIN	G	SSV	AME	PROJEC LA-1161A	T NUMBER			ORING B-7*	
SITE	LOCA	TION	ı						DATE(S) DR	ILLED	LOGGE	BY			HEET N	0.
6230) Yucca	Stre	et, F	Hollyv	vood,	Ca			4/14/14 to 4/	14/14	TO				of 3	
DRIL	LING N	/ETH	HOD						DRILL BIT S	IZE/TYPE		CHECKED	BY		OTAL D	EPTH DRILL
Hollo	w Stem	Aug	ger						8"			SK		'		57.5
	L RIG	TYPE	Ε						DRILLED B	1		INCLINATIO				AL/BEARING
CME									ABC Drilling					degree		
APP 52.3	ARENT	GR	OUN	DWA	TER	DEP	TH (feet)					APPROXIM (feet)		SURF 03	ACE EL	EVATION
COM	MENTS	3										BOREHOLE Soil Cutting		CKFIL	L	
				RO	CK (CORE						<u> </u>				
(#	(#)					JOKE	-	გ					ESTS) SRY	J.E.	
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY		MATERIAL DESC	CRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES
								/;		ered to 5 feet bgs.						
-								1.	Artificial	Fill (Qaf)						
-	-							(;)	Sandy S	LT, dark brown, moist,	fine to mediu	ım sand.				
-	_400							1.7								
								<i>'</i> ,',								
-	-															
5	_							1.								
								[·;								
-	<u> </u>	1	2	.5/2.	5				UPPER S	SAND UNIT (Qs)						
-	<u> </u>								Silty SAN	ID ; 7.5YR 4/6 (strong b	orown); moist	; mostly				
	395							8000	— fine to me	edium SAND; few coars	se SAND; few	fine				
-									Sandy Si	It: 7.5YR 5/8 (strong b	rown); dry to	moist				
-	H	2	2.	08/2	5					mostly fine to medium Sace fine GRAVEL.	SAND; few co	arse				
10	L							6.00								
-10																
-	-	3		2/2.5												
	L			_,												
-	_390															
-	L	4	1.	67/2	5				=							
								<i>[:]</i>	(humid); ı	AND; 7.5YR 5/8 (stron mostly fine to medium \$	prown); dry t SAND; few co	o moist arse				
15	<u> </u>			-				//	SAND; tra	ace fine GRAVEL.						
-	L	_	_	47'0	_			· · ·		ID: 7 EVD E/G / otrop = 1						
		5	2.	17/2	5			./.	fine SAN	ND; 7.5YR 5/6 (strong t D; trace medium SAND	; trace coars	, mostry e SAND.				
-																
=	385								Few med	ium to coarse SAND; tr	ace fine GP/	WEI				
		6	1.	67/2	5					•						
_									Sandy Si (hummid)	It; 10YR 6/6 (brownish; mostly fine to medium	yellow); dry i SAND; few	o moist coarse				
ROU	GF	ROL	JP I	DEL	.TA	COI	NSULT	AN	TS, INC.	THIS SUMMARY APPL OF THIS BORING AND SUBSURFACE CONDI	AT THE TIME	OF DRILLING.			•	
		3	32 I	Maı	uch	ly, S	uite B			LOCATIONS AND MAY WITH THE PASSAGE O	CHANGE AT	THIS LOCATIO		FI	GURI	E A-37 a
					~ ^		2618			PRESENTED IS A SIMI CONDITIONS ENCOUN	PLIFICATION		L			-

LOG OF CORE BORING SITE LOCATION 6230 Yucca Street, Hollywood, Ca							RIN	G	PROJECT NAME SSV PROJECT LA-1161A			T NUMBER A		BORING B-7*			
									DATE(S) DRI	ILLED	LOGGE	D BY			HEET N	0.	
									4/14/14 to 4/14/14 TO						of 3		
DRILLING METHOD									DRILL BIT S	IZE/TYPE		CHECKED	BY	TOTAL DEPTH DRILL			
Hollow Stem Auger									8"			SK		(reet) 57.5 ROM VERTICAL/BEARING			
	L RIG	TYPE	E						DRILLED BY	(INCLINATIO				AL/BEARING	
CME									ABC Drilling					degree			
APPARENT GROUNDWATER DEPTH (feet) 52.3												APPROXIM (feet)		SURF 03	ACE EL	EVATION	
COMMENTS												BOREHOLE Soil Cutting		CKFIL	L		
				RO	CK (CORE	=										
Œ	E Z			1	1	I	_ 	_ გ					STS	ORY	UR,		
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	ПТНОГОСУ		MATERIAL DE	SCRIPTION	I	PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES	
		7	2	.17/2	2.5				SAND wi moist (hui	ace fine GRAVEL. th Silt; 10YR 6/6 (br mmid); mostly fine to AND; trace fine GRA							
	380				-				_ \ moist; mo	AND; 10YR 4/4 (dar	c yellowish bro SAND; trace co	wn); parse /					
										ace fine GRAVEL. th SILT; 10YR 5/6 ()	ellowish brow	/ n): moist:					
	_	8	1	.5/2.	.5				mostly fin	e to medium SAND; VEL; trace cobbles.							
25								٠٠٠٠	10YR 7/4	(very pale brown); n	nostly fine SAN	ID; few					
25									medium S	SÀNĎ; trace coarse s (light yellowish brow	SAND. n): mostly fine	to medium					
	_	9	1	75/2	, E				SAND; tra	ace coarse SAND; tra	ace fine GRAV	EL.					
		9	'	113/2				9.00									
					_			<i>"</i>									
	_375							1/	MUD FLC								
	L	10	2	.5/2.	.5					LAY; 2.5YR 3/4 (dar ce coarse SAND; sor		t; mostly					
									inics, trac	o Jourge On ND, 301	IS IIIC OAND.						
30	H				-			K	OLDER 4	ALLUVIUM (Qoal)			-				
	L							//		AND , 7.5 YR 4/4, bi	own to dowle be	OWN					
	_	11	1	42/2	5			1//	blocky to	platy fracture, sand s	sub rounded to	sub					
	-							(;)	anglular n	nix of quartz, dark m	nerals and mid	ca.					
	_370				1			1,7									
		12	_	E /0				(,',									
	-	12	2	2.5/2.	٥			(;)									
35					_			1.									
									Gravel co 7.5YR 3/4	bble layer. Rig chat 4 (dark brown); some	er. fine to mediur	n SAND ;					
	-	13	1	07/2	5			(;)		rse SAND.		•					
	L							1%									
					-			1/,									
	365																
		14	C	.5/2.	.5			1.7									
								1.									
ROI	UP			ļ	-	-		11.	1	THIS SUMMARY AP	PLIES ONLY AT	THE LOCATION	N N				
7	GF	ROL	JP I	DEL	_TA	CO	NSUL	ΓΑΝ	TS, INC.	OF THIS BORING AN SUBSURFACE CON	ND AT THE TIM DITIONS MAY [E OF DRILLING. DIFFER AT OTHI	ER				
		3	32	Ma	uch	ly, S	Suite B	}		LOCATIONS AND M. WITH THE PASSAGI	AY CHANGE AT	THIS LOCATIO		FI	GURI	E A-37 k	
	1/4		Irvi	ine	C^{Λ}	02	2618			PRESENTED IS A SI CONDITIONS ENCO	MPLIFICATION		۸L				
EL'	ľA		., v	,	, J,	. 52	-010				<u></u>						

LOG OF CORE BORING SITE LOCATION 6230 Yucca Street, Hollywood, Ca DRILLING METHOD Hollow Stem Auger							RIN	G	PROJECT N		PROJEC LA-1161	T NUMBER			BORING B-7*			
									DATE(S) DR	D BY			HEET No s of 3	0.				
									4/14/14 to 4/				EDTU DDU I					
									DRILL BIT S	SIZE/TYPE			CHECKED BY		(feet) 57.5			
									DRILLED B	v		SK INCLINATION	ON F	ROM V	OM VERTICAL/BEARING			
DRILL RIG TYPE CME 95									ABC Drilling				0	degree	es			
APPARENT GROUNDWATER DEPTH (feet) 52.3												APPROXIN (feet)	DXIMATE SURFACE ELEVATION 403					
COMMENTS												BOREHOL	E BA		.L			
								1				Soil Cutting	gs 	1				
Ð	(#)			RO	CK (ORE	<u> </u>	\ - - - - -					STS	Ř	'nЖ			
DEPTH (ft)	ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY		MATERIAL DESCRIPTION			PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES		
									Conglom	erate. No recovery	lue to cobbles.							
-	-	15		0/2.5														
	L							<u>م</u>										
	_360			_				000	Silty SAI	ND; 7.5YR 4/6 (stron	g brown); mois	t; mostly	-					
-	300	4.0		00/0	_				fine to me	edium SAND; trace o	oarse SAND; ti	ace fine						
	-	16	1	.83/2	5				•									
45	<u>_</u>			<u> </u>				ر مرد،										
									9									
		17	2	25/2	5			200	•									
-	-							: <u>/</u> /										
-	_355							·										
_	L	18	2	33/2	5				•									
								·	- - -									
50	<u> </u>			\vdash					Clayey S	AND; 7.5YR 4/6 (str	ong brown); mo	oist;	-					
	<u> </u>	19		2.5/2.	5				mostly fir trace fine	ne to medium SAND; GRAVEL.	trace coarse S	AND;						
	L	13	'	2.5/2.					1									
									-Ground	Water								
	350																	
	-	20	2	08/2	5													
55	L			<u> </u>														
-																		
-	_	21	:	2.5/2.	5													
-	-																	
_	_345			T					-	- U. E7 E E								
-									Groundw	Total Depth: 57.5 Feet bsg Groundwater: Encountered at 52.3 Feet Boring backfilled with tamped cuttings								
ROU	UP GF	;	32	Maı	uch		Suite B		TS, INC.	THIS SUMMARY AP OF THIS BORING A SUBSURFACE CON LOCATIONS AND M WITH THE PASSAG PRESENTED IS A S CONDITIONS ENCO	ND AT THE TIMI DITIONS MAY D AY CHANGE AT E OF TIME. THI IMPLIFICATION	E OF DRILLING DIFFER AT OTH THIS LOCATION DATA	IER DN	F	IGURI	E A-37 c		

LOG OF CORE BORING SITE LOCATION 6230 Yucca Street, Hollywood, Ca DRILLING METHOD Hollow Stem Auger DRILL RIG TYPE							RIN	G	PROJECT NA	AME	PROJEC LA-1161	T NUMBER			ORING B-8*			
									DATE(S) DRILLED LOGGED 4/14/14 to 4/14/14 TO			ВҮ			HEET NO	0.		
												CHECKED			EDTU DDII			
									DRILL BIT S	IZE/I YPE		SK CHECKED I	BY TOTAL DEPTH DRILLE (feet) 60					
									DRILLED BY	<u> </u>		_	ON FROM VERTICAL/BEARING					
CME 95 APPARENT GROUNDWATER DEPTH (feet) 55									ABC Drilling				0 degrees					
												APPROXIMA (feet)		SURF	ACE EL	EVATION		
COMMENTS											BOREHOLE BACKFILL							
								1				Soil Cuttings	5					
æ	(#)		ı	RO	CK (CORE	<u> </u>	<u>}</u>					STS	RY	н, к			
DEPTH (ft)	ELEVATION (#)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	R.Q.D., % FRACTURE DRAWING/ NUMBER		LITHOLOGY	MATERIAL DE	SCRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTE:		
								\;\.		ered to 5 feet bgs.								
•								1.	Artificial									
	4 00							///	Sandy SI	LT, dark brown, mo	ist, fine to medio	ım sand.						
-	L							[·/										
	L																	
_																		
5	-							1										
-	-	1	1	92/2	5			,	UPPER S	AND UNIT (Qs)								
-	_395								Silty SAN	ID ; 7.5YR 3/4 (dark	brown); dry to r	noist						
_	L								∖ coarse S/	mostly fine SAND; fe AND; trace fine GRA	VEL.	<i>i'</i>						
		2	1	08/2	5				mostly fin	th SILT; 10YR 5/6 (e to medium SAND	yellowish brown little coarse SA); dry; ND; trace						
-									fine GRA									
-10	-			_					Poorly-G	raded SAND; 10YR	5/6 (yellowish b	orown);						
-	_	3	1	92/2	5				dry; most few fine C	y fine to medium SA GRAVEL.	AND; some coar	se SAND;						
-	_390		<u>'</u>]					 									
									mostly fin	th SILT; 10YR 6/6 (e to medium SAND	brownish yello little coarse SA	w) ary; ND; trace						
•		4	1	67/2	5				fine GRA	VEL. AND ; 7.5YR 5/6 (st	ong brown). dr	to moist						
	-	•	1	01/2					(humid); r	nostly fine SAND; fe	ew medium SAN	D; trace						
15	-			-				\?\ <u>`</u>	Jourse 3/									
	L							1:/										
	_385	5	2	17/2	5					ID; 7.5YR 5/6 (stror								
-									(humid); r	mostly fine SAND; fe AND; trace fine GRA	w medium SAN							
-	_									th SILT; 10YR 5/6 (
-	_	6		2/2.5						stly fine to medium ace fine to coarse G		rse						
ROU	JP GE	201	IP '	DEI	Т^		NSIII T	·Λ ΝΙ	TS, INC.	THIS SUMMARY AF OF THIS BORING A			I					
7								ΑN	1 J, 114U.	SUBSURFACE CON LOCATIONS AND M	IDITIONS MAY D	IFFER AT OTHE		 	01.10.	- 4 00		
		`	5 2	ivial	ıcn	ıy, ১	uite B			WITH THE PASSAG PRESENTED IS A S	E OF TIME. THE	DATA		Fl	GURE	E A-38		

LOG OF CORE BORING SITE LOCATION 6230 Yucca Street, Hollywood, Ca							RIN	3 5	PROJECT NAME SSV	T NUMBER				BORING B-8*			
									DATE(S) DRILLED	BY		SHEET NO. 2 of 4					
									4/14/14 to 4/14/14	ТО							
DRILLING METHOD									DRILL BIT SIZE/TYPE 3"		CHECKED	(feet)					
Hollow Stem Auger DRILL RIG TYPE								_	ORILLED BY		SK	TION FROM VERTICAL/BEARING					
CME 95 APPARENT GROUNDWATER DEPTH (feet) 55									ABC Drilling			0 degrees					
									<u> </u>		APPROXIM (feet)	NATE SURFACE ELEVATION					
COMMENTS											BOREHOLE	ЕВА	02 CKFIL	L			
ROCK CORE											Soil Cutting						
£	£ Z				Ι.			8				EST	ORY	VTE,			
DEРТН (ft)	ELEVATION (#)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL DES	CRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES		
		7	1.	.58/2	.5				Poorly-Graded SAND; 10YR 5, dry to moist (humid); mostly fine fine GRAVEL; trace coarse GRA	to coarse SA	orown); ND; few						
	80							• • • • •									
- -		8	1.	92/2	.5				SAND with SILT; 10YR 5/6 (ye mostly fine to medium SAND; lit coarse SAND; trace fine GRAV Some coarse SAND.	ttle coarse SA); moist; ND; trace						
-25 _	1																
-	375	9	1.	.42/2	.5												
	,,,							-/-	MUD FLOW (Qm)								
30 _		10	2	33/2	.5				CLAY to SANDY CLAY , 7.5YR mostly fine SAND; trace mediur GRAVEL.								
.		11	2.	.58/2	.5				OLDER ALLUVIUM (Qoal)			-					
	570								Clayey SAND; 7.5YR 4/6 (stror mostly fine to medium SAND; tr trace fine GRAVEL.	ng brown); mo ace coarse S	ist; AND;						
-		12	2	.58/2	.5												
-35 <u> </u>	665	13	2.	.42/2	.5												
- -		14	2.	.42/2	.5				Sandy CLAY; 7.5YR 4/6 (stron mostly fine SAND; trace mediur			-					

32 Mauchly, Suite B Irvine, CA 92618

LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH THE PASSAGE OF TIME. THE DATA PRESENTED IS A SIMPLIFICATION OF THE ACTUAL CONDITIONS ENCOUNTERED.

LOG OF CORE BORING							RIN	G	PROJECT NAME SSV PROJECT LA-1161A			NUMBER		BORING B-8*				
SITE	LOCA	TION	٧						DATE(S) DR			LOGGED TO	BY			HEET N	0.	
6230 Yucca Street, Hollywood, Ca									4/14/14 to 4/	1	3 of 4							
DRILLING METHOD									DRILL BIT S	IZE/TYPE			CHECKED	BY	TOTAL DEPTH DRILLI			
	w Stem								8"				SK	ON E	`		60 AL/BEARING	
DRILI CME	L RIG	TYPI	E						DRILLED BY	(INCLINATIO				ALIBEARING	
		GP		וחשו	TED	DED	TH (feet)		ABC Drilling				APPROXIM		degree		EVATION	
55	AIN EIN I	GK	OUN	DVV	AIEN	DEF	in (ieet)						(feet)		30 KF 02	ACE EL	EVAIION	
СОМІ	MENTS	3											BOREHOLI			L		
													Soil Cutting	js				
													'					
	(ft)			RO	CK (CORE		_						STS	RY	ш, сс		
DЕРТН (ft)	ELEVATION (ft)	١.	١.	%,	g	од " ш» — од				MATERIAL D	ECCD	IDTION		Ë	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD	
)EPI	:VA	RUN NO.	N	ÆR	FRE	D., 9	MNN	LITHOLOGY		WATERIAL	LOCK	FIION		Ä	30R TES	SILL EET/	NOTES	
_	ELE		BO	RECOVERY, %	FRAC. FREQ	R.Q.D., %	FRACTURE DRAWING/ NUMBER	=					PACKER TESTS	\$				
				RE	Ē			1.,		000/5								
									trace fine	AND: 7.5YR 4/6 (s	trona br	own); moi						
Ì	_	15	2	42/2	5				mostly fin	e SAND; few medi	um to co	oarse SAN	ID; trace					
ļ	_360									ng; trace cobbles.								
			-															
Ī	_																	
-		16	1	.5/2.	5			//										
5																		
.5									Lost samı sampler a	ple shoe down bore	ehole wh	nile retriev	ing					
-	_								1 At 3:15 au	igers were pulled o	out of the	e borehole	e					
	355								the hole to	shoe was uncovere o 45 feet and resur	ned san	npling.	ack down					
		17		4/5					Color cha	nges to 7.5YR 5/8	(strong	brown).						
-																		
	_								;									
									,									
50	_				-				7.5YR 5/6	(strong brown); fir	ne to me	edium SAN	ND; some					
-	_								coarse SA	AND; few fine GRA	VEL; tra	ice coddie	·S.					
	_350							//										
		18	;	3.42/	<u> </u> 5													
}	_							//	Less coar	rse SAND; more fin	ne SANE).						
										,								
55	_				-					6 (strong brown); w	et; more	coarse S	AND;					
	_								less fines	•								
	6.4-								-Ground \	Water								
ŀ	<u> 345 </u>	19		2/5]									
-	_	'		_,5					1									
								//										
ļ]									
DOT	TD		_		_	-				TI 110 CL 11 11 1 1 2 2 2 2	DD: 155	ONII V : = :	FILE 1 00 : =:=	<u> </u>				
ROU	GF	ROL	JP I	DEL	_TA	CO	NSUL	ΓΑΝ	TS, INC.	THIS SUMMARY A	AND AT	THE TIME	OF DRILLING					
2							Suite B		, -	SUBSURFACE CO LOCATIONS AND I	MAY CH	ANGE AT	THIS LOCATIO			CHID	= A 20 -	
						•		•		WITH THE PASSA PRESENTED IS A				٩L	[GUK	E A-38 d	
ELT	Δ		Irv	ıne,	CA	92	2618			CONDITIONS ENC	OUNTE	RED.						

OG (DR	ΕĪ	ВО	RIN	G	PROJECT NAME SSV	LA-1161/				ORING B-8 * HEET N	0
SITE LOCA 6230 Yuco			lolly a	, n n	Ca			DATE(S) DRILLED 4/14/14 to 4/14/14	TO LOGGEI	RA			of 4	.
DRILLING			ionyv	voou,	Ca			DRILL BIT SIZE/TYPE	10	CHECKED	BY	Т	OTAL D	EPTH DRILL
Hollow Ste								8"		SK		(f	feet)	60
DRILL RIG								DRILLED BY			N F	ROM V	/ERTIC	AL/BEARING
CME 95								ABC Drilling			0	degree	es	
APPAREN 55	T GRO	OUN	DWA	TER	DEP.	TH (feet)				APPROXIM (feet)		SURF 02	ACE EL	EVATION
COMMENT	S									BOREHOLE Soil Cutting		CKFIL	L	
(ft)			RO	CK C	ORE	.	\ >				STS	<u>۲</u>	μîκ	
DEPTH (ft) ELEVATION (ft)	RUN NO.	BOX NO.	RECOVERY, %	FRAC. FREQ.	R.Q.D., %	FRACTURE DRAWING/ NUMBER	LITHOLOGY	MATERIAL D	ESCRIPTION		PACKER TESTS	LABORATORY TESTS	DRILL RATE, FEET/HOUR	FIELD NOTES
340								Total Depth: 60.0 Feet bsg Groundwater: Encountered a Boring backfilled with tampe						
65 —														
. -														
_335														
- -														
70 _														
_														
_330														
- -														
75 —														
. 5														
<u> </u>														
_325														
_														
ROUP								THIS SUMMARY A						
\bigcap G						NSUL 1 Suite B		TS, INC. OF THIS BORING A SUBSURFACE CO LOCATIONS AND I WITH THE PASSAGE	NDITIONS MAY D MAY CHANGE AT GE OF TIME. THE	IFFER AT OTHE THIS LOCATIO E DATA	ER N	 FI	GURI	E A-38 c
ELTA		Irvi	ne,	СА	92	2618		PRESENTED IS A CONDITIONS ENC		OF THE ACTUA	۱L			

PRELIMINARY GEOTECHNICAL REPORT PROPOSED HIGH RISE RESIDENTIAL DEVELOPMENT 6230 YUCCA STREET, HOLLYWOOD, CALIFORNIA. BORING LOGS (GDC 2006).

				T D/	2011	10	PROJE	CT NAI	ME		···			PROJECT	NUMBER	BORING	
		_ 1	FS	TBO	JKII	V G	Propo	sed F	Reside	ential D	evelopmer	nt		L-718		B-1 SHEET NO.	
SITE LOC					٠							STAF			і s н 0/25/2006		
6320 \	Yucca	St. F	lollyw	ood, CA	<u> </u>			DRILI	ING M	ETHOD		10	/25/2006	LOGGED		CHECKED BY	
Jet Dr		A111								tem Αι	iger			S. Na		T. Swantko	
DRILLING		MEN1	T			-			NG DIA		TOTAL DE	PTH (ft)	GROUNE	ELEV (ft)	1	LEV. GROUND WAT	ER (ft)
CME								6			61				▼ 24.3	3 / na	
SAMPLIN			D	20 i-			NOTES	S									
Hamm	ier: 14	JIDS	i., Dio	p: 30 in.	<u> </u>	1		1	ι (Ω	· ·	<u> </u>						
DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	% PASSING #200	ATTERBERG LIMITS LL:PL:PI	POCKET PEN (tsf)	GRAPHIC LOG		DES	CRIPTION	AND CLASS	SIFICATION	
5			B-1						A.		.	2" of E Possible Silty Sar	Fill。 nd (SM) o	dark brown	n, with son	ne clay, scattered	
-		X	S-2	7 10 11								Sandy S lense, li	ilt to Silty ght browr	r fine San n, some ro	d (ML/SM) pots) medium dense to	,
_10		X	R-4	***	40/12	24					\$	Silty Sar	nd (SM) v	vith clay, o	dense, red	dish brown	
15 		X	S-5	6 35/6"				4.3				Bilty Cla	y (CL) ha	ard, reddis	sh brown, s	shale fragments	
20		X	R-6	*	36/1,	2 "					F r	Reddish nedium	brown int	terbedded dense, tra	Sandy Si ace of grav	It and Clayey Sand vel	d
GROUP	GR	229	91 W	LTA C	h St.,	Suit				OF THIS SUBSUF LOCATION WITH TH PRESEN	MMARY APP BORING AN FACE CONE ONS AND MA IE PASSAGE ITED IS A SII	ID AT TH DITIONS AY CHAN E OF TIM MPLIFIC	IE TIME C MAY DIFI IGE AT TI IE. THE C ATION OF	OF DRILLIN FER AT O' HIS LOCA' OATA	IG. THER TION F	FIGURE A-2	a .

				TDC		VIC.	PROJE									NUMBER		BORING
		<u> </u>	I E S	TBC	וואכ	NG	Propo	sed F	Reside	ential D	evelopn	nent		L	718 FINE	SLI		B-1 SHEET NO.
SITE LOC		04 1	1-0	01								STA	kı /25/20	വര)/25/2006	3	2 of 3
DRILLING	YUCCA G COMP	ANY	Hollyw	ood, CA				DRILI	ING M	ETHOD		1 10	123120		GGED I			CKED BY
Jet Dr	illing									tem Au	uger				S. Nav			Swantko
DRILLING		MEN	Ť					BORI	NG DIA	. (in)	i i	DEPTH (ft)	GROU	ND EL	.EV (ft)			ROUND WATER (ft)
CME SAMPLIN	75 IC MET	IOD					NOTES	6			61					¥ 24.3	/ na	
			s. Dro	p: 30 in.			NOIL	,										
			,						ည		1				,			
ਰੇ	z	Æ	<u>o</u>	N S S S	⊭	ш		#50	Ĭ	ä	0							
DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO	PENETRATION RESISTANCE (BLOWS / 6 IN)	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	PASSING #200	RG.	POCKET PEN (tsf)	GRAPHIC LOG		DE	SCRI	PTION A	ND CLASS	SIFICAT	ION
EPT	EV.	M M	₽₩	ESIS V	ାଳ	lois (6	타	ASS	RAGE TO SERVICE TO SER	S S	SR							
^	ш	S	Ŋ	86.6	E E			%	ATTERBERG LIMITS LL:PL:PI	Ĭ.								
							+		⋖.		7.7.7	Clayey S	Sand to	Sano	y Clay	dense, re	eddish	brown, trace
		IXI	S-7	12 14				3.0				of black	organic	s	•			
		\vdash		18]						
-											////]						
_											1///	,						
												1						
											1///	1						
30				18/	01.	įi					 	Silty to S	Silty fine	e to n	nedium	Sand (Si	WSP)	wet, medium
L			R-8	76 4	Poli	}						dense, li	ght redo	dish b	orown s	lightly		
į																		
												-						
-																		
												1						
35				_								Silty Cla	y (CL)	stiff, l	light red	dish brov	vn, wit	h some sand
		X	S-9	7 8														
		\leftarrow		14														
~																		
_																		
				}				ĺ										
<u> 40 </u>		M	D 10	12/3	26/.	£1						Slight Si	ity to S	ilty fi	ne to c	oarse Sa	nd (SN	l) medium
<u> </u>			K-10	7/8	11/2							dense, r	eddish t	browr	ו			
												-						
												1						
}-											1.1.1	†						
]						
4-]						
45				33							7.7.7	Sandy C	lay to C	Claye	y Sand	(SC/CL)	very d	ense, reddish
-		X	S-11	28							1././	prown, ti	ace or (grave	:1			
				50/3"														
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-											1///	1						
]						
GROUI	CD		ם הר	LTA C	ONIGI	II TA	NTC	INIC				APPLIES O						
	GN			-					1 :	SUBSU	RFACE CO	AND AT TH ONDITIONS	MAY DI	IFFER	R AT OT	HER _		
		229	91 W	/. 205t	h St.,	Suit	e 10	5		LOCATI	ONS AND	MAY CHAN	IGE AT	THIS	LOCAT	ION F	ıGU	RE A-2 b
DELTA		т	orra	200	۸ ۵۸	504			1 1	PRESEN	NTED IS A	SIMPLIFIC	ATION (JAL		
DELIP).	- 1	onal	nce, C	7 900	ו טכ			- 1 '	CONDIT	IONS EN	COUNTERE	.U					

LO	GO	F	TES	ST B	ORII	NG	PROJE			ential D	Developr	ment		PROJE		NUMBER		BORING B-1
1	CATION			-								STAI			FINI			SHEET NO.
6320	Yucca	St.	Hollyv	vood, CA	4							10	/25/200)/25/200		3 of 3
	NG COM	PANY	′							ETHOD				LOGG			i	CKED BY
Jet L	rilling NG EQUII	DB455								Stem A				S. I				Swantko
		PIVIEN	41						ING DIA	(in)		L DEPTH (ft)	GROUNI	DELEV	(H)			ROUND WATER (fi
CME	NG MET	HOD					NOTES	6			61		<u> </u>			¥ 24.3	3 i na	
			s., Dro	p: 30 in			110.2	•										
				7					13									
) g	Z	SAMPLE TYPE	ġ	PENETRATION RESISTANCE (BLOWS / 6 IN)	DRY DENSITY (pcf)	щ		PASSING #200	ATTERBERG LIMITS LL:PL:PI	POCKET PEN (tsf)	0							
DEPTH (feet)	ELEVATION (feet)) H	SAMPLE NO.	S/A/S	SNG	MOISTURE (%)	OTHER TESTS	S S	S	F 6-	GRAPHIC LOG		DEG	ODIOTI	~~! ^	ND 01 40	NEIO A T	1011
Į Ę	5 e	뒽	M M	P SS S		Sic	E H	SSI	187	岩뿔	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	İ	DES	CKIPII	JN A	ND CLASS	SIFICAT	IO N
🛎	ᇤ	SAN	δ	F F F F	×	ž			EB	ŏ	⁶							
<u> </u>								%	A.									
]		M	R-12	22	641	in it]				Sand to	Silty fine	to coa	rse	Sand de	nse, re	ddish brown
 				\ \mu_{\mu_{\text{\chi}}}	64/	2						1						
					1				ŀ	1		1						
												1						
-	1	1					1					}						
													•					
				1		}	1											
_ 55			,									Fine to m	adium S	and (S	<u> </u>	en/ dens	e light	brown, some
1		X	S-13	21/	50/6	ti		Ĭ				silt	icului i S	ariu (S	, , <u>, , , , , , , , , , , , , , , , , </u>	ery dens	e, ngm	blown, some
<u> </u>				50/16	10													
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1					ļ]				· · · · · · · · · · · · · · · · · · ·							
-																		
L																		
											,							
60				~				1			777	Clayey S	and (6C)	dono	- lie	ht brown	with a	obblos
		M	R-14	50/6"							////	Clayey 3	anu (SC)	uense	, ng	int brown	, with t	obbles
ſ									1 1			Bottom of	boring B	-1 at 6	1 fee	et.		
F												Groundw						with concrete.
												Buring Da	CKIIIEU W	iui Soii	Cutt	irigs ariu	capped	with concrete.
ŗ																		
L																		
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—65																		
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						1												
GROUF	2								\ 	HIS SU	MMARY A	APPLIES ON	LY AT TH	ELOC	ATIC	T n		
	GRO	UUI	P DE	LTA C	UNSU	ILTAN	NTS,	INC.	· c	F THIS	BORING.	AND AT THE	E TIME OI	F DRILL	ING	i.		
0		220	31 W	. 205tl	h St	Suita	105					NDITIONS MAY CHAN				ON F	IGU	RE A-2 c
	,		, , v v	. 2001	, Ot.,	Juile	, 100		Ιv	VITH TH	E PASSA	GE OF TIME	E. THE DA	ATA				•
DELTA		T	orran	ice, CA	4 905	01						SIMPLIFICA OUNTERED		THEA	CTU	AL		

100	<u> </u>	-		TDC	אומכ		PROJE									NUMBER		BORING
		- I	ES	TBC	וואכ	NG	Propo	sed R	eside	ntial D	evelopmen				L-718	011		B-2 SHEET NO.
SITE LOC												STAI		ne		эн 0/26/2006	3	1 of 3
DRILLING	Yucca	St. I	Hollyw	ood, CA				DRILL	ING M	ETHOD		10	/26/20		OGGED			KED BY
Jet Dr		4141								tem Au	aer			- 1	S. Nav		T. :	Swantko
DRILLING		MEN'	r						NG DIA		TOTAL DE	PTH (ft)	GROU	ND E	LEV (ft)	DEPTH/E		ROUND WATER (ft)
CME	75							6			61.5					₹ 44.2	! / na	
SAMPLIN							NOTES	5										
Hamm	ner: 140) lbs	., Dro	p: 30 in.				1										
DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	DRY DENSITY (pcf)	MOISTURE (%)	OTHER	% PASSING #200	ATTERBERG LIMITS LL:PL:PI	POCKET PEN (tsf)	GRAPHIC LOG		DE	SCR	RIPTION	AND CLASS	SIFICAT	ION
							+	0-	IA.		~~~~	2" of A	sphalt					
5			B-1								s	2" of E	Base	bro	own, sor	ne gravel		
-		X	R-2	*1	O(12 th								ilt to Si		Sand (Si	WML) dar	k brow	n, scattered
_ 10 _ _		X	S-4	4 10 7	ļ						S	lightly rown, ti	Silty to ace of	Silt; grav	y Sand rel	(SM) med	ium de	ense, light
1031/06 T031/06	X	R-5	*2	412°								Sand ome cla) mediu	m dense,	slightly	y reddish	
BORING_1A L-718 YUCCA,GPJ GDC_WLOG,GDT 10/31/06 0 0		X	S-6	8 12 14							d	ense, s	ome co	arse	e sand a	n Sand (S and gravel		
GROUF	GR	229	91 W	LTA C /. 205t	h St.,	Suit			- (OF THIS SUBSUF LOCATION WITH THE PRESEN	MMARY APP BORING AN RFACE COND ONS AND MA HE PASSAGE ITED IS A SIN IONS ENCOL	DATTH ITIONS YCHAN OFTIM	IE TIME MAY DI IGE AT IE. THE ATION (OF IFFE THIS DA	DRILLIN R AT O' S LOCA' TA	IG. THER TION F	IGU	RE A-3 a

Г	00	10.			TDO		10	PROJE	CT NAM	ME					PROJE		JMBER		BORING
L	_OG		- I) B	וואכ	NG	Propo	sed R	Reside	ntial D	evelopmen	t		L-71	8 INISH			B-2 SHEET NO.
	ITE LOC												STAF				1 26/2006		
L	6320 Y	ucca	St. I	Hollyw	ood, CA				DOLL	INC M	ETHOD		10	/26/200	LOGGE				2 of 3 CKED BY
			ANY									aor			S. N				Swantko
Ļ	Jet Dri	lling	AACNI'	-						NG DIA	tem Au	TOTAL DE	DTLI /ff\	GROUN					ROUND WATER (ft)
			MICIA	'					l	אט טוא	. (***)	61.5	111 (14)	GROOM	J L_L (· 1	¥ 44.2		(-,
	CME 7		OD					NOTES	_ 6 s			01.0		1			- 11.6	7 11G	
				s Dro	p: 30 in.														
\vdash	1			.,						S									
	DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	PENETRATION RESISTANCE (BLOWS / 6 IN)	DRY DENSITY (pcf)	MOISTURE (%)	OTHER	% PASSING #200	ATTERBERG LIMITS LL:PL:PI	POCKET PEN (tsf)	GRAPHIC LOG		DES	SCRIPTIC	N AN	ID CLASS	IFICAT	ION
r			M	R-7	.8/ 1/8	36/2"				- A				•					
	30		X	S-8	5 7 9	72			7	,	3.5	ō	lay (CL) very st	tiff, with	some	e sand	 ·	
	35		X	R-9	7	20/12	ù					Sb	ilty fine rown, s	to medi ome clay	ium San	id (Si	M) medi	um de	nse, dark
MLOG.GDT 10/31/06	40		X	S-10	7 12 12		į						ilty fine ravel	e to med	ium San	id (Si	M) medi	um de	nse, some
BORING 1A L-718 YUCCA.GPJ GDC WLOG.GDT 10/31/06	45		X	R-11	*	58/1	2"												
OBC FOG BC	GROUP	GROUP DELTA CONSULTANTS, IN 2291 W. 205th St., Suite 105 Torrance, CA 90501							OF THIS SUBSUF LOCATION WITH TH PRESEN	MMARY APP BORING AN RFACE CONE DNS AND MA HE PASSAGE ITED IS A SIN IONS ENCOL	DAT TH DITIONS Y CHAN OF TIM MPLIFIC	HE TIME (MAY DIF NGE AT T NE. THE ATION O	OF DRIL FER AT HIS LOC DATA	OTH CATIC	IER ON F	IGU	RE A-3 b		

Γ	100	G E	F	TES	T BO	DRII	NG	PROJEC	CT NAI	ME Poside	ntial D	evelonn	nent		PROJECT	NUMBER		BORING B-2
-	SITE LOC	CATION						Рюро	seu r	eside	illiai D	evelopii	STAF	RT	FINI			SHEET NO.
1					ood, CA	·			2011	1110 11	ETHOD		10	/26/2006	LOGGED (/26/2006		3 of 3 CKED BY
	Jet Dr		ANY								ETHOD item Au	ıger			S. Nav		1	Swantko
ŀ	DRILLING	G EQUIP	MEN	T						NG DIA			DEPTH (ft)	GROUNE	ELEV (ft)	DEPTH/E	LEV. G	ROUND WATER (ft)
	CME							1110777	6			61.5	<u> </u>			₹ 44.2	! / na	
ľ	SAMPLIN			s Dro	p: 30 in.			NOTES	•									
\perp	Панн	101. 14		J., DIO		Γ -		 	_	<u></u> ω	T	1	Ī		-			
-	(F)	z	Ä	o.	PENETRATION RESISTANCE (BLOWS / 6 IN)	≿	ш		PASSING #200	ATTERBERG LIMITS LL:PL:PI	Z	,						
1	DEPTH (feet)	ELEVATION (feet)	SAMPLE TYPE	SAMPLE NO.	RAT STAN IS/6	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	<u>№</u>	l SG I	POCKET PEN (tsf)	GRAPHIC LOG		DES	CRIPTION A	ND CLASS	SIFICAT	ION
-	EPT	LEV.	₽	AMP	CESIN	<u>a</u> e	NOIS (%	타	ASS	뿚	OCK A	GR J						
1		ш	ΥS	Ś	8.68	K	2		% 	E	<u>~</u>							
╁			/		40			 		⋖.		777	Silty to C	Clayey Sa	ind (SM/SC	c) dense,	slightl	y reddish
ļ	.		ΙX	S-12	12 14								brown					
1				•	17													
t	'							1										
ŀ																		
ı	- 55		1	R-13	70 6	polis	i'			-			Grades v	vith grave	and cobb	oles		
\perp					700	112	1											
L														•				
1																		
ŀ																		
ŀ																		
	-60											MX						
			\mathbb{N}	S-14	12													
t				• · · ·	21 25													
ŀ															3-2 at 61.5 Juntered at			
ļ													Boring ba	ackfilled w	ith soil cut	tings and	capped	d with concrete.
ŀ																		
\perp	-65												,					
1/06																		
핡																		
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<u>چ</u> [ي																		
읽	-70																	
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18 7.1										ĺ								
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LOG BORING 1A L-718 YUCCA GPJ GDC WLOG GDT 10/31/06																		
ORI																		
ဗ္ဗ	GROUP	GR	OH	P DF	LTA C	ONSI	JI TA	NTS	INC				APPLIES ON AND AT TH					
										- - :	SUBSUF	FACE CO	ONDITIONS	MAY DIFF	ER AT OT	HER	IGH	RE A-3 c
င္တို			22	91 W	/. 205t	n St.,	Suit	e 105)	\	WITH TH	IE PASSA	MAY CHAN	E. THE D	ATA	1	100	NL 7-30
ľ	DELTA		T	orrar	nce, C	A 905	501						SIMPLIFICA COUNTERE		THE ACT	JAL		

LANGAN ENGINEERING & ENVIRONMENTAL SERVICES FAULT INVESTIGATION REPORT FOR THE HOLLYWOOD DEVELOPMENT, VESTING TENTATIVE TRACT 71837, HOLLYWOOD, CALIFORNIA. BORING LOGS, 2011.

ENGINEERING	& ENVIRONMENTA	AL SERVICES		Log c	of B	oring			B3	3			Shee	et 1	of	5
Project		<u> </u>	Pli	unge (deg) -60	Pro	ject No.			7000	19502						
Location	Millennlum Holly	wood	Be	-60 earing (deg)	Ele	vation an	d Date		UUU	19002						
	Hollywood, CA			179		la Diada	,		Appr	oximat	ely 38		Finishe	d d		
Drilling Company		l D			Dai	le Started	,		7/	19/12		Dale	, mistre	u	7/20/12	
Drilling Equipmen	Cascade Drilling) bel .	······································		Co	mpletion	Lengti	า				Rock	Depth		., ., .	
	Sonic Drill Rlg				\vdash				Distu	100 ft rbed		ŢŪ	ndisturb	ed	Core	
Size and Type of	-			alan Danii. (4)	Nu	mber of S	Sample	36			-		ompletic	-	24 HR.	-
Casing Diameter	(in)		Ca	sing Depth (ft)	1	ater Leve			First V		56		Milher	55	Ā	55
Casing Hammer	-	Weight (lbs)		Drop (in)	Dri	lling Fore	man	, le	enn	Klipfel						
Sampler	Continuous Core			Than //s	Ins	pecting E	Engine	er					· · · · · · ·			<u> </u>
Sampler Hamme	r	Weight (lbs)	-	Drop (in)	\perp	1	1	D.	Ebe	rhart, S	. Mo	ntgo	mery, 8	& J.Goff	,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Jog Elev.		Comple Description	on			Length	per	ę.				alue vs/ft)	1	(Drilling FI	Remark	S of Casino.
SYMBOL SYMBOL (U)		Sample Description	UH			Scale	Number	Туре	8 8 E	Penetr. resist BL/6in		VS/11) 30 40	F	luid Loss, I	Orilling Resi	of Casing, stance, etc.)
+388.7	Asphalt Pavement	<u></u>		37757==	~	- 0 - E		T				ì	,	HHYP #	# Soll C	olor based
	Loose, 5YR 3/2, s to slightly moist [F	ilty fine to medium g	raine	а эмир, аяпр		- 1 -	1				:	; ;				olor Chart
	•					E	1	w								
						- 2 - E	42	CORE	12		1	1:				
						E 3 -	-				1	;]			
						E	1				: :	! .				
		silty fine to medium g	raine	đ SAND, damp	,	- 4	9	CORE	12		:	: .				
	(FILL)					t - 5	1	8	<u> </u>	 						
3 	No Recovery (5 to	7.5 feet)				E	=				. :	:				
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						E 7	=				. ;					
2 2 3 3 8 2 3 8 2 5	en i compaño e marco a marco a marco.	ag page a a agent a a sport a g more a a sport a a constant a constant a a constant a co	,		. .	·‡ ′	1	E C				•	.			
	YOUNG ALLUVIL Loose, 10YR 5/8,	sitty fine grained SA	AND, 1	trace medium		- 8	4				:	;				
	grained sand, trad	ce fine subrounded g	gravel	, slightly moist		£ ,	=				:	!				
	(OW)					F 9	<u> </u>				:	:				
						E 10]	 	 -	ļ		:	:		•	
A S						Ė	1						·			
5						F 11	뒥,.	CORE	138			: :				
						E 12	7 7	8	1			· ·				
						E	1									
377.7		, very fine to fine gra	ined	poorly graded		-E 13	-	+	H^-	1						
	SAND, trace fine	subangular gravel,	damp	(SP)		E 14	3 6	CORE	15							
NON	••					F 14	1	8	"			i ·	:			
902/4/2/2/	No Pagarant (15	ito 18 feet)				- 15	+	+	Ц	-		; ! ! !				
8 × × × × × × × × × × × × × × × × × × ×	No Recovery (15	(O 10 ipal)				Ė	1						:			
200				••		– 16	7				1:	i i	:			
B C C C C C C C C C C						- 17	4					:				
						E	3	Æ	90		:					
NIGAN, COMDATANIRDATASTO0019502ENGINGERING DATANG	Loose, 10YR 3/4	, silty very fine to fin	e gra	ined SAND,	-	- [18	긬					!!				
	scattered clayey	lenses, slightly mois	st (SN	۸) .		E 19	4					: :	.			
\$ NAME OF THE PROPERTY OF THE						£ 18	#					•				
315 P. 2554	1			_		+ **	4	1		1	1	· ;				

ENGINEERING & ENVIRONMENTAL SERVICES Log of Boring **B**3 Sheet of 5 Project Plunge (deg) Project No. Millennium Hollywood 700019502 Location Bearing (deg) Elevation and Datum Hollywood, CA Approximately 389 Sample Data Elev (ft) Remarks Length Scale Sample Description (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) 4 21 22 Loose, 7,5YR 3/4, silty very fine to fine grained SAND, trace fine subrounded gravel, trace coarse grained sand, some clay, slightly moist (SM) 23 88 OLD ALLUVIUM Medium dense, 7.5YR 4/4, silty clayey very fine to fine grained SAND, slightly moist to moist (SC) Loose to medium dense, 7.5YR 4/6, silty clayey very fine 25 grained SAND, moist (SC) 26 27 28 ဖ 28 Medium dense, 7.5YR 4/4, very fine to fine grained poorly graded SAND, trace fine subrounded gravel, trace silt, slightly moist (SP) 29 30 Soft, 7.5YR 4/6, very fine grained sandy SILT, moist (ML) 31 32 8 Medium dense, 7.5YR 4/6, silty very fine to fine grained SAND, moist (SM) 33 34 35 Medium dense, 7.5YR 3.5/4, slity very fine to fine grained SAND, trace fine subangular gravel, trace medium and coarse sand, trace clay, slightly moist (SM) 36 24 37 38 Loose, 10YR 3/4, sitty very fine grained SAND, slightly moist (SM) 39 O) $\overset{\sim}{\sim}$ Loose to medium dense, 10YR 3/4, silty very fine to fine grained SAND, moist (SM) 40 80 2 4 42 Medium dense, 7.5YR 3/4, clayey very fine to fine grained SAND, trace silt, slightly moist to moist (SC) 16

ENGINEERING & ENVIRONMENTAL SERVICES Log of Boring B3 Sheet 3 of 5 Project No. Plunge (deg) Project -60 700019502 Millennium Hollywood Location Bearing (deg) Elevation and Datum ..Template TEMPLATE.GD1 Hollywood, CA 179 Approximately 389 Sample Data Remarks Length Scale N-Value (Blows/ft) Sample Description (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) (ft) 10 20 30 40 Loose, 7.5YR 3/4, silty very fine grained SAND, gradational contact, slightly moist (SM) 46 2 4 Loose, 7.5YR 4/6, very fine grained poorly graded SAND, trace fine to coarse subrounded gravel, gradational contact, damp (SP) Medium dense, 7.5YR 4/6, silly very fine to medium grained SAND, slightly moist (SM) Medium dense, 7.5YR 4,5/4, very fine to coarse grained well graded SAND, scattered fine subrounded gravel, damp $\tilde{\omega}$ 8 53 Loose to medium dense, 7.5YR 3/4, silty very fine grained SAND, slightly moist (SM) Medium dense, 10YR 4/6, very fine to medium grained poorly graded SAND, trace fine to coarse subangular 4 7 gravel, slightly moist (SP) 55 Medium dense, 10YR 4/4, very fine to medium grained poorly graded SAND, trace fine subangular gravel, wet (SP) 56 5 8 57 Medium dense, 10YR 3/6, silty very fine to fine grained SAND, trace fine subangular gravel, trace coarse grained sand, moist to wet (SM) 58 Loose, 10YR 5/4, very fine to fine grained poorly graded SAND, trace fine to coarse subangular gravel, damp to 59 slightly moist (SP) Loose, 10YR 4/6, fine to coarse grained well graded SAND, wet (SW) 9 37 60 Medium dense, 10YR 4/4, silty very fine grained SAND, trace fine subangular gravel, wet (SM) 61 Loose, 10YR 4/6, very fine to medium grained SAND, some coarse grained sand, wet (SP) 62 Loose, 10YR 3/4, very fine to medium grained poorly CORE graded SAND, trace fine subangular gravel, wet (SP)
Medium dense, 10YR 3/6, silty very fine to fine grained
SAND, trace coarse grained sand, wet (SM) 30 63 64 Soft, 10YR 3/6, very fine to fine grained sandy CLAY, trace coarse grained sand, wet (CL) 65 8 38 66 Medium stiff, 10YR 3.5/5, CLAY, trace coarse grained sand, moist (CL) 67 Loose, 7.5YR 3/4, clayey very fine to fine grained SAND, trace coarse grained sand, wet (SC) 68 Loose, 7.5YR 4/6, fine to coarse grained well graded 5 36 SAND, wet (SW) Stiff, 10YR 4/6, silty CLAY, trace coarse grained sand, slightly moist to moist (CL) 69

ENGINEERING & ENVIRONMENTAL SERVICES Log of Boring **B**3 Sheet 5 of Project Project No. Plunge (deg) Millennium Hollywood -60 700019502 Location Bearing (deg) Elevation and Datum Hollywood, CA Approximately 389 Sample Data Remarks Length N-Value (Blows/ft) Sample Description (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) (ft) Scale 10 20 30 40 Loose, 10YR 3/6, clayey fine to coarse grained SAND, scattered silty lenses, wet (SC) 71 72 Loose to medium dense, 10YR 3/4, clayey silty very fine 20 36 grained SAND, trace coarse grained sand, trace fine angular gravel, moist (SM) 73 75 Loose, 10YR 3/6, clayey very fine to coarse well graded SAND, slightly silty, wet (SW) 76 Medium stiff, 10YR 4/3, silty CLAY, trace fine and medium 38 ដ grained sand, moist (CL) Modium stiff to stiff, 10YR 3/4, CLAY, trace medium and coarse grained sand, moist (CL) Medium dense, 10YR 3/4, silly fine to coarse grained SAND, scattered fine subangular to rounded gravel, trace 22 Ø Loose to medium dense, 10YR 5/8, silty very fine to coarse grained SAND, moist to wet (SM) 83 4 80 81 Loose, 10YR 4/6, very fine to coarse well graded SAND, 82 scattered fine subrounded gravel, scattered silty lenses, wet (SW) 24 26 83 84 Loose, 10YR 4/6, very fine to coarse well graded SAND, scattered fine subrounded gravel, scattered silty lenses, 85 25 36 86 Loose to medium dense, 10YR 5/6, silty very fine to coarse grained SAND, scattered fine subangular gravel, dry to damp (SM) 87 Loose, 10YR 4/6, fine to coarse grained well graded SAND, moist to wet (SW) 88 Stiff, 10YR 3/4, silly medium and coarse grained CLAY, slightly moist (CL) 26 38 89 Loose, 7.5YR 3/3, fine to coarse grained well graded SAND, trace clay, slightly moist (SW)
Stiff to very stiff, 7.5YR 3/4, CLAY, trace coarse grained sand, moist (CL) 90 91 8 27 92 Medium dense, 10YR 3/4, clayey fine and coarse grained SAND, wet (SC) 8 ₩

B3 Sheet 5 of 5 Log of Boring ENGINEERING & ENVIRONMENTAL SERVICES Project No. Plunge (deg) Project -60 700019502 Millennium Hollywood Elevation and Datum Bearing (deg) Location 179 Approximately 389 Hollywood, CA Remarks Length Scale Elev. (ft) (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) Sample Description Stiff, 10YR 3/6, CLAY, trace very fine grained sand, moist (CL) 95 28 8 Loose, 10YR 4/6, fine to coarse grained well graded SAND, wet (SW) 96 97 Medium dense, 10YR 3/6, silty very fine to fine grained SAND, moist to wet (SM) 98 33 28 99 NLANGAN, COMIDATAINIDATASY 2000 1950 ZIENGINEERING DATANGEOTECHNICAL NGINTLOGS Y 2001 95502 HOLLYWOOD LOGS B1-84-MODIFIED.GPJ ... 11/20/2012 9:59:03 100 101 102 -Boring terminated at 100 feet length Boring backfilled with cement grout Surface patched with black-dyed rapid set concrete 103 104 105 106 107 108 - 109 -110 -111 112 113 114 115 116 118-

	EERIN	G & ENVIRONMENT	AL SERVICES		Log of	Bori	ng			E	14			Sheet	1	of	5
Project		k Allianni sun tinis	unad	Plunge (deg)	-60 F	roject	Νo.			700	040=0	~~~~~~				•••••••	
Location		Millennlum Holly	wood	Bearing (deg		Elevati	on an	d Da	lum	700	01950	2					
Drilling (`omnar	Hollywood, CA			178	5.1. 6				Арр	roxima	ately 3		P. 1			
Diming	zumpas	Cascade Drilling,	. LP			Date S	tarted			7	/20/12		Date	Finished	7	/21/12	
Drilling E	quipme	ent	<u> </u>		, 0	Comple	etion (eng	th				Rock	Depth		L 11 (L	
Size and	Туре	Sonic Drill Rig								Dist	111 ft urbed		TU	ndisturbed	T	Core	
Casing (Dlamete	ar (in)		Casing Depth		dumbe	er of S	amp	les					ompletion	-		
			Tiarata tha		v	Valer				Firs V	· 	62,5		62,		24 HR. Y	-
Casing I		*	Weight (lbs)	Drop (in)	^L	Orilling	i Forei	man		asor	Klipfe	4					
Sampler		Continuous Core	Weight (lbs)	Drop (in)		nspec	ting E	ngin		4001	rapio	!	*******			········	
<u> </u>	1 (21)	Q1 #		-		·			_ <u>D</u>		erhart, imple Da		ntgor	nery, & J.Go	ff		
MATERIAL SYMBOL	Elev. (ft) +393.5		Sample Description	n ·		So	ngth cale	Number	Type	_	Penetr. resist BL/6in	N-V: (Blov	/s/ft)	(Drilling Fluid Loss		narks Depth of Casi ig Resistance	ng, , etc.)
****	+393.2	Asphalt Pavement	ality very fine grained	SAND asnh	all and	Ŧ	0 -		Т				Ti	##VD	HIH 0	oll Color b	
		concrete fragments	s, damp [FILL]	or trib; doprie	an unio	F F	1 1	*	CORE	4				on Mur	sell S	Soil Color	Chart
		Loose, 10YR 3/2, s	silty fine grained SAN	D, scattered (îne	E	2		1	-		i					
		angular gravel, asp slightly moist [FILL]	phalt and concrete frag]	gments, dam	p to	Ė	3 =	2	CORE	ય							
$\otimes\!\!\!\otimes\!\!\!\otimes$						Ē			Ö				1!				
			silty fine grained SAN	D, trace fine		[-	4		H	\vdash		1					
XXX	+389.2	subangular gravel,		·-··-··-			5	က	SORE	2			1				
		Loose, 10YR 3/3, s	silty very fine to fine a	rained SAND	, trace	Ę	11.11		٥				;				
		iine subangular gra	avel, slightly moist (Si	VI)		F	6			\vdash		;	li				
						E	7	4	CORE	φ							
		•				1	116		Ĭ			;					
			YR 3/4, silty very fine e grained sand, mois		ed	F	8										
		OMID, trace coars	e granica sana, mois	C (ON)		-	9 =	ហ	ORE	80		:	! !				
						ŧ,						:	:				
		Medium dense, 10'	YR 3/4, silty very fine e grained sand, mois	to fine graine	ed	F 1	10 -										
			o grantou outing more	. ()		F 1	11 -		E			1					
	-383.1					Ė,	10	9	COR	12							
		Medium dense, 10' SAND, trace fine se	YR 4/4, clayey fine to ubangular to subroun	coarse grain	ed ome	E	12										
		silt, dry to damp (S	(C)	g ,		F	13 -		H	 							
						Ė,	14 -						:				
						F '	,,,	7	CORE	11			! :				
						F 1	15 -		°								
	379.6					Ē,	16		Ш			; ;	;				
		Loose, 10YR 4/6, s clay, slightly moist	silty fine to coarse gra (SM)	iined SAND, (trace	Ė '						٠,	:				
開放						F 1	17 -		쀭	12			:				
						<u></u>	- 18 –	∞	CORE	~		. !					
					•	E	=					:					
		Medium dense, 10' slightly moist (SM)	YR 4/4, silty very fine	grained SAN	ID,	- 1 -	19 -] - -	o	SORE	10		:					

of 5 Log of Boring Sheet ENGINEERING & ENVIRONMENTAL SERVICES Project No. Plunge (deg) Project 700019502 Millennium Hollywood Elevation and Datum Location Bearing (deg) Approximately 393.5 178 Hollywood, CA Sample Data Remarks Length Scale N-Válue (Blows/fi) (Drilling Fluid, Depth of Casing, Fjuid Loss, Drilling Resistance, etc.) Elev (ft) Type Sample Description 10 20 30 40 20 Loose to medium dense, 10YR 4/6, fine to coarse grained poorly graded SAND, slightly moist (SP) 9 21 22 Medium dense, 10YR 4/6, silty fine to medium grained SAND, scattered fine subangular gravel, damp to slightly 23 moist (SM) 2 9 24 25 Loose to medium dense, 7.5YR 4/4, silty fine to coarse grained SAND, trace fine angular gravel, moist (SM) 26 Medium dense to dense, 7.5YR 4/4, silty fine to coarse grained SAND, trace clay, slightly moist (SM) 82 27 370.1 OLD ALLUVIUM 28 Medium dense, 7.5YR 3/3, silty fine to coarse grained SAND, slightly moist (SM) 29 Medium dense, 7.5YR 4/3, silty fine to medium grained SAND, trace coarse grained sand, slightly moist (SM) S 2 30 31 Medium dense, 7.5YR 4/4, clayey silly fine to coarse grained SAND, slightly moist (SM) Medium dense, 7.5YR 4/4, silty fine to coarse grained SAND, trace clay, slightly moist (SM) 32 5 28 33 34 Medium dense, 7.5YR 3/4, silty very fine to fine grained SAND, slightly moist (SM) 363.6 Loose, 7.5YR 5/6, very fine to coarse grained poorly graded SAND, slightly moist (SP) 35 4 8 36 Loose, 7.5YR 4/6, silty fine to medium grained SAND, trace coarse grained sand, slightly moist (SM) 38 5 23 39 40 Loose, 7.5YR 4/6, silty fine to medium grained SAND, 358.4 slightly moist (SM) Loose, 7.5YR 4/4, fine to medium grained poorly graded SAND, trace fine subrounded gravel, slightly moist (SP) 41 8 9 Medium dense, 7.5YR 4/6, silty very fine to fine grained SAND, slightly moist (SM) Medium dense, 10YR 3/6, clayey fine to medium grained SAND, slightly moist (SC) 11 73 Medium dense to dense, 10YR 3/4, clayey very fine to fine grained SAND, trace fine subrounded gravel, slightly moist

ENGINEERING & ENVIRONMENTAL SERVICES Log of Boring **B4** Sheet 3 of 5 Project Plunge (deg) Project No. Millennium Hollywood -60 700019502 Location Bearing (deg) Elevation and Datum Hollywood, CA 178 Approximately 393.5 MATERIAL Sample Data Elev (ft) Remarks Length Scale N-Value (Blows/ft) Sample Description (Driling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) 10 20 30 40 (SC) Medium dense, 10YR 3/6, clayey fine to medium grained SAND, trace silt, slightly moist (SC)

Medium stiff, 5YR 4/4, silty CLAY, slightly moist (CL)

Loose, 7.5YR 4/6, clayey fine to medium grained SAND, trace coarse grained sand, slightly moist (SC) 354. 7 38 7 Medium dense, 7.5YR 3/4, clayey very fine grained SAND, trace coarse grained sand, slightly moist to moist (SC) 48 Medium dense, 7.5YR 4.5/4, clayey fine grained SAND, slightly moist (SC) $\,$ 49 50 6 36 Loose, 7.5YR 4/6, silty fine to medium grained SAND, trace fine subangular gravel, trace coarse grained sand, slightly 51 moist (SM) 52 Loose, 10YR 4/6, fine to medium grained poorly graded SAND, scattered fine to coarse subangular gravel, slightly 53 moist (SP) Loose, 10YR 4/6, fine to coarse grained well graded SAND 20 36 wet (\$W) 54 Dense, 10YR 3/6, clayey very fine grained SAND, moist Loose, 10YR 4/6, fine to coarse grained well graded SAND, trace fine subangular grayel, wet (SW) 55 56 Stiff, 10YR 3/4, CLAY, slightly moist to moist (CL) 46 21 57 58 Medium dense, 10YR 4/6, fine to coarse grained well graded SAND, wet (SW) 59 Stiff, 10YR 4/4, silty CLAY, moist (CL) 60 22 တ္ထ Medium dense to dense, 10YR 4/4, clayey fine and coarse grained SAND, wet (SC) 61 62 63 Medium dense, 7.5YR 4/6, gravelly fine to coarse grained well graded SAND, fine subrounded gravel, wet (SW) 64 65 SPR \aleph 52 66 Medium dense to dense, 7.5YR 4/4, very fine to fine grained poorly graded SAND, trace fine to coarse subrounded gravel, moist (SP)

Loose, 7.5YR 5/8, fine to coarse grained well graded 67 68 gravel, trace fine subangular to subrounded gravel, wet (SW) 24 28 69



	EERIN	G & ENVIRONMENTAL SERVICES		f Boring			В	4			Sheet	4	of	5
Project		Millennium Hollywood	Plunge (deg) -60	Project No.			700	01950	<u> </u>					
Location	1	мяненніці і Повужова	Bearing (deg)	Elevation ar	nd Dat	um	700	01900			······································			
		Hollywood, CA	178				App	roxima	ately 3	93.5				
MATERIAL SYMBOL	Elev. (ft)	Sample Description		Length Scale	Number	Type	-	Penetr. 33 resist ald BL/6in Q	N-V (Blo	alue vs/ft) 30 40	(Drillin Fluid Lo		narks Depth of Ca	istng, ce, etc.)
		Dense, 7.5YR 4/6, clayey coarse grained	SAND, slightly	70 -		T	 		10 20	30 40	 		•	
	3	moist (SC)		E 71 -	1									
				E	12	88	88		: !					
	+330.3	Medium dense, 7.5YR 5/4, silty fine to cos SAND, scattered fine to coarse subangula moist (SM)	arse grained or gravel, slightly	72 - 73 -					:					
	1	Loose, 7.5YR 5/8, gravelly fine to coarse	grained well	[73					: 1	: :				
]	graded SAND, fine subrounded gravel, we	n (244)	74					:					
	1			75 -		١			, ,	i				
Ti T	328.1	Dense, 7,5YR 5/4, silty fine to coarse gral		-£ "	33	COPE	8		ŀ		:			
		scattered fine subangular gravel, slightly n	noist (SM)	76		٥								
			•	77						1				
				£ '' :										
LLT.	326.0	Loose, 7.5YR 5/6, fine to coarse grained v	vell graded	- - 78 -	1	\dashv	-							
		SAND, scattered fine subrounded gravel,	wet (SW)	E 79 -			1			1 :]			
	1	·		, E "	1				,	: :				
TT	+324.2	Dense, 5YR 3/4, silty fine to coarse grains	ed SAND,	- F 80 -	1	Ή,				: '				
		scattered fine subangular gravel, wet (SM)	E 81 -	28	Ö	8			: :				
				£ " :				İ		: ;				
7772	+322.5	Dense, 7.5YR 3/4, clayey coarse grained	SAND, trace fine	-E 82 -					ļ	: :				
	321.6	angular gravel, wet (SC)		83 -			<u> </u>	ļ						
	1	Loose, 7.5YR 4/6, fine to coarse grained v SAND, wet (SW)	well graded	= = =										
7777/	320.8	Hard, 7.5YR 3/3, CLAY, trace coarse grain	ned sand, trace	- - 84 -					: :	1				
		fine subangular gravel, slightly moist (CL)		85 -			l	}						
				E	27	SORE	8			1 !				
				- 86 -										
				87 -			1			1 1				
	Ž.,,			Ē	-									
7777	2+317,3	Loose, 10YR 4/6, fine to medium grained SAND, trace fine to coarse subangular grained	poorly graded	- 88 -	-						* *			
]	SAND, trace line to coarse subangular gra	avel, wet (SF)	89 -					:	i .	Ē			
									. !	1 :				
	+315.6	Stiff, 10YR 3/4, CLAY, trace fine to coarse gravel, trace coarse grained sand, slightly	subangular	- 90 -	28.	发	8			; ;				
		graver, trace coarse grained sand, slightly	most (OL)	E 91 -	7	COR	l"			: :				
	+313.8			È						: [
		Dense, 10YR 3/3, silty fine to medium gra slightly moist (SM)	ined SAND,	92 E]				:	i				
		Dense, 10YR 3/3, slity fine to coarse grain slightly moist (SM)	ned SAND,	E 93 -		5	-			. :				
	≯312.1	Medium dense, 10YR 3/4, clayey sandy w GRAVEL, medium and coarse grained sa	vell graded nd, fine to coarse	94	29	CORE	58			: :				



ENGIN	ERIN	G & ENVIRONMENTAL SERVICES	Log of	f Boring			E	4		Sheet	5	of	5
Project			, , ,,	Project No.		············							
Location		Millennium Hollywood	-60 Bearing (deg)	Elevation ar	nd Da	tum		01950	2				
1		Hollywood, CA	178	LICY DITOT OF	iu Da	wn		rovim	ately 393.5				
<u> </u>	TT							mple D					
MATERIAL SYMBOL	Elev.	Ormania Decembrica		Length	- B	Γ.,				-		narks	
SYN	(ft)	Sample Description		Scale	Number	7,	188 E	Penetr. resist BL/6in	(Blows/ft)	" (D	rilling Fluid, I I Loss, Drillin	Depth of Cas g Resistance	sing, e, etc.)
	1	subangular gravel, slightly moist (GW)		95 -	-	7	 	-	10 20 30 40	 			
		Loose to medium dense, 5YR 6/2, sandy to GRAVEL, fine to coarse angular to subang	well graded	96									
. 6		medium to coarse grained sand, slightly n	ioist (GW)	F 90	53	CORE	58						
				E 97 -] ``	ğ	"				•		
				F :							•		
	+308,6	Loose to medium dense, 7.5YR 4/4, grave	elly silty SAND.	- - 98 -	1	H	┢						
	1	fine to coarse angular to subrounded grav grained sand, slightly moist (SM)	el, fine to medium	F	1								
		grained saild, slightly filoist (Sivi)		99 -	1			Ì					
3	ĺ			100	1			ŀ					
				£ ''	8	CORE	28						
	+306.0	Loose, 7.5YR 4/3, sandy well graded GRA	VEL fine to	- 101	1	O							
		coarse angular to subangular gravel, very	fine to fine and	ŧ :	1				; ; ;				
	1	coarse grained sand, slightly moist (GW)		F 102 -	1					.			
	+304.3												
	}	Loose, 7.5YR 3/6, fine to medium grained SAND, trace coarse grained sand, wet (SI	poorly graded			П							
	1	SAND, tace coalse granted sand, wer (Si	7	E 104 -									
				E	1	ı							
	1			105	1								
	1			Ė :	8	SOR	32	ļ					
]			106-	1		l						
	-300.8	والمجار وبياه وبياه وبياه وبياه وبياه المسار فلك أساء أساء الماء أساء والماء الماء الماء الماء الماء		- 107	1								
774		7.5YR 3/3, sandy well graded GRAVEL, fi grained sand, fine to coarse subangular g	ne and coarse ravel, trace clav.	£ '''									
	+300.0	slightly moist to moist (GW)	·	- - 108		\vdash	 	ļ					
		Loose, 7.5YR 5/6, silty fine to coarse grain fine subangular gravel, wet (SM)	ned SAND, trace	E :					; ; ;				
•	289.1	Loose, 7.5YR 4/4, clavey sandy well grad	ed GRAVEL,	- E 109 -		ш							
		medium to coarse grained sand, fine to co gravel, slightly moist to moist (GW)	arse subrounded	110	32	Š	ß		! : :	1			
. 9	1 1	graves, engine, moset to moset (evr)		F 110-	-								
	+297.4			111-	}	Ц	_	ļ					
				E :	}								
	1 1			112	7			1					
				F ;						ĺ			
		Boring terminated at 111 feet length		113	1			İ					
		Boring backfilled with cement grout Surface patched with black-dyed rapid set	i concrete	114	1				• • :				
				E ::	1								
				115	1								
	1			Ė :	=				1 : ! .				
				- 116 -	1								
				E 117 -	=	ļ			; , `				
				E '''	1				: '				
		•		118	}				1 : :				
				E :					. : :				
				119			-						
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Fault Activity Investigation NE Corner of Yucca Street and Argyle Avenue 1800 Argyle Avenue GDC Project No. LA-1175A November 10, 2014 Page 32

APPENDIX B: SOIL STRATIGRAPHIC AGE ASSESSMENTS



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Quaternary Geology Economic Geomorphology Soil Stratigraphy Geoarchaeology PG 2867; CPG 1766; CPESC 2167

APPENDIX B

SOIL-STRATIGRAPHIC AGE ASSESSMENTS
AND PALEO-ENVIRONMENTAL RECONSTRUCTION,
GROUP DELTA CONSULTANTS EAST AND WEST TRENCHES,
6230 YUCCA STREET,
HOLLYWOOD AREA, CITY OF LOS ANGELES, CALIFORNIA

INTRODUCTION

This Appendix summarizes soil-stratigraphic field measurements and descriptions for dating relative fault activity (time of last displacement) and for reconstructing local geomorphic evolution over the last ~200-300 ka at and near the proposed "Yucca Street" development (Group Delta Consultants, Inc. [GDC], Plate 1, Site 2). The main purpose of the GDC investigation was to determine whether or not the inferred "Argyle Strand" of the Hollywood fault zone affects the proposed site (GDC Plate 1; Hernandez and Treiman, 2014). Accordingly, in addition to onsite and adjacent-site cone penetrometer tests (CPT) and continuous cores, GDC excavated and logged two onsite trenches, informally deemed the "west" and the "east" trenches, respectively (GDC, Plate 1). The two Yucca (Site 2) trenches, excavated and logged under the direction of GDC, complement other site-specific geological and geotechnical analyses (GDC narrative and appendices) to assess possible fault presence and relative activity.

The main purposes of this investigation (Appendix B) were several-fold:

 To measure and describe a representative soil-stratigraphic section from initial exposures in the west trench;

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- 2. To determine the approximate age of the west-trench sediments based mainly on relative soil-profile development of the several paleosols encountered in the trench:
- 3. To reconstruct the latest Pleistocene-Holocene fluvial environment of deposition as recorded in the west trench exposures; and, from the east trench exposures, to explain the geomorphic evolution of the site and adjacent properties to the east (GDC Plate 1; Site 3) and the northeast (Site 4);
- To assess the validity of two radiocarbon dates for the west trench sediments, particularly focusing on potential sample contamination; and to evaluate the stratigraphic validity of east-trench dates for age of "middle" Argyle Channel deposits;
- 5. To assist GDC with correlation of trench exposures and adjacent cone penetrometer test (CPT) transects and continuous cores; specifically, those data obtained onsite as well as from on-going investigations at Site 1 on the south and at Site 3 to the east (GDC, Plate 1).
- To deduce the likely characteristics and relative activity of various Hollywood fault segments inferred to potentially impact the site based on review of the published literature and on exposures in the two, on-site trenches; and
- 7. To provide an independent "Quality Assurance" critique of the GDC draft report in compliance with current geologic standards-of-practice applicable to fault-activity investigations.

The field work was commissioned by GDC and included various field, office and laboratory meetings with GDC personnel and with reviewers from the California Geological Survey and the City of Los Angeles. These took place from February through July 2014. The west trench field measurements were carried out on 13 February and 29 March; and the east trench documentation took place on 11 June and 7 July, respectively.

GDC personnel and Engineering Geologist Steven Kolthoff logged the trenches and kindly provided field logistical support. I particularly thank Steven Kolthoff and GDC engineers Michael Reader and Thomas Swantko for their muchappreciated courtesy and assistance.

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Two formal soil-stratigraphic sections were measured at the Yucca west trench; on the west wall at station 0+55 (Table 1), and in a basal "trench box" at station 0+35 (Table 2). Representative east-trench sections were documented on the east wall at station 0+60 (Table 3) and on the west wall at station 0+78 (Table 4). Pertinent location and geologic maps, trench logs, and CPT and continuous core data are given in the GDC narrative and hence are referred to, but not replicated in this document.

This Appendix uses traditional pedological (soil science) terminology and field methodology described in Soil Survey Division Staff (1993), in Soil Survey Staff (1999) and in Schaetzl and Anderson (2005). The applicability of soil-stratigraphy to fault-activity assessments for construction of residential and commercial properties, dams, landfills and other large engineered structures is summarized in Shlemon (1985). Numeric dating and "calibration" with relative soil profile development is reviewed in Birkeland (1999), McFadden (1989), and Eppes and others (2002).

Quantifying several key soil (pedogenic) properties by use of the "soil development index" (SDI) may provide an "age of weathering" (Harden, 1982). The index generally works well to determine the age of surface profiles, particularly chronosequences on flights of fluvial terraces. For buried soils, however, such as those at the Yucca site, the "Harden index" may yield incorrect results. Specifically, physical truncation or chemical alteration usually leaves only two or three soil characteristics amenable for quantification; for example, color change (rubification) with depth, expressed by Munsell notation; frequency and relative development of secondary clay films; and decrease in clay content from an argillic (Bt) horizon compared with primary (depositional) clay in the parent material (C horizon). Typically, however, as exposed in the Yucca west trench fluvial deposits, the laterally discontinuous, grossly fining-upward deposits make it almost impossible to confidently calculate the amount of translocated (pedogenic) clay compared with that inherent in the parent material. Moreover. local rubification may be derived from erosion of nearby, previously weathered sediments, a problem particularly affecting age assessments of paleosols identified in subsurface cores. In brief, age quantification of truncated buried soils, based only on a few preserved physical and chemical "signatures," too often results in dates with high uncertainty, even though some practitioners provide numbers to two or more significant figures. The age estimates for the Yucca trench soil-stratigraphy are therefore given in realistic ranges (Tables 1 through 4) to encompass uncertainty inherent in dating partially preserved paleosols.

WEST TRENCH STRATIGRAPHY

The Argyle Channel

The Yucca west trench, locally up to ~35-ft deep, exposed several interbedded and laterally discontinuous, grossly fining-upward sedimentary "packets" laid down in a former stream channel (fan distributary?) informally named the "Argyle Channel" after its southwest trend down the street of that name and through the site (GDC Fig. 6). The channel thalweg is exposed near the bottom of the west trench (GDC Plate 2 and Appendix D; photographs 1 and 3). The Argyle sediments are mainly bar and channel, capped by a remnant, slightly developed surface soil and replete with four intercalated buried paleosols. Each soil represents an epoch of relative landscape stability and hence a time of weathering (soil formation).

The basal trench unit, incised into and unconformably overlain by the Argyle Channel, is a truncated mudflow (Qm) bearing a remnant soil (dark yellowish brown [10YR 3/6] to dark brown [7.5YR 3/3] silty clay loam [Table 2]). This, in turn, is underlain by matrix-supported angular clasts (debris flows; Qdf) clearly exposed in the east trench (GDC Plate 5) and recognized in CPT transects and in continuous cores (GDC Plates 1 and 4). Topographically, the Argyle Channel no longer exists, its "upstream" source apparently "cut off" by early development in this area. Significantly, however, its sedimentary characteristics and incision into underlying, older clayey deposits indicates relatively abrupt, regional environmental change from deposition of mud- and debris-flows to relatively clean, high-energy fluvial gravels and silts. This major unconformity most likely stems from regional climate and vegetation change, and therefore ostensibly identifies onset of "pluvial" conditions in this area. For conservatism, this is judged to have taken place as recently as ~12-16 ka ago, temporally associated with marine oxygen-isotope stage 2. Accordingly, based on the abrupt change in fluvial environments, the base of the Argyle Channel is at least ~10-12 ka old; an age corroborated by the cumulative age of its several, intercalated buried soils.

Soil-Stratigraphic Measurements and Descriptions

The ~35-ft thick Argyle Channel sediments and paleosols were described from west-trench exposures on the west wall at Station 0+55 (Table 1); and the lower several ft were described from a "box trench" exposure at the base of the trench at Station 0+35 (Table 2).

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Station 0+55

The Station 0+55 soil-stratigraphic section was measured to a depth of 18.5 ft, essentially the top of Bench 4 (GDC Plate 2). As documented in Table 1, artificial fill is underlain by about 3-ft of gravelly coarse sand grading upward to a loamy medium sand. The section is sufficiently weathered to have developed ~0.8-ft thick cambic (color) horizons (Bw1 and Bw2). No translocated clay is apparent. Nevertheless, weathering in Mediterranean climate, coarse-grained sediments requires at least an estimated 1 ka of weathering (McFadden, 1989). This surface soil is therefore deemed to be "very slightly developed."

Another grossly fining-upward packet of sediments occurs between ~3.8 to 7.8 ft (Table 1). A similar, "very slightly developed" buried soil caps this packet. The upper cambic horizon (2Bw1b) is truncated but, combined with the lower horizon (2Bw2b), similarly represents about ~1-2 ka of weathering.

A second, truncated buried paleosol occurs at a depth of 7.8 ft (Table 1). This soil, however, bears a weak argillic horizon (3Btb) typified by strong brown (7.5YR 4/6) thin clay films that bridge mineral grains and line ped faces. Based on relative development, this "slightly developed" paleosol is judged to represent ~2-3 ka of weathering.

The top of a third, similarly truncated buried paleosol is identified at 10.4 ft (Table 1). Two weak argillic horizons (4Bt1b and 4Bt2b) are characterized by fine, dark yellowish brown (10YR 4/4) fine clay films that line ped faces and locally bridge root pores. A "slightly developed" profile suggests that ~2-3 ka of weathering took place before burial by overlying sediments.

A fourth paleosol caps another fining-upward sequence at a depth of 14.5 ft (Table 1). The identified argillic horizon (5tb) is only 0.5-ft thick, probably truncated by deposition of the overlying coarse gravelly sand. Here, too, the horizon probably formed in ~2 ka. These particular deposits locally incise 2-3 ft into the underlying sediments, typical "cut-and-fill" deposition within the Argyle Channel.

In brief, relative development of the surface and the four buried paleosols suggests a cumulative age of at least ~10-12 ka of weathering, a minimum age for the Argyle Channel deposits. More likely, however, based on thalweg incision into the underlying clay and the dramatic change in the fluvial environment, the

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basal deposits are older, ostensibly initially laid down at least ~12-15 ka ago during onset of marine isotope stage 2.

Station 0+35

In order to assess relative profile development below the base of the Argyle Channel, GDC locally deepened the Yucca trench several ft, providing safe access by means of a "Trench Box" (GDC Appendix D, Photograph 7). As measured and described from Station 0+35, the trench box exposed ~7 to 8-ft of silty clay loam coarsening downward to sandy clay loam, and ultimately to interbedded, mixed coarse sand and granitic gravel lenses at the base (Table 2). The clayey parent material (Qm) is a regional stratigraphic marker, exposed continuously at the base of the Yucca west trench, discontinuously throughout the east trench, and identified in adjacent continuous cores and on CPT transects.

A distinct, though truncated, buried paleosol was identified at the box trench exposure. This soil has two discrete, buried argillic horizons (6Bt1b and 6B2tb; Table 2). The argillic horizons are mainly silty to sandy clay loam, dark brown (7.5YR 3/3) to dark brown (7.5YR 4/4) in color, and replete with few to common fine, dark brown (7.5YR 3/4) clay films that line ped faces, bridge mineral grains and fill old root pores. The trench box exposures show that basal Argyle channel gravels are incised and truncate the underlying paleosol at least about one ft. Nevertheless, sufficient argillic horizon characteristics remain to deem the soil as "moderately developed," thereby representing an additional ~8-15 ka of weathering.

West Trench Radiocarbon Dates

Two "charcoal" samples were collected for potential radiocarbon assay (GDC Appendix C): "Charred material" at ~14-ft (Yucca # 2); and "organic sediments" at ~18-ft (Yucca # 1; GDC Appendix C). The Yucca samples were dated by "standard radiocarbon assay." Such dates may be questionable when sample size is small, where there is potential for modern groundwater contamination, and where samples are taken from high-energy environments and thus potentially reworked from older, "upstream" sediments.

As shown on the trench log (GDC Plate 2), the Yucca sediments are generally very coarse grained and devoid of laterally continuous, relatively impermeable clay beds to "perch" or otherwise prevent modern surface water from penetrating the entire section. Accordingly, the Yucca # 2 sample, dated as ~4300 BP (conventional) has been likely subject to contamination by younger gravitational

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water. It is therefore likely at least 10 or 15 percent too young (Pigati and others, 2007). Similarly, and very highly suspect is the 41,000 BP age for Yucca # 1, obtained from sediments realistically not more than ~12 ka old. Most likely, therefore, this "disseminated organic sediment" was derived from "upstream" weathering of older sediments and transported in the high-energy, coarse fluvial sediment at the base of the Argyle Channel. This "too old" sample age is therefore rejected in favor of more reasonable, and conservative, soil-stratigraphic and paleo-environmental reconstruction.

EAST TRENCH STRATIGRAPHY

GDC excavated the ~160-ft long and ~30-35-ft deep east that overlapped the west trench and continued south across the Yucca property (Site 2) onto the adjacent Site 1 (GDC Plate 1). The east trench generally encountered four discrete Quaternary stratigraphic units, some bearing buried paleosols amenable to measurement, description and relative age assessments. As described by GDC (stratigraphic section, Fig. 10), the uppermost unit (youngest) pertains to the Argyle Channel, mainly fluvial and locally cross-bedded, medium- to coarsesand and lenticular gravel beds (Qs). These are underlain by discontinuous mudflows locally capped by slightly to moderately developed buried paleosols (Qm). Underlying the mudflows are extensive debris flows, locally bearing discrete paleosols indicative of periodic (climatically controlled ?) landscape stability and soil formation (Qdf). The debris flows are mainly derived from adjacent upstream and sideslope "older alluvium" (Qoal) that once extended across the entire area. As encountered in onsite and adjacent cores, the Yucca area is underlain by Modelo formation "bedrock" (Tm).

Paleo-Environmental Reconstruction - East Trench Exposures

The east trench exposures supported initial interpretations of core and CPT data about the likely origin and relative age of the mud- and debris flows that underlie the Yucca (Site 2) area. Specifically, as shown on GDC Fig. 7, a veneer of old (likely ~300 ka), "high-level" channel and fan deposits still mantle the eroded surface at Site 3, east of Argyle Street (GDC Plate 1). Based mainly on paleoenvironmental interpretation of regional cores and on the east trench exposures, an ancestral drainage apparently incised the area ostensibly ~300 ka ago, giving rise to a steep channel wall underlying the present Argyle Street (GDC Plate 1). This channel was then filled by multiple debris flows emanating from upstream as well as from adjacent sideslopes. Debris-flow deposition was apparently episodic, or possibly even periodic, as deduced from preservation of slightly to

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moderately developed buried paleosols observed in the east trench. Many debris flows retain their original "brown to reddish brown" color, a result of previous, deep weathering of the their source sediments, the "high level" fan deposits (GDC Fig. 7).

The debris flows (Qdf) were, in turn, eroded and reworked, giving rise to relatively thin but readily discernible mudflows (Qm) that locally cover the debris flows and underlie the Argyle channel sands (Qs).

Additionally, as shown on the GDC trench log (Plate 5), the east trench exposed a south-verging anticline replete with an apparent slip surface (GDC Plate 5). Last apparent "movement" of this structure involved the debris flows (Qdf), but not the overlying mudflows (Qd) and the Argyle (Qs) deposits, as documented on the GDC logs (Plates 4 and 5).

Soil-Stratigraphic Measurements and Descriptions

Two representative soil sections were measured from the east trench exposures: on the east wall at station 0+60 (Table 3); and on the west wall at station 0+78 (Table 4). The station 0+60 descriptions particularly document the relative profile development of a buried paleosol that caps mudflows (Qm) deposits, which, in turn, unconformably overlie a buried paleosol formed on a local mud- debris flow transitional unit (Qm-Qdf). The station 0+78 soil section provides a detailed measurement and description of a buried paleosol that caps a horizontal, unbroken mudflow (Qm) directly overlying a slip surface (inferred fault) along a south-tilted, debris-flow bedding plane illustrated in GDC Fig.

East Wall, Station 0+60

As documented in Table 3, the upper \sim 2.9-ft of section represent the base of the Argyle channel sands (Qs). These deposits are typically dark brown (10YR 4/3) to dark yellowish brown (10YR 4/4) sandy clay loam to fine sand with local, lenticular gravel lenses. Structure is typically massive to weak, fine angular, and thus indicative of the non-consolidation and relatively "youth" of Argyle channel sediments. At the measured section, the Argyle sediments are \sim 40-50 ft east of, and about halfway above the elevation of the main thalweg (see west trench log). Accordingly, based on stratigraphic position, their age is estimated to be \sim 4 - 5 k.

Horizons 2b1-2b2 (Table 3) mark a ~2.5-ft thick, remnant buried paleosol that caps underlying mudflow (Qm) deposits. The paleosol is a brown to dark brown (7.5YR 4/4 - 7.5YR 4/6) silt to loamy clay with moderate to strong, fine angular blocky structure. The paleosol is also very hard and sticky and plastic; and

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typified by few fine, yellowish brown (10YR 5/4) clay films that line ped faces and fill root pores. Based on its "moderate" relative development, this remnant soil represents an estimated ~20-30 ka of weathering before truncation and burial by Argyle channel (Qs) deposits.

A second, deeper paleosol (horizons 3B1b–3B3b) was also measured and described at station 0+60 (Table 3). This particular paleosol formed across a thin mudflow and is superimposed onto an underlying debris flow. Specifically, the truncated 3B1b horizon is a yellowish brown (10YR 5/6) to strong brown (7.5YR 5/6) sandy clay loam with moderate medium blocky structure. Characteristic are few to common, strong brown (7.5YR 5/6) clay films that line ped faces, bridge mineral grains and line root pores. The underlying parent material (horizons 3C1b through 3c3b) generally grade into debris flows with matrix supported, ~0.7-in angular clasts at the base (Table 3). Based on relative profile development, this buried paleosol represents another ~25-30 ka of local landscape stability and related weathering.

West Wall, Station 0+78

A very detailed, approximately 2.7-ft thick profile was measured at Station 0+78 on the west wall of the Yucca east trench (Table 4). This section specifically addressed the relative age of a mudflow and capping paleosol that lie horizontal and unbroken over tilted debris flows (Qdf) containing an interbedded slip surface conservatively assumed to be a fault (GDC Plate 6). The upper ~0.7 inches of the mudflow bear four discrete, now-buried argillic horizons (2B1b through 2b4b; Table 4) truncated by basal coarse sand and gravel associated with Argyle channel sediments (Qs). The paleosol horizons range in color from dark brown (7.5YR 5/4) to dark reddish brown (5YR 3/4) and formed on fine to coarse medium sandy loam parent material. The diagnostic argillic is the 2b3b (Table 4) with fine subangular blocky structure and few fine brown (7.5YR 5/4) clay films that line ped faces and bridge grains. Any reasonable "upward" projection of the GDC-logged slip surface does not offset the mudflow and its capping buried paleosol (GDC Appendix D [photograph]). Based on relative profile development, the buried paleosol represents at least ~30 k of weathering. Its parent material, the horizontal, unbroken mudflow (Qm) is inherently older. Last movement along the underlying slip surface therefore took place prior to at least ~30 k ago, and probably well before that time.

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East Trench Radiocarbon Dates

GDC collected eight, west-trench charcoal samples for potential radiocarbon assay, all obtained from Argyle Channel sediments. As documented in Appendix C, the samples are identified as Mill-1 through Mill-7 and Yucca 4; and cumulatively provide standard radiocarbon ages ranging from about 4.1 to 4.4 ka. These values were anticipated based on stratigraphic position and are therefore accepted as reasonable; and they support the estimated age for west-trench exposures at this same stratigraphic level.

CORRELATION OF YUCCA TRENCH SEDIMENTS AND SOILS WITH ADJACENT CONTINUOUS CORES AND CPT SOUNDINGS

The Yucca (Site 2) east and west trenches provided an additional three major benefits to assess potential presence and activity of the inferred Argyle Strand of the Hollywood fault. First, the west trench exposed not only Argyle Channel sediments (Qs), but also underlying, relatively impervious clay (Qm). When initially opened, this clay perched water, essentially at the base of the thalweg. Perched water also was present on clayey channel-bordering mudflows and debris flows into which the Argyle Channel was incised. The several different clay beds are vertically separated ~20 ft, as deduced from on-site geotechnical borings (GDC, 2006). The elevation difference was apparently interpreted (Hernandez and Treiman, 2014) as evidence for a possible "Argyle Strand" of the Hollywood fault system (GDC Plate 1; Fig. 4). Now, however, the trench exposures show that the difference in water-level elevation stems from local Argyle Channel incision into several different, relatively impermeable clayey mudand debris flows (stratigraphic units Qm and Qdf).

Second, until excavation of the Yucca trenches, several other nearby, Hollywood fault investigations (GDC Fig. 1) did not employ site-specific trenching. Rather, fault-activity assessments were based mainly on correlation of CPT data and locally on extrapolation of often widely spaced cores. In contrast, the 6230 Yucca Street (Site 2) trenches provide geologic "calibration" for correlation with adjacent CPT soundings and continuous cores. This allows for high-confidence "extrapolation" of site stratigraphy north and south of the Yucca trenches (GDC Plates 1, and 2), and thus better assesses whether or not the adjacent sediments are fault displaced.

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Third, the Yucca trenches provide the first complete exposure of post-bedrock (Tm) Quaternary sediments in the Hollywood area. Accordingly, based on geomorphic reconstruction and on numeric (radiocarbon) and relative dating (soil stratigraphy), the Yucca trenches expose an excellent stratigraphy from which to reconstruct local late Quaternary geomorphologic evolution, to determine the characteristics and age of local faults, and to reasonably date the last displacement of those observed at nearby Site 3 immediately east of Argyle Street (GDC Plate 1).

And finally, as particularly observed in the west trench, the Argyle Channel deposits are internally incised, often up to several ft (GDC Fig. 2). This local fluvial incision may well explain "inverted," core-collected radiocarbon dates previously reported at the then, non-trenched Site 1, adjacent to the south (Langan, 2012; GDC Plate 1).

SUMMARY AND CONCLUSIONS

As part of standard-of-practice fault assessments, GDC emplaced and logged two trenches across a proposed development at 6230 Yucca Street (Site 2) in the Hollywood area of Los Angeles. The west trench, about 100-ft long and up to ~35 ft deep, and the east trench, over ~160 ft long and of similar depth, were purposely sited to determine the possible presence and relative activity (time of last surface or near-surface displacement) of the "Argyle Strand" of the Hollywood fault, recently included within a "Fault Hazard Zone" by the California Geological Survey (Hernandez and Treiman, 2014).

The west trench exposed the thalweg and an overlying 30-ft thick sequence of interbedded, grossly fining-upward fluvial sediments within the "Argyle Channel." Soil-stratigraphic measurements and descriptions show that the Argyle Channel sediments are capped by a remnant, very slightly developed surface soil, and by four, underlying buried paleosols, ranging in relative development from very slight to slight. Based on "calibration" with numerically dated soils elsewhere in Mediterranean climates, the cumulative time of weathering for formation of the channel sediments is an estimated ~10-12 ka.

The Argyle Channel incises underlying, relatively impermeable clay that bears a truncated, slightly to moderately developed buried paleosol. This soil, with its distinct translocated clay films, represents another ~8-15 ka of weathering. Additionally, the abrupt unconformity between the base of the channel and the underlying clay, suggest onset of Argyle channel deposition during an epoch of

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regional pluviality, conservatively estimated as ~12-16 ka ago (marine isotope stage 2). From a pedogenic standpoint, the cumulative age of the trench-exposed Argyle channel and the underlying clay exceeds ~15 ka.

The lower of the two conventional radiocarbon dates from the west trench, Argyle Channel deposits is particularly suspect, owing to likely re-deposition of "organic sediment" (~41,000 bp) resulting in older contamination. Accordingly, more realistic estimates are derived from the cumulative age of the surface and four trench-exposed buried soils and from likely fluvial deposition onset during isotope stage 2.

The east Yucca trench overlapped the west trench to the north and extended onto Site 1 to the south. It exposed multiple debris flows that emanated both from upstream and from sideslope sources. The debris flows are overlain by locally discontinuous mudflows, similar to that observed at the base of the Argyle Channel deposits in the west trench.

A representative soil-stratigraphic section shows that the mudflows bear truncated paleosols with moderate relative profiles development, similar, if not exceeding the soil described in the west trench "box cut." The better preserved east-trench buried soils reflect ~ 25-30 ka of weathering.

Another east-trench soil profile was specifically described from an unbroken, horizontal mudflow that overlies an apparent slip surface within the south-dipping limb of a subsurface anticline. The buried soil is similarly moderately developed, again reflecting – in this case - at least ~30 k of weathering. The soil and its underlying mudflow parent material are undisplaced; therefore, last slip of the presumed fault at this location occurred well before ~30 ka ago.

The Yucca trench exposures also explain the origin for an apparent 20-ft vertical "offset" of piezometric surfaces recorded in adjacent, on-site geotechnical borings. This separation was a main line of evidence for CGS postulation of a possible "Argyle Strand fault." However, rather than fault caused, the "offset" water stems from perching on separate clayey mud- and debris-flows.

The trenches also show that the Argyle Channel sediments typically incise older deposits a few to locally several ft. Thus, without the benefit of trench exposures, charcoal obtained from continuous cores on the adjacent (Site 1) property, the consultants-of-record found that several radiocarbon ages were stratigraphic inverted, thus lowering their confidence to date on-site sediments.

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The Yucca trenches also provide "calibration" to more confidently identify the lithology and grain size and to correlate sediments in adjacent continuous cores and CPT transects. The GDC trench logs and extrapolation to adjacent and logs show that the Argyle Channel overlapping sediments and the underlying clay marker-bed are continuous and unbroken by any fault. Accordingly, if an Argyle Strand of the Hollywood fault truly exists, last surface displacement occurred prior to at least ~30 ka ago.

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TABLE 1

Soil-Stratigraphic Measurements and Descriptions

GDC "Yucca Street" Trench, West Wall, Station 0+55; and Basal "Trench Box;" Station 0+35

Depth (ft)	<u>Horizon</u>	<u>Description</u>
0.0 – 0.8	"Af"	Artificial Fill : Un-engineered fill; asphalt and bottle fragments; organic material.
0.8 – 1.5	A-B	Brown to dark brown (10YR 4/3) to very dark grayish brown (10YR 3/2) when moist loamy medium sand; moderate medium angular blocky structure; slightly hard, slightly firm, non-sticky and non-plastic; few to common fine vertical roots; few to common granitic clasts to 1.5-in dia., gradual wavy boundary.
1.5 – 1.9	Bw1	Yellowish brown (10YR 54) to brown to dark brown (10YR 4/3) when moist silty medium sand; weak fine subangular blocky structure to massive; very hard, very firm, non-sticky and non-plastic; few very fine vertical roots; locally few to common subrounded to angular clasts to 0.5-1.0 in long dia; gradual wavy boundary.
1.9 – 2.3	Bw2	Yellowish brown (10YR 5/4) to yellowish brown (10YR 5/6) when moist silty fine sand; weak to fine subangular blocky structure; extremely hard to locally very firm; few very fine vertical roots; gradual wavy to abrupt wavy boundary (base of cambic horizon).
2.3 – 3.8	C1	Brownish yellow (10YR 6/6) to yellowish brown (10YR 5/4 when moist gravelly coarse sand; massive loose, non-sticky and non-plastic; many angular clasts to ~3-in long diameter; many subrounded pebbles to ~0.8-in dia; abrupt wavy boundary (base of grossly fining-upward channel deposits; laterally discontinuous; unconformity).
3.8 – 4.6	2Bw1b	<u>Buried Paleosol</u> (very slightly developed): Yellowish brown (10YR 5/6) to dark yellowish brown (10YR 5/4) when moist fine to medium sand; weak subangular blocky structure; hard, friable, non-sticky and non-plastic; few subrounded pebbles to ~0.5-in dia., abrupt smooth to abrupt wavy boundary.
4.6 – 5.2	2Bw2b	Dark yellowish brown (10YR 4/6) dark yellowish brown (10YR 3/6) when moist loamy fine sand; weak to moderate subangular blocky structure; slightly hard, firm, slightly sticky and non-plastic; gradual wavy boundary.

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Table 1 (continued)

Depth (ft)	<u>Horizon</u>	<u>Description</u>
5.2 – 6.0	2C1b	Pale Brown (10YR 6/3) to dark yellowish brown (10YR ¾) when moist medium to coarse sand; moderate to fine coarse blocky structure; extremely hard, firm to friable; non-sticky and non-plastic; subrounded clasts to 1-in dia.; gradual wavy boundary.
6.0 – 6.3	2C2b	Yellowish brown (10YR 5/6) to dark yellowish brown (10YR 4/4) when moist coarse loamy sand; massive; loose, friable, non-sticky and non-plastic; few subrounded clasts to 1-in. dia., gradual wavy boundary.
6.3 – 7.0	2C3b	Brownish yellow (10YR6/6) to dark yellowish brown (10YR 4/4) when moist gravelly coarse sand; structureless (loose), very friable; non-sticky and non-plastic; common to many subangular and angular clasts to 2-in dia., base of grossly fining-upward sequence; abrupt wavy boundary.
7.0 – 7.8	2C4b	Dark yellowish brown (10YR 4/6) to strong brown (7.5YR 4/6) when moist coarse sand; massive to weak, fine angular blocky structure; soft, friable, non-sticky and non-plastic; very few angular clasts 0.5 to 1.0-in dia., few to common subrounded clasts to 1-in. dia. near base; abrupt wavy boundary (unconformity).
7.8 – 8.2	3Btb	<u>Buried Paleosol</u> (slightly developed): Yellowish brown (10YR 5/6) to strong brown (7.5YR 4/6) when moist loamy fine sand; moderate medium angular blocky structure; slightly hard to hard, firm non-sticky and slightly plastic; few very fine clay films bridging mineral grains and lining ped faces; abrupt smooth boundary.
8.2 – 10.4	3Cb	Light yellowish brown (10YR 6/4) to dark yellowish brown (10YR 4/4) when moist coarse sand,; massive structure; loose, very friable, non-sticky and non-plastic; local gravel lenses to 1.5-in thickness; gravel lenses and horizontal stringers of interbedded sand and gravel; laterally discontinuous; poorly sorted; medium energy environment of deposition; abrupt wavy to abrupt irregular boundary (unconformity).
10.4 – 12.6	4Bt1b	Buried Paleosol (slightly developed): Brownish yellow (10YR 6/6) to dark yellowish brown (10YR 4/6) when moist moderate very fine subangular blocky structure in clayey lenses; friable,

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Table 1 (continued)

Depth (ft)	<u>Horizon</u>	<u>Description</u>
		slightly sticky; non-plastic; few very fine dark yellowish brown (10YR 4/4) clay films lining ped faces and bridging mineral grains; locally few to common pebble lenses 0.5 to 1.0 in thick laterally increasing in width; locally discontinuous; local isolated, very angular clasts to 2-in. dia., abrupt wavy boundary
12.6 – 13.4	4Bt2b	Dark yellowish brown (10YR 4/4) to dark yellowish brown (10YR 3/4) when moist pebbly clay loam; moderate to strong very angular blocky structure; very hard, very firm, slightly sticky and slightly plastic; few very fine dark brown (10YR 3/3) clay films lining ped faces and bridging mineral grains; few to common fine roots and vertical pores; local sand and pebble lenses near base to 2-in. thick; laterally discontinuous; top of grossly fining-upward sequence; gradual to locally abrupt smooth lower boundary.
13.4 – 14.5	4Bt3b	Dark yellowish brown (10YR 4/4) to dark yellowish brown (10YR 3/4) when moist pebbly loamy sand; weak to moderate angular blocky structure; slightly hard to hard, firm, slightly sticky and plastic; few very fine vertical roots; few very fine clay films lining ped faces and bridging mineral grains; few disseminated detrital charcoal fragments to 0.2-in dia., throughout horizon (see notes), collected near base; few to common pebbly gravel lenses increasing near base; few lenticular subrounded to rounded clasts to 2-in. dia. throughout horizon; abrupt wavy boundary (unconformity).
14.5 – 15.0	5tb	<u>Buried Paleosol</u> (slightly developed): Yellowish brown (10YR 5/6) to dark yellowish brown (10YR 3/6) when moist pebbly loamy clay; moderate medium angular blocky structure; hard, firm to friable, non-sticky and slightly plastic; few thin lenticular clay lenses; locally few very fine dark yellowish brown (10YR 4/4) clay films lining ped faces and bridging mineral grains; united truncated gradual wavy to abrupt wavy boundary.
15.0 – 18.4	5C1b	Yellowish brown (10YR 5/8) to dark yellowish brown (10YR 4/6) when moist medium coarse sand; massive structure; very friable, loose; non-sticky and non-plastic; coarsening near base; gradual smooth to locally abrupt boundary.
18.4 – 18.8	5C2b	Dark yellowish brown (10YR 4/6) to dark yellowish brown (10YR 3/4) silty clay; weak to moderate angular blocky structure; hard very firm, slightly sticky and slightly plastic; laterally extensive marker horizon; thickness variable 2-3 in., continuous unbroken unit below base of locally incised channel

Table 1 (continued)

Depth (ft) Horizon Description

gravels and laminated sand); gradual wavy boundary; base of trench wall measured section approximately 6-ft above trench base at Sta. 0+55.

Notes (Trench Wall exposures, Sta. 0+55):

- 1. Soil profile measurement by RJS and SK, 13 February 2014; GDC "Yucca Trench, west wall; Station 0+55.
- 2. The surface and four very slightly to slightly developed buried paleosols cap grossly fining-upward sequences; typified by cambic (Bwb) or by cumulic, "weak" argillic (Btb) horizons. Buried paleosols, in generally coarse-grained parent material, each represent ~1-2 k of relative landscape stability soil weathering.
- 3. Trench exposes thalweg of SW-trending fluvial channel deposits and interbedded paleosols at ~25 ft. Main paleo-channel contains multiple, laterally discontinuous bar and channel sediments; grossly fining upward, and each capped by a truncated buried paleosol.
- 4. Present geomorphic setting, stratigraphic position and onset of basal channel-gravel deposition implies formation under a more "pluvial" climate; conservatively estimated to be during oxygen-isotope stage 2, ~12-16 ka ago.
- 5. Cumulatively, the surface and the four buried paleosols represent \sim 8-10 ka of weathering.

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TABLE 2
GDC Yucca Soil Profile Measurement and Description in "Box Trench" (~6-ft below base of "18.4-18.8-ft depth horizon;" Sta. 0+35)

Depth (ft)	<u>Horizon</u>	<u>Description</u>
25.0 – 25.5	6Bt1b	<u>Buried Paleosol</u> (truncated; slightly to moderately developed): Dark yellowish brown (10YR 3/6) to dark brown (7.5YR 3/3) when moist silty clay loam; moderate medium angular blocky structure; hard, firm, slightly sticky and slightly plastic; few to common fine dark brown (7.5YR ¾) clay films lining ped faces; common fine root pores; gradual diffuse boundary.
25.5 – 27.0	6Bt2b	Brown to dark brown (7.5YR 4/4) sandy clay loam; weak to moderate subangular blocky structure; soft, friable, non-sticky and slightly plastic; few very fine clay films decreasing with depth; gradual wavy boundary.
27.0 – 33.0	6Cb	Sandy loam grading downward to interbedded granitic clast lenses to 0.5-in. dia., increasing at base; base of Trench Box exposure.

Notes (Box cut at base of trench; sta. 0+35):

- 1. Soil measured and described by RJS, 29 March 2014.
- 2. Basal clay is truncated by overlying, high-energy channel deposits; only remnant buried paleosol is preserved (slightly to moderately developed with argillic [6Bt1b/6Bt2b] horizons).
- 3. Buried paleosol is estimated to conservatively represent ~8-10 ka of weathering. The clay parent material is a regional stratigraphic marker, exposed continuously at the base of GDC "Yucca Box Trench" and identified in adjacent continuous cores.
- 4. Cumulatively, the "Box Trench" soil and the overlying paleosols within the overlying channel gravels represent at a minimum ~16-20 ka of weathering.

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Table 3 Soil-Stratigraphic Measurement and Description, GDC East Trench, East Wall, Station 0+60

Depth (ft)	<u>Horizon</u>	<u>Description</u>
0.0 - 0.7	C1	Brown to dark brown (10YR 4/3) to dark yellowish brown (10YR 3/4) when moist gravely sandy clay loam; weak medium subangular blocky structure; extremely hard, extremely firm, locally friable, slightly sticky and slightly plastic; common angular clasts to 2-in dia. near base; abrupt wavy boundary.
0.7 – 2.0	C2	Dark yellowish brown (10YR 4/4) to dark yellowish brown (10YR 3/4) when moist sandy clay loam; massive structure; very hard and very firm; slightly sticky and slightly plastic; common angular clasts to 2.0 in dia. near base; few detrital charcoal fragments near base; abrupt wavy boundary.
2.0 – 2.9	C3	Yellowish brown (10YR 5/4) to dark yellowish brown (10YR 3/6) when moist fine gravelly silt loam; massive to weak fine angular blocky structure; extremely hard, extremely firm; slightly sticky and slightly plastic; few to common angular clasts to 0.2 in dia. near base; abrupt smooth boundary (unconformity).
2.9 – 3.9	2B1b	Buried Paleosol: Brown to dark brown (7.5YR 4/4) to strong brown (7.5YR 4/6) when moist loamy clay; massive to weak fine subangular blocky structure; very hard, very firm, sticky and plastic; few very fine dark brown (7.5YR 3/4) clay films lining ped faces and bridging mineral grains; parent material = mudflow; upper horizon truncated; abrupt wavy boundary.
3.9 – 4.8	2B2b	Yellowish brown (10YR 5/6) to dark yellowish brown (10YR 4/6) when moist silty clay; moderate to strong fine angular blocky structure; extremely hard, extremely firm; sticky and very plastic; few very fine rootlets along ped faces; few, very fine yellowish brown (10YR 5/4) clay films along ped faces decreasing near base; parent material = local mud and debris flow; abrupt wavy boundary.
4.8 – 5.4	2Cb	Pale brown (10YR 6/3) to brown (10YR 5/3) when moist sandy loamy clay; massive structure; very hard, very firm; slightly sticky and slightly plastic; abrupt wavy boundary (unconformity).
5.4 – 5.8	3B1b	Buried Paleosol : Yellowish brown (10YR 5/6) to strong brown (7.5YR 5/6) when moist fine sandy clay loam; moderate medium blocky structure; extremely hard, extremely firm, slightly sticky and slightly plastic; very few strong brown (7.5YR 5/8) clay films

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Table 3 (continued)

Depth (ft)	<u>Horizon</u>	<u>Description</u>
		lining ped faces and bridging mineral grains; parent material = mudflow bearing a moderately developed buried paleosol; gradual wavy boundary.
5.8 – 6.3	3B2b	Yellowish brown (10YR 5/6) to strong brown (7.5YR 5/6) medium to coarse angular sand; massive structure; extremely hard; extremely firm; non-sticky and non-plastic; gradual wavy boundary.
6.3 – 7.1	3B3b	Yellowish brown (10YR 5/6) to strong brown (7.5YR 5/6) when moist medium sandy loam; massive structure; extremely hard; extremely firm; non-sticky and non-plastic; gradual smooth boundary.
7.1 – 7.6	3C1b	Yellow (10YR 7/6) to brownish yellow (10YR 6/6) when moist fine sandy loamy clay; massive structure; extremely hard; extremely firm; non-sticky and non-plastic; gradual smooth boundary.
7.6 – 8.2	3C2b	Brownish yellow (10YR 6/8) to brownish yellow (10YR 6/6) when moist medium sandy clay loam; massive structure; extremely hard, extremely firm; non-sticky and non-plastic; abrupt smooth boundary.
8.2 – 9.2	3C3b	Very pale brown (10YR 7/4) to yellowish brown (10YR 5/6) when moist stratified loamy lay to silt loam; massive structure to fine medium subangular blocky ear base; common mn staining on ped faces increasing near base; extremely hard, extremely firm; slightly sticky and slightly plastic; common matrix supported angular clasts to 0.7-in dia. (debris flow) near base of measured section; based of third wall (GDC trench log).

Table 4
Soil-Stratigraphic Measurement and Description,
GDC East Trench, Bench 2, West Wall, Sta. 0+78

Depth (ft)	<u>Horizon</u>	<u>Description</u>
0.00 – 0.15	2B1b	Brown to dark brown (7.5YR 4/3) to dark brown (7.5YR 3/3) when moist coarse sandy loam; moderate medium subangular blocky structure; hard to very hard, very firm, plastic and slightly sticky; few very fine dark brown (7.5YR 3/3) clay films ling ped faces and bridging mineral grains; gradual wavy boundary.
0.15 – 0.20	2B2b	Dark brown (7.5YR 3/3) to brown (7.5YR 5/4) when moist medium sandy loam; moderate medium subangular blocky structure; very hard, very firm, sticky and plastic; few very fine dark brown (7.5YR 3/3) clay films bridging mineral grains; gradual wavy to gradual smooth boundary.
0.20 – 0.40	2B3b	Dark reddish brown (5YR 3/4) to brown (7.5YR 5/4) when moist fine sandy clay loam; massive to weak fine subangular blocky structure; very hard, very firm, slightly sticky and plastic; few very fine brown (7.5YR 5/4) clay films lining ped faces and bridging mineral grains; few very angular clasts to 0.2-in dia., lenticular unit to 3-in thick; gradual wavy boundary.
0.40 – 0.60	2B4b	Dark brown (7.5YR 3/3) to brown (7.YR 5/4) when moist coarse sandy clay loam; massive structure; hard, firm, sticky and plastic; few brown to dark brown (7.5YR 4/4) clay films lining ped faces and bridging mineral grains; few very angular pebbles increasing in frequency near base; gradual wavy boundary.
0.60 – 0.75	2C1b	Dark brown (10YR 3/3) to brown to dark brown (10YR) 4/3) when moist sandy clay loam; massive structure; hard, firm to very firm, slightly sticky and plastic; few very angular to common subrounded clasts near base; gradual wavy to abrupt wavy boundary.
0.75 – 1.00	2C2b	Dark brown (10YR 3/3) to brown to dark brown (7.5YR 4/3) when moist pebbly clay loam; massive structure; hard, very fir, slightly sticky and plastic; few very angular pebbles to 0.1 in dia., increasing near base; gradual wavy boundary.
1.00 – 1.10	2C3b	Dark yellowish brown (10YR 3/4) to dark brown (7.5YR 3/4) when moist sandy loamy clay; massive structure; hard to very hard, very firm, slightly sticky and slightly sticky; lenticular angular pebbles to 0.1-in dia. near base; gradual wavy to angular wavy boundary.

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APPENDIX C: PHOTOS OF ARGYLE TRENCH



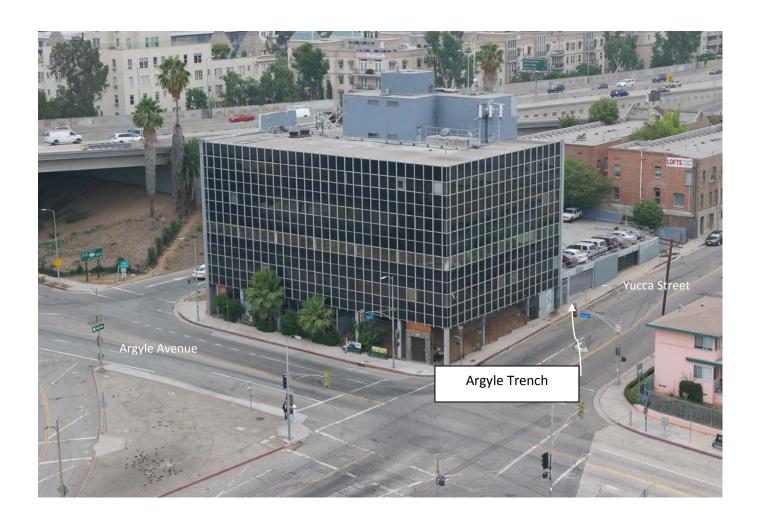


Photo 1:

Site 4. Looking northeast. Note that the Argyle trench (Plates 1 and 11) is located under the existing eastern parking structure.





Photo 2:

Site 4 Trench. Typical older alluvium (Qoal). Note the distinctive north-dipping stratification used to judge possible fault presence. Trench station numbers in red. For scale, the white string lines are two feet apart.



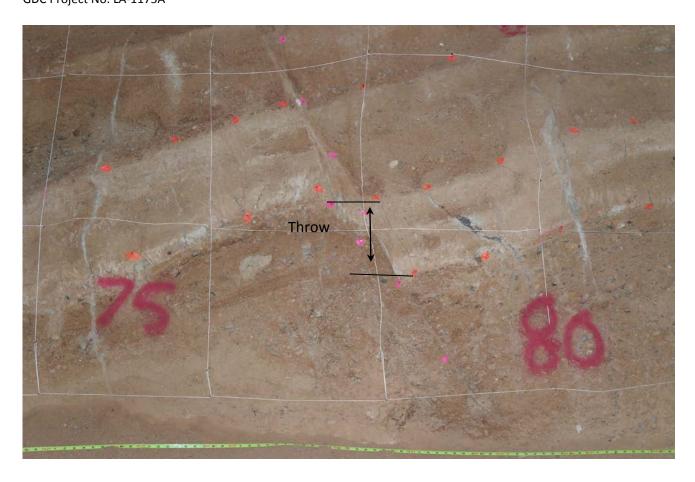


Photo 3:

Site 4 Trench. Typical small displacement fault in older alluvium (Qoal). Note throw. For scale, the horizontal white string lines are two feet apart. Strata dip north and the fault dips south toward the axis of the Yucca Street Anticline.





Photo 4:

Site 2 (Eastern Trench). Bedding plane slip surface within tilted (folded) older debris flow beds that are unconformably overlain by four unbroken colluvial wedges that are part of the upper Pleistocene mudflow deposit capped by a \sim 30ka buried paleosol.

