

UPDATED FAULT HAZARD ASSESSMENT
AND RESPONSE TO CGS REVIEW LETTER
EL RODEO K8 SCHOOL
655 WHITTIER DRIVE
BEVERLY HILLS, CALIFORNIA

Prepared For:

BEVERLY HILLS UNIFIED SCHOOL DISTRICT

255 South Lasky Drive
Beverly Hills, California 90212-3697

January 31, 2016

Project No. 10274.006



Leighton Consulting, Inc.

A LEIGHTON GROUP COMPANY



Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

January 31, 2016

Project No.10274.006

Beverly Hills Unified School District
255 South Lasky Drive
Beverly Hills, California 90212-3697

Attention: Mr. Steve Kessler, Superintendent

**Subject: Updated Fault Hazard Assessment
And Response To CGS Review Letter
El Rodeo K8 School
655 Whittier Drive
Beverly Hills, California**

As requested and in response to the California Geological Survey (CGS) Review Letter dated June 30, 2015, Leighton Consulting, Inc. (Leighton), along with Earth Consultants International (ECI), has completed a supplemental assessment of the fault hazard at El Rodeo K8 School campus located in western Beverly Hills, California. This report addresses only the new work completed to address the CGS review comments related to surface fault rupture. For a discussion of the site and the faults in the area, and a summary and analysis of previous work done by Leighton and others in the site vicinity, refer to our two previous reports dated June 2012 and February 2015 (Leighton 2012c, 2015).

In this supplemental investigation, we have drilled and logged eight (8) new borings within the school property and on Wilshire Blvd, and excavated and logged approximately 240 feet of additional trench. With this new work, we have a combined total of 23 continuously sampled core borings on the El Rodeo K8 School campus and within Wilshire Boulevard, and excavated, logged and photographed four fault trenches for a total of approximately 385 linear feet. Included in this total are two utility trenches excavated by others that we also reviewed and logged on or near the school. All of these subsurface studies have been conducted to determine whether or not near-surface faults associated with the Santa Monica Fault Zone (SMFZ) or the West Beverly Hills Lineament (WBHL) extend across the school campus. Logs of all of these exploratory borings and trenches are presented in this report.

Previous investigators have inferred that the eastern terminus of the SMFZ occurs at or immediately to the southwest of the El Rodeo K8 School, south of Wilshire Boulevard, based primarily on topographic escarpments, differences in groundwater depth, and other indirect observations (Dolan and Sieh, 1992; Pratt et al., 1998; Dolan et al., 2000a). The same investigators have inferred the north-northwest-trending WBHL through the Beverly Hills High and El Rodeo K8 School campuses terminating where the mouth of Benedict Canyon meets the mountain front. Most recently, Geocon West Inc. (GWI, 2014) conducted a fault investigation for the property at 9900 Wilshire Boulevard, to the southeast of the El Rodeo K8 School campus. As part of their study, they emplaced several cone penetration tests and soil borings on Wilshire Boulevard, across the street from the school property, and reviewed environmental data available for the gas station at 9988 Wilshire Boulevard. Based on these data, GWI interpreted several active faults trending northeasterly toward the El Rodeo K8 School campus. We revisited these data for our February 2015 report, concluding that a few of these interpreted faults could be present in the subsurface, but that in our interpretation, Pleistocene units are continuous over the top of GWI's faults, indicating that they have been inactive for hundreds of thousands of years. CGS (2015) agreed with most of our stratigraphic interpretations, but they concluded that there were two areas where the data were not as robust due to site challenges, and requested additional study to close these gaps. CGS' review (Appendix A) necessitated this supplemental study.

ECl provided assistance with the logging and interpretation of the trenches, the age estimation of the deposits exposed in the fault trenches, the unit correlations between borings, and the review of this report. Based on a compilation and review of the original data from our 2012 and 2015 studies, and the supplemental data obtained for this study, we interpret three stratigraphic anomalies in older deposits as possible faults. However we conclude that these possible faults are not Holocene-active as we demonstrate that they are overlain by unbroken sediments and soils that are considerably older than 11,700 years, the CGS benchmark for activity. Our principal temporal control comes from the use of soil development age estimation of the sedimentary packages within the cores and trench exposures, and the correlation of depositional, erosional, and soil-formation periods as observed in the trenches and cores with the eustatic sea level curve, recognizing that channel incisions occur in response to sea level drops during glacial events, and channel infilling, landscape stability and soil development occur during interglacial periods. This has become the standard of practice for the fault studies in the Beverly Hills and Century City areas since the release of the Active Fault Map by MTA in 2011 (Parsons Brinckerhoff, 2011).

The soils and sea-level-curve correlations support an age of at least 300,000 to 500,000 years for the stratigraphy lying unfaulted over the interpreted fault traces.

Of note, and a principal change due to this new investigation, we have interpreted and redefined the Benedict Canyon Wash₁ (BCW₁) from the prior report. In that report, BCW₁ capped Benedict Canyon Wash₂ (BCW₂) everywhere on the El Rodeo K8 School campus. In this new interpretation, the El Rodeo K8 School campus is sited directly upon BCW₂, and we have restricted BCW₁ to those Pleistocene units that directly underlie the Holocene alluvium capping the lower playground area surface. This change does not affect our prior interpretation of a BCW₁ - BCW₂ contact. That geomorphic surface and its capping paleosol still exists and in our opinion correlates across the site, but it is now another depositional hiatus within BCW₂. As defined now, BCW₁ forms an angular buttress unconformity against BCW₂. This unconformity reflects a significant erosional hiatus as the 6°-7° gently dipping BCW₂ was planed (eroded) off about 30 feet in depth on its eastern edge before the now BCW₁ was deposited back onto the stripped surface. While this new definition of BCW₁ does conflict with our prior interpretation, we feel it more accurately reflects the geological conditions as we now know them, and is identical to the findings in LCI (2012a & 2012d) from the Beverly Hills High School investigation.

The second significant change in the tectonics of the region is in our discussion of a structural monocline that is present in the BCW₂ sediments, but not present in the BCW₁ units. The monocline was shown on prior Cross Section B-B' as 6° to 7° east dipping BCW₁ and BCW₂ units flattening out to horizontal in the lower eastern half of the profile. Now, based on the new borings and primarily the new trench exposures, we know BCW₁ is actually unconformably incised into the toe of the slope, indicating that it postdates the uplift and folding. The upper hinge for the fold lies near the crest of the hill where FT-4 shows nearly horizontal BCW₂ units. The lower hinge lies near the base of the slope between FT-1 and FT-3, where the Benedict Canyon channel and the modern Moreno Creek are entrained. The timing of this uplift and folding (tilting) would lie between the long depositional hiatus between BCW₂ and BCW₁, or about 200-300,000 years ago. The most likely cause of the folding is the Santa Monica Blvd North Fault which was active up until this time. This finding is clearly identical to that at Beverly Hills High School where the older BCW₂ units were shown in FT-2 to have a 3° unconformity against the younger and horizontal BCW₁ strata.

Based on all of the new data from the El Rodeo investigation, the structural geologic evolution of the eastern Cheviot Hills can now be better quantified. During San Pedro

time, the area was nearshore marine, progressively recessional to a beach environment. Conformable above the ~ 1Ma San Pedro is the Cheviot Hills unit (Kenney 2014), a low energy alluvial fan unit punctuated by periodic depositional hiatuses expressed as pedogenic weathering across regional geomorphic surfaces separated by shallow channels as the Santa Monica Mountains / Hollywood Hills uplift was underway. Conformable above the Cheviot Hills is the lower Benedict Canyon (BCW₂), a coarser, higher energy alluvial fan sequence that, in our opinion, reflects the erosional denudation of the Santa Monica Mountains and Hollywood Hills commencing about 500 ka. About 300+ ka, the locus of uplift stepped from the mountain front to a more southerly location, commencing uplift of the Cheviot Hills fan complex and trapping Benedict Canyon into an antecedent east-west channel down what is now Santa Monica Blvd, which at the time was a transtensional graben formed by the strike slip Santa Monica Blvd fault zone partitioning lateral slip onto the hanging wall of the Santa Monica thrust (Kenney 2012, 2014). During the period of lower BCW₂ fan deposition and uplift of the Cheviot Hills, the eastern side of the Cheviot Hills were structurally tilted 3°-8°. About 200-300 ka, as the SMBF became inactive, ending the tectonic depressing of the Benedict Canyon Creek channel versus the tectonic tilting. The cessation of tectonic activity facilitated Benedict Canyon Creek's capture to a straight southerly route down what is now Moreno Drive, ~150-200 ka leaving an east-west wind gap. After the abandonment of the east-west channel, Benedict Canyon Creek incised about 30 feet deep into the easterly Cheviot Hills margin, where approximately 120 ka, the upper Benedict Canyon (BCW₁) was deposited horizontally against the Cheviot Hills margin. During the last glacial maximum of ~20-25 ka, the current Moreno Creek reincised along the same Cheviot Hills margin, subsequently backfilled with Holocene alluvium during the modern interglacial, while thin mudflow and flood plain deposits capped the Pleistocene BCW₁ fan surface.

In addition to failing to find the previously inferred active faults through the El Rodeo K8 School, it is also important to mention what else we failed to find: *geologic evidence for a major fault intersection and step-over structure*. Zones where faults intersect (West Beverly Hills Lineament and Santa Monica fault in this case), and zones where faults step from one to another (Santa Monica to Hollywood faults in this case), are areas of intense deformation involving fracturing, folding, uplift or subsidence and fault offsets as the various micro-plates all interact together. Realistically the area should be laden with faults and fault-bounded blocks. We found none of these, not even fault-related fracturing or folding, within alluvial fan deposits that are estimated to be between about 200,000 and 500,000 years old. At greater depths (and ages), even if all stratigraphic anomalies are interpreted to be faults and not erosional channels, their vertical

displacements are trivial (mere feet to tens of feet). Using the minimum reverse rate of slip for the Santa Monica fault of 0.6 mm/yr (Dolan et al., 2000a), the vertical displacements through this area should be in the order of about 390 to 1,000 feet (120-300 meters) in just those uppermost sediments that we exposed as being undeformed. These findings call into doubt the entire structural geologic paradigm for the Newport-Inglewood, West Beverly Hills Lineament, Santa Monica and Hollywood fault interactions. More than doubt, they totally refute the published model.

Accordingly, we conclude that no faults have ruptured to the surface for at least 300,000 to 500,000 years at the El Rodeo K8 School campus, and as such, future surface rupture along active faults does not pose a hazard to the campus structures.

We appreciate the opportunity to be of continued service to Beverly Hills Unified School District. If you have any questions, please contact the undersigned directly at the e-mail address and phone extension listed below, at **866-LEIGHTON**.



Respectfully submitted,

LEIGHTON CONSULTING, INC.

Joe A. Roe, CEG 2456

Principal Geologist

jroe@leightongroup.com, Extension 4263

JAR/PB/lr

Distribution: (2) Addressee
(1) ECI, Attention: Mr. Eldon Gath, & Ms. Tania Gonzalez
(1) Kenney Geoscience, Attention: Dr. Miles Kenney
(1) Primesource Consulting, Attention: Mr. Tim Buresh
(1) Dr. Roy Shlemon

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 INTRODUCTION	1
1.1 Purpose and Background	1
1.2 Scope of Work.....	2
2.0 FINDINGS	6
2.1 Fault Trenches	6
2.1.1 Fault Trench FT-3.....	6
2.1.2 Fault Trench FT-4.....	8
2.1.3 AT&T Trench Excavation.....	9
2.2 Continuous Core Borings	10
2.3 Geologic Units	10
2.3.1 Artificial Fill, Undocumented (Map Symbol Afu).....	11
2.3.2 Modern and Holocene Alluvium in Historical Channel of Moreno Creek (Map Symbol Qw)	11
2.3.3 Holocene and Pleistocene Alluvium of Benedict Canyon Wash and the Beverly Hills Plain (Map Symbol Qal):	12
2.3.4 Pleistocene Alluvium of Benedict Canyon Wash (Map Symbol BCW ₁)	12
2.3.5 Pleistocene Alluvium of Benedict Canyon Wash (Map Symbol BCW ₂)	13
2.3.6 Pleistocene Cheviot Hills Deposits (Map Symbol CHD).....	13
2.3.7 Quaternary San Pedro Formation (Map Symbol Qsp)	15
2.4 Groundwater.....	15
3.0 INTERPRETATIONS AND DISCUSSION	17
3.1 Santa Monica Blvd-North Fault.....	17
4.0 CGS COMMENTS AND RESPONSES	19
4.1 June 30, 2015 CGS Comments and Response.....	19
5.0 CONCLUSIONS	28
6.0 LIMITATIONS	29
REFERENCES	

List of Figures and Plates

Figure 1 – Site Location Map

Figure 2 – Regional Surface Fault Map

Figure 3 – Regional Geologic Map

Plate 1 – Exploration Map (in pocket)

Plate 2 – Topographic Map (in pocket)

Plate 3 – Cross-Section A-A' (in pocket)

Plate 4 – Cross-Section B-B' (in pocket)

Plate 5 – Cross Section C-C' (in pocket)

Plate 6 – Logs of Fault Trenches FT-1, FT-2 (in pocket)

Plate 7A – Fault Trench Log FT-3 (in pocket)

Plate 7B – Fault trench Log FT-4 (in pocket)

Plate 8 – Wilshire Boulevard Utility Trench (in pocket)

List of Appendices

Appendix A – CGS Letter dated June 30, 2015

Appendix B – Continuous Core Boring Logs and Core Photographs

Appendix C – FT-3 and FT-4 Trench Photographs

Appendix D – Earth Consultants International, Inc. *Soil Age Estimations*

Appendix E – Analytical Laboratory Test Results

Appendix F – GWI West Inc., *Borings*

1.0 INTRODUCTION

1.1 **Purpose and Background**

The purpose of this supplemental study was to respond to questions posed by reviewing geologists from the California Geological Survey (CGS, 2015) regarding the potential for active faults to underlie the El Rodeo K-8 School campus, see Figure 1, *Site Location Map*. Only the items under the header “*Fault Hazard Assessment*” in CGS’ letter, in pages 7 through 10, are addressed here. We have addressed in a separate report dated January 7, 2016 (Leighton, 2016) the geotechnical items presented in the preceding sections of CGS’ review letter. A copy of CGS’s June 30, 2015 review letter is attached as Appendix A. The field exploration for this work took place between September 7, 2015 and October 31, 2015, and between November 23 and December 3, 2015. Locations of all explorations performed by Leighton and others in support of this study are shown on Plate 1, *Exploration Map*.

Several published reports have suggested that a series of northeast-trending topographic scarps extending from Santa Monica eastward to western Los Angeles are the surface expression of the Santa Monica fault (Dolan and Sieh, 1992; Pratt, *et al.*, 1998; Dolan *et al.*, 2000a). A southeast-facing scarp that extends across the Los Angeles Country Club (LACC) and possibly the southwestern portion of the El Rodeo K8 School campus as illustrated on Plate 2, *Topographic Map*, is considered the easternmost indicator of the Santa Monica fault. At about the location of the El Rodeo K8 School the approximately 40-km- (24-mile-) long fault is interpreted to step left about 1 mile to the north and continue eastward as the Hollywood fault (Dolan and Sieh, 1992; Dolan *et al.*, 1997, 2000b). An inferred north-northwest-trending structure referred to as the West Beverly Hills Lineament (WBHL) is thought responsible for accommodating the left-step separation between the Santa Monica and Hollywood faults. The WBHL is also inferred through or near the western boundary of the school campus, see Figure 2, *Regional Surface Fault Map*. Thus, the fault investigations conducted at the El Rodeo K8 School campus have been designed to intercept both northeast- and northwest-trending structures.

Previous studies by Leighton at the El Rodeo K8 School, in the form of trenches FT-1 and FT-2 (2012a, 2015) conclusively showed that active elements of the

Santa Monica fault or the WBHL do not underlie the central portion of the school campus. As pointed out by the CGS, however, these trenches were somewhat limited in extent given that native alluvial deposits were exposed only in the western portions of the excavations, with deep fills of man-made materials encountered in their eastern ends. To extend the areas cleared of active faulting, we also drilled and continuously sampled several borings along the school's western boundary, and many more along the east-trending Wilshire Boulevard and the school's southern boundary (Leighton, 2015). Robust correlations of primary and secondary (pedogenic) stratigraphic units identified in the continuously sampled borings drilled for our February 2015 report, combined with borings and CPTs emplaced by Geocon West, Inc. (GWI, 2014) for their study of the property at 9900 Wilshire Boulevard, enlarged the area of the campus that is cleared from active faults. However, CGS geologists questioned some of the correlations we made at two specific locations. To more thoroughly investigate the areas of concern identified by the CGS, we excavated and logged two additional trenches (FT-3 and FT-4), logged a utility trench excavated by an AT&T contractor near the school's southwestern corner, and drilled, sampled, and described seven additional borings. The locations of these new exploratory trenches and borings are shown on Plate 1, *Exploration Map*.

1.2 **Scope of Work**

Tasks completed as part of this supplemental study include:

- Coordinated with Underground Service Alert (USA), district personnel and utility subconsultants to locate underground services and/or utility easements prior to the beginning of our field investigations.
- Obtained permits from the City of Beverly Hills to drill on Wilshire Boulevard; our work while on the street was limited to between 9:30 PM and 5:00 AM.
- Drilled and geologically logged 7 continuously sampled core borings (CB-8A and CB-17 through CB-22) to supplement the 16 continuously sampled core borings CB-1 through CB-16 that we completed and reported previously (Leighton, 2012c, 2015). The borings were advanced to obtain deep samples from which we could evaluate the stratigraphic continuity of the geologic units below the bottom of Moreno Creek, between borings CB-3 and CB-17 and to reduce the length of extrapolation between borings CB-2 and CB-8, and CB-11 and CB-12.

- The borings were excavated by a subcontracted driller, and their depths ranged from 60 to 175 feet. The subcontracted driller used a hollow stem auger system equipped with a 5-foot long, 3-inch wide, continuous core barrel to collect cores samples. Core recovery was generally good in all holes and recovery in most intervals exceeded 90%, except where “no recovery” intervals are noted on the logs and cross sections. Core runs were hand scraped to remove the rind of disturbed material, then logged by a professional geologist. The core samples were stored in boxes for further review and photo documentation. Upon completion, the borings were backfilled with bentonite grout. The cores of every boring were logged and photographed by a professional geologist from our staff. Core logs and core photos are provided in Appendix B, *Continuous Core Boring Logs and Core Photographs*. Boring locations are shown on Plate 1, *Exploration Map*.
- Certified engineering geologists from Leighton and Earth Consultants International (ECI) conducted intensive side-by-side core logging in the field to identify, compare and correlate primary stratigraphic units and paleosols. Correlation was performed by laying out the recovered cores in the El Rodeo K8 School basketball court and turf track area. Correlations from one core to the next were based on grain size, color, texture, buried argillic soil horizons, and the thickness of the stratigraphic units or soil horizons. We also used thin laminations and fining-upward sequences as distinctive markers that aided our unit matches. Photos of the core borings are included in Appendix B, *Continuous Core Boring Logs and Core Photographs*. The boring locations are shown on Plate 1, *Exploration Map*.
 - Excavated and geologically logged fault trench FT-3 (Plate 1) to extend the area of coverage provided by trenches FT-1 and FT-2 to the east-southeast. The trench, which was excavated by a subcontractor who used a track-mounted excavator fitted with 3-foot and 5-foot wide buckets, was benched in accordance with Cal-OSHA guidelines. Both walls of the trench were cleaned (brushed and scraped), and the geologic contacts in the north wall were delineated. Fault trench FT-3 was sited roughly perpendicular to the trend of the active faults interpreted by GWI (2014) and shown on Plate 1 (blue, red and green dashed lines). Owing to deep rubble fill in the former channel of Moreno Creek, the trench was started at the approximate centerline of the former Moreno Creek channel and extended southeastward through the soccer turf field. See Plate 7a, *Log of Fault Trench FT-3*. Photographs of fault trench FT-3 are included in Appendix C, *FT-3 and FT-4 Trench Photographs*.
 - Excavated and geologically logged fault trench FT-4 to provide coverage along the southwestern portion of the school. This trench was 45 feet long and ranged in depth from 2.9 to 5.2 feet. The trench was hand excavated by a subcontracted excavation crew. The south wall of the trench was cleaned (brushed and scraped), and the geologic contacts in the south wall were

- delineated. Fault trench FT-4 was sited perpendicular to the regionally plotted trend of faults in this area to provide coverage between core borings CB-19 and CB-21, where a structural anomaly had previously been interpreted at depth. See Plate 7b, *Log of Fault Trench FT-4*. Photographs of fault trench FT-4 are included in Appendix C.
- Excavated and logged fault trench FT-5. Unfortunately, this trench exposed only undocumented fill to a depth of approximately 4 feet below grade, where we uncovered a sewer line running parallel to the trench, along its bottom. The excavation did not expose any native sediments and was therefore terminated and backfilled without logging it. The location of this trench is shown on Plate 1.
 - Logged an AT&T utility trench dug by others to collect geologic information supplementary to core borings CB-2, CB-18 and CB-21. The data from this trench and borings complemented our fault trench FT-4 lithology interpretations. Soil samples collected from the trench allowed us to evaluate the stratigraphic continuity and age of the geologic units in the western portion of the site. The log and stratigraphic interpretations are provided on Plate 8, *Wilshire Boulevard Utility Trench*.
 - ECI and Leighton geologists logged and described the primary stratigraphic units in the trenches described above. For the detailed descriptions of the units exposed in the trenches, refer to the appropriate trench logs.
 - In situ datable organic materials, such as charcoal, were not encountered in the trenches or borings excavated for this study. ECI used soil development age dating techniques to estimate the age of the deposits and confirm that the excavations extended into Pleistocene-age sediments more than 11,700 years old. Specifically, Ms. Tania Gonzalez with ECI provided soil-stratigraphic age estimates for two soil profiles from trench FT-3 at Stations 0+15 and 1+05; two profiles from trench FT-4 at Stations 0+10 and 0+26, and one from the AT&T utility trench. Details of this relative age dating technique, and specifics regarding the soil profiles analyzed and the soil age estimates obtained are provided in Appendix D, *Soil Age Estimations*.
 - Fault trench FT-3 (and our previous trenches FT-1 and FT-2) were reviewed by Mr. Jerry Treiman and Mr. Brian Olson with the CGS. Mr. Olson also reviewed fault trench FT-4, and the core boxes containing our flagged stratigraphic correlations across the borings.
 - Once fully logged, photographed, and reviewed, trenches FT-3, FT-4 and FT-5 (log not available) were backfilled with the soils removed from the excavations. The backfill soil was moisture-conditioned and compacted with a compaction wheel or hand-held mechanical tampers. The backfills were

- completed in October 2015 and December 2015. Oversize concrete debris encountered in the rubble fill during excavation of FT-3 was placed at the bottom of the Moreno Creek channel excavation under geotechnical engineering control. Upon completion of the backfill of FT-3, the surface was stripped of the remaining turf track and paved prior to placement of portable classrooms by a contractor not associated with this investigation. The surface completion at FT-4 consisted of replacement of hot rolled asphalt concrete and Portland Cement Concrete (PCC) to match pre-existing conditions.
- Prepared geologic cross-sections A-A', B-B' and C-C', along with the logs of fault trenches FT-3, FT-4, and the Wilshire Blvd. AT&T Utility Trench, to illustrate the subsurface geology and document the relative continuity of sediments exposed in the trenches and correlated from the deep core borings (Plates 3 through 8).
 - The continuous core borings were excavated along two transects oriented east-west, and a third transect oriented north-south. The east-west transects include one in the play area, (CB-3, CB-4, CB-5, CB-7, CB-17 and CB-22), drilled to depths of 70 to 195 feet, and illustrated on Plate 5, *Cross Section C-C'*; and, the second along Wilshire Blvd. (CB-8A to CB-21), ranging in depth from 60 to 175 feet, and illustrated on Plate 3, *Cross Section A-A'*. The borings along the north-south transect, completed along the westerly property limits adjacent to the LACC (CB-1, CB-2, CB-6, CB-18, CB-19, CB-20 and CB-21), were drilled to depths ranging from 70 to 175 feet, and are illustrated on Plate 4, *Cross Section B-B'*.
 - Excess soils generated during the drilling exploration were contained and removed from the site. The excess soils were placed in Department-of-Transportation-approved 55-gallon drums. Analytical testing was conducted on composite samples collected from the drums to determine appropriate disposal methods. The soils were classified as non-hazardous (see Appendix E, *Analytical Laboratory Test Results*).
 - Prepared this response report summarizing our findings and conclusions, and addressing the specific concerns identified by the CGS geologists in their review letter (See Section 4.0).

2.0 FINDINGS

2.1 **Fault Trenches**

Each of the trenches mentioned above is described in detail in the following sections. Refer to the logs of the trenches (Plates 7a, 7b and 8) for additional information regarding the geologic units and soils exposed therein. Our borehole correlations are illustrated in cross-sections A-A', B-B' and C-C'. Fault trenches FT-1 and FT-2 that were excavated and logged during our previous studies at El Rodeo K8 School are reported in our February 2015 report. Refer to that report for a detailed description of those trenches. In addition, and prior to beginning the fault investigation at El Rodeo K8 School, we observed soil exposures within a shored sewer trench excavation that extended from Whittier Drive into the campus for approximately 150 linear feet. The trench was excavated by a contractor to depths of 7 to 10 feet for purposes of replacing a 6-inch-diameter sanitary sewer line. The sidewalls of the utility trench were scraped and brushed by Leighton and ECI geologists to reveal artificial fill 3 to 10 feet thick overlying native alluvial materials consisting of silty sand and gravels, overlain by an organic rich (A soil horizon) consisting of sandy clay to silty clay. Where native alluvial sediments were observed in the trench sidewalls, these units were continuous and unbroken. However, there were several sections of trench where artificial fill was exposed to the bottom of the utility trench exposure, so the lateral continuity of the alluvial sediments could not be corroborated in this area. Due to the ongoing utility installation and caving of the sewer trench at several locations, no log was formally drafted. The thickness of the artificial fill material and native soil types are indicated on Plate 1.

2.1.1 **Fault Trench FT-3**

Fault Trench FT-3 was 183 feet long, 7.5 to 20 feet deep (Plate 7a) and excavated in the turf track area south and east of Buildings E and D, respectively (Plate 1). The excavation was begun at the approximate centerline of Moreno Creek Channel and was extended in a southeasterly direction through the east bank of Moreno Creek Channel and into the alluvial plain of Benedict Canyon Wash. The trench shadows the zone of faulting interpreted by GWI (2014) from across Wilshire Boulevard. Specifically, GWI's faults **F**, **G**, **H**, **I** and **J** are inferred to trend northeasterly across the campus and through the location of fault trench FT-3. In our Plate 1, we show the faults inferred by GWI (2014) using their interpreted strike.

Trench FT-3 exposed two generations of artificial fill. In its western end, a 17-foot thick section of rubble fills in the former channel of Moreno Creek, from Station 0-20 to Station 0+10. The rubble backfill contains large fragments of concrete believed to be part of the abandoned-in-place Moreno Creek Channel stormdrain box. This fill is underlain by a 2-foot thick section of dark reddish brown imbricated gravels that comprise the only exposure in the trench of the Modern and Historic Alluvium of Benedict Canyon Wash (Station 0+00 to 0+05) (see Plate 7a). These imbricated gravels fill in the bottom of the channel (Plate 7a) that incised into underlying Pleistocene sediments; these channel sediments were likely deposited during the regionally extensive 1938 floods, given that the unit contains man-made materials, including vintage bottles, glass fragments, ash, wood, and abundant pieces of Syracuse China cups and plates (see http://www.replacements.com/webquote/SY_SY933.htm). Although the channel is historic, it is a useful indicator of the location of the original, pre-historic Moreno Creek, and provides a line (the channel thalweg) that can be used to better correlate the current topography with the 1920s topography on Hoots (1931) map. The second generation of younger artificial fill (approximately 2 to 4 feet thick), which occurs from Station 0-20 to Station 1+83, is the capping fill deposit placed to bring this part of the school site to design grade. This fill material consists of sandy clay to silty sand with asphalt fragments, pillow basalt cobbles and scattered pipe and wire debris.

Underlying the fill deposits near the current ground surface we exposed Holocene- and Pleistocene-age, laterally continuous and relatively level massive to weakly bedded mudflow deposits capping locally channelized, fluvial sediments. The fluvial sediments are typically bedded and characterized by fining upward sequences. ECI described the soils exposed in fault trench FT-3 at Station 0+15 and Station 1+05 (Plate 7a). The soil profile at Station 0+15 includes a near-surface soil with characteristics of both A and Bt soils overlying seven buried soils. The surface soil has characteristics that suggest it has been exposed to soil-forming processes at the surface for at least 10,600 years. This estimate is considered a minimum given that the uppermost section of this soil was removed during construction. The buried soils described in this profile indicate that the sediments below the near-surface soil are Pleistocene in age; the entire depositional package exposed in trench FT-3 at Station 0+15 is estimated to be at a minimum

66,500 years old, and preferably more than 200,000 years old (for a detailed description of the soils and age interpretations refer to Appendix D).

The trench was shallower at Station 1+05 than at Station 0+15. The soil profile at Station 1+05 included a near-surface soil and six buried soils. The near-surface soil was missing its A horizon, and only a thin section of the Bt horizon remained. The Bt horizon has strong coarse angular blocky soil structure and common to many thin to thick clay films. These characteristics suggest that this soil has been exposed at the surface for a minimum 9,800 years. The underlying buried soils are pre-Holocene in age, with the entire sedimentary sequence exposed at Station 1+05 estimated to be at a minimum 48,000 years old, and preferably almost 150,000 years old (see Appendix D).

2.1.2 **Fault Trench FT-4**

Fault trench FT-4 was sited roughly perpendicular to the regional trend of the faults that Dolan et al. (2000) and GWI (2014) projected into the school, and so as to provide coverage for the area between core borings CB-19 and CB-21, where we had previously interpreted a potential fault at depth (see Plate 5). The entryway and parking area off Wilshire Boulevard where fault trench FT-4 was excavated is in the southwestern portion of the campus, where Hoots (1931) mapped Upper Pleistocene-age alluvial plain, stream and marine terrace deposits. This hand-excavated trench was 45 feet long, and ranged in depth from 2.9 to 5.2 feet (see Plate 7b, *Log of Fault Trench FT-4*). The trench was considerably shallower than FT-3, but it was deep enough to confirm Hoot's interpretation of the age of the deposits, even though the uppermost 5 feet (approximately) were removed as part of the school construction. The south wall of the trench was cleaned (brushed and scraped), and the geologic contacts observed therein were delineated. The trench exposed layered mudflow and fluvial (channel and overbank) deposits.

ECl sampled and described the soils in this trench at two locations, near Stations 0+10 and 0+26 (for a detailed description of the soils, refer to Appendix D). The soil profile at 0+10 included a near-surface relict soil, and three buried soils. The first buried soil developed on a westward-thickening fluvial deposit that was exposed only in the western portion of the trench, and was not present in Section 0+26. The entire stratigraphic section in this portion of the trench is estimated to be at a minimum 22,000 years old, and

more likely at least 68,000 years old, but these age estimates are considered to be absolute minimums, as the sediments exposed in this trench are interpreted to be part of the Benedict Canyon Wash 2 (BCW₂) sequence (see Section 2.3.5).

The soil profile at Station 0+26 included the remains of the same relict soil at Station 0+10, which developed in debris flow sediments, and two buried soils below. These buried soils are stratigraphically below, and are thus older, than the first buried soil observed at Station 0+10. Cumulatively, the unbroken soils described in this profile are estimated to be at a minimum about 27,000 years old, and more likely at least 88,000 (median) years old. However, as above, these age estimates are considered minimums. Stratigraphically, as illustrated on Section C-C', the sediments exposed in this trench are interpreted to be part of the Benedict Canyon Wash (BCW₂) sequence, and thus several hundreds of thousands years old (Appendix D).

2.1.3 **AT&T Trench Excavation**

A utility trench excavation was opened by an outside contractor prior to beginning excavation for fault trench FT-3. This excavation, located outside the school grounds, within the planter area between the sidewalk and curb, immediately adjacent to Wilshire Boulevard, was approximately 2.5 feet wide, 3.5 feet deep, and nearly 13.5 feet long. The trench exposed artificial fill in its upper 1.5 feet, underlain by continuously bedded dark red clayey gravel to gravelly clay that we assign to the Benedict Canyon Wash₂ sequence. Bedding appeared continuous and paralleled the gently sloping (3°) ground surface. The trench log and soil descriptions are shown on Plate 8, *Wilshire Boulevard Utility Trench*.

The debris flow sediments exposed in this trench included the truncated remains of an argillic soil horizon that is presumed to be the bottom portion of a relict, near-surface soil, and thin portions of two buried soils. The cumulative age of these soil-modified sediments is estimated at between about 28,000 (minimum) and 85,000 (median) years. Given that all of these soils were truncated, the sediments that these soils developed into are likely to be considerably older. As with the sediments in fault trench FT-4, our interpretation is that these sediments are part of the BCW₂ unit, and thus considerably older than the soil-age estimates suggest.

2.2 Continuous Core Borings

A total of 23 continuous core borings have been sited along two parallel and one perpendicular transects across the campus (see Plate 1). The two parallel transects, Cross Section A-A' and Cross Section C-C', illustrate the geology underlying the school using an extensive set of closely spaced borings. Cross Section A-A' extends eastward to include several of the CPTs and borings drilled and logged by GWI (2014). The boring depths along Cross Section A-A' ranged from 70 feet to 175 feet, with the borings spaced 30 to 40 feet apart along Wilshire Blvd. (Plate 3). The boring depths along Cross Section C-C' ranged from 70 to 195 feet, with the borings spaced 20 to 150 feet apart. Borings CB-5 and CB-17 were located within the footprint of Trench FT-1. Borings CB-3 and CB-7 were excavated within 5 feet of the north and south sides of FT-1, respectively. Boring CB-4 was located within approximately 30 feet of the southeast end of trench FT-3.

Distinct marker beds, fining upward sequences and paleosols were encountered in each of the borings. Of primary importance were the paleosols that could be identified from one boring to the next, particularly in areas where the borings were spaced relatively close together (approximately every 30 to 40 feet) as shown on Plate 3, *Cross section A-A'*, and at distances of 20 to 150 feet, as shown on Plate 5, *Cross Section C-C'*. Cross Section C-C' also includes fault trenches FT-1, FT-2, FT-4 and FT-4. On Cross Section B-B', the distances between borings CB-1, CB-6 and CB-2 were up to 240 feet (see Plate 4, *Section B-B'*).

Because of the extensive anthropogenic alterations, we focused on the stratigraphic evidence of potential faulting within the general areas flagged by CGS in their review of our earlier report. We did find evidence of offset San Pedro Formation marker beds that we interpreted to be a result of faulting at depth between core borings CB-21 and CB-19 (Plates 3 and 5, *Cross Section A-A' and C-C'*). We excavated fault trench FT-4 perpendicular to a projection of this subsurface fault between borings CB-19 and CB-21. We uncovered no evidence of offset beds in the Pleistocene stratigraphy in trench FT-4 (see Plate 7b).

2.3 Geologic Units

The core borings (CB-1 through CB-22, Plate 1) and fault trenches (FT-1, FT-2, FT-3 and FT-4, Plates 6, 7a, 7b, and 8) generally exposed flat lying to gently dipping (approx. 3-7°) sediments of Pleistocene age. Most sediments range in

grain size from basal channel gravels overlain by progressively fining upward sands, silt and clays. These were mainly laid down by now dissected distributary fans emanating from the Santa Monica Mountains to the north. Clast composition typically consists of Santa Monica slate (Jsm), siltstone and sandstone of the Monterey Formation (Tm) and occasional basalt, granitic cobbles and pebbles. Regional geology of the site and surrounding area is shown on Figure 3, *Regional Geologic Map*. Detailed descriptions of the units encountered are shown on the boring logs by Leighton and GWI and included in Appendix B. The geologic units that we have interpreted from the trench exposures and borehole cores are described further below, from youngest to oldest.

2.3.1 Artificial Fill, Undocumented (Map Symbol Afu)

Up to approximately 19 feet of undocumented rubble fill was observed during our exploration onsite at the eastern ends of Fault trenches FT-1 and FT-2 and western end of FT-3 (Plates 6 and 7a). Thinner sections of fill were also observed at or near the ground surface placed to bring the site to final grade, or associated with the backfill of utility trenches. We are unaware of any documentation regarding compaction of the fill material associated with grading and construction of the campus or within Wilshire Boulevard. The fill consists of locally derived sandy silt and silty sand, locally with clay and varying amounts of gravel and man-made debris. Abundant concrete rubble, in places exceeding 24-inches in diameter, was observed in the backfill of Moreno Creek Channel in trenches FT-1, FT-2 and FT-3. Localized seepage along root traces was observed in the backfill along the southern sidewall of trench FT-1 and near the storm drain inlet of trench FT-2. In Cross-Sections A-A' B-B' and C-C', we include in this unit (Afu) the spoils from the hand-augered sections of the borings and CPTs that were not logged, even though these sections may have included native sediments.

2.3.2 Modern and Holocene Alluvium in Historical Channel of Moreno Creek (Map Symbol Qw)

Silty sand to clayey sand grading to sand at depth, with minor gravel and thin gravel beds; light yellowish brown, brown to dark reddish brown; massive to crudely stratified, imbricated; small fragments of asphalt observed locally in CB-3. Cross-bedded (imbricated) channel gravels were observed in the western end of trench FT-3 at the lowest point of incision in former Moreno Creek Channel. These deposits included glass and pottery fragments, and are interpreted to have been deposited during the 1938 floods. The intense

oxidation of the gravels is believed to be iron leaching from man-made materials contained both within the channel debris and the artificial fill overlying the historical channel deposits.

2.3.3 Holocene and Pleistocene Alluvium of Benedict Canyon Wash and the Beverly Hills Plain (Map Symbol Qal):

This unit thickens southward and eastward, away from the mountains to the north and the hills west of the El Rodeo K8 School, and consists of sandy clay to clayey sand grading laterally to silty clay with few scattered slaty gravels. The uppermost few feet may include Holocene overbank flow deposits and/or mudflow deposits associated with unusual high-intensity precipitation events. Soils capping the sequence may include organic-rich A, A/Bt, Btj and Bt soil horizons displaying moderate soil structure and few thin clay films. The A soil horizons, where present, tend to be cumulic, and in that these are constantly being renewed by sedimentation and biological activity, are considered late Holocene in age. The underlying Bt horizons that are part of the surface soil observed in trench FT-3 and most of the borings on the east side of the campus have characteristics that indicate they have been exposed to soil-forming processes for several thousands of years. The near-surface soil is underlain by several layers of alluvial and mudflow sediments that are also pedogenically altered. Soil-development-derived ages suggest that the entire sedimentary sequence that comprises this unit is between about 36,000 (minimum) and 108,000 (median) years old (Appendix D). These age estimates indicate this sedimentary package was deposited during the last two major interglacials, referred to as Stages 3 and 5 in the sea level curve

2.3.4 Pleistocene Alluvium of Benedict Canyon Wash (Map Symbol BCW₁)

Below the sediments and soils described above, the core borings on the central and east side of the school campus, and fault trench FT-3, exposed a repeating sequence of terrestrially derived fluvial, alluvial fan, and mudflow sediments emanating from the Santa Monica Mountains via Benedict Canyon Wash and its tributaries. This unit consists predominately of dark yellowish brown, brown, dark brown to reddish brown; mottled; locally gleyed, poorly to moderately sorted channel (fluvial) deposits occurring in fining upward sequences beginning at basal gravel or sand beds grading upwards to sandy clay, clayey sand, sand with clay, and silty sand with clay. The unit grades laterally to silty sand and sand with silt. Near the channel centerline the deposit coarsens downward to gravelly sand to clayey sand with gravel.

Material is slightly moist to moist; massive too thinly laminated with few to many scattered gravels that consist of subangular to subrounded and tabular fragments of siltstone, slate and weathered basalt.

Paleosols typically cap each of these fining-upward sequences indicating periods of depositional quiescence that allowed for soil formation. The finer-grained sections are both gleyed (reduced) and oxidized, resulting in a “tiger banded” appearance. These paleosols contain sporadic to heavy manganese oxide accumulation, generally on the faces of poorly to moderately well-developed blocky peds. These deposits are interpreted to fill in a broad channel that incised into the underlying BCW₂ unit during a major sea level lowering (glacial) event that occurred 400,000 to 340,000 years ago, during Stage 10. The deposits themselves are thought to be between about 330,000 (deeper section) and 200,000 years old (near the unit’s top) (Kenney, 2014).

2.3.5 Pleistocene Alluvium of Benedict Canyon Wash (Map Symbol BCW₂)

The core borings exposed several repetitive fining-upward sequences of terrestrially derived fluvial, alluvial fan, and mudflow sediments derived from the Santa Monica Mountains to the north. This unit consists predominately of dark grayish brown, reddish brown, very dark brown, and dark yellowish brown; locally mottled and/or gleyed; poorly to moderately sorted channel (fluvial) deposits characterized as sandy clay, clayey sand and silty clay grading laterally to silty sand to sand with silt. Unit contains lenses and interbeds of sandy gravel coarsening downwards to basal channel deposits of sand, gravelly sand and gravel. Weathering consists of oxidation-reduction banding, and iron oxide and manganese oxide staining common on rock clasts and along basal channel contact. Gravel consists of fine- to medium-grained subrounded to subangular fragments of siltstone, slate, basalt and quartz. Unit is characterized by moderate to well-developed paleosols with many thin to moderately thick clay films on ped faces and moderate to strong angular blocky soil structure, with a distinctive erosional contact with underlying Cheviot Hills deposits. Deposition of the BCW₂ sediments is thought to be related with the interglacials of Marine Isotope Stages 13 and 11, approximately 500,000 to 400,000 years ago (Kenney, 2014).

2.3.6 Pleistocene Cheviot Hills Deposits (Map Symbol CHD)

This unit correlates to Leighton’s “Quaternary Old Alluvial and Fluvial deposits (Qoaf)” identified and characterized as part of the work performed on the

Beverly Hills High School (BHHS) campus (Leighton, 2012a, 2012d, 2015) and with the “Older Surficial Sediments (Qoa)” of Hoots (1931).

The Cheviot Hills Deposits are reddish brown, brown, and grayish brown, locally gleyed alluvial sediments characterized as poorly to well-sorted sandy clay, clayey sand, and silty clay; with thin silty sand and gravel layers and beds. Unit is moist to wet along sand beds, with manganese oxide stains, streaks and nodules and iron oxide stains on rock fragments. Weathering, profiles of light grey to dark orange brown coloring as a result of oxidation-reduction banding. Gravel consists of subrounded to subangular fragments of siltstone and slate. At depth, unit includes abundant calcium carbonate in the form of specks, filaments, horizontal layers, and coatings on ped faces; color changes to grayish brown, gray, and blue green reminiscent of the Lomita Marl with iron oxide staining along layers and locally on ped faces. Unit has been modified by soil-forming processes with pedogenic characteristics, including clay films on ped faces and moderate to strong angular blocky soil structure, observed at several intervals, including directly at or below its contact with the overlying Benedict Canyon Wash deposits. Predominately a terrestrial deposit consisting of fluvial and alluvial sediments derived from the Santa Monica Mountains and San Pedro Formation deposited over a long period of time, with depositional hiatuses that allowed for soil development. This unit was exposed at the surface for thousands of years before it was buried by the Pleistocene alluvium of Benedict Canyon Wash.

The upper portion of the CHD is recognized as an approximately 12- to 15-foot thick, fine-grained clayey-silty sequence that is typically both oxidized and gleyed, resulting in a “tiger-banded” appearance due to oxidation and reduction of individual layers, possibly indicating seasonal variations, i.e. water-logging and aeration of soils. This thick sequence is incised by paleochannels and marks the erosional boundary between the overlying Benedict Canyon Wash sediments. Several buried soils observed in borings drilled at BHHS (Leighton, 2012a, 2012d, 2015) provided an estimated minimum age for the Cheviot Hills Deposits of approximately 500,000 (top) to >1.0 million years (bottom, at the contact with the underlying San Pedro Formation), correlative with Marine Isotope Stages 15 through 19 at a minimum.

2.3.7 Quaternary San Pedro Formation (Map Symbol Qsp)

In the borings, we recognized the San Pedro Formation, as described by Parsons (2011b) and encountered during our fault study at BHHS (Leighton 2012a, 2012b, 2012d, 2015), where we referred to the unit as “Upper San Pedro Formation: (Qsp₁)”. At El Rodeo, the San Pedro Formation was encountered in several borings (Plate 1) at various depths (Plates 3, 4 and 5). It is typically a massive, friable to loose, yellow, olive brown to reddish orange brown to light greenish-gray to grey, fine to medium-grained sand with scattered gravel and few silty to clayey laminations. The formation as encountered is described as loose to hard; dry near upper contact, becoming moist to wet at depth. Sand fraction consists of fine to coarse, well-rounded quartz grains with scattered bi-valve shell fragments. The San Pedro is considered a transitional terrestrial to marine unit deposited in a wave-dominated (beach) environment, and in this part of the Los Angeles Basin is estimated to be more than >1.0 million years old.

2.4 Groundwater

Previous investigations of the Santa Monica and Hollywood faults (for example Dolan et al., 1997, 2000) have argued that differences in the depth to groundwater define the location of these faults. In the study area, differences in the depth to groundwater in the monitoring wells emplaced by others at the gas station on 9988 Wilshire Boulevard have been provided as evidence that the Santa Monica fault extends through that site, and onto the El Rodeo K8 School campus (GWI, 2014). However, our drilling studies show that laterally and vertically discontinuous wet zones consisting primarily of permeable sands and gravels occur at various depths, as illustrated on Table 1 below. Groundwater is typically perched on clay-rich layers that are overlain by sand and gravel deposits. Our observations strongly suggest that in this area, variations in the depth to perched groundwater cannot and should not be used to infer the location or activity of faults.

Table 1. Encountered Depth to Groundwater

Boring	Perched Water Depth (feet)	Groundwater Depth (feet)
CB-1	20-21.8, 35-37.4, 81.8-82.5, 91.5-93, 124.4-125	NE
CB-2	36.3, 41.6-44.5, 54.5-56.4, 61.7-62.3, 70-73.9, 75-78, 80-82, 90-91, 100-100.7	NE
CB-3	44-45, 45.8-49.3, 51.5-53, 55.8-58.1, 60-64.3, 66.3-66.9, 90.3-92.8, 103.8-104.3, 107.8-109.3, 111.3-112, 112.5-112.7	NE
CB-4	24.5-25.8, 40-40.6, 54.5-55.8, 70-73, 80-81.5, 101.2-105, 107.1-109.8, 120.9-121.4	NE
CB-5	94.2-95, 101.7-103.4, 110-111.3, 113-113.9, 125-125.4, 130-130.9, 137.9-185	137.9
CB-6	25-27.5, 35-35.7, 40-76.7, 88-88.9, 90.9-92.1, 92.6-98.1, 100-101.6, 105-111, 114-115.7, 120-123.7, 130-131.3, 132.1-157.7	132
CB-7	40-40.9, 41.8-43.7, 52-52.5, 100-100.2, 105-108.1, 110-110.8, 120-121.8, 135-139, 140-140.7, 145-145.1, 145.3-148.2	135
CB-8	38.5-39.4, 40-43.6, 47.2-48.8, 51.5-52, 55-57, 58.6-59, 60-61.1, 81.4-81.6, 81.9-82.2, 94.5-95, 95.7-99.3, 99.7-102.4, 110-110.7, 111.6-111.9, 115-124.1, 128.4	128.4
CB-8A	38.4-44.6, 48.1-50, 51.2-51.5, 53.2-54.1 55.5-56.6	NE
CB-9	34.7-37.8, 40-41.8, 53.9-54.6	NE
CB-10	35.4-36.5, 36.8-39.6, 43-46, 48.6-50, 55-56.2	NE
CB-11	21-21.9, 34-34.5, 42-43.2, 43.8-49	NE
CB-12	32.7-33.4, 38.4-40.5, 41-43.7, 45-45.3, 60-60.5, 67.9-74.6	NE
CB-13	68.4-72.8	NE
CB-14	35-39.7, 40-41.6, 43.2-43.5, 45-47.3, 52.2-52.4, 60-60.2, 64.4-64.5, 67.7-69.7	NE
CB-15	39.4-40.4, 45.5-48.8, 65.3-65.5, 70-70.2, 71.7-71.9, 75-82.3	NE
CB-16	35-38.2, 40-42.1, 50-50.5, 53.6-54.4, 62.8-65,, 69-69.5, 70-74.2, 76.5-77	NE
CB-17	44.8-48.9', 50-54.2', 55-59.7', 60-62.2', 62.4-63.7', 65-69.2	NE
CB-18	45-46.4', 54.5-55.6', 60-60.8', 65-70'	NE
CB-19	48.6-49.6', 50-51', 55-56.7', 82.8-84.5', 85-85.6', 90-91.8', 100-100.6', 105-106', 111-112', 117.9-118.7', 120-123.4', 125-128.3', 130-133', 135-135.6'	NE
CB-20	42.7-43.7', 46.5-51.9', 52.5-52.6'	NE
CB-21	54.5-56.9', 69.3-70', 72.8-74.2', 75-78.9', 88.8-89.2', 102.2-102.5', 125-126', 143.9-144.9'	NE
CB-22	25.5-26.7', 40.3-42.1'	NE

NE=Local groundwater table not encountered

3.0 INTERPRETATIONS AND DISCUSSION

As illustrated on the cross sections that are part of this report, the Cheviot Hills deposits extend continuously across the site, with slight dips to the east (3° to 7°), except where locally incised into by channels of the overlying Benedict Canyon Wash₂. The paleosols observed within the Pleistocene alluvial deposits (BCW₁ and BCW₂) extend unbroken along the full length of the sections. Where possible, we also incorporated CPT and subsurface data from the GWI borings drilled in Wilshire Boulevard, which were drilled to depths of 70 to 145 feet below the ground surface. Where noticeable offsets of discernible units are encountered between closely spaced explorations, we have chosen to explain the offset by interpreting faults. These inferred faults best explain the stratigraphic drops across the transects within the San Pedro Formation and upwards into the Cheviot Hills Deposits. Owing to the lack of strike and dip data, these interpreted (Santa Monica Blvd-North Fault) and inferred faults (GWI's faults) are shown as vertical structures in the subsurface. Their trend in the subsurface is unknown, and determining this was not part of this scope of work. Each of the faults interpreted from our cross sections is discussed further below.

3.1 **Santa Monica Blvd-North Fault**

Relatively flat lying stratigraphy and distinct marker beds and units were encountered in each of the borings along Cross Section B-B' (Plate 4). Most significantly, all borings on this transect (CB-1, CB-2 and CB-6, CB-18, CB-19, CB-20 and CB-21) exposed the unconformable boundary between the Benedict Canyon Wash₂ deposits and the underlying Cheviot Hills unit as a continuous, unbroken stratigraphic horizon. Borings CB-1, CB-2, CB-6, CB-19 and CB-21 encountered the San Pedro Formation at depth. Overlying the San Pedro Formation, as encountered at the El Rodeo K8 School site and during prior studies in the area (Leighton 2012a, 2012d, 2015), is a clayey interval containing abundant calcium carbonate in the form of specks, filaments, horizontal layers, and coatings on ped faces reminiscent of the Lomita Marl, with iron oxide staining along layers and locally on ped faces. The significance of this marl unit is that it typically indicates that sands of the San Pedro Formation are about 15 to 20 feet below. Boring CB-19 was projected onto cross section B-B', and while we could account for a minor elevation difference due to projection of the boring onto the section, the marl unit was significantly lower in elevation than interpreted across borings CB-1, CB-2, CB-6, CB-18 and CB-21. As a result, we interpret a potential fault in this area to account for the vertical offset of the marl. If it is a fault however, it does not offset the top of the Cheviot Hills Deposits, a

Pleistocene deposit that, near its top, is estimated to be approximately 530,000 years old (Leighton, 2012a, 2012d, 2015). Thus, this possible fault is not active.

We have chosen to label this fault as the “Santa Monica Blvd-North Fault” per the nomenclature of Kenney (KGS 2012, *Fault Zone A*), due to its similarity to a fault investigated at the High School (Leighton, 2012a and 2012d; *Fault Zone F*, KGS 2012). That fault was east-west trending, dropped the San Pedro Formation contact approximately 75 feet down to the north, and was demonstrated to have become inactive at least 300 kya. In Kenny’s (2012) analysis at that time, the Santa Monica Blvd fault was interpreted to be a pair of faults forming an east-west structural graben through which Benedict Canyon was confined during uplift of the Cheviot Hills (KGS, 2012, 2014). The timing, sense of offset, and magnitude of offset of this fault interpreted at El Rodeo K8 School is so similar to Kenny’s predicted fault (Fault A of KGS 2012, 2014; (renamed Cross fault No.1 in KGS, 2016) that we have assumed that this structure forms the northern side of Kenny’s graben and have labeled it accordingly.

GWI Fault F: Between Core Borings CB-5 and CB-7 (Plate 5, *Cross Section C-C’*) we interpret a structural discontinuity at about the same location as GWI’s **Fault F** to explain a possible 5-foot vertical offset of San Pedro Formation sediments. The fault can be interpreted upward to approximate elevation El. 155 feet, into the lower Cheviot Hills Deposits (CHD), but several higher beds in the CHD, and the contact between the lower Benedict Canyon Wash Deposits (BCW₂) and Cheviot Hills Deposits (CHD), are not offset. This fault (GWI’s **Fault F**) is therefore not active, since it is confined to sediments that are significantly older than 530,000 years.

GWI Fault I: Between our Core Borings CB-11 and CB-12, and between GWI’s Borings B4-B and B3-B we have interpreted a fault to explain an apparent lack of correlation between sediments at depth, combined with a localized groundwater barrier (GWI, 2014) at the Unocal station across Wilshire Blvd (Plate 1). The difference in groundwater levels confines the projection of **Fault I** through our fault trench FT-3, which exposed undeformed late Pleistocene sediments. Additionally, from the borings (see Section C-C’), we interpret continuous stratigraphy within the uppermost 50-foot thick section below the ground surface, including the contact between the Benedict Canyon Wash 2 (BCW₂) and the Cheviot Hills Deposits (CHD). Since the upper unbroken CHD sediments are estimated to be about 530,000 years old, GWI’s **Fault I** is not active.

4.0 CGS COMMENTS AND RESPONSES

4.1 June 30, 2015 CGS Comments and Response

The following text, *in italics*, is an excerpt from Page 8 of CGS's review letter with respect to Cross Section A-A" from our February 2015 report. To address their comments we revisited the cores of the paired borings specifically identified by CGS. Remarks provided by the CGS on specific layers in these borings are presented below, followed by our responses.

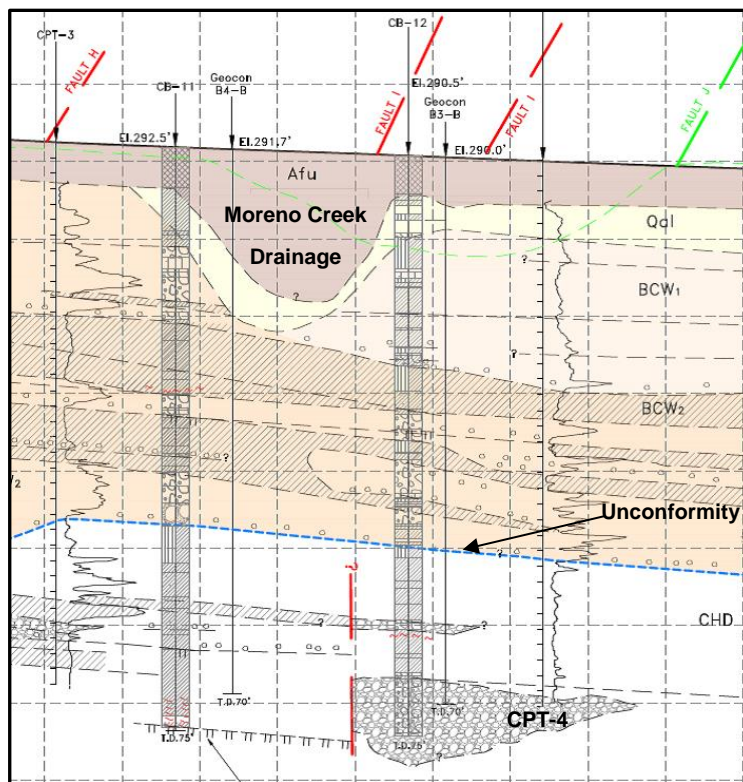
Cross Section A-A':

CGS Comment: *The consultants identified several paleosols and other stratigraphic markers in their core borings, and reviewed the GWI boring logs for similarly described markers, which they depict and correlate on their cross section. Based on these data the consultants show GWI Faults G and H do not appear to exist where they are mapped. Instead they infer a total of four faults (Faults 1 through 4) along this cross section, which they conclude are not active because of "the presence of unbroken sediments and soils, dated by relative means to be at least 34,000 to much greater than 100,000 years old near the surface" above these faults. The interpretation of continuous unbroken stratigraphy within the various Pleistocene deposits overlying these particular faults is a valid explanation of the data. However, our review of the subsurface data suggests these deposits do not appear continuous and unbroken in other areas. Specifically, it appears the data provided in the boring and CPT logs for Cross Section AA' indicate a noticeable lack of correlation of stratigraphic markers between paired borings CB-11/B4-B and CB12/B3B. Various unique sedimentary units, which are relatively persistent elsewhere yet cannot be correlated between these borings, include the following:*

CGS Comment 1: *A relatively thick package of clay and silt with distinctive "oxidation reduction banding" is described between 20 and 30 feet deep in borings CB-11, B4-B and B5-B, but was not encountered in borings CB-12 or B3-B.*

Response 1: It was difficult to densify the exploration due to the location of Moreno Creek storm drain box under Wilshire Blvd. However, the new fault trench FT-3 has provided us the opportunity to better understand and therefore reinterpret the upper 20-30 feet of this part of the section. First, this is the

location of the modern Moreno Creek drainage. Based on FT-3, there is a minimum of 19 feet of relief to the channel thalweg, with 2 feet of modern alluvium (Qw) at the bottom of the channel. GWI's B4-B shows the thalweg to be 22 feet deep. This channel is further complicated in that we now have determined that the prior Benedict Canyon Wash (BCW₁) channel margin was in the same location against the hill that El Rodeo K8 School sits upon. The

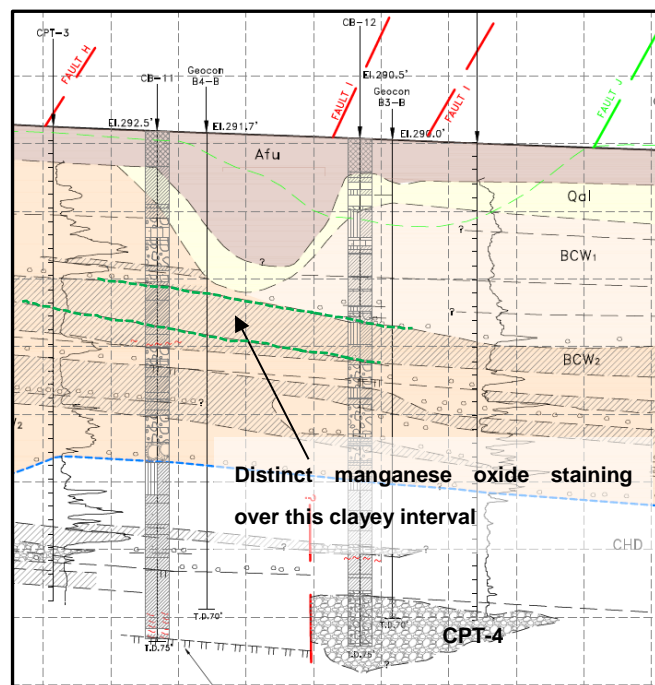


margin of this stream truncated the ancient soil that capped the eastern part of FT-1 (see Plate 5). That trench exposed what we now interpret as Benedict Canyon Wash (BCW₂) deposits, which dip ~6 degrees to the east and are continuous to the top of the El Rodeo K8 School surface. The Benedict Canyon Wash (BCW₁) sediments exposed in FT-3 are nearly horizontal. As such, we have reinterpreted Cross Section A-A' to reflect an unconformity between the near horizontal BCW₁ and the east-dipping BCW₂ units at the base of the slope, which is also where the historical channel (pre-storm drain) lay. The unconformity is most clearly shown on Cross Section A-A' where a ~10-foot-thick coarse clastic unit lies atop the ~10-foot finer-grained section mentioned in the comment. This east-dipping, paired set of units is traceable for over 100 feet easterly from CPT-1, CPT-2, CPT-3, and CB-11, where, as noted in the comment, it is not reflected in GWI's B3-B nor CB-12. However, examination of CB-12, and especially CPT-4, does reveal the lowermost 5 foot of the clayey unit. The missing upper gravels and upper half of the clay between CB-11 and CB-12 are now interpreted to have been removed by the BCW₁ incision unconformity. Subsequent BCW₁ sedimentation has resulted in multiple near-horizontal sedimentary layers correlated above the unconformity.

Trench FT-3 showed that the eastern portion of the school campus is underlain by relatively horizontal, episodically deposited alluvial and debris flow sediments that have been modified extensively by pedogenic processes between depositional events. Below about 8-10 feet deep, these deposits are interpreted to be part of the Benedict Canyon Wash- BCW₁ series. The uppermost units are assumed to be floodplain deposits from the modern and Holocene Moreno Creek, but the presence of a buried soil at about 6 feet in depth indicates that below 6 feet in depth we may already be into the latest Pleistocene (Appendix D). Relative age dating of these sediments based on their soil development indicates that the sediments below that uppermost soil are certainly Pleistocene in age, with the sediments near the bottom of the trench at a minimum about 50,000 to 65,000 years old, and most likely older. There were no faults observed in the trench FT-3 exposure.

CGS Comment 2: *At a depth of approximately 30 feet a laminated sandy clay unit with manganese oxide nodules is described in CB-12 and B3-B and labeled on the cross section, but does not correlate with any units at this similar depth in CB-11 or B4-B.*

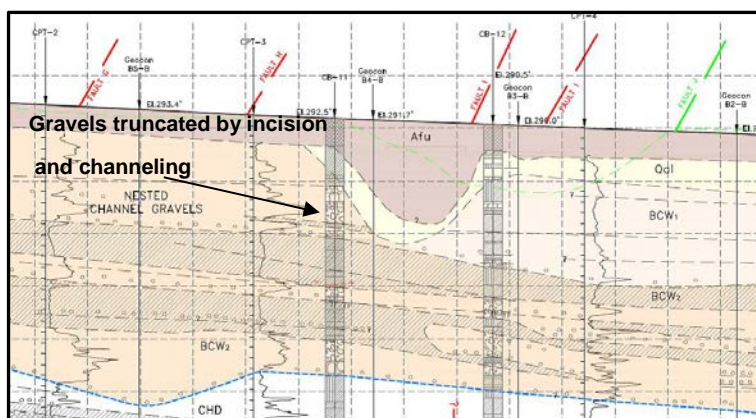
Response 2: At 27 feet in CB-12 is where we place the contact between the base of the BCW₁ and the top of the BCW₂ units. This is an angular unconformity only 25 feet to the west of CB-12, but a disconformity at CB-12. The sediments noted at 27.2' – 32.7' in CB-12 are a strongly developed argillic paleosol, and have manganese staining throughout. The equivalent unit in CB-11 lies from 22.9' – 29' and while it is more gleyed than in CB-12 due to its not being reexposed during the incision of BCW₁, it also does contain similar manganese staining throughout. The elevation difference is due to the eastward dip to the BCW₂ unit, and the thickness difference is due to the upper portion of the paleosol being removed by the BCW₁ incision. But, as these are essentially the only



stratigraphic intervals containing this distinct manganese staining in either CB-11 or CB-12, we disagree with the comment that they do not correlate.

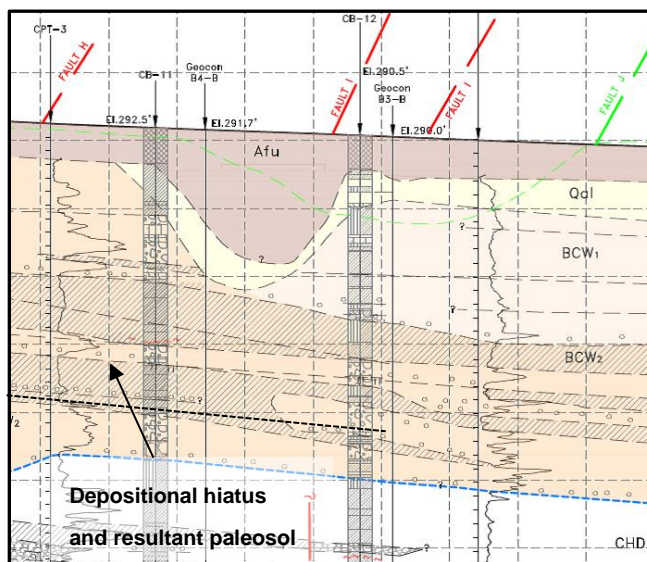
CGS Comment 3: *A persistent clayey sand and gravel unit, which extends for at least 135 feet laterally from CB-9 to B4-B and labeled on Cross Section A-A' was not encountered in CB-12 or B3-B.*

Response 3: We have reinterpreted Cross Section A-A' to reflect an unconformity between the near horizontal BCW₁ and the east-dipping BCW₂ units at the base of the slope. The missing gravels between CB-9 and CB-12 are now interpreted to have been removed by the BCW₁ incision unconformity and Moreno Creek channeling. Subsequent BCW₁ sedimentation resulted in multiple near-horizontal sedimentary layers that can be correlated above the unconformity.



CGS Comment 4: *At about 35 feet deep, another section of “oxidation reduction banding” was encountered in CB-11 and B4-B and labeled on Cross Section A-A', but this distinct banding was not observed in CB-12 or B3-B.*

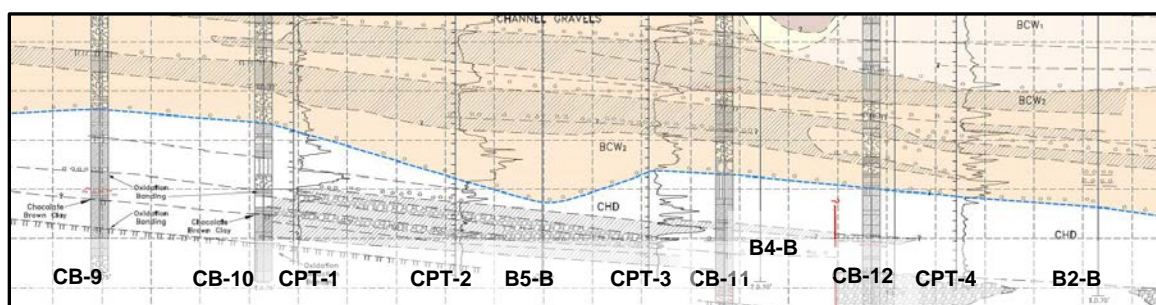
Response 4: At 34.5 feet in CB-11 we initially identified this paleosol horizon as the contact between BCW₁ and BCW₂. Based on the new analysis explained more fully in response No. 1 above, we have moved the BCW₁ contact higher in the section, although the obvious depositional hiatus and resultant paleosol remain as described. The “oxidation-



reduction banding” described within the argillic paleosol in CB-11 is equivalent to, and correlated to, the reddish-brown (oxidized) to olive-brown (reduced) paleosol at 36.9’ in CB-12, which we had previously also picked as a unit contact because of its distinct stratigraphic significance. The 2.4-foot elevation difference is due to the easterly dip.

CGS Comment 5: *Between a depth of 40 and 50 feet another thick clayey sand and gravel unit was encountered in CPT-3, CB-11 and B4-B, which cannot be correlated to CB-12.*

Response 5: We disagree. That ~10-foot-thick sequence of gravels is continuous from at least CPT-3 eastward for 250 feet to the end of the section. It



is one of the most distinctive stratigraphic units on the section and we have interpreted it, lying above an equally impressive paleosol, as the disconformable contact between the BCW₂ unit over the Cheviot Hills Deposits (noted as blue dash line). This contact continues westerly for an additional 250 feet to the west end of the section, and its nearly perfect planar aspect is interrupted only at CPT-2 and B5-B, where the gravels thicken into what we interpret to be a BCW₂ channel cut ~10 feet deeper into the Cheviot Hills Deposits.

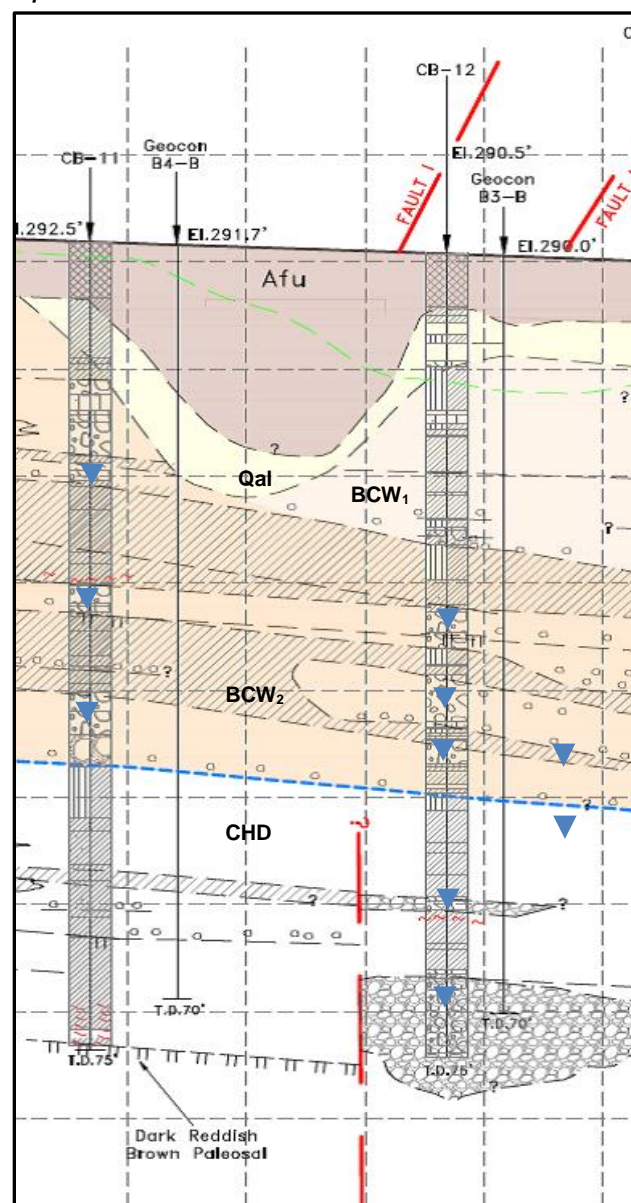
CGS Comment 6: *Another distinct “oxidation reduction banding” unit up to 8 feet thick was encountered at approximately 65 feet deep in CB-11 and B4-B which cannot be correlated to CB-12.*

Response 6: Agree, we do not see the carbonate filaments and strongly developed paleosol of CB-11 in their equivalent position in CB-12. Instead there are channel gravels. It is certainly possible that a channel intercepted in CB-12 cut through and removed the geomorphic surface expressed by the paleosol in CB-11 sometime back at least 700+ kya. It is also possible that a fault has juxtaposed the two units. We do not have any deeper sediments in either boring from which to determine the correct interpretation. As such, we have shown a

fault between CB-11 and CB-12, but this fault is stratigraphically truncated by the Cheviot Hills / BCW₂ contact, and as such, has not moved in the past approximate 500,000 years.

CGS Comment 7: *Additionally, GWI's active Fault 1 is mapped between these borings (CB-11 and CB-12) on their transect based on lack of stratigraphic correlation and the trend of the groundwater barrier identified at the gas station across Wilshire Boulevard. For these reasons CGS is concerned these distinct lateral discontinuities in the data provided may be related to fault offset and additional subsurface information is requested.*

Response 7: The groundwater “barrier,” as interpreted from the Unocal gas station data south of Wilshire Blvd., is problematic. As we show on Cross Section A-A', this is exactly where the historical Moreno Creek and the Pleistocene Benedict Canyon Wash (BCW₁) channels repeatedly incised into the underlying BCW₂ strata. Furthermore, our borings throughout the area show as many as 10+ perched water zones within a single boring (See *Table 1: Encountered Depth to Groundwater*, P.16). The classic fining-upwards alluvial fan stratigraphy is perfect for perching groundwater, and this is even more enhanced by the argillic clay development of the frequent paleosols. There is at least 22 feet of historical Moreno Creek alluvium, overlying 30 feet of BCW₁ sediments, and both are forming a buttress unconformity against the ~10-foot-thick BCW₂ gravel



▼ Indicates perched groundwater in borings



Leighton

sequence lying topographically upgradient and at only 10-20 feet in depth. In our opinion, the 10-foot higher groundwater on the west side of the “inferred fault” is much more likely due to the BCW₂ channel that is buttressed by less permeable Qal and BCW₁ sediments, the base of which is 10-feet lower than the BCW₂ channel.

Cross Section B-B’:

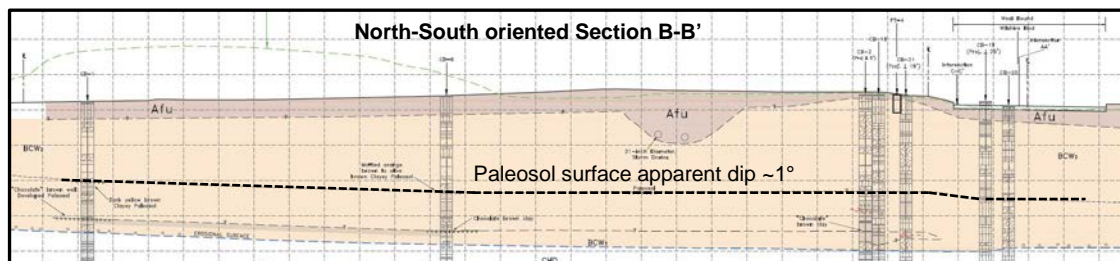
CGS Comment 8: *The consultants construct a northwest trending profile along the western edge of the campus across Wilshire Boulevard, and along the edge of the gas station and 9900 Wilshire property. The section provided in Appendix C of Report 1 includes subsurface data from four of Leighton’s continuous core borings (CB-1, CB-2, CB-6 and CB-8) ranging from 125 to 160 feet deep as well as eight monitoring wells, and thirteen of GWI’s borings. At the subject site they postulate the existence of a fault (Fault 1 on Plate 3 of Report 1) between CB-2 and CB-8. But state continuous and unbroken stratigraphic markers in the shallower Pleistocene deposits overlying this fault demonstrate it is not active. The subsurface data does not appear to support this conclusion. For example, the “chocolate brown soil” which is laterally continuous between CB-1 and CB-6 and CB-2 does not appear in CB-8. At the depth where this soil is projected onto CB-8 on the cross section there is a section of reddish brown clayey sand with gravel, not chocolate brown clay. Similarly the sediments above the brown soil in CB-2 consist of sandy clay with occasional thin bedded gravels and the correlative section in CB-8 shows silty to clayey gravelly sand. Lastly the base of the paleosol in CB-2 noted on the section is apparently down dropped at least three feet in CB-8. This lack of correlation may suggest the fault inferred between these borings extends higher up in the section than depicted on the cross section. Therefore the conclusion that this fault is not active is not yet clearly demonstrated.*

Response 8: We have drilled additional borings in order to construct the revised Cross Section B-B’ (Plate 4) and excavated a 45-foot-long fault trench, FT-4 that extends partly across this area. Between core borings CB-19 and CB-21 we have identified the top contact of the San Pedro Formation as offset a total vertical distance of 53.5 feet; a similar amount of offset was noticed in work performed at the Beverly Hills High School (Leighton, 2012c). This offset is confined laterally between CB-19 and CB-21, therefore, the Santa Monica Blvd-North Fault must pass between borings CB-19 and CB-21. If the fault we have identified in the subsurface continues along the northeastern trend inferred by others (~N60°E to

N80°E), the fault would pass through our trench FT-2 (Plate 6), FT-4 (Plate 7b) and the Sewer Utility trench (Plate 1). No faults were observed in our trenches.

CGS Comment 9: *The base of the Benedict Canyon Wash unit (i.e. BCW₁) is defined by an erosional surface with a basal gravel deposit and the consultants project this contact through the middle of a 12-foot thick clay unit in MW-5. Similarly the contact between BCW₂ deposits and the top of the Cheviot Hills Deposit (CHD) is defined as a basal sand and gravel layer over a moderately developed reddish brown clayey paleosol. On the cross section this contact is projected through a section of very dark greyish brown silty to gravelly sand. It appears there is also a lack of correlation between these borings which may be related to fault offset.*

Response 9: Borings CB-2 and CB-18 were drilled within 5 feet of each other, and the upper portions of their cores reveal important differences between the two, with significantly more cobbles and gravels in CB-2 than CB-18, indicating that channeling is common. This too was reflected in FT-4 where despite essentially horizontal stratigraphy, channelization meant that units were not continuous across the trench, which was only 45 feet long. Consequently, there are lateral variations between borings even 5 feet apart. For correlation therefore, we relied more upon significant paleosol horizons as these are more likely to be regionally significant and stratigraphically continuous. Of course, there are numerous paleosols, and channelization could readily incise through and remove one or more of them. Nevertheless, we feel that the first major paleosol beneath the upper gravel- and cobble-dominated section is recognizable and correlatable between all of the borings at the southern end of Section B-B'. This paleosol occurs at 27.5' in CB-2 (el. 277.5), 27.6' in CB-18 (el. 277.4), 27.8' in CB-21 (el. 276.2), 27.5' in CB-19 (el. 275.5), and 26.2' in CB-20 (el. 274.8). The 2.7-foot fall between CB-2 and CB-20 results in a ~0.7 degree apparent dip, similar to that directly observed in FT-4, and this paleosol continues to the far northern end of Section B-B' at CB-1 (22.7', el. 280.4, 1° dip).



It is the paleosol upon which we previously interpreted the contact between Benedict Canyon Wash BCW₁ and BCW₂ deposits because of its regional significance. In this new analysis, and especially considering the direct observations from FT-1, FT-2, FT-3, and FT-4, we have redefined the Benedict Canyon Wash BCW₁ unit to a significant stratigraphic angular unconformity that buttresses the lower portion of the slope below the El Rodeo K8 School ridgeline. As such, all of the Benedict Canyon Wash deposits in Cross Section B-B' are now included completely within the Benedict Canyon BCW₂ unit. This redefinition is much more compatible with the geomorphic positioning of the units, their true dips, and the strongly developed soil profile on the top, their multiple weathering horizons (paleosols), and their physical appearances in the cores and especially in the four fault trenches.

Essentially, Benedict Canyon Wash BCW₂ lies directly, and conformably atop the strongly developed paleosol that caps the Cheviot Hills deposits. This surface, and all of the Cheviot Hills and BCW₂ strata, dip 3° to 7° to the east. Both units have multiple internal paleosols and reflect many hundreds of thousands of years of episodic deposition, surface stabilization, and weathering. The Cheviot Hills deposits, known only from the subsurface, have similar genetic origin to the alluvial fan and fluvial deposits of the BCW₂ materials, but are generally finer-grained, contain more clays than gravels, and could reflect a lower gradient environment of deposition than the BCW₂ fans.

CGS Comment 10: *CGS notes if faulting exists between CB-11 and CB-12, and if the gas station faults are projected toward that area, the resulting fault trend would roughly parallel the groundwater barrier and align with the topographic escarpment on the adjacent golf course property, which seems more geologically reasonable. Consequently, it may not be appropriate to conclude the groundwater barrier faults are inactive without additional supporting data.*

Response 10: As discussed earlier (Response 7) the Gas Station's groundwater barrier is problematic as a fault barrier, and more plausibly explained stratigraphically as a buttress unconformity between the BCW₂ channel and the much finer-grained BCW₁ unit and the post-glacial Moreno Creek alluvium. No fault was observed within the Pleistocene BCW₁ deposits in FT-3, and any structural projection of the inferred groundwater barrier northwards would intersect FT-3.

5.0 CONCLUSIONS

We have completed additional excavations, borings and soil age estimates at the El Rodeo K8 School to determine if the campus is impacted by active faults. To that end ECI has estimated the age of sediments exposed in three new trenches excavated for this study, fault trenches FT-3 and FT-4 and the AT&T Utility trench, none of which exposed any faults. The findings of the age estimates provided by ECI indicate the trenches exposed Pleistocene age sediments significantly older than 11,700 years even when only minimum ages are considered. Based on this supplemental investigation performed in response to CGS comments, it remains our opinion that **no** active faults are present on the campus of El Rodeo K8 School or its associated buildings. Specifically, we documented the presence of unbroken sediments and soils, dated by relative means to be at a minimum 22,000 years old (minimum age for the relict profile at Station 0+10 in Trench FT-4), but more likely exceeding 200,000 years in age.

Significant findings of our investigation include:

- We find direct geologic evidence that there has been **no** faulting at El Rodeo K8 School for at least 22,000 years (soil at Section 0+10 in fault trench FT-4) and more likely more than 200,000 years.
- The continuous soil borings extended into undeformed Pleistocene-age sediments that are many hundreds of thousands of years old.
- The fault trenches and utility trench excavations consistently exposed Pleistocene-age sediments that are gently dipping to nearly horizontal and unbroken across the trench exposures.
- We find direct geologic evidence to conclude that the northeast-trending faults mapped by GWI immediately to the northwest of the 9900 Wilshire Boulevard site, if present at all, are not active. Fault trenches specifically excavated across the surface trace of some of these inferred faults did not encounter evidence of faulting in sediments that are a minimum of 48,000 thousand years old (soil at Section 1+05 in fault trench FT-3), and more likely 150,000 to 200,000 years old.
- We have interpreted several potential faults at depth (Santa Monica Blvd-North Fault, GWI **Fault F** and **Fault I**), however, side-by-side core boring correlations, combined with the unbroken stratigraphy revealed in the trenches, we conclude that activity along these potential faults ceased more than 500,000 years ago.
- Based on the findings presented above, we conclude that **no** fault-related structural setbacks are required for El Rodeo K8 School.

- In addition to failing to find the previously inferred active faults through the El Rodeo K8 School, it is also important to mention that we have found no geologic evidence of deformation that would be consistent with a major fault intersection and step-over structure, even in sediments that date back hundreds of thousands of years. These findings call into doubt the entire structural geologic paradigm for the Newport-Inglewood, West Beverly Hills Lineament, Santa Monica and Hollywood fault interactions. More than doubt, they totally refute the published model.

6.0 LIMITATIONS

Environmental (hazardous materials) and geotechnical (foundation) design services were not included as part of this study, nor within the scope of this report. This report was prepared for the sole use of Beverly Hills Unified School District and their consultant team, to assess the risk of faulting through this school campus in accordance with generally accepted engineering geology practices at this time in Los Angeles County.

PERTINENT REFERENCES

- Barrows, A.G., 1974, "Review of the Geology and Earthquake History of the Newport-Inglewood Structural Zone, Southern California," California Division of Mines and Geology Special Report 114., p 1-22 (P. 1-22).
- Bryant, W.A. and Hart, E.W., 2007, Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps, California Division of Mines and Geology Special Publication 42, Interim Revision 2007., p. 1-5.
- California Geologic Survey (formerly California Divisions of Mines and Geology) , 1999a, "State of California Seismic Hazard Zones, Beverly Hills Quadrangle, Official Map," released March 25, 1999. Scale 1:24,000.
- California Geologic Survey, 1998, "Seismic Hazard Evaluation of the Beverly Hills 7.5-Minute Quadrangle, Los Angeles County, California," CDMG Open-File Report 98-14.
- _____, 2013, Second Fault rupture Hazard Review Beverly Hills High School CGS Application No. 03-CGS0960.
- _____, 2015, Engineering Geology and Seismology Review for El Rodeo Elementary School Seismic Mitigation 605 Whittier Drive, Beverly Hills, California, CGS Application No. 03-CGS1921, dated June 30, 2015.
- Dolan, J.F., Gath, E.M., Grant, L.B., Legg, M., Lindvall, S., Mueller, K., Oskin, M., Ponti, D.F., Rubin, C.M., Rockwell, T.K., Shaw, J.H., Treiman, J.A., Walls, C., and Yeats, R.S. (compiler), 2001, Active Faults in the Los Angeles Metropolitan Region: Report by the Southern California Earthquake Center Group C.
- Dolan, J. F., Sieh, K. E. (1992). Tectonic geomorphology of the northern Los Angeles basin: Seismic hazards and kinematics of young fault movement: in Ehlig, P. L., and Steiner, E. A., eds., Engineering Geology Field Trips: Orange County, Santa Monica Mountains, and Malibu, Guidebook and Volume. Association of Engineering Geologists.
- Dolan, J.F., Sieh, K.E., Rockwell, T.K., Gupta, P., and Miller, G., 1997, "Active Tectonics Paleoseismology, and Seismic Hazards of the Hollywood Fault, Northern Los Angeles Basin, California," Geological Society of America Bulletin, Vol. 109, No. 12.
- Dolan, J. F., Sieh, K., and Rockwell, T. K., 2000a, Late Quaternary activity and seismic potential of the Santa Monica fault system, Los Angeles, California: Geological Society of America Bulletin, v. 112, p. 1559-1581.



- Dolan, J.F., Stevens, D., and Rockwell, T.K., 2000b, "Paleoseismologic Evidence for an Early to Mid-Holocene Age of the Most Recent Surface-Fault Rupture on the Hollywood Fault, Los Angeles, California," *Bulletin of the Seismological Society of America*.
- Feffer Geological Consulting and GWI West Inc., 2012, Report of Fault Rupture Hazard Investigation 10000 Santa Monica Boulevard, Los Angeles, California, report date August 24, 2012.
- GWI West Inc., 2014, Phase II Site Specific Fault Rupture Investigation 9900 Wilshire Boulevard, Beverly Hills, California, dated May 6, 2014.
- GeoDesign, 2011, Report of Geotechnical Engineering Services Proposed tower Development 10000 Santa Monica Blvd., Century City Area, Los Angeles, California, dated December 15, 2011.
- Hoots, H.W., 1931, *Geology of the Eastern Part of the Santa Monica Mountains, Los Angeles, County, California*: USGS Professional paper 165-C.
- Hummon, C., Schneider, C.L., Yeats, R.S., Dolan, J.F., Sieh, K.E., and Huftile, G.J., 1994, "Wilshire Fault: Earthquakes in Hollywood?," *Geology*, Vol. 22, pp. 291-294.
- Jennings, C.W., 2010, "Fault Activity Map of California," California Geological Survey," *Geologic Data Map No. 6*. 1:750,000.
- Lang, H.R., 1994, "Wilshire Fault Earthquakes in Hollywood? Comment and Reply" *Geology*, p. 959.
- Kenney Geo Science, 2012, *Geomorphic Structural and Stratigraphic Evaluation of the Eastern Santa Monica Fault Zone and West Beverly Hills Lineament, Century City/Cheviot Hills, California*, Miles Kenney, PhD, PG, dated July 18, 2012.
- _____, 2014, *Structural and Stratigraphic Evaluation of the Century City-Cheviot Hills Area, California*, Kenney GeoScience, Miles Kenney, PhD, PG, dated July 8, 2014.
- _____. 2016,
- Leighton Consulting, Inc., 2012a, *Fault Hazard Assessment of the West Beverly Hills Lineament, Beverly Hills High School, 241 South Moreno Drive, Beverly Hills, California*, Project No. 603314-002, dated April 22, 2012.
- _____. 2012b, *Initial Response to California Geological Survey Review Comments Fault Rupture Hazard Review, Beverly Hills High School 241 South Moreno Drive, Beverly Hills, California* CGS Application No. 03-CGS0960.



- _____, 2012c, Progress Report of Fault Hazard Assessment, El Rodeo K-8 School. 605 Whittier Drive, Beverly Hills, California, dated June 29, 2012.
- _____, 2012d, Second Response to California Geological Survey Review Comments Fault Rupture Hazard Review Beverly Hills High School 241 S. Moreno Drive Beverly Hills, California, CGS Application No. 03-CGS0960, dated December 28, 2012.
- _____, 2013, Addendum to Second Response to California Geological Survey Review Comments Fault Rupture Hazard Review, Beverly Hills High School 241 South Moreno Drive, Beverly Hills, California CGS Application No. 03-CGS0960, dated February 20, 2013.
- _____, 2015, Fault Hazard Assessment El Rodeo K8 School 655 Whittier Drive Beverly Hills, California, dated February 27, 2015.
- _____, 2016, Response to California Geologic Survey's (CGS) June 30, 2015 Engineering Geology and Seismology Review El Rodeo K8 School, Seismic Mitigation, 605 Whittier Drive, Beverly Hills, California, CGS application No. 03-CGS1921, dated January 7, 2016.
- Parsons Brinckerhoff, 2011a, Century City Area Tunneling Safety Report, Westside Subway Extension Project Contract No. PS-4350-2000, dated October 14, 2011.
- Parsons Brinckerhoff, 2011b, Century City Area Fault Investigation Report, Westside Subway Extension Project Contract No. PS-4350-2000, dated October 14, 2011.
- Pratt, T.L., Dolan, J.F., *et al.*, Multiscale Seismic Imaging of Active fault Zones for Hazard Assessment: A Case Study of the Santa Monica Fault Zone, Los Angeles, California, Geophysics Vol. 63 No. 2, March-April 1998.
- Schneider, C.L., Hummon, C., Yeats, R.S., Huftile, G.L., 1996, Structural Evolution of the Northern Los Angeles Basin, California, Based on Growth Strata, Tectonics, Vol. 15, No. 2, Pages 341-355, dated April 1996.
- Tsutsumi, H., Yeats, R.S., and Huftile, G.J., 2001, "Late-Cenozoic Tectonics of the Northern Los Angeles Fault System," Geological Society of America Bulletin, Vol. 113, No. 4, pp. 454-468.
- Wills, C.J., Weldon, R.J.,II, and Bryant, W.A., 2008, "California Fault Parameters for the National Seismic Hazard Maps and Working Group on California Earthquake Probabilities, Appendix A in The Uniform California Earthquake Rupture Forecast, version 2 (UCERF 2)," U.S. Geological Survey Open-File Report 2007-1437A, and California Geological Survey Special Report 203A.



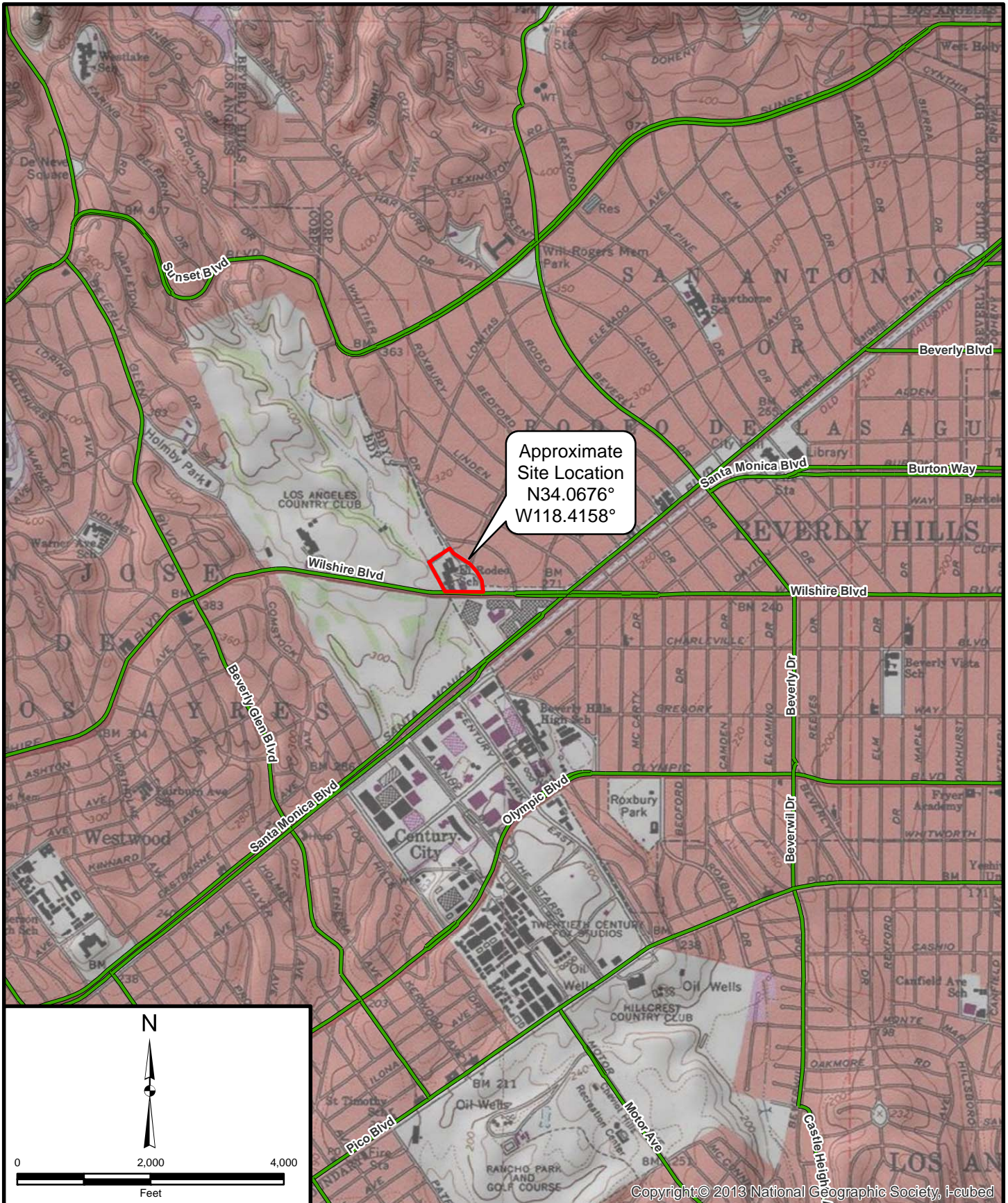
Yerkes, R.F., T.H., McCulloch, J.E. Schoellhamer, and J.G. Vedder, 1965, "Geology of the Los Angeles Basin-an Introduction," U.S. Geological Survey Professional Paper 420-A.

Ziony, J.I., ed., 1985, "Evaluating Earthquake Hazards in the Los Angeles Region-An Earth Science Perspective," U.S. Geological Survey Professional Paper 1360.

Aerial Photographs Reviewed

Date	Flight No.	Frame Nos.	Approx. Scale	Source
No date (early 1920's)	n/a	7086	n/a (oblique)	Spence Air Photos, Inc.
No date (early 1920's)	n/a	4232	n/a (oblique)	Spence Air Photos, Inc.
12/10/1926	n/a	E-965	n/a (oblique)	Spence Air Photos, Inc.
5/9/1927	n/a	E-1252	n/a (oblique)	Spence Air Photos, Inc.
11/1/1927	n/a	E-1643	n/a (oblique)	Spence Air Photos, Inc.
10/31/1928	n/a	E-2224	n/a (oblique)	Spence Air Photos, Inc.
11/4/1929	n/a	O-326	n/a (oblique)	Fairchild Aerial Surveys
2/17/1930	n/a	E-4064	n/a (oblique)	Spence Air Photos, Inc.
8/23/1931	n/a	E-46, F-57	1"=540'	Spence Air Photos, Inc.
10/10/1932	n/a	E-3782	n/a (oblique)	Spence Air Photos, Inc.
5/22/1938	AXJ	26-19, 26-20, 26-22	1:20,000	USDA
3/5/1939	n/a	O-6100	n/a (oblique)	Fairchild Aerial Surveys
11/19/1953	AXJ-14K	62, 63	1:20,000	USDA
5/8/1956	n/a	E-23A-99	n/a (oblique)	Spence Air Photos, Inc.





Approximate
Site Location
N34.0676°
W118.4158°

Project: 10274.006	Eng/Geol: TCB/JAR
Scale: 1" = 2,000'	Date: November 2014
Base Map: ESRI Resources Center, 2014	
Author: (btran)	

SITE LOCATION MAP

El Rodeo K-8
605 Whittier Boulevard
Beverly Hills, California

Figure 1

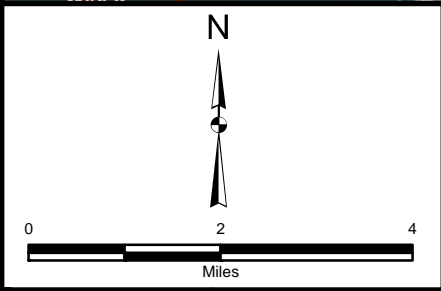
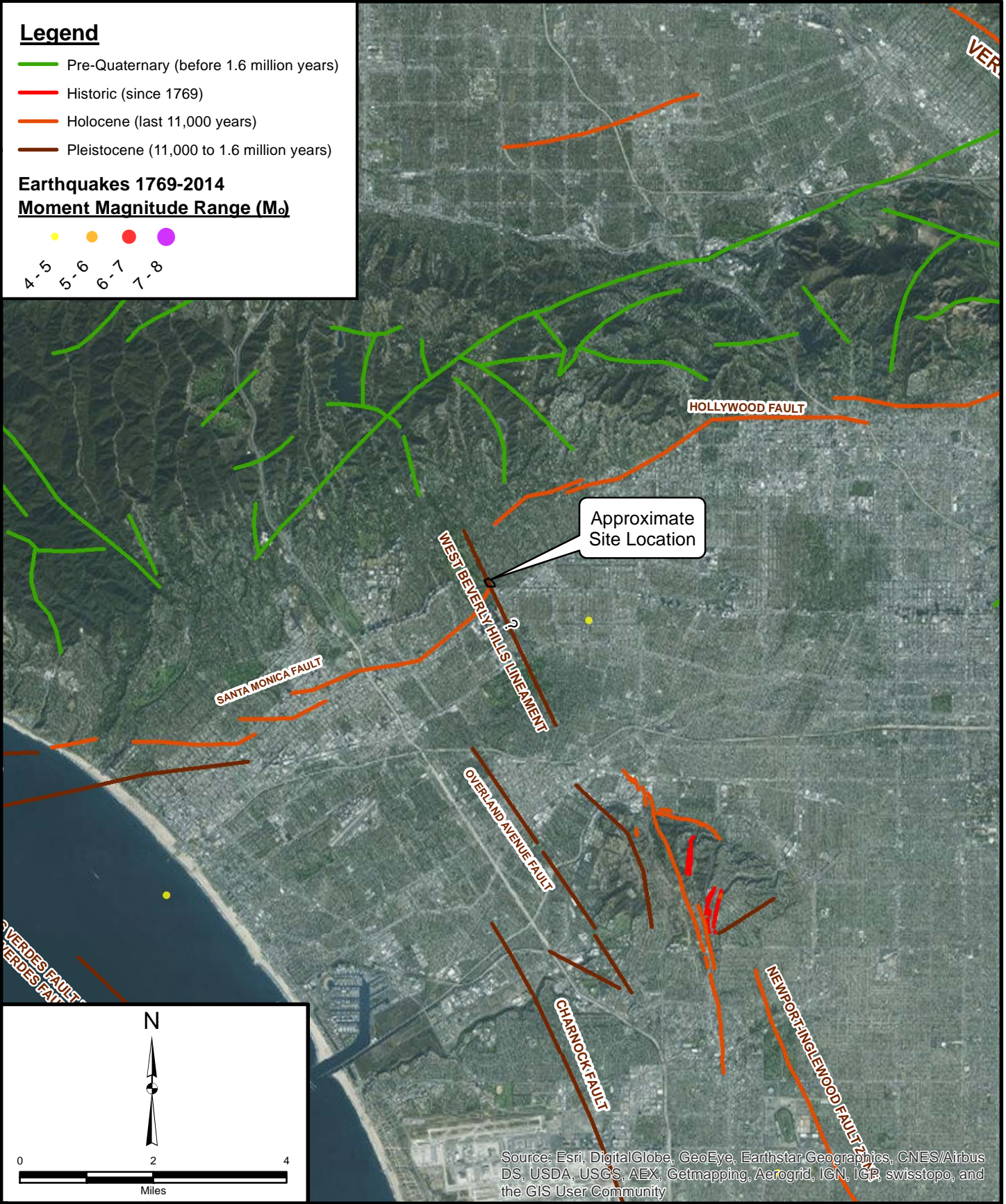
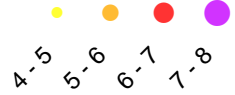
Leighton

Legend

- Pre-Quaternary (before 1.6 million years)
- Historic (since 1769)
- Holocene (last 11,000 years)
- Pleistocene (11,000 to 1.6 million years)

Earthquakes 1769-2014

Moment Magnitude Range (M₀)



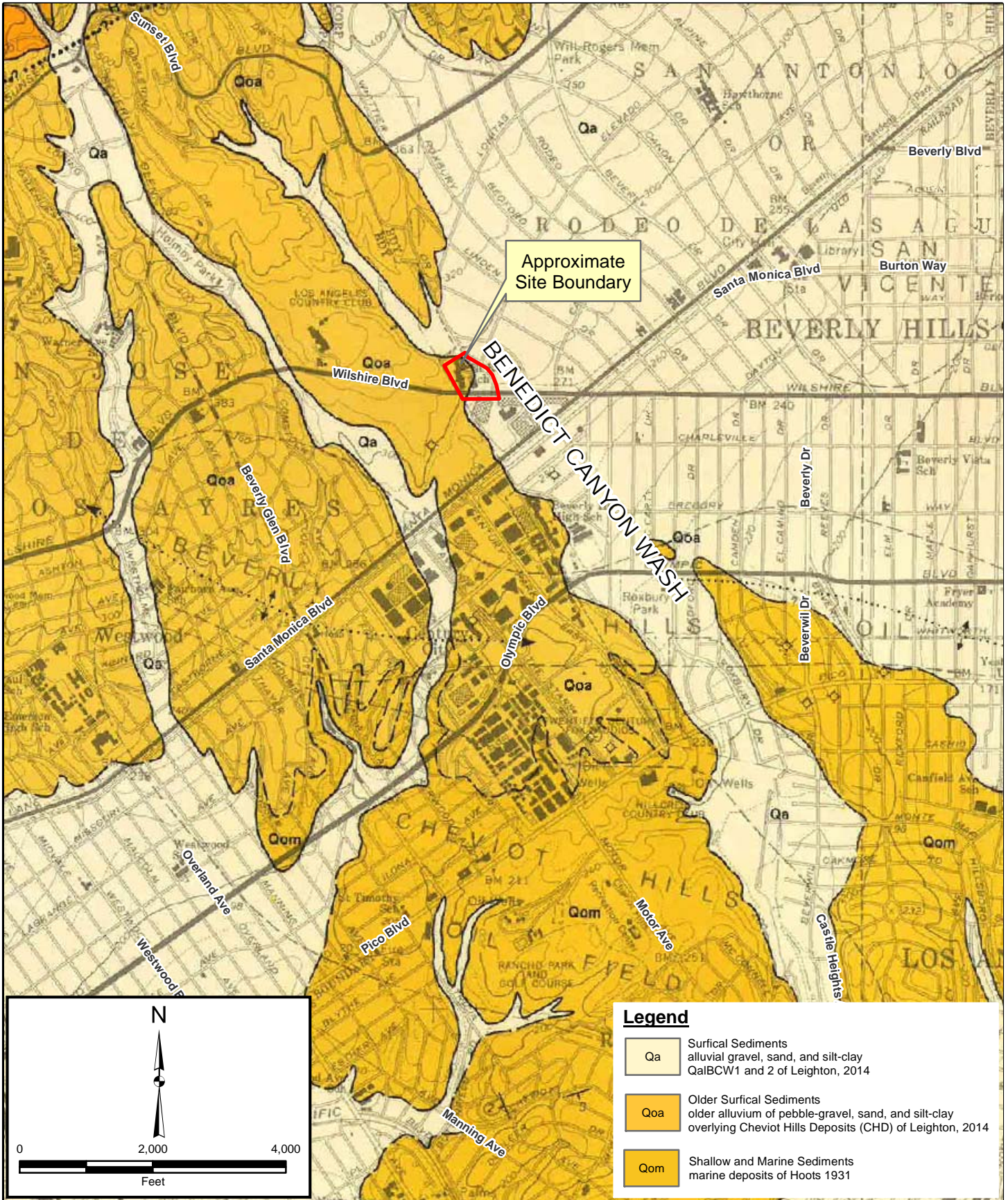
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Project: 10274.006	Eng/Geol: TCB/JAR
Scale: 1" = 2 miles	Date: February 2016
Base Map: ESRI Resources Center, 2014 Faults: CGS 2010	
Author: (asakowicz)	

REGIONAL SURFACE FAULT MAP
 El Rodeo K-8
 605 Whittier Boulevard
 Beverly Hills, California

Figure 2

Leighton



Project: 10274.006	Eng/Geol: TCB/JAR
Scale: 1" = 2,000'	Date: January 2016
Geology: Geologic Map of the Beverly Hills And Van Nuys (South 1/2) Quadrangles, Los Angeles County, California by Thomas W. Dibble, Jr., 1991.	

REGIONAL GEOLOGIC MAP
 El Rodeo K8
 605 Whittier Drive
 Beverly Hills, California

Figure 3

Leighton

APPENDIX A

CGS LETTER DATED JUNE 30, 2015



Leighton



DEPARTMENT OF CONSERVATION

CALIFORNIA GEOLOGICAL SURVEY

SCHOOL REVIEW UNIT • 801 K STREET, MS 12-31 • SACRAMENTO, CALIFORNIA 95814

PHONE 916 / 324-7324 • FAX 916 / 445-3334 • TDD 916 / 324-2555 • WEB SITE conservation.ca.gov/cgs

Dr. Gary Woods
District Superintendent
Beverly Hills Unified School District
255 S. Laskey Drive
Beverly Hills, CA 90212

June 30, 2015

**Subject: Engineering Geology and Seismology Review for
El Rodeo Elementary School – Seismic Mitigation
605 Whittier Drive, Beverly Hills, CA
CGS Application No. 03-CGS1921**

Dear Dr. Woods:

In accordance with your request and transmittal of documents on March 16, 2015, the California Geological Survey (CGS) reviewed the engineering geology and seismology aspects of the consulting reports prepared for El Rodeo Elementary School. It is our understanding future improvements are planned for the campus, but no definite site plan was provided. This review was performed in accordance with Title 24, California Code of Regulations, 2013 California Building Code (CBC) and followed CGS Note 48 guidelines. We reviewed the following reports:

- 1. Fault Hazard Assessment, El Rodeo K8 School, 655 Whittier Drive, Beverly Hills, CA:** Leighton Consulting, Inc., 17781 Cowan, Irvine, CA, 92614-6009, dated February 27, 2015, Project No. 10274.006, 21 pages, six appendices, four plates, and four figures attached.
- 2. Geohazard Report, El Rodeo K-8 School, 655 Whittier Drive, Beverly Hills, Los Angeles, CA:** Leighton Consulting, Inc., 17781 Cowan, Irvine, CA, 92614-6009, dated March 2, 2015, Project No. 10274.006, 33 pages, six appendices, three plates, and seven figures attached.

Based on our review of the data and reports presented by Leighton Consulting, Inc., the consultants provide a thorough and well-documented assessment of the engineering geology issues at the site. However, additional information is needed to adequately address the seismic and geologic issues at the site. Specifically, the consultants should perform a subsurface investigation at the location of the proposed improvements and perform any necessary laboratory testing and analysis to support their geotechnical recommendations.

Basis for Eligibility for Seismic Mitigation Program Funding

We understand this project is currently in Phase I (Verification of Eligibility) of the Seismic Mitigation Program (SMP), and it appears the potential for seismic shaking forms the basis for eligibility for funding under this program. Therefore, we have reviewed the consultants' seismic design parameters in accordance with DSA Procedure 08-03 (errata dated 5-22-2014). The consultants report the following General Procedure seismic parameters derived from a map-based analysis in accordance with the methods prescribed in Chapter 11 of ASCE 7-10:

$$S_S = 2.276g \text{ and } S_1 = 0.835g$$
$$S_{MS} = 2.276g \text{ and } S_{M1} = 1.252g$$
$$S_{DS} = 1.517g \text{ and } S_{D1} = 0.835g$$

These values appear reasonable.

The consultants also provide Earthquake Hazard Levels BSE-1 and BSE-2 parameters, but since these parameters are not used to evaluation eligibility for funding under the SMP program, they are discussed in the attached checklist comments.

Report 1 documents an investigation to evaluate the presence or absence of active faulting associated with the Santa Monica fault (SMF) at the school site. The consultants reviewed published geologic maps, literature, and aerial photos, as well as a recently completed fault investigation report for a proposed development at 9900 Wilshire Boulevard (Geocon, 2014). Geocon suggested the presence of three active northeast-trending faults to the north and west of the 9900 Wilshire property, which they projected toward the school site based on a transect of closely spaced CPTs and borings along Wilshire Boulevard and a noted groundwater barrier at an adjacent gas station.

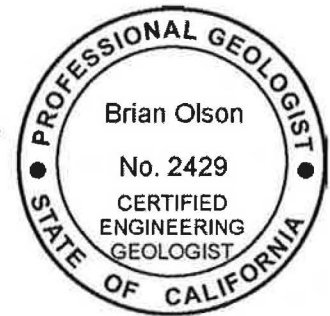
The consultants provided CGS with a geohazards report for the campus (Report 2), which evaluated the potential geologic and seismic hazards that may impact the site. However, this report does not address any specific planned improvements at the site. It is our understanding the current project involves structural rehabilitation of Buildings A through D and structural alterations to Building E. Consequently, a geotechnical investigation should be performed to evaluate the subsurface conditions in the vicinity of the proposed rehabilitation (see attached checklist for further discussion).

In conclusion, *the engineering geology and seismology issues at this site are not adequately assessed in the referenced report.* Additional information should be provided as requested. The consultants are reminded one copy of all supplemental documents should be submitted directly to CGS, and should include the CGS application number. If you have any further questions about this review letter, please contact the reviewer at (213) 239-0876.

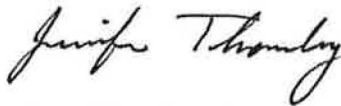
Respectfully submitted,



Brian Olson
Engineering Geologist
PG 7923, CEG 2429
brian.olson@conservation.ca.gov



Concur:



Jennifer Thornburg
Senior Engineering Geologist
PG 5476, CEG 2240



Enclosures:

Note 48 Checklist Review Comments

Keyed to: *Note 48 - Checklist for the Review of Engineering Geology and Seismology Reports for California Public Schools, Hospitals, and Essential Services Buildings*

Discussion of Fault Hazard Assessment

Copies to:

Ted Beckwith, *Senior Structural Engineer*

Division of State Architect, 700 North Alameda Street, Suite 5-500, Los Angeles, CA 930012

Joe Roe, *Certified Engineering Geologist*

Leighton Consulting, Inc., 17781 Cowan, Irvine, CA, 92614

Thomas Benson, Jr., *Registered Geotechnical Engineer*

Leighton Consulting, Inc., 10532 Acacia Street, #B-6, Rancho Cucamonga, CA, 91730

Note 48 Checklist Review Comments

In the numbered paragraphs below, this review is keyed to the paragraph numbers of California Geological Survey Note 48 (October, 2013 edition), *Checklist for the Review of Engineering Geology and Seismology Reports for California Public Schools, Hospitals, and Essential Services Buildings*.

Project Location

1. Site Location Map, Street Address, County Name: Adequately addressed.
2. Plot Plan with Exploration Data with Building Footprint: Adequately addressed. The consultants provide a site plan with a topographic base showing the locations of their exploratory trenches, cone penetrometer tests (CPTs), and continuous core borings drilled at the site and along Wilshire Boulevard to the south of the campus.
3. Site Coordinates: Adequately addressed. Latitude and Longitude provided in report: 34.0676°N, 118.4158°W.

Engineering Geology/Site Characterization

4. Regional Geology and Regional Fault Maps: Adequately addressed.
5. Geologic Map of Site: Adequately addressed.
6. Subsurface Geology: **Additional information is requested.** Based on the subsurface data collected at the site, the campus is underlain by artificial fill and Holocene to Pleistocene alluvium. Additional subsurface exploration is required to evaluate the soils underlying the proposed structural rehabilitation improvements.

The consultants report perched groundwater was encountered as shallow as 20 feet deep, but they indicate static groundwater was encountered greater than 125 feet deep in their borings.

7. Geologic Cross Sections: Adequately addressed. The consultants provide two geologic cross sections (A and B) depicting the subsurface information collected from their CPT/boring transects, as well as subsurface data collected offsite by others.
8. Active Faulting & Coseismic Deformation Across Site: **Additional information is requested.** *See attached enclosure.*
9. Geologic Hazard Zones (Liquefaction & Landslides): Adequately addressed. The consultants report this campus is not located within a Zone of Required Investigation for liquefaction or seismically induced landsliding established by the California Geological Survey.
10. Geotechnical Testing of Representative Samples: **Additional information is requested.** The consultants performed limited laboratory testing on bulk samples collected from their core borings. Additional site-specific testing may be necessary for the specific improvements proposed at the site. The consultants should provide these data once they are available.
11. Geological Consideration of Grading Plans and Foundation Plans: **Additional information is requested.** It appears final design plans are not available at this time. They should review any plans once they are finalized in light of the subsurface geotechnical data collected for the site.

Seismology & Calculation of Earthquake Ground Motion

12. Evaluation of Historic Seismicity: **Marginally adequate.** The consultants discuss historical seismicity in the vicinity of the school site, but do not discuss any onsite effects from significant historical earthquakes. CGS notes publically available strong-motion data indicates a site approximately 1,500 feet southwest of the school **experienced a peak ground acceleration of 0.35g from the Northridge earthquake (6.7Mw) in January 1994.** In the future, the consultants should provide a discussion of any effects (e.g. ground failure, structural damage, etc.) from earthquakes, especially strong earthquakes, in the immediate vicinity of the site.
13. Classify the Geologic Subgrade (Site Class): Adequately addressed. The consultants classify the site soil profile as Site Class D, Stiff Soil, based on the subsurface data collected from their borings and CPTs.
14. General Procedure Seismic Parameters: **Additional information is requested.** The consultants report the following parameters derived from a map-based analysis:
 $S_S = 2.276g$ and $S_1 = 0.835g$
 $S_{MS} = 2.276g$ and $S_{M1} = 1.252g$
 $S_{DS} = 1.517g$ and $S_{D1} = 0.835g$

The consultants also provide Earthquake Hazard Levels BSE-1E and BSE-2E parameters. However, CGS notes the values provided are too low and not considered reasonable. Also, it appears **the consultants used the methodology described in ASCE 41-13, which is not applicable under the 2013 CBC.** The consultants should review the methodologies described in Chapter 34 of the 2013 CBC and ASCE 41-06 and provide the appropriate BSE-1 and BSE-2 parameters. Because a site-specific ground motion analysis is required for this project, the BSE values should be determined from the final MCE_R spectrum (see Item 16).

15. Seismic Design Category: Not addressed. CGS notes the value of S_1 is greater than 0.75g and, therefore, the site will be assigned to **Seismic Design Category E**, per Section 1613A.3.5 of the 2013 CBC.
16. Site-Specific Ground Motion Analysis: Adequately addressed. The consultants provide a site-specific ground motion analysis as required by the 2013 CBC for sites classified as Seismic Design Category E. They utilize acceptable Next Generation Attenuation relationships, risk coefficients, and a shear wave velocity of 270 meters per second. Their probabilistic and deterministic MCE spectra appear reasonable, based on comparison with the California Geological Survey State-Wide Model (Petersen and others, 2008). The consultants' **site-specific seismic design parameters are $S_{DS}=1.334g$ and $S_{D1}=1.162g$.** These values are considered reasonable and in accordance with ASCE 7-10.
17. Deaggregated Seismic Source Parameters: Adequately addressed.
18. Time-Histories of Earthquake Ground Motion: Not applicable.

Liquefaction/Seismic Settlement Analysis

19. Geologic Setting for Occurrence of Seismically Induced Liquefaction: **Additional information may be needed.** The consultants characterize the general subsurface soil

conditions at the campus and conclude there is little to no potential for liquefaction due to the relatively high density of the alluvial soils below the historic high groundwater level. This conclusion appears reasonable; however, once specific improvements are planned, the consultants should review the subsurface data collected as part of the site-specific investigation (see Item 6) and comment on liquefaction potential.

20. Seismic Settlement Calculations: Not applicable.
21. Other Liquefaction Effects: Not applicable.
22. Mitigation Options for Liquefaction: Not applicable.

Slope Stability Analyses

23. Geologic Setting for Occurrence of Landslides: Adequately addressed. The consultants state no slopes exist at the campus.
24. Determination of Static and Dynamic Strength Parameters: Not applicable.
25. Determination of Pseudo-Static Coefficient (K_{eq}): Not applicable.
26. Identify Critical Slip Surfaces for Static and Dynamic Analyses: Not applicable.
27. Dynamic Site Conditions: Not applicable.
28. Mitigation Options/Other Slope Failure: Not applicable.

Other Geologic Hazards or Adverse Site Conditions

29. Expansive Soils: Adequately addressed. The consultants report the onsite soils have "very low" expansion potential based on laboratory testing. They also note similar soils were observed and tested at nearby Beverly Hills High School, which had up to "medium" expansion potential.
30. Corrosive/Reactive Geochemistry of the Geologic Subgrade: Marginally adequate. The consultants did not perform corrosion testing on the onsite soils, but note surficial soils at nearby Beverly Hills High School were highly corrosive. **They should perform site-specific testing of the onsite soils prior to construction.**
31. Conditional Geologic Assessment: Selected geologic hazards addressed by the consultants are listed below:
 - C. Flooding: Adequately addressed. According to FEMA FIRM documents the site is not located in a 100-year flood zone.
 - D. Tsunami and Seiche: Adequately addressed. The consultants report the site is located away from the coast or any large inland body of water.

Report Documentation

32. Geology, Seismology, and Geotechnical References: Adequately addressed.
33. Certified Engineering Geologist: Adequately addressed.
Joe Roe, Certified Engineering Geologist #2456
34. Registered Geotechnical Engineer: Adequately addressed.
Thomas C. Benson, Jr., Registered Geotechnical Engineer #2091

Discussion of Fault Hazard Assessment

The SMF zone is expressed as a series of *en echelon* scarps in the Quaternary alluvial fan deposits emanating from the Santa Monica Mountains. It extends easterly from the coast approximately 12 km through urbanized areas of Santa Monica, Beverly Hills, and western Los Angeles. The SMF is generally steeply north-dipping and exhibits left-lateral reverse oblique motion. Many investigators believe the primary fault is a low-angle blind thrust and the surface scarps are associated with sub-vertical hanging wall normal faults.

The subject fault study (Report 1) was performed to assess the potential presence of active faulting associated with the SMF at the El Rodeo school campus. The easternmost geomorphic feature associated with the SMF is a southeast-facing scarp extending from the Los Angeles Country Club property through the central portion of the El Rodeo campus.

Previous Studies

Limited geologic studies reveal both active and inactive strands of the SMF. Dolan et al. (2000) identified an active strand of the SMF in a fault trench excavated at the base of a scarp on the Veteran's Administration Hospital property, approximately 2.5 miles southwest of the site. On the adjacent property, located at 9900 Wilshire Boulevard, Geocon (2014) performed a fault investigation and inferred five northerly trending faults, which they concluded were inactive. Based on a boring/CPT transect along Wilshire Boulevard and a groundwater barrier noted on the gas station property located at 9988 Wilshire Boulevard, Geocon inferred five closely-spaced faults trending northeasterly through the gas station, across Wilshire Boulevard, and toward the El Rodeo school site. Based on the subsurface data from their boring/CPT transect, they concluded these faults were likely active as defined by the State of California.

Fault Investigation and Discussion

As part of the current fault investigation, the consultants excavated and geologically logged two fault trenches (FT-1 and FT-2) and drilled 16 continuous core borings (CB-1 through CB-16) to evaluate the fault rupture hazard for the campus. Detailed observations were made of the soil types, textures and colors, as well as any fractures or other discontinuities. The consultants also provide interpretations of depositional environment and estimated ages of the sedimentary deposits and paleosols exposed in the trenches and core samples. Representatives from CGS visited the site on July 2, 2014 to observe the fault trenches and review the initial core samples from borings CB-1 through CB-8. CGS representatives later returned to the school site on August 1, 2014 to review rock core samples taken from additional borings drilled along the Wilshire Boulevard median, offsite to the south.

Fault Trenches (FT-1 and FT-2)

The consultants excavated two fault trenches in the southern portion of the campus. The trenches ranged from 105 feet (FT-1) to 125 feet long (FT-2) and exposed native alluvial deposits in the western portions and artificial fill in the eastern. Soil age evaluation performed by the consultants indicates the alluvium exposed in these trenches is Pleistocene in age. Minor fractures lined with calcium carbonate were documented within the alluvial sediments, but no evidence of active faulting was observed. This conclusion appears reasonable given the data provided in the

referenced reports. CGS does note these trenches are limited in lateral extent and only expose suitable alluvial sediments in their western portions, so the best quality subsurface data shows an absence of faulting beneath a very limited portion of the school campus.

A-A' (Wilshire Boulevard transect)

In their investigation for 9900 Wilshire, Geocon (2014) drilled five core borings (B1-B through B5-B) and advanced nine CPTs (CPT-1 through CPT-9) along the Wilshire Boulevard center median. For the current campus fault investigation the consultants drilled nine additional continuous core borings along Wilshire Boulevard. The consultants used all this data to generate cross section A-A'. The consultants' profile essentially follows the same alignment as Transect B-B' from the Geocon fault study, but extends slightly farther west. Along this transect, Geocon postulated the existence of three active faults (Faults G, H, and I) as depicted on Leighton's cross section.

The consultants identified several paleosols and other stratigraphic markers in their core borings, and reviewed the Geocon boring logs for similarly described markers, which they depict and correlate on their cross section. Based on these data the consultants show Geocon Faults G and H do not appear to exist where they were mapped. Instead they infer a total of four faults (Faults 1 through 4) along this cross section, which they conclude are not active because of "the presence of unbroken sediments and soils, dated by relative means to be at least 34,000 to much greater than 100,000 years old near the surface" above these faults. The interpretation of continuous unbroken stratigraphy within the various Pleistocene deposits overlying these particular faults is a valid explanation of the data. However, our review of the subsurface data suggests these deposits do not appear continuous and unbroken in other areas. Specifically, it appears the data provided in the boring and CPT logs for cross section A-A' indicate a noticeable lack of correlation of stratigraphic markers between paired borings CB-11/B4-B and CB-12/B3-B. Various unique sedimentary marker units, which are relatively persistent elsewhere yet cannot be correlated between these borings include the following:

1. A relatively thick package of clay and silt with distinctive "oxidation-reduction banding" is described between 20 and 30 feet deep in borings CB-11, B4-B, and B5-B, but was not encountered in borings CB-12 or B3-B.
2. At a depth of approximately 30 feet a laminated sandy clay unit with manganese oxide nodules is described in CB-12 and B3-B and labeled on the cross section, but does not correlate with any units at this similar depth in CB-11 or B4-B.
3. A persistent clayey sand and gravel unit, which extends for at least 135 feet laterally from CB-9 to B4-B, was not encountered in CB-12 or B3-B.
4. At about 35 feet deep, another section of "oxidation-reduction banding" was encountered in CB-11 and B4-B and labeled on cross section A-A', but this distinct banding was not observed in CB-12 or B3-B.
5. Between a depth of 40 and 50 feet another thick clayey sand and gravel unit was encountered in CPT-3, CB-11, and B4-B, which cannot be correlated to CB-12.
6. Another distinct "oxidation-reduction banding" unit up to 8-feet thick was encountered at approximately 65 feet deep in CB-11 and B4-B, which cannot be correlated to CB-12.

Additionally, Geocon's active Fault I is mapped between these borings on their transect based on lack of stratigraphic correlations and the trend of the groundwater barrier identified at the gas station across Wilshire Boulevard. *For these reasons, CGS is concerned these distinct lateral discontinuities in the data provided may be related to fault offset and additional subsurface investigation is requested.*

B-B' (western transect)

The consultants also construct a northwest trending profile along the western edge of the campus, across Wilshire Boulevard, and along the western edge of the gas station and 9900 Wilshire property. The section provided in Appendix C of Report 1 includes subsurface data from four of Leighton's continuous core borings (CB-1, CB-2, CB-6, and CB-8) ranging from 125 to 160 feet deep as well as eight monitoring wells, and thirteen of Geocon's borings. At the subject site, they postulate the existence of a fault (Fault 1 on Plate 3 of Report 1) between CB-2 and CB-8, but state continuous and unbroken stratigraphic markers in the shallower Pleistocene deposits overlying this fault demonstrate it is not active. The subsurface data does not appear to support this conclusion. For example, the "chocolate brown soil", which is laterally continuous between CB-1, CB-6, and CB-2, does not appear in boring CB-8. At the depth where this soil is projected onto CB-8 on the cross section, there is a section of reddish brown clayey sand with gravel, not chocolate brown clay. Similarly, the sediments above the brown soil in CB-2 consist of sandy clay with occasional thin-bedded gravels and the correlative section in CB-8 shows silty to clayey gravelly sand. Lastly, the base of a paleosol in CB-2 noted on the cross section is apparently down-dropped at least 3 feet in CB-8. *This lack of correlation may suggest the fault inferred between these borings extends higher up in the section than depicted on the cross section. Therefore, the conclusion that this fault is not active is not yet clearly demonstrated.* Additionally, the correlations made by the consultants between CB-8 and MW-5 do not appear reasonable either. The base of the Benedict Canyon Wash unit (i.e. BCW₁) is defined by an erosional surface with a basal gravel deposit and the consultants project this contact through the middle of a 12-foot thick clay unit in MW-5. Similarly, the contact between BCW₂ deposits and the top of the Cheviot Hills deposits (CHD) is defined as a basal sand and gravel layer over a moderately developed reddish brown clayey paleosol. On the cross section this contact is projected through a section of very dark grayish brown silty to gravelly sand. *It appears there is also a lack of correlation between these borings, which may be related to fault offset.*

Using the data from 9900 Wilshire coupled with the limited sampling data from the monitoring well logs at the gas station, the consultants give possible interpretations to explain the lack of stratigraphic continuity in central portion of the cross section (i.e. near the gas station). The first assumes a 5 to 7 degree dip at the top of the Cheviot Hills Deposits unit, which allows this horizon to match up with a similar formational contact described in the 9900 Wilshire subsurface data. CGS notes this interpretation does not appear to be supported by the sample descriptions from the monitoring well soil samples, nor does it explain the significant and abrupt difference in groundwater elevation at the gas station site. The second interpretation postulates two faults below the gas station, which define an apparent graben. This model appears more reasonable. They correlate these two faults with Faults 2 and 3 identified in section A-A', and determined them to be inactive, since they also form an apparent graben. However, CGS notes the trend created by connecting these two faults with Faults 2 and 3 is oblique to the groundwater barrier, which does

not seem consistent with the data. *CGS notes if faulting exists between CB-11 and CB-12 (see above), and if the gas station faults are projected toward that area, the resulting fault trend would roughly parallel the groundwater barrier and align with the topographic escarpment on the adjacent golf course property, which seems more geologically reasonable. Consequently, it may not be appropriate to conclude the groundwater barrier faults are inactive without additional supporting data.*

Conclusions

Based on our review of the data provided in the report and our observations at the site, the consultants do not provide sufficient evidence to preclude active faulting at the site. The consultants excavated two fault trenches at the site, which exposed unfaulted alluvium but were not laterally extensive enough to cover the entire campus. Subsequently, the consultants drilled several closely-spaced borings along Wilshire Boulevard and supplemented these data with subsurface data collected by Geocon during their investigation for the 9900 Wilshire property to the south. The consultants also drilled borings along the western edge of the campus to screen for faults in this area. CGS notes these borings were very-widely-spaced, which is not typical for fault investigations; however, based on our review of the core samples from these borings in the field, the presence of several continuous and correlative layers that appear unbroken, and given the location of this portion of the campus above and behind the geomorphic escarpment, the conclusion that no active faults cross the portion of the campus between borings CB-1 and CB-2 appears reasonable. In other areas, although, CGS observed some significant marker beds and geologic contacts were not consistent or continuous between borings CB-2/CB-8, CB-8/MW-5, and CB-11/CB-12, which may be indicative of faulting. **The consultants should review their subsurface data and discuss the potential for faulting in these areas. Additional subsurface data may be necessary to adequately address the potential for active faulting.**


APPENDIX B

CONTINUOUS CORE BORING LOGS AND
CORE PHOTOGRAPHS



Leighton

LEIGHTON

CORE BORING LOG										BORING NO. CB-1		
PROJECT: El Rodeo School										PAGE 1 OF 9		
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001		
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 9		
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 302.5 Feet		
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL			
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	2/14/2012		
						HORIZONTAL	SIZE	2.5 I.D.	DATE FINISH:	2/14/2012		
						INCLINED	Bit (Feet)		DRILLER:	Martini		
						BEARING	Barrel (Feet)	5	PREPARED BY:	JMP		
					0	ANG. FROM VERT.	Total (Feet)		LOCATION:	See Plate 1		
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS					
303	0						@Surface: 5" Asphalt concrete (Ac) over 4" Aggregate base (Ab) @0' to 5': Hand Auger <hr/> @0.75': Artificial Fill, undocumented (Afu): Silty SAND (SM), brown to reddish brown, dry to slightly moist, fine sand, some fine angular gravels					
		1-3	SB-1									
298	5						@5.8': Pleistocene Alluvium of Benedict Canyon Wash (BCW₂): Sandy GRAVEL (GP), dark reddish to gray brown, dry to slightly moist, angular fine gravels, fine sand @6.4' to 7.3': Silty SAND (SM), reddish brown to olive brown, slightly moist @7.3' to 8.6': Sandy GRAVEL (GP), dark reddish to gray brown, slightly moist, angular fine gravels, primarily black slate @8.6' to 10': No Recovery					
		5-10	Run 1 Box 1	3.6	72							
293	10						@10' to 15': No Recovery					
		10-15	Run 2 Box 1	0	0							
288	15											
FIELD HARDNESS			BEDDING			ATTITUDE AND ANGLE			JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)			V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)			CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)			MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)			WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)			V. WIDE	>120"	MOD. SEVERE		
									Fe = Iron Oxide Mn = Manganese Oxide		COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***




LEIGHTON

CORE BORING LOG										BORING NO. CB-1
PROJECT: El Rodeo School										PAGE 2 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 302.5 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	DATE FINISH:
						HORIZONTAL	SIZE	2.5 I.D.	2/14/2012	2/14/2012
						INCLINED	Bit (Feet)		DRILLER: Martini	PREPARED BY: JMP
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
288	15	15-20	Run 3 Box 1	2.9	58		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@15' to 16.7': Sandy Silty GRAVEL (GP)			
							@16.7' to 17.9': SAND (SP), interlayered dark reddish brown to olive green, moist to very moist, fine sand, some interlayered silts			
							@17.9' to 20': No Recovery			
283	20	20-25	Run 1 Box 2	5	100		@20' to 21.8': SAND (SP), dark reddish to yellowish brown, wet, fine to medium sand, few scattered fine gravels			
							@21.8' to 22.7': Sandy GRAVEL (GP), dark gray brown with oxidation, moist, subangular gravels			
							@22.7': CLAY (CL), dark yellow brown with orange oxidation, moist, blebs of olive gray coloring within, paleosol			
							@24.3': Color grades to dark reddish brown			
278	25	25-30	Run 2 Box 2	5	100		@25.6': Gravel layer, becomes dark reddish brown to chocolate brown, moderately well-developed blocky structure, minor gleying along soil faces			
							@28.3' to 29': Gravelly Sandy CLAY (CL), dark reddish brown, very moist, fine to medium sand, fine gravels, basal gravel, base of paleosol			
							@29': Sandy CLAY to CLAY (CL), dark reddish to dark yellowish brown, few fine subrounded to angular scattered gravels			
273	30									
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
									V. SEVERE	
									COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-1
PROJECT: El Rodeo School										PAGE 3 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 302.5 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/14/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/14/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
273 30		30-35	Run 3 Box 2	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							<p>@33.3': Few scattered gravels in thin bed with fine sand</p> <p>@33.7' to 35', Chocolate brown, well developed soil</p>			
268 35		35-40	Run 1 Box 3	5	100		<p>@35' to 37.4': Sandy Clayey GRAVEL (GP), dark yellow brown to gray brown, wet, fine to coarse angular black slate gravels, erosional surface below</p>			
							<p>Pleistocene Cheviot Hills Deposits (CHD):</p> <p>@37.4': CLAY (CL), dark yellow brown, moist, some fine sand, color grades to dark reddish brown, oxidation and reduction banding with clay laminations</p>			
263 40		40-45	Run 2 Box 3	5	100		<p>@39.7': Color grades to dark reddish brown, moderate blocky structure, paleosol</p>			
							<p>@40.4': Sandy CLAY with Gravel (CL), dark yellow brown, moist, scattered fine subangular gravels throughout, some fine sand, decrease in gravel between 46.5' to 49'</p>			
							<p>@41.1': GRAVEL (GP), pulse of gravel</p>			
							<p>@41.2': Sandy CLAY with Gravel (CL), dark yellow brown, moist, scattered fine subangular gravels throughout, some fine sand, decrease in gravel between 46.5' to 49'</p>			
258 45							<p>@42.7': GRAVEL (GP), pulse of gravel</p> <p>@42.8': Sandy CLAY with Gravel (CL), dark yellow brown, moist, scattered fine subangular gravels throughout, some fine sand, decrease in gravel between 46.5' to 49'</p>			
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES			V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"		HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)		V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120" Fe = Iron Oxide Mn = Manganese Oxide		FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-1
PROJECT: El Rodeo School										PAGE 4 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 302.5 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/14/2012 DATE FINISH: 2/14/2012 DRILLER: Martini PREPARED BY: JMP LOCATION: See Plate 1
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve		
						HORIZONTAL	SIZE	2.5 I.D.		
						INCLINED	Bit (Feet)			
					0	BEARING	Barrel (Feet)	5		
						ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
258	45	45-50	Run 3 Box 3	5	100		@45': Rounded gravels @45.1': Sandy CLAY with Gravel (CL), dark yellow brown, moist, scattered fine subangular gravels throughout, some fine sand, decrease in gravel between 46.5' to 49'			
							@47': Brown clay			
							@48': Poorly developed blocky structure @48.1': GRAVEL (GP), pulse of gravel @48.2': Sandy CLAY with Gravel (CL), dark yellow brown, moist, scattered fine subangular gravels throughout, some fine sand, decrease in gravel between 46.5' to 49'			
							@49': Gravelly SAND (SP), dark yellow brown, very moist, fine to medium sand, fine subangular gravels @50' to 50.8': No Recovery			
253	50	50-55	Run 1 Box 4	4.2	84		@50.8' to 52': Sandy GRAVEL (GP), dark yellow brown, very moist, fine to coarse angular gravels			
							@52' to 52.9': SAND with Gravel (SP), dark yellow brown, moist, fine sand, some fine gravels			
							@52.9' to 53.6': Sandy GRAVEL (GP), dark yellow brown, very moist, fine to coarse angular gravels			
							@53.6' to 58': SAND with Gravel (SP), dark yellow brown, moist, fine sand, some fine gravels, "Salt and Pepper" sands			
248	55	55-60	Run 2 Box 4	3.9	78		@58' to 58.3': CLAY (CL), dark yellow brown, very moist, some fine sand			
							@58.3' to 58.9': Sandy GRAVEL (GP), dark yellow to gray brown, moist, fine to coarse sand, fine to coarse gravels			
							@58.9' to 60': No Recovery			
243	60									




ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS	BEDDING	ATTITUDE AND ANGLE	JOINTS / SHEAR / FRACTURE	WEATHERING
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES	V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120" Fe = Iron Oxide Mn = Manganese Oxide	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-1		
PROJECT: El Rodeo School										PAGE 5 OF 9		
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001		
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 9		
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 302.5 Feet		
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL			
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	2/14/2012		
						HORIZONTAL	SIZE	2.5 I.D.	DATE FINISH:	2/14/2012		
						INCLINED	Bit (Feet)		DRILLER:	Martini		
						BEARING	Barrel (Feet)	5	PREPARED BY:	JMP		
					0	ANG. FROM VERT.	Total (Feet)		LOCATION:	See Plate 1		
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS					
243	60	60-65	Run 3 Box 4	4.3	86		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.					
							@60' to 60.7': No Recovery					
							@60.7': CLAY (CL), dark yellow brown, moist					
							@62': Thin gravel layer					
		@62.2': CLAY (CL), dark yellow brown, moist										
		@62.4' to 65.9': Sandy GRAVEL (GP), dark yellow to gray brown, very moist, fine to medium sand, fine to coarse subrounded to subangular black slate gravels and weathered basalt clasts										
238	65	65-70	Run 1 Box 5	0.9	18		@65.9' to 70.4': No Recovery					
233	70	70-75	Run 2 Box 5	4.6	92		@70.4' to 72.8': CLAY with Gravel (CL), dark reddish brown to chocolate brown, moist, few fine gravels scattered throughout, well-developed blocky structure					
							@72.8' to 75': Sandy GRAVEL (GP), dark yellow brown, moist, fine to medium sands with some clay, fine to coarse black slate gravels					
228	75											
FIELD HARDNESS			BEDDING			ATTITUDE AND ANGLE			JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"		HORIZONTAL (0-5°)			V. CLOSE	<2"		FRESH
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"		SHALLOW OR LOW ANGLE (5-35°)			CLOSE	2"-12"		V. SLIGHT
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"		MODERATELY DIPPING (35-55°)			MOD. CLOSE	12"-36"		SLIGHT
SOFT	- GROVES		THICK	36"-120"		STEEP OR HIGH ANGLE (55-85°)			WIDE	36"-120"		MODERATE
V. SOFT	- CARVES		V. THICK	>120"		VERTICAL (85-90°)			V. WIDE	>120"		MOD. SEVERE
									Fe = Iron Oxide Mn = Manganese Oxide		COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

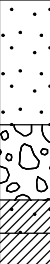



CORE BORING LOG										BORING NO. CB-1
PROJECT: El Rodeo School										PAGE 6 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 6 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 302.5 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/14/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/14/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
228 75	75-80	Run 3 Box 5	3.2	64		@75' to 76.8': No Recovery				
						@76.8' to 77.6': Sandy GRAVEL (GP), dark yellow brown, moist, fine to medium sands with some clay, fine to coarse black slate gravels				
						@77.6': CLAY (CL), dark yellow brown, moist, few scattered fine subrounded gravels				
						@78.5': Color grades to dark reddish brown, moderate blocky structure				
223 80	80-85	Run 1 Box 6	5	100		@80': Dark yellowish brown				
						@81.8' to 82.5': Sandy GRAVEL (GP), dark gray brown, wet, fine to coarse sand, fine to coarse subangular gravels				
						@82.5' to 84.6': Sandy CLAY (CL), dark yellowish brown, moist, fine sand				
218 85	85-90	Run 2 Box 6	0	0		@84.6' to 85': Gravelly CLAY (CL), dark yellow to gray brown, moist, some sand, fine angular gravels				
						@85' to 91.5': No Recovery				
213 90										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/14



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-1
PROJECT: El Rodeo School										PAGE 7 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 7 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 302.5 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/14/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/14/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
213 90		90-95	Run 3 Box 6	3.5	70		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@91.5' to 93': SAND (SP), dark yellow brown to brown, wet, fine to medium sand			
							@93' to 93.9': Sandy GRAVEL (GP), dark yellow brown, very moist, oxidized, fine to medium sand, fine gravels, basal gravels, erosional contact below			
							@93.9' to 94.3': Clayey SAND with Gravel (SC), dark yellow to red brown, moist			
208 95		95-100	Run 1 Box 7	5	100		@94.3': CLAY (CL), dark yellow brown, moist, MnO laminations			
							@97': Color grades to olive brown			
							@97.9': Color grades to grey			
203 100		100-105	Run 2 Box 7	5	100		@101.1': Color grades to olive green			
							@103.5': Color grades to olive brown			
							@104.5' to 106.9': Some scattered fine gravels			
198 105										

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE
								COMPLETE



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-1	
PROJECT: El Rodeo School										PAGE 8 OF 9	
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 8 of 9	
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 302.5 Feet	
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL		
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	2/14/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DATE FINISH:	2/14/2012	
						INCLINED	Bit (Feet)		DRILLER:	Martini	
						BEARING	Barrel (Feet)	5	PREPARED BY:	JMP	
					0	ANG. FROM VERT.	Total (Feet)		LOCATION:	See Plate 1	
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.											
198	105	105-110	Run 3 Box 7	5	100		@106.9': CLAY (CL), brown, moist				
							@108': carbonate in matrix				
193	110	110-115	Run 1 Box 8	5	100		@110': Grades to Silty CLAY (CL), brown to dark yellowish brown, moist, few scattered cemented carbonate nodules				
							@112': Color grades from brown to green, specks of carbonate with scattered cemented carbonate nodules				
							@113.6' to 118': Color grades from green to grey marl, continued specks of carbonate and scattered cemented carbonate nodules				
188	115	115-120	Run 2 Box 8	5	100		@118': Color grades to olive brown, abundant carbonate deposits and nodules				
183	120										
FIELD HARDNESS			BEDDING			ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"		HORIZONTAL (0-5°)		V. CLOSE	<2"		FRESH
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"		SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"		V. SLIGHT
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"		MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"		SLIGHT
SOFT	- GROVES		THICK	36"-120"		STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"		MODERATE
V. SOFT	- CARVES		V. THICK	>120"		VERTICAL (85-90°)		V. WIDE	>120"		MOD. SEVERE
								Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
										COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG											BORING NO. CB-1
PROJECT: El Rodeo School											PAGE 9 OF 9
CLIENT: Beverly Hills Unified School District											JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation											PAGE NO.: 9 of 9
EQUIPMENT USED: CME-75, Continuous Core											ELEVATION: 302.5 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 2/14/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/14/2012		
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini		
						INCLINED	Bit (Feet)		PREPARED BY: JMP		
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1		
					0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
183 120		120-125	Run 3 Box 8	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
						@120.5' to 121.8': Grades to Sandy CLAY (CL), olive brown, moist, fine sand, scattered carbonate deposits					
						@121.8' to 124.4': CLAY (CL), olive brown, moist, abundant carbonate deposits between 122.1' to 122.8'					
178 125							@124.4' to 125': SAND (SP), dark yellow brown, wet, fine sand				
173 130							Total depth of boring: 125' bgs Perched groundwater encountered at approximately 20'-21.8', 35'-37.4', 81.8'-82.5', 91.5'-93', 124.4'-125' bgs Excavation backfilled with cuttings and patched with asphalt upon completion of drilling. Excess soil cuttings disposed of in D.O.T. approved drums and disposed of offsite.				
168 135											
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
									COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON




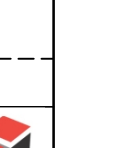
CORE BORING LOG										BORING NO. CB-2
PROJECT: El Rodeo School										PAGE 1 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 304.9 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/13/2012 DATE FINISH: 2/13/2012 DRILLER: Martini PREPARED BY: JMP LOCATION: See Plate 1
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve		
						HORIZONTAL <td>SIZE <td>2.5 I.D.</td> </td>	SIZE <td>2.5 I.D.</td>	2.5 I.D.		
						INCLINED	Bit (Feet)			
					0	BEARING	Barrel (Feet)	5		
						ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
305	0					█	@Surface: 4" Asphalt concrete @0.3': Artificial Fill, undocumented (Afu): Silty SAND (SM), dark yellowish brown, moist, some angular black slate gravels			
		1-3	SB-1			█	----- Pleistocene Alluvium of Benedict Canyon Wash: (BCW₂):			
						█	@4': Cobble @4.4': Silty SAND (SM)			
300	5					█	@5' to 5.9': No Recovery			
		5-10	Run 1 Box 1	4.1	82	█	@5.9': Sandy GRAVEL (GP), dark reddish brown to dark grayish brown, slightly moist, fine to coarse sand, fine to coarse subrounded to subangular black slate gravels, chaotic assemblage, oxidized			
295	10					█	@12.5' to 15': No Recovery			
		10-15	Run 2 Box 1	2.5	50	█				
290	15					█				

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
								COMPLETE	



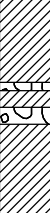




LEIGHTON

CORE BORING LOG										BORING NO. CB-2
PROJECT: El Rodeo School										PAGE 2 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 304.9 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/13/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/13/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
290 15		15-20	Run 3 Box 1	1.7	34		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@15' to 16.7': Sandy GRAVEL (GP), moist, large cobble @16.7' @16.7' to 20': No Recovery			
285 20		20-25	Run 1 Box 2	5	100		@20' to 20.3': Silty SAND (SM), dark yellowish brown, moist, some subrounded gravels @20.3' to 23': Gravelly SAND (SP), dark yellowish to dark reddish brown, moist, fine to coarse sand, subrounded to subangular fine to coarse black slate gravels			
							@23' to 24.5': Sandy GRAVEL (GP), dark gray brown to dark red brown, moist, few large cobbles			
280 25		25-30	Run 2 Box 2	3.9	78		@24.5' to 26.1': Silty SAND (SM), olive gray, moist, fine sand @26.1' to 27.2': Sandy GRAVEL (GP), dark olive brown, moist, angular fine to coarse black slate gravels @27.2' to 27.5': SAND with fine gravel (SP), dark reddish brown, moist, fine sand, erosional contact below @27.5': Sandy CLAY (CL), olive gray, moist, fine sand, oxidation-reduction banded, gleyed to 31' @28.3' to 28.9': Sandy GRAVEL (GP), dark reddish brown, moist, fine to coarse subrounded gravels @28.9' to 30': No Recovery			
275 30										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-2
PROJECT: El Rodeo School										PAGE 3 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 304.9 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 2/13/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/13/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
275 30		30-35	Run 3 Box 2	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@30': CLAY (CL), dark yellow brown to dark reddish brown, some olive gray mottling, moist, some fine gravels, paleosol, blocky to hackly structure, minor gleying on soil pedes, moderate clay lining pedes, few highly weathered siltstone fragments, 2-3% oxidized fine slaty gravels			
270 35		35-40	Run 1 Box 3	5	100		@32.5': Base of paleosol. Grades to Sandy CLAY (CL), dark yellow brown mottled with olive gray, moist, fine sand, some fine gravels @33.3': carbonate horizon			
							@34.4': Thinly bedded gravel @34.6': Sandy CLAY (CL)			
							@35.9': Thin gravel layer, angular siltstone clasts @36': Sandy CLAY (CL) @36.2': White siltstone, and slaty gravel bed @36.4': Sandy CLAY (CL)			
265 40		40-45	Run 2 Box 3	5	100		@39': Grades to CLAY to Silty CLAY (CL), dark chocolate brown, moist, some fine gravels and SILT			
							@41.6' to 44.5': Sandy GRAVEL (GP), dark yellow brown to gray brown, wet, fine to coarse subangular to subrounded gravels, fine to coarse sand, some clay, erosional contact below			
260 45							@44.5': Pleistocene Cheviot Hills Deposits (CHD):			
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE	COMPLETE	
						Fe = Iron Oxide Mn = Manganese Oxide				





ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-2
PROJECT: El Rodeo School										PAGE 4 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 304.9 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/13/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/13/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
260 45		45-50	Run 3 Box 3	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							Sandy silty CLAY (CL), dark reddish brown mottled with olive gray, moist, paleosol, fine to coarse silty sand, subangular to subrounded gravels, gleying along ped faces, moderate silica cement. Base of paleosol @ 46.7'			
							@45' to 45.3': Silty Clayey SAND (SC), dark yellow brown, moist, fine sand			
							@45.3': CLAY (CL), dark yellow brown to dark reddish brown, moist, few fine gravels			
		@46.8': Thinly bedded gravels								
		@47': CLAY (CL) dark yellowish brown, moist								
		@48.4': Gravelly CLAY (CL), dark reddish brown, moist, fine angular gravels								
		@48.9': CLAY (CL), dark yellow brown, moist, some silt and fine sand, few fine gravels								
255 50		50-55	Run 1 Box 4	5	100		@50.4' to 50.6': Gravelly SAND (SP) layer, erosive contact below			
							@50.6': Sandy CLAY (CL), dark yellow brown, moist, fine sand, fine silty gravel and white siltstone chips, 6-inch thick brown soil, upper part missing, blocky structure			
							@51.5': Thin bed of fine to coarse sand			
							@51.7': Sandy CLAY (CL), dark yellow brown, moist, fine sand, fine silty gravel and white siltstone chips, 6-inch thick brown soil, upper part missing, blocky structure			
		@54': Sandy clayey SILT (ML-CL), light orange brown, very moist, trace of siltstone rock fragments, poorly developed blocky structure, minor gleying along ped faces								
250 55		55-60	Run 2 Box 4	2.5	50		@54.5' to 55': Clean SAND (SP), fine to medium grained sand over gravel, thin bed			
							@55' to 56.4': Sandy GRAVEL (GP), dark yellow to gray brown, wet, fine to coarse angular black slate gravels			
							@56.4' to 57': Silty SAND (SP), dark yellow brown to brown, very moist, fine to medium sand, thinly bedded			
							@57' to 57.5': Sandy GRAVEL (GP), dark yellow to gray brown, wet, angular gravels			
		@57.5' to 60': No Recovery								
245 60										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		SEVERE	
									COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-2
PROJECT: El Rodeo School										PAGE 5 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 304.9 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/13/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/13/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
245 60		60-65	Run 3 Box 4	3.3	66		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@61.7': Sandy GRAVEL (GP), dark gray brown, wet, angular fine to coarse black slate gravels, white siltstone fragments, erosional contact below @62.3': CLAY to Sandy CLAY (CL), yellow brown, slightly mottled with olive gray, moist, very fine sand			
240 65		65-70	Run 1 Box 5	5	100		@65.6': CLAY with Sand and fine Gravels (CL), dark yellow brown, moist @66': Gravel bed @66.2': CLAY with Sand and fine Gravels (CL), dark yellow brown, moist @67.1': CLAY (CL), dark yellow brown, moist, some fine sand			
							@68': Gravel bed, carbonate @68.1': SAND to Gravelly SAND (SW), dark yellow brown, moist to very moist, fine to coarse sand, fine gravels, well graded			
							@69.6' to 70': CLAY (CL), dark yellow brown, moist			
							@70' to 70.5': Gravelly SAND (SW), dark yellow to gray brown, very moist to wet, fine to coarse sand, fine to coarse subrounded to subangular gravels, well graded @70.5' to 71.7': Sandy GRAVEL (GP), dark yellow to gray brown, very moist to wet, fine to coarse sand, fine to coarse subrounded to subangular gravels			
							@71.7' to 73.9': Gravelly SAND (SW), dark yellow to gray brown, gleyed gravels, very moist to wet, fine to coarse sand, fine to coarse subrounded to subangular gravels, well graded, contact @73.5' becomes chocolate brown clay, thinly laminated, with trace gravels below laminations			
235 70		70-75	Run 2 Box 5	3.9	78		@73.9' to 75': No Recovery			
230 75										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		SEVERE	
									COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***


LEIGHTON

CORE BORING LOG										BORING NO. CB-2	
PROJECT: El Rodeo School										PAGE 6 OF 9	
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 6 of 9	
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 304.9 Feet	
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL		
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	DATE FINISH:	DRILLER:
						HORIZONTAL	SIZE	2.5 I.D.	2/13/2012	2/13/2012	Martini
						INCLINED	Bit (Feet)		PREPARED BY: JMP	LOCATION:	See Plate 1
					0	ANG. FROM VERT.	Barrel (Feet)	5			
							Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
230	75	75-80	Run 3 Box 5	3.3	66	•••••	@75' to 78': SAND (SP), gray brown, wet, clean fine sand, "Salt and Pepper" sand @78' to 78.3': Sandy GRAVEL (GP), dark yellow to gray brown, moist, chaotic assemblage of gravels and rock fragments, well graded @78.3' to 80': No Recovery				
225	80					80-85	Run 1 Box 6	2.6	52	•••••	@80' to 82': SAND (SP), dark gray brown, wet, upward fining sequence @82' to 82.6': Sandy GRAVEL (GP), dark gray, brown, moist, angular fine gravels, chaotic assemblage, weathered slaty gravels @82.6' to 85': No Recovery
220	85	85-90	Run 2 Box 6	3.3	66					•••••	@85' to 88.3': Continued chaotic assemblage of Sandy GRAVEL (GP), dark gray brown, very moist, weathered slaty gravels @88.3' to 90': No Recovery, driller indicated that the material was hard based on drilling difficulty
215	90										
FIELD HARDNESS			BEDDING			ATTITUDE AND ANGLE			JOINTS / SHEAR / FRACTURE		WEATHERING
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"		HORIZONTAL (0-5°)			V. CLOSE	<2"	FRESH
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"		SHALLOW OR LOW ANGLE (5-35°)			CLOSE	2"-12"	V. SLIGHT
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"		MODERATELY DIPPING (35-55°)			MOD. CLOSE	12"-36"	SLIGHT
SOFT	- GROVES		THICK	36"-120"		STEEP OR HIGH ANGLE (55-85°)			WIDE	36"-120"	MODERATE
V. SOFT	- CARVES		V. THICK	>120"		VERTICAL (85-90°)			V. WIDE	>120"	MOD. SEVERE
									Fe = Iron Oxide Mn = Manganese Oxide		COMPLETE

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-2
PROJECT: El Rodeo School										PAGE 7 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 7 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 304.9 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	DATE FINISH:
						HORIZONTAL	SIZE	2.5 I.D.	2/13/2012	2/13/2012
						INCLINED	Bit (Feet)		DRILLER: Martini	PREPARED BY: JMP
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
215 90		90-95	Run 3 Box 6	4.6	92	•••	The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
						@90' to 91': Gravelly SAND (SP), dark gray brown, wet, fine to very coarse sand, fine subrounded gravels, poorly graded, upward fining sequence, erosive contact below				
						@91': Silty Clayey SAND (SC), yellow brown, moist, fine sand				
						@92': Thinly bedded GRAVELS (GP)				
						@92.1': Silty Clayey SAND (SC), yellow brown, moist, fine sand				
		@92.3': Thin GRAVEL bed (GP)								
		@92.4': Silty Clayey SAND (SC), yellow brown, moist, fine sand								
		@93.8': Thin GRAVEL bed (GP)								
		@94': Silty Clayey SAND (SC), yellow brown, moist, fine sand								
		@94.6' to 95': No Recovery								
210 95		95-100	Run 1 Box 7	5	100	•••	@95': Silty Clayey SAND (SM-SC)			
						@96.2': GRAVEL (GP), thin bed				
						@95': Silty Clayey SAND (SM-SC)				
205 100		100-105	Run 2 Box 7	3.4	68	•••	@100' to 100.7': Gravelly SAND (SP), yellow brown, wet, fine sand, fine to coarse siltstone gravels, subrounded			
						@100.7' to 103': CLAY (CL), hard, dark reddish brown				
						@103' to 103.4': Gravelly SAND (SP), dark yellow brown, moist, fine sand, fine to medium subangular gravels				
		@103.4' to 105': No Recovery								
200 105						•••				
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-2
PROJECT: El Rodeo School										PAGE 8 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 8 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 304.9 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/13/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/13/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
200 105		105-110	Run 3 Box 7	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@105': GRAVEL bed (GP) @105.2' to 111': Gravel bed underlain by CLAY (CL), dark reddish brown, moist, isolated blebs of olive gray @106.2': Thin bed of fine to medium grained sand with MnO laminations @105.2' to 111': Gravel bed underlain by CLAY (CL), dark reddish brown, moist, isolated blebs of olive gray @107': gley banding @108.2' to 108.6': heavy MnO banding			
195 110		110-115	Run 1 Box 8	5	100		@110': becomes dark chocolate brown, oxidation-reduction banding, gleyed @111' to 113.2': Grades to Sandy CLAY (CL), dark yellow brown, moist, some fine angular gravels between 111' to 112.8', @113.2': Rounded fine gravel @113.3': Sandy CLAY (CL), dark yellow brown, moist, specks of carbonate @114' to 115.6': Silty Clayey SAND (SM-SC), dark yellow brown to brown, moist, fine sand			
							@115.6' to 116.3': Grades to CLAY (CL), dark yellow brown to olive brown, increase in olive color with depth, moist, some oxidation between 115.6' to 116.3', some specks of carbonate Quaternary San Pedro Formation (Qsp): @116.3' to 117.5', color change to green @116.7': Abundant CaCO ₃ as thin horizontal layers, paleo horizon, Paleosol, marl @117.8' to 120': Silty CLAY (CL), color grades to grey brown, moist, gleyed, some slight oxidation and specks of carbonate scattered gravels, paleosol, marl			
190 115		115-120	Run 2 Box 8	5	100					
185 120										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES			V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"		HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)		V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120" Fe = Iron Oxide Mn = Manganese Oxide		FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-2	
PROJECT: El Rodeo School										PAGE 9 OF 9	
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 9 of 9	
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 304.9 Feet	
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL		
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	DATE FINISH:	
						HORIZONTAL	SIZE	2.5 I.D.	2/13/2012	2/13/2012	
						INCLINED	Bit (Feet)		DRILLER: Martini	PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1		
					0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
185	120	120-125	Run 3 Box 8	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
							@120' to 120.6': gravel bed				
							@120.6' to 123': Blue green CLAY to Silty CLAY (CL), moist, grey marl, specks of CaCO ₃ scattered gravels, abrupt contact @120.6' to 121.6': heavy MnO ₂ lamination				
							@123': Grades to Silty SAND (SM), blue green, moist to very moist, fine sand				
		@124' to 124.8': CLAY (CL), blue green, moist									
180	125						@124.8' to 125': Silty SAND (SM), blue green, moist, fine sand				
							Total depth of boring: 125' bgs Perched groundwater encountered at approximately 36.3', 41.6'-44.5', 54.5'-56.4', 61.7'-62.3', 70'-73.9', 75'-78', 80'-82', 90'-91', 100'-100.7' bgs Excavation backfilled with cuttings and patched with asphalt upon completion of drilling. Excess soil cuttings disposed of in D.O.T. approved drums and disposed of offsite.				
175	130										
170	135										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
									COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG											BORING NO. CB-3					
PROJECT: El Rodeo School											PAGE 1 OF 9					
CLIENT: Beverly Hills Unified School District											JOB NO.: 603367-001					
CONTRACTOR: Martini Drilling Corporation											PAGE NO.: 1 of 9					
EQUIPMENT USED: CME-75, Continuous Core											ELEVATION: 292.4 Feet					
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 2/10/2012					
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/10/2012							
							HORIZONTAL	SIZE	2.5 I.D.							
							INCLINED	Bit (Feet)	DRILLER: Martini							
							BEARING	Barrel (Feet)	PREPARED BY: JMP							
					0	ANG. FROM VERT.	Total (Feet)	5	LOCATION: See Plate 1							
ELEVATION & CORE DEPTH (Feet)											CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS
292											0					@Surface: 3" Asphalt concrete @0.33': 2" Aggregate base @0.4': Artificial Fill, undocumented (Afu): Clayey SILT (ML), brown, slightly moist
											1-2	SB-1				
											287	5				@5.5' to 6.5': Sandy GRAVEL (GP), light brown, dry @6.5' to 7.5': Clayey SILT (ML), dark brown, slightly moist, some coarse gravels and asphalt @7.5' to 10': No Recovery
											282	10				@10' to 15': SILT to Clayey SILT (ML), dark brown, slightly moist, few fine angular to subangular gravels throughout, trace asphalt fragments
											277	15				
FIELD HARDNESS			BEDDING			ATTITUDE AND ANGLE			JOINTS / SHEAR / FRACTURE		WEATHERING					
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES			V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"			HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)			V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120" Fe = Iron Oxide Mn = Manganese Oxide		FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE					

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-3	
PROJECT: El Rodeo School										PAGE 2 OF 9	
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 9	
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 292.4 Feet	
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL		
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	DATE FINISH:	DRILLER:
						HORIZONTAL	SIZE	2.5 I.D.	2/10/2012	2/10/2012	Martini
						INCLINED	Bit (Feet)		PREPARED BY: JMP		
						BEARING	Barrel (Feet)	5	LOCATION:	See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
277 15		15-20	Run 3 Box 1	5	100		<p>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</p> <p>@15': Pleistocene Alluvium of Benedict Canyon Wash (BCW): Silty Clayey SAND with Gravels (SP-SC), dark reddish/yellowish brown mottled, slightly moist, fine subangular to subrounded gravels, fine sand, well-graded</p>				
272 20							<p>@19.2' to 20.7': SAND with some Clay (SC), dark reddish brown, slightly moist to moist, fine sand</p>				
272 20		20-25	Run 1 Box 2	5	100		<p>@20.7' to 22.6': Grades to Sandy SILT (ML), dark reddish brown, slightly moist to moist with clay, paleosol, moderate blocky structure, well developed to 26.8'</p>				
267 25							<p>@22.6' to 25': Grades to CLAY (CL), olive brown to dark yellowish brown mottled, moist, few scattered subangular to angular fine gravels of weathered black slate and siltstone, moderate blocky structure, minor gleying along soil faces, paleosol</p>				
267 25		25-30	Run 2 Box 2	5	100		<p>@25': Grades to Silty CLAY (CL)</p>				
262 30							<p>@27.5' to 28.3': Sandy CLAY (CL)</p>				
262 30		<p>@28.3': Sandy GRAVEL (GP), dark grayish brown, moist to very moist, angular fine to coarse black slate gravels, erosive contact below</p>									
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
									COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***


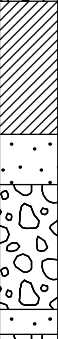


LEIGHTON

CORE BORING LOG										BORING NO. CB-3
PROJECT: El Rodeo School										PAGE 3 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 292.4 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 2/10/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/10/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
262 30		30-35	Run 3 Box 2	4.2	84		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@33.7' to 34.2': Silty CLAY (CL), dark yellowish brown, very moist, some angular coarse black slate gravels, Paleosol, blocky structure, gleyed on ped faces @34.2' to 35': No Recovery			
257 35		35-40	Run 1 Box 3	5	100		@35' to 39': Silty sandy CLAY (CL), hard, dark yellowish brown, very moist, trace very fine sand, contains siltstone and fine slaty rock fragments, well developed blocky to hackly structure, fine sand along soil faces, gleyed at parting surfaces			
							@39': Grades to Sandy CLAY (CL), dark reddish brown, very moist, very fine sand, few fine subangular gravels			
252 40		40-45	Run 2 Box 3	5	100		@41.9': Isolated siltstone clast @42': Sandy CLAY (CL), dark reddish brown, very moist, very fine sand, few fine subangular gravels			
							@43': Silty SAND w/ clay (SM), orange brown to reddish brown, fine sand, fine sand-sized siltstone with subrounded slaty pebbles, poorly developed blocky facture, minor gleying along soil faces @44' to 45': Grades quickly into upward fining sequence of SAND (SP), dark yellowish brown, wet, fine to coarse sand			
247 45										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16


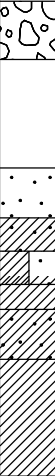


LEIGHTON

CORE BORING LOG										BORING NO. CB-3
PROJECT: El Rodeo School										PAGE 4 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 292.4 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/10/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/10/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
247 45		45-50	Run 3 Box 3	4.2	84		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@45' to 45.8': No Recovery			
							@45.8' to 46.4': SAND (SP), dark yellowish brown, wet, fine to coarse sand			
							@46.4' to 49.3': Grades to Sandy GRAVEL (GP), dark grayish brown to dark reddish brown, very moist to wet, fine to coarse subangular black slate gravels, secondary clay, erosive contact below			
242 50		50-55	Run 1 Box 4	5	100		@49.3' to 50.9': Grades to Sandy CLAY (CL), dark reddish brown, very moist, few fine gravels throughout, oxidation-reduction banding, gleyed, blocky structure			
							@50.9': Grades to SAND (SP)			
							@51.5' to 53': Grades to Sandy GRAVEL (GP), dark reddish brown, wet, fine to coarse angular to subangular gravels			
							@53' to 53.3': Thin layer of Silty Gravelly SAND (SP)			
							@53.3' to 55': Sandy GRAVEL (GP)			
237 55		55-60	Run 2 Box 4	4.2	84		@55' to 55.8': No Recovery			
							@55.8' to 57.6': SAND (SP), dark yellow brown, wet, fine to medium sand			
							@57.6' to 58.1': Sandy GRAVEL (GP), dark gray brown, wet, fine to coarse sand, fine subangular gravels			
							@58.1' to 60': Clayey Sandy GRAVEL (GP), dark yellow brown, very moist, increase in gravel with depth to 60'			
232 60										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-3
PROJECT: El Rodeo School										PAGE 5 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 292.4 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/10/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/10/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
232 60		60-65	Run 3 Box 4	4.3	86		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@60' to 60.7': No Recovery @60.7' to 64.3': SAND (SP), dark yellow brown, wet, fine sand			
227 65		65-70	Run 1 Box 5	3.7	74		@64.3' to 65': Sandy GRAVEL (GP), dark yellow brown to dark gray brown, moist, subangular black slate gravels @65' to 66.3': No Recovery @66.3' to 66.9': SAND (SP), reddish brown, wet, fine to coarse sand with siltstone rock fragments Pleistocene Cheviot Hills Deposits (CHD): @66.9' to 67.3': Clayey Gravelly SAND (SC) @67.3' to 67.6': Silty Clayey SAND (SM-SC) @67.6': CLAY to Sandy CLAY (CL), mottled olive brown and dark yellowish brown, well oxidized, oxidation-reduction banding, gleyed, few specs of MnO @68': Zone of increased sand @68.6': Color grades to dark brown			
222 70							@70' to 72.4': Zone of increased sand, isolated siltstone clasts @ 72.4'			
							@72.4': siltstone clasts, oxidation-reduction banded, with gley and MnO laminations @72.8': paleosol, moderate soil development, blocky structure, dark reddish brown, clayey, thin bed			
217 75							70-75	Run 2 Box 5	5	100
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON




CORE BORING LOG										BORING NO. CB-3
PROJECT: El Rodeo School										PAGE 6 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 6 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 292.4 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/10/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/10/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
217 75		75-80	Run 3 Box 5	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@76.0': Grades to Gravelly CLAY (CL), dark reddish brown, moist, scattered fine angular to subangular gravels, few siltstone clasts			
							@76.7': coarse sized siltstone clasts			
		@76.8': Gravelly CLAY (CL), dark reddish brown, moist, scattered fine angular to subangular gravels, few siltstone clasts								
		@77.8': Grades to Sandy CLAY (CL), dark yellowish to reddish brown, moist, some angular fine gravels, scattered fine sand								
212 80		80-85	Run 1 Box 6	5	100		@81.1' to 83': Increase in gravel			
							@83' to 90.3': paleosol, reddish brown to orange brown, sandy silty clay with fine rounded gravel			
207 85		85-90	Run 2 Box 6	5	100		@87.5' to 89.5': CLAY (CL), dark reddish brown, moist, few coarse sands, moderate blocky structure			
							@89.5' to 90.3': Gravelly CLAY (CL), dark reddish brown, very moist, angular			
202 90										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-3	
PROJECT: El Rodeo School										PAGE 7 OF 9	
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 7 of 9	
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 292.4 Feet	
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL		
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	DATE FINISH:	
						HORIZONTAL	SIZE	2.5 I.D.	2/10/2012	2/10/2012	
						INCLINED	Bit (Feet)		DRILLER: Martini	PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1		
					0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
202 90		90-95	Run 3 Box 6	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
							@90.3' to 92.8': Sandy GRAVEL (GP), dark yellow brown, wet, fine to coarse subrounded to angular gravel, medium to coarse sand				
							@92.8' to 93.6': Sandy CLAY (CL), dark yellow brown, moist, fine to medium sand, few fine gravels @93.6' to 95.2': CLAY (CL), dark yellow brown, moist, few fine gravels				
197 95		95-100	Run 1 Box 7	5	100		@95.2' to 99': Grades to Silty CLAY with Gravel (CL), dark yellow brown, moist, concentrated gravels between 95.4' to 95.8' and 96.8' to 97'				
							@99' to 101.1': Grades to Clayey Sandy SILT (ML), dark yellow brown, moist, fine sand, few fine angular gravel				
192 100		100-105	Run 2 Box 7	5	100		@101.1' to 102.1': Sandy GRAVEL (GP), dark yellow brown, wet, fine to coarse sands, fine to coarse gravels, abundant black slaty gravels				
							@102.1' to 103.8': CLAY (CL), dark yellow brown, moist				
							@103.8' to 104.3': Sandy GRAVEL (GP), dark gray to yellow brown, wet, coarse gravels @104.3' to 105': Sandy SILT (ML), weak soil development, dark yellow brown, moist, very fine sand				
187 105											
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
									COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-3
PROJECT: El Rodeo School										PAGE 8 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 8 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 292.4 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/10/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/10/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
187	105	105-110	Run 3 Box 7	3.9	78		@105' to 106.1': No Recovery			
							@106.1' to 107.8': Sandy SILT (ML) with interlayered gravels, dark yellow brown			
							@107.8' to 109.3': Interlayered Sandy GRAVELS (GP) and CLAYS (CL), dark yellow brown, wet, fine to coarse subrounded gravels			
							@109.3' to 110': CLAY (CL), dark yellow brown, moist			
182	110	110-115	Run 1 Box 8	3.7	74		@110' to 111.3': No Recovery			
							@111.3' to 112': SAND to Gravelly SAND (SP), dark yellow brown, wet, fine subangular gravels			
							@112' to 112.5': CLAY with Gravel (CL)			
							@112.5' to 112.7': GRAVEL (GP) layer, fine subangular gravels, wet			
		@112.7' to 115': Clayey SAND to Sandy CLAY (SC-CL), dark yellowish brown, moist, fine sand								
177	115	115-120	Run 2 Box 8	4	80		@115' to 116': No Recovery			
							@116' to 116.3': Clayey SAND (SC), dark yellow brown, moist			
							@116.3' to 116.8': CLAY to Sandy CLAY (CL), dark yellow brown, moist			
							@116.8' to 117.2': Gravelly SAND (SP) layer			
		@117.2' to 120': CLAY to Sandy CLAY (CL), dark yellow brown, moist								
172	120									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG											BORING NO. CB-3
PROJECT: El Rodeo School											PAGE 9 OF 9
CLIENT: Beverly Hills Unified School District											JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation											PAGE NO.: 9 of 9
EQUIPMENT USED: CME-75, Continuous Core											ELEVATION: 292.4 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/10/2012	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/10/2012		
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini		
						INCLINED	Bit (Feet)		PREPARED BY: JMP		
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1		
					0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
172	120	120-125	Run 3 Box 8	0.5	10	· · ·	@120' to 120.5': Gravelly SAND (SP), dark yellow brown, moist,				
						· · ·	@120.5' to 125': No Recovery				
167	125						Total depth of boring: 125' bgs Perched groundwater encountered at approximately 44'-45', 45.8'-49.3', 51.5'-53', 55.8'-58.1', 60'-64.3', 66.3'-66.9', 90.3'-92.8', 103.8'-104.3', 107.8'-109.3', 111.3'-112', 112.5'-112.7' bgs Excavation backfilled with cuttings and patched with asphalt upon completion of drilling. Excess soil cuttings disposed of in D.O.T. approved drums and disposed of offsite.				
162	130										
157	135										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
									COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON




CORE BORING LOG										BORING NO. CB-4		
PROJECT: El Rodeo School										PAGE 1 OF 9		
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001		
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 9		
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 288.4 Feet		
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL			
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	DATE FINISH:	DRILLER:	
						HORIZONTAL	SIZE	2.5 I.D.	2/9/2012	2/9/2012	Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	LOCATION:	See Plate 1	
						BEARING	Barrel (Feet)	5				
					0	ANG. FROM VERT.	Total (Feet)					
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS					
288 0							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.					
							@Surface: 4" Asphalt concrete @ 0.33': 2" Aggregate base					
							@0.5': Artificial Fill, undocumented (Afu): Clayey SILT to Silty CLAY (ML-CL), brown, moist, trace fine sand					
							@1' to 2': some concrete pieces					
							Holocene and Pleistocene Alluvium of Benedict Canyon Wash (Qal) Gravelly CLAY (CL), fine to coarse rounded gravels, oxidized					
283 5		5-10	Run 1 Box 1				Pleistocene Alluvium of Benedict Canyon Wash (BCW₂): @5' to 5.4': Gravelly CLAY (CL), fine to coarse rounded gravels, oxidized					
							@5.5': Clayey SILT to Silty CLAY (ML-CL), brown, moist					
							@6' to 7': Grades to Sandy SILT (ML), medium brown, moist, fine sand, few fine gravels, moderate blocky structure, weak clay lined faces					
							@7' to 10': Silty CLAY (CL), brown, moist, soft, scattered subangular fine black slate gravels, moderate blocky structure					
278 10		10-15	Run 2 Box 1	5	100		@10' to 12.2': Gravelly Silty SAND (SM), brown, moist, with subrounded fine to coarse black slate gravels, fine to medium sand, abrupt contact at 12.2'					
							@12.2': Grades to Silty CLAY (CL), brown, moist, few scattered fine gravels, moderate blocky structure, minor clay development on pedogenic faces, weathered slaty gravels					
273 15												
FIELD HARDNESS			BEDDING			ATTITUDE AND ANGLE			JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"		HORIZONTAL (0-5°)			V. CLOSE	<2"		FRESH
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"		SHALLOW OR LOW ANGLE (5-35°)			CLOSE	2"-12"		V. SLIGHT
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"		MODERATELY DIPPING (35-55°)			MOD. CLOSE	12"-36"		SLIGHT
SOFT	- GROVES		THICK	36"-120"		STEEP OR HIGH ANGLE (55-85°)			WIDE	36"-120"		MODERATE
V. SOFT	- CARVES		V. THICK	>120"		VERTICAL (85-90°)			V. WIDE	>120"		MOD. SEVERE
									Fe = Iron Oxide Mn = Manganese Oxide		COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-4
PROJECT: El Rodeo School										PAGE 2 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 288.4 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	DATE FINISH:
						HORIZONTAL	SIZE	2.5 I.D.	2/9/2012	2/9/2012
						INCLINED	Bit (Feet)		DRILLER: Martini	PREPARED BY: JMP
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
273	15	15-20	Run 3 Box 1	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@16.3': Thin GRAVEL (GP) layer, angular fine to coarse black slate gravels, 0.1' thick @16.4': Silty CLAY (CL), brown, moist, few scattered fine gravels, moderate blocky structure, minor clay development on pedogenic faces, weathered slaty gravels			
268	20	20-25	Run 1 Box 2	5	100		@21.5': Grades to Sandy CLAY (CL), brown, moist, fine sand, few scattered fine subangular gravels @22.3' to 24.3': Grades to Sandy SILT (ML), brown, moist to very moist, continued fine gravels scattered, some clay			
							@24.5' to 25.8' Sandy SILT to Silty SAND (SM-ML), brown, very moist to wet, very fine sand			
263	25	25-30	Run 2 Box 2	5	100		@25.8' to 27.5': Sandy GRAVEL (GP), brownish gray, slightly moist, fine to coarse subrounded to subangular gravels, coarse sand matrix @27.5' to 30': No Recovery			
258	30									
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
									COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-4
PROJECT: El Rodeo School										PAGE 3 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 288.4 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/9/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/9/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
258 30		30-35	Run 3 Box 2	2.5	50		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@30' to 31.5': Sandy GRAVEL (GP), moist, fine to coarse subangular to subrounded black slate gravels, few siltstone clasts, basal erosive contact, heavily weathered, oxidized gravels, siltstone, basalt, slate @31.5': Silty CLAY (CL), brown to reddish brown, moist, homogeneous, oxidized, oxidation reduction banding @32': Sandy CLAY (CL), dark reddish brown, fine sand with fine sand-sized siltstone fragments, moderate amount of silica cement, moderate blocky structure, some fine subrounded slaty gravel, gleyed along pedogenic faces, paleosol			
253 35		35-40	Run 1 Box 3	5	100		@35': Sandy CLAY (CL), brown to reddish brown, moist, some fine gravels @35.5' to 38.1': Sandy GRAVEL (GP), brown to reddish brown, moist, subrounded fine gravels, some coarse gravels, oxidized, heavily weathered, basal gravels and cobbles at 38.1' @38': well graded			
							@38.1' to 40': No Recovery			
248 40		40-45	Run 2 Box 3	3.1	62		@40' to 40.6': Gravelly SAND (SP), brown to reddish brown, very moist to wet, well graded @40.6' to 42.5': CLAY (CL), paleosol, brown to reddish brown, very moist, medium stiff, angular black slate gravels, well developed blocky fracture			
							@42.5' to 44.3': Grades to Sandy silty CLAY (CL), brown to reddish brown, moist to very moist, some angular black slate gravels @43.3' to 43.7': Very fine sand and clay laminations, trace siltstone sand-sized fragments, poorly developed soil, porous, 1-2 mm voids, minor gleying along sand laminations			
243 45							@44.3' to 44.9': Gravelly Clayey SAND (SC), brown, to grayish brown, very moist to moist, fine subrounded black slate gravels			
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES			V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"		HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)		V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120" Fe = Iron Oxide Mn = Manganese Oxide		FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-4
PROJECT: El Rodeo School										PAGE 4 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 288.4 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/9/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/9/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
243 45		45-50	Run 3 Box 3	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@44.9' to 45.8': Silty SAND (SM), brown to reddish brown, very moist, fine sand			
							@45.8' to 46.2': Gradational zone of Clayey SILT (ML)			
238 50		50-55	Run 1 Box 4	5	100		@50' to 52.6': Sandy GRAVEL (GP), wet, brown, medium to coarse sand, fine subrounded gravels with few coarse gravels, upward fining sequence, erosive contact below			
							@52.6': Pleistocene Cheviot Hills Deposits (CHD): CLAY (CL), olive brown, moist, few scattered fine gravels, oxidized, blocky structure @53.7': Color grades to dark reddish brown			
233 55		55-60	Run 2 Box 4	5	100		@54.5' to 55.8': Grades to Clayey Gravelly SAND (SP), reddish brown, wet, fine to coarse subrounded gravels, well graded			
							@55.8' to 57': Grades to Silty SAND (SM), brown to reddish brown, very moist to wet, fine sand,			
							@56.8': basal pebbly GRAVELS (GP) @57' to 59.8': CLAY (CL), brown to reddish brown, moist			
228 60							@59.3': subangular GRAVELS (GP)			


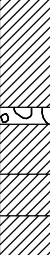
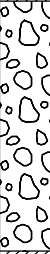
ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
								COMPLETE	



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON




CORE BORING LOG										BORING NO. CB-4
PROJECT: El Rodeo School										PAGE 5 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 288.4 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/9/2012 DATE FINISH: 2/9/2012 DRILLER: Martini PREPARED BY: JMP LOCATION: See Plate 1
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve		
						HORIZONTAL	SIZE	2.5 I.D.		
						INCLINED	Bit (Feet)			
					0	BEARING	Barrel (Feet)	5		
						ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
228	60	60-65	Run 3 Box 4	5	100		@59.8' to 60': Grades to Silty SAND to SAND (SP-SM), very moist, brown to reddish brown, fine to medium sand @60': Clay to Sandy CLAY (CL), brown to reddish brown, moist to very moist, some gravels @60' to 60.3' and @63.1' @61.6': thin olive gray clay laminations, gleyed along moderately developed soil faces			
							@62.9': 2-3 inch thick gravel bed, erosive contact below, secondary clay development @63': Sandy CLAY (CL) below gravel			
223	65						@64.6': Siltstone rock fragments, thin bed, 2-3 inches thick @66.2': Sandy CLAY (CL), brown, very moist, fine gravels			
		65-70	Run 1 Box 5	5	100		@66.2': thin layer of fine angular siltstone gravels @66.4': Sandy CLAY (CL), brown, very moist, fine gravels @67' to 67.5': Grades to CLAY (CL), brown, very moist @67.5' to 70': Clay to Sandy CLAY (CL), brown, very moist, fine gravels scattered throughout @68.7' to 69.2': Dark red clay bed			
							@70' to 73': Sandy GRAVEL (GP), grayish brown, wet, rounded fine to coarse black slate gravels, erosive contact below @73'			
218	70						@73' to 73.8': CLAY (CL), olive gray, moist, few fine angular black slate gravels			
							@73.8': Sandy Gravelly CLAY (CL), olive gray to brown, moist, generally fine subangular to subrounded gravel			
213	75	70-75	Run 2 Box 5	5	100					

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE
								COMPLETE

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-4
PROJECT: El Rodeo School										PAGE 6 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 6 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 288.4 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/9/2012 DATE FINISH: 2/9/2012 DRILLER: Martini PREPARED BY: JMP LOCATION: See Plate 1
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve		
						HORIZONTAL <td>SIZE <td>2.5 I.D.</td> </td>	SIZE <td>2.5 I.D.</td>	2.5 I.D.		
						INCLINED <td>Bit (Feet)</td> <td></td>	Bit (Feet)			
					0	BEARING	Barrel (Feet)	5		
						ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
213	75	75-80	Run 3 Box 5	5	100		@76' to 80': Sandy GRAVEL (GP), grayish brown, subangular to subrounded gravels			
208	80						@80' to 81.5': Upward fining sequence of SAND (SP), grayish brown, wet, very coarse to fine sand			
		80-85	Run 1 Box 6	1.5	30		@81.5' to 85': No Recovery			
203	85						@85' to 90': CLAY (CL), paleosol, reddish brown, moist, few scattered coarse sands, homogeneous, well developed blocky structure, gleying along soil faces			
198	90	85-90	Run 2 Box 6	5	100					




ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS	BEDDING	ATTITUDE AND ANGLE	JOINTS / SHEAR / FRACTURE	WEATHERING
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES	V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120" Fe = Iron Oxide Mn = Manganese Oxide	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-4		
PROJECT: El Rodeo School										PAGE 7 OF 9		
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001		
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 7 of 9		
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 288.4 Feet		
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL			
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	DATE FINISH:	DRILLER:	
						HORIZONTAL	SIZE	2.5 I.D.	2/9/2012	2/9/2012	Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	LOCATION:	See Plate 1	
					0	BEARING	Barrel (Feet)	5				
						ANG. FROM VERT.	Total (Feet)					
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS					
198 90		90-95	Run 3 Box 6	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.					
							@90': Sandy CLAY with Gravel (CL), brown to dark yellowish brown, moist					
							@91': thin gravel layer @91.2': Sandy CLAY with Gravel (CL), brown to dark yellowish brown, moist					
		@92.9' to 93.1': GRAVEL layer (GP) @93.1' to 95': Clayey SAND (SC), dark yellowish brown, moist, fine sand, few fine subrounded to subangular gravels										
193 95		95-100	Run 1 Box 7	5	100		@95.5' to 97.5: Grades to CLAY (CL), dark reddish brown, moist, few scattered coarse sands, well developed blocky structure @97.8': siltstone rock fragments					
							@97.5': Grades to Sandy CLAY (CL), dark yellowish brown, fine sand, isolated 1/2 @97.8': siltstone rock fragments @97.9': Sandy CLAY (CL), dark yellowish brown, fine sand					
188 100		100-105	Run 2 Box 7	5	100		@100' to 100.4': Sandy GRAVEL (GP) @100.4' to 101.2': Sandy CLAY (CL), dark yellowish brown, moist @101.2' to 105': Sandy GRAVELS (GP), grayish brown, wet, fine to coarse sand, fine to coarse subangular to subrounded gravels					
183 105												
FIELD HARDNESS			BEDDING			ATTITUDE AND ANGLE			JOINTS / SHEAR / FRACTURE			WEATHERING
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"		HORIZONTAL (0-5°)			V. CLOSE	<2"		FRESH
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"		SHALLOW OR LOW ANGLE (5-35°)			CLOSE	2"-12"		V. SLIGHT
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"		MODERATELY DIPPING (35-55°)			MOD. CLOSE	12"-36"		SLIGHT
SOFT	- GROVES		THICK	36"-120"		STEEP OR HIGH ANGLE (55-85°)			WIDE	36"-120"		MODERATE
V. SOFT	- CARVES		V. THICK	>120"		VERTICAL (85-90°)			V. WIDE	>120"		MOD. SEVERE
												V. SEVERE
												COMPLETE

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-4
PROJECT: El Rodeo School										PAGE 8 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 8 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 288.4 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/9/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/9/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
183	105	105-110	Run 3 Box 7	2.9	58		@105' to 107.1': No Recovery			
							@107.1' to 109.8': SAND (SP), dark gray brown, wet, fine to coarse sand, upward fining sequence, with siltstone sand sized rock fragments			
178	110	110-115	Run 1 Box 8	5	100		@109.8' to 110': Sandy Clayey GRAVEL (GP-GC), dark gray brown, slightly moist, angular black slate gravels			
							@110' to 110.8': No Recovery			
							@110.8' to 111.5': Sandy CLAY (CL), dark yellowish brown, moist, few fine subangular black slate gravels			
							@111.5' to 113': Grades to Silty SAND (SM), very moist, dark yellowish brown, fine sand			
							@113' to 113.9': Grades to Sandy CLAY (CL), moist, dark yellowish brown			
		@113.9' to 115': Grades to CLAY (CL), dark reddish brown, moist								
173	115	115-120	Run 2 Box 8	2.8	56		@115' to 117.2': No Recovery			
							@117.2' to 117.8': CLAY with Sand and Gravel (CL), dark reddish brown, very moist, some fine sand and very fine gravels			
							@117.8' to 118.7': Grades to Clayey GRAVEL (GC), dark grayish brown, very moist, subangular gravels			
							@118.7' to 120': CLAY with Sand and Gravel (CL), dark reddish brown, moist, some coarse sands and few fine subangular gravels			
168	120									
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
									COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-4
PROJECT: El Rodeo School										PAGE 9 OF 9
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 9 of 9
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 288.4 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 2/9/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 2/9/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: JMP	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
168	120	120-125	Run 3 Box 8	4.1	82		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@120' to 120.9': No Recovery			
							@120.9' to 121.4': Sandy GRAVEL (GP), yellowish brown, very moist to wet, fine subangular gravels			
							@121.4' to 122': CLAY with Sand and Gravel (CL)			
							@122' to 122.5': Gravelly SAND (SP), dark yellow brown, very moist			
							@122.5' to 123.3': Clayey SILT (ML), dark yellow brown, very moist			
							@123.3' to 123.4': Sandy GRAVEL (GP) layer, dark yellow brown, very moist			
		@123.4' to 124': CLAY (CL), dark yellow brown, very moist								
		@124' to 125': Gravelly SAND (SP), dark yellow brown, very moist								
163	125						Total depth of boring: 125' bgs Perched groundwater encountered at approximately 24.5'-25.8', 40'-40.6', 54.5'-55.8', 70'-73', 80'-81.5', 101.2'-105', 107.1'-109.8', 120.9'-121.4' bgs Excavation backfilled with cuttings and patched with asphalt upon completion of drilling. Excess soil cuttings disposed of in D.O.T. approved drums and disposed of offsite.			
158	130									
153	135									
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		SEVERE	
									COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-5
PROJECT: El Rodeo School										PAGE 1 OF 13
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 13
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 294 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 3/26/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/27/2012	
		∇				HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: AWS	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
294	0						The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@Surface: 3" Asphalt concrete @0.25': 3" Aggregate base @0.5': Artificial Fill, undocumented (Afu): Silty SAND (SM), dark yellow brown, slightly moist, fine sand, few fine gravels @1.0': Pleistocene Alluvium of Benedict Canyon Wash (BCW): Silty SAND (SM), orange brown, slightly moist, fine sand, few gravels			
289	5	5-10	Run 1 Box 1	3	60		@5.8' to 6.4': Silty SAND (SM), dark yellow brown, moist, fine sand @6.4' to 7.3': Sandy GRAVEL (GP), dark yellow brown, moist, fine to coarse angular gravels, fine sand matrix, oxidized, highly weathered @7.3' to 8.0': Sandy SILT (ML), dark yellow brown, moist, fine sand @8' to 10': No Recovery			
284	10	10-15	Run 2 Box 1	5	100		@10' to 11.1': SAND (SP), orange brown, slightly moist, fine to medium sand, few fine black slate gravels @11.1' to 12.3': Silty CLAY (CL-ML), strong brown, moist, few fine black slate gravels @12.3' to 15': CLAY (CL), strong brown to gray brown, moist, few fine gravels			
279	15									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-5
PROJECT: El Rodeo School										PAGE 2 OF 13
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 13
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 294 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 3/26/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/27/2012	
		√				HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: AWS	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
279 15		15-20	Run 3 Box 1	5	100	•••••	The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
						@15' to 17': Gravelly SAND (SP), strong brown to gray brown, slightly moist, fine sand, fine to coarse angular black slate gravels				
						@17': CLAY (CL), orange brown to gray brown, moist, blocky structure, oxidized, gleyed				
						○	@17.7': Thin GRAVEL (GP) bed			
						/ / / / /	@17.9': CLAY (CL), orange brown to gray brown, moist, blocky structure, oxidized, gleyed			
274 20		20-25	Run 1 Box 2	5	100	/ / / / /	@19.7': Some SAND (SP)			
						@19.8': CLAY (CL), orange brown to gray brown, moist, blocky structure, oxidized, gleyed				
						@20' to 20.4': Clayey SILT (ML) with sand, dark yellow, moist, paleosol, fine grained, blocky to columnar structure, minor gleying along pedogenic faces				
						@20.4' to 23.5': Silty CLAY (CL), dark yellow brown to gray brown, blocky structure, Manganese Oxide on pedogenic faces				
						/ / / / /	@23.5' to 24.5': Sandy CLAY (CL), dark yellow brown to gray brown, fine sand			
269 25		25-30	Run 2 Box 2	4.2	84	○	@24.7' to 25.4': Sandy SILT (ML), moderate brown, moist, fine sand, few fine subrounded black slate gravels			
						@25.4' to 27.7': Sandy GRAVEL (GP), gray brown, slightly moist, fine to coarse sand, fine to coarse rounded and weathered black slate and siltstone gravels, erosive contact below				
						@27.7' to 29.2': Sandy CLAY (CL), moderate brown to gray brown, very moist, few gravels, fine sand, oxidized, gleyed				
264 30						/ / / / /	@29.2' to 30': No Recovery			
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
									COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-5
PROJECT: El Rodeo School										PAGE 3 OF 13
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 13
EQUIPMENT USED: CME-75, Continous Core										ELEVATION: 294 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 3/26/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/27/2012	
		▽				HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: AWS	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
264 30		30-35	Run 3 Box 2	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
						@30' to 30.9': Silty CLAY (CL), laminated dark yellow brown to chocolate brown, moist to very moist, base of developed soil				
						@30.9' to 32.1': Clayey SAND (SC), dark reddish brown to brown, moist, fine sand				
							@32.1': Sandy Clayey GRAVEL (GC-GP), dark gray brown, moist, fine to coarse angular to subangular black slate gravels			
							@34': Basal gravel contact, heavily oxidized, severely weathered, erosive contact below			
259 35		35-40	Run 1 Box 3	5	100		@34.2': Sandy CLAY (CL) to Clayey GRAVEL (GC) to 36.3'			
						@36.3' to 43.2': CLAY to Sandy CLAY (CL), dark yellow brown to gray brown, moist, coarse sand, paleosol				
						@37.2' to 37.8': Increased sand				
							@38.6' to 39': Specks of MnO deposits in clay-rich zones			
254 40		40-45	Run 2 Box 3	5	100		@43.2': Basal gravel bed with carbonate, erosive contact below			
						@43.2' to 43.4': Clayey SAND (SC), gray brown, moist, coarse sand				
						@43.4' to 43.7': CLAY (CL), dark yellow brown to gray brown, moist, trace fine sand				
							@43.7' to 44.3': Sandy Clayey SILT (ML), dark yellow brown, moist, fine sand			
249 45							@44.3 to 44.7': Sandy Silty CLAY (CL), Paleosol, dark yellow brown to gray			
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
									COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***


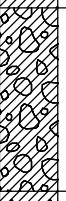




LEIGHTON

CORE BORING LOG										BORING NO. CB-5		
PROJECT: El Rodeo School										PAGE 4 OF 13		
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001		
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 13		
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 294 Feet		
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 3/26/2012		
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/27/2012			
		√				HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini			
						INCLINED	Bit (Feet)		PREPARED BY: AWS			
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1			
					0	ANG. FROM VERT.	Total (Feet)					
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS						
						The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.						
249	45	Run 3 Box 3	5	100		brown, moist, trace of fine sand and clay laminations, siltstone rock fragments, poorly developed blocky fracture, gleying along pedogenic faces @44.7' to 45.8': Sandy SILT (ML), dark yellow brown to reddish brown, moist, fine sand @45.8' to 46.2': CLAY (CL), dark yellow brown to gray brown, moist @46.2' to 46.5': SAND (SP), orange brown, moist, fine sand @46.5' to 46.8': CLAY (CL), gray brown, moist, few fine gravels @46.8': Clayey Gravelly SAND (SP), dark orange brown, moist, fine to medium sand, fine black slate gravels, heavily oxidized contact with manganese oxide on gravels and sand grains @47.8': Pleistocene Cheviot Hills Deposits (CHD): CLAY (CL), orange brown to gray brown and dark brown between 48.2' to 49', moist, few fine black slate gravels, oxidation-reduction banding, gleyed, oxidized, banded between 49' to 55', heavy manganese oxide on well developed pedogenic faces, oxidized @49.5': Siltstone line						
244	50				Run 1 Box 4	5	100		@49.6': CLAY (CL), orange brown to gray brown and dark brown between 48.2' to 49', moist, few fine black slate gravels, oxidation-reduction banding, gleyed, oxidized, banded between 49' to 55', heavy manganese oxide on well developed pedogenic faces, oxidized @52.9' to 53.2': Sandy CLAY (CL), with 2-inch slaty gravels @53'-53.2': Siltstone rockline, heavily weathered Sandy CLAY (CL) below, oxidized with manganese oxide and clay on faces @53.2': Sandy CLAY (CL)			
239	55							Run 2 Box 4	5	100		@56.0' to 61.5': Sandy CLAY (CL), color change to dark reddish brown, moist, fine to medium sand, few coarse white siltstone gravels (light yellow brown to gray) @ 59', 59.8', and 60.4', well-developed blocky structure @58': 1-foot thick yellow and chocolate brown clay with siltstone rockline at 59' @59': Siltstone rockline @59.1': CLAY (CL), chocolate brown @59.5': Siltstone rock fragments, in sandy clay matrix, manganese oxide and
234	60											
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING				
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH				
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT				
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT				
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE				
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE				
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE				
								COMPLETE				

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16




LEIGHTON

CORE BORING LOG										BORING NO. CB-5
PROJECT: El Rodeo School										PAGE 5 OF 13
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 13
EQUIPMENT USED: CME-75, Continous Core										ELEVATION: 294 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 3/26/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/27/2012	
		√				HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: AWS	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG					
234 60	60-65	Run 3 Box 4	4.5	90		oxidation on pedogenic faces				
						@61.5' to 62.1': Silty CLAY (CL), moderate brown to gray brown, moist				
						@62.1' to 64.3': Sandy Gravelly CLAY (CL), moderate brown, moist, fine to coarse subrounded to angular gravels, scattered				
						@63.4': carbonate and siltstone cobble				
						@64.3' to 64.5': Clayey SAND (SC), brown, moist, fine sand, basal well rounded coarse gravel				
229 65	65-70	Run 1 Box 5	4.6	92		@64.5' to 65': No Recovery				
					@65' to 66.6': Silty CLAY (CL), dark yellow brown, moist, few very fine gravels					
					@66.6' to 68': Sandy Gravelly CLAY (CL), dark yellow brown, moist, subrounded to subangular gravels					
						@68' to 69.6': Becomes more heavily gleyed and dark reddish brown				
						@69.6' to 70': No Recovery				
224 70	70-75	Run 2 Box 5	5	100		@70' to 74.1': Sandy CLAY (CL), dark yellow brown, moist, fine sand, few very fine black slate gravels scattered, minor calcium carbonate				
										@74.2'-74.7': Well rounded siltstone gravel bed, erosive contact below
219 75						@74.1' to 75': Gravelly Silty SAND (SM), dark yellow brown, moist, fine to				
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-5
PROJECT: El Rodeo School										PAGE 6 OF 13
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 6 of 13
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 294 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 3/26/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/27/2012	
		∇				HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: AWS	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
219 75		75-80	Run 3 Box 5	5	100	[Diagonal Hatching]	The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
						@75' to 76.8': Silty Gravelly CLAY (CL), dark yellow brown, moist, some fine to coarse subangular black slate gravels				
						[Diagonal Hatching]	@76.8': Clayey Gravelly SILT (ML), dark yellow brown, moist, few fine subangular to subrounded black slate gravels			
						[Diagonal Hatching]	@78.6': Siltstone rounded basal cobble			
214 80		80-85	Run 1 Box 6	5	100	[Diagonal Hatching]	@79' to 81.6': Silty CLAY (CL), brown, moist, few very fine black slate gravels, lined with carbonate			
						@81.6' to 85': Sandy GRAVEL (GP), gray brown, very moist, fine to coarse sand matrix, fine to coarse subangular to subrounded black slate gravels, few light brown siltstone gravels, basal coarse gravel at 85'				
209 85		85-90	Run 2 Box 6	5	100	[Diagonal Hatching]	@85' to 86': Clayey SILT (ML), dark yellow brown, moist, trace fine sand			
						@86' to 87.3': Sandy CLAY (CL), strong brown, moist, scattered fine to medium sand, paleosol, coarse gravels at base, rounded, erosive contact below				
						@87.3' to 89.2': CLAY (CL), strong brown, moist, very homogenous and plastic, fine gravel with carbonate, blocky structure, minor laminations and oxidation-reduction banding				
204 90						@89.2' to 90.3': Gravelly CLAY (CL), strong brown, moist, fine to coarse angular to subangular slaty, siltstone, and basalt, siltstone and slaty gravels				
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		SEVERE	
									COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-5	
PROJECT: El Rodeo School										PAGE 7 OF 13	
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 7 of 13	
EQUIPMENT USED: CME-75, Continous Core										ELEVATION: 294 Feet	
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 3/26/2012	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/27/2012		
		∇				HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini		
						INCLINED	Bit (Feet)		PREPARED BY: AWS		
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1		
					0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)		SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
204 90		90-95		Run 3 Box 6	5	100	[Hatched Pattern]	@90.3' to 92.5': Clayey Gravelly SILT (ML), dark yellow brown, moist, some fine coarse subangular black slate gravels @ 92.5'			
199 95							[Dotted Pattern]				@92.5' to 94.2': Sandy CLAY (CL), dark yellow brown, moist, fine sand, few fine subangular gravels @93.5 Silstone rock line @94.2' to 95': Gravelly SAND (SP), gray brown, very moist to wet with some siltstone and slaty gravels, well graded
194 100							[Dotted Pattern]				
189 105		[Dotted Pattern]									
199 95		95-100		Run 1 Box 7	5	100	[Hatched Pattern]	@95' to 95.4': CLAY (CL), dark yellow to strong brown, moist @95.4' to 95.6': No Recovery @95.6' to 97.5': Sandy Gravel (GP), gray brown, very moist, fine to coarse subrounded to subangular gravels, pulses of thin beds of gravels			
194 100							[Dotted Pattern]				
189 105							[Dotted Pattern]				
194 100		100-105		Run 2 Box 7	5	100	[Hatched Pattern]	@97.5' to 98.4': Silty SAND (SM), dark yellow brown, moist, fine sand @98.4' to 99.2': Sandy GRAVEL (GP), gray brown, very moist, fine subangular black slate gravels, basal gravel, erosive contact below @99.2' to 100.9': CLAY (CL), dark yellow brown, moist, very fine sand			
189 105							[Dotted Pattern]				
184 110							[Dotted Pattern]				
189 105		100-105		Run 2 Box 7	5	100	[Hatched Pattern]	@100.9' to 101.7': Gravelly SAND (SP), dark yellow brown, moist, fine subangular gravels, some clay @101.7' to 103.4': Sandy Gravel (GP), gray brown, very moist to wet, fine to coarse subangular gravels, slate, siltstone, and basalt, erosive contact below @103.4' to 107': CLAY (CL), dark yellow brown, moist @104': Thin gravel layer @104.2': CLAY (CL), dark yellow brown, moist			
184 110							[Dotted Pattern]				
179 115							[Dotted Pattern]				

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS	BEDDING	ATTITUDE AND ANGLE	JOINTS / SHEAR / FRACTURE	WEATHERING
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES	V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120" Fe = Iron Oxide Mn = Manganese Oxide	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-5
PROJECT: El Rodeo School										PAGE 8 OF 13
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 8 of 13
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 294 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 3/26/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/27/2012	
		√				HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: AWS	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
189	105	105-110	Run 3 Box 7	5	100		@105': Thin gravel layer			
							@105.2': CLAY (CL), dark yellow brown, moist			
							@106.5': oxidation laminations			
							@107' to 108.6': Sandy GRAVEL (GP), gray brown, very moist, fine to medium sand, fine black slate gravels with a few coarse gravels, some clay, erosive contact below			
							@108.6': CLAY (CL), dark yellow brown, moist, some fine sand, few very fine gravels, maganese oxide staining			
							@108.9'-109.8': Sandy CLAY (CL), oxidation laminations			
184	110	110-115	Run 1 Box 8	5	100		@109.8'-110': CLAY (CL), yellow brown			
							@110' to 111.3': Sandy GRAVEL (GP), gray brown, very moist to wet			
							@111.3' to 113': SILT (ML), dark yellow brown, very moist, very fine sand, trace of very fine gravels			
							@113' to 113.9': Sandy GRAVEL (GP), gray brown, very moist to wet, fine to coarse sand, fine angular black slate gravels			
							@113.9' to 115': No Recovery			
179	115	115-120	Run 2 Box 8	2.5	50		@115' to 116.5': Sandy GRAVEL (GP), gray brown, very moist, fine to coarse sand, fine subangular gravels, erosive contact below			
							@116.5' to 117.5': Clayey GRAVEL (GC), dark yellow brown to gray brown, moist, fine subangular to angular gravels, basal coarse gravel and small cobbles			
							@117.5' to 120': No Recovery			
174	120									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD HARD MOD. HARD SOFT V. SOFT	- KNIFE CAN'T SCRATCH - SCRATCHES DIFFICULT - SCRATCHES EASILY - GROVES - CARVES	V. THIN THIN MEDIUM THICK V. THICK	<2" 2"-12" 12"-36" 36"-120" >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE CLOSE MOD. CLOSE WIDE V. WIDE	<2" 2"-12" 12"-36" 36"-120" >120"	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE			
Fe = Iron Oxide Mn = Manganese Oxide										

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

***** This log is a part of a report by Leighton and should not be used as a stand-alone document. *****

LEIGHTON


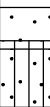

CORE BORING LOG										BORING NO. CB-5	
PROJECT: El Rodeo School										PAGE 9 OF 13	
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 9 of 13	
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 294 Feet	
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 3/26/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/27/2012		
		▽				HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini		
						INCLINED	Bit (Feet)		PREPARED BY: AWS		
					0	BEARING	Barrel (Feet)	5	LOCATION: See Plate 1		
						ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
174 120		120-125	Run 3 Box 8	1.5	30	• • •	@120' to 121.5': SAND (SP), fine to coarse sand, gray brown				
						@121.5' to 125': No Recovery					
169 125		125-130	Run 1 Box 9	3.3	66	• • •	@125' to 125.4': SAND (SP), gray brown, wet, fine to coarse (possible heaved material)				
						@125.4' to 128.3': CLAY (CL), dark yellow brown to strong brown					
						@126': gray, few scattered very fine gravel, mottled with fine sand, poor blocky structure, oxidation banding, laminated					
		@128.3'-130': No Recovery									
164 130		130-135	Run 2 Box 9	0.9	18	Δ Δ Δ	@130' to 130.9': Gravelly SAND (SW), gray brown, wet, fine to coarse sand, fine to coarse gravel, some clay				
						@130.9' to 135': No Recovery					
159 135											
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
									V. SEVERE		
									COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***


LEIGHTON

CORE BORING LOG										BORING NO. CB-5	
PROJECT: El Rodeo School										PAGE 10 OF 13	
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 10 of 13	
EQUIPMENT USED: CME-75, Continous Core										ELEVATION: 294 Feet	
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL		
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	DATE FINISH:	DRILLER:
		√				HORIZONTAL	SIZE	2.5 I.D.	3/26/2012	3/27/2012	Martini
						INCLINED	Bit (Feet)		PREPARED BY: AWS	LOCATION: See Plate 1	
					0	BEARING	Barrel (Feet)	5			
						ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
159 135		135-140	Run 3 Box 9	4	80		@135' to 136.7': CLAY (CL), yellow brown, moist, some silt				
							@136.7' to 137.9': Sandy Gravelly CLAY (CL), yellow brown, moist, some fine angular gravels, dark brown 0.5" thick silty sand clay bed @137'				
							@137.9' to 139': Sandy GRAVEL (GP), gray brown, wet, fine to coarse angular black slate gravels, fine to coarse sand				
							@139' to 140': No Recovery				
154 140		140-145	Run 1 Box 10	4.6	92		@140' to 140.4': SAND (SP), brown, wet, medium to coarse sand				
							@140.4' to 140.5': Silty SAND (SM) with clay, brown, wet, fine sand				
							@140.5' to 141.2': Silty SAND (SM), brown, wet, fine sand, fine subangular gravel				
							@141.2' to 142': Sandy CLAY (CL), orangish olive, wet, fine sand, oxide staining, fine subangular black slate gravel				
							@142' to 142.7': Sandy CLAY (CL), orangish brown, wet, fine sand, oxide staining				
							@142.7' to 143.5': Sandy CLAY (CL), dark brown, wet, fine sand, Mn nodules, subangular pebbles				
149 145		145-150	Run 2 Box 10	4.4	88		@143.5': Clayey SAND (SC), brownish dark gray, wet, fine sand, MnO nodules, oxide staining, vertical carbonate stringers @143.75' to 143.85', MnO band @contact with below				
							@144.5' to 144.6': Clayey SAND (SC), orangish olive, very moist, fine sand, oxide staining, few angular coarse sand				
							@144.6' to 145': No Recovery				
							@145' to 145.3': Clayey SAND (SC), orangish brown, wet, fine sand, subangular black slate pebbles				
							@145.3' to 146': Clayey SAND to Sandy CLAY (SC-CL), orangish olive, wet, fine sand, oxide staining, highly weathered angular gravels and pebbles				
							@146' to 148.5': Sandy CLAY (CL), mottled orange brown to olive, very moist to wet, fine sand, oxide staining, MnO banding, subangular to angular fine gravel				
144 150		@148.5' to 149.1': CLAY (CL), mottled orange to olive, wet, oxide staining									
		@149.1' to 149.4': Clayey SAND (SC), mottled orange brown to olive, wet, fine with few coarse sand									
		@149.4' to 150': No Recovery									
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
									COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-5
PROJECT: El Rodeo School										PAGE 11 OF 13
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 11 of 13
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 294 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 3/26/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/27/2012	
		√				HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: AWS	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
144	150	150-155	Run 3 Box 10	5	100		@150' to 150.6': Clayey SAND (SC), mottled orangish to olive, wet, fine sand, oxide staining, few coarse sand			
						@150.6' to 153.2': Sandy CLAY (CL), mottled orange to olive, wet, very fine sand, oxide staining, MnO nodules, with carbonate, with siltstone clasts				
						@151': gleyed, oxidation-reduction banded, MnO				
							@153.2' to 153.7': CLAY (CL), mottled orangish to olive, wet, oxide staining, MnO nodules			
							@153.7' to 153.85': CLAY (CL), mottled orangish to olive, wet, oxide staining, MnO nodules, subangular pebbles			
139	155	155-160	Run 1 Box 11	5	100		@153.85' to 155.8': CLAY (CL), mottled orangish to dark olive, wet, oxide staining, MnO nodules			
							@155.8' to 157.35': Sandy CLAY (CL), mottled orangish to dark olive, wet, fine sand, oxide staining			
							@157.35' to 158.1': CLAY (CL), mottled orangish gray, wet, oxide staining, heavy carbonate stringer development, near vertical, paleosol			
							@158.1' to 158.6': CLAY (CL), mottled brown gray, wet, oxide staining, MnO nodules, vertical carbonate stringers			
							@158.6' to 159.3': CLAY (CL), brown, wet, vertical carbonate stringers			
							@159.3' to 159.6': CLAY (CL), brown, wet, MnO nodules, horizontal and vertical carbonate stringers and nodules			
134	160	160-165	Run 2 Box 11	5	100		@159.6' to 160.6': Clayey SAND (SC), brown, wet, fine sand, angular fine gravel, carbonate nodules			
							@160.6' to 160.75': angular gravel layer within unit			
							@160.75' to 162.6': Clayey SAND (SC), orangish olive, wet, fine angular pebbles, with some MnO and carbonate nodules			
							@162.2' to 162.3': MnO banding			
							@162.6' to 165': Sandy CLAY (CL), brown, wet, very fine sand, abundant carbonate nodules			
129	165									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***


LEIGHTON

CORE BORING LOG										BORING NO. CB-5
PROJECT: El Rodeo School										PAGE 12 OF 13
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 12 of 13
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 294 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 3/26/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/27/2012	
		√				HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: AWS	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
						The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
129 165	165-170	Run 3 Box 11	5	100	[Hatched Pattern]	@165' to 165.7': Sandy CLAY (CL), brown, wet, fine sand, fine subangular gravel, carbonate nodules				
					[Hatched Pattern]	@165.7' to 166': Sandy CLAY (CL), olive brown, wet, very fine sand, MnO nodules, carbonate nodules				
					[Hatched Pattern]	@166' to 166.7': CLAY (CL), olive, wet, MnO banding				
					[Hatched Pattern]	@166.2' to 166.4': Sandy CLAY (CL), olive brown, wet, very fine sand				
					[Hatched Pattern]	@166.4' to 166.5': SAND (SP), brown, wet, fine sand, poorly sorted				
					[Hatched Pattern]	@166.5' to 166.9': Clayey SAND (SC), brown, wet, very fine sand, MnO nodules, carbonate nodules				
					[Hatched Pattern]	@166.9' to 167': CLAY (CL), brown, wet, MnO nodules, carbonate nodules				
					[Hatched Pattern]	@167' to 167.2': CLAY (CL), olive, wet, MnO nodules, carbonate nodules				
					[Hatched Pattern]	@167.2' to 167.25': SAND (SP), olive, wet, fine sand, poorly sorted				
					[Hatched Pattern]	@167.25' to 167.4': Sandy CLAY (CL), dark olive, wet, MnO nodules, carbonate nodules				
124 170	170-175	Run 1 Box 12	3	60	[Dotted Pattern]	@167.4' to 168.15': CLAY (CL), olive, wet, carbonate nodules				
					[Dotted Pattern]	@168.15' to 168.5': CLAY (CL), mottled brown olive, wet, MnO nodules and carbonate nodules prevalent				
					[Dotted Pattern]	@168.5' Quaternary San Pedro Formation (Qsp): Sandy CLAY (CL), dark gray, wet, fine to medium sand				
					[Dotted Pattern]	@168.6': Clayey SAND (SC), dark gray, wet, fine to medium sand				
					[Dotted Pattern]	@169.5' to 170': SAND (SP), dark gray, wet, fine to medium sand				
					[Dotted Pattern]	@170' to 170.75': Clayey SAND (SC), gray brown, wet, fine sand, fine subrounded gravel				
					[Dotted Pattern]	@170.75' to 170.85': Silty SAND (SM), gray olive, wet, fine sand, MnO nodules				
					[Dotted Pattern]	@170.85' to 171.9': CLAY (CL) with sand, gray to olive, wet, fine sand, MnO nodules, few fine subrounded gravel				
					[Dotted Pattern]	@171.9' to 172.8': Silty SAND (SM), dark olive gray, wet, fine sand				
					[Dotted Pattern]	@172.8' to 173': Silty SAND (SM), dark gray, wet, fine sand, oxide staining				
119 175	175-180	Run 2 Box 12	1.1	22	[Dotted Pattern]	@173' to 175': No Recovery				
					[Dotted Pattern]	@175' to 175.85': Silty SAND (SM), dark gray, wet, fine sand, fine subrounded gravel				
					[Dotted Pattern]	@175.85' to 176.1': CLAY (CL), marl, dark gray, wet, MnO nodules, carbonate nodules				
114 180					[Dotted Pattern]	@176.1' to 180': No Recovery				
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
								V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-5
PROJECT: El Rodeo School										PAGE 13 OF 13
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 13 of 13
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 294 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 3/26/2012 DATE FINISH: 3/27/2012 DRILLER: Martini PREPARED BY: AWS LOCATION: See Plate 1
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve		
		∇				HORIZONTAL	SIZE	2.5 I.D.		
						INCLINED	Bit (Feet)			
					0	BEARING	Barrel (Feet)	5		
						ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
114	180	180-185	Run 3 Box 12	5	100		@180' to 181.5': Silty SAND (SM), dark gray, wet, fine sand, massive, unconsolidated @181.5' to 183.8': CLAY (CL), dark gray, wet, with carbonate nodules that increase with depth @183.8' to 184': Silty SAND (SM), brownish dark gray, wet, fine to very fine sand, MnO banding @184' to 185': CLAY (CL), mottled orange to olive, wet, carbonate stringers and nodules, paleosol @184.4' to 184.65': Silty SAND (SM), olive dark gray, wet, very fine sand, MnO nodules, micaceous @184.65' to 184.85': CLAY (CL), dark olive, wet, MnO nodules @184.85' to 185': CLAY (CL), dark gray, wet			
109	185					Total depth of boring: 185' bgs Perched groundwater encountered at approximately 94.2-95', 101.7-103.4', 110'-111.3', 113'-113.9', 125'-125.4', 130'-130.9', 137.9'-185' bgs Excavation backfilled with cuttings and patched with asphalt upon completion of drilling. Excess soil cuttings disposed of in D.O.T. approved drums and disposed of offsite.				
104	190									
99	195									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
								V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-6
PROJECT: El Rodeo School										PAGE 1 OF 11
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 11
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 305 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 3/28/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/29/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: AWS	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
305 0						[REDACTED]	@Surface: Asphalt concrete @0.4': Artificial Fill, undocumented (Afu): Silty SAND (SM), light brown, moist, fine to medium sand with angular gravel			
300 5						[REDACTED]	@5' to 5.8': Silty SAND (SM), brown, moist, fine to medium sand, clay, pipe fragments, rebar debris @5.8': Pleistocene Alluvium of Benedict Canyon Wash (BCW₂): Silty SAND (SM), gray brown, moist, fine to medium sand, fine and coarse subangular gravel			
		5-10	Run 1 Box 1	4	80	[REDACTED]	@7.3' to 7.65': Clayey SAND (SC), gray brown, moist, fine sand, fine and coarse subrounded gravels @7.65'- 8': Gravelly SAND (SP), gray brown, moist, fine sand, fine subangular black slaty gravel @8' to 9': Sandy CLAY (CL), orange brown, moist, fine sand, fine subrounded gravel @9' to 10': No Recovery			
295 10						[REDACTED]	@10' to 11': Sandy CLAY (CL), orange brown, moist, fine sand, oxide staining, fine subangular black slate gravel @11': Sandy CLAY (CL), mottled orange olive, moist, very fine sand, oxide staining			
		10-15	Run 2 Box 1	4.4	88	[REDACTED]	@12.1' to 14.1': Gravelly SAND (SP), orange brown, moist, fine sand, fine and coarse subrounded to subangular black slate gravel, well graded @14.1' to 14.4': Silty SAND (SM), orange brown, moist, fine sand @14.4' to 15': No Recovery			
290 15						[REDACTED]				
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
									COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-6
PROJECT: El Rodeo School										PAGE 2 OF 11
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 11
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 305 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	3/28/2012
						HORIZONTAL	SIZE	2.5 I.D.	DATE FINISH:	3/29/2012
						INCLINED	Bit (Feet)		DRILLER:	Martini
						BEARING	Barrel (Feet)	5	PREPARED BY:	AWS
					0	ANG. FROM VERT.	Total (Feet)		LOCATION:	See Plate 1
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
290	15	15-20	Run 3 Box 1	2.6	52		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@15' to 17.3': Silty SAND (SM) with clay, orange brown, moist, fine sand with interbedded layers of clay (~1/2" thick), olive, moist @17.3' to 17.6': Silty SAND (SM), dark brown, moist, fine to medium sand, subangular gravel, hydrocarbon odor @17.6' to 20': No Recovery			
285	20	20-25	Run 1 Box 2	3.7	74		@20' to 23': Gravelly SAND (SP), dark gray, moist, fine to medium sand, fine and coarse subangular to subrounded gravel, hydrocarbon odor and residue on material @23' to 23.7': Gravelly SAND (SP), orange gray, moist, fine to medium sand, fine and coarse subangular to subrounded gravel, hydrocarbon odor @23.7' to 25': No Recovery			
							@25' to 27.5': Sandy GRAVEL (GP), orange dark gray, wet, fine to medium sand, fine and coarse subangular to subrounded gravel, hydrocarbon odor, well graded, erosive contact below @27.2': Basal cobbles @27.5': CLAY (CL), mottled orange brown to olive brown, moist, oxide staining, gleyed, blocky structure, paleosol @29.3' to 30': No Recovery			
280	25	25-30	Run 2 Box 2	4.3	86					
275	30									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								V. SEVERE		
								COMPLETE		
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16


LEIGHTON

CORE BORING LOG										BORING NO. CB-6		
PROJECT: El Rodeo School										PAGE 3 OF 11		
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001		
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 11		
EQUIPMENT USED: CME-75, Continous Core										ELEVATION: 305 Feet		
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL			
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	DATE FINISH:	DRILLER:	
						HORIZONTAL	SIZE	2.5 I.D.	3/28/2012	3/29/2012	Martini	
						INCLINED	Bit (Feet)		PREPARED BY: AWS	LOCATION: See Plate 1		
					0	ANG. FROM VERT.	Barrel (Feet)	5				
							Total (Feet)					
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS					
275 30		30-35	Run 3 Box 2	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.					
							@30': CLAY (CL), mottled olive to red brown, moist, oxide staining, few fine subangular black slate gravel, well developed blocky fracture, gleying along soil facies, paleosol					
							@32.6' to 34.5': Clayey SAND to Sandy CLAY (SC-CL), orange, moist, fine sand, fine subangular black slate gravel, with olive clay laminations					
270 35		35-40	Run 1 Box 3	5	100		@34.5' to 35': Sandy CLAY (CL), orange brown, fine sand					
							@35' to 35.7': Silty SAND (SM), red brown, wet, medium sand					
							@35.7' to 36.5': Sandy CLAY (CL), orange brown, very moist, fine sand, few subangular siltstone fragments, @36.6' base of paleosol					
							@36.5' to 38': Clayey SAND (SC), orange brown, very moist, fine sand with highly weathered angular gravels and fine subangular black slate gravel					
		40-45	Run 2 Box 3	4.1	82		@38' to 40': CLAY (CL), chocolate brown, very moist, few subangular black slate gravel, well developed blocky structure					
265 40							@40' to 42.7': Gravelly SAND (SP), grayish brown, wet, subangular gravel, erosive contact below					
							Pleistocene Cheviot Hills Deposits (CHD):					
		@42.7' to 43.3': Silty SAND (SM) with clay, brown, wet, very fine sand, subrounded gravel, oxidized sand with MnO										
		@43.3' to 44.1': Gravelly SAND (SP), gray brown, wet, fine subangular gravel, well graded										
		@44.1' to 45': No Recovery										
260 45												
FIELD HARDNESS			BEDDING			ATTITUDE AND ANGLE			JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"		HORIZONTAL (0-5°)			V. CLOSE	<2"		FRESH
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"		SHALLOW OR LOW ANGLE (5-35°)			CLOSE	2"-12"		V. SLIGHT
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"		MODERATELY DIPPING (35-55°)			MOD. CLOSE	12"-36"		SLIGHT
SOFT	- GROVES		THICK	36"-120"		STEEP OR HIGH ANGLE (55-85°)			WIDE	36"-120"		MODERATE
V. SOFT	- CARVES		V. THICK	>120"		VERTICAL (85-90°)			V. WIDE	>120"		MOD. SEVERE
									Fe = Iron Oxide Mn = Manganese Oxide		COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16




LEIGHTON

CORE BORING LOG										BORING NO. CB-6					
PROJECT: El Rodeo School										PAGE 4 OF 11					
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001					
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 11					
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 305 Feet					
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL						
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	DATE FINISH:	DRILLER:				
						HORIZONTAL	SIZE	2.5 I.D.	3/28/2012	3/29/2012	Martini				
						INCLINED	Bit (Feet)		PREPARED BY: AWS	LOCATION: See Plate 1					
					0	ANG. FROM VERT.	Barrel (Feet)	5							
							Total (Feet)								
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS								
260 45		45-50	Run 3 Box 3	1.3	26	•••••	@45' to 45.7': SAND (SP), gray brown, wet, medium sand, poorly sorted								
						•••••	@45.7' to 46.1': SAND (SP), gray brown, wet, coarse sand, poorly sorted								
						•••••	@46.1' to 46.3': Gravelly SAND (SP), gray brown, wet, coarse sand, poorly sorted, fine and coarse subangular gravel, well graded								
						•••••	@46.3' to 50': No Recovery								
255 50		50-55	Run 1 Box 4	1.5	30	•••••	@50' to 50.9': SAND (SP), gray brown, wet, medium sand, poorly sorted								
						•••••	@50.9' to 51.2': Gravelly SAND (SP), gray brown, wet, coarse sand, poorly sorted, subangular gravel, well graded								
						•••••	@51.2' to 51.5': CLAY (CL), orange brown, very moist to wet, angular black slate gravel								
						•••••	@51.5' to 55': No Recovery								
250 55		55-60	Run 2 Box 4	3.8	76	•••••	@55' to 55.7': Gravelly SAND (SW), dark gray brown, wet, medium to coarse sand, subangular gravel								
						•••••	@55.7' to 56.3': CLAY (CL), orange brown, wet, subangular gravels, poorly developed blocky fracture								
						•••••	@56.3' to 56.7': Silty SAND (SM), red brown, wet, fine sand, oxide staining, few subangular gravel								
						•••••	@56.7' to 58.8': Gravelly SAND (SP), dark grayish orange, wet, fine sand, fine subrounded to angular black slate gravel								
245 60		@58.8' to 60': No Recovery													
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING						
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH						
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT						
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT						
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE						
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE						
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE						
									COMPLETE						

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-6
PROJECT: El Rodeo School										PAGE 5 OF 11
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 11
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 305 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 3/28/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/29/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: AWS	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
245	60	60-65	Run 3 Box 4	2.8	56	• • •	@60' to 60.5': SAND (SP), dark gray brown, wet, fine to coarse sand, subangular black slate gravel			
						/ / /	@60.5' to 61.4': CLAY (CL), dark red brown, wet subangular black slate gravel			
						Δ Δ Δ	@61.4' to 61.8': Gravelly SAND (SW), dark gray brown, wet fine sand, subangular black slate gravel			
						• • •	@61.8' to 62.15': Silty SAND (SM), dark red brown, wet, fine sand			
						/ / /	@62.15' to 62.3': SAND (SP), dark gray brown, wet, fine to medium sand, subangular black slate gravel			
						Δ Δ Δ	@62.3' to 62.5': Sandy CLAY (CL), dark red brown, wet, fine to very fine sand			
						• • •	@62.5' to 62.8': Gravelly SAND (SW), dark gray red brown, wet, fine sand, angular to subangular gravel			
						/ / /	@62.8' to 65': No Recovery			
240	65	65-70	Run 1 Box 5	4.7	94	/ / /	@65' to 65.4': CLAY (CL), olive brown, wet			
						• • •	@65.4' to 65.8': Sandy CLAY (CL), olive, wet, very fine sand			
						Δ Δ Δ	@65.8' to 66': Silty SAND (SM), olive, wet, fine sand			
						/ / /	@66' to 66.3': Sandy CLAY (CL), olive, wet, very fine sand			
						• • •	@66.3' to 66.5': Silty SAND (SM), red brown, wet, fine sand			
						/ / /	@66.5' to 67.3': Sandy CLAY (CL), red olive, wet, very fine sand			
						Δ Δ Δ	@67.3' to 68.3': CLAY (CL), chocolate brown, wet, oxide staining, MnO nodules			
						• • •	@68.3' to 68.6': CLAY (CL), brown, wet, subangular slaty gravel			
						/ / /	@68.6' to 69': Silty SAND (SM), orange olive, wet, very fine sand			
						• • •	@69' to 69.7': CLAY (CL), olive, wet with brown banding			
235	70	70-75	Run 2 Box 5	4.4	88	/ / /	@69.7' to 70': No Recovery			
						• • •	@70' to 70.9': Sandy CLAY (CL), orange olive, wet, fine to very fine sand			
						Δ Δ Δ	@70.9' to 72': Gravelly SAND (SW) with clay, dark gray brown, wet, fine to medium sand, subangular black slate gravel and subrounded gravel			
						/ / /	@72' to 72.55': CLAY (CL), olive brown, wet			
						• • •	@72.55' to 73.15': Silty SAND (SM), orange brown, wet, fine to very fine sand			
						/ / /	@73.15' to 73.5': Sandy CLAY (CL), dark brown, wet, very fine sand, subangular black slate gravel			
		Δ Δ Δ	@73.5' to 74.3': Silty SAND (SM), orange brown, wet, fine sand, subangular black slate gravel							
						• • •	@74.3' to 74.4': Gravelly SAND (SW), dark gray brown, wet, subangular gravel			
						/ / /	@74.4' to 75'- No Recovery			
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-6
PROJECT: El Rodeo School										PAGE 6 OF 11
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 6 of 11
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 305 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 3/28/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/29/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: AWS	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
230 75		75-80	Run 3 Box 5	1.7	34		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@75' to 76.7': Sity SAND (SM), dark gray brown, wet, fine to medium sand, few subangular gravel, "Salt and Pepper" sands			
		@76.7' to 80': No Recovery								
225 80		80-85	Run 1 Box 6	5	100		@80' to 80.7': Sandy CLAY (CL), orange brown, very moist, fine sand, subangular gravel			
							@80.7' to 81.9': Sandy CLAY (CL), chocolate brown, very moist, fine sand, MnO nodules			
							@81.9' to 83.7': Sandy CLAY (CL), orange brown, very moist, fine sand, subangular gravel, with oxidation-reduction banded olive clayey sand			
							@83.7' to 85': CLAY (CL), orange brown, moist, abundant MnO nodules			
220 85		85-90	Run 2 Box 6	5	100		@85' to 85.6': CLAY (CL), red brown, moist, MnO nodules			
							@85.6 to 88': Sandy CLAY (CL), red brown, moist, fine sand, fine subangular gravel			
							@88' to 88.9': Sandy CLAY (CL), red brown, wet, fine sand, subangular gravel			
215 90							@88.9' to 90.2': Clayey SAND (SC), orange brown, very moist, fine sand, fine and coarse subangular gravels			
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		SEVERE	
									COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-6
PROJECT: El Rodeo School										PAGE 7 OF 11
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 7 of 11
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 305 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 3/28/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/29/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: AWS	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
215	90	90-95	Run 3 Box 6	5	100	[Hatched Pattern]	@90.2' to 90.6': Silty SAND (SM), olive brown, very moist, fine sand			
						[Hatched Pattern]	@90.6' to 90.9': CLAY (CL), olive brown, very moist			
						[Dotted Pattern]	@90.9' to 91.6': Silty SAND (SM), red brown, wet, fine sand			
						[Dotted Pattern]	@91.6' to 92.1': Silty SAND (SM), olive brown, wet, very fine sand			
						[Hatched Pattern]	@92.1' to 92.4': Sandy CLAY (CL), olive brown, very moist, fine sand, oxide staining, MnO nodules			
						[Hatched Pattern]	@92.4' to 92.6': CLAY (CL), olive brown, very moist, oxide staining, MnO nodules			
						[Hatched Pattern]	@92.6' to 94.1': Clayey SAND (SC), orange olive, wet, fine sand, oxide staining, fine and coarse subangular black slaty gravels			
						[Hatched Pattern]	@94.1' to 94.6': Clayey SAND(SC), orange olive, wet, very fine sand, oxide staining, subangular gravel			
210	95	95-100	Run 1 Box 7	5	100	[Hatched Pattern]	@94.6' to 95': Clayey SAND (SC), red olive, moist, very fine sand, oxide staining			
						[Hatched Pattern]	@95' to 95.7': Clayey SAND (SC), orange olive, moist, fine sand, oxide staining			
						[Hatched Pattern]	@95.7' to 96.2': Clayey SAND (SC), red brown, moist, fine sand, oxide staining, subangular gravel			
						[Hatched Pattern]	@96.2' to 96.7': Clayey SAND (SC), orangish olive, moist, fine sand, oxide staining			
						[Dotted Pattern]	@96.7' to 97.8': Silty SAND (SM), brown, wet, fine sand, subangular to angular gravels			
						[Dotted Pattern]	@97.8' to 98.1': Silty SAND (SM), olive brown, wet, fine sand			
						[Hatched Pattern]	@98.1' to 98.6': Clayey SAND (SC), orangish olive, moist, very fine sand, subangular black slaty gravel			
						[Hatched Pattern]	@98.6' to 98.8': CLAY (CL), olive brown, moist, MnO nodules			
						[Hatched Pattern]	@98.8' to 99': Clayey SAND (SC), orange olive, moist, fine sand			
						[Hatched Pattern]	@99' to 100': CLAY (CL), mottled orange to olive, moist, oxide staining, few MnO nodules from 99' to 99.2'			
205	100	100-105	Run 2 Box 7	5	100	[Hatched Pattern]	@100' to 100.85': Silty SAND (SM), orange brown, wet, fine sand, angular black slaty gravels, basal gravelly sand			
						[Hatched Pattern]	@100.85' to 101.6': Sandy CLAY (CL), red brown, wet, fine sand, oxide staining, some coarse sand, gleyed			
						[Hatched Pattern]	@101.6' to 103': Sandy CLAY (CL), olive brown, moist, fine sand, oxide staining, MnO banding, few fine angular gravel			
						[Hatched Pattern]	@103' to 103.9': Clayey Gravel (GC), mottled orange to olive, moist, oxide staining			
						[Hatched Pattern]	@103.9' to 105': CLAY (CL), mottled orange to brown, moist, oxide staining			
200	105									



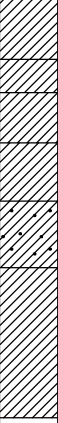

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
							V. SEVERE		
							COMPLETE		



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-6	
PROJECT: El Rodeo School										PAGE 8 OF 11	
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 8 of 11	
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 305 Feet	
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL		
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	DATE FINISH:	DRILLER:
						HORIZONTAL	SIZE	2.5 I.D.	3/28/2012	3/29/2012	Martini
						INCLINED	Bit (Feet)		PREPARED BY: AWS	LOCATION: See Plate 1	
					0	BEARING	Barrel (Feet)	5			
						ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
200 105		105-110	Run 3 Box 7	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
							@105' to 105.7': CLAY (CL), olive, wet, oxide staining, MnO nodules				
							@105.7' to 106.3': CLAY (CL), olive, wet, oxide staining, MnO nodules, subangular gravel				
							@106.3' to 109.2': CLAY (CL), mottled orange to olive, wet, oxide staining, trace MnO nodules				
195 110		110-115	Run 1 Box 8	5	100		@109.2' to 111': CLAY (CL), mottled red brown to dark gray, wet, oxide staining, MnO nodules				
							@111' to 113.2': CLAY (CL), orange brown, very moist, oxide staining, subangular black slaty gravel increasing with depth				
							@113.2' to 114.1': CLAY (CL) with sand, orangish olive, very moist, oxide staining, trace subangular gravel				
							@114.1' to 115.7': CLAY (CL), brown, very moist to wet with few highly weathered angular gravel				
190 115		115-120	Run 2 Box 8	5	100		@115.7' to 116.1': CLAY (CL), olive brown, moist to very moist, micaceous, sharp contact with above				
							Quaternary San Pedro Formation (Qsp):				
							@116.1' to 116.7': Sandy CLAY (CL), color change from brown to green, very moist, fine sand with few subangular gravel				
							@116.7' to 117.4': Sandy CLAY (CL), dark green, moist, fine sand				
							@117.4' to 118.2': Clayey SAND (SC), dark green, moist, fine sand, MnO nodules				
185 120		@118.2' to 120': CLAY (CL), color change brown to dark olive gray, moist, subrounded pebbles, carbonate nodules, MnO banding, grey marl with clayey calcareous laminations, marl									
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES			V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"		HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)		V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120"		FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE		
							Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-6		
PROJECT: El Rodeo School										PAGE 9 OF 11		
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001		
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 9 of 11		
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 305 Feet		
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL			
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE START:	DATE FINISH:	DRILLER:	
						HORIZONTAL	SIZE	2.5 I.D.	3/28/2012	3/29/2012	Martini	
						INCLINED	Bit (Feet)		PREPARED BY: AWS	LOCATION: See Plate 1		
					0	BEARING	Barrel (Feet)	5				
						ANG. FROM VERT.	Total (Feet)					
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS					
185 120		120-125	Run 3 Box 8	3.8	76	[Diagonal Hatching]	The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.					
						@120.5' to 121.4': SAND (SP), dark gray, wet, fine to medium sand						
						@121.4' to 122': CLAY (CL), dark gray, wet, carbonate nodules						
						@122' to 123.55': Gravelly CLAY (CL) with sand, dark gray, wet, subangular to angular gravel, MnO laminations						
						@123.5' to 123.7': CLAY (CL), dark gray, wet, carbonate nodules						
		@123.7' to 123.8': SILT (ML), dark gray, moist										
		@123.8' to 125': No Recovery										
180 125		125-130	Run 1 Box 9	5	100	[Diagonal Hatching]	@125' to 125.3': Silty SAND (SM), gray olive, moist, very fine sand					
						@125.3' to 126.15': CLAY (CL), dark gray olive, moist to very moist, carbonate nodules, MnO nodules						
						@126.15' to 126.8': CLAY (CL), sharp contact with above, brown, moist to very moist, carbonate nodules and medium sand prevalent						
						@126.8' to 128.7': CLAY (CL), olive dark gray, moist, carbonate nodules						
						@128.7' to 129.1': CLAY (CL), orangish olive gray, moist, carbonate nodules						
		@129.1' to 129.3': CLAY (CL), light brown, moist to very moist, oxide staining, carbonate stringers, abrupt contact with below										
		@129.3' to 130': CLAY (CL), gray, moist										
175 130		130-135	Run 2 Box 9	3.5	70	[Diagonal Hatching]	@130' to 131': Clayey SAND (SC), light yellow brown, wet, fine sand, MnO nodules					
						@131' to 131.3': Silty SAND (SM), light yellow brown, wet, fine sand						
						@131.3' to 132.1': CLAY (CL), light yellow brown, moist, fine sand, oxide staining, MnO nodules						
						@132.1': Silty SAND (SM), light yellow brown, wet, very fine sand, oxide staining, angular gravel						
						@133.5' to 135': No Recovery						
170 135												
FIELD HARDNESS			BEDDING			ATTITUDE AND ANGLE			JOINTS / SHEAR / FRACTURE			WEATHERING
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"		HORIZONTAL (0-5°)			V. CLOSE	<2"		FRESH
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"		SHALLOW OR LOW ANGLE (5-35°)			CLOSE	2"-12"		V. SLIGHT
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"		MODERATELY DIPPING (35-55°)			MOD. CLOSE	12"-36"		SLIGHT
SOFT	- GROVES		THICK	36"-120"		STEEP OR HIGH ANGLE (55-85°)			WIDE	36"-120"		MODERATE
V. SOFT	- CARVES		V. THICK	>120"		VERTICAL (85-90°)			V. WIDE	>120"		MOD. SEVERE
												COMPLETE

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG											BORING NO. CB-6
PROJECT: El Rodeo School											PAGE 10 OF 11
CLIENT: Beverly Hills Unified School District											JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation											PAGE NO.: 10 of 11
EQUIPMENT USED: CME-75, Continuous Core											ELEVATION: 305 Feet
GROUNDWATER:		DEPTH TO (Feet):				ORIENTATION			CORE BARREL		DATE START: 3/28/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/29/2012		
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini		
						INCLINED	Bit (Feet)		PREPARED BY: AWS		
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1		
					0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
<p>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</p>											
170	135	135-140	Run 3 Box 9	0	0		@135' to 140': No Recovery				
165	140	140-145	Run 1 Box 10	0.5	10		@140' to 140.5': Sandy SILT (ML), yellowish olive, wet, very fine sand, subrounded gravel and cobbles				
							@140.5' to 145': No Recovery				
160	145	145-150	Run 2 Box 10	2.2	44		@145' to 145.5': Silty SAND (SM), yellowish olive, wet, fine sand, oxide staining, subangular to subrounded gravel				
							@145.5' to 147.2': Sandy SILT (ML), yellowish olive, wet, very fine sand, oxide staining, subangular to subrounded gravel				
		@147.2' to 150': No Recovery									
155	150										

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
								COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON





CORE BORING LOG										BORING NO. CB-6
PROJECT: El Rodeo School										PAGE 11 OF 11
CLIENT: Beverly Hills Unified School District										JOB NO.: 603367-001
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 11 of 11
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 305 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 3/28/2012
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/29/2012	
						HORIZONTAL	SIZE	2.5 I.D.	DRILLER: Martini	
						INCLINED	Bit (Feet)		PREPARED BY: AWS	
						BEARING	Barrel (Feet)	5	LOCATION: See Plate 1	
					0	ANG. FROM VERT.	Total (Feet)			
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
155	150	150-155	Run 3 Box 10	2.1	42		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@150' to 151': Silty SAND (SM), light olive, wet, fine to medium sand			
							@151' to 151.4': Silty SAND (SM), orangish olive, wet, fine sand, oxide staining, rounded gravel			
							@151.4' to 152.1': Silty SAND (SM), orangish olive, wet, fine sand, oxide staining, rounded gravel @152.1' to 155': No Recovery			
150	155	155-160	Run 1 Box 11	2.7	54		@155' to 155.5': Silty SAND (SM), red orange, wet, fine sand, oxide staining			
							@155.5' to 155.9': Silty SAND to Sandy SILT (SM-ML), orangish olive, wet, very fine sand, oxide staining			
							@155.9' to 157.7': Silty SAND to Sandy SILT (SM-ML), light olive, wet, very fine sand, oxide staining, rounded gravel @157.7' - 160': No Recovery			
145	160						Total depth of boring: 160' bgs Perched groundwater encountered @ 25'-27.5', 35'-35.7', 40'-76.7', 88'-88.9', 90.9'-92.1', 92.6'-98.1', 100'-101.6', 105'-111', 114.1'-115.7', 120'-123.7', 130'-131.3', and 132.1'-157.7' bgs. Excavation backfilled with cuttings and patched with asphalt upon completion of drilling. Excess soil cuttings disposed of in D.O.T. approved drums and disposed of offsite.			
140	165									
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
									COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 4-27-12.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***




LEIGHTON

CORE BORING LOG										BORING NO. CB- 7
PROJECT: El Rodeo Geohazard Investigation										PAGE 1 OF 14
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 14
EQUIPMENT USED: CME-75										ELEVATION: 293 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 40				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 135				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
293 0		0-5	Run 1 Box 1	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@Surface: 3" Asphalt @0.25': 21" Aggregate base			
288 5		5-10	Run 2 Box 1	4.4	88		@2': Artificial Fill, Undocumented (Afu): Silty CLAY with sand (CL), brown, moist, fine to medium grained sand, trace fine gravel sized slate fragments, medium subrounded slate and pebbly gravels @3': Pleistocene Alluvium of Benedict Canyon Wash (BCW): Sandy CLAY (CL), brown to dark brown, fine grained sand, moderately blocky structure, few rounded slaty pebbles, weathered and subangular siltstone gravels, grades to below @4': Clayey SAND (SC), with fine to coarse sand and subangular weathered fine gravel @4.8': Silty SAND (SM), reddish brown, loose, fine grained, oxidized with thin pebbly beds			
283 10							@7.6': Grades to hard Silty SAND (SM), basal oxidized and heavily weathered @8.9': weathered to yellowish oxidation coating of slate fragments @9.1': slate fragments @9.2' to 9.4': Gravel bed @9.4' to 10': No Recovery @10' to 10.6': Silty SAND (SM), reddish brown, moist, fine to medium grained sand, few coarse sand grains, few gravel sized slate fragments @10.6' to 10.8': Lamination of silty clay @10.8': Sandy GRAVEL (GP), subangular to subrounded heavily weathered slate, basalt and siltstone @11.3' to 11.9': Silty SAND (SM), reddish brown, moist, fine to coarse grained sand, few fine gravels, grades below @11.9': Sandy GRAVEL (GP), subangular to subrounded clasts with matrix of clayey sand, reddish brown, with yellowish oxidation staining, clasts consist of tabular slate and basalt, fine to coarse subrounded to subangular gravels, MnO staining, basal cobbles and zone of heavy oxide and MnO staining at 13.1', erosive contact at 16.4'			
278 15		10-15	Run 1 Box 2	5	100					
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 7
PROJECT: El Rodeo Geohazard Investigation										PAGE 2 OF 14
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 14
EQUIPMENT USED: CME-75										ELEVATION: 293 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 40				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 135				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
278 15		15-20	Run 2 Box 2	3.9	78		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@16.4': Silty SAND (SM), with some clay, fine to medium grained sand, with interbedded medium to coarse grained sand, moist, dark reddish brown, heavily oxidized			
							@17.2': SAND bed (SP), dark orange brown with havily oxidized thin beds of fine grained sands, moist, coarse slaty sand, abrupt contact below			
							@17.8': Sandy GRAVEL (SP), fine gravel, dark reddish brown, moist, unconsolidated, friable, heavily weathered siltstone and slate			
		@18.9' to 20': No Recovery								
273 20		20-25	Run 1 Box 3	5	100		@20': Sandy CLAY (CL), reddish brown, mostly massive, clayey laminations, few fine slaty gravels, gleyed, moderate blocky structure with oxide and MnO on ped faces, grades below			
							@23.9': Clayey SILT (ML), with fine sand, dark reddish brown, increase in moisture, minor to poor blocky structure, abrupt contact below with MnO on ped faces			
268 25		25-30	Run 2 Box 3	5	100		@24.9': SAND (SP), orangish brown, fine grained			
							@25': Sandy GRAVEL (GP), subangular to subrounded tabular slate clasts, reddish brown, with yellow oxidation, clayey sand matrix, heavily oxidized, basal gravel bed at 27', erosive contact below			
							@27' to 28.9': Sandy CLAY (CL), with sand laminations, oxidation-reduction banding, gleying along sand laminations, orangish brown to grayish brown, sporadic fine gravels, very sandy from 27.8' to 28.3', gradational contact with below, oxidation-reduction banded			
263 30						@28.9' to 30': Sandy CLAY (CL), color change to dark reddish brown, moderate blocky structure, MnO and clay development on ped faces, fine to medium grained sand, with fine weathered gravel				
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
									COMPLETE	

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 7	
PROJECT: El Rodeo Geohazard Investigation										PAGE 3 OF 14	
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 14	
EQUIPMENT USED: CME-75										ELEVATION: 293 Feet	
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL		
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE				
06/17/14	ATD	∇ 40				INCLINED	Bit (Feet)				
06/17/14	ATD	∇ 135				BEARING	Barrel (Feet)				
		∇			0	ANG. FROM VERT.	Total (Feet)				
										FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS	
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.					
263 30	30-35	Run 1 Box 4	5	100		@30': Silty CLAY to Clayey SILT (CL-ML), with some fine sand, very moist, weathered basalt, abrupt contact below	@30.2': Sandy CLAY (CL), very fine grained, orange brown, gleyed along laminations, spotty gleying in matrix, moderate blocky structure				
					@33.5': Silty SAND (SM), thin bed, reddish brown to yellow brown to orange red, moist, fine grained						
258 35	35-40	Run 2 Box 4	5	100		@34.5': Becomes Sandy CLAY (CL), with very fine sand, reddish brown to orange brown, oxidized MnO and oxide on ped faces	@35' to 35.7': Silty Sandy CLAY (CL-ML)				
					@35.7' to 36.1': Sandy CLAY (CL), very dark reddish brown to chocolate brown, with fine gravel sized slate fragments, base of developed soil	@36.1': Silty Sandy CLAY (CL-ML), poorly laminated, weathered slaty fragments to 39.7', gleyed along laminations and in matrix, brown, moderately blocky structure with oxide and very fine sand on ped faces, spotty MnO					
253 ∇ 40	40-45	Run 1 Box 5	3.7	74		@39.7' to 40': Silty CLAY (CL), dark reddish brown to brick red, gleyed, well developed blocky structure, MnO and oxide on ped faces	@40' to 40.9': Clayey SILT (ML), with fine sand, dark brown, wet				
∇					@40.9' to 42.2': Sandy CLAY (CL), orange brown to reddish brown, very moist, fine grained, minor gleying along laminations	@41.6' to 42.2': coarse slaty rounded gravel bed, erosive contact below					
					@42.2': Gravelly SAND (SW), wet, fine to coarse sand and gravel, slaty rock fragments to 43.2'						
					@43.2': Basal sandstone rounded cobbles						
					@43.7' to 45': No Recovery						
248 45											
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
									COMPLETE		

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 7											
PROJECT: El Rodeo Geohazard Investigation										PAGE 4 OF 14											
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006											
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 14											
EQUIPMENT USED: CME-75										ELEVATION: 293 Feet											
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014											
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014											
06/17/14	ATD	∇ 40				INCLINED	Bit (Feet)			DRILLER: Martini											
06/17/14	ATD	▼ 135				BEARING	Barrel (Feet)			PREPARED BY: EH											
		▼			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca											
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS															
						The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.															
248	45	Run 2 Box 5	5	100		@45' to 45.5': weathered gravel and sandstone cobble	@45.5' to 47.1': Sandy GRAVEL (GP), dark reddish brown to orange brown, heavily oxidized, severely weathered gravels with MnO staining of weathered clasts, basal cobbles and slaty gravel, erosive contact below	@47.1': Sandy CLAY (CL), orange brown, very moist, fine grained, abrupt contact below	@47.6': Becomes dark reddish brown to orange brown, gleying	@48.1' to 48.3': Slaty coarse gravel in sandy clay matrix, moist	@48.3' to 50': Sandy CLAY (CL), massive, light brown to orange brown, fine sand										
243	50					Run 1 Box 6	5	100		@50' to 52': Silty Sandy CLAY (CL-ML), blocky structure, spotty MnO on ped faces, reddish brown, moist, gleyed, fine grained sand	@52' to 52.5': Silty SAND (SM), wet, perched zone, fine grained sand, reddish brown	@52.5' to 52.7': CLAY (CL) lamination, poor blocky structure, reddish brown with yellow oxidation staining	@52.7' to 52.9': Gravelly SAND with clay (SW-SC), fine to coarse grained sand, fine subangular to subrounded slaty gavel	@52.9' to 53.2': CLAY (CL) lamination, poor blocky structure, reddish brown, with minor gleying, yellowish oxidation staining							
∇	55									Run 2 Box 6	5	100		@53.2' to 55': Pebbly gravelly SAND (SP), olive brown to reddish brown, gleyed, massive, fine to coarse rounded slaty gravels, very moist, heavily oxidized @54.4'	@55' to 55.5': Clayey Silty SAND (SC-SM), olive brown to reddish brown, gleyed, fine grained sand, trace medium grained sand, grades coarser	@55.5' to 55.9': CLAY (CL), reddish brown, gleyed, poor blocky structure, some fine grained sand, gradational contact below	@55.9': Sandy CLAY (CL), with gravel, reddish brown, gleyed, oxidized, massive, fine to coarse grained sand, fine subangular gravels, feldspars and slate	@57.2': SAND (SP) bed, fine to coarse grained, trace fine gravel, erosional contact below	@57.5' to 58.3': Sandy CLAY (CL), reddish brown, gleyed, poorly developed soil, fine to medium grained sand	@58.3' to 59': Gravelly SAND (SP), brown, medium to coarse grained sand, fine subangular slate and quartz gravels, bedded coarse sand	@59' to 59.5': Silty SAND with Clay lamination (SP-SC), fine grained, slightly micaceous
238	60																				
233	60																				

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
								V. SEVERE	COMPLETE

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***


LEIGHTON

CORE BORING LOG										BORING NO. CB- 7
PROJECT: El Rodeo Geohazard Investigation										PAGE 5 OF 14
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 14
EQUIPMENT USED: CME-75										ELEVATION: 293 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 40				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 135				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG					
233 60	60-65	Run 1 Box 7	2	40	•••••	@59.5': Medium to coarse grained sand lamination @59.6' to 59.8': Sandy SILT with Clay (ML-CL), reddish brown, moist, fine grained sand @59.8' to 60': Clayey SAND (SC), reddish brown, fine to coarse grained sand, gleyed, trace fine slaty gravels @60' to 62': SAND (SP), brown, moist, fine to medium grained sand, quartz, white siltstone and slate grains, poorly graded, well sorted @62' to 65': No Recovery				
228 65	65-70	Run 2 Box 7	5	100	•••••	@65' to 66.8': SAND (SP), reddish brown, fine to medium grained, white siltstone, quartz and slaty sand size fragments, poorly graded, erosive contact below Pleistocene Cheviot Hill Deposit (CHD): @66.8': Sandy CLAY (CL), dark reddish brown, laminated, MnO on ped faces, trace fine subrounded slaty gravels, oxidation-reduction banded, oxidized, well developed blocky structure @69.2': Siltstone gravels, heavily weathered				
223 70	70-75	Run 1 Box 8	3.7	74	•••••	@70' to 70.3': Clayey SAND (SC), reddish brown, fine to medium grained, gradational contact below @70.3' to 71.3': Sandy CLAY (CL), reddish brown, minor gleying, laminated oxidation-reduction banding, spotty MnO on ped faces @71.3' to 73.7': Sandy CLAY (CL), color change to dark reddish brown, gleyed, MnO staining, faintly laminated, blocky structure, oxidation reduction banding @73.7' to 75': No Recovery				
218 75										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE	COMPLETE	
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***


LEIGHTON

CORE BORING LOG										BORING NO. CB- 7
PROJECT: El Rodeo Geohazard Investigation										PAGE 6 OF 14
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 6 of 14
EQUIPMENT USED: CME-75										ELEVATION: 293 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 40				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 135				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
						The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
218 75	75-80	Run 2 Box 8	5	100	[Diagonal Hatching]	<p>@75' to 75.6': Clayey SAND (SC), reddish brown, very moist, mostly fine to medium grained, trace coarse grained sand and fine gravel</p> <p>@75.5': Gravelly layer, fine to coarse rounded slate gravels</p> <p>@75.6' to 76.6': Sandy CLAY (CL), with gravel, gleying, massive, fine to coarse subangular to subrounded quartzite, slaty gravels, and basalt, basal weathered fine siltstone and slaty gravels, abrupt contact with below</p> <p>@76.6' to 78.9': Sandy CLAY (CL), reddish brown, moist, hard, minor gleying and oxidation, sporadic fine to coarse subangular to subrounded slate and quartzite, moderate blocky structure, sporadic MnO</p>				
213 80	80-85	Run 1 Box 9	5	100	[Diagonal Hatching]	<p>@78.9' to 79.1': GRAVEL (GP) thin bedded, weathered slate and siltstone</p> <p>@79.1' to 79.8': Becomes sandier, dark reddish brown, fine to medium grained sand, trace coarse grained sand and fine gravel</p> <p>@79.8' to 80.2': Subangular fine to coarse GRAVEL (GP) layer, slate, siltstone, basalt, erosive contact with below</p> <p>@80.2' to 81.8': Sandy CLAY (CL), reddish brown, gleyed, fine to medium grained sand, sporadic subrounded fine slaty gravels, moderate blocky structure, fine to coarse gravel layer</p> <p>@81.8': Sandy GRAVEL (GP), thin bed, heavily oxidized, subrounded to subangular, slaty gravels, erosive contact below</p> <p>@82' to 83.9': Gravelly SAND (SP), fine to coarse grained sand, abundant fine rounded weathered basalt and slaty gravels, oxidized</p> <p>@83.9' to 84.7': Basal Sandy GRAVEL (GP), rounded, oxidized, weathered slaty gravels, erosive contact below</p>				
208 85	85-90	Run 2 Box 9	5	100	[Diagonal Hatching]	<p>@84.7' to 87.3': Sandy CLAY (CL), dark reddish brown, fine grained sand, trace medium grained sand, sporadic fine slaty gravels, moderate blocky structure, caps underlying gravels at 87.3'</p> <p>@87.3' to 89.6': Sandy GRAVEL (GP), fine to coarse gravels, subangular to subrounded, with tabular slate fragments, reddish brown, oxidized, heavily weathered, oxidized, MnO coating on slaty gravels, basal slate and siltstone at 89.6', erosive contact below</p>				
203 90					[Diagonal Hatching]	<p>@89.6' to 90': Sandy CLAY (CL), reddish brown, poor blocky structure, clay</p>				
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT_2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 7
PROJECT: El Rodeo Geohazard Investigation										PAGE 7 OF 14
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 7 of 14
EQUIPMENT USED: CME-75										ELEVATION: 293 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 40				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 135				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG					
203 90	90-95	Run 1 Box 10	5	100	• • •	development on ped faces, CaCO ₃ cement				
					@90' to 90.5': Gravelly SAND (SP), dark reddish brown, fine to coarse grained sand, fine subangular to subrounded slaty gravels, erosive contact below					
					@90.5' to 90.8': Sandy CLAY (CL), with silt, reddish brown, fine grained sand, poor blocky structure, clay development on ped faces					
					@90.8' to 91.1': Clayey SAND (SC), reddish brown, fine to medium grained sand, gradational contact below					
					@91.1' to 93.2': CLAY (CL), reddish brown, some silt, hard, trace fine grained sand					
						@91.7': Becomes dark chocolate brown, clay lamination, well developed blocky structure				
						@91.9': Dark reddish brown				
						@93.2' to 94.6': Sandy CLAY (CL), with gravel, reddish brown, hard, chaotic assemblage of fine to coarse gravel (debris flow), gravels consist of predominantly slate, siltstone, heavily weathered				
198 95	95-100	Run 2 Box 10	5	100	• • •	@94.6' to 95.6': Sandy GRAVEL (GP), fine to coarse sand, fine rounded gravels, oxidized, heavily weathered				
					@95.6' to 96.3': Clayey GRAVEL (GC), basal slaty gravels, oxidized, abundant MnO and clay on ped faces					
					@96.3' to 98.2': Sandy CLAY (CL), reddish brown, hard, poor blocky structure, clay development on ped faces, sporadic fine subangular slaty gravels, gradational contact					
					@98.2' to 98.7': GRAVEL (GP) bed, fine to coarse subangular slate fragments, erosive contact below					
						@98.7' to 102': Sandy CLAY (CL), reddish brown, moist, slightly micaceous, sporadic fine gravel				
193 100	100-105	Run 1 Box 11	5	100	• • •	@100' to 100.2': CLAY (CL), reddish brown, spotty MnO, staining on faces, trace fine sand				
					@100.6' to 102': Sandy CLAY (CL), reddish brown, fine grained sand, poor blocky structure, minor gleying, trace fine tabular slaty gravels, coated with clay					
					@102' to 102.7': Basal Gravel and Cobble bed, clasts up to 2-inches, tabular slate, siltstone, and basalt, clayey sand matrix, gleyed, erosive contact below					
					@102.7' to 104': Sandy CLAY to Clayey SAND (SC-CL), reddish brown, mostly fine grained sand, trace medium to coarse grained sand, trace fine gravel, basal fine angular weathered siltstone					
						@104' to 105': Sandy CLAY (CL), reddish brown, fine grained sand, minor gleying, trace medium to coarse grained sand, sandy lenses @104.8' to 105'				
188 105										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE		
								COMPLETE		

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***


LEIGHTON

CORE BORING LOG										BORING NO. CB- 7
PROJECT: El Rodeo Geohazard Investigation										PAGE 8 OF 14
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 8 of 14
EQUIPMENT USED: CME-75										ELEVATION: 293 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 40				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 135				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
188 105		105-110	Run 2 Box 11	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@105' to 108.1': SAND (SP), brown, wet, mostly fine to medium grained sand, some coarse grained sand, fining upward, slightly micaceous, gradational contact, white siltstone rock fragments in matrix, erosive contact below			
							@108.1' to 108.4': Sandy CLAY (CL), dark reddish brown, fine to medium grained sand, trace coarse grained sand, gradational contact			
							@108.4' to 109': Silty CLAY (CL-ML), dark reddish brown, faintly laminated, minor spotty MnO, abrupt contact			
183 ∇ 110		110-115	Run 1 Box 12	2.2	44		@109' to 109.6': Channel Gravels, fine to coarse gravels, consisting of slate, quartz, and minor amounts of slaty, cobble-sized basalt, MnO and oxide staining			
							@109.6' to 110': No Recovery			
							@110' to 110.2': Gravelly SAND with Clay (SW-SC), reddish brown, wet, fine to coarse grained sand, fine subangular slaty gravels			
							@110.2' to 110.5': CLAY (CL), reddish brown, fine to medium grained sand, trace coarse grained sand			
							@110.5' to 110.8': Sandy GRAVEL (GP) bed, dark reddish brown, wet, fine to coarse grained sand, fine to coarse subangular to subrounded slate, Tm, and basalt gravels, gradational contact			
							@110.8' to 111.1': Sandy CLAY (CL), reddish brown, moist, fine grained sand, faint laminations, minor gleying, poor blocky structure			
							@111.1' to 111.6': Sandy GRAVEL (GP), dark reddish brown, fine to coarse grained sand, fine to coarse slate, erosive contact below			
							@111.6' to 112': Thin Sandy CLAY (CL) bed, moderate blocky structure			
							@112' to 112.2': Clayey SAND (SC), reddish brown, moist, fine grained sand			
178 115		115-120	Run 2 Box 12	2.3	46		@112.2' to 115': No Recovery			
							@115' to 115.8': Sandy CLAY (CL), reddish brown, fine to medium grained sand, laminated, moderate blocky structure, thin MnO, minor gleying, fine to medium grained sand lens @115.6'			
							@115.8' to 115.9': Thin Silty CLAY (CL-ML) lamination, olive brown			
							@115.9': Sandy CLAY (CL), reddish brown, fine to medium grained sand			
							@116' to 116.2': Thin Silty CLAY (CL-ML) lamination, dark reddish brown, MnO blebs			
							@116.1': Sandy GRAVEL (GP) bed, fine to coarse grained sand, fine slaty gravels, heavily oxidized, weathered			
							@116.2' to 116.7': Sandy CLAY (CL), dark reddish brown, fine grained sand, MnO blebs, small brown blebs			
							@116.7' to 117.3': Gravelly CLAY (CL) fine to coarse subangular slate, fine to coarse grained sand, clayey matrix, gleyed, MnO lamination, yellow oxide laminations, entire unit laminated			
173 ∇ 120							@117.3' to 120': No Recovery			
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								V. SEVERE		
								COMPLETE		

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16




*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON


CORE BORING LOG										BORING NO. CB- 7
PROJECT: El Rodeo Geohazard Investigation										PAGE 9 OF 14
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 9 of 14
EQUIPMENT USED: CME-75										ELEVATION: 293 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 40				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 135				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
173	120	120-125	Run 1 Box 13	1.8	36	•••	@120' to 121.8': SAND (SP), brown, wet, fine to medium grained sand, trace coarse grained sand, trace fine subangular siltstone gravels			
						@121.8' to 125': No Recovery				
168	125	125-130	Run 2 Box 13	1.9	38	▨	@125' to 125.2': Sandy CLAY (CL), with gravel, dark reddish brown, fine to coarse grained sand, fine to coarse predominantly subangular to subrounded slaty gravels, clay coated grains			
						@125.2' to 126.1': Sandy CLAY (CL), reddish brown, fine to medium grained sand, poor blocky structure, MnO blebs, trace fine gravel, lens of sand and gravel @125.6', gradational contact				
						@126.1' to 126.5': Silty CLAY (CL-ML), reddish brown, trace fine to medium grained sand, fine gravel, shimmer on faces				
						@126.5' to 126.9': Clayey GRAVEL (GC), dark reddish brown, hard, fine to medium grained sand, fine slaty gravels, iron oxide blebs, carbonate stringers				
		@126.9' to 130': No Recovery								
163	130	130-135	Run 1 Box 14	3.6	72	▨	@130' to 130.8': Clayey GRAVEL (GC), with sand, grayish brown, wet, fine to coarse grained sand, fine to coarse subangular to subrounded slaty gravels, erosive contact below			
						@130.8' to 133.1': Sandy CLAY (CL), reddish brown, laminated, hard, few fine subrounded gravels, gleyed, blocky structure, MnO spotting, laminations becomes less apparent, oxidation reduction banding				
						@131': sharp contact, gleyed, clay below oxidation-reduction banded @132.7', gradational contact, MnO lamination				
		@133.1' to 133.6': Silty CLAY (CL-ML), with sand, dark reddish brown, hard, massive, fine to medium grained sand, trace coarse grained sand, fine subrounded slaty gravels at base of sample								
		@133.6' to 135': No Recovery								
158	135									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		SEVERE		
								COMPLETE		

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB- 7							
PROJECT: El Rodeo Geohazard Investigation										PAGE 10 OF 14							
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006							
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 10 of 14							
EQUIPMENT USED: CME-75										ELEVATION: 293 Feet							
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014							
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014							
06/17/14	ATD	∇ 40				INCLINED	Bit (Feet)			DRILLER: Martini							
06/17/14	ATD	∇ 135				BEARING	Barrel (Feet)			PREPARED BY: EH							
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca							
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS											
						The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.											
158	135	Run 2 Box 14	4.2	84		@135' to 135.5': Silty Clayey SAND (SM-SC), reddish brown, wet, fine to coarse grained sand, some fine gravels at contact below	@135.5' to 135.6': Gravelly CLAY (CL), with sand lamination, reddish brown, wet, fine to coarse grained sand, fine to coarse subangular to subrounded slaty gravels	@135.6' to 137.7': Sandy GRAVEL (GP), with clay, dark reddish brown, wet, fine to coarse grained sand, fine to coarse subrounded slaty gravels, gradational contact	@137.7' to 138.1': Becomes Silty SAND (SM), with gravel, dark reddish brown, wet, mostly fine to medium grained sand, trace coarse grained sand, fine subrounded slate and quartz gravels	@138.1' to 139': GRAVEL (GP), heavily oxidized, dark reddish brown, wet, fine to coarse grained sand, fine to coarse subangular to subrounded slate and quartz gravels							
153	140					Run 1 Box 15	1.3	26		@139' to 139.2': 2-inch slate basal cobble, with heavily oxidized orange yellow staining	@139.2' to 140': No Recovery	@140' to 140.9': Fining upward sequence	@140': Silty SAND (SM), with clay, grayish reddish brown, wet, mostly fine to medium grained sand, trace coarse grained sand, fine slaty gravels				
										Run 2 Box 15	5	100		@140.5': Becomes mostly medium to coarse grained sand, wet	@140.7': Becomes mostly coarse grained sand and fine wet slaty gravels (SP-GP)	@140.9' to 141.2': Clayey GRAVEL (GC), with sand, grayish reddish brown, fine to coarse grained sand, fine to coarse subangular platy slate gravels	@141.2' to 141.3': 2+ - inch slate gravels, within clayey matrix, clay is oxidized and gleyed, waxy surface on ped faces
148	145																
															@145.3': Sandy GRAVEL (GP), wet, fine to coarse grained sand, fine to coarse subrounded platy slate and basalt gravels, clayey matrix, gleyed	@146.3' to 146.9': Basal channel gravel	@146.9': Increases in clayey matrix, heavily gleyed, yellow oxide band
143	150						@147.2', gravels become subangular, erosional contact below	@148.2': Sandy CLAY (CL), reddish brown, fine to medium grained sand, trace coarse grained sand, MnO spotting, moderate blocky structure, trace siltstone fragments, minor gleying, abrupt contact	@148.6' to 148.8': Clayey Sandy GRAVEL (GP-GC), reddish brown, fine to coarse grained sand, fine subrounded slaty gravels, abrupt contact								
							@148.8' to 149': Sandy Silty CLAY (CL-ML), reddish brown, MnO banding,										

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
								V. SEVERE	COMPLETE

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 7
PROJECT: El Rodeo Geohazard Investigation										PAGE 11 OF 14
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 11 of 14
EQUIPMENT USED: CME-75										ELEVATION: 293 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 40				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 135				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
						The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
143 150	150-155	Run 1 Box 16	5	100		gradational contact				
						@149' to 150': Sandy CLAY (CL), reddish brown, fine to medium grained sand, trace coarse grained sand, fine gravel, MnO spotting and minor bands, minor gleying, spotty oxides, moderate blocky structure				
						@150' to 151.4': Sandy CLAY (CL), reddish brown, fine to medium grained sand, trace coarse grained sand, fine slaty gravels, gleyed on minor sandy laminations, moderate blocky structure, abundant MnO spotting on faces				
						@151.4' to 151.6': Increase in sand content, increase in gleying, moderate blocky structure, oxidation reduction banding				
						@151.6' to 152.4': Sandy CLAY (CL), reddish brown, fine to medium grained sand, poor blocky structure, moderately gleyed				
						@152.4': Sand lamination				
						@152.5' to 152.7': Sandy CLAY (CL), reddish brown, fine to medium grained sand, gleyed, moderate blocky structure				
						@152.7' to 152.8': Lamination with increase in coarse grained sand				
138 155	155-160	Run 2 Box 16	5	100		@152.8' to 153.3': Fining upward sequence, Sandy CLAY (CL), reddish brown to dark reddish brown, gleyed, fine grained sand in upper zone, fine to medium grained sand, fine to coarse grained at base, trace fine slaty gravels, moderate blocky structure, MnO spotting, gleyed				
						@153.3' to 153.8': Sandy CLAY (CL), reddish brown, fine to medium grained sand, trace coarse grained sand, poor blocky structure, faintly laminated				
						@153.8' to 154.4': Sandy CLAY (CL), dark reddish brown, fine to medium grained sand, trace coarse grained sand, fine gravel, laminated, gleyed, moderate blocky structure, MnO spotting				
						@154.4' to 155': No Recovery				
						@155' to 155.4': Sandy CLAY (CL), reddish brown, fine to medium grained sand, laminated, moderate blocky structure, trace fine gravel, gleyed				
						@155.4' to 155.6': Fine to coarse GRAVEL (GP) zone, matrix has moderate blocky structure				
						@155.6' to 156.5': Sandy CLAY (CL), reddish brown, fine to medium grained sand, minor gleying, massive				
						@156.3': GRAVEL (GP) bed, fine slate and basalt gravels, gradational contact below				
133 160	160-165	Run 1 Box 17	5	100		@156.5' to 158.6': Silty CLAY (CL-ML), with sand, dark reddish brown, faintly oxidation-reduction banded, progressively clayier, fine to medium grained sand, trace coarse grained sand, minor gleying, MnO spotting, caps gravel below				
						@158.6' to 158.8': Fine slaty GRAVEL bed with Clayey matrix (GC)				
						@158.8' to 159.1': Clayey SAND (SC), reddish brown, fine to medium grained sand, abrupt contact				
						@159.1' to 160': Silty Sandy CLAY (CL-ML), dark reddish brown, fine grained sand, faintly laminated, gleyed, moderate blocky structure, MnO spotting				
						@160' to 162.8': Silty Sandy CLAY (CL-ML), dark reddish brown, oxidation-reduction banded laminations, fine grained sand, poor blocky structure, gleyed, MnO spotting, gradational contact				
						@162.8' to 163.4': Increasing sand content, fine to medium grained sand, trace coarse grained sand, dark reddish brown, gradational contact				
						@163.4' to 164.3': Silty Sandy CLAY (CL-ML), dark reddish brown, faint oxidation-reduction banded laminations, fine grained sand, poor to moderate blocky structure				
128 165										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT_2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 7
PROJECT: El Rodeo Geohazard Investigation										PAGE 12 OF 14
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 12 of 14
EQUIPMENT USED: CME-75										ELEVATION: 293 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 40				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 135				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
128 165		165-170	Run 2 Box 17	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@164.3' to 165': Becomes very dark reddish brown, laminations become less apparent and abundant @165' to 166.5': Silty CLAY (CL-ML), with sand, very dark reddish brown, fine to medium grained sand, trace fine slaty gravels, abundant vertical carbonate stringers, moderate blocky structure, basal slaty gravel @166.5': Becomes Sandy CLAY (CL), minor carbonate stringers continue			
							@167.2' to 167.6': Sporadic fine slaty GRAVEL in Sandy Clay matrix (GC), carbonate becomes less abundant @167.6' to 169.3': Sandy CLAY (CL), reddish brown, fine to medium grained sand, with few coarse grained sand, trace fine slaty and Tm gravels, poor blocky structure, sporadic carbonate stringers			
							@169.3' to 169.4': Sandy lamination @169.4' to 171.4': Sandy CLAY (CL), dark reddish brown, fine to medium grained sand, few coarse grained sand, trace fine slaty gravels, sporadic carbonate stringers			
123 170		170-175	Run 1 Box 18	5	100		@171.4' to 172.2': Becomes sandier @172.2' to 174.7': Silty Sandy CLAY (CL-ML), very dark reddish brown, fine grained sand, trace medium to coarse grained sand, MnO nodules, sporadic carbonate stringers, moderate blocky structure			
							@174.7' to 175': Sandy CLAY (CL), very dark reddish brown, fine to medium grained sand, sporadic carbonate stringers, oxidized blebs, MnO blebs, gradational contact @175' to 175.3': Sandy CLAY (CL), grayish brown, very moist, fine grained sand, few medium grained sand, soft, shimmer on faces, gradational contact @175.3' to 175.4': Lamination of Sandy CLAY to Clayey SAND (SC-CL), fine to medium grained sand, trace coarse grained sand @175.4' to 175.6': Sandy CLAY (CL), grayish brown, slight reddish brown mottling, poor blocky structure, slightly micaceous @175.6' to 175.9': Lamination of Clayey SAND (SC), fine to medium grained sand, trace coarse grained sand, slate fragments			
118 175		175-180	Run 2 Box 18	5	100		@175.9' to 177.9': Sandy CLAY (CL), color change, grayish brown, fine grained sand, trace medium to coarse grained sand, trace fine gravel, Tm and slate, carbonate stringers, shell fragments, poor blocky structure, gradational contact @177.9' to 178.9': Clayey Silty SAND (SC-SM), gray, fine grained sand, trace medium grained sand, well sorted, abrupt contact			
							@178.9' to 180': Quaternary San Pedro Formation: (Qsp) @178.9' to 180': Sandy CLAY (CL), color change, grayish brown, fine grained sand, trace medium to coarse grained sand, trace fine gravel, Tm and slate, carbonate stringers, shell fragments, poor blocky structure, gradational contact @178.9' to 180': Clayey Silty SAND (SC-SM), gray, fine grained sand, trace medium grained sand, well sorted, abrupt contact			
113 180										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								V. SEVERE		
								COMPLETE		

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 7
PROJECT: El Rodeo Geohazard Investigation										PAGE 13 OF 14
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 13 of 14
EQUIPMENT USED: CME-75										ELEVATION: 293 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 40				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 135				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG					
113 180	180-185	Run 1 Box 19	2	40		@178.8': MnO @178.9' to 179.9': Silty CLAY (CL-ML), gray, fine grained sand, sporadic carbonate stringers, shimmer on faces, thin sandy lamination @179.2' @179.9' to 180': Lamination of Silty SAND (SM), gray, fine to medium grained sand @180' to 180.4': Sandy CLAY to Clayey SAND (SC-CL), gray, very moist, fine grained sand, moderate blocky structure, carbonate stringers, calcite crystals, gradational contact @180.4' to 180.5': GRAVEL (GP) layer, fine subrounded slate and quartz gravels @180.5' to 180.9': Sandy Silty CLAY (CL-ML), gray, fine grained sand, trace medium grained sand, carbonate stringers and nodules, gradational contact @180.9' to 182': Sandy CLAY (CL), gray, fine grained sand, moderate blocky structure, faintly laminated, carbonate stringers @182' to 185': No Recovery				
108 185						@185' to 185.4': Interlaminated Silty CLAY and Clayey SAND (SM-SC), gray to dark gray, clay is well developed, with waxy finish on faces, fine grained sand @185.4' to 188.1': Silty CLAY (CL-ML), with sand, gray, massive, fine grained sand, minor carbonate blebs @188.1' to 188.7': Silty CLAY (CL-ML), with sand, gray, with abundant reddish brown staining, fine grained sand, carbonate blebs, minor carbonate stringers @188.7' to 190': No Recovery				
103 190						@190' to 193.8': Silty CLAY (CL-ML), dark gray, faintly laminated, sporadic carbon concretions and blebs, trace fine grained sand @193.8' to 194.2': Sandy SILT (ML), with clay, dark gray, fine grained sand, trace medium flat rounded sand grains @194.2' to 195': No Recovery				
98 195										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD HARD MOD. HARD SOFT V. SOFT	- KNIFE CAN'T SCRATCH - SCRATCHES DIFFICULT - SCRATCHES EASILY - GROVES - CARVES	V. THIN THIN MEDIUM THICK V. THICK	<2" 2"-12" 12"-36" 36"-120" >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE CLOSE MOD. CLOSE WIDE V. WIDE	<2" 2"-12" 12"-36" 36"-120" >120"	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE			
Fe = Iron Oxide Mn = Manganese Oxide										

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

***** This log is a part of a report by Leighton and should not be used as a stand-alone document. *****

LEIGHTON

CORE BORING LOG										BORING NO. CB- 7
PROJECT: El Rodeo Geohazard Investigation										PAGE 14 OF 14
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 14 of 14
EQUIPMENT USED: CME-75										ELEVATION: 293 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 40				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 135				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
98 195							<p>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</p> <p>Total depth of boring: 195' bgs Perched groundwater encountered @ 40'-40.9', 41.8'-43.7', 52'-52.5', 100'-100.2', 105'-108.1', 110'-110.8', 120'-121.8', 135'-139', 140'-140.7', 145'-145.1', and 145.3'-148.2' bgs Local groundwater table encountered @135' bgs Boring backfilled with bentonite and soil cuttings upon completion of drilling. Boring capped with approximately 6-inches of cold patch mix asphalt. Excess cuttings disposed of in D.O.T. approved drums and disposed offsite</p>			
93 200										
88 205										
83 210										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
									COMPLETE	

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG

BORING NO. **CB- 8**
PAGE 1 OF 10

PROJECT: **El Rodeo Geohazard Investigation**
CLIENT: **Beverly Hills Unified School District**
CONTRACTOR: **Martini Drilling Corporation**
EQUIPMENT USED: **CME-75**

JOB NO.: **10274.006**
PAGE NO.: **1 of 10**
ELEVATION: **299.5 Feet**
DATE START: **6/17/2014**
DATE FINISH: **6/17/2014**
DRILLER: **Martini**
PREPARED BY: **EH**
LOCATION: **605 Whittier Blvd., Beverly Hills, Ca**

GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	
06/17/14	ATD	∇ 38.5				INCLINED	Bit (Feet)	
06/17/14	ATD	∇ 128.4			0	BEARING ANG. FROM VERT.	Barrel (Feet) Total (Feet)	

ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS
300	0					@Surface: 5-inches Asphalt @0.4': 8-inches Portland Cement @1': Artificial Fill, Undocumented (Afu): @1' to 5': Hand auger
295	5	Run 1 Box 1	2	40		@5' to 5.2': Asphalt chunks with clay @5.2': Pleistocene Alluvium of Benedict Canyon Wash (BCW): Sandy SILT (ML), with clay, brown, moist, fine grained sand, trace medium to coarse grained sand @5.7'-7': Gravel (GP), thin bed, gleyed, oxidized, with minor manganese oxide on pedogenic faces @6' to 7': Sandy CLAY (CL), with silt, brown, fine grained sand, slightly micaceous, silt and fine sand on pedogenic faces @7' to 10': No Recovery
290	10	Run 2 Box 1	3.2	64		@10' to 11': Sandy SILT (ML), reddish brown, moist, fine grained sand, trace clay, gradational contact @11' to 11.9': Silty SAND (SM), reddish brown, fine grained sand, trace medium grained sand, abrupt contact @11.9' to 12.0': Sandy GRAVEL (GP), reddish brown matrix, with fine to medium grained sand @12.9' to 13.2': Sandy SILT (ML), with clay, olive brown, moist, laminated, fine grained sand, oxidized, friable, windblown @13.2' to 15': No Recovery
285	15					

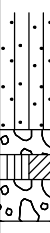

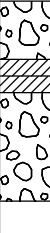

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT_2/1/16

FIELD HARDNESS	BEDDING	ATTITUDE AND ANGLE	JOINTS / SHEAR / FRACTURE	WEATHERING
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES	V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120" Fe = Iron Oxide Mn = Manganese Oxide	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 8
PROJECT: El Rodeo Geohazard Investigation										PAGE 2 OF 10
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 10
EQUIPMENT USED: CME-75										ELEVATION: 299.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 38.5				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 128.4				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
285 15		15-20	Run 1 Box 2	2.5	50		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
280 20						@15' to 16.4': Silty SAND (SM), olive brown, laminated, mostly fine grained oxidized sand, trace medium grained sand, trace clay, abrupt contact, with gravel below				
275 25						@16.4' to 16.7': GRAVEL (GP) bed, gray, fine subangular to subrounded slaty gravels, basal cobble (siliceous), erosive contact below				
270 30						@16.7' to 17': Silty CLAY (CL-ML), olive brown to greenish brown, moist, trace fine grained sand @17' to 17.5': Sandy GRAVEL (GP), reddish brown, moist, fine to coarse grained sand, fine subangular slate and basalt gravels, trace coarse gravels, heavily oxidized and weathered @17.5' to 20': No Recovery				
280 20		20-25	Run 2 Box 2	0.6	12		@20' to 20.6': Sandy GRAVEL (GP), reddish brown, moist, fine to coarse grained sand, fine to coarse subangular slate and basalt gravels @20.6' to 25': No Recovery			
275 25						@25' to 25.7': Sandy GRAVEL (GP), with gravel, brown, moist, fine to coarse grained sand, fine subrounded slate and basalt gravels, heavily oxidized at contact below @25.7' to 25.9': Interbedded Sandy CLAY (CL), reddish brown, fine grained sand, well oxidized @25.9' to 26.2': Sandy CLAY (CL), brownish gray, moist, fine grained sand, poor blocky structure @26.2' to 27.4': Sandy GRAVEL (GP), reddish brown with gray mottling, gleyed, weathered, fine to coarse sand, fine to coarse subangular slaty gravels @27.4' to 30': No Recovery				
275 25		25-30	Run 1 Box 3	2.4	48					
270 30										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE	COMPLETE	
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT-2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 8
PROJECT: El Rodeo Geohazard Investigation										PAGE 3 OF 10
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 10
EQUIPMENT USED: CME-75										ELEVATION: 299.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 38.5				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 128.4				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
270	30	30-35	Run 2 Box 3	3.9	78		@30' to 32': Sandy GRAVEL (GP), reddish brown, fine to coarse grained sand, fine to coarse slate and basalt gravels, nested channel, oxidized at gradational contact below, becomes silty sand			
							@32' to 32.9': Silty SAND (SM), reddish brown, moist, fine to medium grained sand, faintly laminated, poor blocky structure, minor carbonate stringers			
							@32.9' to 33.9': Sandy GRAVEL (GP), reddish brown, fine to coarse grained sand, fine to coarse gravel, oxidized			
						@33.9' to 35': No Recovery				
265	35	35-40	Run 1 Box 4	5	100		@35' to 35.3': Sandy SILT (ML), with clay, reddish olive brown, massive, fine to coarse grained sand, angular siltstone gravels, caps unit below			
							@35.3'-37.5': Sandy GRAVEL (GP), fine to coarse rounded gravels, slaty, basalt, feldspar, siltstone, heavily weathered with heavy oxidation at basal coarse gravel, manganese and oxide rimming of weathered slate, erosive contact below			
							@37.5' to 38': Sandy CLAY (CL), with gravel, reddish brown, moist, fine grained sand, trace medium grained sand, moderate blocky structure, white siltstone cobble at 38', rockline			
							@38' to 42.9': Sandy GRAVEL (GP), reddish brown, very moist, fine to medium grained sand, trace coarse grained sand, fine gravel, poor to moderate blocky structure, yellowish oxidation staining, @42.9': bottom of gravel, top of clay paleosol, gleyed at top, capped with coarse gravels			
260	40	40-45	Run 2 Box 4	4.3	86		@42.9': Sandy CLAY (CL), reddish brown, wet, fine grained sand, gleyed, heavy oxidation, with oxide stringers			
							@43.6' to 44.3': Silty CLAY (CL-ML), olive brown, moist, trace fine sand, abundant oxide stringers, laminated, well oxidized, minor gleying			
						@44.3' to 45': No Recovery				
255	45									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
								V. SEVERE		
								COMPLETE		

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT-2/1/16

***** This log is a part of a report by Leighton and should not be used as a stand-alone document. *****

LEIGHTON

CORE BORING LOG										BORING NO. CB- 8
PROJECT: El Rodeo Geohazard Investigation										PAGE 4 OF 10
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 10
EQUIPMENT USED: CME-75										ELEVATION: 299.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 38.5				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 128.4				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
255 45		45-50	Run 1 Box 5	3.8	76		Pleistocene Cheviot Hills Deposits (CHD): @45' to 47.2': Sandy CLAY (CL), olive brown, moist, fine grained sand, moderate blocky structure, abundant reddish brown oxide and manganese oxide stringers, oxidation-reduction banding			
∇							@47.2' to 48.4': Clayey SAND (SC), reddish brown, wet, laminated, abundant dark reddish brown staining, fine grained sand, minor sandy clay laminations			
							@48.4': Pebbly fine Sandy Gravel bed (GP), wet, oxidized at contact below with clayey sand			
							@48.6': Clayey SAND (SC), reddish brown, wet, laminated, abundant dark reddish brown staining, fine grained sand, minor sandy clay laminations @48.8' to 50': No Recovery			
250 50		50-55	Run 2 Box 5	3.8	76		@50' to 51.5': Silty SAND (SM), reddish brown, clean sand, very moist, mostly fine grained sand, some medium grained sand			
∇							@51.5' to 52': Becomes Sandy GRAVEL (GP), reddish brown, wet, fine to coarse grained sand, fine to coarse subangular to subrounded gravel, weathered gravels, erosive basal contact below			
							@52' to 52.2': Lamination of reddish brown SILT (ML)			
							@52.2' to 52.6': Sandy CLAY (CL), reddish brown, fine to coarse grained sand, moderate blocky structure			
							@52.6': Rock line, siltstone clasts @52.7' to 53.8': Sandy CLAY (CL), reddish brown, moist to very moist, fine to coarse sand, with white siltstone clasts, moderate blocky structure, minor clay rich laminations, abundant manganese oxide @53.8' to 55': No Recovery			
245 55		55-60	Run 1 Box 6	3.6	72		@55' to 55.9': Silty SAND (SM), reddish brown, wet, fine to medium grained sand			
∇							@55.9' to 56.2': Sandy GRAVEL (GP), reddish brown, wet, fine to coarse grained sand, fine subrounded slaty gravel, erosive contact below			
							@56.2' to 56.4': Silty CLAY (CL-ML), reddish brown, wet, trace fine grained sand, heavily oxidized			
							@56.4' to 56.9': Sandy GRAVEL (GP), reddish brown, wet, fine to coarse grained sand, fine subrounded gravel, oxidized, heavily weathered			
							@57' to 58': Sandy CLAY (CL), reddish brown to grayish olive brown, laminated, fine to medium grained sand, trace coarse grained sand, gleyed, moderate blocky structure, slightly micaceous, MnO spotting			
							@58' to 58.6': Sandy Clayey GRAVEL (GC), heavily oxidized @58.6' to 59': Clayey SAND (SC), reddish brown, gleyed, wet, fine to coarse grained sand @59' to 60': No Recovery, possible gravels			
240 60										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES			V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"		HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)		V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120"		FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE	
							Fe = Iron Oxide Mn = Manganese Oxide			

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON


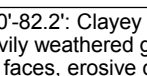
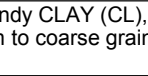
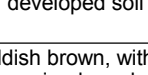
CORE BORING LOG										BORING NO. CB- 8
PROJECT: El Rodeo Geohazard Investigation										PAGE 5 OF 10
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 10
EQUIPMENT USED: CME-75										ELEVATION: 299.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 38.5				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 128.4				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG					
240 60	60-65	Run 2 Box 6	5	100		@60': Silty SAND (SM), reddish brown, gleyed, wet, fine to medium grained sand, normally graded @61.1': Basal gravels, sharp contact @61.1': Silty CLAY (CL-ML), with sand, reddish brown to grayish brown, thinly laminated, oxidation-reduction banding, MnO spotting, gleyed. well developed blocky structure				
235 65						@64.1' to 67.4': Sandy CLAY (CL), reddish brown and gray, with oxidation staining, laminated, oxidation-reduction banded, occasional fine slate and siltstone gravels, MnO spotting, dark red well developed paleosol, siltstone basal rockline at 67.4'				
230 70	65-70	Run 1 Box 7	5	100		@67.4'-68.7': Sandy CLAY (CL), with few siltstone angular gravels, oxidation-reduction banding, blocky structure, oxidized @68.7'-69.3': abundant angular siltstone and slate clasts, basal rounded slaty gravel at 69.3'				
						@70' to 70.9': Sandy CLAY (CL), reddish brown and gray, with faint MnO lamination, moderate blocky structure, fine to medium grained sand				
225 75	70-75	Run 2 Box 7	5	100		@70.9' to 72.9': Becomes mostly massive, occasional MnO laminations, reddish brown, gleyed, gray mottling, fine to medium grained sand, poor to moderate blocky structure, occasional carbonate stringers				
						@72.8': Siltstone and pebbly slate rock line				
						@73.7'-74.7': Gravelly CLAY (CL), angular siltstone and slate gravels				
						@74.7'-75.3': Sandy CLAY (CL), fine grained, basal coarse rounded slaty				
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 8
PROJECT: El Rodeo Geohazard Investigation										PAGE 6 OF 10
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 6 of 10
EQUIPMENT USED: CME-75										ELEVATION: 299.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 38.5				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 128.4				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
225 75		75-80	Run 1 Box 8	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							gravel at 75.3' @75.3'-80': Sandy CLAY (CL), reddish brown to orange brown, fine sand, occasional fine slaty gravel, clay laminations, MnO stained, oxidized			
220 80		80-85	Run 2 Box 8	5	100		@80'-82.2': Clayey Sandy GRAVEL (GP), fine to coarse sand, fine to coarse heavily weathered gravel, oxidized, rounded slaty gravels, clay in matrix and on ped faces, erosive contact below			
∇							@82.2' to 82.9': Sandy CLAY (CL), reddish brown, very moist, fine grained sand, trace medium to coarse grained sand, moderate to strong blocky structure			
							@82.9' to 83.4': Sandy CLAY (CL), reddish brown, moist, fine grained sand, slightly micaceous			
							@83.4' to 83.5': Thin sand rich lens, fine to medium grained @83.5' to 85': Becomes less sandy, reddish brown, moderate blocky structure, fine grained sand, white brown well developed soil with MnO in matrix			
215 85		85-90	Run 1 Box 9	5	100		@85' to 86': Sandy CLAY (CL), reddish brown, with minor gleying, fine to medium grained sand, trace coarse grained sand, poor blocky structure, trace fine gravel, clay on ped faces			
							@86': Thinly laminated brown clay, oxidation-reduction banding of 1-foot thick clays			
							@87.3' to 88.3': increase in fine angular gravel content, gravels are coated with clay, white siltstone and weathered slaty gravel to 88.3'			
210 90							@88.3' to 91.7': Sandy CLAY (CL), reddish brown, faintly laminated, minor gleying, fine to medium grained sand, trace coarse grained sand, trace fine slaty gravel, blocky structure, MnO staining			
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
									COMPLETE	

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 8
PROJECT: El Rodeo Geohazard Investigation										PAGE 7 OF 10
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 7 of 10
EQUIPMENT USED: CME-75										ELEVATION: 299.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 38.5				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 128.4			0	BEARING	Barrel (Feet)			PREPARED BY: EH
		∇				ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
						The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
210	90					<p>@91.2': Sand rich lamination, fine grained sand</p> <p>@91.7' to 91.9': Lamination of orangish brown fine grained SAND (SP), micaceous</p> <p>@91.9' to 94.5': Sandy CLAY (CL), reddish brown, moist, fine grained sand, trace medium to coarse grained sand, minor sandier laminations, moderate blocky structure, MnO₂ staining on faces</p> <p>@92.1'-92.4': CLAY (CL), light brown to yellow brown, MnO lamination</p> <p>@92.4'-94.5': Sandy CLAY (CL), reddish brown, moist, fine grained sand, minor sandier laminations, moderate blocky structure, MnO staining on faces, abrupt capping of gravels</p> <p>@94.5' to 95': Sandy GRAVEL (GP), fine to coarse grained sand, fine to coarse predominantly subangular slaty gravels, wet</p> <p>@95' to 95.1': Thin lamination of Clayey SAND (SC), fine to coarse grained sand</p> <p>@95.1' to 95.7': Sandy CLAY (CL), reddish brown, very moist, fine grained sand, trace medium grained sand, poor blocky structure, fining upward, gradational contact with below</p> <p>@95.7' to 96.5': Gravelly SAND with Clay (SW-SC), wet, fine to coarse grained sand, fine subangular slaty gravels, trace siltstone clasts</p> <p>@96.5' to 96.9': Clayey SAND (SC), reddish brown, wet, fine grained sand, slightly micaceous</p> <p>@96.9' to 97.1': Slate GRAVEL (GP) bed</p> <p>@97.1' to 97.7': Interbedded Sand (SP), fine to medium grained sand</p> <p>@98.8' to 99.1': Fine to coarse slaty GRAVEL (GP) bed, subangular, erosive contact below</p> <p>@99.1' to 99.3': Silty SAND (SM), reddish brown, wet, fine to coarse grained sand, trace gravel, gradational contact</p> <p>@99.3' to 99.7': Sandy CLAY (CL), reddish brown, very moist, fine to medium grained sand, moderate blocky structure</p> <p>@99.7' to 100': Clayey Sandy GRAVEL (GC), wet, fine to coarse grained sand, fine subangular slaty gravels</p> <p>@100': SAND (SP), grayish brown to reddish brown, wet, fining upwards</p> <p>@101.2' to 102': Medium to coarse grained sand, slate, quartz, and siltstone fragments, basalt pebble gravel contact below</p> <p>@102' to 102.4': Sandy CLAY (CL), reddish brown, wet, fine grained sand, trace medium grained sand, MnO spotting</p> <p>@102.4' to 103.1': Sandy GRAVEL (GP), mottled yellowish brown to brown, fine to medium grained sand, carbonate stringers</p> <p>@103.1' to 105': No Recovery</p>				
		Run 2 Box 9	5	100						
205	95									
		Run 1 Box 10	5	100						
200	100									
		Run 2 Box 10	3.1	62						
195	105									

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS	BEDDING	ATTITUDE AND ANGLE	JOINTS / SHEAR / FRACTURE	WEATHERING
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES	V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120" Fe = Iron Oxide Mn = Manganese Oxide	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 8							
PROJECT: El Rodeo Geohazard Investigation										PAGE 8 OF 10							
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006							
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 8 of 10							
EQUIPMENT USED: CME-75										ELEVATION: 299.5 Feet							
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014							
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014							
06/17/14	ATD	∇ 38.5				INCLINED	Bit (Feet)			DRILLER: Martini							
06/17/14	ATD	∇ 128.4				BEARING	Barrel (Feet)			PREPARED BY: EH							
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca							
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS											
						The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.											
195	105	Run 1 Box 11	4.5	90		@105' to 105.6': Silty Sandy CLAY (CL-ML), reddish brown, moist, fine grained sand	@105.6' to 106': Becomes less sandy, MnO spotting	@106' to 106.5': Sandy CLAY (CL), reddish brown, moist, fine to medium grained sand, poor blocky structure	@106.5' to 106.9': Becomes less sandy, MnO spotting	@106.9' to 107.2': Sandy lamination	@107.2' to 107.6': Sandy CLAY (CL), reddish brown, fine grained sand, some silt, MnO spotting	@107.6' to 108.1': Becomes laminated, gleyed	@108.1' to 108.3': Lamination of Clayey SAND (SC), reddish brown, fine to coarse grained sand	@108.3' to 108.7': Sandy CLAY (CL), reddish brown, fine grained sand, trace medium grained sand, MnO spotting, carbonate stringers	@108.7': Dark brown lamination		
190	110					Run 2 Box 11	3.9	78		@109.5' to 110': No Recovery	@110' to 110.7': Clayey Gravelly SAND (SW-SC), reddish brown, wet, fine to coarse grained sand, fine slaty gravels, gradational contact	@110.7' to 111.2': Sandy CLAY (CL), reddish brown, with minor gleying, faintly laminated, fine grained sand, MnO spotting	@111.2' to 111.6': Sandy GRAVEL (GP) bed, fine to coarse grained sand, fine slaty gravels, trace coarse gravel	@111.6' to 111.9': Sandy CLAY (CL), reddish brown, fine grained sand, wet, MnO spotting, blebs, grades coarser	@111.9' to 113.9': Channel Deposits, Sandy Clayey GRAVEL (GP), fine to coarse grained sand, fine to coarse subangular slate fragments and gravels		
185	115									Run 1 Box 12	5	100		@113.9' to 115': No Recovery	@115' to 118.8': Silty SAND (SM), medium reddish brown, wet, fine to medium grained sand, some clay	@118.8' to 118.9': Thin layer of gray shale fragments	@118.9': Silty SAND (SM), medium brown, wet, fine to medium grained sand
180	120																

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
								SEVERE	COMPLETE



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 8
PROJECT: El Rodeo Geohazard Investigation										PAGE 9 OF 10
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 9 of 10
EQUIPMENT USED: CME-75										ELEVATION: 299.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 38.5				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 128.4				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
180	120	120-125	Run 2 Box 12	4.1	82		@121.6' to 124.1': Slightly coarser			
							@124.1' to 125': No Recovery			
175	125						@125' to 125.6': Sandy CLAY (CL), dark reddish brown to strong brown, gleyed, fine grained sand, trace medium to coarse grained sand, minor carbonate			
		@125.6' to 126.1': Sandy CLAY (CL), with gravel, dark reddish brown with gray mottling, fine grained sand, some medium to coarse grained sand, fine slaty gravels								
		@126.1' to 128.4': Gravelly Sandy CLAY (CL), reddish brown with gray mottling, very moist, fine to medium grained sand, some coarse grained sand, fine quartz and slate gravels, with carbonate nodules and concretions, poor blocky structure, abrupt contact								
		@128.4': Clayey Gravelly SAND (SW-SC), reddish brown and gray, gleyed, wet, fine to coarse grained sand, fine subangular slate, oxide staining, minor carbonate blebs								
		@128.4' to 130': Missing								
170	130	130-135	Run 2 Box 13	1.2	24		@130' to 130.5': Silty SAND (SM), reddish brown, mostly fine to medium grained sand, some coarse grained sand			
							@130.5' to 130.7': Basal Gravelly SAND (SW), fine to coarse grained sand, fine to coarse subangular to subrounded slaty gravels			
							@130.7' to 131.2': Silty Clayey SAND (SM-SC), with gravel, thinly laminated, reddish brown to black, orange and tan, MnO banding, carbonate concretions, fine slaty gravels, fine to medium grained sand			
		@131.2' to 135': No Recovery								
165	135									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
								V. SEVERE		
								COMPLETE		

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 8
PROJECT: El Rodeo Geohazard Investigation										PAGE 10 OF 10
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 10 of 10
EQUIPMENT USED: CME-75										ELEVATION: 299.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 6/17/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 6/17/2014
06/17/14	ATD	∇ 38.5				INCLINED	Bit (Feet)			DRILLER: Martini
06/17/14	ATD	∇ 128.4				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
165 135	135-140	Run 1 Box 14	3.4	68		@135' to 136.9': Clayey SAND (SC), orangish brown, fine to coarse grained sand, trace fine slaty gravels, carbonate nodules and concretions, coarsens downward, poor blocky structure, minor MnO spotting, gradational contact @136.9' to 137.5': Clayey Sandy SILT (ML-CL), orangish brown, fine grained sand, trace medium grained sand, trace fine gravel, MnO banding, minor carbonate, gradational contact @137.5' to 138': Clayey SAND (SC), with gravel, orangish brown, very moist, fine to coarse grained sand, fine slaty gravels, oxidation staining, faintly gleyed, abrupt contact @138.1' to 138.3': Silty SAND with Clay (SM-SC), orangish tan brown, fine grained sand, laminated, MnO band @138.3' to 138.4': Becomes fine to medium grained Silty SAND (SM) @138.4' to 140': No Recovery				
160 140	140-145	Run 2 Box 14	5	100		@140' to 144.8': SAND with Silt (SP-SM), medium brown, very moist, fine to medium grained sand, trace coarse grained sand, quartz and slate grains				
155 145						@144.8' to 145': Lamination of Sandy CLAY (CL), with fine gravel, slate fragments, laminated, carbonate concretions				
150 150						Total depth of boring: 145' bgs Perched groundwater encountered @ 38.5'-39.4', 40'-43.6', 47.2'-48.8', 51.5'-52', 55-57', 58.6-59', 60'-61.1', 81.4'-81.6', 81.9'-82.2', 94.5'-95', 95.7'-99.3', 99.7'-102.4', 110'-110.7', 111.6'-111.9', 115'-124.1', and 128.4' bgs Boring backfilled with bentonite and soil cuttings upon completion of drilling. Boring capped with approximately 6-inches of cold patch mix asphalt. Excess cuttings disposed of in D.O.T. approved drums and disposed offsite				
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD HARD MOD. HARD SOFT V. SOFT	- KNIFE CAN'T SCRATCH - SCRATCHES DIFFICULT - SCRATCHES EASILY - GROVES - CARVES	V. THIN THIN MEDIUM THICK V. THICK	<2" 2"-12" 12"-36" 36"-120" >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE CLOSE MOD. CLOSE WIDE V. WIDE	<2" 2"-12" 12"-36" 36"-120" >120"	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE			
Fe = Iron Oxide Mn = Manganese Oxide										

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON



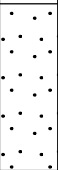


CORE BORING LOG										BORING NO. CB-8A
PROJECT: El Rodeo School										PAGE 1 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 5
EQUIPMENT USED: CME-75										ELEVATION: 300 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/31/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/1/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
300	0					█	3.5 inches Asphalt			
						▨	@0.3'-1.2': Artificial Fill (Afu)			
		0-5	Run 1 Box 1			▨	Pleistocene Alluvium of Benedict Canyon Wash (BCW₂)			
						▨	@1.2'-3.1': Sandy CLAY (CL), dark brown, hard, white sand sized siltstone chips, clay development on pedogenic faces, severely weathered sandstone clasts			
						▨	@3.1'-3.6': Silty SAND (SM), reddish brown, fine to coarse sand, over coarse slaty gravels			
						▨	@3.6'-3.9' Basal Sandy GRAVEL (GP), rounded fine gravels, weathered slate and white siltstone chips, erosive contact below			
						▨	@3.9'-5': Sandy CLAY (CL), brown to reddish brown, trace coarse slaty sand and white siltstone chips, oxidized, gleyed			
295	5					▨	@5'-6': Gravelly SAND (GP), reddish brown, fine to coarse rounded slaty gravel and siltstone chips			
		5-10	Run 2 Box 1			▨	@6'-6.8': Silty SAND (SM), brown fine sand, trace coarse sand, and fine to pbbly gravel			
						▨	@6.8'-7.7': Sandy GRAVEL (GP) at base of contact from 7.3' to 7.7', silty sand above, weathered basalt and slate fragments			
						▨	@7.7'-10.2': Sandy CLAY (CL), light brown, fine sand			
						▨	Becomes laminated			
290	10					▨	@10.2'-13.5': SAND with Gravel (SP), yellow brown, fine to coarse sand, weathered slate and siltstone gravels			
		10-15	Run 1 Box 2			▨	@13.5'-13.9': Basal Gravel (GP), weathered slate and siltstone gravels, erosive contact below			
						▨	@13.9'-15.5': Silty SAND (SM), light gray brown (color change from above)			
285	15					▨				
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***




LEIGHTON

CORE BORING LOG										BORING NO. CB-8A
PROJECT: El Rodeo School										PAGE 2 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 5
EQUIPMENT USED: CME-75										ELEVATION: 300 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/31/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/1/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG					
285 15	15-20	Run 2 Box 2				@15.5'-17': Sandy GRAVEL (GP), gray brown, fine to coarse sand, fine to coarse rounded slaty gravel, oxidized clasts at 16'. Basal cobble at 16.7'-17', siliceous sandy rounded cobble, nested channel				
						@17'-19': Sandy GRAVEL (GP), oxidized, severely weathered slate and basalt fragments, basal cobble @19', well rounded, nested channels				
						@19'-20': No recovery				
280 20	20-22.5	Run 1 Box 3	2.4	96		@20'-22.4': Sandy GRAVEL (GP), dark reddish brown, slightly moist, fine to coarse sand, severely weathered slate, basalt and siltstone fragments, rounded gravels, nested channels				
	22.5-25	Run 2 Box 3	2.5	100		@22.4': No recovery @22.5': Gravelly SAND (SP), olive brown, slightly moist, fine to coarse sand, trace clay				
						@24.5'-25': Basal Sandy GRAVEL (GP)				
275 25						@25'-25.7': Sand (SP), fine to coarse sand				
	25-27.5	Run 3 Box 3	2.5	100		@25.7'-26.8': Sandy Gravel (GP), orange brown to reddish brown, basal gravels, erosive contact below, nested channel, weathered gravels, oxidized				
						@26.8': Silty SAND (SM), olive brown, moist, fine sand, trace angular gravel				
	27.5-30	Run 4 Box 3	2.5	100		@27.3': Gravelly SAND (SP), olive brown, moist, fine to coarse sand and gravel, rounded gravels, weathered slate				
						@29.3'-30': Basal Sandy GRAVEL (GP), heavily oxidized slate and siltstone, oxidized crystalline rock fragments at 29.3'.				
270 30										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-8A
PROJECT: El Rodeo School										PAGE 3 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 5
EQUIPMENT USED: CME-75										ELEVATION: 300 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/31/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/1/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
270 30		30-35	Run 1 Box 4	4.5	90		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@30'-31.7': Sandy GRAVEL (GP), fine gravels, rounded to 31.3', coarse rounded to small cobbles to 31.7', nested channels			
							@31.7'-32.6': Sandy Gravel (GP), oxidized, weathered, rounded slaty gravels with white siltstone chips			
							@32.6'-33': SAND (SP), fine to coarse sand, oxidized, with white siltstone chips			
							33'-33.2': Basal cobbles, heavily weathered siltstone cobble, nested channel			
		@33.2'-34.5': Sandy Gravel (GP), fine to coarse sand, fine to coarse rounded and severely oxidized gravels								
		@34.5': No recovery								
265 35		35-40	Run 2 Box 4	5	100		@35'-36.2': Gravelly SAND (SP), light gray brown, fine to coarse sand, fine to coarse rounded slaty gravels, @ 36.2' oxidized orange brown basalt fragments			
							@36.2'-37.6': Sandy Gravel (GP), with crystalline rock fragments and white siltstone from 36.9 to 37.1, basal contact below			
							@37.6': Becomes Gravelly SAND (SP) to Sandy GRAVEL (GP) @ 38.1, basalt fragment at 39.2', nested channels			
260 40		40-45	Run 1 Box 5	4.6	92		@40'-42.2': Gravelly SAND (SP), fine to coarse sand, brown to reddish brown, rounded gravels, basal cobble at 42.2', well rounded			
							@42.2': Sandy GRAVEL (GP), heavily weathered, oxidized rimming of gravels, dark reddish brown clay matrix, clay development on ped faces, decomposed sandstone and granitic rock clasts			
255 45		@44.6': No recovery								


FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-8A
PROJECT: El Rodeo School										PAGE 4 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 5
EQUIPMENT USED: CME-75										ELEVATION: 300 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/31/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/1/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG					
255 45	45-50	Run 2 Box 5	5	100		Pleistocene Cheviot Hills Deposit (CHD) @45': CLAY (CL), brown to orange brown, moist, oxidized, well developed blocky fracture, oxide and manganese oxide on pedogenic faces				
						@48.1': Sandy GRAVEL (GP), dark olive brown, saturated, fine to coarse sand and gravel, oxidized, weathered slaty gravels and sandstone clast at 49.6'				
250 50	50-55	Run 1 Box 6	3.8	76		@50': No recovery (due to overdrill from previous night)				
						@51.2': Silty SAND (SM), reddish brown, wet, fine to coarse sand, few coarse slaty gravel and weathered basalt; basal erosive contact, coarse sand size white siltstone fragments				
						@52.5'-53.2': Sandy SILT (ML), orange brown, fine grained, oxidized				
						@53.2'-54.3': Sandy GRAVEL (GP), fine to coarse rounded sand and pebbles, fine to coarse slaty gravel. Basal contact at 54.3'.				
						@54.3': Sandy SILT (ML), laminated, very fine sand, orange brown to olive brown				
245 55	55-60	Run 2 Box 6	5	100		@54.7'-55.5': CLAY (CL), laminated, dark reddish brown to orange brown, blocky structure, clay and oxide with manganese oxide on pedogenic faces				
						@ 55.5'-56.5': Sandy GRAVEL (GP), brown to reddish brown, rounded slaty gravel, erosive contact below				
						@56.5'-58': Sandy CLAY (CL), brown to red brown, blocky structure, fine sand, oxidized, white siltstone chips at base of contact				
						@58'-59.2': SAND (SP), orange brown, fine sand with fine to pebbly rounded slaty gravels, heavy oxidation, very fine sand at contact below				
240 60						@59.2': CLAY (CL), dark brown to reddish brown, well developed blocky structure, manganese oxide on pedogenic faces, occasional rounded slaty fine				
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"				
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"				
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"				
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"				
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16














***** This log is a part of a report by Leighton and should not be used as a stand-alone document. *****

LEIGHTON

CORE BORING LOG										BORING NO. CB-8A
PROJECT: El Rodeo School										PAGE 5 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 5
EQUIPMENT USED: CME-75										ELEVATION: 300 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/31/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/1/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
					0	ANG. FROM VERT.	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
240	60						<div style="border: 1px solid black; padding: 5px;"> gravel </div> <p>Total depth of boring: 60 feet bgs Perched groundwater encountered at approximately 48.1-50', 51.2-52.5' Boring backfilled with bentonite-cement grout and patched with cold patch asphalt</p>			
235	65									
230	70									
225	75									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

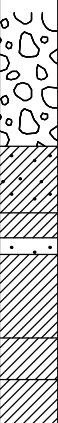



LEIGHTON

CORE BORING LOG										BORING NO. CB- 9
PROJECT: El Rodeo Geohazard Investigation										PAGE 1 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 6
EQUIPMENT USED: CME-75										ELEVATION: 298 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/7/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/8/2014
07/07/14	ATD	∇ 34.7				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: EH
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
298	0						Artificial Fill, Undocumented (Afu): @0'-5': Hand Auger			
293	5						@5': Pleistocene Alluvium of Benedict Canyon Wash (BCW): Sandy CLAY (CL), brown, moist, fine to medium grained sand, laminated, overlies abruptly			
		5-10	Run 1 Box 1	5	100		@5.2' to 6.9': Silty SAND (SM), with gravel, dark reddish brown, moist, fine to coarse grained sand, well oxidized, rounded coarse grained sand and pebbly fine slaty and siltstone gravels, graded below			
							@6.9' to 7.9': Sandy GRAVEL (GP), fine to coarse grained sand, heavily weathered and oxidized, fine to coarse gravels, coarse basal gravel, abrupt contact below			
							@7.9' to 8.3': Silty SAND (SM), fine grained, well oxidized, poorly graded, erosive contact below			
							@8.3' to 10': Sandy CLAY (CL), reddish brown, moist, fine grained sand, moderate blocky structure, minor carbonate stringers, oxide and manganese oxide on pedogenic faces			
288	10						@10' to 10.8': Sandy CLAY (CL), reddish brown, moist, fine grained sand, moderate blocky structure, siltstone fragments			
							@10.8': Rock line			
		10-15	Run 2 Box 1	5	100		@10.9': Clayey SILT (ML), dark reddish brown, soft, oxidized, minor blocky structure, laminated near base at 12.3'			
							@12.3' to 13.2': Silty SAND (SM), reddish brown, fine to medium grained sand, trace clay			
							@13.2' to 14.2': Sandy GRAVEL (GP), rounded to subangular fine slate and quartz gravels, heavily weathered, oxidized with manganese oxide			
283	15						@14.2' to 14.5': Layer of SAND (SP), reddish brown, fine to medium grained sand, trace coarse grained sand, fine subangular slate gravels, laminated and			
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD HARD MOD. HARD SOFT V. SOFT	- KNIFE CAN'T SCRATCH - SCRATCHES DIFFICULT - SCRATCHES EASILY - GROVES - CARVES	V. THIN THIN MEDIUM THICK V. THICK	<2" 2"-12" 12"-36" 36"-120" >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE CLOSE MOD. CLOSE WIDE V. WIDE	<2" 2"-12" 12"-36" 36"-120" >120"	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE			
Fe = Iron Oxide Mn = Manganese Oxide										

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

***** This log is a part of a report by Leighton and should not be used as a stand-alone document. *****

LEIGHTON

CORE BORING LOG										BORING NO. CB- 9
PROJECT: El Rodeo Geohazard Investigation										PAGE 2 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 6
EQUIPMENT USED: CME-75										ELEVATION: 298 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/7/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/8/2014
07/07/14	ATD	∇ 34.7				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: EH
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
283	15	15-20	Run 1 Box 2	5	100		well oxidized			
							@14.5' to 16.6': Sandy GRAVEL (GP), reddish brown to orange brown, fine to coarse grained sand, fine to coarse rounded, heavily weathered slaty, basalt, and white siltstone gravel			
							@16.6': Basal heavily oxidized slaty gravel and cobble sized white siltstone			
							@16.6' to 17.4': Color change, Clayey SAND (SC), olive brown to gray brown, very moist, fine grained sand, MnO staining, coarse siltstone gravel @17.4', abrupt contact			
							@17.4' to 17.7': CLAY (CL), grey brown, fine grained sand, basal siltstone, top of sand bed below			
							@17.7' to 17.9': SAND (SP) bed, olive gray to reddish gray, moist, minor gleying, sporadic slaty gravels			
							@17.9' to 18.9': Sandy CLAY (CL), gray brown, gleyed, faintly laminated, with yellow oxide staining, trace fine gravels, moderate blocky structure, oxidized with contact below			
278	20	20-25	Run 2 Box 2	5	100		@18.9' to 19.4': Sandy CLAY (CL), reddish brown, gleyed, fine grained sand, trace coarse grained sand, fine gravel, poor blocky structure, with clay on pedogenic faces, minor calcium carbonate on pedogenic faces			
							@19.4' to 20.3': Sandy CLAY (CL), reddish brown, gleyed, fine grained sand, moderate blocky structure, clay on faces, abrupt contact, heavily oxidation and fine gravel at contact below			
							@20.3' to 21.6': Sandy CLAY (CL), with gravel, dark reddish brown, moist, fine to coarse grained sand, fine to coarse subangular to subrounded slate and siltstone gravels, well developed blocky structure, heavily oxidized clasts, oxide and clay on pedogen			
							@21.6' to 23.6': Sandy GRAVEL (GP), dark reddish brown, oxidized, heavily weathered gravel, basal siltstone cobble, nested channel at 23.6'			
							@23.6' to 24.5': Sandy GRAVEL (GP), fine to coarse grained sand, fine to coarse subangular to subrounded slaty gravels			
273	25	25-30	Run 1 Box 3	5	100		@24.5' to 27.9': Sandy GRAVEL (GP), fine to coarse grained sand, reddish brown, fine rounded slaty gravel, heavily weathered siltstone, basalt, and slate, basal coarse gravel and cobble, at 27.6' to 27.9' erosive planar contact below, nested channel			
							@27.9' to 28.7': Gravelly SAND (SP)			
							@28.7' to 30.2': Basal coarse gravels, cobbles, slaty siliceous crystalline, siltstone, rounded, heavily weathered, oxidized, abrupt erosive contact below			
268	30									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT_2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 9
PROJECT: El Rodeo Geohazard Investigation										PAGE 3 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 6
EQUIPMENT USED: CME-75										ELEVATION: 298 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/7/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/8/2014
07/07/14	ATD	∇ 34.7				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: EH
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
268	30	30-35	Run 2 Box 3	5	100		@30.2': Sandy CLAY (CL), reddish brown, dark reddish brown in matrix, gleyed, very moist, gleyed, oxidation-reduction banding, fine grained sand, poor blocky structure, few sand laminations			
							@31.1' to 32.1': Clayey SAND (SC) laminated, reddish brown, fine grained sand			
							@32.1' to 34.4': Sandy CLAY (CL), reddish brown, minor gleying, becomes more massive than above, moderate blocky structure, sandy laminations, abrupt contact below			
∇							@34.4' to 35.4': Sandy GRAVEL (GP), reddish brown, moist, fine to coarse grained sand, fine gravels, basal cobbles at 35.4', nested channel			
263	35	35-40	Run 1 Box 4	4.6	92		@35.4 to 40.7': Sandy GRAVEL (GP), reddish brown, wet, fine to coarse grained sand, subangular slate and siltstone gravels, thin clay and windblown silt lamination @36.3', weathered gravels, MnO oxidation on coarse gravels, at 40.7' layer of yellow brown			
							@39.6' to 40': No Recovery			
258	40	40-45	Run 2 Box 4	4.6	92		@40.7' to 42.1': Sandy GRAVEL (GP), reddish brown, wet, fine to coarse grained sand, fine to coarse slaty gravel, heavily weathered basalt gravels, basal zone heavily oxidized, manganese oxide and oxidized weathered gravels, erosive contact below			
							@41.8': Pleistocene Cheviot Hills Deposits (CHD): Sandy CLAY (CL), reddish brown to orange brown, massive, poorly graded, fine grained sand, oxidized, gleyed, oxidation stringers			
253	45						@44.6' to 45': No Recovery, sand in sampler			
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 9
PROJECT: El Rodeo Geohazard Investigation										PAGE 4 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 6
EQUIPMENT USED: CME-75										ELEVATION: 298 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/7/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/8/2014
07/07/14	ATD	∇ 34.7				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: EH
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
253	45	45-50	Run 1 Box 5	5	100		@45' to 47.2': Sandy CLAY (CL), reddish brown, gleyed, MnO spotting			
							@47.2' to 47.8': Silty fine SAND (SM), coarse grained basal sand, MnO development at contact below			
							@47.8' to 47.9' Sandy CLAY bed @47.9' to 48.9': Becomes fine Silty SAND (SM), basal rounded fine gravel at 48.9', heavily oxidized at contact			
248	50	50-55	Run 2 Box 5	5	100		@48.9' to 53.9': Sandy CLAY (CL), reddish brown, gleyed and oxidized, fine to medium grained sand, well developed blocky structure, clay and oxide on pedogenic faces, gleyed, abrupt contact with gravel below			
∇										
243	55	55-60	Run 1 Box 6	5	100		@53.9' to 54.6': Sandy Gravel (GP), reddish brown, wet, fine to coarse grained sand, fine subangular slate gravels, siltstone clasts, base of contact is sand with coarse sand-sized siltstone fragments, abrupt erosional contact below, heavily weathered clasts			
							@54.6' to 59.5': Sandy CLAY (CL), light reddish brown, gleyed and oxidized, fine to medium grained sand, few coarse grained sand, oxidation-reduction banding, variegated below, very sporadic fine subrounded white slaty gravels, MnO and oxide on pedogenic			
238	60						@59.5' to 60': Sandy CLAY (CL), color change, dark reddish brown, gleyed and			
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 9
PROJECT: El Rodeo Geohazard Investigation										PAGE 5 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 6
EQUIPMENT USED: CME-75										ELEVATION: 298 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/7/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/8/2014
07/07/14	ATD	∇ 34.7				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: EH
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
238	60	60-65	Run 2 Box 6	5	100		oxidized, fine to medium grained sand, trace coarse grained sand, with minor faint carbonate stringers, moderate blocky structure, minor MnO spotting, "Chocolate brown clay" @60' to 66.4': Sandy CLAY (CL), reddish brown and gray, laminated, oxidation-reduction banding, gleyed, fine grained sand, trace medium to coarse grained sand, heavily oxidized, well developed blocky structure, iron oxide, MnO and clay on pedogenic faces,			
233	65	65-70	Run 1 Box 7	5	100		@66.4': Color change, very dark reddish brown, Sandy CLAY (CL), well developed blocky structure, iron oxide and MnO on pedogenic faces			
							@68.2' to 70.2': Gravelly CLAY (CL), reddish brown, gleyed, fine to medium grained sand, trace coarse grained sand, fine subrounded slate and siltstone gravels, moderate blocky structure, heavily weathered slate, siltstone, basalt gravels, basal gravel be			
228	70	70-75	Run 2 Box 7	5	100		@70.2' to 71.7': Sandy CLAY (CL), reddish brown, faintly laminated, fine grained sand, few medium to coarse grained sand, trace fine gravel, MnO spotting			
							@71.7': Thin coarse sand fine pebbly slate and weathered siltstone gravels, erosive contact below @71.7' to 74.3': Sandy CLAY (CL), reddish brown to gray brown, oxidized, MnO in matrix @74.3': Basal slaty weathered gravel, rock line, Sandy CLAY to depth.			
223	75									


ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
								COMPLETE	







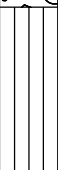


*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB- 9
PROJECT: El Rodeo Geohazard Investigation										PAGE 6 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 6 of 6
EQUIPMENT USED: CME-75										ELEVATION: 298 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/7/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/8/2014
07/07/14	ATD	∇ 34.7				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: EH
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)		SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS		
223	75							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.		
218	80							Total depth of boring: 75' bgs Perched groundwater encountered @34.7'-37.8', 40'-41.8', and 53.9'-54.6' bgs Boring backfilled with bentonite and soil cuttings upon completion of drilling. Boring capped with approximately 6-inches of Rapid Set Concrete		
213	85									
208	90									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD HARD MOD. HARD SOFT V. SOFT	- KNIFE CAN'T SCRATCH - SCRATCHES DIFFICULT - SCRATCHES EASILY - GROVES - CARVES	V. THIN THIN MEDIUM THICK V. THICK	<2" 2"-12" 12"-36" 36"-120" >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE CLOSE MOD. CLOSE WIDE V. WIDE	<2" 2"-12" 12"-36" 36"-120" >120"	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE			

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-10
PROJECT: El Rodeo Geohazard Investigation										PAGE 1 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 6
EQUIPMENT USED: CME-75										ELEVATION: 296.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/8/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/9/2014
07/08/14	ATD	∇ 35.4				INCLINED	Bit (Feet)			DRILLER: Martini
		∇				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	<p>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</p>				
297	0					<p>Artificial Fill, Undocumented (Afu): @0'-5': Hand Auger 2.5 ft Runs to 30'</p>				
292	5					<p>@5': Pleistocene Alluvium of Benedict Canyon Wash (BCW): Sandy SILT with Clay (ML-CL), medium brown, moist, fine grained sand, occasional fine slaty gravel, blocky structure, clay and oxide on ped faces, oxidized</p>				
287	10	Run 1 Box 1	5	100		<p>@9.4' to 10': Clayey Silty SAND (SC-SM), with gravel, medium brown, moist, mostly fine to medium grained sand, some coarse grained sand, fine subangular slate and siltstone gravels</p>				
287	10					<p>@10' to 12.1': Sandy GRAVEL (GP), with gravel, medium brown to slightly reddish brown, moist, fine to medium grained sand, some coarse grained sand, high fines content, fine rounded slate and siltstone gravels, heavily weathered gravels, erosive contact below</p>				
287	10	Run 2 Box 1	5	100		<p>@12.1' to 14.1': Clayey SILT (ML), reddish brown, moist, fine grained sand, slightly micaceous, poor blocky structure, MnO on ped faces</p>				
282	15					<p>@14.1' to 15.7': Sandy GRAVEL (GP), reddish brown, moist, mostly fine to medium grained sand, few coarse grained sand, fine subrounded slaty gravels</p>				
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		SEVERE		
								COMPLETE		

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT-2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-10
PROJECT: El Rodeo Geohazard Investigation										PAGE 2 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 6
EQUIPMENT USED: CME-75										ELEVATION: 296.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/8/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/9/2014
07/08/14	ATD	∇ 35.4				INCLINED	Bit (Feet)			DRILLER: Martini
		∇				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG					
282 15	15-20	Run 1 Box 2	5	100		@15.7' to 17.2': SAND (SP), with gravel, reddish brown, moist, mostly fine to medium grained sand, some coarse grained sand, fine subround slaty gravels				
						@17.2'-18.9': Sandy GRAVEL (GP), mottled reddish brown to yellowish brown to orange, fine to coarse sand, fine to coarse slate and siltstone gravels, erosional contact below				
	20-25	Run 2 Box 2	5	100		@18.9' to 19.6': Sandy CLAY (CL), reddish brown, moist, fine grained sand, gradational contact				
277 20						@19.4' to 20': Clayey GRAVEL (GC), mottled reddish brown to yellowish brown to orange, fine to medium grained sand, fine subangular slaty gravels, oxidized clasts				
						@20' to 20.5': Sandy CLAY (CL), olive brown to reddish brown, fine grained sand, with trace medium to coarse grained sand, fine gravel, poor blocky structure, abundant MnO spotting				
						@20.5' to 20.6': Lamination of Clayey SAND (SC), fine to coarse grained sand, gradational contact				
	25-30	Run 1 Box 3	5	100		@20.6' to 22.6': Sandy CLAY (CL), reddish brown, very moist, fine grained sand, faint gleying, occasional fine subrounded slaty gravels, clasts are clay coated, poor to moderate blocky structure, abrupt contact				
						@22.6' to 24.6': Sandy GRAVEL (GP), mottled reddish brown to yellowish brown to greenish brown, faintly gleyed, fine to coarse grained sand, fine to coarse subangular to subrounded slaty gravels, weathered heavily, oxidized, with MnO				
272 25						@24.6' to 25.8': Basal COBBLES, reddish brown, moist, mostly fine to medium grained sand, fine slate and quartz gravels and cobbles				
	267 30					@25.8' to 27.5': Clayey SAND to Sandy CLAY (SC-CL), with gravel, reddish brown, faintly gleyed, fine to coarse grained sand, fine subangular slate and siltstone gravels, occasional yellowish oxidation staining, abrupt contact				
						@27.5' to 28.3': Sandy GRAVEL (GP), dark reddish brown, moist, fine to coarse grained sand, fine subangular to subrounded slate gravels, gradational contact, secondary clay development, basal cobble, nested channel				
	@28.3' to 30.3': Sandy GRAVEL (GP), mottled reddish brown to yellowish brown to red and olive brown, very chaotic assemblage of fine to coarse grained sand, fine subangular slate, basalt, and siltstone gravels, secondary clay development highly weathered and oxidized clasts, faint gleying, abrupt erosional contact									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE	COMPLETE	
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON




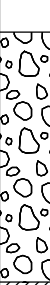

CORE BORING LOG

BORING NO. **CB-10**
PAGE 3 OF 6

PROJECT: **El Rodeo Geohazard Investigation**
CLIENT: **Beverly Hills Unified School District**
CONTRACTOR: **Martini Drilling Corporation**
EQUIPMENT USED: **CME-75**

JOB NO.: **10274.006**
PAGE NO.: **3 of 6**
ELEVATION: **296.5 Feet**
DATE START: **7/8/2014**
DATE FINISH: **7/9/2014**
DRILLER: **Martini**
PREPARED BY: **EH**
LOCATION: **605 Whittier Blvd., Beverly Hills, Ca**

GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	
07/08/14	ATD	∇ 35.4				INCLINED	Bit (Feet)	
		∇				BEARING	Barrel (Feet)	
		∇			0	ANG. FROM VERT.	Total (Feet)	

ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS
267 30	30-35	Run 2 Box 3	5	100		<p>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</p> <p>@30.3': Sandy CLAY (CL), reddish brown, moist, fine grained sand, faint gleying, MnO streaking, with discrete clayey sand laminations, base of developed soil @31.5', 31.8', 32', and 34.6', moderate blocky structure, minor MnO spotting @33.3': siltstone rock clast</p>
262 35	35-40	Run 1 Box 4	4.6	92	 	<p>@35' to 35.4': Sandy CLAY (CL), reddish brown, very moist, fine to medium grained sand, faintly gleyed, MnO spotting, poor blocky structure, clay development on ped faces @35.4' to 35.9': Clayey SAND (SC), reddish brown, wet, faint gleying, poor blocky structure, MnO streaking @35.9' to 36.8': SAND (SP), reddish brown, wet, very low clay content, abrupt contact below @36.8' to 39.6': Sandy GRAVEL with Clay (GP), dark reddish brown, wet, fine to coarse grained sand, fine to coarse subangular to subrounded slate and few quartz gravels, heavily weathered, oxidized with MnO in matrix and at basal contact in nested channel</p>
257 40	40-45	Run 2 Box 4	5	100		<p>@39.6' to 40': No Recovery @40' to 43': Sandy GRAVEL (GP), orange brown to reddish brown, oxidized, fine to coarse sand, fine to coarse heavily weathered gravels, MnO in matrix and at basal erosive contact below</p>
252 45						<p>@43': Pleistocene Cheviot Hills Deposits (CHD): Sandy CLAY (CL), reddish brown, wet, fine to medium grained sand, high sand content, thin beds, very fine, friable, poor blocky structure, MnO₂ spotting, faint gleying, minor sand rich laminations</p>

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS	BEDDING	ATTITUDE AND ANGLE	JOINTS / SHEAR / FRACTURE	WEATHERING
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES	V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120" Fe = Iron Oxide Mn = Manganese Oxide	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-10	
PROJECT: El Rodeo Geohazard Investigation										PAGE 4 OF 6	
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 6	
EQUIPMENT USED: CME-75										ELEVATION: 296.5 Feet	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/8/2014	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/9/2014	
07/08/14	ATD	∇ 35.4				INCLINED	Bit (Feet)			DRILLER: Martini	
		∇				BEARING	Barrel (Feet)			PREPARED BY: EH	
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
252 45		45-50	Run 1 Box 5	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
							@45' to 45.6': Silty Clayey SAND (SC-SM), reddish brown, wet, slightly micaceous, low fines content				
							@45.6' to 46': Clayey SAND (SC), reddish brown, wet, fine grained sand				
							@46': 1-foot thick bed of sand on top of clay				
∇							@47' to 48.6': Sandy CLAY (CL), reddish brown, very moist, gleyed, faint laminations, oxidation-reduction banded, MnO streaking				
247 50		50-55	Run 2 Box 5	5	100		@48.6' to 50': Clayey SAND (SC), reddish brown, wet, fine to medium grained sand, trace coarse grained sand, fine gravel, gleyed, pebble bed @49.7'				
							@50' to 53.3': Silty SAND (SM), , moist, fine to medium grained sand, trace coarse grained sand with sand sized siltstone chips (salt and pepper sands), very low silt content, trace clay, heavy MnO development at abrupt contact below				
							@53.3' to 53.7': Clayey SAND with Silt (SC-SM), reddish brown, gleyed, increasingly clayier, moderate blocky structure, gradational contact				
∇							@53.7' to 55': Sandy GRAVEL with Clay (GP), mottled reddish brown to grayish brown to yellowish orange brown, fine to coarse grained sand, fine to coarse slaty gravels, 3-inch cobble stuck in shoe				
242 55		55-60	Run 1 Box 6	2.7	54		@55' to 56.2': wet, grades coarser, gradational contact				
							@55' to 56.5': basal gravel, abrupt erosive contact below				
							@56.5' to 57': Interlaminated Sandy CLAY and Clayey SAND (SC-CL), reddish brown, moist, gleyed, fine to medium grained sand in sandy clay, fine to coarse grained sand in clayey sand, abundant MnO, oxidation-reduction banding				
							@56.2' to 56.8': minor sand bed with siltstone chips				
		@56.8': sandy clay, gleyed, oxidized									
		@57' to 57.7': Sandy CLAY (CL), reddish brown and gray, oxidation-reduction banding, gleyed, heavily oxidized zones, white siltstone clasts									
		@57.7' to 60': No Recovery									
237 60											
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
									V. SEVERE		
									COMPLETE		

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-10
PROJECT: El Rodeo Geohazard Investigation										PAGE 5 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 6
EQUIPMENT USED: CME-75										ELEVATION: 296.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/8/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/9/2014
07/08/14	ATD	∇ 35.4				INCLINED	Bit (Feet)			DRILLER: Martini
		∇				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG					
237 60	60-65	Run 2 Box 6	5	100		<p>@60' to 60.7': Sandy CLAY (CL), reddish brown and gray, oxidation-reduction banding, laminated with minor sand rich zones, MnO spotting, clay on ped faces slightly micaceous, heavily oxidized and gleyed</p> <p>@60.7' to 61.3': chocolate brown clay, paleosol</p> <p>@61.3'-65': Sandy CLAY (CL), reddish brown to orange brown, heavily oxidized, gleyed, well developed block structure, heavy MnO and oxidation on ped faces, with trace weathered angular siltstone clasts</p>				
232 65						<p>@65' to 67.2': Sandy CLAY (CL), reddish brown and gray, oxidation-reduction banding, fine grained sand, abundant MnO spotting and streaking, sandy zones @65.8' and 67' moderate blocky structure</p> <p>@67.2'-68.8': color change, dark reddish brown clay with some fine sand and minor slaty gravel, well developed blocky structure, clay, oxide and MnO on ped faces</p> <p>@68.8': thin gravel bed over dark reddish brown clayey soil</p> <p>@68.9' to 73': Sandy CLAY (CL), dark reddish brown, laminated, gleyed, occasional fine subrounded slaty gravels, gravel bed @73', erosive contact below</p> <p>@69.2': Siltstone rock line</p> <p>@73': Sandy CLAY (CL), dark reddish brown, laminated, gleyed, occasional fine subrounded slaty gravels, gravel bed @73', erosive contact below</p>				
227 70	65-70	Run 1 Box 7	5	100		<p>@73' to 75': Sandy CLAY (CL), dark reddish brown to orange brown, blocky structure, oxidized</p>				
222 75	70-75	Run 2 Box 7	5	100						
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE	COMPLETE	
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

***** This log is a part of a report by Leighton and should not be used as a stand-alone document. *****




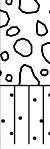
LEIGHTON

CORE BORING LOG										BORING NO. CB-10
PROJECT: El Rodeo Geohazard Investigation										PAGE 6 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 6 of 6
EQUIPMENT USED: CME-75										ELEVATION: 296.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/8/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/9/2014
07/08/14	ATD	▽ 35.4				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: EH
		▼			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
222	75					<p>Total depth of boring: 75' bgs Perced groundwater encountered @ 35.4'-36.5', 36.8'-39.6', 43'-46', 48.6'-50' and 55'-56.5' bgs Boring backfilled with bentonite and soil cuttings upon completion of drilling. Boring capped with approximately 6-inches of Rapid Set concrete and black dye. Excess cuttings disposed of in D.O.T. approved drums and disposed offsite</p>				
217	80									
212	85									
207	90									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		


ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-11
PROJECT: El Rodeo Geohazard Investigation										PAGE 1 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 6
EQUIPMENT USED: CME-75										ELEVATION: 292.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/9/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/10/2014
07/09/14	ATD	∇ 34				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: EH
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
293	0						Artificial Fill, Undocumented (Afu): @0'-5': Hand Auger			
288	5	5-10	Run 1 Box 1	5	100		@5' to 5.2': Chunks of asphalt @5.2': Holocene and Pleistocene Alluvium of Benedict Canyon Wash (Qal): Sandy CLAY (CL), dark olive brown, moist, soft, little fine grained sand, minor very occasional reddish brown laminations, mostly massive, MnO spotting, blocky structure			
283	10	10-15	Run 2 Box 1	5	100		@10.9': Pleistocene Alluvium of Benedict Canyon Wash (BCW₂): Occasional fine subrounded gravels, with reddish brown oxide staining, heavy oxide and MnO with oxide stringers @11.1' to 11.4': Dark reddish brown, coarse slaty gravel @11.4' @11.4' to 12.9': Clayey SAND (SC), with gravel, mottled brown to reddish brown to greenish brown, fine to coarse grained sand, fine subangular to subrounded gravels, heavy oxide and MnO, basal contact @12.9' @12.9' to 14.3': Sandy GRAVEL (GP), reddish brown, moist, fine to medium grained sand, heavily oxidized and weathered gravels with MnO @14.2': thin clayey laminations @14.3' to 15.8': Becomes Silty SAND (SM), dark reddish brown, moist, fine to			
278	15									

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT-2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
								SEVERE	COMPLETE

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-11
PROJECT: El Rodeo Geohazard Investigation										PAGE 2 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 6
EQUIPMENT USED: CME-75										ELEVATION: 292.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/9/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/10/2014
07/09/14	ATD	∇ 34				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: EH
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
278 15		15-20	Run 1 Box 2	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							coarse grained sand, occasional fine gravel			
							@15.8' to 16.2': Basal slaty and basalt gravel			
							@16.5' to 16.8': GRAVEL (GP) layer, fine subangular slate gravels in sandy clay matrix			
		@16.8' to 20.0': Sandy GRAVEL (GP), mottled reddish brown to brown to yellowish brown, fine to coarse grained sand, fine to coarse subangular to subrounded slate, siltstone, and sandstone gravels, appears chaotic, minor notable stratigraphy, heavily oxidized								
273 20		20-25	Run 2 Box 2	5	100		@20' to 20.7': Clayey SAND (SC), reddish brown, gleyed, fine grained sand, poor to moderate blocky structure, clay development on ped faces, abrupt contact below			
							@20.7' to 21.9': SAND (SP), with gravel, reddish brown and grayish brown, very moist to wet, gleyed, fine to coarse grained sand, fine subangular slaty gravels, poorly graded, gradational contact			
							@21.9' to 22.3': Sandy GRAVEL (GP), reddish gray brown, very moist, fine to coarse grained sand, normally graded, some fine gravels at base, abrupt contact with below			
							@22.3' to 22.9': Sandy CLAY (CL), reddish brown, gleyed, fine grained sand, some medium grained sand, abundant brownish blebs, gleyed on laminations, poor blocky structure			
							@22.9' to 25.0': Sandy CLAY (CL), reddish brown, slightly gleyed, moderate blocky structure, shimmer on faces, faintly laminated, MnO spotting, well developed blocky structure, clay development and oxide on ped faces			
268 25		25-30	Run 1 Box 3	5	100		@25.0' to 29': Sandy CLAY (CL), reddish brown, with grayish oxidation-reduction banding, gleyed, laminated, fine grained sand, MnO spotting, clay and oxide on ped faces			
263 30							@29' to 30': Grades to dark reddish brown to olive brown, oxidation-reduction banding, with occasional medium to coarse grained sand and fine gravel			
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***


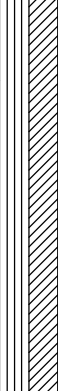



LEIGHTON

CORE BORING LOG										BORING NO. CB-11
PROJECT: El Rodeo Geohazard Investigation										PAGE 3 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 6
EQUIPMENT USED: CME-75										ELEVATION: 292.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/9/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 7/10/2014	
07/09/14	ATD	∇ 34				INCLINED	Bit (Feet)		DRILLER: Martini	
		▼				BEARING	Barrel (Feet)		PREPARED BY: EH	
					0	ANG. FROM VERT.	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
263	30	30-35	Run 2 Box 3	5	100		@30' to 32': Sandy CLAY (CL), greenish brown to olive reddish brown, moist, fine grained sand, with some medium to coarse slaty sand, mottled, gleyed, moderate blocky structure, fine subangular basal slaty gravels, abrupt contact			
							@32': Lamination of carbonate, caliche, very hard basalt clasts			
							@32.1' to 33.7': Clayey Sandy GRAVEL (GP), mottled reddish brown to gray to yellowish brown, gleyed, fine to coarse grained sand, fine subangular to subrounded slate and siltstone gravels, abundant yellowish oxide staining, discrete sand rich laminations,			
	∇						@33.7' to 34': Grades finer, less gravel			
							@34' to 34.5': Sandy GRAVEL (GP), wet, medium to coarse grained sand, fine subrounded slate fragments, gradational contact			
258	35	35-40	Run 1 Box 4	5	100		@34.5': Sandy CLAY (CL), reddish brown to gray, oxidation-reduction banding, gleyed, fine to medium grained sand, few fine slaty gravels, oxidized			
							@35' to 36.3': Sandy CLAY (CL), reddish brown, gleyed, fine grained sand, trace medium grained sand, well developed blocky structure			
							@36.3' to 38.7': Sandy CLAY (CL), reddish brown to grayish brown, oxidation-reduction banding, fine grained sand, with occasional medium to coarse grained sand, gleyed, blocky structure, silt and fine sand on ped faces			
							@38.7': Clayey SAND (SC), with gravel, dark reddish brown, fine grained sand, some medium to coarse grained sand, fine subangular slaty gravels, trace granitic gravels and siltstone gravels			
253	40	40-45	Run 2 Box 4	5	100		@39.6': Basal weathered siltstone cobble (rock line)			
							@40' to 41.2': Sandy CLAY grading to Clayey SAND (SC-CL), reddish brown, gleyed, mostly fine grained sand, some medium to coarse grained sand, occasional fine slaty gravels, fining upward sequence, MnO spotting			
							@41.3': Basal weathered angular slaty gravel rock line			
	∇						@41.3' to 42.0': Sandy CLAY (CL), reddish brown, fine grained sand, siltstone fragments			
							@42' to 43.8': Clayey Sandy GRAVEL (GP), reddish brown, wet, fine to coarse grained sand, fine subangular slaty gravels, basal cobble @43.8, nested channels			
							@43.8': Channel Deposits, Clayey Sandy GRAVEL (GP), reddish brown, wet, fine to coarse grained sand, fine subangular to subrounded slate and siltstone gravels, poorly stratified, weathered gravels			
248	45									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16


*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-11	
PROJECT: El Rodeo Geohazard Investigation										PAGE 4 OF 6	
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 6	
EQUIPMENT USED: CME-75										ELEVATION: 292.5 Feet	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/9/2014	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/10/2014	
07/09/14	ATD	∇ 34				INCLINED	Bit (Feet)			DRILLER: Martini	
		▼				BEARING	Barrel (Feet)			PREPARED BY: EH	
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
248	45	45-50	Run 1 Box 5	5	100		<p>@46.0': Basal cobble, rounded, heavily weathered, MnO in in basal gravel</p> <p>@46.7': Basal slate, heavily oxidized sandy gravel below, abrupt basal erosive contact @49'</p>				
							<p>Pleistocene Cheviot Hills Deposits (CHD):</p> <p>@49' to 53.8': Sandy CLAY with Silt (CL-ML), reddish brown, moist, minor gleying, fine grained sand, occasional medium to coarse grained sand, MnO spotting and streaking</p>				
243	50	50-55	Run 2 Box 5	5	100		<p>@53.8' to 55': Grades to Sandy CLAY (CL), with gravel, reddish brown, very moist, fine to medium grained sand, some coarse grained sand, fine subangular slaty gravels, MnO</p>				
238	55	55-60	Run 1 Box 6	5	100		<p>@55' to 58.2': Laminated Sandy CLAY and Clayey SAND (SC-CL), reddish brown and gray, gleyed, mostly fine grained sand, some medium to coarse grained sand, occasional fine subrounded slaty gravels, MnO spotting throughout, gravel bed @55.6',</p>				
							<p>@58.2' to 59.7': Sandy CLAY (CL), reddish brown, gleyed, fine to coarse grained sand, occasional fine gravel, massive</p>				
233	60							<p>@59.7' to 64': Interlaminated Sandy CLAY and Clayey SAND (SC-CL), reddish</p>			
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING			
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH				
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT				
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT				
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE				
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE				
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE			
								COMPLETE			

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-11
PROJECT: El Rodeo Geohazard Investigation										PAGE 5 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 6
EQUIPMENT USED: CME-75										ELEVATION: 292.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/9/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/10/2014
07/09/14	ATD	∇ 34				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: EH
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG					
233 60	60-65	Run 2 Box 6	5	100	[Hatched Pattern]	brown, gleyed, mostly fine grained sand, some medium to coarse grained sand, MnO nodules, sand lens @62.1' to 62.4': sand bed with fine to coarse sand and siltstone				
					[Hatched Pattern]	@63' to 65': Sandy CLAY (CL), reddish brown, gleyed, faintly laminated, fine to medium grained sand, some coarse grained sand, well oxidized				
228 65	65-70	Run 1 Box 7	5	100	[Hatched Pattern]	@65' to 73.6': Sandy CLAY (CL), reddish brown to gray, oxidation-reduction banding, fine grained sand, with some medium to coarse grained sand, occasional fine subrounded slaty gravel, MnO streaks, @64.1' carbonate stringers begin, @70-70.5				
223 70	70-75	Run 2 Box 7	5	100	[Hatched Pattern]					
218 75					[Hatched Pattern]	@74.4': Dark reddish brown, well developed paleosal, oxide, clay, and MnO on ped faces, minor carbonate stringers at 74.4				
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"				
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"				
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"				
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"				
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16


LEIGHTON

CORE BORING LOG										BORING NO. CB-11
PROJECT: El Rodeo Geohazard Investigation										PAGE 6 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 6 of 6
EQUIPMENT USED: CME-75										ELEVATION: 292.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/9/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/10/2014
07/09/14	ATD	∇ 34				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: EH
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
218 75						Total depth of boring: 75' bgs Perched groundwater encountered @ 21'-21.9', 34'-34.5', 42'-43.2', and 43.8'-49' bgs Boring backfilled with bentonite and soil cuttings upon completion of drilling. Boring capped with approximately 6-inches of Rapid Set Concrete				
213 80										
208 85										
203 90										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-12
PROJECT: El Rodeo Geohazard Investigation										PAGE 1 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 6
EQUIPMENT USED: CME-75										ELEVATION: 290.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/10/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/11/2014
07/10/14	ATD	∇ 32				INCLINED	Bit (Feet)			DRILLER: Martini
		∇				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
291	0				[Cross-hatch pattern]	Artificial Fill, Undocumented (Afu): @0'-5': Hand Auger 2.5 ft Runs to 30'				
286	5				[Diagonal lines]	@5': Holocene and Pleistocene Alluvium of Benedict Canyon Wash (Qal) Sandy CLAY (CL), dark brown to reddish brown, well developed blocky structure, heavily oxidized with oxide on ped faces @5.8' to 6.5': Sandy CLAY (CL), dark brown to reddish brown, well developed blocky structure, heavily oxidized with oxide on ped faces @6.5' to 7.5': No Recovery				
	5-10	Run 1 Box 1	3.4	68	[Horizontal lines]	@7.5': Sandy CLAY with Silt (CL-ML), medium brown, slightly moist, fine grained sand, some oxidation, trace fine subrounded gravel, soft, rootlets in unit @8.4' to 10': No Recovery				
281	10				[Wavy pattern]	@10'-10.5': Sandy GRAVEL (GP), dark reddish brown, fine to coarse sand, fine rounded, weathered slate and siltstone gravels, oxidized with heavy oxidation at basal contact @10.5': Pleistocene Alluvium of Benedict Canyon Wash (BCW,): Silty Sandy CLAY (CL-ML), mottled medium brown to olive brown to reddish brown, mostly fine grained sand, blocky structure, oxidized with some heavily weathered slaty gravels. Heavy oxide and minor MnO on ped faces, minor root traces at 14'				
	10-15	Run 2 Box 1	4.6	92	[Vertical lines]	@14.6' to 15': No Recovery				
276	15									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								V. SEVERE		
								COMPLETE		
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT-2/1/16

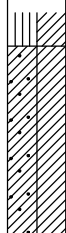




LEIGHTON

CORE BORING LOG										BORING NO. CB-12
PROJECT: El Rodeo Geohazard Investigation										PAGE 2 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 6
EQUIPMENT USED: CME-75										ELEVATION: 290.5 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 7/10/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/11/2014
07/10/14	ATD	32				INCLINED	Bit (Feet)			DRILLER: Martini
						BEARING	Barrel (Feet)			PREPARED BY: EH
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	<p>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</p>				
276	15	Run 1 Box 2	5	100		<p>@15' to 15.1': siltstone fragment in sample, subangular, 2-inch diameter</p> <p>@15.1' to 15.9': Silty Gravelly SAND (SM), dark grayish brown to orange brown, moist, fine grained sand, trace fine siltstone and tabular slaty gravels, oxidized along sandy laminations and thin sand beds, basal erosive contact below</p> <p>@15.9' to 16.4': Silty CLAY (CL-ML), with sand, reddish brown, moist, fine grained sand, trace very fine tabular slate fragments, poorly developed blocky structure, gleyed, coarse well rounded siltstone gravel at 16.4'</p> <p>@16.4'-16.9': Sandy CLAY (CL), dark brown, oxidized, moderate blocky structure, fine sand on ped faces</p> <p>@16.9'-17.1': Gravel Bed (GP), gray, coarse, weathered slaty and siltstone gravels, gleyed, minor roots traces, basal erosive contact below</p> <p>@17.1': Sandy CLAY (CL), dark reddish brown, blocky structure, clay development and Mn on ped faces, fine sand with heavily weathered fine siltstone and slaty gravels in matrix, oxidized</p>				
271	20	Run 2 Box 2	5	100		<p>@20.4'-20.5': yellow oxidized very fine sand lamination</p> <p>@20.5'-22.3': Sandy CLAY (CL), dark brown to reddish brown, moderate blocky structure, with few slaty gravels and severely weathered basalt and siltstone gravels in matrix, coarse slaty gravel rock line at 22.3', gleyed</p> <p>@23': Light reddish staining in sand and gravel bed</p> <p>@23.5': Light gray gleying more prevalent, fine subrounded slaty gravels, thin fine grained sand lenses, occasional coarse grained sand, poorly developed blocky structure</p>				
266	25	Run 1 Box 3	5	100		<p>@24.7' to 24.8': Fine gravel layer, subangular siltstone fragments</p> <p>@24.8' to 25.6': Silty Sandy CLAY (CL-ML), reddish brown, slightly moist, fine grained sand, poorly developed blocky structure, minor gleying, gradational contact below</p> <p>@25.6'-25.8': Gravel Bed (GP), rounded basalt and white siltstone chips, erosive contact below</p> <p>@25.8' to 27.2': Clayey GRAVEL (GC), reddish brown, moist, fine grained sand, occasional coarse grained sand, fine subangular to subrounded slate and siltstone gravels, poorly to moderately developed blocky structure, basal siltstone gravels, erosive contact below</p> <p>Pleistocene Alluvium of Benedict Canyon Wash (BCW):</p> <p>@27.2' to 30.4': Becomes Sandy Silty CLAY (CL-ML), reddish brown to medium brown, blocky structure, clay and MnO on ped faces. Oxidized, severely weathered siltstone rock fragments</p>				
261	30									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD HARD MOD. HARD SOFT V. SOFT	- KNIFE CAN'T SCRATCH - SCRATCHES DIFFICULT - SCRATCHES EASILY - GROVES - CARVES	V. THIN THIN MEDIUM THICK V. THICK	<2" 2"-12" 12"-36" 36"-120" >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE CLOSE MOD. CLOSE WIDE V. WIDE	<2" 2"-12" 12"-36" 36"-120" >120"	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE			
Fe = Iron Oxide Mn = Manganese Oxide										


ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT_2/1/16

***** This log is a part of a report by Leighton and should not be used as a stand-alone document. *****

LEIGHTON

CORE BORING LOG										BORING NO. CB-12	
PROJECT: El Rodeo Geohazard Investigation										PAGE 3 OF 6	
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 6	
EQUIPMENT USED: CME-75										ELEVATION: 290.5 Feet	
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL			
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE				
07/10/14	ATD	∇ 32				INCLINED	Bit (Feet)				
		∇				BEARING	Barrel (Feet)				
		∇			0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS					
						The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.					
261	30	30-35	Run 2 Box 3	5	100	 <p>@30.4' to 32.7': Sandy CLAY to Clayey SAND (SC-CL), reddish brown, very moist, thinly laminated, trace oxide staining on parting surfaces, spotty MnO staining</p>					
	∇										
		35-40	Run 1 Box 4	5	100	 <p>@32.7' to 33.4': Sandy CLAY (CL) interbedded with Silty SAND (SM), reddish brown to medium brown, very moist to wet</p> <p>@33.4' to 35.4': Grades to Sandy GRAVEL (GP), very moist, fine grained sand, trace coarse grained sand, fine subrounded slaty gravels, trace mechanically broken fine siltstone rock fragments, olive gray mottling, poorly to moderately developed blocky structure, @34.8' 2-inch subangular black siltstone rock fragment, @35.4' trace fine subangular dark purplish red siltstone rock fragments, coarse basal slaty gravel and cobble, secondary clay development, nested channel</p>					
256	35										
	∇										
		40-45	Run 2 Box 4	4.7	94	 <p>@35.4'-36.9': Sandy GRAVEL (GP), fine to coarse sand, fine to coarse heavily weathered slaty and siltstone gravels, secondary clay development, erosive contact below at 36.9'.</p> <p>@36.9' to 38.4': Silty CLAY (CL-ML), reddish brown to olive brown, moist, trace fine grained sand, trace fine subangular slaty gravels, trace coarse grained sand</p> <p>@38.4'-38.5': Sand bed with rounded siltstone gravel</p> <p>@38.4' to 39.3': Sandy CLAY (CL), with gravel, medium brown to olive gray, wet, fine grained sand, trace coarse grained sand, trace fine slaty gravels, poorly developed blocky structure, grades to gravel</p> <p>@39.3' to 43.7': Sandy GRAVEL (GP), olive brown to gray brown, wet, fine to coarse grained sand, fine to coarse slaty, siltstone and weathered basalt gravels</p>					
251	40										
		45				 <p>@43.7' to 44': Sandy SILT (ML), reddish brown to gray, fine grained sand, oxidized</p> <p>@44'-44.2': Gravel bed</p>					
246	45	 <p>@44.2' to 44.7': Sandy Silty CLAY (CL-ML), reddish brown to gray, moist, thin</p>									

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
								V. SEVERE	
								COMPLETE	

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-12
PROJECT: El Rodeo Geohazard Investigation										PAGE 4 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 6
EQUIPMENT USED: CME-75										ELEVATION: 290.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/10/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/11/2014
07/10/14	ATD	∇ 32				INCLINED	Bit (Feet)			DRILLER: Martini
		∇				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
246 45	45-50	Run 1 Box 5	4.5	90		well defined laminations, oxidation-reduction banded @44.7' to 45': No Recovery @45' to 45.3': Silty Clayey SAND (SM-SC), reddish brown, wet, fine to medium grained sand, grades coarser, trace fine gravel @45.3' to 45.5': Sandy CLAY (CL), reddish brown to olive brown, fine grained sand, trace medium to coarse grained sand, fine slaty gravel @45.5' to 47.6': Sandy GRAVEL (GP), reddish brown, mostly fine to coarse grained sand, fine subangular to subrounded slaty gravels, heavy oxidation and MnO, abrupt contact below @47.6': Pleistocene Cheviot Hills Deposits (CHD): Sandy CLAY to Clayey SAND (SC/CL), reddish brown and gray, gleyed, laminated, fine to medium grained sand, trace coarse grained sand, fine slaty gravels, poor blocky structure, gradational contact below @47.9' to 48.5': Clayey SAND (SC), reddish brown, gleyed, fine to coarse grained sand, normally graded sequence, basal fine subrounded gravels, abrupt contact below @48.5': Sandy CLAY (CL), olive brown, greenish brown, fine sand, spotty oxidation, with minor MnO, becomes dark reddish orange at 49.2'-49.4' @49.5' to 50': No Recovery @50': Sandy CLAY (CL), reddish brown to gray, gleyed, fine grained sand, waxy finish on moderately developed faces, gradational contact @50.3' to 51': Grades to Silty CLAY with Sand (CL-ML), gray brown to greenish gray, highly gleyed, plastic, gradational contact @52' to 55': Sandy CLAY (CL), color change to reddish brown, gleyed, mostly fine grained sand, with occasional medium to coarse grained sand, occasional fine subrounded slate and siltstone gravel, clay development on ped faces @53.9': becomes dark brown to reddish brown, oxidation-reduction banding, well developed blocky structure @54.5': becomes oxidation-reduction banded with thin laminations				
241 50	50-55	Run 2 Box 5	5	100		@55' to 55.9': Sandy CLAY (CL), reddish brown, gleyed, moist, fine grained sand, well developed faces, oxidized @55.9' to 58': Sandy CLAY (CL), reddish brown, gleyed, oxidation-reduction banding, mostly fine grained sand, with some medium to coarse grained sand, occasional fine subangular slaty gravel, faint MnO ₂ spotting @58' to 60': Becomes more massive, with increase in fine gravels, oxidized zone @59.2', @59' to 60' increase in fine subangular slaty gravels				
236 55	55-60	Run 1 Box 6	5	100		@55' to 55.9': Sandy CLAY (CL), reddish brown, gleyed, moist, fine grained sand, well developed faces, oxidized @55.9' to 58': Sandy CLAY (CL), reddish brown, gleyed, oxidation-reduction banding, mostly fine grained sand, with some medium to coarse grained sand, occasional fine subangular slaty gravel, faint MnO ₂ spotting @58' to 60': Becomes more massive, with increase in fine gravels, oxidized zone @59.2', @59' to 60' increase in fine subangular slaty gravels				
231 ∇ 60										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16




LEIGHTON

CORE BORING LOG										BORING NO. CB-12
PROJECT: El Rodeo Geohazard Investigation										PAGE 5 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 6
EQUIPMENT USED: CME-75										ELEVATION: 290.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/10/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/11/2014
07/10/14	ATD	∇ 32				INCLINED	Bit (Feet)			DRILLER: Martini
		∇				BEARING	Barrel (Feet)			PREPARED BY: EH
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG		FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS		
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
231	60	60-65	Run 2 Box 6	5	100			<p>@60' to 60.5': Sandy GRAVEL (GP), reddish brown, wet, medium to coarse grained sand, fine subrounded slaty gravels, gradational contact</p> <p>@60.5' to 61.3': Becomes Sandy GRAVEL (GP), reddish brown to orangish brown, highly oxidized, fine to medium grained sand, with some coarse grained sand, fine subrounded slaty gravels, secondary clay development</p> <p>@61.3' to 64.4': Sandy CLAY (CL), with gravel, reddish brown to greenish gray, heavily gleyed, fine to coarse grained sand, fine subangular slaty gravels, faintly laminated, oxidized, carbonate blebs in matrix, basal gravel at 64.4, erosive contact below</p>		
226	65							<p>@64.4'-65': Sandy CLAY (CL), reddish brown to greenish gray, mostly fine grained sand, basal siltstone cobble at 64.9'</p> <p>@65'-66.8': Sandy CLAY (CL), olive brown to orange brown, heavily oxidized, predominantly fine sand with trace pebbles, fine slaty rounded gravel and white siltstone chips</p>		
∇		65-70	Run 1 Box 7	5	100			<p>@66.8' to 67.3': Sandy GRAVEL (GP), reddish brown to greenish gray, gleyed, fine to medium grained sand, some coarse grained sand, fine subangular slaty gravels, normally graded, with fine to coarse basal slate and siltstone gravels, heavily weathered, secondary clay development</p> <p>@67.3' to 67.7': Becomes Clayey SAND (SC), with gravel, reddish brown, gleyed, fine grained sand, fine subangular slaty gravels</p> <p>@67.7' to 70': Sandy GRAVEL (GP), reddish brown to greenish gray, gleyed, wet, fine to coarse grained sand, fine to coarse subangular slate and siltstone gravels, heavily weathered gravels, secondary clay development, abundant MnO and oxide on rock clasts and in matrix</p>		
221	70							<p>@74.6' to 75': No Recovery</p>		
216	75	<p>@74.6' to 75': No Recovery</p>								
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-12
PROJECT: El Rodeo Geohazard Investigation										PAGE 6 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 6 of 6
EQUIPMENT USED: CME-75										ELEVATION: 290.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/10/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/11/2014
07/10/14	ATD	▽ 32				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: EH
		▼			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
216	75					Total depth of boring: 75' bgs Perched groundwater encountered @ 32.7'-33.4', 38.4'-40.5', 41'-43.7', 45'-45.3', 60'-60.5' and 67.9'-74.6' bgs Boring backfilled with bentonite and soil cuttings upon completion of drilling. Boring capped with approximately 6-inches of Rapid Set Concrete and black dye. Excess cuttings disposed of in D.O.T. approved drums and disposed offsite				
211	80									
206	85									
201	90									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE V. SEVERE COMPLETE		
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16


LEIGHTON

CORE BORING LOG										BORING NO. CB-13
PROJECT: El Rodeo Geohazard Investigation										PAGE 1 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 6
EQUIPMENT USED: CME-75										ELEVATION: 287.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/11/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/12/2014
07/11/14	ATD	∇ 37				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: EBP
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	<p>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</p>				
288	0					<p>@Surface: 6" Asphalt Concrete</p> <p>@0.5': 8" Portland Cement Concrete</p> <p>Artificial Fill, Undocumented (Afu): Hand augered to 5'</p>				
283	5	Run 1 Box 1	5	100		<p>@5': Holocene and Pleistocene Alluvium of Benedict Canyon Wash (Qal): Silty SAND (SM), yellowish brown, moist, fine grained sand, trace coarse grained sand, trace fine to coarse subangular slate and siltstone gravels</p> <p>@5.4': Becomes brown in color, porous, unlined pinhole voids</p> <p>@9.2': Gravelly Silty SAND (SM), brown, fine grained sand, fine subrounded slaty gravel with rounded siltstone fragments, porous</p>				
278	10	Run 2 Box 1	5	100		<p>@11.0': Coarse pebbly sand bed, erosive contact</p> <p>@11.0': Pleistocene Alluvium of Benedict Canyon Wash (BCW,): Sandy CLAY with Silt (ML-CL), color change to dark brown, moist, fine grained sand, trace coarse grained sand, few subangular to subrounded fine to coarse grained gravel</p> <p>@12.4' to 12.9': Sandy SILT with Clay (ML-CL), brown, moist, fine grained sand</p> <p>@12.9' to 15.1': Sandy CLAY with Silt (ML-CL), dark brown, moist, fine grained sand, trace coarse grained sand, few subangular to subrounded fine to coarse gravel, moderate blocky structure, some fine sand and minor clay on ped faces</p>				
273	15									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD HARD MOD. HARD SOFT V. SOFT	- KNIFE CAN'T SCRATCH - SCRATCHES DIFFICULT - SCRATCHES EASILY - GROVES - CARVES	V. THIN THIN MEDIUM THICK V. THICK	<2" 2"-12" 12"-36" 36"-120" >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE CLOSE MOD. CLOSE WIDE V. WIDE	<2" 2"-12" 12"-36" 36"-120" >120"	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE			
ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16 Fe = Iron Oxide Mn = Manganese Oxide										

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-13
PROJECT: El Rodeo Geohazard Investigation										PAGE 2 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 6
EQUIPMENT USED: CME-75										ELEVATION: 287.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/11/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/12/2014
07/11/14	ATD	∇ 37				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: EBP
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
273	15	15-20	Run 1 Box 2	5	100		@15.1' to 16.7': Silty CLAY with Sand (ML-CL), dark yellowish brown, moist, fine grained sand, well developed block structure with silt and fine sand on ped faces, trace rounded pebbly gravel			
							@16.7': Siltstone basal gravel			
							@16.9' to 19.1': Silty SAND (SM), brown, moist, fine to coarse sand, rounded with few subangular pebbly gravel			
							@19.1' to 19.8': Gravelly SAND (SP), fine to coarse grained, basal contact @19.8'			
268	20	20-25	Run 2 Box 2	5	100		@19.8' to 20.0': Silty SAND (SM), fine to coarse grained slaty and siltstone sand fragement			
							@20' to 22.1': Gravelly SAND (SP), yellowish brown, moist, fine to coarse grained, fine to coarse rounded siltstone, slate, and feldspar sands and gravel			
							@22.1' to 24.2': Sandy GRAVEL (GP), yellowish brown, moist, fine to coarse grained, few fine gravels, spotty gleying, bottom of channel deposit, weathered gravel, clast supported, sharp contact with below			
							@24.2': CLAY (CL), dark reddish brown, moist, trace medium to coarse grained sand, gleying, heavily oxidized, well developed blocky structure, MnO and clay on ped face			
263	25	25-30	Run 1 Box 3	5	100		Pleistocene Alluvium of Benedict Canyon Wash (BCW₂):			
							@26.1': Siltstone gravel bed, angular, weathered			
							@26.2' to 27.3': CLAY with Sand (CL), dark yellowish brown, moist, fine to coarse grained sand, trace fine gravel, blocky structure, clay films, oxidation reduction banding, subangular to subrounded, minor gleying along laminations and pedogenic faces			
							@27.3' to 31.8': Sandy CLAY (CL) with gravel, reddish brown to orange brown, well developed blocky structure, fine to coarse grained sand, fine subrounded pebbly gravel, gleyed, MnO in matrix, basal gravel contact @ 31.8'			
258	30									

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
								SEVERE	COMPLETE

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

***** This log is a part of a report by Leighton and should not be used as a stand-alone document. *****

LEIGHTON

CORE BORING LOG										BORING NO. CB-13
PROJECT: El Rodeo Geohazard Investigation										PAGE 3 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 6
EQUIPMENT USED: CME-75										ELEVATION: 287.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/11/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/12/2014
07/11/14	ATD	∇ 37				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: EBP
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
258	30	30-35	Run 2 Box 3	5	100		@31.8' to 35.2': Sandy Clay (CL), dark yellowish brown, moist, fine grained sand, trace coarse grained sand, poorly graded, moderate blocky structure, silt and minor clay on ped faces			
253	35						@35.2' to 36.1': Sandy CLAY (CL) with gravel, dark yellowish brown, very moist, fine grained sand, fine subangular to subrounded slaty gravels, coarse basal siltstone and slaty gravel @36.1'			
	∇	35-40	Run 1 Box 4	4.6	92		@35.7' to 36.9': Sandy CLAY (CL), dark yellowish brown, very moist, fine grained, trace fine subangular to subrounded slaty gravels			
							@36.9' to 37.1': Gravel bed, fine rounded slaty and siltstone gravel, erosive contact below with carbonate at contact			
							@37.1' to 37.9': Sandy CLAY (CL), dark yellowish brown, very moist, fine grained, trace fine subangular to subrounded slaty and white siltstone gravel			
							@37.9' to 38.8': Silty SAND (SM), dark yellowish brown, moist, fine grained sand			
		40-45	Run 2 Box 4	4.5	90		@38.8' to 39.2': gravel bed, fine to coarse rounded to subangular slate and siltstone gravels			
248	40						@39.2': Silty SAND with Clay (SM-SC), brown, very moist, fine to coarse grained, few fine subangular to angular slaty gravels			
							@39.6' to 40': No Recovery			
							@40.1' to 41': Sandy GRAVEL (GP) fine to coarse grained, rounded slaty siltstone and weathered basalt gravel, trace clay, oxidation of slaty gravels, sharp basal coarse sand contact @41'			
		@41': Sandy SILT (ML), yellowish brown, moist, fine grained, trace fine gravel, coarse grained sand, coarse gravel @41.9"								
		@41.9' to 42.4': Silty SAND with Clay (SM-SC), dark yellowish brown, moist, fine to medium grained, trace gravel								
		@42.4' to 44.5': Sandy GRAVEL (GP), yellowish brown, moist, trace silt and clay, medium to coarse grained sand, fine to coarse gravel, subangular to subrounded FeO staining, basalt and slate gravels								
243	45	@44.5' to 45': No Recovery								
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE	COMPLETE	

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG

BORING NO. CB-13
PAGE 4 OF 6
JOB NO.: 10274.006
PAGE NO.: 4 of 6
ELEVATION: 287.5 Feet
DATE START: 7/11/2014
DATE FINISH: 7/12/2014
DRILLER: Martini
PREPARED BY: EBP
LOCATION: 605 Whittier Blvd., Beverly Hills, Ca

PROJECT: **El Rodeo Geohazard Investigation**
 CLIENT: **Beverly Hills Unified School District**
 CONTRACTOR: **Martini Drilling Corporation**
 EQUIPMENT USED: **CME-75**

GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	
07/11/14	ATD	∇ 37				INCLINED	Bit (Feet)	
		▼				BEARING	Barrel (Feet)	
					0	ANG. FROM VERT.	Total (Feet)	

ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS
243 45	45-50	Run 1 Box 5	5	100		@45.0' to 45.5': Basal GRAVELS (GP), erosive contact below
						@45.5' to 46.3': Sandy SILT (ML), brown, very moist, fine to medium grained sand, oxidation staining and gleying along laminations, trace coarse grained sand
						@46.2': 1-inch gravel bed, fine to coarse slate gravels in light yellow brown silty sand matrix
						@46.3' to 46.9': Sandy CLAY (CL), reddish brown, moist, fine grained sand, gleying along laminations, trace coarse grained sand
						@46.9' to 47.6': Silty SAND (SM), yellowish brown, moist, fine to medium grained, lenses with trace clay
						@47.6' to 48.3': Sandy GRAVEL (GP), erosive contact below
238 50	50-55	Run 2 Box 5	5	100		@48.3' to 48.8': Sandy SILT (ML), brown, moist, fine grained
						@48.5': 1-inch lens of silty sand with fine gravels
						@48.6': Sandy SILT (ML), brown, moist, fine grained
						@48.8' to 49.8': SAND with Silt (SP-SM), yellowish brown, moist, fine to coarse grained, few fine gravels
						@49.8' to 50.3': Sandy SILT (ML), grayish brown, moist, fine grained, few fine to coarse subangular to subrounded slaty gravels
						@50.3' to 51.9': Sandy GRAVEL (GP), yellowish brown, fine to coarse grained sand, fine subrounded to subangular gravels, abrupt erosive contact below
						@51.9': Sandy SILT with Clay (ML-CL), brown, moist, fine grained sand, trace coarse grained sand, gleying along laminations at top of bed
						@52.8' to 52.9': Sand bed, yellow brown, fine to medium grained sand, few fine gravels, erosive contact below
						@52.9' to 55.0': Sandy SILT (ML), olive gray to orange brown, fine grained, spotty oxidation, well developed blocky structure, silt, oxide, and clay on ped faces, pebbly fine gravels, rounded @54.9' to 55.0'
233 55	55-60	Run 1 Box 6	5	100		Pleistocene Cheviot Hills Deposits (CHD):
						@55' to 56.6': Sandy CLAY (CL), brown, moist, fine grained sand, gleying along laminations, blocky structure, few fine subangular slate and basalt gravels
						@55.8' to 56.1', FeO staining, 1/8-inch to 1/4-inch dark brown fine silty sand lamination @57.6', sh
						@56.6' to 59.3 : CLAY (CL), brown, very moist, trace coarse grained sand, faint laminations, blocky structure, basal gravel, heavily weathered siltstone and slate rock line
228 60						@59.3' to 60.0': CLAY (CL), light brown to brown, coarse sand to fine gravel size slate grains @60', abrupt contact below








ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT-2/1/16

FIELD HARDNESS	BEDDING	ATTITUDE AND ANGLE	JOINTS / SHEAR / FRACTURE	WEATHERING
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES	V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120" Fe = Iron Oxide Mn = Manganese Oxide	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-13
PROJECT: El Rodeo Geohazard Investigation										PAGE 5 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 6
EQUIPMENT USED: CME-75										ELEVATION: 287.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/11/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/12/2014
07/11/14	ATD	∇ 37				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: EBP
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
228	60	60-65	Run 2 Box 6	5	100		@60.0' to 60.9': Silty CLAY (CL), color change to dark reddish brown, well developed blocky structure, gleyed with MnO and clay on ped faces, weathered basalt gravel @60.9'			
							@60.9' to 65.0': Sandy CLAY (CL), light brown to brown, blocky structure, gleyed, laminated clay on ped faces			
223	65	65-70	Run 1 Box 7	5	100		@65' to 68.2': Sandy CLAY (CL), laminated with disseminated white siltstone and slaty gravel in mass, blocky structure, fine grained sand, clayey development on ped faces			
	∇						@68.2' to 68.4': Gravel bed (GP), with white siltstone fragments			
							@68.4' to 68.8': Silty SAND (SM), brown, wet, fine to medium grained sand, some clay			
							@68.8' to 70.0': Sandy GRAVEL (GP), brown, wet, medium to coarse grained sand, fine to coarse subangular to subrounded gravel, mainly weathered basalt and siltstone rock fragments, abrupt contact below			
218	70	70-75	Run 2 Box 7	5	100		@70' to 70.6': Sandy SILT (ML), dark yellowish brown, wet, fine grained sand, trace coarse grained sand, fine gravel			
							@70.6' to 72.2': Sandy GRAVEL (GP), dark yellowish brown, wet, coarse grained sand, trace fine to medium grained sand, fine subrounded to subangular gravel, trace coarse gravel, trace clay, erosive contact below			
							@72.2' to 73.4': SILT (ML), with sand and clay, brown, wet, fine grained sand, gleyed, oxidation at contact and in matrix as oxide stringers			
							@73.4' to 75': Silty CLAY (CL-ML), olive brown, very moist, trace fine grained gleyed sand, trace fine to coarse gravels, oxide staining, @74.5' 1/4-inch Silty SAND (SM) lamination with weathered gravelly basalt, light yellowish brown, oxidation			
213	75									


ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
								V. SEVERE	
								COMPLETE	



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-13	
PROJECT: El Rodeo Geohazard Investigation										PAGE 6 OF 6	
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 6 of 6	
EQUIPMENT USED: CME-75										ELEVATION: 287.5 Feet	
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL		
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE				
07/11/14	ATD	∇ 37				INCLINED	Bit (Feet)				
		▼				BEARING	Barrel (Feet)				
					0	ANG. FROM VERT.	Total (Feet)				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS											
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.											
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG						
213	75					Total depth of boring: 75' bgs Perched groundwater encountered @ 68.4'-73.4' bgs Boring backfilled with bentonite and soil cuttings upon completion of drilling. Boring capped with approximately 6-inches of rapid set concrete and black dye. Excess cutting stored in D.O.T. approved drums					
208	80										
203	85										
198	90										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING			
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE			
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE			
								COMPLETE			

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-14
PROJECT: El Rodeo Geohazard Investigation										PAGE 1 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 6
EQUIPMENT USED: CME-75										ELEVATION: 286.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/14/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/15/2014
07/14/14	ATD	∇ 35				INCLINED	Bit (Feet)			DRILLER: Martini
		∇				BEARING	Barrel (Feet)			PREPARED BY: JWJ
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
287 0						<p>@Surface: Artificial Fill, Undocumented (Afu): 0-5': Hand auger</p>				
282 5	5-10	Run 1 Box 1	5	100		<p>Holocene and Pleistocene Alluvium of Benedict Canyon Wash (Qal): @5' to 5.3': Silty SAND (SM), with trace clay, medium to olive brown, dry, trace very fine subangular slaty gravels, fine grained sand, trace rootlets @5.3' to 5.4': GRAVEL (GP) layer, subrounded slate @5.4': Silty SAND (SM), with trace gravel, medium brown, slightly moist, fine grained sand, fine tabular slaty gravels, trace rootlets, minor clay @7.5': Becomes Gravelly SAND (SP), with trace silt, reddish brown to dark gray brown, dry, fine grained sand, trace coarse grained sand, fine subrounded to subangular slate, Tm, and basalt gravels</p>				
277 10	10-15	Run 2 Box 1	5	100		<p>Pleistocene Alluvium of Benedict Canyon Wash (BCW,): @10': Clayey SAND with Gravel (SW-SC), reddish to dark brown, dry, fine grained sand, trace coarse grained sand, fine subangular slate and Tm gravels @10.3': Sandy CLAY (CL), reddish brown, moist, fine grained sand, poorly developed blocky structure, trace subangular slaty gravels @10.7' to 10.8': Thin Silty SAND (SM) lens, light tan, moist, fine grained sand @10.8' to 15': Sandy CLAY (CL), reddish brown, moist, fine grained sand, pinhole voids, very light frosting of sand grains between pedogenic faces, trace very fine subangular slaty gravels, poorly developed blocky structure @13.6' to 15': Increase in gravel size to fine to coarse subangular gravels</p>				
272 15										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE	COMPLETE	
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-14
PROJECT: El Rodeo Geohazard Investigation										PAGE 2 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 6
EQUIPMENT USED: CME-75										ELEVATION: 286.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/14/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 7/15/2014	
07/14/14	ATD	∇ 35				INCLINED	Bit (Feet)		DRILLER: Martini	
		∇				BEARING	Barrel (Feet)		PREPARED BY: JWJ	
		∇			0	ANG. FROM VERT.	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
272 15	15-20	Run 1 Box 2	5	100		@15' to 16.8': Sandy CLAY (CL), reddish brown, moist, poorly developed blocky structure, some fine subangular slate and siltstone gravels, gradational contact below				
						@16.8' to 18.1': Clayey Silty SAND (SC-SM), with gravel, reddish brown, moist, fine grained sand, subangular to subrounded slaty gravels				
						@18.1' to 19': Grades to Clayey SAND (SC), with gravel, reddish brown, moist, fine grained sand, subangular slaty gravels, poorly developed blocky structure				
						@19' to 20.5': Sandy CLAY to Clayey SAND (SC-CL), reddish brown, moist, fine grained sand, trace fine subrounded siltstone, basalt, and slate gravel				
267 20	20-25	Run 2 Box 2	5	100		@20.5' to 24': Becomes CLAY (CL), reddish brown, moist, trace very fine to fine subangular slate and siltstone gravel, very poor blocky structure, heavily oxidized and gleyed				
						@24' to 25.6': Becomes Sandy CLAY (CL), reddish brown to light olive gray, moist, more developed thin laminations, moderate blocky structure, oxide staining between pedogenic faces, trace fine slaty gravels, heavily gleyed along pedogenic faces, porous with root holes, clay films				
						Pleistocene Alluvium of Benedict Canyon Wash (BCW):				
262 25	25-30	Run 1 Box 3	5	100		@25.6' to 26.8': Sandy CLAY (CL), reddish orange brown to medium brown to light olive gray, moist, fine grained sand, oxidation-reduction banded laminations, moderately developed blocky structure, thin MnO band @26.0' to 26.1'				
						@26.8' : Trace fine slaty gravels, moderately to well developed blocky structure, waxy finish on pedogenic faces, oxidation-reduction banded thin laminations, color change below				
						@27.7' to 28': Sandy CLAY (CL), reddish orange brown to medium brown to light olive gray, moist, moderately developed blocky structure, trace fine siltstone gravel @28' to 28.4'				
						@28.4' to 29.3': Silty CLAY (CL), with sand and gravels, reddish brown, moist, laminated oxidation-reduction banding				
257 30						@29.3': basal siltstone rock clast				
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE	COMPLETE	

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT_2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON




CORE BORING LOG

BORING NO. **CB-14**
PAGE 3 OF 6

PROJECT: **El Rodeo Geohazard Investigation**
CLIENT: **Beverly Hills Unified School District**
CONTRACTOR: **Martini Drilling Corporation**
EQUIPMENT USED: **CME-75**

JOB NO.: **10274.006**
PAGE NO.: **3 of 6**
ELEVATION: **286.5 Feet**
DATE START: **7/14/2014**
DATE FINISH: **7/15/2014**
DRILLER: **Martini**
PREPARED BY: **JWJ**
LOCATION: **605 Whittier Blvd., Beverly Hills, Ca**

GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	
07/14/14	ATD	∇ 35				INCLINED	Bit (Feet)	
		∇			0	BEARING	Barrel (Feet)	
		∇				ANG. FROM VERT.	Total (Feet)	

ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS					
						The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.					
257 - 30	30-35	Run 2 Box 3	5	100		@30' to 32.2': Sandy CLAY (CL), with trace silt, reddish brown, moist, fine grained sand, trace slaty tabular to subrounded gravels, moderately developed blocky structure					
						@32.2' to 32.9': Sandy CLAY (CL), reddish brown, moist, fine grained sand, moderately developed blocky structure, trace carbonate development between pedogenic faces @32.9': Clayey GRAVEL (GC), reddish brown to dark olive gray, moist, subangular slate, siltstone, and basalt gravels, fine grained sand, trace coarse grained sand,					
252 ∇ - 35	35-40	Run 1 Box 4	4.7	94		@34.7' to 34.8' reddish staining and coarse subangular gravels, abrupt change below @34.8' to 35': Silty Sandy CLAY (CL-ML), medium brown, fine grained sand, moist, moderately developed blocky structure @35' to 35.4': SAND with Gravel (SP), reddish brown to light brown to dark olive gray, very moist to wet, medium to coarse grained, fine tabular to subrounded slaty gravels, gradational contact below @35.4' to 36.2': Sandy CLAY (CL), reddish brown to medium brown, very moist to wet, fine grained sand, moderately developed structure @36.2' to 38.9': Becomes Sandy CLAY (CL), with gravel, reddish brown, very moist to wet, fine grained sand, fine to medium subangular slate and siltstone gravel, trace carbonate development, oxide staining, poor to moderately developed blocky structure					
						@38.9' to 39.7': Clayey SAND with Gravel (SC), trace silt, wet, fine grained sand, trace coarse grained sand, fine to medium subangular slate and basalt gravels, light orange FeO ₃ staining, @39.3' to 39.7' becomes medium to coarse grained sand					
247 - 40						40-45	Run 2 Box 4	5	100		@39.7' to 40': No Recovery @40' to 41': Clayey SAND with Gravel (SW-SC), reddish brown to olive brown, wet, subrounded fine slaty gravels, with carbonate stringers, @40.5' to 40.6' granitic cobble, @40.6' to 41' dark red staining, abrupt contact below @41' to 41.6': Becomes Silty SAND with Gravel (SM), medium brown to olive brown, wet, fine to medium grained sand, trace coarse grained sand, subrounded quartz gravel, subangular fine slaty gravels @41.6' to 41.7': Thin coarse grained Clayey SAND (SC) lens, fine subangular slaty gravels @41.7' to 43.2': Sandy CLAY (CL), with gravel, very moist, fine grained sand, moderately developed blocky structure, trace oxide staining on pedogenic faces, tabular slaty fine gravels, subangular siltstone gravels @43.2' to 43.5': Clayey SAND (SC) lens, wet, coarse grained, with fine subangular gravels, trace FeO staining @43.5' to 44.1': Becomes Clayey GRAVEL (GC), reddish brown, very moist, subangular siltstone rock fragments
242 - 45											

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS	BEDDING	ATTITUDE AND ANGLE	JOINTS / SHEAR / FRACTURE	WEATHERING
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES	V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120" Fe = Iron Oxide Mn = Manganese Oxide	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-14
PROJECT: El Rodeo Geohazard Investigation										PAGE 4 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 6
EQUIPMENT USED: CME-75										ELEVATION: 286.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/14/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/15/2014
07/14/14	ATD	∇ 35				INCLINED	Bit (Feet)			DRILLER: Martini
		∇				BEARING	Barrel (Feet)			PREPARED BY: JWJ
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
242 45		45-50	Run 1 Box 5	2.3	46		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@44.1': trace coarse grained sand @44.6' to 45': No Recovery @45' to 47.3': Clayey SAND with Gravel (SW-SC), and trace silt, medium brown to reddish brown, wet, fine grained sand, trace coarse grained sand, subangular slaty gravels @47.3' to 50': No Recovery			
237 50		50-55	Run 2 Box 5	4.3	86		@50' to 51.5': Clayey SAND with Gravel (SW-SC), reddish brown to olive gray, very moist, fine to coarse grained, fine subrounded to subangular slate, basalt, and quartz gravel @51.5' to 52.2': No Recovery @52.2': Clayey SAND with Gravel (SW-SC), medium brown to dark olive gray, wet, fine to coarse grained sand, trace subangular slaty gravels, abrupt contact below @52.4': Pleistocene Cheviot Hills Deposits (CHD): Sandy CLAY (CL), reddish brown to medium brown to dark olive gray, fine grained sand, trace fine subangular slate rock fragments, moderately to well developed blocky structure, clay on pedogenic faces, oxide staining prevalent, MnO nodules			
∇										
232 55		55-60	Run 1 Box 6	5	100		@55' to 55.6': Sandy CLAY (CL), reddish brown to light olive gray, moist, fine grained sand, oxide staining prevalent, MnO development, light olive gray gleying, moderate to moderately developed blocky structure, shimmer on well developed pedogenic faces @55.6' to 57.1': Grades to Sandy CLAY (CL), reddish orange brown to medium brown to light olive gray, wet @51.1' to 51.5', trace fine subrounded slate fragments, dark reddish brown oxide staining prevalent, well developed blocky structure, oxidation-reduction banding, well developed thin laminations @57.1' to 57.6': Silty CLAY (CL-ML), with trace sand and gravel, reddish brown to light olive gray, moderately developed blocky structure, oxide staining, gleying prevalent, well developed thin laminations @57.6' to 58.1': Grades to Silty CLAY (CL-ML) @58.1' to 60': Grades to Silty CLAY (CL-ML), with sand, reddish brown to light olive gray, moist, moderately developed blocky structure, gleying prevalent, oxide staining, shimmer on faces, trace fine slaty gravels			
∇										
227 ∇ 60										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD HARD MOD. HARD SOFT V. SOFT	- KNIFE CAN'T SCRATCH - SCRATCHES DIFFICULT - SCRATCHES EASILY - GROVES - CARVES	V. THIN THIN MEDIUM THICK V. THICK	<2" 2"-12" 12"-36" 36"-120" >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE CLOSE MOD. CLOSE WIDE V. WIDE	<2" 2"-12" 12"-36" 36"-120" >120"	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE			
ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16 Fe = Iron Oxide Mn = Manganese Oxide										

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON


CORE BORING LOG										BORING NO. CB-14
PROJECT: El Rodeo Geohazard Investigation										PAGE 5 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 6
EQUIPMENT USED: CME-75										ELEVATION: 286.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/14/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/15/2014
07/14/14	ATD	∇ 35				INCLINED	Bit (Feet)			DRILLER: Martini
		∇				BEARING	Barrel (Feet)			PREPARED BY: JWJ
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
227 60						<p>@60' to 60.2': Sandy CLAY (CL), with gravel, reddish brown, wet, well developed blocky structure, waxy finish on faces, trace fine slaty rock fragments</p> <p>@60.2' to 64.4': Sandy CLAY (CL), massive, reddish orange brown to light olive gray, moist, fine grained sand, trace fine subangular slate and siltstone rock fragments, gleying prevalent, oxide staining, moderately developed blocky structure</p>				
	60-65	Run 2 Box 6	5	100						
∇						<p>@64.4' to 64.5': Thin Clayey SAND with Gravel (SW-SC) lens, reddish brown to olive gray, wet, fine to coarse grained sand, subrounded fine slaty gravels</p> <p>@64.5' to 65': Silty CLAY (CL-ML), light olive gray to medium brown, trace fine subrounded slate fragments, well developed blocky structure, oxide staining prevalent, gleying prevalent, thinly laminated weak beds, trace MnO nodules</p> <p>@65' to 67.7': Sandy CLAY (CL), reddish brown to light olive gray, moist, fine grained sand, oxide staining prevalent, gleying prevalent, trace fine slate and siltstone gravel, moderately to well developed blocky structure,</p>				
222 65										
	65-70	Run 1 Box 7	5	100						
∇						<p>@67.7' to 68.5': Clayey SAND with Gravel (SW-SC), reddish brown to olive gray, wet, fine to coarse grained sand, subrounded to subangular slate and siltstone gravel</p> <p>@68.5' to 68.8': Becomes Silty SAND (SM), with fine gravels, wispy thin light brown and black MnO laminations, wet</p> <p>@68.8' to 68.9': Clayey SAND with Gravel (SW-SC) lens, fine to coarse grained, wet, subrounded slate, siltstone, and quartz rock fragments</p> <p>@68.9' to 69.4': Silty SAND (SM), with fine gravels, medium brown to light olive gray, wet, fine grained sand, subrounded to subangular slaty gravel</p> <p>@69.4' to 69.7': Clayey SAND with Gravel (SW-SC), medium brown to light olive gray, wet, subrounded slaty fine gravel</p> <p>@69.7': Sandy CLAY (CL), with trace gravels, light olive gray with orange red staining, moist, moderately developed blocky structure, MnO development on pedogenic faces, trace fine grained sand grains between pedogenic faces</p> <p>@71' to 72.3': Sandy CLAY (CL), light olive gray with orange brown staining, moist, gleying prevalent, moderately developed blocky structure, MnO development on pedogenic faces, trace fine grained sand grains between pedogenic faces</p> <p>@72.3' to 75': Becomes Sandy CLAY (CL), with gravel, medium brown to olive gray with orange brown staining, moist, fine grained sand, fine subrounded to subangular slate, siltstone and quartz gravels, FeO staining prevalent, moderately developed blocky structure, MnO development and fine sand on pedogenic faces.</p>				
217 70										
	70-75	Run 2 Box 7	5	100						
∇										
212 75										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-14
PROJECT: El Rodeo Geohazard Investigation										PAGE 6 OF 6
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 6 of 6
EQUIPMENT USED: CME-75										ELEVATION: 286.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/14/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/15/2014
07/14/14	ATD	▽ 35				INCLINED	Bit (Feet)			DRILLER: Martini
		▽				BEARING	Barrel (Feet)			PREPARED BY: JWJ
		▽			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
212 75							<p>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</p> <p>Total depth of boring: 75' bgs Perched groundwater encountered @ 35'-39.7', 40'-41.6', 43.2'-43.5', 45'-47.3', 52.2'-52.4', 60'-60.2', 64.4'-64.5' and 67.7'-69.7' bgs Boring backfilled with bentonite and soil cuttings upon completion of drilling. Boring capped with approximately 6-inches of Rapid Set Concrete and black dye. Excess cuttings disposed of in D.O.T. approved drums and disposed offsite</p>			
207 80										
202 85										
197 90										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD HARD MOD. HARD SOFT V. SOFT	- KNIFE CAN'T SCRATCH - SCRATCHES DIFFICULT - SCRATCHES EASILY - GROVES - CARVES		V. THIN THIN MEDIUM THICK V. THICK	<2" 2"-12" 12"-36" 36"-120" >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)		V. CLOSE CLOSE MOD. CLOSE WIDE V. WIDE	<2" 2"-12" 12"-36" 36"-120" >120"	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE	
Fe = Iron Oxide Mn = Manganese Oxide										

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON



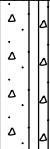

CORE BORING LOG										BORING NO. CB-15
PROJECT: El Rodeo Geohazard Investigation										PAGE 1 OF 7
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 7
EQUIPMENT USED: CME-75										ELEVATION: 285.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/15/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/16/2014
07/15/14	ATD	∇ 38.7				INCLINED	Bit (Feet)			DRILLER: Martini
		∇				BEARING	Barrel (Feet)			PREPARED BY: JWJ
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
-286 0						[Cross-hatched pattern]	The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
-281 5		5-10	Run 1 Box 1	5	100	[Diagonal hatching]	@5': Holocene and Pleistocene Alluvium of Benedict Canyon Wash (Qal): Sandy CLAY to Clayey SAND (SC-CL), with silt, olive brown, dry, fine grained sand, trace fine slaty gravels @5.4' to 5.9': Silty Clayey SAND (SM-SC), olive brown to light reddish brown, dry, fine grained sand, trace subrounded fine slaty gravels, clay lamination @5.7', light reddish brown, gradational contact @5.9' to 7.5': Sandy CLAY (CL), with gravels, light reddish brown to medium brown, dry to slightly moist, fine grained sand, trace fine tabular to subrounded slate and siltstone gravels, poorly developed blocky structure @7.5' to 10': Sandy, Clayey GRAVEL (GC), reddish brown to light orange brown to medium brown, slightly moist, fine grained sand, subrounded to subangular slate and siltstone gravel, poorly developed blocky structure, oxidized			
-276 10		10-15	Run 2 Box 1	5	100	[Diagonal hatching]	@10': Pleistocene Alluvium of Benedict Canyon Wash (BCW,): Sandy CLAY (CL), with trace gravels, reddish brown, moist, fine grained sand, poorly developed blocky structure, pinhole voids, trace fine subangular slate and siltstone gravel, gleyed, trace basalt fragments			
-271 15						[Diagonal hatching]				
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
									COMPLETE	

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT-2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON


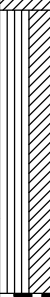
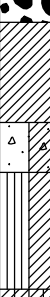

CORE BORING LOG										BORING NO. CB-15
PROJECT: El Rodeo Geohazard Investigation										PAGE 2 OF 7
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 7
EQUIPMENT USED: CME-75										ELEVATION: 285.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/15/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/16/2014
07/15/14	ATD	▽ 38.7				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: JWJ
		▼			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG					
271 15	15-20	Run 1 Box 2	5	100		<p>@17.4' to 17.9': Clayey SAND (SC), light reddish brown, moist, fine grained, trace fine tabular and subangular slaty gravel, trace silt, gradational contact below</p> <p>@17.9' to 21.5': Grades to Sandy CLAY (CL), reddish brown to medium brown, with minor olive gray gleying, moist, fine grained sand, poorly developed blocky structure, trace fine gravel, trace rootlets</p>				
266 20										
	20-25	Run 2 Box 2	5	100		<p>@21.5' to 24.1': Becomes Sandy CLAY (CL), reddish brown to olive gray, moist, fine grained sand, trace fine subangular gravel, poorly developed blocky structure, @22' very faint thin light olive gray and orange reddish brown laminations</p>				
	25-30	Run 1 Box 3	2.4	48		<p>@24.1': Becomes Silty Gravelly SAND (SW-SM), with trace clay, light reddish brown to medium brown, moist, fine to coarse grained sand, subrounded to subangular slate and siltstone gravel</p> <p>@25.9': Pleistocene Alluvium of Benedict Canyon Wash (BCW₂): CLAY (CL) with Sand, reddish orange brown to light olive gray, moist, trace fine subrounded slaty gravels, moderately developed blocky structure, some gleying, poorly developed thin laminations, oxidation-reduction banding</p>				
261 25										
	25-30	Run 1 Box 3	2.4	48		<p>@27.4' to 30': No Recovery</p>				
256 30										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT-2/1/16




*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON


CORE BORING LOG										BORING NO. CB-15
PROJECT: El Rodeo Geohazard Investigation										PAGE 3 OF 7
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 7
EQUIPMENT USED: CME-75										ELEVATION: 285.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/15/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/16/2014
07/15/14	ATD	▽ 38.7				INCLINED	Bit (Feet)			DRILLER: Martini
		▼				BEARING	Barrel (Feet)			PREPARED BY: JWJ
		▼			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG					
256 30	30-35	Run 2 Box 3	5	100		@30' to 32.5': Sandy CLAY (CL), medium brown to light olive gray, moist, moderately developed blocky structure, fine grained sand, trace fine subangular slaty gravel, trace MnO development, gleyed				
						@32.5' to 35.9': Sandy Silty CLAY (CL-ML), light reddish brown to medium brown, moist, fine grained sand, moderately developed blocky structure, trace MnO development				
251 35	35-40	Run 1 Box 4	5	100		@35.9' to 36.2': Sandy GRAVEL (GW) lens, subrounded siltstone fragments, fine subrounded slaty gravel				
						@36.2': Sandy CLAY (CL), medium brown to olive gray, very moist, fine grained sand, trace fine slaty gravel, blocky structure, with pods of well developed dark purplish red clay				
						@38': Clayey SAND with Gravel (SW-SC), medium brown to reddish brown, very moist, fine to medium grained sand, trace coarse grained sand, with fine subrounded to subangular slate, siltstone, and basalt gravels				
						@38' to 39.4': Becomes Sandy CLAY (CL-ML), with gravels, reddish brown to medium brown, with dark purplish red stained nodules, very moist, fine to coarse grained sand, fine subrounded slate, siltstone, and basalt gravels				
246 40	40-45	Run 2 Box 4	3.7	74		@39.4' to 40': Silty Sandy CLAY (ML-CL), with gravel, medium brown to light olive gray, wet, gleyed				
						@40' to 40.4': Sandy GRAVEL (GW) lens, medium brown to olive gray, wet, fine to coarse grained sand, subrounded slate, siltstone, basalt, and quartz gravel				
						@40.4': Sandy CLAY (CL), light reddish to medium brown with minor light olive gray gleying, fine grained sand, trace fine subangular slaty fragments, @40.5' to 40.7' sandstone cobble, trace carbonate stringers, @42' to 42.1' becomes sandier				
						@43.2' to 43.7': Clayey GRAVEL (GC), olive gray to medium brown, moist, subrounded to subangular slate, siltstone, and basalt gravels, @43.3' siltstone rock fragment				
						@43.7' to 45': No Recovery				
241 45										

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
								V. SEVERE	
								COMPLETE	

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***


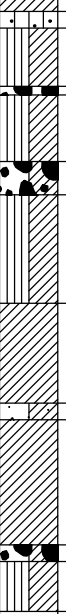

LEIGHTON

CORE BORING LOG										BORING NO. CB-15
PROJECT: El Rodeo Geohazard Investigation										PAGE 4 OF 7
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 7
EQUIPMENT USED: CME-75										ELEVATION: 285.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/15/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/16/2014
07/15/14	ATD	∇ 38.7				INCLINED	Bit (Feet)			DRILLER: Martini
		∇				BEARING	Barrel (Feet)			PREPARED BY: JWJ
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	<p>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</p>				
241	45				[Diagonal Hatching]	<p>@45' to 45.5': Gravelly CLAY (CL), with sand, reddish brown to olive gray, very moist, gleyed, moderately developed blocky structure, faint thinly laminated sand and clay laminations</p> <p>@45.5' to 48.8': Gravelly SAND (SP), reddish brown to olive gray, very moist to wet, fine grained</p> <p>@45.8' to 46': Becomes fine to coarse grained, with fine slate, siltstone, and basalt gravels at basal contact</p> <p>@48.8' to 50': No Recovery</p>				
236	50				[Dotted]	<p>@50' to 50.8': Clayey SAND with Gravel to Clayey Sandy GRAVEL (GP), reddish brown to medium brown to light yellow brown, moist, fine to coarse grained sand, fine subrounded to subangular slate, basalt, and siltstone gravels, sharp contact below</p> <p>@50.8': Pleistocene Cheviot Hills Deposits (CHD): Silty CLAY (CL), dark olive gray, moist, well developed blocky structure, well developed oxide staining and nodules, MnO development on pedogenic faces, laminated, oxidized, gleyed clay 1-foot below oxidation-reduction banding</p>				
231	55				[Diagonal Hatching]	<p>@55.4' to 55.5': Thin Silty Clayey SAND (SM-SC) lens, reddish brown to light olive gray, fine grained sand</p> <p>@55.5' to 65.3': Sandy CLAY (CL), reddish orange brown to dark olive gray, moist, varved, fine grained sand, scattered fine slate and siltstone gravels, well defined thin laminations, oxidation-reduction banded</p> <p>@56' to 56.8' dark olive gray vertical gleying, oxide staining prevalent, well developed blocky structure, clay developed pedogenic on faces, minor MnO development</p> <p>@56.8': Sandy CLAY (CL), reddish orange brown to dark olive gray, moist, varved, fine grained sand, scattered fine slate and siltstone gravels, well defined thin laminations, oxidation-reduction banded</p>				
226	60				[Diagonal Hatching]					
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE	COMPLETE	
						Fe = Iron Oxide Mn = Manganese Oxide				


ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-15	
PROJECT: El Rodeo Geohazard Investigation										PAGE 5 OF 7	
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 7	
EQUIPMENT USED: CME-75										ELEVATION: 285.5 Feet	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/15/2014	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/16/2014	
07/15/14	ATD	∇ 38.7				INCLINED	Bit (Feet)			DRILLER: Martini	
		∇				BEARING	Barrel (Feet)			PREPARED BY: JWJ	
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS					
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.											
226	60	60-65	Run 2 Box 6	5	100						@64.1': heavy gleyed
											@64.4' to 65' increase in gravels
221	65	65-70	Run 1 Box 7	5	100						@65': Sandy CLAY (CL), reddish orange brown to dark olive gray, moist, varved, fine grained sand, scattered fine slate and siltstone gravels, well defined thin laminations, oxidation-reduction banded
											@65.3' to 65.5': Silty SAND (SM) lens, dark brown to reddish orange brown, wet, fine grained, oxidized heavily at contact below
											@65.5' to 66.2': Sandy Silty CLAY (CL-ML), reddish orange brown to dark olive gray, gleyed, oxide staining prevalent, poorly to moderately developed blocky structure
											@66.2' to 66.3': Sandy GRAVEL (GW) lens, fine to coarse grained sand, subrounded slaty gravel
											@66.3' to 67.1': CLAY with Silt (CL-ML), and sand, reddish orange brown to dark olive gray, moist, gleyed, FeO staining prevalent, fine grained sand, trace subrounded fine slaty gravel, moderately developed blocky structure, clay on facies, MnO development
216	70	70-75	Run 2 Box 7	2.5	50						@67.1' to 67.5': Sandy Clayey GRAVEL (GW-GC) lens, fine to coarse grained sand, subrounded to subangular slate and siltstone gravels, abrupt contact with below
											@67.5' to 68.8': Silty Sandy CLAY (CL-ML), with fine gravels, reddish orange brown to olive gray, moderately to well developed blocky structure, very moist,
											@68.8' to 70': Sandy CLAY (CL), reddish orange brown to olive gray, moist, moderately developed blocky structure, oxide nodules, MnO development, coarse sand grains between pedogenic faces
											@70' to 70.2': Thin Clayey SAND with Gravel (SW-SC) lens, wet, fine to coarse grained sand, with subangular slaty gravels
											@70.2' to 71.7': Sandy Gravelly CLAY (CL), with silt, reddish brown to olive gray, moist, well developed blocky structure, oxide staining, waxy finish on facies
		@71.7' to 71.9': Sandy Clayey GRAVEL (GW-GC) lens, wet									
		@71.9' to 72.5': Silty Sandy CLAY (CL-ML), with gravel, reddish brown to olive gray, very moist, well developed blocky structure. @72.1' to 72.2' sand and gravel lens									
		@72.5' to 75': No Recovery									
211	75										

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
								V. SEVERE	COMPLETE

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-15
PROJECT: El Rodeo Geohazard Investigation										PAGE 6 OF 7
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 6 of 7
EQUIPMENT USED: CME-75										ELEVATION: 285.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/15/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 7/16/2014	
07/15/14	ATD	▽ 38.7				HORIZONTAL	Bit (Feet)		DRILLER: Martini	
		▽				INCLINED	Barrel (Feet)		PREPARED BY: JWJ	
		▽			0	BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
		▽				ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
211 75		75-80	Run 1 Box 8	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@75' to 76.1': Silty SAND (SM), black and white, wet, fine to medium grained, coarsens downward, siltstone rock fragments			
							@76.1' to 77': Becomes Gravelly SAND (SW), black and white, wet, medium to coarse grained sand, primarily subrounded grains, with subrounded to subangular fine gravels, slaty			
		@77' to 80.7': Becomes Clayey Sandy GRAVEL (GW-GC), black and white to medium brown, wet, gradational contact below								
206 80		80-85	Run 2 Box 8	5	100		@80' to 82': Silty SAND (SM), olive brown, wet, fine grained, @81.3' to 82' medium grained, abundant gravel			
							@82' to 82.3': Sandy Clayey GRAVEL (GW-GC), wet, primarily coarse grained sand, subrounded to rounded slaty gravels, abrupt contact below			
							@82.3': 1-inch glazed			
		@82.3' to 83.1': Silty CLAY (CL-ML), dark olive gray, massive, moist, thin MnO bands, well developed blocky structure, waxy finish on faces, oxide staining								
		@83.1' to 89.8': Sandy CLAY (CL), dark red brown with dark olive gray laminations, moist, massive unit, oxidation-reduction banded, fine grained sand, trace fine subangular slate and siltstone gravels, well developed blocky structure, oxide staining prevalent, MnO development between well developed faces								
201 85		85-90	Run 1 Box 9	5	100					
196 90							@89': Dark red clayey paleosol			
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
								V. SEVERE		
								COMPLETE		

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-15
PROJECT: El Rodeo Geohazard Investigation										PAGE 7 OF 7
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 7 of 7
EQUIPMENT USED: CME-75										ELEVATION: 285.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/15/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/16/2014
07/15/14	ATD	∇ 38.7				INCLINED	Bit (Feet)			DRILLER: Martini
		∇				BEARING	Barrel (Feet)			PREPARED BY: JWJ
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
196	90	90-95	Run 2 Box 9	5	100		<p>@90.9': MnO bands</p> <p>@ 92.3': MnO bands</p> <p>@92.9': MnO bands</p> <p>@93.9': MnO bands</p>			
191	95					<p>Total depth of boring: 95' bgs Perched groundwater encountered @ 39.4'-40.4', 45.5'-48.8', 65.3'-65.5', 70'-70.2', 71.7'-71.9', and 75'-82.3' bgs Boring backfilled with bentonite and soil cuttings upon completion of drilling. Boring capped with approximately 6-inches of Rapid Set Concrete and black dye. Excess cuttings disposed of in D.O.T. approved drums and disposed offsite</p>				
186	100									
181	105									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT_2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-16	
PROJECT: El Rodeo Geohazard Investigation										PAGE 1 OF 7	
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 7	
EQUIPMENT USED: CME-75										ELEVATION: 285 Feet	
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/16/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	HORIZONTAL	TYPE	SIZE	DATE FINISH: 7/17/2014	
07/16/14	ATD	∇ 35				INCLINED		Bit (Feet)		DRILLER: Martini	
		∇				BEARING		Barrel (Feet)		PREPARED BY: EBP	
		∇			0	ANG. FROM VERT.		Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS					
285 0						<p>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</p> <p>@Surface: 8-inches Asphalt Concrete</p> <p>@0.67': 7-inches Portland Cement Concrete</p> <p>@1.25': Artificial Fill, Undocumented (Afu): @1.25 to 5': Hand auger</p>					
280 5		5-10	Run 1 Box 1	5	100	<p>@5': Holocene and Pleistocene Alluvium of Benedict Canyon Wash (Qal): Sandy SILT with Clay (ML), dark brown, moist, fine to medium grained sand, trace gravel</p> <p>@5.5' to 6.5': Silty SAND (SM), dark yellowish brown, moist, fine grained, trace clay, few fine to coarse subrounded to subangular gravels</p> <p>@6.5' to 7.7': Silty CLAY (CL), with sand, dark brown, moist, fine to coarse grained sand, trace fine gravel</p> <p>@7.7' to 8.1': Clayey SAND (SC), dark yellowish brown, moist, fine grained sand, few coarse sand and gravel, gradational contact</p> <p>@8.1' to 10.2': Silty SAND (SM), dark yellowish brown, moist, fine grained, few coarse grained sand, fine to coarse gravel, trace clay</p>					
275 10		10-15	Run 2 Box 1	5	100	<p>@10.2': Pleistocene Alluvium of Benedict Canyon Wash (BCW₁): Sandy CLAY (CL), dark yellowish brown to orange brown, moist, trace coarse grained sand</p>					
270 15											
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
									V. SEVERE		
									COMPLETE		
							Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT_2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-16
PROJECT: El Rodeo Geohazard Investigation										PAGE 2 OF 7
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 7
EQUIPMENT USED: CME-75										ELEVATION: 285 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/16/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/17/2014
07/16/14	ATD	∇ 35				INCLINED	Bit (Feet)			DRILLER: Martini
		∇				BEARING	Barrel (Feet)			PREPARED BY: EBP
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG					
270 15	15-20	Run 1 Box 2	5	100		@15.3' to 17.7': SAND with Clay (SC), yellowish brown to orange brown, moist, fine grained sand, trace coarse grained sand @17.7' to 18.4': Sandy CLAY (CL), , dark yellow brown, moist, fine grained sand, trace fine gravel, few coarse gravel, mainly subrounded to subangular slaty gravels @18.4' to 19.9': Clayey SAND (SC), dark yellowish brown, moist, fine to medium grained, few fine to coarse gravel, mainly subrounded to subangular slaty gravels				
265 20						@19.9' to 20.9': Silty SAND with Clay (SM-SC), dark yellowish brown, moist, fine to medium grained sand, few fine to coarse gravel, mainly subrounded to subangular slaty gravel @20.9' to 23.6': Sandy CLAY (CL), dark yellowish brown to brown, moist, fine grained sand, trace coarse grained sand @24.3' to 25': Silty SAND with Clay (SM-SC), yellowish brown, moist, fine grained sand, few fine to coarse subangular slaty gravels				
260 25	20-25	Run 2 Box 2	5	100		@25' to 25.2': Sandy CLAY (CL), dark brown, moist, medium to coarse grained sand, few fine gravels @25.2' to 26.2': Silty SAND with Clay (SM-SC), dark yellowish brown, moist, fine to medium grained sand, trace fine gravel, fining upwards from 26.4' @25.7': Becomes Silty SAND (SM), yellow brown, fine to coarse grained sand, no clay @26.2' to 26.4': Sandy GRAVEL (GW), dark yellowish brown, moist, fine to coarse grained sand, fine to coarse subrounded to subangular slate, siltstone, basalt, and granitic gravels, oxide stained @26.4' to 27.3': Silty SAND (SM), dark yellowish brown, moist, fine to coarse grained, trace fine gravel @27.3' to 27.7': basal GRAVEL (GP) bed, siltstone and slate clasts Pleistocene Alluvium of Benedict Canyon Wash (BCW₂): @27.7': Sandy CLAY (CL), reddish-brown, moist, trace coarse grained sand, few slaty gravels @28.9' to 30': No Recovery				
255 30						25-30	Run 1 Box 3	3.9	78	
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE	COMPLETE	
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-16
PROJECT: El Rodeo Geohazard Investigation										PAGE 3 OF 7
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 7
EQUIPMENT USED: CME-75										ELEVATION: 285 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/16/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/17/2014
07/16/14	ATD	∇ 35				INCLINED	Bit (Feet)			DRILLER: Martini
		∇				BEARING	Barrel (Feet)			PREPARED BY: EBP
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
255	30	30-35	Run 2 Box 3	5	100		@30' to 30.6': Sandy CLAY (CL), reddish brown, moist, fine grained sand, trace fine gravel			
							@30.6' to 31.3': SAND and GRAVEL beds (SP-GP)			
							@31.3' to 33.6': Sandy CLAY (CL), dark yellow brown, moist, trace coarse grained sand			
							@33.6' to 34.4': Clayey SAND (SC), dark yellowish brown, moist, fine to coarse grained, trace fine gravel			
250	35	35-40	Run 1 Box 4	5	100		@34.4' to 35': Silty SAND with Clay (SM-SC), dark yellowish brown, moist, fine to medium grained sand, trace fine gravel			
							@35' to 38.2': Clayey SAND (SC) with Silt, dark yellowish brown, wet, fine to coarse grained sand, trace clay			
							@35.6': Fine grained sand			
							@36.9' to 37.1': Few fine subangular slaty gravels			
245	40	40-45	Run 2 Box 4	4.8	96		@38.2' to 39.5': Silty SAND (SM) lamination, fine grained, yellowish brown			
							@39.5' to 42.1': CLAY (CL), olive brown, very moist, gleying and oxidation staining along laminations			
							@41.5': rounded 1+1/2-inch size gravel rock line			
							@40' to 42.1': SAND with Clay (SC), dark yellowish brown to olive brown, wet, fine to medium grained, trace fine gravel			
240	45						@42.1' to 43.2': Sandy SILT (ML), dark yellowish brown, moist, fine grained sand, few fine to coarse subangular slaty gravels, slight oxide staining			
							@43.2' to 43.3': Silty SAND (SM), yellowish brown, moist, fine to medium grained, sharp contact below, at basal siltstone rock clast			
							@43.3' to 43.7': Sandy CLAY (CL), dark yellowish brown, moist, trace coarse grained sand			
							@43.7' to 44': Silty SAND (SM), dark yellowish brown, moist, fine grained sand, trace fine gravel			

ROCKLOG2014-10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
								SEVERE	COMPLETE

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-16
PROJECT: El Rodeo Geohazard Investigation										PAGE 4 OF 7
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 7
EQUIPMENT USED: CME-75										ELEVATION: 285 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/16/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/17/2014
07/16/14	ATD	∇ 35				INCLINED	Bit (Feet)			DRILLER: Martini
		∇				BEARING	Barrel (Feet)			PREPARED BY: EBP
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
240 45		45-50	Run 1 Box 5	4.1	82		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@44' to 44.8': Sandy CLAY (CL), dark yellowish brown, moist, fine grained sand, trace fine gravel at base of contact			
							@44.8' to 45': No Recovery			
							@45' to 45.7': Sandy SILT (ML), dark yellowish brown, moist, fine grained sand			
							@45.7' to 46': CLAY with Sand (CL), gleyed, oxidized			
		@46' to 46.5': Silty SAND (SM), dark yellowish brown, moist, fine grained								
		@46.5': SILT with Sand (ML), yellowish brown, very moist, fine to coarse grained sand								
		@48.9': GRAVEL (GP), basal well cemented gravels								
		@49.1' to 50': No Recovery								
235 ∇ 50		50-55	Run 2 Box 5	5	100		Pleistocene Cheviot Hills Deposits (CHD):			
							@50' to 50.5': Sandy SILT (ML), dark yellowish brown, wet, fine grained sand, pockets of gleyed clay			
							@50': 1-inch Clay, gley to reddish orange, some banding			
							@50.5' to 51.6': Clayey SILT (ML-CL), brown, very moist, gleying along laminations			
							@51.6' to 53.6': Grades to Sandy CLAY (CL), reddish brown, moist, gleying and oxidation staining along laminations			
		@53.6' to 54.4': Sandy CLAY (CL), brown, wet, fine grained sand								
		54.4' to 55.3': Grades to Clayey SILT (ML), with fine grained sand, very moist								
230 55		55-60	Run 1 Box 6	5	100		@55.3' to 55.9': Silty CLAY (CL), with sand, olive brown, very moist, fine grained sand			
							@55.6': Trace coarse sand			
							@55.9' to 56.4': Sandy CLAY (CL), fine to medium grained sand, trace fine gravel			
							@56.4' to 62.8': Sandy CLAY (CL), olive brown, moist, vertical gleying, fine to medium grained sand, trace fine gravel			
225 60										

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
								SEVERE	COMPLETE

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***


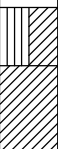


LEIGHTON

CORE BORING LOG										BORING NO. CB-16
PROJECT: El Rodeo Geohazard Investigation										PAGE 5 OF 7
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 7
EQUIPMENT USED: CME-75										ELEVATION: 285 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/16/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/17/2014
07/16/14	ATD	∇ 35				INCLINED	Bit (Feet)			DRILLER: Martini
		∇				BEARING	Barrel (Feet)			PREPARED BY: EBP
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
225	60	60-65	Run 2 Box 6	5	100					
							@62.8' to 62.9': Clayey GRAVEL (GC) bed, brown, wet, fine to coarse subangular slaty gravels			
							@62.9' to 63.7': Sandy CLAY (CL), brown, wet, medium to coarse grained sand, trace fine gravel			
							@63.5' to 63.8': Gravelly SAND bed (SP), olive brown, wet, coarse grained sand, fine subangular slaty gravel			
							@63.8' to 64.6': Sandy CLAY (CL), olive brown, wet, trace fine gravel, gleying			
220	65	65-70	Run 1 Box 7	5	100		@64.6': Sandy GRAVEL with Clay (GW-GC), brown, wet, medium to coarse grained sand			
							@64.9': Fine slate and basalt gravels, trace coarse gravels, minor oxide staining			
							@65' to 69': Clayey GRAVEL (GC), fine to coarse gravels, poor recovery			
	∇						@69' to 69.5': Clayey GRAVEL (GC), brown, wet, medium to coarse grained sand, few fine to coarse subrounded to subangular gravels, well cemented			
215	70	70-75	Run 2 Box 7	4.3	86		@69.5' to 70': Sandy CLAY (CL), dark gray and olive brown, moist, fine to medium grained sand, trace fine gravels			
							@70' to 74.2': SAND (SP), yellowish brown, wet, medium grained, trace coarse grained sand, trace silt			
							@74.2' to 74.3': Gravelly CLAY (CL) bed, dark gray and brown, fine gravel, trace coarse grained sand			
210	75									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE		
								COMPLETE		

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT_2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***



LEIGHTON

CORE BORING LOG										BORING NO. CB-16					
PROJECT: El Rodeo Geohazard Investigation										PAGE 6 OF 7					
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006					
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 6 of 7					
EQUIPMENT USED: CME-75										ELEVATION: 285 Feet					
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/16/2014					
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/17/2014					
07/16/14	ATD	∇ 35				INCLINED	Bit (Feet)			DRILLER: Martini					
		∇				BEARING	Barrel (Feet)			PREPARED BY: EBP					
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca					
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS															
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.															
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG										
210 75	75-80	Run 1 Box 8	2.8	56		@74.3' to 75': No Recovery @75' to 76.5': SAND (SP), yellowish brown, wet, medium grained, trace coarse grained sand, trace silt @76.5' to 77': Sandy GRAVEL (GW), yellowish brown, wet, coarse grained sand, fine subrounded gravel @77' to 77.8': Gravelly CLAY to Clayey GRAVEL (GC), dark yellowish brown to olive brown, moist, fine to coarse slaty gravels, moderate oxide staining @77.8' to 80': No Recovery									
205 80						80-85	Run 2 Box 8	5	100		@80' to 80.7': Silty CLAY (CL-ML), olive gray, moist, trace coarse grained sand, oxidation staining, gleyed zone, top of thick soil development @80.7' to 85': CLAY (CL), reddish brown, moist, trace coarse grained sand, trace fine gravel, slight gleying, faint lamination, 1-foot thick gleyed clay over oxidation-reduction banded clay unit				
200 85											85-90	Run 1 Box 9	5	100	
195 90															
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING							
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH								
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"									
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"									
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"									
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"									
						Fe = Iron Oxide Mn = Manganese Oxide									

ROCKLOG2014 10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT 2/1/16

***** This log is a part of a report by Leighton and should not be used as a stand-alone document. *****


LEIGHTON

CORE BORING LOG										BORING NO. CB-16
PROJECT: El Rodeo Geohazard Investigation										PAGE 7 OF 7
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 7 of 7
EQUIPMENT USED: CME-75										ELEVATION: 285 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 7/16/2014
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 7/17/2014
07/16/14	ATD	∇ 35				INCLINED	Bit (Feet)			DRILLER: Martini
		∇				BEARING	Barrel (Feet)			PREPARED BY: EBP
		∇			0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
195 90		90-95	Run 2 Box 9	5	100		<p>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</p> <p>@90' to 90.1': GRAVEL (GW) beds within yellowish brown sandy clay matrix, fine to coarse subangular to angular siltstone and slaty gravels</p> <p>@90.1' to 95': Sandy CLAY with Gravel (CL), reddish brown, moist, trace coarse grained sand, fine gravels, gleyed, developed paleosol</p> <p>@90.5': CLAY (CL), reddish brown, moist, fine to coarse grained sand, trace fine gravel, minor gleying</p>			
190 95										
185 100						<p>Total depth of boring: 95' bgs</p> <p>Perched groundwater encountered @ 35'-38.2', 40'-42.1', 50'-50.5', 53.6'-54.4', 62.8'-65', 69'-69.5', 70'-74.2', and 76.5'-77' bgs</p> <p>Boring backfilled with bentonite and soil cuttings upon completion of drilling. Boring capped with approximately 6-inches of Rapid Set Concrete and black dye.</p> <p>Excess cuttings disposed of in D.O.T. approved drums and disposed offsite</p>				
180 105										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		COMPLETE	

ROCKLOG2014_10274.006 LOGS-RECOVER.GPJ ROCKLOG2012.GDT_2/1/16


*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-17
PROJECT: El Rodeo School										PAGE 1 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 5
EQUIPMENT USED: CME-75										ELEVATION: 290.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/24/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 8/25/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd.,	
					0	ANG. FROM VERT.			Beverly Hills, Ca	
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
291	0									@Surface: 4 inches asphalt concrete @0.3': No recovery
		0-5	Run 1 Box 1	3.5	70					Artificial Fill, undocumented (Afu) @1.5': Sandy CLAY (CL), dark brown, moist, soft, fine to medium sand, few fine gravel, few asphalt and concrete rubble
286	5									@6.4': No recovery (rig chatter from 6-10'; continued rubble)
		5-10	Run 2 Box 1	1.4	28					
281	10									
		10-12.5	Run 1 Box 2	0	0					
		12.5-15	Run 2 Box 2	1	40					@14': Concrete rubble
276	15									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		SEVERE	COMPLETE	


ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-17
PROJECT: El Rodeo School										PAGE 2 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 5
EQUIPMENT USED: CME-75										ELEVATION: 290.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/24/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 8/25/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
276 15		15-17.5	Run 3 Box 2	5	200	[Diagonal Hatching]	<p>Pleistocene Alluvium of Benedict Canyon Wash (BCW,): @15': Sandy CLAY (CL), reddish brown, moist, fine sand, oxidized, blocky structure with rounded slaty gravel</p>			
		17.5-20	Run 4 Box 2	5	200	[Stippled]	<p>@16.2': Sandy GRAVEL (GP), brown, moist, fine to coarse sand, few slaty weathered gravel @16.6': Clayey GRAVEL (GC), reddish brown, very moist, fine sand, basal cobble @ 17' @17.1': GRAVEL (GP), brown, moist, fine to coarse sand, slaty gravel @17.3': SILT (ML), reddish brown, slightly moist, laminated with clay and trace coarse slaty sand @17.5': Sandy GRAVEL (GP), reddish brown, very moist, fine to coarse sand and gravel</p>			
271 20		20-25	Run 1 Box 3	5	100	[Stippled]	<p>@19.4': Clayey SAND (SC), reddish brown, very moist, fine to coarse sand and gravel @19.8': Gravelly CLAY (CL), reddish brown, very moist, fine sand, few flat slaty gravel and siltstone @20'-20.6': Clayey SAND with Gravel (SC), reddish brown, very moist, fine sand, slaty gravel @20.6': grades to Sandy CLAY (CL) @21.1'-21.3': Gravel bed, fine weathered slaty gravel with white siltstone at basal contact @21.3': becomes fine grained Silty SAND (SM), oxidized @21.5'-22.8': becomes Sandy GRAVEL (GP), rounded, fine slaty gravel Pleistocene Alluvium of Benedict Canyon Wash (BCW,) @22.8': grades to fine grained Silty SAND (SM), with clay. @23.3'-25.8': Uneven erosive contact, well oxidized Sandy CLAY (CL), oxidized with fine weathered, angular siltstone gravels, laminated, gleyed, well developed blocky structure</p>			
266 25		25-30	Run 2 Box 3	5	100	[Diagonal Hatching]	<p>@25.8': Rock line, coarse sized flattened and rounded slaty gravel @26.0-27.4': Sandy CLAY (CL), fine sand, faint oxidation-reduction banding</p>			
261 30						[Diagonal Hatching]	<p>@27.4': color change, Sandy CLAY (CL), dark brown with heavy oxidation reduction banding, well developed blocky structure, minor clay on pedogenic faces, gleyed, MnO staining</p>			
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE	COMPLETE	


ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-17
PROJECT: El Rodeo School										PAGE 3 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 5
EQUIPMENT USED: CME-75										ELEVATION: 290.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/24/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 8/25/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd.,	
					0	ANG. FROM VERT.			Beverly Hills, Ca	
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG					
261 - 30	30-35	Run 1 Box 4	5	100		@30'-31.2': CLAY with Gravel (CL), dark orange brown to reddish brown, dominantly angular slaty, siltstone and crystalline (feldspar) gravels,				
					@31.2'-31.3': rounded slaty gravels					
					@31.3': Well oxidized orange brown Sandy CLAY (CL), well developed blocky structure					
					@32.3': color change, Sandy CLAY (CL), gray, fine grained					
					@33.3'-33.6': Gravel bed, weathered basalt, slate and white siltstone, rounded					
256 - 35	35-40	Run 2 Box 4	5	100		@33.6': Sandy CLAY (CL), olive gray, fine grained sand				
					@34.4': white siltstone chips in gray Sandy CLAY (CL)					
					@35'-38.5': Sandy GRAVEL (GP), gray brown, basal cobble at 28.5', oxidized, weathered and rounded slaty gravels, erosive contact, abrupt					
251 - 40	40-45	Run 1 Box 5	5	100		@38.5': Sandy CLAY (CL), reddish brown and gray, oxidation-reduction banding, well developed blocky structure				
246 - 45										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"				
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"				
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"				
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"				
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16












LEIGHTON

CORE BORING LOG										BORING NO. CB-17
PROJECT: El Rodeo School										PAGE 4 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 5
EQUIPMENT USED: CME-75										ELEVATION: 290.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/24/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 8/25/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
246	45					78	3.9	Run 2 Box 5	45-50	<p>@44.8': Gravelly SAND (SP), very moist, fine to coarse sand, fine and coarse gravel, rounded white siltstone gravels</p> <p>@45.4'-45.7': thin bed of Silty SAND with Clay (SM-SC), orange brown, fine grained</p> <p>@45.7': sandy GRAVEL (GP), fine to coarse sand, fine to coarse rounded slaty gravels, siltstone and weathered basalt, coarse basal cobble</p> <p>@48.9'-50': No recovery</p>
241	50					84	4.2	Run 1 Box 6	50-55	<p>@50'-53.8': Sandy GRAVEL (GP), dark brown to orange brown, saturated, fine to coarse sand, fine and coarse gravel, severely weathered, rounded slate, silstone and basalt, fine to coarse sand, heavily oxidized, decomposed silstone and yellow brown sandsto</p> <p>@53.1': Sandy Gravelly CLAY (CL), dark reddish brown, very moist to saturated, fine to coarse sand and gravel</p> <p>53.8'-54.2': Basal Clayey Gravel (GC), coarse slaty and cobbly with secondary clay development in matrix</p> <p>@54.2'-55': No recovery</p>
236	55					94	4.7	Run 2 Box 6	55-60	<p>@55': SAND (SP), dark brown (salt and pepper), saturated, fine to coarse sand</p> <p>@56.4': Sandy GRAVEL (GP), reddish brown to orange brown, nested channel, small cobble at 57.5', channel gravels below to 58.9', abrupt contact</p> <p>@58.9': Sandy CLAY with Gravel (CL), dark reddish brown, very moist to saturated, fine to medium sand, fine gravel</p> <p>@59.7'-60': No recovery</p>
231	60									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
						Fe = Iron Oxide Mn = Manganese Oxide		COMPLETE		


ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

***** This log is a part of a report by Leighton and should not be used as a stand-alone document. *****

LEIGHTON


CORE BORING LOG										BORING NO. CB-17
PROJECT: El Rodeo School										PAGE 5 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 5
EQUIPMENT USED: CME-75										ELEVATION: 290.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/24/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 8/25/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd.,	
					0	ANG. FROM VERT.			Beverly Hills, Ca	
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
231 60	60-65	Run 1 Box 7	4	80		@60': Silty SAND (SM), fine sand with coarse sandstone and slaty sand, grades below to sandy gravel (GP), basal contact at 60.9', coarse rounded slaty gravels				
						@60.9': Gravelly SAND (SP), reddish brown, saturated, fine sand				
						61.7': Gravelly SAND (GP), dark reddish brown, saturated, fine to coarse sand and gravel, slate and weathered siltstone, basal siltstone cobble at 62.2				
						@62.4': Gravelly SAND (SP), reddish brown				
						@63.7': Basal rounded granitic cobbles				
						@64': No recovery				
226 65	65-70	Run 2 Box 7	4.6	92		@65'-66': Sandy Gravel (GP), coarse rounded, slaty gravel at 65.4' to 66', well graded sands with fine rounded slaty and siltstone gravels at 66' to 67.2'. Erosive contact below				
						<u>Pleistocene Cheviot Hills Deposit (CHD)</u>				
						@67.2': Sandy CLAY (CL), thin bed, becomes sandy SILT (ML), oxidized, blocky structure, oxide and MnO on pedogenic faces, abrupt contact at top of sand below				
						@68.8': SAND (SP), fine to coarse sand, fine rounded gravels				
						@69.6': No recovery				
221 70	Total depth of boring: 70 feet bgs Perched groundwater encountered at approximately 50-53.8', 55-59.7', 61.7-63.7' Boring backfilled with soil cuttings and patched with cold patch asphalt									
216 75										

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
								V. SEVERE	COMPLETE
						Fe = Iron Oxide Mn = Manganese Oxide			

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-18
PROJECT: El Rodeo School										PAGE 1 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 5
EQUIPMENT USED: CME-75										ELEVATION: 305 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/25/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 8/26/2015
						INCLINED	Bit (Feet)			DRILLER: Martini
						BEARING	Barrel (Feet)			PREPARED BY: ARR
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
305	0	0-5	Run 1 Box 1	5	100		@Surface: 4 inches asphalt concrete Artificial Fill, undocumented (Afu) @0.3': Sandy CLAY (CL), mottled reddish brown and gray, slightly moist, fine sand, trace flat slaty gravel			
						Pleistocene Alluvium of Bendedict Canyon Wash (BCW) @1.4': Sandy SILT (ML), dark orange brown to reddish brown with pockets of gleyed sand, oxidized fine siltstone gravels, laminated oxidation reduction banding, base of unit at 3.5' - slaty rockline				
						@3.5': Sandy SILT (ML), color change light brown with oxide staining, slightly moist, fine sand				
300	5	5-10	Run 2 Box 1	5	100		@5': Gravelly SAND (SP), light brown, fine sand, fine rounded slaty gravel			
						@5.5': Silty SAND (SM), gray brown to light orange brown, with pockets of gleyed sand, MnO on pedogenic faces, oxidized				
						@8.2': SAND (SP), olive brown to gray brown, slightly moist, fine sand				
						@8.9': SAND (SP), becomes oxidized orange brown				
295	10	10-15	Run 1 Box 2	4.7	94		@9.6': Becomes fine to coarse Sandy GRAVEL (GP), with weathered slate clasts and white siltstone chips			
						@12.6': Sandy GRAVEL (GP), fine to coarse sand, fine and coarse slaty gravel and cobbles, base of nested channel, weathered clasts, basal rounded gravels and cobbles at 14.7'				
290	15						@14.7': No recovery			
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								V. SEVERE	COMPLETE	
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

***** This log is a part of a report by Leighton and should not be used as a stand-alone document. *****

LEIGHTON

CORE BORING LOG										BORING NO. CB-18																				
PROJECT: El Rodeo School										PAGE 2 OF 5																				
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006																				
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 5																				
EQUIPMENT USED: CME-75										ELEVATION: 305 Feet																				
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL																					
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE																						
						HORIZONTAL	Bit (Feet)																							
						INCLINED	Barrel (Feet)																							
						BEARING	Total (Feet)																							
					0	ANG. FROM VERT.			DATE START: 8/25/2015																					
									DATE FINISH: 8/26/2015																					
									DRILLER: Martini																					
									PREPARED BY: ARR																					
									LOCATION: 605 Whittier Blvd., Beverly Hills, Ca																					
ELEVATION & CORE DEPTH (Feet)										CORE DEPTH RANGE (Feet)		SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS														
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">290</div> <div style="margin-bottom: 10px;">285</div> <div style="margin-bottom: 10px;">280</div> <div style="margin-bottom: 10px;">275</div> </div>										15										15-20	Run 2 Box 2	5	100		@15': Sandy GRAVEL (GP), olive brown to reddish brown, moist, friable, fine to coarse sand and slaty gravel, weathered clasts, oxidized					
																									@17.3': Sandy CLAY (CL), olive brown, moist, stiff, fine sand					
																									@17.6': Gravelly SAND (SP), reddish brown, moist, fine sand, few coarse sand, fine and coarse gravel					
																									@18.6': basal GRAVEL (GP), crystalline igneous coarse rounded gravel @18.8': becomes heavily oxidized @19': SAND (SP), gray, moist, fine sand, abundant oxide stains above and below sand bed @19.6': Gravelly SAND (SP), reddish to olive brown, moist to very moist, fine to coarse sand and gravel, heavily oxidized					
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">285</div> <div style="margin-bottom: 10px;">280</div> <div style="margin-bottom: 10px;">275</div> </div>										20										20-25	Run 1 Box 3	4.6	92		@21.6': SAND (SP), gray, very moist, fine sand, angular coarse slaty gravel @21.9': Sandy GRAVEL (GP), olive brown, moist, fine to coarse sand and gravel, nested channel overlying MnO stained sandy gravel to 24.6', heavily weathered slaty, basalt and siltstone clasts					
																									@24.6': No recovery					
																									@25': Sandy GRAVEL to Gravelly SAND (SP/GP), olive brown, very moist, fine to coarse sand, abundant slaty gravel, few oxide stains, heavy MnO and weathering of rock clasts, basal erosive contact below					
																									@27.6': Sandy CLAY (CL), oxidation reduction, fine sand, gleyed, spotty MnO @28.7': Siltstone rock line					
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">280</div> <div style="margin-bottom: 10px;">275</div> </div>										25										25-30	Run 2 Box 3	5	100							
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">275</div> </div>										30																				

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
								SEVERE	COMPLETE
								COMPLETE	

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-18
PROJECT: El Rodeo School										PAGE 3 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 5
EQUIPMENT USED: CME-75										ELEVATION: 305 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/25/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 8/26/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
275 30		30-35	Run 1 Box 4	5	100	[Hatched Pattern]	The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
						@30': Sandy CLAY (CL), dark reddish brown to orange brown, blocky structure, iron oxide, clay and MnO on pedogenic faces, gleyed				
						@31.6': rock line siltstone chips				
						@32.5': Gravelly CLAY (CL), heavily weathered slate and siltstone gravels, basal coarse				
						@33': SAND bed (SP) @33.1': Sandy CLAY (CL), oxidation reduction banding, orange brown to reddish brown, gleyed, siltstone gravel at 33.4' and 33.6'				
270 35		35-40	Run 2 Box 4	5	100	[Hatched Pattern]	@35': Sandy SILT (ML), basal heavily weathered siltstone rock fragments at 35.8', 36', and 36.3'			
						@36.6': GRAVEL bed (GP), basal siltstone and weathered slaty gravel				
						@36.8': Sandy CLAY (CL), coarse gravel rock line at 37.7'				
						@38': Sandy Clayey GRAVEL (GP), rounded coarse slaty gravels in oxidized fine sand matrix				
						@38.8': CLAY (CL), brown to red brown, blocky structure @39.1': Gravelly SAND (SP), heavily weathered slate and basalt gravels, abundant clay in matrix				
265 40		40-45	Run 1 Box 5	5	100	[Hatched Pattern]	@39.6': basal Clayey GRAVEL (GC), weathered basalt, siltstone clasts			
						@40': Sandy Gravelly CLAY (CL), reddish brown, moist, fine sand, fine and coarse gravel				
						@42.4': basal cobbles, 42.4' to 44' Sandy GRAVEL (GP), reddish brown, oxidized with minor clayey gravel from 43' to 43.6', erosive contact at 44'				
260 45						[Hatched Pattern]	@44': Pleistocene Cheviot Hills Deposit (CHD) CLAY (CL), light reddish brown, trace fine and coarse angular gravel at 44.5'			


ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
								SEVERE	COMPLETE

Fe = Iron Oxide Mn = Manganese Oxide

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-18
PROJECT: El Rodeo School										PAGE 4 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 5
EQUIPMENT USED: CME-75										ELEVATION: 305 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/25/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 8/26/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
260	45					•••	@45': Gravelly SAND (SP), reddish brown, saturated, fine sand, fine and coarse gravel			
						•••	@46': Grades finer with depth to SAND (SP), saturated, fine sand			
		45-50	Run 2 Box 5	4.6	92	[Hatched Pattern]	@46.4': Sandy CLAY (CL), orange brown to reddish brown, very moist, fine sand, oxidation reduction banding, some clay laminae at 47.5' overlain by siltstone gravel			
						[Hatched Pattern]	@49.1': CLAY (CL), with basal GRAVEL (GC), weathered slate gravel, clay development around rock clasts			
255	50					[Hatched Pattern]	@49.6': No recovery			
		50-55	Run 1 Box 6	5	100	[Hatched Pattern]	@50': Sandy CLAY (CL), light reddish brown, moist, gleyed, oxidized, fine sand			
						[Hatched Pattern]	@51': Siltstone rock line			
						[Hatched Pattern]	@51.4': coarse, rounded slaty gravel			
						[Hatched Pattern]	@52.1': CLAY with Silt (CL), chocolate brown, trace coarse sand sized slate			
250	55					[Hatched Pattern]	@54.5': Clayey Sandy GRAVEL (GP), dark olive brown, saturated, fine to medium sand, fine and coarse gravel, sharp contact with below, weathered siltstone and yellow sandstone, slate clasts			
		55-60	Run 2 Box 6	5	100	[Hatched Pattern]	@55.6': Sandy CLAY (CL), dark reddish brown, very moist, fine sand			
						[Hatched Pattern]	@57.4': CLAY (CL), dark reddish brown, very moist, stiff			
245	60					[Hatched Pattern]	@59.2': Clayey GRAVEL (GC), fine and coarse gravel, severely weathered slaty gravels and siltstone clasts, clay matrix			
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE	COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16










LEIGHTON

CORE BORING LOG										BORING NO. CB-18	
PROJECT: El Rodeo School										PAGE 5 OF 5	
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 5	
EQUIPMENT USED: CME-75										ELEVATION: 305 Feet	
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL			DATE START: 8/25/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE			DATE FINISH: 8/26/2015	
						HORIZONTAL	SIZE			DRILLER: Martini	
						INCLINED	Bit (Feet)			PREPARED BY: ARR	
						BEARING	Barrel (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
245 60		60-65	Run 1 Box 7	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
							@60': Sandy GRAVEL (GP), olive brown, saturated, fine to coarse sand and rounded gravel, abrupt contact at 60.8'				
							@60.8': Sandy CLAY (CL), reddish brown, very moist, fine sand				
							@61.2': pebbly gravel and fine sand bed (SP-GP) to 61.3', grades to silty clay @ 61.5'				
							@61.5': Silty CLAY (CL), yellow brown to reddish brown siltstone rock clast at 62.8'				
240 65		65-70	Run 2 Box 7	5	100		@64.1': thin SAND bed (SP), very fine sand @64.2': Silty CLAY (CL), brown to light brown, trace fine sand				
							@65.3': SAND with Gravel and Clay (SP)				
							@65.8': CLAY (CL)				
							@66.1': Silty SAND (SM), medium brown to light brown, gravel bed				
							@66.2': GRAVEL (GP), siltstone and slaty pebbles				
							@66.6': Silty SAND (SM), fine sand with coarse sand size siltstone				
							@67.3': CLAY bed (CL), 3 inch thick @67.6': Silty SAND (SM)				
		@68.5': Sandy GRAVEL (GP), fine to coarse sand, rounded fine to pebbly slaty gravel, basal contact at 69.5'									
235 70		@69.5': CLAY bed (CL)									
230 75		Total depth of boring: 70 feet bgs Perched groundwater encountered at approximately 45-46.4', 54.5-55.6', 60-60.8' Boring backfilled with soil cuttings and patched with cold patch asphalt									
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
									V. SEVERE		
									COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16




LEIGHTON

CORE BORING LOG										BORING NO. CB-19
PROJECT: El Rodeo School										PAGE 1 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 12
EQUIPMENT USED: CME-75										ELEVATION: 302.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/26/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 8/28/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
303	0						<p>@Surface: 6 inches asphalt concrete over 10 inches concrete</p>			
							<p>Artificial Fill, undocumented (Afu) @1.3': Gravelly SAND (SP), mottled brown, slightly moist, fine to medium sand, fine and coarse gravel</p>			
298	5						<p>Pleistocene Alluvium of Benedict Canyon Wash (BCW) @5.7': CLAY (CL), dark brown to reddish brown, moist, well developed blocky structure, oxidation and clay lining of pedogenic faces, minor manganese oxide on pedogenic faces @6.1': becomes Sandy CLAY (CL) @6.3': Sandy GRAVEL with Clay (GC), fine to coarse gravels, slate, siltstone and basalt all heavily weathered, basal contact at 6.7' @6.7': Sandy CLAY (CL), hard, reddish brown to dark brown, fine sand, blocky structure with clay and iron oxide on pedogenic faces, minor carbonate development in Krotovina, MnO in matrix, gleyed</p>			
							<p>@9.3': pebbly GRAVEL bed (GP), rounded slate and granitic clasts</p>			
293	10						<p>@9.7': Clayey GRAVEL (GC) @10': No recovery</p>			
							<p>@12.9': Sandy CLAY (CL), brown to orange brown, fine sand with coarse slaty sand, MnO rimming of slate clasts</p>			
							<p>@13.2': Sandy GRAVEL (GP), hard, fine sand, fine to coarse slaty gravel, heavily oxidized with red brown sand laminations, abrupt contact at 14.2'</p>			
288	15						<p>@14.2': Silty SAND (SM), laminated, oxidized, very fine grained</p>			
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		SEVERE	COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-19
PROJECT: El Rodeo School										PAGE 2 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 12
EQUIPMENT USED: CME-75										ELEVATION: 302.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/26/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 8/28/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
288	15					•••••	@15': Silty SAND (SM), oxidized, very fine grained			
						•••••	@15.9': Sandy SILT (ML), gray brown, fine sand			
						•••••	@18.1': SAND (SP) with Gravel, weathered slaty gravels			
						•••••	@19.2': Basal gravels (GP) and small cobbles, oxidized gravels and sandy matrix			
283	20					•••••	@20.4': Sandy CLAY (CL), gray brown, slightly moist, with silt and carbonate, oxidized at 21.1'			
		20-22.5	Run 1 Box 3	1.1	44	•••••	@21.2': No recovery			
		22.5-25	Run 2 Box 3	2.5	100	•••••	@22.5': Silty CLAY (CL), dark orange brown to reddish brown, slightly moist, well developed blocky structure with oxide and MnO and carbonate on pedogenic faces			
						•••••	@24.6': few slaty gravels at base of unit over clay			
278	25					•••••	@25': Sandy CLAY (CL), orange brown to reddish brown, slightly moist, fine sand, oxidized, gleyed with few slaty pebbles, spotty MnO in matrix, blocky structure			
		25-27.5	Run 3 Box 3	2.5	100	•••••	@27.2': becomes dark reddish brown, moist, few coarse weathered slaty basal gravels, abrupt erosive contact below			
		27.5-30	Run 4 Box 3	2.5	100	•••••	@27.5': Sandy CLAY (CL), olive gray to orange brown, hard, oxidized, iron oxide and clay development on pedogenic faces, gleyed, fine sand			
						•••••	@28.7': grades to Silty SAND (SM), oxidized, gleyed, with fine to coarse sand, and fine slaty gravels, white siltstone chips and some clay			
273	30					•••••				
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-19
PROJECT: El Rodeo School										PAGE 3 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 12
EQUIPMENT USED: CME-75										ELEVATION: 302.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/26/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 8/28/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
273 30		30-35	Run 1 Box 4	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							<p>@32.6': Sandy CLAY (CL), orange brown to olive gray, laminated to thinly bedded, oxidized with very fine gray sand, MnO and minor carbonate on pedogenic faces, gleyed</p>			
268 35		35-40	Run 2 Box 4	5	100		<p>@35': Sandy SILT with Clay (ML), dark reddish brown to orange brown, oxidized, clay lined pores, blocky structure</p> <p>@35.7': rock line of coarse rounded slaty gravel over fine grained Sandy SILT (ML)</p>			
							<p>@37.5': Silty SAND (SM), dark orange brown to olive gray, thinly bedded, very fine sand, gleyed, poor blocky structure</p>			
							<p>@39.4': weathered fine gravel sized siltstone chips</p>			
263 40		40-45	Run 1 Box 5	5	100		<p>@39.5': Silty SAND (SM), dark orange brown to olive gray, thinly bedded, very fine sand, gleyed, poor blocky structure</p> <p>@40': becomes Sandy GRAVEL (GP), basal slaty gravel with fine sand matrix</p>			
							<p>@40.9': Silty SAND (SM) with fine slaty Gravel, erosive contact with below</p>			
							<p>@41.4': Siltstone chips</p>			
							<p>@41.9': Sandy SILT (ML), orange brown to olive gray, oxidized, very fine sand, gleyed, minor MnO on pedogenic faces</p>			
							<p>@42.5': Pleistocene Cheviot Hills Deposit (CHD) Sandy CLAY (CL), orange brown to olive gray, heavily oxidized, blocky structure, fine gray sand and clay on pedogenic faces</p>			
		<p>@42.9': Sandy SILT (ML), very fine sand, oxidized, gleyed, grades to silty sand below</p>								
258 45						<p>@43.5': Silty SAND (SM), orange brown to dark red brown, fine sand with occasional coarse slaty sand and thin clay laminations</p>				
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-19
PROJECT: El Rodeo School										PAGE 4 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 12
EQUIPMENT USED: CME-75										ELEVATION: 302.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/26/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 8/28/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
258 45		45-50	Run 2 Box 5	4.6	92		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@46.1': Gravelly SAND (SP), dark brown, saturated, fine to coarse sand and gravel			
							@46.5': Sandy GRAVEL (GP), dark reddish brown, fine to coarse sand, fine to coarse slaty and crystalline gravels, oxidized basal gravel at 48.6'			
							@48.6': SAND bed (SP), light brown, saturated, fine sand @48.8': Sandy GRAVEL (GP), brown, saturated, fine to coarse sand and gravel			
253 50		50-55	Run 1 Box 6	4.2	84		@49.6': No recovery			
							@50': Gravelly SAND (SP), brown, saturated, fine to coarse sand and gravel			
							@50.4': basal coarse GRAVEL and COBBLES (GP), dark brown, saturated, fine to coarse sand and gravel			
							@51': Gravelly SAND bed (SP), fine to coarse oxidized sands, siltstone and slaty gravels @51.4': Sandy GRAVEL (GP), dark reddish brown to orange blackish brown, weathered slaty gravels			
248 55		55-60	Run 2 Box 6	4.7	94		@55': Gravelly SAND (SP), olive brown, saturated, coarse sand and slaty gravel with feldspar grains, rounded, well graded basal oxidized sand, erosive contact with below			
							@56.3': Sandy CLAY (CL), reddish brown, saturated, fine sand, stiff			
							@56.7': GRAVEL bed (GP), slaty, siltstone, weathered gravels with heavy MnO			
							@56.9': CLAY (CL), dark reddish brown, orange brown to olive gray, oxidized with heavy MnO, blocky structure			
							@57.6': 1-inch coarse SAND bed (SP), erosive contact below @57.7': CLAY (CL), dark reddish brown to orange brown, oxidized, MnO pervasive @57.9': grades to Sandy CLAY (CL) to 59.2'			
243 60							@59.2': becomes Silty SAND (SM), fine sand and siltstone chips, siltstone gravel from 59.4' to 59.5', silty clean sand below			
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-19	
PROJECT: El Rodeo School										PAGE 5 OF 12	
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 12	
EQUIPMENT USED: CME-75										ELEVATION: 302.5 Feet	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/26/2015	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE			DATE FINISH: 8/28/2015	
						INCLINED	Bit (Feet)			DRILLER: Martini	
						BEARING	Barrel (Feet)			PREPARED BY: ARR	
					0	ANG. FROM VERT.	Total (Feet)			LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS					
						The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.					
243	60	Run 1 Box 7	5	100		@59.7': No recovery	@60': Silty SAND (SM), very hard, oxidized, fine gravel	@60.2': Sandy CLAY (CL), reddish brown to dark brown, moist, fine sand	@61': Sandy CLAY (CL), abrupt color change to very dark reddish brown and orange brown, intensely weathered, abundant MnO, siltstone gravels at 61.2' and 62.2'	@62.7': GRAVEL bed consisting of siltstone and slaty gravels, abrupt contact	@62.8': Sandy CLAY (CL)
238	65	Run 2 Box 7	5	100		@64.7': CLAY (CL), reddish brown, very moist, intensely weathered, blocky structure, oxide and MnO on pedogenic faces, gleyed	@66.8': Sandy CLAY (CL), orange brown to reddish brown, gleyed, MnO stains	@68': Sandy CLAY (CL), orange brown to reddish brown, gleyed, MnO stains, siltstone and slaty gravels	@68.5': Sandy CLAY (CL), with basal slaty gravels	@69.5': decomposed siltstone clasts, erosive contact below	@70': Sandy CLAY (CL), orange brown, fine sand, few coarse slaty sand to pebbly gravel, heavily weathered
233	70	Run 1 Box 8	4.6	92		@71.1': Coarse sand bed, orange brown to grey brown, oxidized	@72.3': Clayey GRAVEL (GC), predominantly severely weathered siltstone gravels, cobbles	@73.1': Sandy CLAY (CL), with few siltstone gravels in matrix	@74': Sandy SILT (ML)	@74.6': No recovery	
228	75										

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE
								COMPLETE



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-19
PROJECT: El Rodeo School										PAGE 6 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 6 of 12
EQUIPMENT USED: CME-75										ELEVATION: 302.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/26/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 8/28/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG					
228 75	75-80	Run 2 Box 8	5	100		@75': Silty SAND (SM) @75.2': Gravel bed (GP), weathered siltstone gravels @75.4': Sandy CLAY (CL), orange brown, MnO and oxide stained, fine sand with some coarse sand to pebble sized slate and siltstone, coarse siltstone rock line at base of contact @76.1': Sandy CLAY (CL), oxidation reduction banding, fine to coarse thin sand beds at 76.4' and 77' @77': becomes laminated Sandy SILT (ML), with carbonate laminations on bedding				
									@78.4': Gravelly CLAY (CL), siltstone and slaty gravels, highly weathered, abrupt contact at 79.3'	
223 80					80-85	Run 1 Box 9	5	100		@79.3': CLAY (CL), dark reddish brown to brown, blocky structure, clay and MnO on pedogenic faces @81.7': becomes Clayey GRAVEL (GC) @82.2': Sandy SILT (ML), grades downward to Silty SAND (SM) @82.8': Sandy GRAVEL (GP), olive brown, saturated, fine sand, few medium to coarse sand, fine and coarse slaty gravel
218 85	85-90	Run 2 Box 9	5	100						@85': Gravelly SAND (SP), olive brown, saturated, fine to coarse sand and gravel, erosive contact with below @85.6': CLAY (CL), yellowish brown, moist @86.1': Sandy CLAY (CL) with Silt, orange brown to reddish brown, gleyed, some coarse sand, MnO on pedogenic faces and clayey laminations @87': Gravelly CLAY (CL), color change, slaty gravels in matrix to approximately 90'
213 90										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-19
PROJECT: El Rodeo School										PAGE 7 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 7 of 12
EQUIPMENT USED: CME-75										ELEVATION: 302.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/26/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 8/28/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
213 90		90-95	Run 1 Box 10	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@90': Clayey GRAVEL (GC), reddish brown, saturated, fine to coarse sand and gravel, basal gravel consisting of siltstone and coarse slaty gravel at 92'			
							@91.8': CLAY (CL), brown, moist, trace fine sand, few gravel			
							@92.4': Sandy CLAY (CL) with Gravel, basal coarse gravel at 93'			
							@93': CLAY (CL) with Gravel, dark reddish brown			
		@93.4': Gravelly SAND bed (SP), erosive abrupt contact below								
		@93.6': Clayey Gravelly SAND (SP), olive brown, fine to coarse sand and gravel								
		@94.2': rock line, coarse slaty gravel, Sandy CLAY (CL) to 95.5'								
208 95		95-100	Run 2 Box 10	4.8	96		@95.5': Clayey GRAVEL (GC)			
							@95.8': Sandy GRAVEL (GP), fine to coarse sand, fine to coarse gravels with siltstone chips, cobble at 98', basal channel at 99.4'			
203 100		100-105	Run 1 Box 11	4.5	90		@99.4': Silty SAND (SM), reddish brown, moist, fine sand, some clay			
							@99.8': No recovery			
							@100': SAND (SP), olive brown, saturated, fine to medium sand, trace coarse sand and fine gravel			
							@100.6': Sandy CLAY (CL), reddish brown, moist, fine sand			
							@100.9': CLAY (CL), reddish brown, moist, clay bed to 101.2'			
							@101.2': Sandy CLAY (CL), medium brown, moist, fine sand, coarse basal gravels at 101.5'			
							@101.6': CLAY (CL), brown, MnO stained			
							@101.8': Silty Sandy CLAY (CL), abrupt contact below			
							@102.1': Clay bed (CL)			
							@102.2': Clayey GRAVEL (GC), siltstone and slaty gravels with weathered basalt chips			
		@102.6': Sandy GRAVEL (GP), fine to coarse sand, fine slaty gravel, abrupt contact below								
		@103.5': Silty SAND (SM), fine sand								
		@103.8': CLAY bed (CL), chocolate brown								
198 105										




ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS	BEDDING	ATTITUDE AND ANGLE	JOINTS / SHEAR / FRACTURE	WEATHERING
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES	V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120" Fe = Iron Oxide Mn = Manganese Oxide	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE




*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON


CORE BORING LOG										BORING NO. CB-19									
PROJECT: El Rodeo School										PAGE 8 OF 12									
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006									
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 8 of 12									
EQUIPMENT USED: CME-75										ELEVATION: 302.5 Feet									
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/26/2015									
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 8/28/2015										
						HORIZONTAL	Bit (Feet)		DRILLER: Martini										
						INCLINED	Barrel (Feet)		PREPARED BY: ARR										
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca										
					0	ANG. FROM VERT.													
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS																			
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.																			
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG														
198 105	105-110	Run 2 Box 11	1.6	32		@104': Sandy SILT (ML), grading down to Silty SAND (SM) light brown, pebbly gravel at 104.5'	@104.5': No recovery	@105': Gravelly SAND (SP), olive brown, wet, fine to coarse sand and gravel	@106': Sandy GRAVEL (GP), slaty weathered siltstone gravels and cobbles, abrupt basal contact below	@106.4': CLAY, yellow brown, moist, stiff	@106.6': No recovery								
193 110						110-115	Run 1 Box 12	4.5	90		@110': basal GRAVELS and COBBLES	@110.4': Sandy CLAY (CL), reddish brown, moist, trace medium sand	@111': Sandy GRAVEL (GP), reddish brown, wet, fine to medium sand and slaty gravel with sandy matrix, coarse gravels and cobbles to 112'	@112': Sandy GRAVEL (GP), basal cobble at 114.5'					
188 115											115-120	Run 2 Box 12	2.9	58		@114.5': No recovery (driller states that no recovery due to large rock)	@116.5': SAND (SP), olive brown, saturated, fine sand	@117.9': Gravelly SAND (SP), olive brown, saturated, fine to coarse sand, coarse gravel to 2 inch diameter	@118.7': Sandy GRAVEL (GP), mottled olive brown and gray, moist, fine to medium sand and basal cobbles, clay in matrix, severely oxidized and weathered clasts
183 120																@119.4': No recovery			

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
								V. SEVERE	COMPLETE

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***


LEIGHTON

CORE BORING LOG										BORING NO. CB-19
PROJECT: El Rodeo School										PAGE 9 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 9 of 12
EQUIPMENT USED: CME-75										ELEVATION: 302.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/26/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 8/28/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
183	120		Run 1 Box 13	3.6	72	•••	@120': SAND (SP), olive brown, wet, fine sand, trace siltstone gravel, "salt and pepper" appearance, relatively clean sand @123.4': Sandy CLAY (CL), olive to dark brown, wet, hard @123.6': No recovery			
178	125		Run 2 Box 13	4.3	86	•••	@125': SAND (SP), dark olive brown, wet, fine to coarse sand, trace gravel, trace clay @128.1': Sandy Gravel (GP), dark olive brown, wet, fine to coarse sand and gravel @128.3': Basal GRAVEL (GP), weathered slate, basalt and siltstone gravel and cobbles @129.3': No recovery			
173	130		Run 1 Box 14	3.1	62	•••	@130': SAND (SP), dark brown, saturated, fine to medium sand, trace gravel @133': Clayey GRAVEL (GC), reddish brown, moist, slaty basal gravel @133.1': No recovery			
168	135									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"				
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"				
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"				
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"				
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16


***** This log is a part of a report by Leighton and should not be used as a stand-alone document. *****

LEIGHTON

CORE BORING LOG										BORING NO. CB-19
PROJECT: El Rodeo School										PAGE 10 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 10 of 12
EQUIPMENT USED: CME-75										ELEVATION: 302.5 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 8/26/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 8/28/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
168	135					•••	@135': SAND (SP), dark brown, saturated, fine to medium sand			
						▨	@135.6': Sandy CLAY (CL), yellowish brown, moist, coarse sand, fine slaty gravel, gleyed, oxidation reduction banding to 137', pervasive MnO and carbonate			
		135-140	Run 2 Box 14	4.4	88	▨	@137': Gravelly CLAY (CL), coarse sand and fine angular slate and siltstone gravels			
						▨	@138.1': Grades finer with depth, becomes olive brown			
						▨	@138.8': Sandy CLAY (CL), very moist, fine to coarse sand, few gravel			
						▨	@139.4': No recovery			
163	140					▨	@140': Sandy CLAY (CL), hard, orange brown to olive brown, fine sand, few fine angular gravels, rock line at 140.8' consisting of coarse slaty gravels, abundant spotty MnO			
		140-145	Run 1 Box 15	5	100	▨	@140.8': Sandy CLAY (CL) with Gravel, weathered clasts with pulses (thin beds) of coarse sand at 141.7' and 142-142.3'			
						▨	@142.5': Silty Gravelly SAND with Clay (SM-SC), yellowish brown to olive brown, moist, fine sand, basal gravels at 142.5-143', basal gravels at 147.2', heavily weathered			
158	145					▨	@147.2': CLAY (CL), reddish brown, moist, few coarse sand			
		145-150	Run 2 Box 15	5	100	▨	@147.8': Gravelly CLAY (CL), weathered siltstone and fine slaty gravels, abrupt contact below			
						▨	@148': CLAY (CL), dark blackish brown, heavily weathered, abundant MnO, trace slaty pebbles			
						▨	@149.2': Sandy CLAY (CL), olive brown, fine sand			
153	150					▨				
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE	COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-19
PROJECT: El Rodeo School										PAGE 11 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 11 of 12
EQUIPMENT USED: CME-75										ELEVATION: 302.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 8/26/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 8/28/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
153	150									
		150-155	Run 1 Box 16	5	100					
										@150.2': CLAY (CL), mottled gray with oxide stained hue, moist, trace slaty gravel @150.4': Cobbles and SAND (SP), brown, very moist, basal cobbles, abrupt contact below @150.8': Silty SAND (SM:), fine sand and basal gravel at 151.2', abrupt erosive contact below @151.2': Sandy CLAY (CL), reddish brown, moist, trace sand and gravel @151.3': CLAY (CL), brown to olive gray, gleyed with MnO on pedogenic faces
										@153.6': fine to coarse SAND bed (SP), fine siltstone gravel at basal contact @153.7': CLAY to Sandy CLAY (CL), dark blackish brown to reddish brown, pervasive blocky structure, MnO and clay on well developed pedogenic faces
148	155									
		155-160	Run 2 Box 16	5	100					
										@158.3': Sandy CLAY (CL), brown to reddish brown, slightly moist to moist, fine sand, trace coarse sand and pebbles
143	160									
		160-165	Run 1 Box 17	5	100					
										@159.6': rock line, weathered coarse gravel size siltstone contact @160': Sandy CLAY (CL), olive brown, moist, fine to coarse sand, fine angular gravel, basal slaty gravel at 162.6' @162.6': Silty Gravelly SAND bed (SP/SM), erosive contact below @163.1': CLAY (CL), reddish brown, moist, trace fine sand and angular gravel @163.7': CLAY (CL), reddish brown, moist, laminated with brown clay and occasional sand and fine gravels, MnO and calcium carbonate to 167.3'
138	165									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-19	
PROJECT: El Rodeo School										PAGE 12 OF 12	
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 12 of 12	
EQUIPMENT USED: CME-75										ELEVATION: 302.5 Feet	
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL			
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE			
						HORIZONTAL	Bit (Feet)				
						INCLINED	Barrel (Feet)				
						BEARING	Total (Feet)				
					0	ANG. FROM VERT.					
										DATE START: 8/26/2015	
										DATE FINISH: 8/28/2015	
										DRILLER: Martini	
										PREPARED BY: ARR	
										LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS											
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
138 165		165-170	Run 2 Box 17	5	100						
							@167.3': Silty SAND (SM), brown to orange brown, oxidized, basal siltstone gravel at 168.1'				
		Quaternary San Pedro Formation (Qsp)									
		@168.1': Silty CLAY (CL), olive grey to yellow green, with pockets of heavily oxidized fine sand inclusions, abundant carbonate									
133 170		170-175	Run 1 Box 18	5	100		@170': Silty CLAY (CL), dark olive brown to yellow green, heavily weathered with trace pebbly slate and abundant carbonate stringers, trace shell debris				
							@170.5': Sandy Silty CLAY (CL) to Silty SAND (SM), dark gray, gradational, abundant carbonate and some shell debris				
128 175											
123 180											
Total depth of boring: 175 feet bgs Perched groundwater encountered at approximately 48.6-49.6', 50-51', 55-56.7', 82.8-84.5', 85-85.6', 90-91.8', 100-100.6', 105-106', 111-112', 117.9-118.7', 120-123.4', 125-128.3', 130-133', 135-135.6' Boring backfilled with bentonite-cement grout and capped with cold patch asphalt Soil cuttings stored in D.O.T. approved drums											
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
									COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-20
PROJECT: El Rodeo School										PAGE 1 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 5
EQUIPMENT USED: CME-75										ELEVATION: 300.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/1/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/2/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
301	0					The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
						@Surface: 6 inches asphalt concrete over 10 inches concrete @1.3': Artificial Fill, undocumented (Afu) Clayey SILT (ML), dark reddish brown, slightly moist to moist, stiff, trace medium sand, trace slaty gravel Pleistocene Alluvium of Benedict Canyon Wash (BCW): @1.4': Clayey SILT (ML), brown to dark brown, moderate blocky structure with iron oxide development on pedogenic faces, some fine sand, becomes sandy CLAY (CL) to 2.8' @2.8'-3.2': coarse gravel bed, severely weathered clasts of siltstone, slate and basalt, with clayey matrix. Oxide and clay on pedogenic faces @3.2'-3.7': CLAY (CL), with sand, oxidized, fine slaty gravel;s, well developed blocky structure, iron oxide and clay on pedogenic faces				
296	5	Run 1 Box 1	5	100		@3.7'-4.5': Sandy Gravel (GP), fine to coarse sand, fine slaty and siltstone gravels, heavily oxidized, severely weathered gravels, erosive contact below @4.5'-5': Sandy CLAY (CL), reddish brown, fine sand and coarse sand size slate chips @5'-7': Gravely SAND (SP), dark reddish brown, heavily weathered siltstone and slaty gravels @7'-7.8': Sandy GRAVEL (GP), reddish brown to olive brown, slightly moist to moist, abundant slaty gravel and siltstone chips, heavily weathered and oxidized clasts, erosive contact, abrupt @7.8': becomes Sandy CLAY (CL), laminated brown clay @8.4'-8.6': Gravel (GP), weathered slate, siltstone, and basalt gravels, abrupt contact below @8.6'-10': Sandy CLAY (CL), fine grained sand, laminated, trace slaty fine pebbles				
291	10	Run 2 Box 1	5	100		@10': Sandy SILT (ML), reddish brown, moist, fine sand, oxidized, friable @12.5': Coarse slaty gravel @12.6'-14.4': Sandy SILT with Clay (ML), laminated, very fine sand with clay laminations and oxide cemented dark brown sand laminations @14.4': Coarse gravel sized siltstone fragment rock line @14.5': Sandy SILT (ML), oxidized, laminated				
286	15	Run 1 Box 2	5	100						
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON


CORE BORING LOG										BORING NO. CB-20
PROJECT: El Rodeo School										PAGE 2 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 5
EQUIPMENT USED: CME-75										ELEVATION: 300.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/1/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/2/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd.,	
					0	ANG. FROM VERT.			Beverly Hills, Ca	
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG					
286 - 15	15-20	Run 2 Box 2	4.6	92	•••••	@15': Silty SAND (SM), brown, moist, fine sand, few fine subrounded basal gravel				
					•••••	@15.8': SAND (SP), reddish brown to olive brown, moist, fine to medium sand, few fine gravel, friable, heavily oxidized				
					•••••	@17.7': SAND (SP), brown, moist, fine to coarse sand, fine and coarse gravel, few basal cobbles, loose and friable, sharp contact with below				
					•••••	@18.2'-19.6': Silty SAND (SM) to Sandy SILT (ML), color change to medium gray, moist, fine sand, loose				
					•••••	@19.4'-19.6': Basal cobbles with pockets of oxidized sand				
281 - 20	20-25	Run 1 Box 3	4.8	96	•••••	@19.6': No recovery				
					•••••	@20'-20.2': Basal cobbles				
					•••••	@20': Sandy GRAVEL (GP), brown with heavy oxidation, moist, fine to coarse sand and gravel				
					•••••	@21.6': SAND (SP), brown, moist, fine sand, few fine gravel				
276 - 25	25-30	Run 2 Box 3	5	100	•••••	@24.8': No recovery				
					•••••	@25'-26.2': Sandy GRAVEL (GP), siltstone, slate and basal gravels, fine to coarse sand matrix, erosive contact below				
					•••••	@26.2'-26.6': CLAY (CL), reddish brown, moist, stiff				
					•••••	@26.6': Sand Bed				
					•••••	@26.7': Sandy CLAY (CL), heavily oxidized and laminated, with weathered siltstone clasts				
					•••••	@26.9'-29.3': SAND with Gravel (SP), oxidized, fine to coarse sand and fine gravels, nested channels				
					•••••	@28.7'-30.5': Basal Gravels, small cobbles, overlies sand bed to 30.5'				
271 - 30					•••••					
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
								V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-20
PROJECT: El Rodeo School										PAGE 3 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 5
EQUIPMENT USED: CME-75										ELEVATION: 300.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/1/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/2/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd.,	
					0	ANG. FROM VERT.			Beverly Hills, Ca	
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
271	30									@30.5'-31.8': Gravelly SAND (SP)
		30-35	Run 1 Box 4	5	100	100				@31.8'-35': Sandy GRAVEL (GP), oxidized and severely weathered basalt fragments at 34.5'
266	35									@35': SAND (SP), light reddish brown, moist, loose, fine to medium sand, trace to few fine and coarse gravel
		35-40	Run 2 Box 4	5	100	100				@35.7'-38.1': Sandy GRAVEL (GP), light reddish brown, moist, loose, fine to medium sand, fine and coarse gravel, basal contact, erosive contact below
										@38.1'-38.5': SAND Bed (SP), reddish brown, fine sand
										@38.5'-40.2': Sandy GRAVEL (GP), basal slaty gravels and cobbles
261	40									Pleistocene Cheviot Hills Deposit (CHD)
		40-45	Run 1 Box 5	5	100	100				@40.2'-42.7': Sandy CLAY (CL), medium brown to orange brown, very moist, oxidized, blocky structure, gleyed with MnO in matrix
										@42.7'-43.7': Sandy SILT (ML), medium reddish brown, saturated, abrupt contact at 43.7', heavy iron oxidation and MnO along contact
										@43.7'-44.7': Sandy SILT (ML), fine grained coarse at contact below
256	45									@44.7'-46.5': Silty CLAY (CL), reddish brown, very moist, oxide stained,
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-20
PROJECT: El Rodeo School										PAGE 4 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 5
EQUIPMENT USED: CME-75										ELEVATION: 300.5 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/1/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/2/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
256 45		45-50	Run 2 Box 5	5	100		gleyed, laminated with fine sand and brown clay, occasional slaty fine pebbly gravel, oxidized, heavily weathered clasts			
						@46.5'-48.5': SAND (SP), brown, wet, fine to coarse sand, and fine pebbly gravels, coarse gravel at 47.7' consisting of weathered slaty to heavily weathered siltstone				
						@48.5'-50': Basal Cobbles				
251 50		50-55	Run 1 Box 6	2.8	56		@50': SAND (SP), brown, saturated, fine sand,			
						@51.2': Becomes fine to coarse sand with siltstone gravels				
						@51.9': Pebbly gravels				
						@52.5': Clayey Gravelly SAND (GP), brown, saturated, fine to coarse sand				
		@52.6'-52.8': Clayey GRAVEL (GC), reddish brown, severely weathered and oxidized slaty, siltstone and basalt gravels, heavy oxide and clay laminae with oxidized rimming of slate								
		@52.8': No recovery								
246 55		55-57.5	Run 2 Box 6	3.9	156		@55'-55.3': Basal Clayey Gravel (GC)			
						@55.3'-55.9': Sandy CLAY (CL), reddish brown, blocky structure, oxidized, MnO development				
		@55.9'-58.6': Sandy SILT (ML), dark reddish brown, oxidized, gleyed with internal laminations of clay and MnO, weathered siltstone chips and trace siltstone gravel, basal gravels at 58.6'								
		57.5-60	Run 3 Box 6	1.9	76		@58.6'-59': Sandy CLAY (CL), yellowish brown, oxidized, laminated with clay and fine sand			
						@59'-59.3': Gravelly SAND Bed, heavily weathered gravels, oxidized				
		@59.3'-60': Sandy CLAY (CL), oxidized, fine grained with MnO on pedogenic								
241 60										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-20		
PROJECT: El Rodeo School										PAGE 5 OF 5		
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006		
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 5		
EQUIPMENT USED: CME-75										ELEVATION: 300.5 Feet		
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION			CORE BARREL			
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE				
						HORIZONTAL	Bit (Feet)					
						INCLINED	Barrel (Feet)					
						BEARING	Total (Feet)					
					0	ANG. FROM VERT.						
										DATE START: 9/1/2015		
										DATE FINISH: 9/2/2015		
										DRILLER: Martini		
										PREPARED BY: ARR		
										LOCATION: 605 Whittier Blvd., Beverly Hills, Ca		
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS												
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.												
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG							
241 60	60-65	Run 1 Box 7	5	100	[Hatched Box]	\faces @60': CLAY (CL), dark reddish brown to orange brown and gray brown, moist, oxidation reduction banding, well developed blocky structure, oxidized with abundant Manganese Oxide on pedogenic faces						
					[Hatched Box]	@62.6'-62.8': Basal Gravel (Rock Line) @62.8': Sandy CLAY (CL), oxidation reduction banding, with heavily weathered angular siltstone chips, fine to medium sand, basal gravel (Rock Line)						
236 65	65-70	Run 2 Box 7	5	100	[Hatched Box]	@65': Sandy CLAY (CL), severely weathered, oxidized, fine sand, well developed blocky structure, Manganese Oxide, general lack of gravels, oxidation reduction banding @68.1': Slaty gravels reappear in matrix becoming more abundant, angular with depth						
231 70					[Hatched Box]	Total depth of boring: 70 feet bgs Perched groundwater encountered at approximately 42.7-43.7', 46.5-51.9', 52.5-52.6' Boring backfilled with bentonite-cement grout and patched with cold patch asphalt Soil cuttings stored in D.O.T. approved drums						
226 75					[Hatched Box]							
FIELD HARDNESS			BEDDING			ATTITUDE AND ANGLE			JOINTS / SHEAR / FRACTURE			WEATHERING
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"		HORIZONTAL (0-5°)			V. CLOSE	<2"		FRESH
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"		SHALLOW OR LOW ANGLE (5-35°)			CLOSE	2"-12"		V. SLIGHT
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"		MODERATELY DIPPING (35-55°)			MOD. CLOSE	12"-36"		SLIGHT
SOFT	- GROVES		THICK	36"-120"		STEEP OR HIGH ANGLE (55-85°)			WIDE	36"-120"		MODERATE
V. SOFT	- CARVES		V. THICK	>120"		VERTICAL (85-90°)			V. WIDE	>120"		MOD. SEVERE
												COMPLETE
										Fe = Iron Oxide Mn = Manganese Oxide		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-21
PROJECT: El Rodeo School										PAGE 1 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 12
EQUIPMENT USED: CME-75										ELEVATION: 304 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/2/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/5/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
304	0									<p>@Surface: 6 inches concrete</p> <p>Artificial Fill, undocumented (Afu) Hand Auger 0-5' @0.5': Clayey Gravelly SAND (SP-SC), dark reddish brown, dry to slightly moist, fine to medium sand, fine gravel</p>
299	5	0-5	Run 1 Box 1	5	100					<p>Pleistocene Alluvium of Benedict Canyon Wash (BCW.) @5.4': Sandy Gravelly CLAY (CL), hard, brown to orange brown, fine to coarse sand, fine and coarse weathered siltstone and slaty gravel</p>
		5-10	Run 2 Box 1	5	100					<p>@6.8': Silty SAND (SM), well indurated, hard, orange brown, oxidized with iron oxide on pedogenic faces</p> <p>@7.4': grades to Sandy GRAVEL to Gravelly SAND, oxide stained with clay, weathered and rounded coarse sands, basal gravels, abrupt contact below</p> <p>@7.6': Sandy SILT (ML), light yellowish brown to orange brown, dry, hard, oxidized, fine sand with MnO laminations and on pedogenic faces</p>
294	10									<p>@10.2': Silty fine pebbly SAND (SM), light yellowish brown, dry to slightly moist, unconsolidated with rounded slaty pebbles, becomes oxidized orange brown with coarse rounded flattened slaty gravels</p> <p>@10.9': Basal gravels and pebbles, abrupt contact below</p> <p>@11.1': Silty SAND (SM), light yellow brown to gray brown, dry, hard, coarse sand sized slaty fragments</p> <p>@11.6': Silty SAND with Gravel (SM), reddish brown, dry to slightly moist, fine sand with weathered slate and siltstone clasts, oxidized sands, carbonate lined voids, becomes heavily oxidized at 13' to 13.3'</p>
289	15	10-15	Run 1 Box 2	5	100					<p>@13.5': Sandy GRAVEL (GP), reddish brown, slightly moist, loose, fine to medium sand, fine and coarse gravel, severely weathered slate, siliceous gravel and basalt chips, unit consists of three nested channels with gradational basal contacts, heavily oxidized unit</p>
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE	COMPLETE	
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON




CORE BORING LOG										BORING NO. CB-21
PROJECT: El Rodeo School										PAGE 2 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 12
EQUIPMENT USED: CME-75										ELEVATION: 304 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/2/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/5/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
289 15		15-20	Run 2 Box 2	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@15': Sandy GRAVEL (GP), reddish brown, slightly moist, loose, fine to medium sand, fine and coarse gravel, severely weathered slate, siliceous gravel and basalt chips, unit consists of three nested channels with gradational basal contacts, heavily oxidized unit			
284 20		20-25	Run 1 Box 3	5	100		@20': Silty SAND (SM) with Gravel, light brown, slightly moist, hard, fine sand with fine heavily weathered gravels, severely oxidized laminations and oxide rims around slaty pebbles @20.2': oxidation zone, becomes yellow brown, fine sand and fine slaty gravel and siltstone chips @21.4': Sandy GRAVEL (GP), dark reddish brown, slightly moist, fine sand, fine to coarse gravel, slaty weathered fragments, basal cobble at 22.2', severely weathered siliceous cobble @22.2': Sandy CLAY (CL), orange brown, moist, hard, very fine sand, oxide stained, oxidation reduction banding of clayey sand, fine to coarse sand, becomes gray clay @23.6'			
							@23.6': CLAY (CL), gray to olive brown, moist, laminated with some very fine sand			
279 25							@25': Clayey SILT (ML), olive brown to gray with minor oxidation, very moist, fine sand, trace fine gravel, dark orange brown and spotty MnO development in matrix and on pedogenic faces @26': Siltstone gravels, severely weathered			
							@27.3': Gravelly Clayey SAND (SC-SP), dark brown, moist, fine to medium sand, fine and coarse gravel, abrupt contact below @27.8': CLAY (CL), olive brown moist, oxidation reduction banding, orange brown oxidation primarily confined to thin sand beds, on pedogenic faces			
274 30										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
									COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***




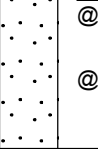
LEIGHTON

CORE BORING LOG										BORING NO. CB-21
PROJECT: El Rodeo School										PAGE 3 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 12
EQUIPMENT USED: CME-75										ELEVATION: 304 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/2/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/5/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
274 30		30-35	Run 1 Box 4	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@30': Sandy CLAY (CL), orange brown, moist, fine sand, gleyed, blocky structure, heavily oxidized with MnO staining @30.5': Sandy CLAY (CL), mottled dark blackish to reddish brown, orange brown and gleyed, blocky structure, fine sand, severely weathered sandstone clasts and fine slaty gravel			
269 35		35-40	Run 2 Box 4	5	100		@34.1': Clayey basal GRAVEL (GC), siltstone and slate and weathered basalt @34.3': Sandy CLAY (CL), orange brown to red brown, oxidized, gleyed, with coarse sand sized slaty fragments, MnO development in matrix @35': Sandy SILT (ML), very moist, very fine sand, orange brown to gray brown, severely weathered white siltstone fragments			
							@36.1': Sandy SILT (ML), gradational contact below, orange brown, oxidized, clay and MnO on pedogenic faces, trace gravel in mass			
							@37.9': Sandy CLAY (CL), dark orange brown, to reddish brown and grayish black, blocky structure with clay and MnO on pedogenic faces, minor gravels heavily weathered, minor carbonate in voids			
264 40		40-45	Run 1 Box 5	5	100		@40': Sandy GRAVEL (GP) with Clay, reddish brown to orange brown, moist, oxidized, gleyed, fine to coarse sand, fine to coarse gravel, @41.3': coarse, rounded slaty gravel @42': thin layer of carbonate in sandy clay matrix @43.5': severely weathered siltstone and slaty coarse gravels Pleistocene Cheviot Hills Deposit (CHD) @44.5': Sandy SILT (ML), reddish brown, moist, fine to medium sand with occasional slaty gravel, windblown silt			
259 45										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-21
PROJECT: El Rodeo School										PAGE 4 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 12
EQUIPMENT USED: CME-75										ELEVATION: 304 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/2/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/5/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
259 45		45-50	Run 2 Box 5	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							<p>@45.8': CLAY (CL), dark reddish brown, very moist, trace silt and fine sand, weathered basalt fragment at 46.3'</p> <p>@46.9': Sandy CLAY, with coarse sand sized rock fragments in matrix, white siltstone fragment at 49.7', basal erosive contact below @49.7'</p>			
254 50		50-55	Run 1 Box 6	5	100		<p>@49.7': Silty Sandy CLAY (CL), reddish brown, very moist, some coarse sand size rock fragments, gleyed along pedogenic faces with white silt chips and severely weathered rounded sandstone, fine gravel</p>			
							<p>@52': Coarse SAND bed, slate, siltstone and basalt fragments, sandy clay below</p>			
							<p>@52.6': CLAY (CL), orange brown to reddish brown, becomes oxidized, gleyed on vertical faces</p> <p>@52.8': becomes oxidized gleyed Sandy CLAY (CL)</p>			
249 55		55-60	Run 2 Box 6	3.4	68		<p>@54.5': Gravelly SAND with Clay (SP-SC), reddish brown, saturated, fine to coarse sand, fine and coarse gravel</p>			
							<p>@55': SAND (SP), dark brown, saturated, fine sand</p>			
							<p>@55.9': fine to coarse sand</p>			
							<p>@56.9': Sandy GRAVEL (GP) with Clay, dark brown, moist, fine to coarse sand, fine to coarse weathered slate, sandstone, siltstone and basalt gravels</p>			
							<p>@58.4': No recovery</p>			
244 60										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH		V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT		THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY		MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES		THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES		V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
							Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
									COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***


LEIGHTON

CORE BORING LOG										BORING NO. CB-21
PROJECT: El Rodeo School										PAGE 5 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 12
EQUIPMENT USED: CME-75										ELEVATION: 304 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/2/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/5/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
244 60		60-65	Run 1 Box 7	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@60': Sandy GRAVELS (GP), dark brown, saturated, fine to coarse sand, fine and coarse gravel, weathered slaty clasts, abrupt erosive contact below			
							@61.3': CLAY (CL), yellowish brown, moist, trace gravel and fine sand			
		@62.7': Sandy SILT (ML), dark brown, with trace basalt fragments at contact, very fine sands with thin irregular dark brown clay laminations								
239 65		65-70	Run 2 Box 7	5	100		@64.2': Silty CLAY (CL) light yellowish brown, moderate blocky structure, thinly bedded to laminated silts and clays, oxidized and gleyed			
							@66.8': thin bed of coarse sands and weathered fine gravels consisting of siltstone, basalt and slate			
							@67.3': yellow CLAY (CL)			
		@68.1': Sandy GRAVEL (GP); abrupt basal contact below								
234 70		70-75	Run 1 Box 8	5	100		@69.3': Gravelly Clayey SAND (SC-SP), dark brown, saturated, fine to coarse sand, fine and coarse gravel, abrupt contact at 72.4'			
							@70': SILT (ML), reddish brown, very moist, trace clay, basal gravels			
							@70.7': Gravelly SAND (SP), dark brown, saturated, fine to coarse sand, fine and coarse gravel, trace clay, abrupt contact at 72.4'			
		@72.4': Sandy SILT (ML), reddish brown, very moist, fine sand								
		@72.8': Sandy GRAVEL (GP), dark brown, saturated, fine to coarse sand, fine and coarse gravel								
		@74.2': No recovery								
229 75										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON


CORE BORING LOG											BORING NO.	CB-21
PROJECT: El Rodeo School											PAGE 6 OF 12	
CLIENT: Beverly Hills Unified School District											JOB NO.: 10274.006	
CONTRACTOR: Martini Drilling Corporation											PAGE NO.: 6 of 12	
EQUIPMENT USED: CME-75											ELEVATION: 304 Feet	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL			DATE START:	9/2/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE			DATE FINISH:	9/5/2015
						HORIZONTAL	Bit (Feet)				DRILLER:	Martini
						INCLINED	Barrel (Feet)				PREPARED BY:	ARR
						BEARING	Total (Feet)				LOCATION:	605 Whittier Blvd., Beverly Hills, Ca
					0	ANG. FROM VERT.						
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS											The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.	
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG							
229 75					•••••	@75': SAND (SP), brown, saturated, fine sand						
	75-80	Run 2 Box 8	4.2	84	•••••	@77.6': gradationally becomes fine to coarse sand						
					•••••	@78.9': basal contact, sandy GRAVEL (GP) over clay lamination at 79', very moist, fine to medium sand, cemented @79.1': No recovery						
224 80					•••••							
	80-85	Run 1 Box 9	4.1	82	•••••							
219 85					•••••							
	85-90	Run 2 Box 9	1.2	24	•••••							
214 90					•••••							
					•••••	@88.8': Clayey GRAVEL (GC), brown, saturated, fine to medium sand, large granitic crystalline basal cobble, intense clay development in pedogenic faces @89.2': Sandy SILT (ML), orange brown, moist, fine sand						

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
								SEVERE	COMPLETE
								COMPLETE	

Fe = Iron Oxide Mn = Manganese Oxide

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16


LEIGHTON

CORE BORING LOG										BORING NO. CB-21
PROJECT: El Rodeo School										PAGE 7 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 7 of 12
EQUIPMENT USED: CME-75										ELEVATION: 304 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/2/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/5/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
214	90									<p>@90': Sandy CLAY (CL), reddish brown, slightly moist, fine sand with slaty fine pebbles and white siltstone chips, spotty MnO in matrix and heavily developed on slaty gravels and rock fragments, slaty coarse gravels at 91.8', 92.7', and 93.8'</p>
		90-95	Run 1 Box 10	3.8	76					<p>@93.8': No recovery</p>
209	95									<p>@95': Sandy CLAY (CL), light orange brown to reddish brown, slightly moist, fine to coarse sand with MnO development in matrix, pulses of siltstone, slate and basalt rock fragments at 96.8', 98', and 99.4', gleyed</p>
		95-100	Run 2 Box 10	5	100					
204	100									<p>@100': trace subrounded gravel</p>
		100-105	Run 1 Box 11	5	100					<p>@101.6': SAND (SP), olive gray, slightly moist, fine to medium sand, fine and coarse gravel</p> <p>@102.2': Sandy GRAVEL (GP), dark brown, saturated, loose, coarse sand, fine and coarse gravel, abrupt basal contact with below</p> <p>@102.5': CLAY (CL), reddish brown, moist, stiff, trace coarse sand, trace fine gravel, blocky structure, well developed, oxidized and gleyed with spotty MnO in matrix,</p>
199	105									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE	COMPLETE	
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16


*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-21
PROJECT: El Rodeo School										PAGE 8 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 8 of 12
EQUIPMENT USED: CME-75										ELEVATION: 304 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/2/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/5/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
199	105									
		105-110	Run 2 Box 11	5	100	100				@106.2': color change to dark reddish to blackish brown, pervasive blocky structure with very fine sand and clay on pedogenic faces, gleyed, vertical gleying of soil faces outward approximately 1/4-inch
194	110									
		110-115	Run 1 Box 12	5	100	100				@110': Sandy CLAY (CL), reddish brown, moist, stiff, fine sand, trace coarse sand, trace fine gravel, with influx of slaty gravels at 111.5' to 112' @112': 2-foot zone, orange brown to reddish brown Sandy CLAY (CL), fine sand, gleyed
189	115									
		115-120	Run 2 Box 12	5	100	100				@114': Silty SAND (SM), reddish brown, very moist, fine sand, few angular slaty gravel @114.6': SILT (ML), brown, moist, stiff, very fine sand, MnO in matrix and on pedogenic faces Quaternary San Pedro Formation (Qsp) @116.6': color change, becomes dark gray brown Sandy CLAY (CL) with carbonate stringers and lining of krotovina @118': Silty CLAY (SP-SC), gray, very moist, fine sand and shell fragments, abundant carbonate stringers @118.2': SILT (ML), dark gray brown, moist, stiff, trace clay
184	120									@119.5': Sandy CLAY (CL), moist, stiff, very fine sand, shell fragments and
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"				
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"				
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"				
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"				
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-21
PROJECT: El Rodeo School										PAGE 9 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 9 of 12
EQUIPMENT USED: CME-75										ELEVATION: 304 Feet
GROUNDWATER:			DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 9/2/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/5/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG					
184 120	120-125	Run 1 Box 13	3.9	78		carbonate stringers				
						@120': CLAY to Sandy CLAY (CL), gray, moist, few fine sand				
						@121.4': Clayey SAND (SC), gray moist, fine sand				
						@121.9': CLAY (CL), moist, trace sand				
						@122.2': SAND (SP), gray, moist, fine sand				
						@122.5': CLAY (CL), gray, moist				
						@123.6': SAND (SP), gray, moist, fine sand				
						@123.9': No recovery				
179 125	125-130	Run 1 Box 14	5	100		@125': SAND (SP), gray, saturated, fine sand				
						@126': SILT (ML), gray, very moist				
						@126.7': SAND (SP), gray, saturated, fine sand				
						@126.9': SILT (ML), gray, moist				
						@128': 2 inch fine sand layer				
						@128.9': CLAY (CL), gray, moist				
174 130	130-135	Run 2 Box 14	5	100		@130': Sandy SILT (ML), gray, moist				
						@133': CLAY (CL), gray, moist, trace carbonate				
169 135										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"				
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"				
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"				
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"				
						Fe = Iron Oxide Mn = Manganese Oxide				

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-21
PROJECT: El Rodeo School										PAGE 10 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 10 of 12
EQUIPMENT USED: CME-75										ELEVATION: 304 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/2/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/5/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
169 135		135-140	Run 1 Box 15	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@135': CLAY (CL), dark gray, moist, very stiff, trace carbonate lenses			
164 140		140-145	Run 2 Box 15	5	100		@140': Sandy CLAY (CL), dark gray, moist, very fine sand			
							@143.9': Clayey Gravelly SAND (SP-SC), dark gray, saturated, fine sand, fine and coarse gravel			
159 145		145-150	Run 1 Box 16	3.7	74		@144.9': Clayey SAND (SC), dark gray, very moist, fine sand			
							@145': No recovery			
							@146.3': Silty SAND (SM), gray, moist, fine sand			
							@146.9': SAND with Clay (SP-SC), gray, fine to coarse sand, downward coarsening, shell fragments			
154 150							@148.8': Silty CLAY (CL), olive gray, moderately plastic, few gravel and cobbles			

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE	
								COMPLETE	



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

LEIGHTON

CORE BORING LOG										BORING NO. CB-21
PROJECT: El Rodeo School										PAGE 11 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 11 of 12
EQUIPMENT USED: CME-75										ELEVATION: 304 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/2/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/5/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
154 - 150	150-155	Run 2 Box 16	5	100		@150': No gravel and cobbles, carbonate nodules				
					@152.4': trace fine sand					
149 - 155	155-160	Run 1 Box 17	2.1	42		@153.6': Silty SAND (SM), gray, fine sand, trace fine gravel, gradational contact				
					@154.6': trace clay					
					@155.5': Clayey SAND (SC), gray, fine sand					
						@155.8': Sandy CLAY (CL), gray, fine sand, trace carbonate, gradational contact				
						@157.1': No recovery				
144 - 160	160-165	Run 2 Box 17	0	0						
139 - 165										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-21
PROJECT: El Rodeo School										PAGE 12 OF 12
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 12 of 12
EQUIPMENT USED: CME-75										ELEVATION: 304 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/2/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/5/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
					0	ANG. FROM VERT.	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	<p>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</p>			
139	165	165-170	Run 1 Box 18	2.2	44		<p>@165': Silty SAND (SM), gray, fine to medium sand, few coarse sand, subangular gravel and cobbles, trace clay</p>			
						<p>@167.2': No recovery</p>				
134	170						<p>Total depth of boring: 170 feet bgs Perched groundwater encountered at approximately 54.5-56.9', 69.3-70, 72.8-74.2', 75-78.9', 88 8-89.2', 102.2-102.5', 125-126', 143.9-144.9' Boring backfilled with soil cuttings and patched with asphalt upon completion of drilling. Excess soil cuttings disposed of in D.O.T. approved drums and disposed of offsite.</p>			
129	175									
124	180									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-22
PROJECT: El Rodeo School										PAGE 1 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 5
EQUIPMENT USED: CME-75										ELEVATION: 290.2 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/3/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/3/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
290 0							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@0': No recovery			
		0-5	Run 1 Box 1	5	100		Artificial Fill, undocumented (Afu) @0.2': CLAY (CL), brown, slightly moist, hard, fine to medium sand, trace coarse sand, trace fine gravel			
							Holocene and Pleistocene Alluvium of Benedict Canyon Wash (Qal) @3.5': CLAY (CL), brown, moist, hard, few fine to medium sand, trace coarse sand, trace fine gravel, siltstone, rounded slaty gravel, oxidized blebs on poorly developed pedogenic faces			
285 5		5-10	Run 2 Box 1	4.4	88		@4.8': Sandy CLAY (CL), medium brown, slightly moist, fine to medium sand, trace coarse sand, trace fine gravel, grades coarser			
							@7.9': Gravel, up to 1 inch length, matrix supported @8.1': massive debris flow, fine to coarse sand, occasional fine angular Monterey siltstone gravel fragments			
							@9.5': No recovery			
280 10		10-15	Run 1 Box 2	5	100		Pleistocene Alluvium of Benedict Canyon Wash (BCW₁) @10': Sandy CLAY (CL), medium brown to faint reddish brown, slightly moist, fine to medium sand, massive, poorly developed, minor blocky structure			
							@12.5': increase in fine slate and siltstone gravel			
275 15										
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES			V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"		HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)		V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120" Fe = Iron Oxide Mn = Manganese Oxide		FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE	

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-22	
PROJECT: El Rodeo School										PAGE 2 OF 5	
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 5	
EQUIPMENT USED: CME-75										ELEVATION: 290.2 Feet	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/3/2015	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/3/2015		
						HORIZONTAL	Bit (Feet)		DRILLER: Martini		
						INCLINED	Barrel (Feet)		PREPARED BY: ARR		
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd.,		
					0	ANG. FROM VERT.			Beverly Hills, Ca		
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
							The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
275	15	15-20	Run 2 Box 2	5	100		@15': increase in fine sand, trace gravel, debris flow				
							@16.8': fine to medium sand, occasional coarse sand and sporatic fine slate and siltstone gravels				
							@17.1': thin lamination of siltstone fragments				
							@18': thin lamination of siltstone fragments				
								@18.8': thin sandier lamination			
270	20	20-25	Run 1 Box 3	5	100		@20': fine to medium sand, massive, grades more competent and very slightly coarser, very occasional gravel near base, slightly gradational contact below				
							@22.6': Gravelly SAND bed (SP), dark brown, moist, fine to coarse sand, fine subrounded gravel scour surface below, little clay in matrix				
							@23.4': Sandy CLAY with Gravel (CL), medium brown to faint reddish brown, very moist, high sand content, fine to coarse sand, mostly massive gravels consist of siltstone and slate, chaotic assemblage				
							@24.6': becomes sandier with gravels up to an inch diameter				
								@25.5': Sandy CLAY (CL), very moist to saturated, fine sand, grades coarser with depth			
								@26.7'-27.1': Sand bed over gravel bed, reddish brown, orange brown, oxidized, fine			
								@27.1': Gravelly CLAY (CL), orange brown, reddish brown to blackish brown, well developed blocky structure, iron oxide, clay and manganese oxide on pedogenic faces, some coarse sand (slaty pebbles)			
265	25	25-30	Run 2 Box 3	5	100						
260	30										

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
								V. SEVERE	
								COMPLETE	



*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***





LEIGHTON

CORE BORING LOG										BORING NO. CB-22
PROJECT: El Rodeo School										PAGE 3 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 3 of 5
EQUIPMENT USED: CME-75										ELEVATION: 290.2 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/3/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/3/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
260 30		30-35	Run 1 Box 4	5	100		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@30': Basal SANDS and GRAVELS with clayey matrix, fine to coarse sand, fine subangular to subrounded slate and siltstone gravels, erosional contact below ----- Pleistocene Alluvium of Benedict Canyon Wash (BCW₂) @31.3': Sandy CLAY (CL), reddish brown with very faint gleying, fine to medium sand with occasional coarse sand and fine gravel @32.2': moderate soil development, minor blocky structure with clay development on ped faces, paleosol			
255 35		35-40	Run 2 Box 4	5	100		@34.1': grades significantly coarser with abundant slate gravels within sandy clay matrix, erosional contact below @34.6': Sandy CLAY, faint reddish brown, fine sand, grades slightly coarser to include medium to coarse sand and very occasional fine gravel @36.1': poor blocky structure, clay development on ped faces @36.7': grades into basal SANDS and GRAVELS, abundant weathered slate, siltstone and granitic gravels in clayey sand matrix, secondary clay development, manganese oxide development in matrix, erosional contact below @37.5': Basal gravels, weathered oxidized, granitic, siltstone and heavily weathered basalt gravels @38.3': Sandy CLAY, reddish brown, normally graded with slight coarsening into fine to coarse sand with occasional fine gravel @39.4': SAND (SP) laminations, fine to coarse sand, trace fine gravel @39.7': Sandy CLAY (CL), reddish brown, fine to medium sand with occasional fine gravel grades coarser with depth @40.3': Gravelly SAND in CLAY matrix, reddish brown, very moist to saturated, fine to coarse sand, fine gravels up to 1.5-inches, clasts consist of slates and siltstones, erosional contact below			
250 40							@42.1': Sandy CLAY, reddish brown, fine to medium sand, fine gravels up to 1.5-inches, clasts consist of slates and siltstones, erosional contact below @43.7': sandy laminations @44.4': sandy laminations			
245 45		40-45	Run 1 Box 5	5	100					
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE		
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16



LEIGHTON

CORE BORING LOG										BORING NO. CB-22
PROJECT: El Rodeo School										PAGE 4 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 5
EQUIPMENT USED: CME-75										ELEVATION: 290.2 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/3/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/3/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	SAMPLE NUMBER	RECOVERY %	RQD	GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS			
245 45		45-50	Run 2 Box 5	4.4	88		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.			
							@44.8': sandy laminations			
							@45': poor recovery, disturbed			
							@45.6': sandy lamination, reddish brown, fine sand, clayey			
		@46': Sandy CLAY (CL), brown to orange brown, fine sand, clayey								
		@47.3': Clayey SAND (SC), very moist, stiff, fine to coarse sand, oxidized								
		@48': poorly developed soil, orange to reddish brown, poor to moderately blocky structure, high clay content								
		@48.4': channel deposits: Clayey SAND with Gravel, oxidized, gleyed, faint laminations, fine to coarse sand, fine slate gravels, chaotic assemblage								
		Pleistocene Cheviot Hills Deposit (CHD)								
240 50		50-55	Run 1 Box 6	4.3	86		@49.4': No recovery			
							@50': Clayey SAND (SC), brown to reddish brown, mostly fine sand, few medium sand, trace coarse sand and fine gravel			
							@50.6'-51.2': Sandy GRAVEL bed (GP), over fine grained Silty SAND (SM), with oxide laminations			
							@51.5': zone of well developed soil, moderate blocky structure, clay development on pedogenic faces, abrupt contact below			
							@52.2': Silty SAND (SM), light reddish brown, moist, mostly fine to medium sand, normally graded, erosional contact below			
		@52.7': Sandy CLAY (CL), olive brown, very moist, fine sand with occasional medium to coarse sand and fine gravel, mostly massive, thin oxidized sandy lamination at 54.1'								
		@54': color change to dark orange brown, heavily oxidized								
		@54.3': No recovery								
235 55		55-60	Run 2 Box 6	5	100		@55': Sandy CLAY (CL), brown, very moist, fine sand, trace medium to coarse sand and fine gravel, poor to moderate soil development throughout, normally graded becoming clayey sand near base, erosional contact below			
							@58': Sandy CLAY, olive brown to reddish brown, moist, mostly fine sand, with few medium to coarse sand and fine gravel, mostly massive with chaotic assemblage			
230 60										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
								SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

LEIGHTON

CORE BORING LOG										BORING NO. CB-22
PROJECT: El Rodeo School										PAGE 5 OF 5
CLIENT: Beverly Hills Unified School District										JOB NO.: 10274.006
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 5 of 5
EQUIPMENT USED: CME-75										ELEVATION: 290.2 Feet
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 9/3/2015
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	SIZE	DATE FINISH: 9/3/2015	
						HORIZONTAL	Bit (Feet)		DRILLER: Martini	
						INCLINED	Barrel (Feet)		PREPARED BY: ARR	
						BEARING	Total (Feet)		LOCATION: 605 Whittier Blvd., Beverly Hills, Ca	
					0	ANG. FROM VERT.				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS										
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.										
230	60									@60': Sandy CLAY, brown, moist, mostly fine to medium sand, trace coarse sand and gravel, minor MnO spotting, less competent than overlying soils, sandy laminate at base
		60-65	Run 1 Box 7	5	100					@61.1': Sandy CLAY (CL), dark reddish brown, moist, laminated, gleyed, fine to medium sand with occasional coarse sand and fine gravel, gradational contact below, well developed blocky structure, clay development on ped faces
225	65									@65': grades sandier with increased gravel, coarser with depth, chaotic assemblage of slate gravels in sandy clay matrix, erosional contact with below
		65-70	Run 2 Box 7	5	100					@67': Sandy CLAY, reddish brown, mostly fine to medium sand with occasional fine gravel, minor gleying, very minor sandy laminations, finer with depth
										@69': CLAY, reddish brown, trace fine to medium sand, minor MnO spotting
220	70									Total depth of boring: 70 feet bgs Perched groundwater encountered at approximately 25.5-26.7', 40.3-42.1' Boring backfilled with soil cuttings
215	75									
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE			
						Fe = Iron Oxide Mn = Manganese Oxide		V. SEVERE		
								COMPLETE		

ROCKLOG2014 EL RODEO BORING LOGS 8-24-15.GPJ ROCKLOG2012.GDT 2/1/16

CB-1 5'-35'



CB-1 35'-65'



CB-1 65'-95'



CB-1 95'-125'



CB-2 5'-25'



CB-2 25'-45'



CB-2 50'-80'



CB-2 80'-110'



CB-2 110'-125'



CB-3 5'-35'



CB-3 35'-65'



CB-3 65'-95'



CB-3 95'-125'



CB-4 5'-35'



CB-4 35'-65'



CB-4 65'-95'



CB-4 95'-125'



CB-5 5'-35'



CB-5 35'-65'



CB-5 65'-95'



CB-5 95'-125'



CB-5 125'-155'



CB-5 170'-185'

(155'-170' Missing)



CB-6 5'-35'



CB-6 35'-65'



CB-6 65'-95'



CB-6 95'-125'



CB-6 125'-155'



CB-6 155'-170'



CB-7 1'-20'



CB-7 20'-40'



CB-7 40'-60'



CB-7 60'-80'



CB-7 80'-100'



CB-7 100'-120'



CB-7 120'-140'



CB-7 140'-160'



CB-7 160'-180'



CB-7 180'-195'



CB-8 5'-25'



CB-8 25'-45'



CB-8 45'-65'



CB-8 65'-85'



CB-8 85'-105'



CB-8 105'-125'



CB-8 125'-145'



CB-8A 0'-30'



CB-8A 30'-60'



CB-9 5'-25'



CB-9 25'-45'



CB-9 45'-65'



CB-9 65'-75'



CB-10 5'-25'



CB-10 25'-45'



CB-10 45'-65'



CB-10 65'-75'



CB-11 5'-25'



CB-11 25'-45'



CB-11 45'-65'



CB-11 65'-75'



CB-12 5'-25'



CB-12 25'-45'



CB-12 45'-65'



CB-12 65'-75'



CB-13 5'-25'



CB-13 25'-45'



CB-13 45'-65'



CB-13 65'-75'



CB-14 5'-35'



CB-14 35'-65'



CB-14 65'-75'



CB-15 5'-25'



CB-15 25'-45'



CB-15 45'-75'



CB-15 75'-95'



CB-16 5'-25'



CB-16 25'-45'



CB-16 45'-65'



CB-16 65'-85'



CB-16 85'-95'



CB-17 0'-30'



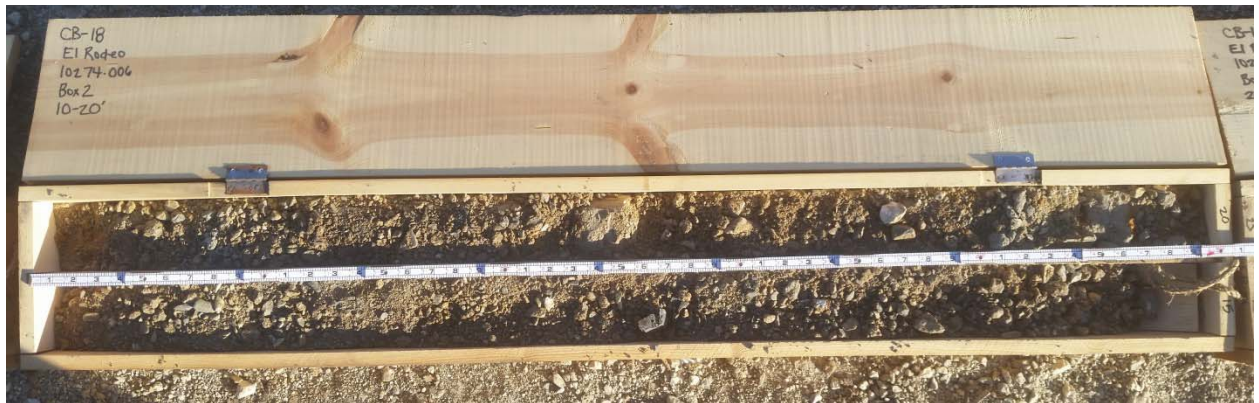
CB-17 30'-60'



CB-17 60' - 70'



CB-18 0'-30'



CB-18 30'-60'



CB-18 60'- 70'



CB-19 0'-30'



CB-19 30'-60'



CB-19 60'- 90'



CB-19 90'- 120'



CB-19 120' - 150'



CB-19 150'- 175'



CB-20 0'-30'



CB-20 30'-60'



CB-20 60' - 70'



CB-21 0'-30'



CB-21 30'-60'



CB-21 60'-90'



CB-21 90'- 120'



CB-21 120'- 145'



CB-21 145' - 170'



CB-22 0'-30'



CB-22 30'-60'



CB-22 60' - 70'



APPENDIX C

FT-3 AND FT-4 TRENCH PHOTOGRAPHS



Leighton

Fault Trench FT-3



FT-3: Southern trench wall, Station 0 + 10'

Fault Trench FT-3



FT-3: Southern trench wall, Station 0 + 20'

Fault Trench FT-3



FT-3: Southern trench wall, Station 0 + 30'

Fault Trench FT-3



FT-3: Southern trench wall, Station 0 + 40'

Fault Trench FT-3



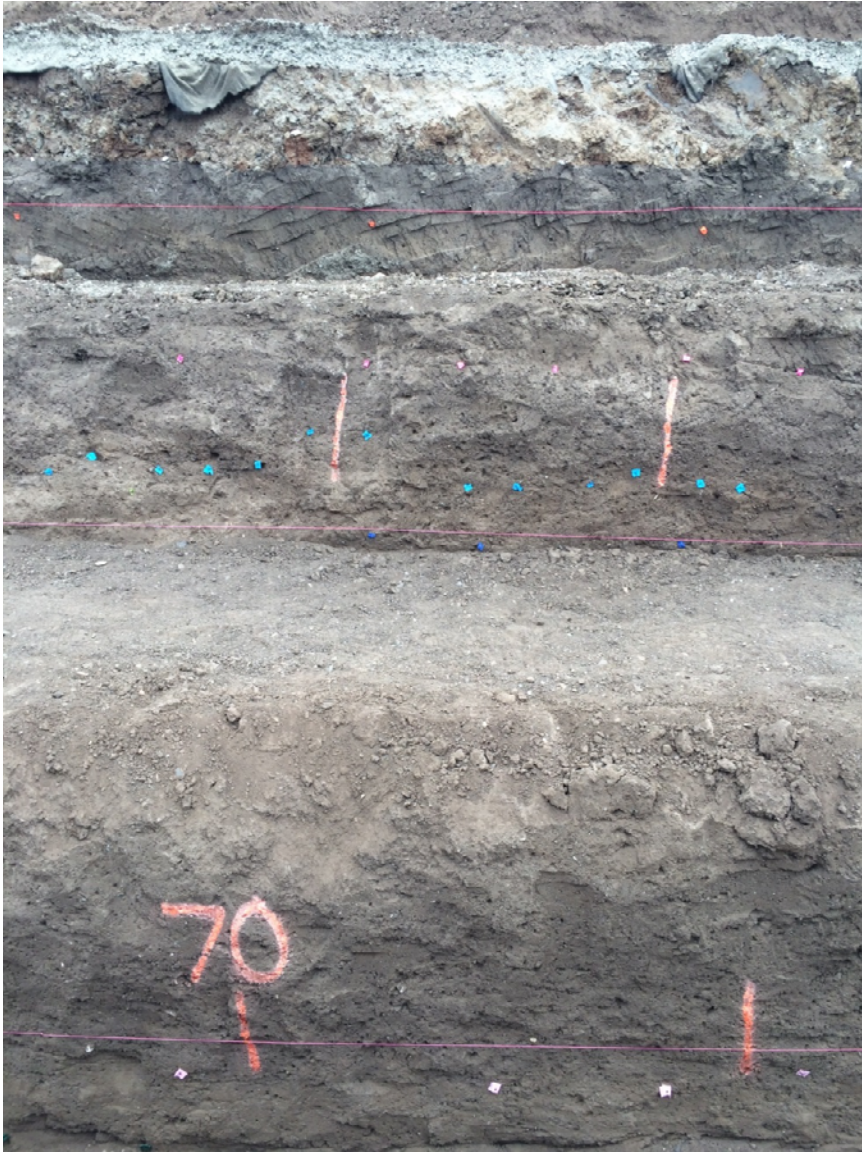
FT-3: Southern trench wall, Station 0 + 50'

Fault Trench FT-3



FT-3: Southern trench wall, Station 0 + 60'

Fault Trench FT-3



FT-3: Southern trench wall, Station 0 + 70'

Fault Trench FT-3



FT-3: Southern trench wall, Station 0 + 80'

Fault Trench FT-3



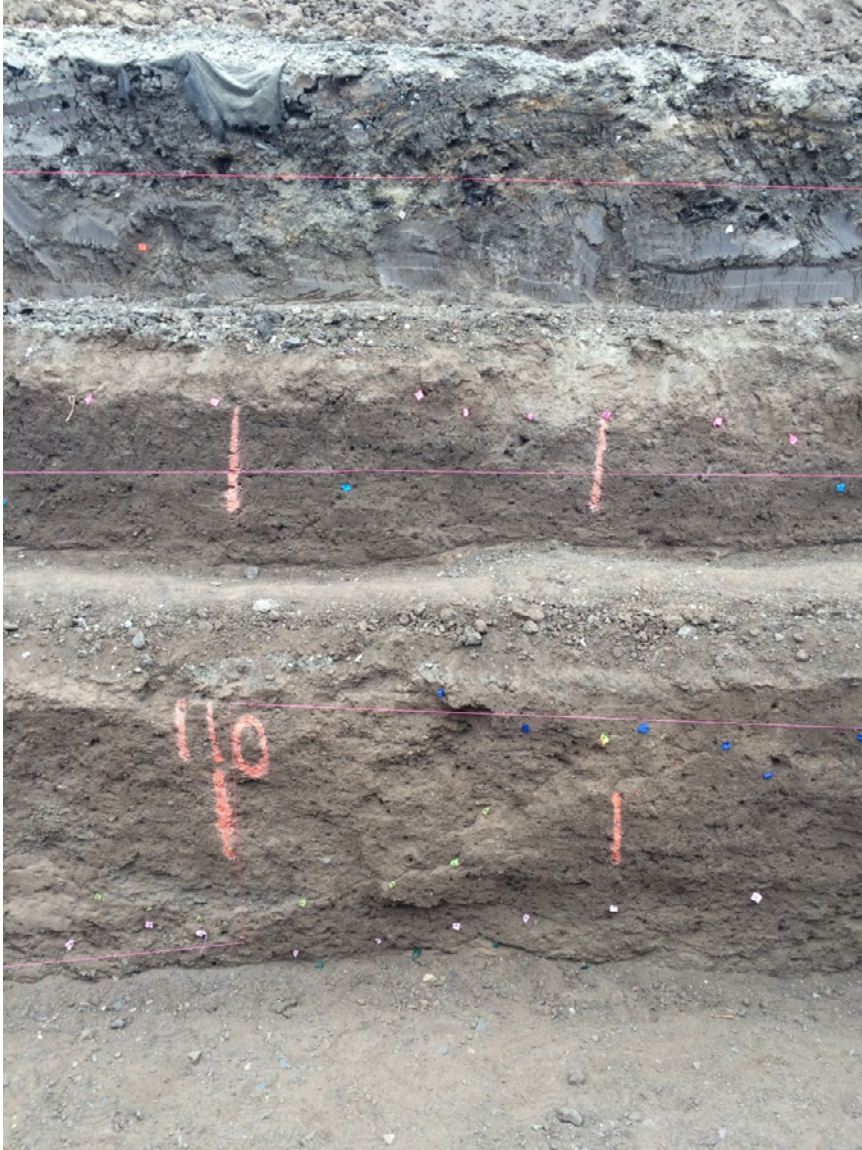
FT-3: Southern trench wall, Station 0 + 90'

Fault Trench FT-3



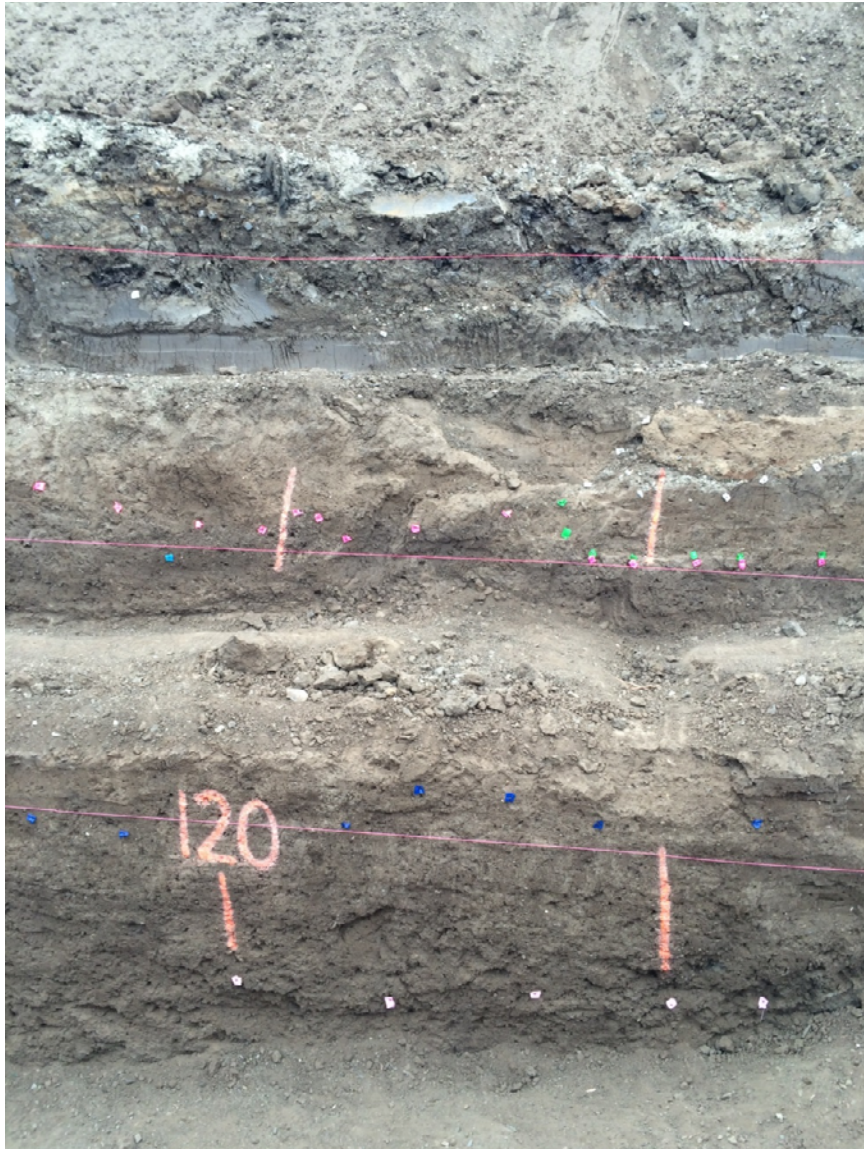
FT-3: Southern trench wall, Station 0 + 100'

Fault Trench FT-3



FT-3: Southern trench wall, Station 0 + 110'

Fault Trench FT-3



FT-3: Southern trench wall, Station 0 + 120'

Fault Trench FT-3



FT-3: Southern trench wall, Station 0 + 130'

Fault Trench FT-3



FT-3: Southern trench wall, Station 0 + 140'



FT-3: Southern trench wall, Station 0 + 150'

Fault Trench FT-3



FT-3 Southern trench wall, Station 0 + 160'



FT-3: Southern trench wall, Station 0 + 170'

Fault Trench FT-4



FT-4 Southern trench wall, Station 0 + 05'



FT-4: Southern trench wall, Station 0 + 10'

Fault Trench FT-4



FT-4 Southern trench wall, Station 0 + 15'



FT-4: Southern trench wall, Station 0 + 20'

Fault Trench FT-4



FT-4 Southern trench wall, Station 0 + 25'



FT-4: Southern trench wall, Station 0 + 30'

Fault Trench FT-4



FT-4 Southern trench wall, Station 0 + 35'



FT-4: Southern trench wall, Station 0 + 45'

APPENDIX D

EARTH CONSULTANTS INTERNATIONAL, INC. SOIL AGE ESTIMATIONS



Leighton



TO: LEIGHTON CONSULTING, INC.

17781 Cowan
Irvine, California 92614

Attention: Mr. Joe Roe

TO: PRIMESOURCE PROJECT MANAGEMENT

One Civic Plaza Drive, Suite 500
Carson, California 90745

Attention: Mr. Timothy Buresh

SUBJECT: ADDITIONAL SOIL STRATIGRAPHIC AGE ESTIMATIONS IN SUPPORT OF THE FAULT STUDY CONDUCTED FOR THE EL RODEO K-8 SCHOOL, 605 WHITTIER DRIVE, BEVERLY HILLS, CALIFORNIA

Dear Sirs,

Leighton Consulting, Inc. (Leighton) has conducted additional fault studies for the El Rodeo K-8 School in Beverly Hills in response to comments from the California Geological Survey (CGS, 2015). These additional studies included the excavation and logging of an approximately 180-foot long trench placed in the southern portion of the school (FT-3), and another trench across the school's entrance off Wilshire Boulevard (FT-4). At your request, Earth Consultants International (ECI) provided assistance with the cleaning, logging and photographing of these trenches, and estimated the age of the deposits exposed therein using soil-stratigraphic techniques. Together with Leighton personnel we also logged a short utility trench excavated by others next to the sidewalk on the north side of Wilshire Boulevard. Finally, we provided assistance with the correlation of units observed in several small-diameter, continuously sampled hollow-stem soil borings that were emplaced in areas where CGS had expressed issues with the original interpretations summarized in our February 25, 2015 report (included as an appendix to Leighton's Fault Hazard Assessment report dated February 27, 2015). This report summarizes our findings regarding the age of the units exposed in the new trenches, including FT-3, FT-4 and the utility trench. Our logs of these trenches are presented in Leighton's report.

SCOPE of WORK and METHODOLOGY USED

The tasks that ECI completed for this study are listed below.

1. We assisted Leighton personnel in the cleaning, logging and photographing of trench FT-3, which was excavated in the athletic field near the school's southeastern corner.

1642 E. Fourth Street 🌐 Santa Ana 🌐 California 🌐 92701 🇺🇸 USA
Telephones: 714-412-2654 & 544-5321 🌐 Facsimile: 714-494-4930

🌐 www.earthconsultants.com

The trench was approximately 180 feet long and between 7.5 and 20 feet deep. Details regarding this effort are summarized in Leighton's report. We then conducted a soil-stratigraphic analysis of the deposits exposed near the western and central sections of the trench. Specifically, we described the soils exposed in trench FT-3 at two locations, near station 0+15, and near station 1+05. Combined, the soil profiles described provide a nearly complete record of the pedogenically altered sedimentary package that was exposed in the trench.

2. We assisted Leighton personnel in logging and photographing a trench excavated in the school's southwestern corner, across its entrance off Wilshire Boulevard. This excavation was approximately 45 feet long, and between 2.9 and 5.2 feet deep. In this trench we also described two soil profiles, one at station 10, and the other at station 26, to estimate the age of the sediments exposed in that part of the school campus.
3. Together with a Leighton geologist, we quickly logged and photographed a short trench excavated by a utility contractor (AT&T) immediately outside the school property, on the grass-covered strip between the sidewalk and Wilshire Boulevard, next to the school's entrance off Wilshire Boulevard. This excavation was about 13 feet long and 3.4 feet deep. We described several soil samples we collected from the trench to add to our database of soil profiles in the immediate vicinity of the school, and estimated the age of the deposits that these soils formed on.

The soil-age estimates that we present in this report help to better characterize the geomorphic surfaces upon which the school is located, adding to the geological story that we have been developing for the Beverly Hills area since we first began our studies at the Beverly Hills High School. Characterization and age estimation of these sediments also provides additional information regarding the deposits encountered in the continuously sampled borings drilled as part of the fault studies. Additional information on the methodology we used for the soil descriptions and age estimations is provided in the following section.

4. We collaborated with Leighton's personnel on the review of and correlation of soils and primary stratigraphic units identified in the cores of the continuously sampled borings that have been drilled for this study, including the new borings drilled to respond to CGS' review sheet. The correlations made are shown on the cross-sections presented in Leighton's report.
5. We prepared this report summarizing the work completed and discussing our findings.

SOIL-STRATIGRAPHIC ANALYSES - BACKGROUND

To estimate the age of the deposits underlying the El Rodeo school site we have, to date, described six soil profiles exposed in trenches excavated to evaluate the potential for surface fault rupture at the school. The first of these soil profiles was described in Leighton's trench FT-1, and our analysis of it was presented in our February 2015 report (ECI, 2015). The other five soil profiles were described for this study, and include two profiles in Leighton's trench FT-3, two profiles in trench FT-4, and one profile in the AT&T utility trench. Our analysis of the minimum ages of the soils sampled from these excavations is presented herein.

As with the first soil profile (ECI, 2015), we described these soils using a combination of the characteristics and nomenclature established by the Soil Survey Staff (1975, 1992), the National Soil Survey Center (2012) and Birkeland (1984, 1999). Colors of the soil horizons were recorded by comparing the color of the matrix and clay films both in the dry (or slightly damp) and wet states to color chips in a Munsell Soil Color Chart. Characteristics that we recorded include: 1) texture (grain size distribution), 2) structure (whether the soil mass breaks into distinctive peds, or is single-grained), 3) the amount, distribution and thickness of translocated clay forming films or stains on the soil ped faces and clasts, in clast pockets, and in between sand grains (called bridges), 4) the looseness or induration of the soil peds, and 5) the stickiness and plasticity of the wet soil. The sharpness and relief characteristics of the contact (or boundary) between horizons were also noted. Finally, we also described the type, shape and typical size of the rock clasts observed in each horizon. Summarized descriptions of the soil profiles are provided in Table 1 (FT-3, Profile 0+15), Table 2 (FT-3, Profile 1+05), Tables 4A and 4B (FT-4, Profiles at Stations 10 and 26, respectively), and Table 6 (Profile from the AT&T trench). The complete soil profile descriptions are included in the Appendix.

The profiles described include a surface soil (or the truncated remains of one) and the remains of several buried soils. Each of the buried soils developed when that specific sedimentary package was at or near the ground surface and thus exposed to soil-forming processes. Soil-formation ceased when that surface was buried by a sufficiently thick mudflow or alluvial deposit, with a new soil eventually forming on the younger sediments if exposed at the surface for a sufficiently long period of time, typically in the order of hundreds to thousands of years. To estimate the age of geologic deposits using soil-stratigraphic techniques we rely on a comparison of the characteristics of the soils in question with those of other soils in the region developed in similar parent materials that have been dated using both absolute and relative dating methods.

In these quantitative assessments, the characteristics of the soil being assessed are “subtracted” from the characteristics of the presumed parent material to develop a realistic estimate of the length of time that a geologic deposit has been subjected to the effects of weathering and soil formation. For this study we assumed a parent material consisting of either sandy loam or sandy clay loam with 10YR 4/3 dry color, 10YR 3/3 moist color, single-grained, loose when dry and moist, non-sticky and non-plastic when wet, with no clay films.

The soil characteristics are assigned numerical values that are then used to calculate the soils’ degree of development. We used two of these quantitative methods for this study: Harden’s (1982) Soil Development Index (SDI), and Ponti’s (1985) Maximum Horizon Index. The SDIs include a non-normalized value representative of the thickness of the soil being assessed as measured in the profile, and a normalized value that extends (or truncates) the thickness of the soil to 200 cm, typically to account for erosion. Normalized SDI values to 200 cm are typically found in the literature, allowing a direct comparison between the soils being assessed and the dated soils used in the soil age regressions. Both SDI and MHI values have been shown to be useful relative indicators of soil age, with older, better developed soils having higher SDI and MHI values (Harden, 1982; Harden and Taylor, 1983; Rockwell et al., 1984; Rockwell et al., 1990; Bornyasz and Rockwell, 1997).

To obtain minimum age estimates for the soils described, we compared the soils' SDI and MHI values with the soil age regressions presented in Dolan et al. (1997), which are based on the chronosequences by Rockwell (1983), Rockwell et al. (1985), Harden (1982), and McFadden and Weldon (1987). These regressions include an envelope that captures 95% of the data used to develop the curves, with the bottom and top of this zone referred to as the minimum and maximum values. For the purposes of this study, and to be consistent with the previous studies that we have conducted for the El Rodeo and Beverly Hills High School, the age estimates that we highlight represent only the lower half of the envelope, that is, the minimum and preferred ages.

FINDINGS

FAULT TRENCH FT-3

Trench FT-3 exposed a series of generally laterally continuous and relatively level mudflow deposits locally channelized and capped by fluvial sediments. The mudflow packages tend to be massive to weakly bedded. The fluvial sediments are typically bedded and characterized by fining-upward sequences.

At its western end, the trench exposed approximately 19 feet of artificial fill and historical sediments. The upper 17 feet consist primarily of rubble, with large pieces of concrete that may have been part of the abandoned-in-place Moreno Creek storm drain, in addition to bricks and other construction debris. The lowermost approximately 2 feet consist of water-lain, imbricated gravel and cobbles mixed with pieces of China ceramics and vintage glass bottles from the first quarter of the 20th century. The matrix and the coatings on the clasts are reddish to orange brown in color; our interpretation is that a significant amount of metallic objects that were originally part of the fill have since rusted, with the rust coating the clasts. This lower historical deposit may be associated with the 1938 floods that impacted a significant portion of southern California. The presumed 1938-channel deposits incise into and overlie sediments of significant age, as described in more detail below. Thus, Holocene-aged sediments of Moreno Creek proper were not encountered in the trench.

The trench was emplaced in the school's athletic field, to the south and east of trenches FT-1 and FT-2 (Leighton, 2015). This previous work had demonstrated that this portion of the school site was graded flat, and in the process the uppermost soil horizons were removed. The amount of cutting required to level the site likely increases to the north and west, as the original topography rose in those directions. Thus, in the area of trench FT-3, we anticipate that only the uppermost soil horizons have been removed. As described further below, the surface soils in trench FT-3 appear to be missing only the uppermost A soil horizon (profile at 0+15) and possibly part of the underlying B horizon (profile at 1+05). Although a complete surface soil profile was not available, these soils are far more complete than those previously described at the site, and the age estimates presented below are possibly closer to the true ages of the sediments at and near the ground surface in this area. Nevertheless, alluvial incision and removal of soils has clearly occurred in the historical and geological past, so our age estimates are still minimum values.

Station 0+15: The soil profile described at station 0+15 includes a surface soil and seven buried soils. The surface soil is capped by a horizon that has characteristics of both an A and

Bt horizon, with dark, organic-rich colors, moderate soil structure and few thin clay films. This horizon is underlain by two argillic (Bt) horizons consisting of silty clay and silty clay loam, respectively, with moderate to strong angular blocky structure and few to many, thin to moderately thick clay films. The colors in this surface soil are predominantly in the 10YR hue, with 7.5YR clay films observed only in the Bt2 horizon (see Table 1). These characteristics, including its 130-cm thickness, suggest that this surface soil has been exposed to soil-forming processes for between about 10,600 (minimum) and 30,500 (median) years (these age estimates represent the average of the ages obtained using the MHI and normalized SDI methods – see Table 3A).

The first buried soil (2Bt4/2BC1) was partly eroded (truncated) before the overlying soil was deposited, so our age estimates for this soil are minimum values. The argillic soil horizon has sandy clay texture, 10YR hues in the matrix with 7.5YR clay films, moderate angular blocky structure, and few to common thin to moderately thick clay films. The underlying BC horizon has sandy clay loam to sandy clay texture, 10YR colors, weak to moderate angular blocky structure, and few thin clay films. Intense bioturbation in the form of rodent burrows has weakened or destroyed the soil structure of this horizon near its top. This, combined with the missing upper horizons, yields lower-than-expected non-normalized SDI and MHI values that in turn result in lower age estimates. Even the normalized SDI value likely yields too young an age, but it is the best value we have, so we use it here. The normalized SDI value indicates a minimum soil-development age for this buried soil of between 7,400 (minimum) and 23,000 (median) years. Since this is the estimated amount of time it took for this soil to develop, to estimate its age we need to add to it the age of the overlying surface soil. Thus, this buried soil is between about 18,000 and 53,500 years old, using the minimum and median age estimates provided by the soil regressions. The soil-age regressions permit older ages (Table 3A), but, to be conservative, we present here only the minimum and median values.

The second buried soil observed and described in this profile was also eroded (truncated), leaving only a relatively thin argillic (Bt) horizon and a BC horizon (3Bt5/3BC2). The argillic horizon consists of sandy clay loam with 10YR hues, strong angular blocky structure, and few to common thin clay films. The underlying BC horizon consists of loamy sand, also with 10YR colors, moderate angular blocky structure, and few thin clay films. These characteristics suggest it was exposed to pedogenic processes for between about 5,200 (minimum) and 16,000 (median) years. The age of this buried soil is thus between about 23,000 and 70,000 years (rounded values).

The next (third) buried soil is relatively complete, as it includes an AB horizon with loamy sand to sandy loam texture, 10YR colors, moderate to strong fine subangular blocky structure and very few thin clay films. The clay films are probably overprinted from the soil above. The underlying juvenile argillic (Btj) horizon is thin (20 cm), and consists of sandy clay loam with 10 to 7.5YR colors, weak angular blocky structure, and few thin clay films on ped faces and lining clast pockets. These characteristics indicate a relatively short exposure to soil-forming properties. The MHI value is controlled by the characteristics of the Btj horizon, which does not appear to be overprinted by the soil above. For this reason, we prefer the soil development age estimates suggested by the MHI value. Our soil-development estimates for this buried soil range from 3,600 (minimum) to 11,200 (median) years. Combined with the age estimates for the soils above, this soil is thought to be between about 27,000 and 81,000 years old.

Table 1: Abbreviated Soil Descriptions for Soil Profile at Station 0+15 in Trench FT-3

Horizon	Thickness (cm)	Texture	Color		Structure	Consistency				Clay Films
			Moist	Dry		Dry	Moist	Wet	Wet	
Surface Soil										
A/Bt1	24	SiC	10YR 2/2	10YR 2/2 (d)	2m-cabk	--	fi	vs	vp	1ncl, 1nbr
Bt2	31	SiC	10YR 3/2 w/ 7.5YR 3/2 cf	10YR 4/3 w/ 7.5YR 3/2 cf (d)	2-3mabk	--	vfi	vs	vp	2n&1mkpf, 2mkcl, 2nbr 2npf, 2npo, 3mkclpo, 3nbr, 2ncl
Bt3	19	SiCL	10YR 3/2	10YR 4/3	3vcabk	h	fi	s	p	
First Buried Soil										
2Bt4	30	SC	10YR 3/2	10YR 4/3 w/ 7.5YR 4/2 (d)	2mabk	--	fi	ss	p	2npf, 1ncl, 2mkclpo
2BC	68	SCL-SC	10YR 3/2	10YR 3/3 (d)	m – 1-2mabk – 2mabk	--	fi	ss-s	p	1npf, 1ncl, 1nclpo
Second Buried Soil										
3Bt5	40	SCL	10YR 3/2	10YR 4/3	3m-cabk	h	fr	s	p	1npf, 1nbr, 2nclpo
3BC2	31	LS	10YR 3/3	10YR 5/3	2f-mabk	h	fr	so	vsp	1npf
Third Buried Soil										
4AB	19	LS-SL	10YR 4/3	10YR 5/3	2-3fabk	sh-h	fr-fi	s	sp	v1npo, v1ncl
4Btj	20	SCL	10-7.5YR 3/3	10-7.5YR 3/3 (d)	1fabk-sg	--	fi	ss-s	sp	1npf, 1nclpo
Fourth Buried Soil										
5Bt6	93	SiCL	7.5YR 3/3	10YR 5/3 w/ 7.5YR 5/3 cf	3m-cabk	--	fi	s-vs	sp-p	2npo, 2ncl, 2n&1mkclpo
5Bt7	27	SCL	7.5YR 4/3	10-7.5YR 5/3	1-3m-cabk	sh	fi	s	p	2npo, 1ncl, 2n&1mkclpo
Fifth Buried Soil										
6Bt8	54	SiC	7.5YR 3/2.5	7.5YR 4/3	3m-cabk	h	fr-fi	vs	vp	1npf, 1nbr, 2ncl, 2n- mkclpo
6BC3	36	SCL	7.5YR 4/3	7.5YR 5/3 w/ 7.5YR 4/3 cf	2-3m-cabk	h	fi	s	sp	v1npf, 2nclpo

Horizon	Thickness (cm)	Texture	Color		Structure	Consistency				Clay Films
			Moist	Dry		Dry	Moist	Wet	Wet	
Sixth Buried Soil										
7Bt9	19	SCL	7.5YR 3/3	7.5YR 4/3	2f-mabk	sh	fi	vs	p	v1ncl, 2nclpo
Seventh Buried Soil										
8Btj2	26+	SiC	7.5YR 3/3	7.5YR 4/3	2-3mabk	h	fi	ss	p	v1ncl

ABBREVIATIONS:

TEXTURE: S = sand; LS = loamy sand; SL = sandy loam; L = loam; SCL = sandy clay loam; SC = sandy clay; CL = clay loam; Si = silt; SiL = silt loam; SiCL = silty clay loam; SiC = silty clay; C = clay. **STRUCTURE: Grade:** 1 = weak; 2 = moderate, 3 = strong. **Class:** 1f = very fine, f = fine, m = medium, c = coarse; vc = very coarse. **Type:** m = massive; sg = single-grained; gr = granular, cr = crumb, abk = angular blocky, sbk = subangular blocky, pr = prismatic. **CONSISTENCY: Dry:** lo = loose, so = soft, sh = slightly hard, h = hard, vh = very hard, eh = extremely hard. **Moist:** lo = loose, vfr = very friable, fr = friable, fi = firm, vfi = very firm, efi = extremely firm. **Wet:** ns = non-sticky, ss = slightly sticky, s = sticky, vs = very sticky; np = non-plastic, sp = slightly plastic, p = plastic, vp = very plastic. **CLAY FILMS (cf): Abundance:** v1 = very few, 1 = few, 2 = common, 3 = many, 4 = continuous. **Thickness:** vn = very thin, n = thin, mk = moderately thick, k = thick. **Location:** st = stains, cl = on clasts; clpo = on clast pockets, po = in pores, br = forming bridges between grains, pf = on ped faces.

Table 2: Abbreviated Soil Descriptions for Soil Profile at Station 1+05 in Trench FT-3

Horizon	Thickness (cm)	Texture	Color		Structure	Consistency			Clay Films	
			Moist	Dry		Dry	Moist	Wet		Wet
Near-Surface Soil										
Bt	31	C-SiC	10YR 2.5/2	10YR 3.5/2 w/ 2.5/2 cf & 2/1 mottles	3cabk	h	fi	s	vp	3mkpf, 3mkbr, 2kpf, 3npo
BC _{lam}	20	CL w/ C lam	10YR 3/2	10YR 4/3 w/ 10YR 3/2 cf	3m-cabk	so	fr	s	p-vp	1-2npf, 3nbr, 3npo, in lam: 3n&2mkpf, 3npo
First Buried Soil										
2Bt2	32	SC	7.5YR 3/2 w/ 5YR 3/2 mo	10-7.5YR 4/3 w/ 7.5YR 4/4 cf	3c-vcabk	so-sh	fr	vs	vp	2mk&3nbr, 4npo
2Bt3	42	SC	7.5YR 3/2 w/ 7.5YR 3/3 cf	10-7.5YR 4/3 w 7.5YR 4/3.5 cf	2m-cabk	sh-h	sfi-fi	vs	p	1-2npf, 2-3n&1mkbr, 2ncl
3Bt4	13	SCL	7.5YR 3/2 w/ 7.5YR 3/3 cf	10-7.5YR 4/3 w 7.5YR 3/2 cf	2fabk	sh-h	fr-sfi	ss	ps-p	3n&2mkpf, 2nbr, 2npo, 3nclpo
Second Buried Soil										
4Btj	41	SCL-SL	7.5YR 3/2	10YR 4/3 & 4/4	2m-cabk	so	vfr	ss	vps-ps	2-3npf, 2nbr, 3npo, 3ncl
4BC _{lam}	22	SL	7.5YR 3/2.5	10YR 4/3	1msbk – sg + 2msbk in lam	so-lo	vfr	so-vss	po	2n-mkbr, 1npf, 1-2ncl, 3nclpo
Third Buried Soil										
5BC _{lam}	36	SL w/ SL lam	10-7.5YR 3/3, 7.5YR 3/3 lam	10YR 4/3, 10-7.5YR 4/3 lam	sg + 2f-msbk in lam	lo + sh	lo + vfr	so + so-vss	po + po	3n&2mkbr, 1npf, 2nclpo

Horizon	Thickness (cm)	Texture	Color		Structure	Consistency				Clay Films
			Moist	Dry		Dry	Moist	Wet	Wet	
Fourth Buried Soil										
6Bt5	11	SL-SCL	10-7.5YR 3/3 w/ 7.5YR 3/3 cf	10YR 4/3 & 4/4 w/ 7.5YR 4/3 cf	2fabk	h	fr	ss-s	ps-p	2n&1mkpf, 2np, 3nbr
6Bt6	36	SCL-SC	7.5YR 3/2	10YR 4.5/3 w/ 7.5YR 4/3 cf	1-2mabk	sh-h	fr-sfi	ss-s	p	3n&1mkpf, 3n-mkbr, 2np
Fifth Buried soil										
7C _{lam}	24	S w/SL lam	7.5YR 3/3 + 7.5YR 3/3 lam	10YR 4/3 + 10-7.5YR 4/3 lam	sg + 1f-msbk	lo + so	lo + vfr	so + vss	po + po-vps	n.o.
Sixth Buried Soil										
8Bt7	10+	C	7.5YR 3/2.5	10-7.5YR 4/4 & 7.5YR 3/3	3f-msbk	eh	fi	vs	vp	3n&1mkpf, 2nbr, 3np, 3mkcl

ABBREVIATIONS:

TEXTURE: S = sand; LS = loamy sand; SL = sandy loam; L = loam; SCL = sandy clay loam; SC = sandy clay; CL = clay loam; Si = silt; SiL = silt loam; SiCL = silty clay loam; SiC = silty clay; C = clay. **STRUCTURE: Grade:** 1 = weak; 2 = moderate, 3 = strong. **Class:** 1f = very fine, f = fine, m = medium, c = coarse; vc = very coarse. **Type:** m = massive; sg = single-grained; gr = granular, cr = crumb, abk = angular blocky, sbk = subangular blocky, pr = prismatic. **CONSISTENCY: Dry:** lo = loose, so = soft, sh = slightly hard, h = hard, vh = very hard, eh = extremely hard. **Moist:** lo = loose, vfr = very friable, fr = friable, fi = firm, vfi = very firm, efi = extremely firm. **Wet:** ns = non-sticky, ss = slightly sticky, s = sticky, vs = very sticky; np = non-plastic, sp = slightly plastic, p = plastic, vp = very plastic. **CLAY FILMS (cf): Abundance:** v1 = very few, 1 = few, 2 = common, 3 = many, 4 = continuous. **Thickness:** vn = very thin, n = thin, mk = moderately thick, k = thick. **Location:** st = stains, cl = on clasts; clpo = on clast pockets, po = in pores, br = forming bridges between grains, pf = on ped faces; n.o. = not observed.

The fourth buried soil is moderately well developed, with a thick argillic section (5Bt6/5Bt7), although its topsoil (A horizon) is missing. The upper argillic horizon consists of silty clay loam, 10YR to 7.5YR colors, strong medium to coarse angular blocky structure, and common thin to few moderately thick clay films. The underlying argillic horizon is slightly coarser grained, with a sandy clay loam texture, 7.5YR to 10YR colors, medium to coarse angular blocky structure, few to common thin and few moderately thick clay films (Table 1). These characteristics suggest this soil was exposed at the surface for between about 9,100 (minimum) and 27,200 (median) years. These estimates are derived from the soil's MHI value, which we consider most appropriate to estimate the soil's age, as it reflects the characteristics of the argillic horizon. Combined with the age of the overlying soils, this deposit is between about 36,000 (minimum) and 108,000 (median) years old.

The log of trench FT-3 shows that in the area of this soil profile there is an unconformity between the fourth and fifth buried soils. Specifically, geologic units 7, 8 and 9 (see the trench log in Leighton's report) are not preserved in the western portion of the trench. To the east, where these geologic units can be observed, each of them has a soil developed in it, indicating that there is a substantial amount of time missing in this profile including: 1) the deposition of unit 9 and development of the soil in unit 9 (buried soil 5 in Profile 1+05), 2) deposition of unit 8 and the development of the soil therein (buried soil 4), 3) a predominantly erosive period when these sedimentary packages were locally removed, and 4) the deposition of unit 7 and the development of its soil (buried soil 3). The soil developed in unit 7 is well preserved in the profile at 1+05, but only thin, deeper, and thus less well-developed sections of the soils developed in units 8 and 9 were present in that profile. As a result, the age estimates obtained for the soils that formed in geologic units 8 and 9 underrepresent the true age of the deposits. Furthermore, it is not possible to know how long the predominantly erosive period between deposition of units 7 and 8 lasted. For these reasons the estimated age of this entire sequence, determined by summing the estimated soil-development ages for the soils in units 7, 8 and 9 (buried soils 3, 4 and 5 in Profile 1+05), is considered an absolute minimum. From Tables 3A and 3B, and discussions further below, the combined length of time in this missing section is estimated at between 9,000 (minimum) and 28,400 (median years). These estimates are added to the age of buried soil 4 above to calculate the length of time represented by the entire section above the fifth buried soil. These age estimates are 45,000 (minimum) to 136,400 (median) years.

The fifth buried soil consists of a Bt/BC profile (6Bt8/6BC3). The argillic horizon consists of silty clay with 7.5YR colors, strong medium to coarse angular blocky structure, and few to common thin to moderately thick clay films. The underlying BC horizon has sandy clay loam texture, 7.5YR colors, moderate to strong medium to coarse angular blocky structure, and very few to common thin clay films. These characteristics suggest that this soil, which is not complete, was exposed at the surface for a minimum of about 11,200 years, and more likely nearly 33,000 years (because the soil is truncated, we prefer to use the age estimates provided by the MHI method, which is based on the development strength of the argillic soil horizon). The age of this section is estimated at between 56,200 (minimum) and 169,400 (median) years.

Only a small section of the underlying sixth buried soil was preserved in the trench. The argillic soil horizon (7Bt9) is 19 cm (7.5 inches) thick, and consists of sandy clay loam with 7.5YR hues, moderate angular blocky soil structure, and few thin clay films coating clasts.

Clean sand was observed in vertical, randomly oriented fractures that are interpreted to have been caused by wetting and drying. This observation indicates that this remnant horizon was overlain by a more clay-rich expansive section that was in turn overlain by an alluvial deposit consisting primarily of clean, well-sorted sand. A sandy deposit was not observed in this section of trench indicating that such a deposit was either eroded prior to deposition of the overlying sediments or it was modified by pedogenic development into a more clay-rich unit. Given that only a thin section of probably the deepest part of the soil is preserved in this area, the age estimates obtained are minimum values. We chose to average the estimates obtained from the MHI and normalized SDI methods to estimate that this sediment was exposed to soil-forming processes for a minimum of 5,500 years, and more likely about 17,000 years. Combined with the age estimates presented in the paragraph above, the sediments at this depth in the trench are thought to be between about 61,700 (minimum) and 186,400 (median) years old.

The deepest buried soil observed in the trench was exposed only at its western end, where a weakly developed (juvenile - Btj) argillic soil horizon was described. This horizon consists of silty clay, 7.5YR colors, moderate to strong angular blocky structure, and very few thin clay films. Its characteristics suggest that this sediment was exposed to soil-forming processes for at least 4,900 years (minimum), and possibly 15,200 years (median). Combined with the age estimates presented above, the entire depositional package exposed in trench FT-3 is estimated to be at a minimum 66,500 years old, and possibly more than 201,400 years old (using the preferred age estimates, see Table 3A).

Station 1+05: The soil profile observed and described at station 1+05 includes a surface soil and six buried soils. The surface soil in this area of the trench is missing its A (topsoil) horizon and possibly part of the argillic horizon. The section of the argillic (Bt) horizon that remains has clay to silty clay texture, very dark organic-rich 10YR colors, strong coarse angular blocky structure, and common to many thin to thick clay films. The matrix of the underlying BC_{lam} horizon is a clay loam, whereas the lamellae consist of clay. Colors of this horizon have 10YR hues and low chromas characteristic of organic-rich soils. The matrix has strong medium to coarse angular blocky structure, few to common thin clay films on ped faces, and many thin clay films bridging grains and in pores. The lamellae have many thin clay films on ped faces and in pores, and common moderately thick clay films on ped faces. The abundance and thickness of the clay films in the argillic horizon suggests a moderately well developed soil that has been exposed to soil-forming processes for several thousands of years. An average of the soil's MHI- and normalized SDI-derived ages indicate that this soil is between 9,800 (minimum) and 29,200 (median) years old. These age estimates are very similar to those calculated for the surface soil described in profile 0+15.

The first buried soil consists of three argillic horizons (2Bt2/2Bt3/3Bt4). The uppermost of these horizons has sandy clay texture, 10 to 7.5YR colors in the matrix with 5YR mottles, strong coarse to very coarse angular blocky structure, few to common thin to moderately thick clay films on ped faces and bridging grains. The second argillic horizon also has sandy clay texture and 10 to 7.5YR colors, moderate medium to coarse angular blocky structure, and few to many thin and few moderately thick clay films. The deeper argillic horizon (3Bt4) is assigned a different prefix to denote that it formed in a coarser-grained parent material. This 13-cm thick layer consists of sandy clay loam, predominantly 7.5YR colors, moderate fine angular blocky

structure, and many thin and common moderately thick clay films. Scattered clasts of Santa Monica slate and common to many large pores indicate that these horizons were deposited as mudflows. An average of the normalized SDI- and MHI-derived age estimates for this soil indicates that it was exposed to pedogenic development prior to burial for a minimum of about 9,600 years, and more likely about 28,000 years. The age of this buried soil is thus between about 19,000 and 58,000 years (rounded values).

The second buried soil described in this profile formed in a fining-upward alluvial deposit (geologic unit 6 - see log) and consists of a juvenile (Bt_j) horizon underlain by a BC horizon with lamellae. The juvenile argillic horizon is a sandy clay loam that grades down to sandy loam, with 10YR colors when dry, 7.5YR colors when moist, moderate medium to coarse angular blocky structure, and common to many thin clay films on ped faces, bridging grains, in pores, and on clasts. The underlying BC horizon is a gravelly sandy loam with sandy loam lamellae, 10YR colors when dry and 7.5YR colors when moist, weak medium subangular blocky structure breaking to single-grained, and few to common predominantly thin clay films on ped faces, in pores and on clasts. The clast pockets were coated with many thin clay films. Given that the remnants of this buried soil include a BC_{lam} horizon, the average of the MHI- and normalized SDI-derived ages best estimate how long it took for this soil to form after the alluvium was deposited. The soil-age regressions suggest between 3,750 (minimum) and 11,900 (median) years to form. The minimum age of this alluvial package is thus between about 22,750 and 70,000 years.

An erosional contact between geologic units 6 and 7 is indicated by the wavy to irregular boundary between them, and the fact that only a thin section of the soil (buried soil 3) developed in unit 7 remains. The gravelly loamy sand horizon has sandy loam lamellae about ½- to 1-inch thick. These lamellae are more common towards the top where they are spaced ¼- to ½ inch; near the bottom of the horizon they are 1- to 2-inches apart. The matrix has 10-7.5YR colors, is single-grained, and has no observable clay films. The lamellae have moderate fine to medium subangular blocky structure, many thin and common moderately thick clay films bridging grains, few thin clay films on ped faces, and common thin clay films in clast pockets. Primary stratification indicates that this part of the geologic deposit was not modified significantly by soil development. Two interpretations for this soil are possible: 1) a better-developed soil capped this unit but has since been removed, and the remaining section was near the bottom of the effective depth of soil-formation, or 2) only a small section of this geologic deposit was removed by erosion, and the degree of soil development observed is typical of the entire unit. To be conservative, we have assumed option 2, and use the MHI-derived soil-age estimates because the ages provided by this method are consistent with the observation that it generally takes about 5,000 years for soil lamellae to form. Thus, this soil is thought to have been modified by pedogenesis at a minimum 1,700 years, and most likely about 5,600 years. The minimum age of the alluvial sediments is 24,500 to 75,600 years, recognizing that if option 1 is correct, these estimates do not capture the time it took for a better-developed soil to form and its upper part to be eroded.

As discussed in the section on the profile at 0+15, there is an unconformity between geologic units 6 and 10 in the western end of the trench. Some of that time period is captured in profile 1+05, where geologic units 7, 8 and 9 are preserved. The log shows that unit 7 fills in a channel that was incised into unit 8. In the area of the trench where we described this soil

profile, only the lower portion of the soil developed in unit 8 (buried soil 4) remained. Unfortunately, we did not describe this unit elsewhere in the trench, where it was better preserved, so the ages presented here for this unit are likely to significantly underestimate the true age of the unit.

Table 3A: Soil Development Age Estimates for Soils Exposed in Trench FT-3, Profile 0+15

Soil	Profile Index	Profile Index Value	Years Exposed to Soil Forming Processes	95% Predicted Age Confidence Interval	
				Minimum (years)	Maximum (years)
Soil Profile at Station 0+15					
Surface Soil	MHI	0.50	36,400	12,400	105,400
	SDI (NN)	33.36	12,500	4,000	39,800
	SDI (N-200)	82.75	24,600	8,900	84,900
1 st Buried Soil	MHI	0.37	17,800	5,800	54,300
	SDI (NN)	33.73	12,600	4,000	40,100
	SDI (N-200)	71.36	23,000	7,400	71,300
2 nd Buried Soil	MHI	0.36	16,700	5,400	51,100
	SDI (NN)	20.44	10,200	3,200	32,700
	SDI (N-200)	45.96	15,300	4,900	48,300
3 rd Buried Soil	MHI	0.29	11,200	3,600	35,300
	SDI (NN)	11.04	8,800	2,800	28,300
	SDI (N-200)	57.18	18,400	5,900	57,400
4 th Buried Soil	MHI	0.44	27,200	9,100	80,500
	SDI (NN)	49.57	16,200	5,200	51,100
	SDI (N-200)	73.94	24,000	7,700	74,200
Unconformity and Missing Section (Buried soils 3, 4 & 5 of profile 1+05; see text)		MHI	26,100	8,400	82,200
		SDI (NN)	25,100	7,800	80,900
		SDI (N-200)	42,500	13,500	133,700
		Preferred Ages	28,400	9,000	89,500
5 th Buried Soil	MHI	0.48	32,900	11,200	95,900
	SDI (NN)	36.62	13,200	4,200	41,900
	SDI (N-200)	69.66	22,400	7,200	69,500
6 th Buried Soil	MHI	0.32	13,500	4,300	42,000
	SDI (NN)	6.07	8,100	2,500	26,200
	SDI (N-200)	63.93	20,500	6,600	63,600
7 th Buried Soil	MHI	0.29	11,600	3,700	36,400
	SDI (NN)	7.59	8,300	2,600	26,800
	SDI (N-200)	58.42	18,700	6,000	58,500
Estimated Age Entire Section	MHI		193,400	63,900	583,100
	SDI (NN)		127,600	40,300	407,900
	SDI (N-200)		209,400	68,100	661,400
	Preferred Ages		201,400	66,500	734,500

Table 3B: Soil Development Age Estimates for Soils Exposed in Trench FT-3, Profile 1+05

Soil	Profile Index	Profile Index Value	Years Exposed to Soil Forming Processes	95% Predicted Age Confidence Interval	
				Minimum (years)	Maximum (years)
Soil Profile at Station 1+05					
Surface Soil	MHI	0.51	40,100	13,800	115,300
	SDI (NN)	21.37	10,300	3,300	33,100
	SDI (N-200)	56.58	18,200	5,800	56,900
1 st Buried Soil	MHI	0.48	32,400	11,000	94,400
	SDI (NN)	36.67	13,200	4,200	41,900
	SDI (N-200)	76.65	25,100	8,100	77,300
2 nd Buried Soil	MHI	0.25	9,400	2,900	29,900
	SDI (NN)	14.79	9,300	2,900	30,000
	SDI (N-200)	41.92	14,400	4,600	45,400
3 rd Buried Soil	MHI	0.16	5,600	1,700	18,600
	SDI (NN)	5.87	8,100	2,500	26,100
	SDI (N-200)	32.63	12,400	3,900	39,400
4 th Buried Soil	MHI	0.37	18,200	6,000	55,500
	SDI (NN)	16.73	9,600	3,000	30,900
	SDI (N-200)	70.37	22,700	7,300	70,200
5 th Buried Soil	MHI	0.003	2,300	700	8,100
	SDI (NN)	0.08	7,400	2,300	23,900
	SDI (N-200)	0.62	7,400	2,300	24,100
6 th Buried Soil	MHI	0.56	52,800	18,400	148,700
	SDI (NN)	5.62	8,000	2,500	26,000
	SDI (N-200)	112.46	44,500	14,500	134,000
Estimated Age Entire Section	MHI		160,800	54,500	470,500
	SDI (NN)		65,900	20,700	211,900
	SDI (N-200)		144,700	46,500	447,300
	Preferred Ages		147,000	48,000	440,000

The fourth buried soil includes two argillic (6Bt5/6Bt6) horizons. The upper argillic has sandy loam to sandy clay loam texture, 10 to 7.5YR colors in the matrix and 7.5YR colors in the clay films, moderate fine angular blocky structure, and common to many thin and few moderately thick clay films. The underlying argillic horizon is finer-grained, with a sandy clay loam to sandy clay texture, 10 to 7.5YR colors in the matrix and 7.5YR colors in the clay films, weak to moderate medium angular blocky structure, and common to many thin and few moderately thick clay films. The coarsening-upward sequence with clasts of Santa Monica slate and Monterey siltstone, in addition to randomly oriented pores, indicate that these sediments were deposited by a mudflow. We use the average of the MHI- and normalized SDI-derived ages to estimate that this soil was exposed at the surface for a minimum of 6,600 years, and more likely about 20,500 years. By adding the soil-development ages of all of the overlying soils we

derive an age for this mudflow deposit of between 31,000 (minimum) and 96,000 (median) years.

The underlying unit 9 (and fifth buried soil) has very little soil development. The stratified, fining-upwards fluvial deposit consists of gravelly sand with sandy loam lamellae ($7C_{lam}$). Characteristics of this buried soil suggest that it was exposed to soil-forming processes for only between about 700 (minimum) and 2,300 (median) years (the MHI-derived soil age estimates are preferred for this horizon).

The deepest buried soil exposed in this section of the trench consists of only about 10 cm (4 inches) of an argillic soil horizon developed in geologic unit 10. A thicker section of this unit (and soil) was observed and described in the profile at 0+15, where it is referred to as buried soil 5. Although thin, the section exposed consists of clay with predominantly 7.5YR colors, strong fine to medium subangular blocky structure, and common to many thin to moderately thick clay films. These characteristics yield relatively high MHI and normalized SDI values that in turn suggest a moderately long period of soil development. Taking the average of the soil development ages provided by these regressions indicates that this soil was exposed at the surface between 16,500 (minimum) and 48,700 (median) years prior to burial. These age estimates are similar to the age estimates calculated for the soil that developed in unit 10 as described in profile 0+15, showing that MHI-derived age estimates can yield satisfactory results even when only a thin section of soil is preserved. The entire sedimentary sequence exposed in trench FT-3 at station 1+05 is at a minimum 48,000 years old, and preferably about 147,000 years old.

FAULT TRENCH FT-4

This trench was emplaced across the school's entryway and staff parking lot off Wilshire Boulevard, in the southwestern portion of the school campus that Hoots (1931) mapped as underlain by Upper Pleistocene alluvial plain, stream, and marine terrace deposits. Trench FT-4 was only between 2.9 and 5.2 feet deep, substantially shallower than trench FT-3, but, as discussed further below, the excavation was deep enough to confirm Hoots' age interpretation for the deposits. Please note that we estimate that the uppermost 5 feet of the original ground surface, and its original native soil, were removed before the parking lot was paved.

The trench exposed layered sediments of both colluvial (debris flow) and alluvial (channel and overbank) origin, with a debris flow deposit capping the alluvial sequence (see trench log). The primary sedimentary deposits have been modified by soil-forming processes. At the top, immediately below a layer of artificial fill approximately 1 foot thick, are the remains of a relict soil developed in the debris flow sediments. The clay-enriched argillic (Bt) soil horizon is sandy clay loam to sandy clay in texture, with 10-7.5YR colors in the matrix, strong to moderate medium to fine angular to subangular blocky structure, common thin to moderately thick clay films on ped faces and common moderately thick clay films lining clast pockets. The clay films have 7.5YR hues. These characteristics are consistent with a soil that has been exposed to pedogenic processes for at a minimum, between about 5,500 and 8,200 years, using the MHI values calculated for this soil horizon at stations 26 and 10, respectively. The median age estimates for this soil, using the MHI values calculated for the two soil profiles described in this trench, indicate a preferred age of between about 17,700 and 24,700 years.

These estimates are considered minimum values given that only the bottom part of the original relict soil were preserved in the trench.

Station 10: In addition to the surface soil described above, the trench exposed three buried soils. In the soil profile described at Station 10, the first buried soil consists of a very thin argillic soil horizon consisting of sandy clay loam with 10YR colors in the matrix and 7.5YR colors in the clay films, and strong fine to medium angular blocky soil structure. This soil, which developed on Unit 2, a westward-thickening fluvial deposit exposed only in the western portion of the trench, has common thin clay films bridging grains, and many thin to common moderately thick clay films on ped faces. The MHI value calculated for this horizon suggests the alluvial sediments were exposed to soil-forming processes at the surface for at least 5,600 years, and more likely at least 17,300 years. Given the thinness of this horizon at Station 10, these age estimates are considered minimum values. The age of the alluvial package is calculated by adding together the soil-development estimates for the surface soil and this buried soil. Thus, at Station 10, these sediments are at a minimum about 13,800 years old, with a preferred median age of at least 42,000 years. Given that this alluvial package is not preserved in the area of Station 26 as a result of incision prior to the deposition of the overlying debris flow deposit, the age of this unit needs to be considered when estimating the age of the deeper soils observed and described at Station 26.

The second buried soil exposed at Station 10 consists of an argillic soil horizon with silty clay texture, 10YR colors in the matrix with 7.5YR clay films, strong coarse angular blocky structure, many thin to common moderately thick clay films on ped faces, and common thin clay films bridging grains. Strong brown iron oxide staining was also noted in this unit. These characteristics suggest that this sediment was exposed to soil-forming factors between about 8,500 (minimum) and 25,400 (median) years before being buried by the overlying deposits. Combined with the estimated age of the overlying soils, the sediments exposed at the bottom of the trench at Station 10 are thought to be between about 22,000 (minimum) and 68,000 (median) years old.

Station 26: The trench was deeper in the vicinity of Station 26, and the soil profile there includes two buried soils that are stratigraphically below (and thus older) than the first buried soil described at Station 10. The first of these buried soils includes three argillic soil horizons that consist of silty clay grading down to sandy clay loam, with 7.5YR colors when moist, and 7.5YR clay films. All three argillic soil horizons contain clay films on ped faces, with the abundance and thickness of these decreasing downward from common thin to moderately thick in the upper two horizons, to very few to few thin at the bottom. Clay films were also observed bridging grains and lining clast pockets. These characteristics suggest that this soil was exposed at the surface, prior to burial for, at a minimum 8,900 years, and more likely about 26,750 (median) years, using the average of the age estimates provided by the MHI and normalized SDI methods. The MHI value for this soil suggests even higher soil-development age estimates, so these values are minimums. The age of these deposits is estimated by adding the soil-age estimate from the near-surface soil, and the first buried soil described at Station 10, as discussed above. Thus, the sediments that this now-buried soil developed in are estimated to be between about 20,000 (minimum) and 68,750 (median) years old. These age estimates are similar to the age estimates calculated for the sediments described at the bottom of the soil profile in Station 10.

Table 4A: Abbreviated Soil Descriptions for Soil Profile at Station 10 in Trench FT-4

Horizon	Thickness (cm)	Texture	Color		Structure	Consistency			Clay Films	
			Moist	Dry		Dry	Moist	Wet		Wet
Near-Surface Soil										
Bt	49	SC	7.5YR 3/3	7.5-10YR 5/4 w/ 7.5YR 4/2.5 cf & 10YR 5/2 mo	3f-msbk	h-vh	fi-vfi	s	p	2npf, 2mkclpo, 1nbr
First Buried Soil										
2Bt2	15	SCL	7.5YR 4/3 w/ 7.5YR 3/2 cf	10YR 4/3 w/ 7.5YR 5/3 cf & 10YR 5/2 mo	3f-mabk	h	fi	s	ps	2nbr, 3n&2mkpf
2Bt3	27	SiC	10YR 4/2	10YR 5/3 w/ 7.5YR 4/2 cf & 10YR 3/2 & 6/2 mo	3cabk	h	fi-vfi	s	Ps	3n&2mkpf, 2nbr

Table 4B: Abbreviated Soil Descriptions for Soil Profile at Station 26 in Trench FT-4

Horizon	Thickness (cm)	Texture	Color		Structure	Consistency			Clay Films	
			Moist	Dry		Dry	Moist	Wet		Wet
Near-Surface Soil										
Bt	27	SCL	7.5YR 3/3	10-7.5YR 5/4 w 7.5YR 3/2 cf & 10YR 5/2 mo	2f-mabk	vh	fr-fi	s	p	2mkpf, 1ncl, 2n&1mkclpo
First Buried Soil										
2Bt2	15	SiC	7.5YR 3/3	7.5YR 5/4 w/ 7.5YR 4/4 cf & 10YR 6/3 mo	3f-mabk	vh	fi	s	p	2npf, 2mkclpo, 1nbr
2Bt3	24	SCL	7.5YR 3/3	10YR 5/3 w/ 7.5YR 5/4 cf & 10YR 5/3 mo	2f0mabk	vh	fr	ss	ps	2n-mkpf, 1nbr

Horizon	Thicknes s (cm)	Texture	Color		Structure	Consistency			Clay Films	
			Moist	Dry		Dry	Moist	Wet		Wet
2Bt4	21	SCL	7.5YR 4/3	10YR 5/3 w/ 7.5-10YR 5/4 cf & 10YR 5/3 mo	2f-msbk	vh	fr-fi	so	ps	v1-1npf, 1nclpo
Second Buried Soil										
3Bt5	9	SiC	7.5YR 4/3	10YR 5/4 w/ 10YR 4/4 cf & 10YR 6/2 & 3/1 mo	3m-csbk	Sh-h	Fi	S	P	3mkpf, 1npo, 3nbr
3BC	31	L-SCL	10YR 4/3	10YR 5.5/3 w/ 10YR 6/2 mo	2msbk	H	Fi	So	Ps	1npf

ABBREVIATIONS:

TEXTURE: S = sand; LS = loamy sand; SL = sandy loam; L = loam; SCL = sandy clay loam; SC = sandy clay; CL = clay loam; Si = silt; SiL = silt loam; SiCL = silty clay loam; SiC = silty clay; C = clay. **STRUCTURE: Grade:** 1 = weak; 2 = moderate, 3 = strong. **Class:** 1f = very fine, f = fine, m = medium, c = coarse; vc = very coarse. **Type:** m = massive; sg = single-grained; gr = granular, cr = crumb, abk = angular blocky, sbk = subangular blocky, pr = prismatic. **CONSISTENCY: Dry:** lo = loose, so = soft, sh = slightly hard, h = hard, vh = very hard, eh = extremely hard. **Moist:** lo = loose, vfr = very friable, fr = friable, fi = firm, vfi = very firm, efi = extremely firm. **Wet:** ns = non-sticky, ss = slightly sticky, s = sticky, vs = very sticky; np = non-plastic, sp = slightly plastic, p = plastic, vp = very plastic. **CLAY FILMS (cf): Abundance:** v1 = very few, 1 = few, 2 = common, 3 = many, 4 = continuous. **Thickness:** vn = very thin, n = thin, mk = moderately thick, k = thick. **Location:** st = stains, cl = on clasts; clpo = on clast pockets, po = in pores, br = forming bridges between grains, pf = on ped faces; n.o. = not observed.

Table 5: Soil Development Age Estimates for Soils Exposed in El Rodeo Trench FT-4

Soil	Profile Index	Profile Index Value	Years Exposed to Soil Forming Processes	95% Predicted Age Confidence Interval	
				Minimum (years)	Maximum (years)
Soil Profile at Station 10					
Surface Soil	MHI	0.43	24,700	8,200	73,500
	SDI (NN)	20.84	10,300	3,200	32,900
	SDI (N-200)	85.4	28,800	9,300	88,400
1 st Buried Soil	MHI	0.36	17,300	5,600	52,800
	SDI (NN)	5.52	8,000	2,500	26,000
	SDI (N-200)	72.71	23,500	7,600	72,800
2 nd Buried Soil	MHI	0.43	25,400	8,500	75,500
	SDI (NN)	11.85	8,900	2,800	28,600
	SDI (N-200)	86.46	29,300	9,500	89,900
Estimated Age Entire Section	MHI		67,400	22,300	201,800
	SDI (NN)		27,200	8,500	87,500
	SDI (N-200)		81,600	26,400	251,100
	Preferred Ages		68,000	22,000	202,000
Soil Profile at Station 26					
Surface Soil	MHI	0.37	17,700	5,800	54,000
	SDI (NN)	10.09	8,600	2,700	27,900
	SDI (N-200)	73.62	23,900	7,700	73,800
1 st Buried Soil @ Station 10	MHI	0.36	17,300	5,600	52,800
	SDI (NN)	5.52	8,000	2,500	26,000
	SDI (N-200)	72.71	23,500	7,600	72,800
1 st Buried Soil	MHI	0.48	33,000	11,200	96,300
	SDI (NN)	21.96	10,400	3,300	33,400
	SDI (N-200)	64.22	20,500	6,600	63,900
2 nd Buried Soil	MHI	0.41	22,200	7,400	66,600
	SDI (NN)	10.96	8,800	2,800	28,300
	SDI (N-200)	49.07	16,100	5,100	50,700
Estimated Age Entire Section	MHI		90,200	30,000	269,700
	SDI (NN)		35,800	11,300	115,600
	SDI (N-200)		84,000	27,000	261,200
	Preferred Ages		88,000	27,000	268,000

The second buried soil observed in this portion of the trench includes the very thin (9 cm; 0.3 ft) remains of an argillic (Bt) horizon and a BC horizon. The argillic horizon consists of silty clay with 10YR and 7.5YR hues, strong medium to coarse subangular blocky structure, many moderately thick clay films on ped faces, many thin clay films bridging grains, and few thin clay films lining pores. The underlying BC horizon has a loam to sandy clay loam texture, with 10YR hues, moderate medium subangular blocky structure, and few thin clay films on ped

faces. The lack of reddening of this soil indicates that it was exposed at the ground surface prior to burial for a shorter period of time than the soil above it. Using an average of its MHI and normalized-SDI values suggests these sediments were exposed to soil-forming processes for between about 6,300 (minimum) and 19,150 (median) years. Adding these soil-age estimates to those for the overlying soil resolves in an age for the sediments at the bottom of the deepest part of this trench of between about 27,000 (minimum) and 88,000 (median) years.

AT&T TRENCH

This was a short trench (about 13 feet long) excavated by AT&T contractors immediately outside the school grounds in the green strip between the sidewalk and Wilshire Boulevard. We took advantage of the exposure and requested permission to log it quickly, during the contractors' break. The excavation was only about 3.5 feet deep, with artificial fill in the upper 1.5 feet. The native sediments exposed in the bottom 2 feet included the truncated remains of a relict soil with an argillic horizon, and thin portions of two buried soils. The argillic (Bt) soil horizon immediately below the fill consists of sandy clay loam with 10YR hues, strong fine angular blocky soil structure, and common thin clay films coating clasts. This is most likely the bottom portion of a once much thicker soil profile developed in a mudflow deposit, as indicated by the scattered few to common pebbles. Using an average of the MHI- and normalized SDI-derived ages suggests that these sediments were exposed to soil-forming processes for between about 6,800 (minimum) and nearly 21,000 (median) years. Given that only the deepest portion of the relict soil is preserved, the soil-age estimates that we calculated from the remnant horizon are minimum values.

The first buried soil observed and described in this exposure includes two argillic soil horizons (2Bt2/2Bt3), each only about 0.2 feet (6 cm) thick, that coarsen downward from a silty clay to a sandy clay. The colors of this buried soil are in the 7.5YR hue, and their structure grades from a strong coarse angular blocky in the top horizon to a moderate medium subangular blocky structure at the bottom. The upper argillic horizon has many moderately thick clay films on ped faces, many thin clay films bridging grains, common moderately thick clay films coating clasts, and common moderately thick to thick clay films lining clast pockets. The translocated clay in the deeper horizon is less, but still significant, with few moderately thick clay films on ped faces, common moderately thick clay films bridging grains, common thin to moderately thick clay films coating clasts, and common moderately thick clay films lining clast pockets. These are all characteristics of a moderately well developed soil that has been exposed to soil-forming processes prior to burial for a significant period of time. Comparison with other soils that have been dated suggests that this soil was exposed at the surface for between about 13,000 (minimum) and 38,750 (median) years, using the average of the MHI- and normalized SDI-derived age estimates. The age of the sediments that this soil formed into is calculated by adding this soil development estimate to the age of the overlying near-surface soil, resulting in a minimum of about 20,000 years, and more likely about 60,000 years.

Table 6: Abbreviated Soil Descriptions for Soil Profile in AT&T Trench

Horizon	Thickness (cm)	Texture	Color		Structure	Consistency			Clay Films	
			Moist	Dry		Dry	Moist	Wet		Wet
Near-Surface Soil below Artificial Fill										
Bt	15	SCL	10YR 3/3	10YR 4/2	3fabk	h	fi	s	p	2ncl
First Buried Soil										
2Bt2	6	SiC	7.5YR 4/3	7.5YR 4/3 w/ 7.5YR 4/1 cf	3cabk	eh	efi	vs	vp	3nbr, 2mkcl, 2mk- kclpo
2Bt3	6	SC	7.5YR 4/3	7.5YR 4/3 w/ 7.5YR 3/2 cf	2msbk	vh	ffi	vs	p	1mkpf, 2mkbr, 2n-mkcl, 2mkclpo
Second Buried Soil										
3Bt4	20	SiCL	7.5YR 3/3	7.5YR 4/3	2msbk	h	fi	s	p	1npf, 1mk&2ncl, 2mkclpo
3Bt5	15	SCL	7.5YR 4/3	10YR 4/3 & 3/2 w/ 7.5YR 4/4 cf	2msbk	vh	fr	vs	vp	1mkpf, 2mkbr, 1mkclpo

ABBREVIATIONS:

TEXTURE: S = sand; LS = loamy sand; SL = sandy loam; L = loam; SCL = sandy clay loam; SC = sandy clay; CL = clay loam; Si = silt; SiL = silt loam; SiCL = silty clay loam; SiC = silty clay; C = clay. **STRUCTURE: Grade:** 1 = weak; 2 = moderate, 3 = strong. **Class:** 1f = very fine, f = fine, m = medium, c = coarse; vc = very coarse. **Type:** m = massive; sg = single-grained; gr = granular, cr = crumb, abk = angular blocky, sbk = subangular blocky, pr = prismatic. **CONSISTENCY: Dry:** lo = loose, so = soft, sh = slightly hard, h = hard, vh = very hard, eh = extremely hard. **Moist:** lo = loose, vfr = very friable, fr = friable, fi = firm, vfi = very firm, efi = extremely firm. **Wet:** ns = non-sticky, ss = slightly sticky, s = sticky, vs = very sticky; np = non-plastic, sp = slightly plastic, p = plastic, vp = very plastic. **CLAY FILMS (cf): Abundance:** v1 = very few, 1 = few, 2 = common, 3 = many, 4 = continuous. **Thickness:** vn = very thin, n = thin, mk = moderately thick, k = thick. **Location:** st = stains, cl = on clasts; clpo = on clast pockets, po = in pores, br = forming bridges between grains, pf = on ped faces; n.o. = not observed. Mo = mottles; cl = clay films.

The second buried soil described in this trench consists of two relatively thin argillic soil horizons (3Bt4/3Bt5). The upper horizon is silty clay loam in texture, with 7.5YR hues, and moderate medium subangular blocky structure. The soil has few thin clay films on ped faces, few moderately thick and common thin clay films coating clats, and common moderately thick clay films coating clasts. The underlying argillic horizon has sandy clay loam texture, also 7.5YR colors of the matrix and clay films, and moderate medium subangular blocky structure. Clay films are few moderately thick on ped faces, common moderately thick bridging grains, and few moderately thick lining clast pockets. The coarser texture and reduced amount and thinner clay films indicate that this soil was exposed to pedogenesis for a shorter time period than the overlying first buried soil. Our soil-development age estimates for this buried soil range from about 8,000 (minimum) to about 25,000 (median) years. Thus, the minimum age of these soil-modified sediments is between about 28,000 (minimum) and 85,000 (median) years. These age estimates are consistent with the age estimates developed for the deeper soils in trench FT-4 (at Station 26), which exposed similar deposits.

Table 7: Soil Development Age Estimates for Soils Exposed in AT&T Trench

Soil	Profile Index	Profile Index Value	Years Exposed to Soil Forming Processes	95% Predicted Age Confidence Interval	
				Minimum (years)	Maximum (years)
Soil Profile					
Surface Soil	MHI	0.37	17,900	5,900	54,600
	SDI (NN)	5.55	8,000	2,500	26,000
	SDI (N-200)	73.99	24,000	7,700	74,200
1 st Buried Soil	MHI	0.54	47,300	16,400	134,400
	SDI (NN)	5.89	8,100	2,500	26,100
	SDI (N-200)	88.29	30,200	9,800	92,400
2 nd Buried Soil	MHI	0.42	23,200	7,700	69,300
	SDI (NN)	13.61	9,100	2,900	29,400
	SDI (N-200)	82.21	27,400	8,900	84,200
Estimated Age Entire Section	MHI		88,400	30,000	258,300
	SDI (NN)		25,200	7,900	81,500
	SDI (N-200)		81,600	26,400	250,800
	Preferred Ages		85,000	28,000	255,000

CONCLUSIONS

At the request of Leighton Consulting, Inc. (Leighton) and PrimeSource Management we completed additional soil-stratigraphic and geologic analyses for the El Rodeo K-8 school. The main objective of our analyses was to assist Leighton in determining whether or not the school campus is impacted by active faults. To that end, we have estimated the age of the sediments exposed in the three new trenches excavated for this study (FT-3, FT-4, and AT&T utility trench), none of which exposed any faults.

The findings presented in the section above demonstrate that trenches FT-3, FT-4, and the AT&T trench were deep enough to expose Pleistocene sediments significantly older than 11,700 years, even when only the minimum age estimates are considered. Trenches FT-4 and the AT&T excavation were emplaced in an area underlain by older alluvial and colluvial sediments; these trenches did not expose Holocene-age alluvium. The near-surface soils exposed in those excavations were truncated remains of relict soils that have been exposed at or near the ground surface for many thousands of years. The age estimates obtained for these sediments are absolutely minimum values, and although in the sections above we present the minimum and median age estimates for these soils, the maximum age estimates provided by the soil regressions, of more than 200,000 years, may be more appropriate (see Tables 5 and 7). These sediments are more likely part of the Benedict Canyon Wash 2 (BCW2) alluvium as defined by Kenney (Kenney Geosciences, 2012, and summarized in ECI, 2015).

Trench FT-3 was deepest at its western end, where a historical channel approximately 19 feet deep was exposed. The native sediments below the bottom of the historical channel are the oldest deposits exposed in this trench. By adding the soil-development ages of the surface soil and the seven buried soils observed in this portion of trench FT-3, and the soil-development ages of the soils developed in geologic units 7, 8 and 9, we estimate that the sediments below the channel are at a minimum 65,000 years old, and most likely about 200,000 years old. The sediments at the shallow, eastern end of the trench, at a depth of approximately 7 feet, are estimated to be at a minimum 31,000 years old, and more likely about 95,000 years old. Young, Holocene-aged alluvium associated with the channel of Moreno Creek was not encountered in this trench, except for the historical flood deposits found at a depth of between 17 and 19 feet in the west end of the trench.

There are two significant erosional episodes represented in the stratigraphic relations observed in trench FT-3. The youngest of these occurred between geologic units 4 and 5, as unit 5 is not preserved in the eastern portion of the trench. The next significant channel-cutting episode occurred before geologic unit 7 was deposited. This event appears to correlate with the erosional contact (and unconformity) separating the younger alluvium of Benedict Canyon Wash (Qal) from the older, upper Pleistocene alluvium of Benedict Canyon Wash (BCW1). Although the younger alluvium of Benedict Canyon Wash was considered to be Holocene in age by previous studies, the soil-stratigraphic analyses that we have conducted in this area (ECI, 2015) suggest that this unit is late Pleistocene, and ranging in age between about 12,000 and 80,000 years old. The age estimates that we obtained for this section in FT-3 suggest ages of between about 22,750 and 70,000 years old, and include the surface soil and the uppermost two buried soils at Station 1+05. The contact between these two units is shown at about 5 feet below the current ground surface in Leighton's cross-section C-C', approximately consistent with the 6-foot depth for the bottom of the second buried soil described in FT-3 at Station 1+05.

Given the areal coverage of the trenches reported herein, the age estimates obtained from these exposures also confirm that the continuously sampled borings drilled and logged by Leighton at the El Rodeo K-8 school extend into Pleistocene-aged sediments that are many hundreds of thousands years old.

We appreciate the continued opportunity to assist Leighton and PrimeSource on this project. If you have any questions or comments regarding the information presented above, please contact the undersigned at your earliest convenience.

Respectfully submitted for
EARTH CONSULTANTS INTERNATIONAL, INC.
Professional Geologists and Certified Engineering Geologists



Tania Gonzalez, CEG 1859
Vice-President, Project Consultant

REFERENCES AND SOURCES


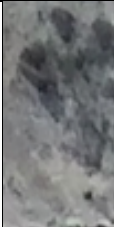

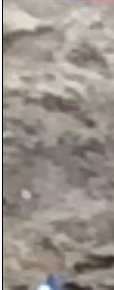
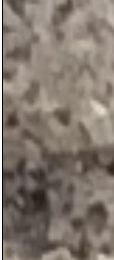
- Birkeland, P.W., 1984, *Soils and Geomorphology*: Oxford University Press, New York, 372p.
- Birkeland, P.W., 1999, *Soils and Geomorphology*: Oxford University Press, Inc., 3rd edition, 430p.
- Bornyasz, M.S., and Rockwell, T.K., 1997, Towards a multivariant analysis of over 150 dated soils from Central California to Northern Baja California: Geological Society of America, Abstracts with Programs, Vol. 29, No. 5, pp. 45.
- California Geological Survey, 2015, Engineering Geology and Seismology Review for El Rodeo Elementary School – Seismic Mitigation, 605 Whittier Drive, Beverly Hills, CA, CGS Application No. 03-CGS1921, report dated June 30, 2015.
- Delta Consultants, 2010, Additional Site Assessment Report, 76 Service Station No. 250703, 9988 Wilshire Boulevard, Beverly Hills, California, ID#900040252A: Unpublished consulting report submitted to the California Regional Water Quality Control Board, dated May 14, 2010.
- Dolan, J.F., Sieh, K., Rockwell, T.K., Guptaill, P., and Miller, G., 1997, Active tectonics, paleoseismology, and seismic hazards of the Hollywood fault, northern Los Angeles basin, California: Geological Society of America Bulletin, Vol. 109, No. 12, pp. 1595-1616.
- Dolan, J.F., Sieh, K., and Rockwell, T.K., 2000a, Late Quaternary activity and seismic potential of the Santa Monica fault system, Los Angeles, California: Geological Society of America Bulletin, Vol. 112, No. 10, pp. 1559-1581.
- Dolan, J.F., Stevens, D., and Rockwell, T.K., 2000b, Paleoseismologic evidence for an early to mid-Holocene age of the most recent surface-fault rupture on the Hollywood fault, Los Angeles, California: Seismological Society of America Bulletin, Vol. 90, No. 2, pp. 334-344.
- Earth Consultants International, Inc. (ECI), 2012, Soil-stratigraphic studies for Beverly Hills High School, 241 Moreno Drive, Beverly Hills, California; unpublished consulting report, ECI Project No. 3205.02, dated April 10, 2012.
- Earth Consultants International, Inc. (ECI), 2015, Soil stratigraphic age estimations and third-party review and analysis of cross-sections in support of a fault study conducted for the El Rodeo K-8 School, 605 Whittier Drive, Beverly Hills, California; unpublished consulting report, ECI Project No. 3205.05, dated February 25, 2015.
- Geocon West, Inc., 2014, Phase II Site-Specific Fault Rupture Investigation, 9900 Wilshire Boulevard, Beverly Hills, California; unpublished consulting report, Geocon Project No. A9009-06-01A, dated May 6, 2014.






- Jenny, H., 1941, *Factors of Soil Formation*: MacGraw-Hill, New York, 281p.
- Harden, J.W., 1982, A quantitative index of soil development from field descriptions: Examples from a chronosequence in central California: *Geoderma*, Vol. 28, pp. 1-28.
- Harden, J.W., and Taylor, E.M., 1983, A quantitative comparison of soil development in four climatic regimes: *Quaternary Research*, Vol. 28, pp. 342-359.
- Harrison, J.B.J., McFadden, L.B., Weldon, R.J., 1990, Spatial Soil Variability in the Cajon Pass Chronosequence; Implications for the use of soils as a geochronological tool: *Geomorphology*, Vol. 3, pp. 399-416.
- Hoots, H.W., 1931, *Geology of the Eastern Part of the Santa Monica Mountains, Los Angeles, County, California*: U.S. Geological Survey Professional Paper 165-C.
- Hoots, H.W., and Kew, W.S.W., 1931, Geologic map of the eastern part of the Santa Monica Mountains and adjacent areas, Los Angeles County, Calif.; in Hoots, H.W., 1931, *Geology of the Eastern Part of the Santa Monica Mountains, Los Angeles, County, California*: U.S. Geological Survey Professional Paper 165-C, Plate 16.
- Kenney GeoScience, 2012, *Geomorphic, Structural, and Stratigraphic Evaluation of the Eastern Santa Monica Fault Zone, and West Beverly Hills Lineament, Century City/Cheviot Hills, California*: Unpublished consulting report, KG Job No. 723-11, dated July 18, 2012.
- Leighton Consulting, Inc., 2015, *Fault Hazard Assessment, El Rodeo K8 School, 655 Whittier Drive, CA*; LCI Project No. 10274.006, dated February 27, 2015.
- Machette, Michael N., 1985, Calcic soils of the southwestern United States: *Geological Society of America Special Paper 203*, 21p.
- McFadden, L.D., 1982, *The impacts of temporal and spatial climatic changes on alluvial soil genesis in southern California*: Ph.D. Dissertation, University of Arizona, 430p.
- McFadden, L.D., and Weldon, R. III, 1987, Rates and processes of soil development on Quaternary terraces in Cajon Pass, California: *Geological Society of America Bulletin*, Vol. 98, pp. 280-293.
- Munsell Color Charts, 2000, GretagMacbeth, 617 Little Britain Rd, New Windsor, NY 12553.
- National Soil Survey Center, 2012, *Field Book for Describing and Sampling Soils*: U.S. Department of Agriculture, Natural Resources Conservation Service, Version 3.0.
- Ponti, D.J., 1985, The Quaternary alluvial sequence of the Antelope Valley, California: *Geological Society of America Special Paper 203*, pp. 79-96.
- Ponti, D.J., Ehman, K.D., Edwards, B.D., Tinsley, J.C., III, Hildenbrand, T., Hillhouse, J.W., Hanson, R.T., McDougall, K.M., Powell, C.L., Wan, E., Land, M, Mahan, S., and






- Sarna - Wojcicki, A.M., 2007, A 3 - dimensional model of water - bearing sequences in the Dominguez Gap region, Long Beach, California: U.S. Geological Survey Open-File Report 2007-1013, 34p.
- Ponti, D.J., and Ehman, K.D., 2009, A 3 - D sequence - based structural model for the Quaternary Los Angeles basin, California: SCEC Annual Meeting, p. 262.
- Rockwell, T.K., 1988, Neotectonics of the San Cayetano fault, California: Geological Society of America Bulletin, Vol. 100, pp. 500-513.
- Rockwell, T.K., Keller, E.A. and Clark, M.N., 1984, Chronology and rates of faulting of Ventura River terraces, California: Geological Society of America Bulletin, Vol. 95, pp. 1466-1474.
- Rockwell, T., Loughman, C., and Merifield, P., 1990, Late Quaternary rate of slip along the San Jacinto fault zone near Anza, southern California: Journal of Geophysical Research, Vol. 95, No. B6, pp. 8593-8605.
- Soil Survey Staff, 1975, Soil Taxonomy: US Department of Agriculture Handbook #436: US Government Printing Office, Washington, DC.
- Soil Survey Staff, 1992, Keys to Soil Taxonomy: SMSS Technical Monograph #19: Pocahontas Press, Inc., Blacksberg, Virginia, 5th edition, 556p.
- Tinsley, J.C., Matti, J.C. and McFadden, L.D., 1982, (editors), Late Quaternary Pedogenesis and Alluvial Chronologies of the Los Angeles and San Gabriel Mountains Area, Southern California and Holocene Faulting and Alluvial Stratigraphy within the Cucamonga Fault Zone: A Preliminary Review: Guidebook, 78th Annual Meeting of the Cordilleran Section of the Geological Society of America, Anaheim, California, April 19-21, 1982, 44p.
- TRC, 2008, Additional Site Assessment Report, 76 Station 0703, 9988 Wilshire Boulevard, Beverly Hills, California, LARWQCB File No. R-24652: unpublished consulting report submitted to the California Regional Water Quality Control Board, dated June 9, 2008.
- Woodring, W.P., Bramlette, M.N., and Kew, W.S.W., 1946, Geology and paleontology of Palos Verdes Hills, California: U.S. Geological Survey Professional Paper 207, 145p.


APPENDIX - SOIL PROFILE DESCRIPTIONS

El Rodeo FT-3, Profile at Station 0+15




Depth (ft)	Depth (cm)	Photo (not to scale)	Horizon Designation	Description
0 – 1.83	0 - 56		Fill	Not described. Mixture of different soils, with brick and asphalt fragments.
1.83 – 2.62	56 - 80		A/Bt1	SILTY CLAY; very dark brown (10YR 2/2) when damp and moist; moderate medium to coarse angular blocky soil structure; firm when moist, very sticky and very plastic when wet; few thin clay films bridging grains, few thin clay films on clasts; scattered fine gravel consisting predominantly of Santa Monica slate; with organics; abrupt wavy boundary.
2.62 – 3.64	80 - 111		Bt2	SILTY CLAY; brown (10YR 4/3) with dark brown (7.5YR 3/2) clay films when damp, very dark grayish brown (10YR 3/2) with dark brown (7.5YR 3/2) clay films when moist; moderate to strong medium angular blocky soil structure; very friable when moist, very sticky and very plastic when wet; common thin and few moderately thick clay films on ped faces, common moderately thick clay films on clasts, common thin clay films bridging grains; dark organics and/or clay coatings on ped faces; boundary not observed, at bench.
3.64 – 4.26	111 - 130		Bt3	SILTY CLAY LOAM; brown (10YR 4/3) when damp, very dark grayish brown (10YR 3/2) when moist; strong very coarse angular blocky soil structure; firm when moist, sticky and plastic when wet; common thin clay films on ped faces, many thin clay films bridging grains, common thin clay films in pores, common thin clay films on clasts, many moderately thick clay films coating clast pockets; many root casts around clast pockets; abrupt wavy boundary.
4.26 - 5.25	130 - 160		2Bt4b	Fine SANDY CLAY; brown (10YR 4/3) with brown (7.5YR 4/2) clay films when damp, very dark grayish brown (10YR 3/2) when moist; moderate medium angular blocky soil structure; firm when moist, slightly sticky and plastic when wet; common thin clay films on ped faces, few thin clay films on clasts, common moderately thick clay films coating clast pockets; abrupt to clear wavy boundary.


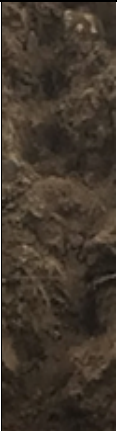

Depth (ft)	Depth (cm)	Photo (not to scale)	Horizon Designation	Description
5.25 - 7.48	160 - 228		2BC1b	SANDY CLAY LOAM to fine SANDY CLAY; dark brown (10YR 3/3) when damp, very dark grayish brown (10YR 3/2) when moist; massive breaking to weak to moderate medium angular blocky soil structure grading downward to moderate medium angular blocky soil structure; firm when moist, slightly sticky to sticky and plastic when wet; few thin clay films on ped faces, few thin clay films on clasts, few thin clay films coating clast pockets; scattered gravel; many pores; extensively bioturbated at top; clear wavy boundary.
7.48 - 8.79	228 - 268		3Bt5b	SANDY CLAY LOAM; brown (10YR 4/3) when dry, dark brown (10YR 3/3) when moist; strong medium to coarse angular blocky soil structure; hard when dry, friable when moist, sticky and plastic when wet; few thin clay films on ped faces and bridging grains, common thin clay films coating clast pockets; abrupt to clear wavy boundary.
8.79 - 9.81	268 - 299		3BC2b	LOAMY SAND; brown (10YR 5/3) when dry, dark brown (10YR 3/3) when moist; moderate fine to medium angular blocky soil structure; hard and fragile when dry, friable when moist, non-sticky and very slightly plastic when wet; few thin clay films on ped faces; many rounded to subangular gravel and pebbles of Santa Monica slate and Monterey siltstone; abrupt to clear wavy boundary.
9.81-10.43	299 - 318		4ABb	LOAMY SAND to fine SANDY LOAM; brown (10YR 5/3) when dry, brown (10YR 4/3) when moist; moderate to strong fine angular blocky soil structure; slightly hard to very hard and fragile when dry, friable to firm when moist, sticky and slightly plastic when wet; very few thin clay films in pores and on clasts; with gravel and pebbles; clay concentrated in zones; clear wavy boundary.
10.43 - 11.09	318 - 338		4Btjb	SANDY CLAY LOAM; dark brown (10YR-7.5YR 3/3) when damp and moist; weak fine angular blocky soil structure breaking to single-grained; firm when moist, slightly sticky to sticky and slightly plastic when wet; few thin clay films on ped faces, few thin clay films lining clast pockets; common scattered fine gravel of Santa Monica slate; with clay-rich zones locally; abrupt wavy boundary.




Depth (ft)	Depth (cm)	Photo (not to scale)	Horizon Designation	Description
11.09 – 14.14	338 - 431		5Bt6b	SILTY CLAY LOAM; brown (10YR 5/3) with brown (7.5YR 5/3) clay films when dry, dark brown (7.5YR 3/3) when moist; strong medium to coarse angular blocky soil structure; firm when moist, sticky to very sticky and slightly plastic to plastic when wet, common thin clay films in pores and on clasts, common thin and few moderately thick clay films lining clast pockets; common subangular gravel up to ½-inches in diameter; many pores; gradual boundary.
14.14 – 15.03	431 - 458		5Bt7b	SANDY CLAY LOAM; brown (7.5-10YR 5/3) when dry, brown (7.5YR 4/3) when moist; weak to strong medium to coarse angular blocky soil structure; slightly hard and fragile when dry, firm when moist, sticky and plastic when wet; common thin clay films in pores, few thin clay films on clasts, common thin and few moderately thick clay films coating clast pockets; many pores; abrupt wavy boundary.
15.03 – 16.80	458 - 512		6Bt8b	SILTY CLAY; brown (7.5YR 4/3) when dry, dark brown (7.5YR 3/2.5) when moist; strong medium to coarse angular blocky soil structure; hard when dry, friable to firm when moist, very sticky and very plastic when wet; few thin clay films on ped faces and bridging grains, common thin clay films on clasts, common thin to moderately thick clay films lining clast pockets; clasts consist of approximately equal amounts of Santa Monica slate and Monterey siltstone; clear to gradual wavy boundary.
16.80 – 17.98	512 - 548		6BC3b	Fine SANDY CLAY LOAM; brown (7.5YR 5/3) with brown (7.5YR 4/3) clay films when dry, brown (7.5YR 4/3) when moist; moderate to strong medium to coarse angular blocky soil structure; hard when dry, firm when moist, sticky and slightly plastic when wet; very few thin clay films on ped faces, common thin clay films coating clast pockets; many pinhole-sized pores; many weathered clasts of Monterey siltstone, few clasts of Santa Monica slate; sand in root casts; abrupt wavy boundary.
17.98 – 18.60	548 - 567		7Bt9b	Fine SANDY CLAY LOAM; brown (7.5YR 4/3) when dry, dark brown (7.5YR 3/3) when moist; moderate fine to medium angular blocky soil structure; slightly hard and fragile when dry, firm when moist, slightly sticky and plastic when wet; few thin clay films coating clasts; sand in vertical fractures associated with wetting/drying and roots; clear smooth to wavy boundary.




Depth (ft)	Depth (cm)	Photo (not to scale)	Horizon Designation	Description
18.60 – 19.46+	567 – 593+		8Btj2b	Fine SILTY CLAY; brown (7.5YR 4/3) when dry, dark brown (7.5YR 3/3) when moist; moderate to strong medium angular blocky soil structure; hard when dry, firm when moist, slightly sticky and plastic when wet; very few thin clay films coating clasts; many pinhole-sized pores and roots; common root holes; root holes filled with sand; many weathered clasts of Monterey siltstone; more fine gravel than above; lower boundary not observed.

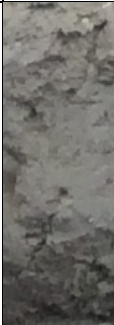
El Rodeo FT-3, Profile at Station 1+05

Depth (ft)	Depth (cm)	Photo (not to scale)	Horizon Designation	Description
0 – 1.97	0 - 60		Fill	Not described. Mixture of imported gravel, imported light yellowish brown to reddish brown clayey soil, with bricks, asphalt fragments, and other debris.
1.97 – 2.99	60 - 91		Bt	CLAY to SILTY CLAY; very dark grayish brown to dark grayish brown (10YR 3.5/2) with very dark brown to very dark grayish brown (10YR 2.5/2) clay films and few scattered black (10YR 2/1) mottles when dry, very dark brown to very dark grayish brown (10YR 2.5/2) when moist; strong coarse angular blocky soil structure; hard when dry, firm when moist, sticky and very plastic when wet; many moderately thick clay films on ped faces and bridging grains, common thick clay films on ped faces, many thin clay films in pores; many pores, roots and root casts; organic-rich; few scattered gravel-sized chips of Monterey siltstone; locally looks mixed, possibly reworked; abrupt to clear wavy boundary.
2.99 – 3.64	91 - 111		BC _{lam}	CLAY LOAM with CLAY lamellae; brown (10YR 4/3) with very dark grayish brown (10YR 3/2) clay films when dry, very dark grayish brown (10YR 3/2) when moist; strong medium to coarse angular blocky soil structure; soft when dry, friable when moist, sticky and plastic to very plastic when wet; few to common thin clay films on ped faces, many thin clay films bridging grains and in pores; in the lamellae, many thin and common moderately thick clay films on ped faces and many thin clay films in pores; common pinhole-sized pores; clear wavy boundary.

Depth (ft)	Depth (cm)	Photo (not to scale)	Horizon Designation	Description
3.64 – 4.66	111 - 142		2Bt2b	SANDY CLAY; brown (10-7.5YR 4/3) with brown (7.5YR 4/4) clay films locally when dry, dark brown (7.5YR 3/2) with dark reddish brown (5YR 3/2) mottles when moist; strong coarse to very coarse angular blocky soil structure; soft to slightly hard when dry, friable when moist, very sticky and very plastic when wet; common moderately thick and many thin clay films on ped faces, few to common thin clay films bridging grains, continuous thin clay films in pores; common to many large pores; scattered subangular gravel generally less than 1-inch in diameter consisting predominantly of Santa Monica slate; clear wavy boundary.
4.66 - 6.04	142 - 184		2Bt3b	SANDY CLAY; brown (10-7.5YR 4/3) with brown (7.5YR 4/3.5) clay films when dry, dark brown (7.5YR 3/2) with dark brown (7.5YR 3/3) clay films when moist; moderate medium to coarse angular blocky soil structure; slightly hard to hard when dry, slightly firm to firm when moist, very sticky and plastic when wet; few to common thin clay films on ped faces, common to many thin and few moderately thick clay films bridging grains, common thin clay films on clasts; more sand, coarser sand and more gravel than horizon above; fewer pores than above ranging in size from pinhole to 3mm in diameter; clear wavy boundary.
6.04 - 6.46	184 - 197		3Bt4b	SANDY CLAY LOAM; brown (10-7.5YR 4/3) with dark brown (7.5YR 3/2) clay films when dry, dark brown (7.5YR 3/2) with dark brown (7.5YR 3/3) clay films when moist; moderate fine angular blocky soil structure; slightly hard to hard and slightly fragile when dry, friable to slightly firm when moist, slightly sticky and slightly plastic to plastic when wet; many thin and common moderately thick clay films on ped faces, common thin clay films bridging grains and in pores, many thin clay films on clast pockets; many pores ranging in size from pinhole to >3mm in diameter; more sand and more gravel than horizon above; abrupt to clear wavy boundary.

Depth (ft)	Depth (cm)	Photo (not to scale)	Horizon Designation	Description
6.46 - 7.81	197 - 238		4Btjb	SANDY CLAY LOAM grading down to SANDY LOAM; brown and dark yellowish brown (10YR 4/3 and 4/4) when dry, dark brown (7.5YR 3/2) when moist; moderate medium to coarse angular blocky soil structure; soft and slightly fragic when dry, very friable when moist, slightly sticky and very slightly to slightly plastic when wet; common to many thin clay films on ped faces, common thin clay films bridging grains, many thin clay films in pores locally, many thin clay films coating clasts; fining upward with increasing gravel downward; more sand and fine gravel than horizon above; clear to gradual wavy boundary. (Alluvium)
7.81 – 8.53	238 - 260		4BC _{lam} 2b	Gravelly SANDY LOAM with SANDY LOAM lamellae; brown (10YR 4/3) when dry, dark brown (7.5YR 3/2.5) when moist; weak medium subangular blocky soil structure breaking to single-grained, moderate medium subangular blocky soil structure in lamellae; soft to loose when dry, very friable when moist, non-sticky to very slightly sticky and non-plastic when wet; common thin to moderately thick clay films bridging grains, few thin clay films on ped faces, few to common thin clay films on clasts, many thin clay films on clast pockets; fine to medium sand with common coarse sand and subrounded to rounded gravel consisting predominantly of Santa Monica slate; abrupt to clear wavy boundary. (Very fluid debris flow deposit or alluvium, generally massive, locally with lenses.)
8.53- 9.71	260 - 296		5BC _{lam} 3b	Gravelly LOAMY SAND with SANDY LOAM lamellae; brown (10YR 4/3) when dry, dark brown (10-7.5YR 3/3) when moist; single-grained; loose when dry and when moist, non-sticky and non-plastic when wet; few pores ranging in size from pinhole to 2 mm in diameter; abrupt wavy to irregular boundary (carves out underlying surface). Lamellae are brown (10-7.5YR 4/3) when dry, dark brown (7.5YR 3/3) when moist; moderate fine to medium subangular blocky soil structure; slightly hard when dry, very friable when moist; non-sticky to very slightly sticky and non-plastic when wet; many thin and common moderately thick clay films bridging grains, few thin clay films on ped faces, common thin clay films in clast pockets; 1/2- to 1-inch thick, irregularly spaced from 1/4- to 1/2-inch apart at top, to 1-2 inches at bottom. (Alluvium; strata visible.)

Depth (ft)	Depth (cm)	Photo (not to scale)	Horizon Designation	Description
9.71 – 10.07	296 - 307		6Bt5b	SANDY LOAM to SANDY CLAY LOAM; brown and dark yellowish brown (10YR 4/3 and 4/4) with brown (7.5YR 4/3) clay films when dry, dark brown (10-7.5YR 3/3) with dark brown (7.5YR 3/3) clay films when moist; moderate fine angular blocky soil structure; hard and fragic when dry, friable when moist, slightly sticky to sticky and slightly plastic to plastic when wet; common thin and few moderately thick clay films on ped faces, common thin clay films in pores, many thin clay films bridging grains; many pores ranging in size from pinhole to 2 mm in diameter, loose fine sand in larger pores; few to common subangular to subrounded fine gravel to 1/2-inch in diameter, consisting predominantly of Santa Monica slate, few Monterey siltstone chips; clear wavy boundary.
10.07 – 11.25	307 - 343		6Bt6b	SANDY CLAY LOAM to SANDY CLAY; brown (10YR 4.5/3) with brown (7.5YR 4/3) clay films when dry, dark brown (7.5YR 3/2) when moist; weak to moderate medium angular blocky soil structure; slightly hard to hard and slightly fragic when dry, friable to slightly firm when moist, slightly sticky to sticky and plastic when wet; many thin and few moderately thick clay films on ped faces, many thin to moderately thick clay films bridging grains, common thin clay films in pores; coarser-grained than horizon above, fining-upward sequence with unit above; common pores; clear wavy boundary. (Debris flow deposit)
11.25 – 12.04	343 - 367		7C _{lam}	Gravelly SAND with SANDY LOAM lamellae; brown (10YR 4/3) when dry, dark brown (7.5YR 3/3) when moist; single-grained; loose when dry and moist, non-sticky and non-plastic when wet; gravel consists predominately of Santa Monica slate, 1/4- to 1-inch in diameter; abrupt wavy to irregular boundary that incises into underlying surface. Lamellae are brown (10-7.5YR 4/3) when dry, dark brown (7.5YR 3/3) when moist; weak fine to medium subangular blocky soil structure; soft when dry, very friable when moist, very slightly sticky and non-plastic to very slightly sticky when wet; 1/4- to 1/2-inch thick, spaced 1 to 2 inches apart. (Fluvial deposit, stratified, with fining-upward sequences.)

Depth (ft)	Depth (cm)	Photo (not to scale)	Horizon Designation	Description
12.04 – 12.37+	367 – 377+		8Bt7b	CLAY; dark yellowish brown to brown (10-7.5YR 4/4) with dark brown (7.5YR 3/3) clay films when dry, dark brown (7.5YR 3/2.5) when moist; strong fine to medium subangular blocky soil structure; extremely hard when dry, firm when moist, very sticky and very plastic when wet; common thin and few moderately thick clay films on ped faces, common thin clay films bridging grains, many thin clay films in pores, many moderately thick clay films on clasts; many pinhole-sized pores; boundary not observed.

El Rodeo FT-4 at Station 10




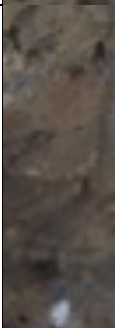
Depth below surface (ft; cm)	Thickness (cm)	Horizon Designation	Description
0-0.4 (0-12.2)	12.2	Fill	Not described.
0.4-2.0 (12.2-61)	48.8	Bt	SANDY CLAY; dark yellowish brown (10YR 4/4) with brown (7.5YR 4/3) clay films and medium grayish brown (10YR 5/2) mottles when slightly damp, dark brown (7.5YR 3/3) when moist; strong fine subangular blocky soil structure; hard to very hard when dry, firm to very firm when moist, sticky and plastic when wet; common thin clay films on ped faces, common moderately thick clay films lining clast pockets, few thin clay films bridging grains; abundant fine subrounded gravel up to ¼-inch in diameter; clear wavy lower boundary.
2.0-2.5 (61-76.2)	15.2	2Bt2	SANDY CLAY LOAM; brown (10YR 4/3) with brown (7.5YR 4/3 and 3/2) clay films and common dark grayish brown (10YR 4/2) mottles when damp, brown (7.5YR 4/3) with dark brown (7.5YR 3/2) clay films when moist; strong fine to medium angular blocky soil structure; slightly hard to hard when dry, firm when moist, sticky and slightly plastic when wet; common thin clay films bridging grains, many thin and common moderately thick clay on ped faces; fine-grained with few scattered fine gravel; common pores; clear wavy lower boundary.
2.5-3.4+ (76.2-103.6)	27.4+	2Bt3	SILTY CLAY; brown (10YR 4/3) with brown (7.5YR 4/2) clay films and very dark grayish brown and grayish brown (10YR 3/2 and 10YR 5/2) mottles when damp, dark grayish brown (10YR 4/2) when moist; strong coarse angular blocky soil structure; hard and fragic when dry, firm to very firm when moist, sticky and slightly plastic when wet; many thin and common moderately thick clay films on ped faces, common thin clay films bridging grains; common strong brown (7.5YR 5/6) iron oxide stains; lower boundary not observed.


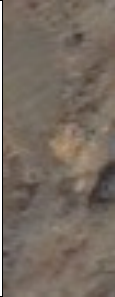

El Rodeo FT-4 at Station 26

Depth below surface (ft; cm)	Thickness (cm)	Horizon Designation	Description
0-1 (0-30.5)	30.5	Fill	Asphalt over artificial fill. Not described.
1-1.9 (30.5-57.9)	27.4	Bt	SANDY CLAY LOAM; brown (7.5YR 4/4) with dark brown (7.5YR 3/2) clay films and medium grayish brown (10YR 5/2) mottles when damp, dark brown (7.5YR 3/3) when moist; moderate medium to fine angular blocky soil structure; slightly hard when dry, friable to firm when moist, sticky and plastic when wet; common moderately thick clay films on ped faces, few thin clay films on clasts, common thin and few moderately thick clay films lining clast pockets; abundant fine subrounded gravel up to ¼-inch in diameter; clear wavy lower boundary.
1.9-2.4 (57.9-73.2)	15.3	2Bt2	SILTY CLAY; dark yellowish brown (10YR 4/4) with brown (7.5YR 4/3) clay films and medium grayish brown (10YR 5/2) mottles when damp, dark brown (7.5YR 3/3) when moist; strong fine to medium angular blocky soil structure; slightly hard when dry, firm when moist, sticky and plastic when wet; common thin clay films on ped faces, common moderately thick clay films lining clast pockets, many thin clay films bridging grains; scattered gravel; clear to gradual wavy lower boundary.
2.4-3.2 (73.2-97.5)	24.3	2Bt3	SANDY CLAY LOAM; dark yellowish brown (10YR 4/4) with brown (7.5YR 4/3) clay films and few brown (10YR 5/3) mottles when damp, dark brown (7.5YR 3/3) when moist; moderate fine to medium angular blocky soil structure; slightly hard when dry, friable when moist, slightly sticky and slightly plastic when wet; common thin to moderately thick clay films on ped faces, few thin clay films bridging grains; scattered few fine gravel; few; clear wavy lower boundary.
3.2-3.9 (97.5-118.9)	21.4	2Bt4	SANDY CLAY LOAM; dark yellowish brown (10YR 4/4) with brown (7.5YR 4/3) clay films and brown (10YR 5/3) mottles when damp, brown (7.5YR 4/3) when moist; moderate fine to medium subangular blocky soil structure; slightly hard and fragic when dry, friable to firm when moist, non-sticky and slightly plastic when wet; very few to few thin clay films on ped faces, few thin clay films lining clast pockets; fine-grained sand with very few scattered fine gravel; clear wavy lower boundary.
3.9-4.2 (118.9-128)	9.1	3Bt5	SILTY CLAY; brown (10YR 4/3) with brown (7.5YR 4/3) clay films and common light brownish gray (10YR 6/2) and very dark gray (10YR 3/1) mottles when damp, brown (7.5YR 4/3) when moist; strong medium to coarse subangular blocky soil structure; slightly hard to hard when dry, firm when moist, sticky and plastic when wet; many moderately thick clay films on ped faces, few thin clay films lining pores, many thin clay films bridging grains; clear wavy lower boundary.

Depth below surface (ft; cm)	Thickness (cm)	Horizon Designation	Description
4.2-5.2 (128-158.5)	30.5	3BC	LOAM to SANDY CLAY LOAM; yellowish brown (10YR 5/4) with light brownish gray (10YR 6/2) mottles when damp, brown (10YR 4/3) when moist; moderate medium subangular blocky soil structure; slightly hard and fragic when dry, firm when moist, non-sticky and slightly plastic when wet; few thin clay films on ped faces; fine to very fine sand grains; lower boundary not observed.

Utility Trench along Wilshire Boulevard

Depth below surface (ft; cm)	Thickness (cm)	Photo (not to scale)	Horizon Designation	Description
0.3-1.16 (9-35)	26		Fill	SILTY CLAY LOAM; brown (10YR 4/3) when dry, very dark grayish brown (10YR 3/2) when moist; moderate fine subangular blocky soil structure; hard when dry, slightly firm when moist, sticky and plastic when wet; many fine to medium roots; common gravel and pebbles, many pebbles broken; abrupt smooth lower boundary. [Topped by 0.3' (9 cm) of grass.]
1.16-1.45 (35-44)	9		Fill	Fine to coarse SAND with gravel; gray (2.5Y 5.5/1) when dry, very dark gray (2.5Y 3/1) when moist; single-grained soil; loose when dry and moist, non-sticky and non-plastic when wet; broken white granitic gravel and cobbles; abrupt smooth lower boundary.
1.45-1.95 (44-59)	15		Bt	SANDY CLAY LOAM; dark grayish brown (10YR 4/2) when dry, dark brown (10YR 3/3) when moist; strong fine angular blocky soil structure; hard when dry, firm when moist, sticky and plastic when wet; common thin clay films coating clasts; common to many gravel, few to common pebbles; abrupt to clear wavy lower boundary.
1.95-2.15 (59-65)	6		2Bt2	SILTY CLAY; brown (7.5YR 4/3) with dark gray (7.5YR 4/1) clay films when dry, brown (7.5YR 4/3) when moist; strong coarse angular blocky soil structure; extremely hard when dry, extremely firm when moist, very sticky and very plastic when wet; many moderately thick clay films on ped faces, many thin clay films bridging grains, common moderately thick clay films coating clasts, common moderately thick to thick clay films lining clast pockets; common fine gravel; gradual wavy lower boundary.

Depth below surface (ft; cm)	Thickness (cm)	Photo (not to scale)	Horizon Designation	Description
2.15-2.34 (65-71)	6		2Bt3	SANDY CLAY; brown (7.5YR 4/3) with dark brown (7.5YR 3/2) clay films when dry, brown (7.5YR 4/3) when moist; moderate medium subangular blocky soil structure; very hard when dry, very firm when moist, very sticky and plastic when wet; few moderately thick clay films on ped faces, common moderately thick clay films bridging grains, common thin to moderately thick clay films coating clasts, common moderately thick clay films lining clast pockets; many platy to subrounded gravel; abrupt to clear wavy lower boundary.
2.34-3.0 (71-91)	20		3Bt4	SILTY CLAY LOAM; brown (7.5YR 4/3) when dry, dark brown (7.5YR 3/3) when moist; moderate medium subangular blocky soil structure; hard when dry, firm when moist, sticky and plastic when wet; few thin clay films on ped faces, few moderately thick and common thin clay films coating clasts, common moderately thick clay films lining clast pockets; with pebbles; fewer gravel than above; gradual lower boundary.
3.0-3.48 (91-106)	15		3Bt5	SANDY CLAY LOAM; brown and dark brown (7.5YR 4/3 and 3/2) with brown (7.5YR 4/4) clay films when dry, brown (7.5YR 4/3) when moist; moderate medium subangular blocky soil structure; very hard when dry, friable when moist, very sticky and very plastic when wet; few moderately thick clay films on ped faces, common moderately thick clay films bridging grains, few moderately thick clay films lining clast pockets; lower boundary not observed.

APPENDIX E
ANALYTICAL LABORATORY TEST RESULTS



Leighton



25712 Commercentre Drive
Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

09 September 2015

Cindy Johnson
Belshire Environmental
25971 Towne Centre Dr
Foothill Ranch, CA 92610
RE: El Rodeo Elementary School

Enclosed are the results of analyses for samples received by the laboratory on 09/04/15 15:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Katherine RunningCrane
Project Manager



25712 Commercentre Drive
Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

Belshire Environmental 25971 Towne Centre Dr Foothill Ranch CA, 92610	Project: El Rodeo Elementary School Project Number: 258404 Project Manager: Cindy Johnson	Reported: 09/09/15 16:05
---	---	------------------------------------

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
COMP: DRUM 1, 2, 3	T152216-04	Soil	09/04/15 15:15	09/04/15 15:50

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Katherine RunningCrane, Project Manager

Belshire Environmental
25971 Towne Centre Dr
Foothill Ranch CA, 92610

Project: El Rodeo Elementary School
Project Number: 258404
Project Manager: Cindy Johnson

Reported:
09/09/15 16:05

DETECTIONS SUMMARY

Sample ID: COMP: DRUM 1, 2, 3

Laboratory ID: T152216-04

Analyte	Result	Reporting		Units	Method	Notes
		Limit				
Barium	56	1.0		mg/kg	EPA 6010B	
Chromium	16	2.0		mg/kg	EPA 6010B	
Cobalt	8.2	2.0		mg/kg	EPA 6010B	
Copper	9.3	1.0		mg/kg	EPA 6010B	
Nickel	11	2.0		mg/kg	EPA 6010B	
Vanadium	27	5.0		mg/kg	EPA 6010B	
Zinc	28	1.0		mg/kg	EPA 6010B	

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Katherine RunningCrane, Project Manager



25712 Commercentre Drive
 Lake Forest, California 92630
 949.297.5020 Phone
 949.297.5027 Fax

Belshire Environmental 25971 Towne Centre Dr Foothill Ranch CA, 92610	Project: El Rodeo Elementary School Project Number: 258404 Project Manager: Cindy Johnson	Reported: 09/09/15 16:05
---	---	-----------------------------

COMP: DRUM 1, 2, 3
T152216-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

SunStar Laboratories, Inc.

Metals by EPA 6010B

Antimony	ND	3.0	mg/kg	1	5090822	09/08/15	09/08/15	EPA 6010B	
Silver	ND	2.0	"	"	"	"	"	"	
Arsenic	ND	5.0	"	"	"	"	"	"	
Barium	56	1.0	"	"	"	"	"	"	
Beryllium	ND	1.0	"	"	"	"	"	"	
Cadmium	ND	2.0	"	"	"	"	"	"	
Chromium	16	2.0	"	"	"	"	"	"	
Cobalt	8.2	2.0	"	"	"	"	"	"	
Copper	9.3	1.0	"	"	"	"	"	"	
Lead	ND	3.0	"	"	"	"	"	"	
Molybdenum	ND	5.0	"	"	"	"	"	"	
Nickel	11	2.0	"	"	"	"	"	"	
Selenium	ND	5.0	"	"	"	"	"	"	
Thallium	ND	2.0	"	"	"	"	"	"	
Vanadium	27	5.0	"	"	"	"	"	"	
Zinc	28	1.0	"	"	"	"	"	"	

Cold Vapor Extraction EPA 7470/7471

Mercury	ND	0.10	mg/kg	1	5090826	09/08/15	09/08/15	EPA 7471A Soil	
---------	----	------	-------	---	---------	----------	----------	-------------------	--

Volatile Organic Compounds by EPA Method 8260B

Bromobenzene	ND	5.0	ug/kg	1	5090839	09/08/15	09/08/15	EPA 8260B	
Bromochloromethane	ND	5.0	"	"	"	"	"	"	
Bromodichloromethane	ND	5.0	"	"	"	"	"	"	
Bromoform	ND	5.0	"	"	"	"	"	"	
Bromomethane	ND	5.0	"	"	"	"	"	"	
n-Butylbenzene	ND	5.0	"	"	"	"	"	"	
sec-Butylbenzene	ND	5.0	"	"	"	"	"	"	
tert-Butylbenzene	ND	5.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	5.0	"	"	"	"	"	"	
Chlorobenzene	ND	5.0	"	"	"	"	"	"	
Chloroethane	ND	5.0	"	"	"	"	"	"	

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Katherine RunningCrane

Katherine RunningCrane, Project Manager



25712 Commercentre Drive
 Lake Forest, California 92630
 949.297.5020 Phone
 949.297.5027 Fax

Belshire Environmental 25971 Towne Centre Dr Foothill Ranch CA, 92610	Project: El Rodeo Elementary School Project Number: 258404 Project Manager: Cindy Johnson	Reported: 09/09/15 16:05
---	---	-----------------------------

COMP: DRUM 1, 2, 3
T152216-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

SunStar Laboratories, Inc.

Volatile Organic Compounds by EPA Method 8260B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloroform	ND	5.0	ug/kg	1	5090839	09/08/15	09/08/15	EPA 8260B	
Chloromethane	ND	5.0	"	"	"	"	"	"	
2-Chlorotoluene	ND	5.0	"	"	"	"	"	"	
4-Chlorotoluene	ND	5.0	"	"	"	"	"	"	
Dibromochloromethane	ND	5.0	"	"	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	10	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	5.0	"	"	"	"	"	"	
Dibromomethane	ND	5.0	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	5.0	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	5.0	"	"	"	"	"	"	
1,1-Dichloroethane	ND	5.0	"	"	"	"	"	"	
1,2-Dichloroethane	ND	5.0	"	"	"	"	"	"	
1,1-Dichloroethene	ND	5.0	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	5.0	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	5.0	"	"	"	"	"	"	
1,2-Dichloropropane	ND	5.0	"	"	"	"	"	"	
1,3-Dichloropropane	ND	5.0	"	"	"	"	"	"	
2,2-Dichloropropane	ND	5.0	"	"	"	"	"	"	
1,1-Dichloropropene	ND	5.0	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	5.0	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	5.0	"	"	"	"	"	"	
Hexachlorobutadiene	ND	5.0	"	"	"	"	"	"	
Isopropylbenzene	ND	5.0	"	"	"	"	"	"	
p-Isopropyltoluene	ND	5.0	"	"	"	"	"	"	
Methylene chloride	ND	5.0	"	"	"	"	"	"	
Naphthalene	ND	5.0	"	"	"	"	"	"	
n-Propylbenzene	ND	5.0	"	"	"	"	"	"	
Styrene	ND	5.0	"	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	5.0	"	"	"	"	"	"	

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Katherine RunningCrane

Katherine RunningCrane, Project Manager



25712 Commercentre Drive
 Lake Forest, California 92630
 949.297.5020 Phone
 949.297.5027 Fax

Belshire Environmental 25971 Towne Centre Dr Foothill Ranch CA, 92610	Project: El Rodeo Elementary School Project Number: 258404 Project Manager: Cindy Johnson	Reported: 09/09/15 16:05
---	---	-----------------------------

COMP: DRUM 1, 2, 3
T152216-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	--------	-------

SunStar Laboratories, Inc.

Volatile Organic Compounds by EPA Method 8260B

Tetrachloroethene	ND	5.0	ug/kg	1	5090839	09/08/15	09/08/15	EPA 8260B	
1,2,3-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,2,4-Trichlorobenzene	ND	5.0	"	"	"	"	"	"	
1,1,2-Trichloroethane	ND	5.0	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	5.0	"	"	"	"	"	"	
Trichloroethene	ND	5.0	"	"	"	"	"	"	
Trichlorofluoromethane	ND	5.0	"	"	"	"	"	"	
1,2,3-Trichloropropane	ND	5.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	5.0	"	"	"	"	"	"	
Vinyl chloride	ND	5.0	"	"	"	"	"	"	
Benzene	ND	5.0	"	"	"	"	"	"	
Toluene	ND	5.0	"	"	"	"	"	"	
Ethylbenzene	ND	5.0	"	"	"	"	"	"	
m,p-Xylene	ND	10	"	"	"	"	"	"	
o-Xylene	ND	5.0	"	"	"	"	"	"	
C6-C12 (GRO)	ND	500	"	"	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		142 %	81.2-123		"	"	"	"	S-GC
Surrogate: Dibromofluoromethane		130 %	95.7-135		"	"	"	"	
Surrogate: Toluene-d8		84.9 %	85.5-116		"	"	"	"	S-GC

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Katherine RunningCrane

Katherine RunningCrane, Project Manager



25712 Commercentre Drive
 Lake Forest, California 92630
 949.297.5020 Phone
 949.297.5027 Fax

Belshire Environmental 25971 Towne Centre Dr Foothill Ranch CA, 92610	Project: El Rodeo Elementary School Project Number: 258404 Project Manager: Cindy Johnson	Reported: 09/09/15 16:05
---	---	-----------------------------

Metals by EPA 6010B - Quality Control
SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 5090822 - EPA 3051

Blank (5090822-BLK1)

Prepared & Analyzed: 09/08/15

Antimony	ND	3.0	mg/kg							
Silver	ND	2.0	"							
Arsenic	ND	5.0	"							
Barium	ND	1.0	"							
Beryllium	ND	1.0	"							
Cadmium	ND	2.0	"							
Chromium	ND	2.0	"							
Cobalt	ND	2.0	"							
Copper	ND	1.0	"							
Lead	ND	3.0	"							
Molybdenum	ND	5.0	"							
Nickel	ND	2.0	"							
Selenium	ND	5.0	"							
Thallium	ND	2.0	"							
Vanadium	ND	5.0	"							
Zinc	ND	1.0	"							

LCS (5090822-BS1)

Prepared & Analyzed: 09/08/15

Arsenic	93.3	5.0	mg/kg	100		93.3	75-125			
Barium	94.5	1.0	"	100		94.5	75-125			
Cadmium	94.4	2.0	"	100		94.4	75-125			
Chromium	94.4	2.0	"	100		94.4	75-125			
Lead	95.7	3.0	"	100		95.7	75-125			

Matrix Spike (5090822-MS1)

Source: T152219-18

Prepared & Analyzed: 09/08/15

Arsenic	79.1	5.0	mg/kg	100	0.138	79.0	75-125			
Barium	173	1.0	"	100	74.6	98.3	75-125			
Cadmium	89.1	2.0	"	100	0.038	89.0	75-125			
Chromium	115	2.0	"	100	21.8	93.5	75-125			
Lead	108	3.0	"	100	9.08	98.6	75-125			

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Katherine RunningCrane

Katherine RunningCrane, Project Manager



25712 Commercentre Drive
 Lake Forest, California 92630
 949.297.5020 Phone
 949.297.5027 Fax

Belshire Environmental 25971 Towne Centre Dr Foothill Ranch CA, 92610	Project: El Rodeo Elementary School Project Number: 258404 Project Manager: Cindy Johnson	Reported: 09/09/15 16:05
---	---	-----------------------------

Metals by EPA 6010B - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 5090822 - EPA 3051

Matrix Spike Dup (5090822-MSD1)	Source: T152219-18			Prepared & Analyzed: 09/08/15						
Arsenic	78.5	5.0	mg/kg	100	0.138	78.4	75-125	0.773	20	
Barium	163	1.0	"	100	74.6	88.0	75-125	6.14	20	
Cadmium	88.3	2.0	"	100	0.038	88.3	75-125	0.863	20	
Chromium	114	2.0	"	100	21.8	92.5	75-125	0.841	20	
Lead	102	3.0	"	100	9.08	92.9	75-125	5.38	20	

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Katherine RunningCrane

Katherine RunningCrane, Project Manager



25712 Commercentre Drive
 Lake Forest, California 92630
 949.297.5020 Phone
 949.297.5027 Fax

Belshire Environmental 25971 Towne Centre Dr Foothill Ranch CA, 92610	Project: El Rodeo Elementary School Project Number: 258404 Project Manager: Cindy Johnson	Reported: 09/09/15 16:05
---	---	-----------------------------

Cold Vapor Extraction EPA 7470/7471 - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 5090826 - EPA 7471A Soil

Blank (5090826-BLK1)				Prepared & Analyzed: 09/08/15						
Mercury	ND	0.10	mg/kg							
LCS (5090826-BS1)				Prepared & Analyzed: 09/08/15						
Mercury	0.420	0.10	mg/kg	0.417		101	80-120			
Matrix Spike (5090826-MS1)				Source: T152216-04		Prepared & Analyzed: 09/08/15				
Mercury	0.403	0.10	mg/kg	0.417	ND	96.6	75-125			
Matrix Spike Dup (5090826-MSD1)				Source: T152216-04		Prepared & Analyzed: 09/08/15				
Mercury	0.402	0.10	mg/kg	0.417	ND	96.4	75-125	0.169	20	

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Katherine RunningCrane

Katherine RunningCrane, Project Manager



25712 Commercentre Drive
 Lake Forest, California 92630
 949.297.5020 Phone
 949.297.5027 Fax

Belshire Environmental 25971 Towne Centre Dr Foothill Ranch CA, 92610	Project: El Rodeo Elementary School Project Number: 258404 Project Manager: Cindy Johnson	Reported: 09/09/15 16:05
---	---	-----------------------------

Volatile Organic Compounds by EPA Method 8260B - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 5090839 - EPA 5030 GCMS

Blank (5090839-BLK1)

Prepared & Analyzed: 09/08/15

Bromobenzene	ND	5.0	ug/kg							
Bromochloromethane	ND	5.0	"							
Bromodichloromethane	ND	5.0	"							
Bromoform	ND	5.0	"							
Bromomethane	ND	5.0	"							
n-Butylbenzene	ND	5.0	"							
sec-Butylbenzene	ND	5.0	"							
tert-Butylbenzene	ND	5.0	"							
Carbon tetrachloride	ND	5.0	"							
Chlorobenzene	ND	5.0	"							
Chloroethane	ND	5.0	"							
Chloroform	ND	5.0	"							
Chloromethane	ND	5.0	"							
2-Chlorotoluene	ND	5.0	"							
4-Chlorotoluene	ND	5.0	"							
Dibromochloromethane	ND	5.0	"							
1,2-Dibromo-3-chloropropane	ND	10	"							
1,2-Dibromoethane (EDB)	ND	5.0	"							
Dibromomethane	ND	5.0	"							
1,2-Dichlorobenzene	ND	5.0	"							
1,3-Dichlorobenzene	ND	5.0	"							
1,4-Dichlorobenzene	ND	5.0	"							
Dichlorodifluoromethane	ND	5.0	"							
1,1-Dichloroethane	ND	5.0	"							
1,2-Dichloroethane	ND	5.0	"							
1,1-Dichloroethene	ND	5.0	"							
cis-1,2-Dichloroethene	ND	5.0	"							
trans-1,2-Dichloroethene	ND	5.0	"							
1,2-Dichloropropane	ND	5.0	"							
1,3-Dichloropropane	ND	5.0	"							
2,2-Dichloropropane	ND	5.0	"							
1,1-Dichloropropene	ND	5.0	"							
cis-1,3-Dichloropropene	ND	5.0	"							
trans-1,3-Dichloropropene	ND	5.0	"							
Hexachlorobutadiene	ND	5.0	"							
Isopropylbenzene	ND	5.0	"							

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Katherine RunningCrane

Katherine RunningCrane, Project Manager



25712 Commercentre Drive
 Lake Forest, California 92630
 949.297.5020 Phone
 949.297.5027 Fax

Belshire Environmental 25971 Towne Centre Dr Foothill Ranch CA, 92610	Project: El Rodeo Elementary School Project Number: 258404 Project Manager: Cindy Johnson	Reported: 09/09/15 16:05
---	---	-----------------------------

Volatile Organic Compounds by EPA Method 8260B - Quality Control
SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 5090839 - EPA 5030 GCMS

Blank (5090839-BLK1)

Prepared & Analyzed: 09/08/15

p-Isopropyltoluene	ND	5.0	ug/kg							
Methylene chloride	ND	5.0	"							
Naphthalene	ND	5.0	"							
n-Propylbenzene	ND	5.0	"							
Styrene	ND	5.0	"							
1,1,2,2-Tetrachloroethane	ND	5.0	"							
1,1,1,2-Tetrachloroethane	ND	5.0	"							
Tetrachloroethene	ND	5.0	"							
1,2,3-Trichlorobenzene	ND	5.0	"							
1,2,4-Trichlorobenzene	ND	5.0	"							
1,1,2-Trichloroethane	ND	5.0	"							
1,1,1-Trichloroethane	ND	5.0	"							
Trichloroethene	ND	5.0	"							
Trichlorofluoromethane	ND	5.0	"							
1,2,3-Trichloropropane	ND	5.0	"							
1,3,5-Trimethylbenzene	ND	5.0	"							
1,2,4-Trimethylbenzene	ND	5.0	"							
Vinyl chloride	ND	5.0	"							
Benzene	ND	5.0	"							
Toluene	ND	5.0	"							
Ethylbenzene	ND	5.0	"							
m,p-Xylene	ND	10	"							
o-Xylene	ND	5.0	"							
C6-C12 (GRO)	ND	500	"							
Surrogate: 4-Bromofluorobenzene	54.6		"	40.0		137	81.2-123			S-GC
Surrogate: Dibromofluoromethane	52.6		"	40.0		132	95.7-135			
Surrogate: Toluene-d8	33.6		"	40.0		84.1	85.5-116			S-GC

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Katherine RunningCrane

Katherine RunningCrane, Project Manager



25712 Commercentre Drive
 Lake Forest, California 92630
 949.297.5020 Phone
 949.297.5027 Fax

Belshire Environmental 25971 Towne Centre Dr Foothill Ranch CA, 92610	Project: El Rodeo Elementary School Project Number: 258404 Project Manager: Cindy Johnson	Reported: 09/09/15 16:05
---	---	-----------------------------

Volatile Organic Compounds by EPA Method 8260B - Quality Control

SunStar Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 5090839 - EPA 5030 GCMS

LCS (5090839-BS1)		Prepared: 09/08/15 Analyzed: 09/09/15								
Chlorobenzene	110	5.0	ug/kg	105		105	75-125			
1,1-Dichloroethene	87.6	5.0	"	105		83.4	75-125			
Trichloroethene	88.6	5.0	"	105		84.4	75-125			
Benzene	101	5.0	"	105		96.6	75-125			
Toluene	51.0	5.0	"	105		48.6	75-125			S-GC
Surrogate: 4-Bromofluorobenzene	47.0		"	40.0		118	81.2-123			
Surrogate: Dibromofluoromethane	65.4		"	40.0		164	95.7-135			S-GC
Surrogate: Toluene-d8	37.8		"	40.0		94.6	85.5-116			

LCS Dup (5090839-BS1)		Prepared: 09/08/15 Analyzed: 09/09/15								
Chlorobenzene	106	5.0	ug/kg	105		100	75-125	4.04	20	
1,1-Dichloroethene	81.5	5.0	"	105		77.6	75-125	7.16	20	
Trichloroethene	90.0	5.0	"	105		85.7	75-125	1.46	20	
Benzene	105	5.0	"	105		100	75-125	3.63	20	
Toluene	87.2	5.0	"	105		83.0	75-125	52.2	20	S-GC
Surrogate: 4-Bromofluorobenzene	47.5		"	40.0		119	81.2-123			
Surrogate: Dibromofluoromethane	57.6		"	40.0		144	95.7-135			S-GC
Surrogate: Toluene-d8	36.0		"	40.0		89.9	85.5-116			

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Katherine RunningCrane

Katherine RunningCrane, Project Manager



25712 Commercentre Drive
Lake Forest, California 92630
949.297.5020 Phone
949.297.5027 Fax

Belshire Environmental
25971 Towne Centre Dr
Foothill Ranch CA, 92610

Project: El Rodeo Elementary School
Project Number: 258404
Project Manager: Cindy Johnson

Reported:
09/09/15 16:05

Notes and Definitions

- S-GC Surrogate recovery outside of established control limits. The data was accepted based on valid recovery of the remaining surrogate(s).
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

SunStar Laboratories, Inc.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Katherine RunningCrane, Project Manager

SAMPLE RECEIVING REVIEW SHEET

BATCH # T152216

Client Name: BELSHIRE

Project: EL RODEO ELEMENTARY SCHOOL

Received by: SUNNY

Date/Time Received: 9.4.15 / 15:30

Delivered by: Client SunStar Courier GSO FedEx Other _____

Total number of coolers received 0 Temp criteria = 6°C > 0°C (no frozen containers)

Temperature: cooler #1 1.7 °C +/- the CF (- 0.2°C) = 1.5 °C corrected temperature

cooler #2 _____ °C +/- the CF (- 0.2°C) = _____ °C corrected temperature

cooler #3 _____ °C +/- the CF (- 0.2°C) = _____ °C corrected temperature

Samples outside temp. but received on ice, w/in 6 hours of final sampling. Yes No* N/A

Custody Seals Intact on Cooler/Sample Yes No* N/A

Sample Containers Intact Yes No*

Sample labels match COC ID's Yes No*

Total number of containers received match COC Yes No*

Proper containers received for analyses requested on COC Yes No*

Proper preservative indicated on COC/containers for analyses requested Yes No* N/A

Complete shipment received in good condition with correct temperatures, containers, labels, volumes preservatives and within method specified holding times. Yes No*

* Complete Non-Conformance Receiving Sheet if checked Cooler/Sample Review - Initials and date SL 9.4.15

Comments:

WORK ORDER

T152216

Client: Belshire Environmental	Project Manager: Katherine RunningCrane
Project: El Rodeo Elementary School	Project Number: 258404

Report To:

Belshire Environmental
 Cindy Johnson
 25971 Towne Centre Dr
 Foothill Ranch, CA 92610

Date Due:	09/09/15 17:00 (2 day TAT)		
Received By:	Sunny Lounethone	Date Received:	09/04/15 15:50
Logged In By:	Sunny Lounethone	Date Logged In:	09/04/15 16:46

Samples Received at:	1.5°C		
Custody Seals	No	Received On Ice	Yes
Containers Intact	Yes		
COC/Labels Agree	Yes		
Preservation Confirmed	No		

Analysis	Due	TAT	Expires	Comments
T152216-01 DRUM 1 [Soil] Sampled 09/04/15 15:15 (GMT-08:00) Pacific Time (US & [NO ANALYSES]				
T152216-02 DRUM 2 [Soil] Sampled 09/04/15 15:15 (GMT-08:00) Pacific Time (US & [NO ANALYSES]				
T152216-03 DRUM 3 [Soil] Sampled 09/04/15 15:15 (GMT-08:00) Pacific Time (US & [NO ANALYSES]				
T152216-04 COMP: DRUM 1, 2, 3 [Soil] Sampled 09/04/15 15:15 (GMT-08:00) Pacific Time (US &				COMPOSITE 3:1
6010 Title 22	09/09/15 15:00	2	03/02/16 15:15	
8260	09/09/15 15:00	2	09/18/15 15:15	+ GRO

Analysis groups included in this work order	
<u>6010 Title 22</u>	
subgroup 6010B T22	7470/71 Hg

APPENDIX F
GWI WEST INC., BORINGS



Leighton

BORING B1-B



Project No.: A9009-06-01A
Client: Beverly Hills Wilshire International, LLC
Location: 9900 Wilshire Blvd
 Los Angeles, CA

Excavation Date: January 19, 2014
Drilling Company: Martini Drilling
Excavation Method: H.S.A. - Continuous Core
Boring Diameter: 8 inches
Surface Elevation: 288.0 feet
Geologist: AL/SFK

Box	Run #	% Rec	REC	Depth (feet)	USCS Class.	Description
1	1	100	█	0		Started sampling at 1.8'
				1	SM	ALLUVIUM (Qal) Silty Sand, dark yellowish brown (10YR 4/4), very fine-grained, trace clay, massive.
				2		
				3	ML	2.4' - Silt with Sand, dark yellowish brown (10YR 4/2), very fine- to fine-grained, trace clay and caliche stringers, massive, porous.
1	2	66	█	4	SM	3.9' - Silty Sand, dark yellowish brown (10YR 4/2), fine-grained, trace clay and gravel (to 1/4"), predominantly slate, massive.
				5		5.0 to 6.7' - No Recovery
				6		
				7	SP-SM	7.1' - Sand with Silt, dark yellowish brown (10YR 4/2), very fine- to fine-grained, trace gravel (to 1/2", few to 1-1/2").
2	3	86	█	8		
				9		
				10	ML/SM	10' - Silt with Sand to Silty Sand, dark yellowish brown (10YR 4/2), fine-grained, trace gravel (to 1/2").
				11	SM	OLDER ALLUVIUM (Qoal) 10.8' - Silty Sand, dark yellowish brown (10YR 4/4), minor clay and gravel (to 1").
2	4	100	█	12		
				13		
				14		14.2 to 15' - No Recovery
				15		
2	4	100	█	16	SP-SM	15.5' - Sand with Silt, dark yellowish brown (10YR 4/6), trace to minor gravel (to 1/2"), subrounded to subangular, predominantly slate, few diatomaceous siltstone clasts.
				17		17.0' - increase in sand, decrease in silt
				18		
				19		18.9 - 19.1' - gravel bed, predominantly slate, few diatomaceous siltstone clasts (to 1/2").
				20	ML	19.1' - Silt with Sand, dark yellowish brown (10YR 3/4), fine- to coarse-grained, trace gravel (to 1/2").

Figure C-14a

BORING B1-B (continued)



Project No.: A9009-06-01A
Client: Beverly Hills Wilshire International, LLC
Location: 9900 Wilshire Blvd
 Los Angeles, CA

Excavation Date: January 19, 2014
Drilling Company: Martini Drilling
Excavation Method: H.S.A. - Continuous Core
Boring Diameter: 8 inches
Surface Elevation: 288.0 feet
Geologist: AL/SFK

Box	Run #	% Rec	REC.	Depth (feet)	USCS Class.	Description
3	5	80		20	SM/ML	20'- Silty Sand to Silt with Sand, dark yellowish brown (10YR 3/4) to dark brown (7.5YR 3/4), very fine- to fine-grained, trace clay, massive.
				21		
				22		
				23		22.5' - grades to sand with silt
				24		ML
3	6	100		25	SP/SM	24.1' - Sand, mottled dark yellow brown (10YR 4/3, and 10YR 4/6) and gray (10YR 6/1), fine-grained, trace to minor gravel, (to 1/4"), trace silt and clay, massive.
				26		
				27		
				28		28' - increase in gravel
				29		SC
4	7	98		30		
				31	SM/SC	30.5- Silty Sand, dark yellowish brown (10YR 4/4 to 10YR 4/6), minor clay, fine-grained, trace to minor gravel (to 1/2"), predominantly slate, few diatomaceous siltstone clasts.
				32		
				33	ML/SM	32.5' - Silt to Silty Sand, dark yellowish brown (10YR 4/6), very fine-grained, generally massive to weakly bedded.
				34		
4	8	98		35		34.9' to 35.0' - No Recovery
				36	SM	35.7' - Silty Sand with Gravel, dark yellowish brown (10YR 4/6), fine-grained, gravel (to 1/2", few to 1"), subangular.
				37		
				38	ML/SM	37.1' - Silt with Sand to Sandy Silt, dark yellowish brown (10YR 4/6), very fine-grained, trace clay, massive.
				39	SP	38' - Sand and Gravel, dark yellowish brown (10YR 4/6), fine- to medium-grained, predominantly slate, few siltstone (to 1").
	40	ML/SM	38.9' - Silt with Sand to Silty Sand, dark yellowish brown (10YR 4/6), very fine-grained, minor clay, massive.			
					SP/SM	39.5' - Sand to Silty Sand with Gravel, dark yellowish brown (10YR 4/4), 40% gravel (to 2"). 39.5' to 40' - No Recovery

Figure C-14b

BORING B1-B (continued)



Project No.: A9009-06-01A
Client: Beverly Hills Wilshire International, LLC
Location: 9900 Wilshire Blvd
 Los Angeles, CA

Excavation Date: January 19, 2014
Drilling Company: Martini Drilling
Excavation Method: H.S.A. - Continuous Core
Boring Diameter: 8 inches
Surface Elevation: 288.0 feet
Geologist: AL/SFK

Box	Run #	% Rec	REC.	Depth (feet)	USCS Class.	Description
				40		Same as Previous
5	9	90		41	ML	40.9' - Sandy Silt, dark yellowish brown (10YR 4/4), very fine-grained, minor gravel (to 1/4").
				42		
				43		
				44	SP-SM	44.1' - Sand with Silt, dark yellowish brown (10YR 4/6 to 10YR 5/4), fine- to medium-grained, trace coarse, minor gravel (to 1-1/2"), crude stratification, alternating Silty Sand and Sandy Silt beds. 44.5 to 45' - No recovery
				45		
5	10	92		46		
				47		
				48		
				49		
				50		49.6 to 50' - No Recovery
6	11	96		50.6		50.6' - grades to Silty Sand to Silt with Sand, very fine-grained, some oxidation stringers
				51		
				52	ML/SM	51.6' - Silt with Sand to Silty Sand, dark yellowish brown (10YR 4/4), trace to minor clay, fine-grained, weakly laminated.
				53	SP	52.6' - Sand, dark yellowish brown (10YR 4/6), very fine-grained, trace silt and gravel (to 1/2").
				54	ML	LAKWOOD FORMATION (Qlw) 53.6' - Clayey Silt, dark gray (10YR 4/1), massive to varved. 54.5' - increase in clay content
6	12	100		54.8		54.8 to 55' - No Recovery
				55		
				56	ML	55.9' - Silt with Sand, brown (7.5YR 4/3), very fine-grained, trace gravel (to 1/8"), massive.
				57		
				58	CL/SC	57.6' - Clay with Sand to Clayey Sand, brown (7.5YR 4/3), very fine-grained, massive.
	59					
				60		60' - increase in clay content

Figure C-14c

BORING B1-B (continued)



Project No.: A9009-06-01A

Client: Beverly Hills Wilshire
International, LLC

Location: 9900 Wilshire Blvd
Los Angeles, CA

Excavation Date: January 19, 2014

Drilling Company: Martini Drilling

Excavation Method: H.S.A. - Continuous Core

Boring Diameter: 8 inches

Surface Elevation: 288.0 feet

Geologist: AL/SFK

Box	Run #	% Rec	REC.	Depth (feet)	USCS Class.	Description	
7	13	100		60		Same as Previous	
				61			
				62			
				63			
				64			
7	14	90		65			
				66			
				67			
				68	SM		67.9' - Silty Sand, brown (10YR 4/3 to 7.5YR 4/3), trace to minor gravel (to 1"), subangular to subrounded, trace clay.
				69	SP-SM		68.8' - Sand with Silt, brown (10YR 4/3 to 7.5YR 4/3) minor clay, fine- to medium-grained, massive.
			70		69.5' to 70' - No Recovery		
				71		Total depth of boring: 70 feet. Depth of fill not determined.	
				72		Groundwater encountered during drilling at 57 feet; static groundwater level at 54 feet (after 20 minutes).	
				73		Backfilled with soil cuttings and tamped. Concrete patched.	
				74			
				75			
				76			
				77			
				78			
				79			
				80			

Figure C-14d

BORING B2-B



Project No.: A9009-06-01A
Client: Beverly Hills Wilshire International, LLC
Location: 9900 Wilshire Blvd
 Los Angeles, CA

Excavation Date: January 20, 2014
Drilling Company: Martini Drilling
Excavation Method: H.S.A. - Continuous Core
Boring Diameter: 8 inches
Surface Elevation: 288.6 feet
Geologist: AL/SFK

Box	Run #	% Rec	REC.	Depth (feet)	USCS Class.	Description
1	1	100	█	0		Started sampling at 2.3'
				1		
				2	ML	ALLUVIUM (Qal) Silt with Sand, dark yellowish brown (10YR 4/4), fine-grained, trace fine gravel (to 1/4").
				3		
				4	SM	3.3' - Silty Sand, 10YR 4/4, fine-grained, trace gravel (to 1/2"), predominantly slate, few siltstone siltstone clasts. 4.8' - trace clay
1	2	88	█	5		5' to 5.6' - No Recovery
				6	SP-SM	5.6' - Sand with Silt, dark yellowish brown (10YR 3/4 to 10YR 4/4), fine-grained, trace gravel (to 1 1/2"), few roots.
				7		
				8	SP	7.3' - Sand, dark yellowish brown (10YR 5/6), very fine- to fine-grained, minor silt, trace gravel (to 1").
				9		
2	3	78	█	10	ML/SM	9.7' - Silt with Sand to Silty Sand, brown (10YR 4/3), fine-grained, trace gravel (to 1/4").
				11		
				12	SM	OLDER ALLUVIUM (Qoal) 11.5' - Silty Sand with gravel, brown (10YR 4/3), minor clay, gravel (to 1/2") disseminated throughout unit (10% to 15%), massive.
				13		
				14		13.9' to 15' - No Recovery
2	4	100	█	15		
				16	SM	15.4' - Silty Sand with Gravel, dark yellowish brown, gravel (to 3/4") disseminated throughout unit, trace clay, massive.
				17		17.0' - increase in sand content and decrease in silt content
				18		
				19		
				20		

Figure C-15a

BORING B2-B (continued)



Project No.: A9009-06-01A
Client: Beverly Hills Wilshire International, LLC
Location: 9900 Wilshire Blvd
 Los Angeles, CA

Excavation Date: January 20, 2014
Drilling Company: Martini Drilling
Excavation Method: H.S.A. - Continuous Core
Boring Diameter: 8 inches
Surface Elevation: 288.6 feet
Geologist: AL/SFK

Box	Run #	% Rec	REC.	Depth (feet)	USCS Class.	Description
3	5	100		20		
					SM	20.1' - Silty Sand, brown (7.5YR 4/3 to 7.5YR 4/4), trace to minor gravel (to 1/4"), massive.
				21		
				22		
				23		
3	6	100		24	SM	23.9' - Silty Sand with Gravel, mottled brown (7.5YR 4/3) and light gray (7.5YR 7/1), oxidized.
				25		
				26		
				27		
				28		
4	7	100		29		
				30	SM	29.3' - Silty Sand, brown (7.5YR 4/3 to 10YR 4/3), minor clay films, massive.
				31	ML/SM	30.6' - Silt with Sand to Silty Sand, dark yellowish brown (10YR 4/4), very fine- to very fine-grained, faintly laminated.
				32		
				33		
4	8	100		34	SP-SM	33.4' - Sand with Silt and Gravel, (10YR 4/4), fine- to medium-grained, trace coarse, gravel predominantly slate, some siltstone (to 1"), massive.
				35		
				36		
				37	ML	36.1' - Silt with Sand, brown (10YR 4/3), minor clay, trace gravel; (to 1/4"), massive.
				38		
	39	SP-SM	38.4' - Sand with Silt, brown (10YR 4/3), fine-grained, trace clay, massive. 39.2' - trace gravel (up to 1/2")			
	40					

Figure C-15b

BORING B2-B (continued)



Project No.: A9009-06-01A
Client: Beverly Hills Wilshire International, LLC
Location: 9900 Wilshire Blvd
 Los Angeles, CA

Excavation Date: January 20, 2014
Drilling Company: Martini Drilling
Excavation Method: H.S.A. - Continuous Core
Boring Diameter: 8 inches
Surface Elevation: 288.6 feet
Geologist: AL/SFK

Box	Run #	% Rec	REC.	Depth (feet)	USCS Class.	Description
5	9	98		40		Same as Previous
				41	ML	40.9' - Silt with Sand, (10YR 4/4), very fine-grained, trace clay, massive.
				42		
				43		
				44	SC	44.4' - Clayey Sand, dark yellowish brown (10YR 4/4), very fine-grained, thickly laminated.
5	10	84		44.9' - 45' - No Recovery		
				45	SP	45' - Sand, dark yellowish brown (10YR 4/4), fine-grained, trace silt and gravel (to 1/8").
				46	SM/ML	45.3' - Silty Sand and Silt with Sand, dark yellowish brown (10YR 4/4), trace gravel (to 1/8"), thickly laminated.
				47	SP-SM	46.1' - Sand with Silt, dark yellowish brown (10YR 4/6), minor gravel (to 1"), crudely stratified, to thickly laminated, gravel zones between 46.6' and 46.8' and 47.5' and 48.1'.
				48		
				49		48.1' - decrease in gravel content
				50		49.1' to 50' - No Recovery
6	11	100		51		
				52	ML	51.4' - Clayey Silt, very dark brown (10YR 3/3), fine-grained, trace sand, massive. Increase in sand content below 52.5'.
				53	CL/ML	LAKEWOOD FORMATION (Qlw)
6	12	96		54		53.0' - Silty Clay to Clayey Silt, gray (10YR 4/1), massive.
				55	ML/SM	54.8' - Silty Sand to silt with Sand, brown (7.5YR 4/4), very fine-grained, minor clay, massive.
				56		
				57	SP/SM	56.3' - Sand to Silty Sand, brown (7.5YR 4/4) to dark yellowish brown (10YR 4/4), trace clay, massive.
				58	ML	57.5' - Clayey Silt, brown (7.5YR 4/3), trace gravel (to 1/4"), subangular to subrounded, weakly laminated.
				59		
				60		59.4' to 60' - No Recovery

Figure C-15c

BORING B2-B (continued)



Project No.: A9009-06-01A

Client: Beverly Hills Wilshire
International, LLC

Location: 9900 Wilshire Blvd
Los Angeles, CA

Excavation Date: January 20, 2014

Drilling Company: Martini Drilling

Excavation Method: H.S.A. - Continuous Core

Boring Diameter: 8 inches

Surface Elevation: 288.6 feet

Geologist: AL/SFK

Box	Run #	% Rec	REC.	Depth (feet)	USCS Class.	Description
7	13	92		60	SM	60.1' - Silty Sand, brown (7.5YR 4/4), minor clay, trace to minor gravel (to 1/2"), massive.
				61		
				62	CL/ML	60.5' - Clayey Silt, dark brown (7.5YR 3/3), varved.
				63		
				64		
	65		64.6' to 65' - No Recovery			
7	14	100		66		
				67		
				68	SM	67.9' - Gravelly Silty Sand, dark brown (7.5YR 3/3 to 10YR 3/3), trace to minor clay, massive.
				69		
				70	ML	68.2' - Silt with Clay, dark brown (10YR 3/3), trace gravel; with gravel below 69.5'.
	71		Total depth of boring: 70 feet.			
	72		Depth of fill not determined.			
	73		Groundwater encountered during drilling at 58 feet; static groundwater at 54.5 feet (after 20 minutes).			
	74		Backfilled with soil cuttings and tamped.			
	75		Concrete patched.			
	76					
	77					
	78					
	79					
	80					

Figure C-15d

BORING B3-B



Project No.: A9009-06-01A
Client: Beverly Hills Wilshire International, LLC
Location: 9900 Wilshire Blvd
 Los Angeles, CA

Excavation Date: January 21, 2014
Drilling Company: Martini Drilling
Excavation Method: H.S.A. - Continuous Core
Boring Diameter: 8 inches
Surface Elevation: 290.0 feet
Geologist: AL/SFK

Box	Run #	% Rec	REC.	Depth (feet)	USCS Class.	Description
1	1	100		0		Started sampling at 2.3'
				1		
				2	SM	ALLUVIUM (Qal) Silty Sand, brown (10YR 4/3), minor gravel (to 1"), fine-grained, massive.
				3		
1	2	100		4	ML/SM	3.4' - Silt with Sand to Silty Sand, brown (10YR 4/3) to dark yellowish brown (10YR 4/4), fine-grained, trace clay and gravel (to 1/8"), some manganese staining, massive.
				5		
				6		
				7		
1	2	100		8	ML/SM	OLDER ALLVIUM (Qoal) 7.0' - Sandy Silt to Silty Sand, brown (10YR 4/3), trace gravel (to 1/4"), massive.
				9	SM	7.9' - Silty Sand, brown (10YR 4/3), minor gravel (to 1/2"), gravel predominantly slate, few siltstone, subrounded to subangular very fine-grained, massive.
				10	ML/SM	9.1' - Silty Sand to Silt with Sand, dark yellowish brown (10YR 4/4), minor gravel (to 2"), massive.
				11		10' - Increase in gravel content, fine- to coarse-grained sand
2	3	100		12		
				13		
				14	SW	13.4' - Sand and Gravel, dark grayish brown (10YR 4/2), 30% to 40% gravel (to 2"), fine- to coarse-grained, trace silt, crudely stratified.
				15		
2	4	100		16		
				17	SC	15.8' - Clayey Sand to Sand with Clay, brown (7.5YR 4/2) to grayish brown (10YR 4/2), fine-grained, trace to minor gravel (to 1/8"), massive.
				18		
				19		
				20		

Figure C-16a

BORING B3-B (continued)



Project No.: A9009-06-01A
Client: Beverly Hills Wilshire International, LLC
Location: 9900 Wilshire Blvd
 Los Angeles, CA

Excavation Date: January 21, 2014
Drilling Company: Martini Drilling
Excavation Method: H.S.A. - Continuous Core
Boring Diameter: 8 inches
Surface Elevation: 290.0 feet
Geologist: AL/SFK

Box	Run #	% Rec	REC.	Depth (feet)	USCS Class.	Description
3	5	100		20	SC/SP	20.0' - Clayey Sand to Sand, minor clay, brown (7.5YR 4/4), fine-grained, porous, massive.
				21		
				22		
				23	SC/SM	21.7' - Clayey Sand to Silty Sand, brown (7.5YR 4/4), very fine-grained, weakly laminated.
3	6	97		24		
				25	SC/SP	23.9' - Clayey Sand, to Sand with Clay, brown (7.5YR 4/4), minor gravel (to 3/4"), predominantly few diatomaceous siltstone clasts, fine-grained, massive.
				26		24.9' to 25.0' - No Recovery 25.0' to 27.9' - laminated
				27		
				28		27.9' - increase in gravel content, with light gray (7.5YR 7/1) mottles
				29	CL	28.8' - Clay with Sand, brown (7.5YR 4/2 to 7.5YR 4/3), very fine-grained, massive.
				30	SM	30.0' - Silty Sand, dark yellowish brown (10YR 4/4), very fine-grained, massive.
4	7	100		31	CL/SC	30.4' - Clay with Sand to Clayey Sand, dark yellowish brown (10YR 4/4), very fine-grained, faintly varved, trace manganese nodules.
				32		
				33		32.5' to 32.6' - with gravel and fine sand
				34	SC/SM	33.7' - Clayey Sand with Gravel, dark yellowish brown (10YR 4/4), fine-grained, gravel to 1/2", crudely stratified.
4	8	100		35		35.0' to 35.8' - grades to Silt with Sand to Silty Sand, very fine-grained, minor clay
				36	SP-SM	35.9' - Sand with Silt, brown (10YR 4/3) to dark yellowish brown (10YR 4/4), minor clay, very fine-grained, crudely stratified.
				37		
				38		37.8' - grades to Sand, fine-grained, trace to minor silt, minor gravel (to 1/2") 38.0' - grades to Silt with Sand, fine-grained
				39		38.6' - trace gravel (to 1-1/2"), medium- to coarse-grained, massive to crudely stratified
				40		

Figure C-16b

BORING B3-B (continued)



Project No.: A9009-06-01A

Client: Beverly Hills Wilshire
International, LLC

Location: 9900 Wilshire Blvd
Los Angeles, CA

Excavation Date: January 21, 2014

Drilling Company: Martini Drilling

Excavation Method: H.S.A. - Continuous Core

Boring Diameter: 8 inches

Surface Elevation: 290.0 feet

Geologist: AL/SFK

Box	Run #	% Rec	REC.	Depth (feet)	USCS Class.	Description	
5	9	100		40	MLSM	40.0' - Silt to Silty Sand, (10YR 4/3), brown very fine-grained, massive to crudely stratified.	
				41			
				42			41.9' - minor Clay
				43			
5	10	100		44	ML	43.1' - Silt with Sand, brown (10YR 4/3), very fine-grained, trace gravel (to 2"), weakly laminated. Increase in sand and gravel content with depth.	
				45			
				46			
				47			
5	10	100		48	SP-SM	44.5' - Sand with Silt, brown (10YR 4/3), trace to minor gravel, very fine-grained, thickly laminated.	
				49			
				50			
				51			
6	11	100		52	CL	51.0' - Clay with Sand, dark gray (10YR 4/1), very fine-grained. Increase in sand content with depth.	
				53			
				54			
				55			
6	12	100		56	SM/ML	52.4' - Silty Sand to Silt with Sand, brown (10YR 4/3), minor clay, very fine-grained, (to 1/4"), laminated.	
				57			
				58			
				59			
6	12	100		60	CL/ML	55.8' - Clay with Sand to Silt with Sand, dark yellowish brown (10YR 4/4), trace gravel. 57.5' - increase in sand content	
				61			

Figure C-16c

BORING B3-B (continued)



Project No.: A9009-06-01A
Client: Beverly Hills Wilshire International, LLC
Location: 9900 Wilshire Blvd
 Los Angeles, CA

Excavation Date: January 21, 2014
Drilling Company: Martini Drilling
Excavation Method: H.S.A. - Continuous Core
Boring Diameter: 8 inches
Surface Elevation: 290.0 feet
Geologist: AL/SFK

Box	Run #	% Rec	REC.	Depth (feet)	USCS Class.	Description
7	13	100		60		Same as Previous
				61	SM	60.9' - Silty Sand, dark yellowish brown (10YR 4/4 to 10YR 4/6), very fine-grained, trace to minor clay, trace gravel (to 1/4"), subrounded.
				62	SC/CL	
				63		61.7' - Clayey Sand to Sandy Clay, dark yellowish brown (10YR 4/4), fine-grained, trace gravel (to 1/4").
7	14	97		64	SM	63.6' - Silty Sand, dark yellowish brown (10YR 4/4), fine-grained.
				65		
				66	SC	65.8' - Clayey Sand, dark yellowish brown (10YR 4/4), fine-grained, massive.
				67		
				68	SP	66.9' - Sand and Gravel, dark yellowish brown (10YR 4/4), fine- to medium-grained, trace silt, gravel (to 1/2"), manganese staining, massive.
				69	SC	68.6' - Clayey Sand, dark yellowish brown (10YR 4/4), fine-grained, massive.
	70	SP	69.3' - Sand, dark yellowish brown (10YR 4/4), trace gravel (to 1/4"), fine-grained, massive.			
			70			Total depth of boring: 70 feet.
			71			Fill to 2.3 feet.
			72			Groundwater encountered during drilling at 59.4 feet; static groundwater level not determined.
			73			Backfilled with soil cuttings and tamped.
			74			Concrete patched.
			75			
			76			
			77			
			78			
			79			
			80			

Figure C-16d

BORING B4-B



Project No.: A9009-06-01A
Client: Beverly Hills Wilshire International, LLC
Location: 9900 Wilshire Blvd
 Los Angeles, CA

Excavation Date: January 22, 2014
Drilling Company: Martini Drilling
Excavation Method: H.S.A. - Continuous Core
Boring Diameter: 8 inches
Surface Elevation: 291.7 feet
Geologist: AL

Box	Run #	% Rec	REC.	Depth (feet)	USCS Class.	Description
1	1	0		0		Hand Augered to 5'
				1		
				2		
				3		
				4		
1	2	100		5		ARTIFICIAL FILL (af)
				6	SM	Silty Sand, gray (10YR 5/1), fine-grained.
				6	ML	5.7' - Silt with Sand, dark yellowish brown (10YR 3/6), minor clay.
				7		
				8	ML/SM	7.5' - Silt with Sand to Silty Sand, dark gray (10YR 4/1), very fine-grained, minor roots and organics.
2	3	90		9		
				10		
				11		
				12		
				13		
2	4	100		14		ALLUVIUM (Qal)
				15	SM	13.9' - Silty Sand with gravel, yellowish brown (10YR 5/4) to dark yellowish brown (10YR 4/4), fine- to medium-grained, gravel subrounded (to 1"), massive. 14.5' to 15.0' - No Recovery
				16	ML/SM	15.6' - Silt with Sand to Silty Sand, dark grayish brown (2.5Y 4/2), very fine-grained, massive.
				17		
				18	ML	17.0' - Silt with Sand, very dark grayish brown (10YR 3/2) to dark brown (7.5R 3/2), very fine-grained, massive.
				19	SP-SM	18.4' - Sand with Silt to Sand, very dark grayish brown (10YR 3/2) to dark brown (7.5R 3/2), minor to with gravel (to 2"), subrounded, massive.
				20		

Figure C-17a

BORING B4-B (continued)



Project No.: A9009-06-01A

Client: Beverly Hills Wilshire
International, LLC

Location: 9900 Wilshire Blvd
Los Angeles, CA

Excavation Date: January 22, 2014

Drilling Company: Martini Drilling

Excavation Method: H.S.A. - Continuous Core

Boring Diameter: 8 inches

Surface Elevation: 291.7 feet

Geologist: AL

Box	Run #	% Rec	REC	Depth (feet)	USCS Class.	Description
3	5	84		20		Same as Previous
				21	SP	21.0' - Sand, dark yellowish brown (10YR 4/4), minor disseminated gravel (to 1/4"), fine-grained, trace medium, massive.
				22	ML	OLDER ALLUVIUM (Qoal) 21.8' - Silt with Sand, dark yellowish brown (10R 4/4), trace clay, distinctive oxidation striping.
				23		
				24		24.2' to 25.0' - No Recovery
3	6	100		25		
				26		
				27		
				28		
				29		
4	7	100		30	CL	30.0' - Clay with Sand to Clayey Sand, grayish brown (2.5Y 5/2), very fine-grained, massive.
				31		
				32		
				33		
				34	SC	33.7' - Clayey Sand with Gravel, grayish brown (2.5Y 5/2), gravel subrounded (to 1/4"), fine-to medium-grained.
4	8	100		35	SM	35' - Silty Sand with Gravel, grayish brown (2.5Y 5/2), gravel subrounded (to 1"), massive.
				36	SM	35.9' - Silty Sand, yellowish brown (10YR 5/6), minor clay, distinct oxidation striping.
				37	ML/SM	37.3' - Silt with Sand to Silty Sand, dark yellowish brown (10YR 4/4) to brown (7.5YR 4/4), very fine-grained, trace clay and gravel (to 1/4"), laminated.
				38		
				39		
				40		

Figure C-17b

BORING B4-B (continued)



Project No.: A9009-06-01A
Client: Beverly Hills Wilshire International, LLC
Location: 9900 Wilshire Blvd
 Los Angeles, CA

Excavation Date: January 22, 2014
Drilling Company: Martini Drilling
Excavation Method: H.S.A. - Continuous Core
Boring Diameter: 8 inches
Surface Elevation: 291.7 feet
Geologist: AL

Box	Run #	% Rec	REC.	Depth (feet)	USCS Class.	Description
5	9	100		40	ML/SM	Same as Previous
				41		
				42		42.2' - increase in clay content
				43		
				44		43.7' - Sand and Gravel, yellowish brown (10YR 5/4), fine- to coarse-grained, gravel subangular to predominantly slate, few diatomaceous siltstone (to 3"), crudely stratified to massive, some manganese staining.
5	10	92		45	SW	
				46		
				47		
				48		
				49		49.6' to 50' - No Recovery
6	11	100		50	CL/SC	50.0' - Clay with Sand to Clayey Sand, mottled gray (10YR 5/1) and dark yellowish brown (10YR 4/6), trace gravel (to 1/4"), varved.
				51		
				52		
				53		
				54		
6	12	100		55		
				56	SM	55.9' - Silty Sand (10YR 4/6), fine-grained, trace gravel (to 1").
				57	SP-SM	57.2' - Sand with Silt and Gravel, (10YR 4/4), fine-grained, gravel subrounded to subangular (to 1"), predominantly slate, some siltstone and sandstone clasts, trace manganese nodules and staining.
				58		
				59	CL	58.7' - Clay with Sand, dark yellowish brown (10YR 4/4), fine-grained. 59.4' - with gravel (to 3/4")
				60		

Figure C-17c

BORING B4-B (continued)



Project No.: A9048-06-01A

Client: Beverly Hills Wilshire
International, LLC

Location: 1818 N. Cherokee Avenue
Los Angeles, CA

Excavation Date: January 22, 2014

Drilling Company: Martini Drilling

Excavation Method: H.S.A. - Continuous Core

Boring Diameter: 8 inches

Surface Elevation: 291.7 feet

Geologist: AL

Box	Run #	% Rec	REC.	Depth (feet)	USCS Class.	Description
7	13	100		60	CL/ML	60.0' - Clay with Sand to Silt with Sand, dark yellowish brown (10YR 4/6), fine grained, trace to minor manganese nodules, varved.
				61		
				62		
				63		
				64		
7	14	100		65	SM	62.3" - Silty Sand, dark yellowish brown (10YR 4/6), fine- to medium-grained, trace silt and gravel (to 1/4"), thickly laminated. Increase in sand content with depth.
				66		
				67		
				68		
				69		
				70	CL	LAKEWOOD FORMATION (Qlw) 65.0' - Clay with Sand, dark yellowish brown (10YR 4/6), very fine-grained, distinct oxidation striping.
				71		
				72		
				73		
				74		
				75		
				76		
				77		
				78		
				79		
				80		
						Total depth of boring: 70 feet. Fill to 13.9 feet. Groundwater encountered during drilling at 43 feet; static groundwater level at 34.3 feet (after 20 mintes). Backfilled with soil cuttings and tamped. Concrete patched.

Figure C-17d

BORING B5-B



Project No.: A9009-06-01A
Client: Beverly Hills Wilshire International, LLC
Location: 9900 Wilshire Blvd
 Los Angeles, CA

Excavation Date: January 27, 2014
Drilling Company: Martini Drilling
Excavation Method: H.S.A. - Continuous Core
Boring Diameter: 8 inches
Surface Elevation: 293.4 feet
Geologist: AL/SFK

Box	Run #	% Rec	REC	Depth (feet)	USCS Class.	Description
1	1	100	█	0		Started sampling at 1.9'
				1		
				2	ML	ALLUVIUM (Qal) Silt with Sand, light yellowish brown (10YR 6/4), fine-grained, minor roots and organics.
				3		
1	2	84	█	4		
				5	SC	4.4' - Clayey Sand, brown (7.5YR 4/4) to dark yellowish brown (10YR 4/4), minor gravel (to 1/4"), massive to crudely stratified. 5.6' - grades to Silty Sand, minor Clay
				6		
				7		7.0' - grades to Clayey Sand
				8		8.3' to 8.5' - Gravel bed (up to 3")
				9		9.2' to 10' - No Recovery
2	3	54	█	10		10' - Increase in clay content
				11		
				12	SM	11.1' - Silty Sand, dark yellowish brown (10YR 4/4) to brown (7.5YR 4/4), very fine- to fine-grained, minor clay and gravel (to 1/4"). 12.2' - trace clay
				13		12.7' to 15' - No Recovery
				14		
2	4	76	█	15	SP	15.3' - Sand, yellowish brown (10YR 5/6), fine-grained, trace medium and coarse, trace gravel (to 1/8"), massive.
				16	ML	OLDER ALLUVIUM (Qoal) 15.8' - Silt with Sand, yellowish brown (10YR 5/4 to 10YR 5/6), very fine-grained, minor clay.
				17		
				18	SP-SM	16.3' - Sand with Silt and Gravel, yellowish brown (10YR 5/6), fine- to coarse-grained, trace clay and gravel (to 1"), subrounded to subangular slate, siltstone and sandstone clasts, crudely stratified.
				19		18.8' to 20' - No Recovery
				20		

Figure C-18a

BORING B5-B (continued)



Project No.: A9009-06-01A

Client: Beverly Hills Wilshire
International, LLC

Location: 9900 Wilshire Blvd
Los Angeles, CA

Excavation Date: January 27, 2014

Drilling Company: Martini Drilling

Excavation Method: H.S.A. - Continuous Core

Boring Diameter: 8 inches

Surface Elevation: 293.4 feet

Geologist: AL

Box	Run #	% Rec	REC	Depth (feet)	USCS Class.	Description
3	5	100		20		Same as Previous
				21		20.8' - decrease in silt content
				22		
				23	ML/CL	22.0' - Silt with Sand to Clay with Sand, dark yellowish brown (10YR 4/4) to brown (7.5YR 4/4), massive.
				24		23.8' - increase in clay content, distinct oxidation striping.
3	6	100		25		
				26		
				27		
				28		
				29	CL/SC	28.5' - Clayey Sand, mottled brown (7.5YR 4/2) and gray (7.5YR 5/1 and Gley 5/N), trace to minor gravel (to 1/4"), caliche nodules concentrated in weakly developed beds.
4	7	83		30	SP	30.0' - Sand and Gravel, gray (Gley 1 5/N), fine- to medium-grained, trace coarse, gravel subangular to subrounded (to 1-1/2"), crudely stratified.
				31		
				32		
				33		
				34	SP-SM	33.7' - Sand with Silt, yellowish brown (10YR 5/6) to strong brown (7.5YR 5/6), fine-grained, massive.
4	8	100		35		34.2' to 35' - No recovery
				36	ML/SM	35' - Silt with Sand to Silty Sand, yellowish brown (10YR 5/6) to strong brown (7.5YR 5/6), very fine-grained, trace clay, weakly laminated.
				37		37' - increase in clay, decrease in sand
				38		
				39		
				40		

Figure C-18b

BORING B5-B (continued)



Project No.: A9009-06-01A
Client: Beverly Hills Wilshire International, LLC
Location: 9900 Wilshire Blvd
 Los Angeles, CA

Excavation Date: January 27, 2014
Drilling Company: Martini Drilling
Excavation Method: H.S.A. - Continuous Core
Boring Diameter: 8 inches
Surface Elevation: 293.4 feet
Geologist: AL

Box	Run #	% Rec	REC	Depth (feet)	USCS Class.	Description
5	9	100		40		Same as Previous
				41		
				42		
				43	SP/SM	42.4' - Sand and Gravel, strong brown (7.5YR 5/6) to yellowish brown (10YR 5/6), gravel subangular to subrounded (to 2").
				44		43.5' to 44.0' - Silty Sand, dark yellowish brown (10YR 4/6), minor gravel (to 1"), trace clay. 44.0' - crudely stratified
5	10	88		45		
				46		
				47		
				48	CL	47.2' - Clay with Sand, dark yellowish brown (10YR 4/6) to strong brown (7.5YR 4/6), fine-grained, varved.
				49		
6	11	72		50		49.4' to 50' - No Recovery
				51	SW	50.0' - Sand and Gravel, brown (7.5YR 4/4) to dark yellowish brown (10YR 4/4), gravel (to 3"), crudely stratified.
				52		
				53	SM	52.3' - Silty Sand, strong brown (7.5YR 4/6) to dark yellowish brown (10YR 4/6), minor clay, few mangense nodules, masive to weakly laminated.
				54		53.6' to 55' - No Recovery
6	12	87		55		
				56	SP	55.0' - Sand, dark yellowish brown (10YR 4/6), medium-grained, trace gravel at base (to 1/4"), subrounded, crudely stratified.
				57	SM	LAKEWOOD FORMATION (Qlw) 56.2' - Silty Sand, strong brown (7.5YR 4/6) to dark yellowish brown (10YR 4/6), minor clay, few manganese nodules, massive to crudely stratified.
				58		58.3' - increase in Sand content, minor gravel
				59		
				60		59.4' to 60.0' - No Recovery

Figure C-18c

BORING B5-B (continued)



Project No.: A9009-06-01A

Client: Beverly Hills Wilshire
International, LLC

Location: 9900 Wilshire Blvd
Los Angeles, CA

Excavation Date: January 27, 2014

Drilling Company: Martini Drilling

Excavation Method: H.S.A. - Continuous Core

Boring Diameter: 8 inches

Surface Elevation: 293.4 feet

Geologist: AL

Box	Run #	% Rec	REC	Depth (feet)	USCS Class.	Description
7	13	96		60	ML	60.0' - Silt, dark yellowish brown (10YR 4/4) to brown (7.5YR 4/4), massive.
				61	ML	60.9' - Silt with Sand, (7.5YR 4/4), fine-grained, massive.
				62		
				63	SP-SM	62.7' - Sand with Silt, brown (10YR 5/3) to yellowish brown (10YR 5/4), fine-grained, trace clay, massive.
				64		63.4' to 63.9' - sand bed, fine- to medium-grained.
7	14	100		63.9' - laminated		
				65		64.8' to 65.0' - No recovery
				66		
				67		
				68		
				69		69.6' to 70' - No Recovery
	70					
	71				Total depth of boring: 70 feet.	
	72				Depth of fill not determined.	
	73				Groundwater encountered during drilling at 45 feet; static groundwater level at 40.5 feet (after 20 minutes).	
	74				Backfilled with soil cuttings and tamped.	
	75				Asphalt patched.	
	76					
	77					
	78					
	79					
	80					

Figure C-18d



Kehoe Testing and Engineering

714-901-7270

rich@kehoetesting.com

www.kehoetesting.com

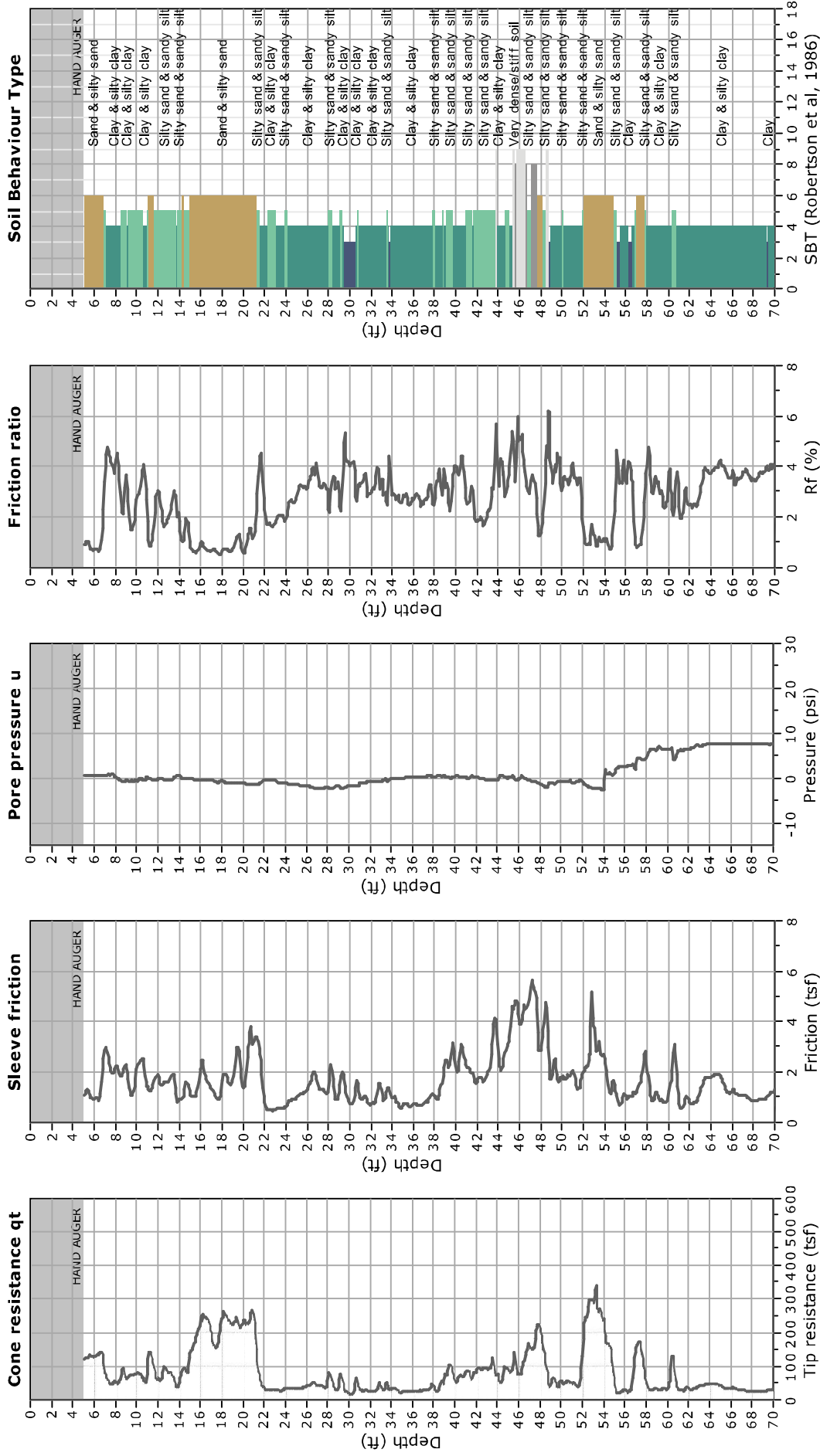
Project: Geokon Consultants

Location: 9900 Wilshire Blvd. Beverly Hills, CA

CPT: C-1

Total depth: 70.46 ft, Date: 10/31/2013

Cone Type: Vertek





Kehoe Testing and Engineering

714-901-7270

rich@kehoetesting.com

www.kehoetesting.com

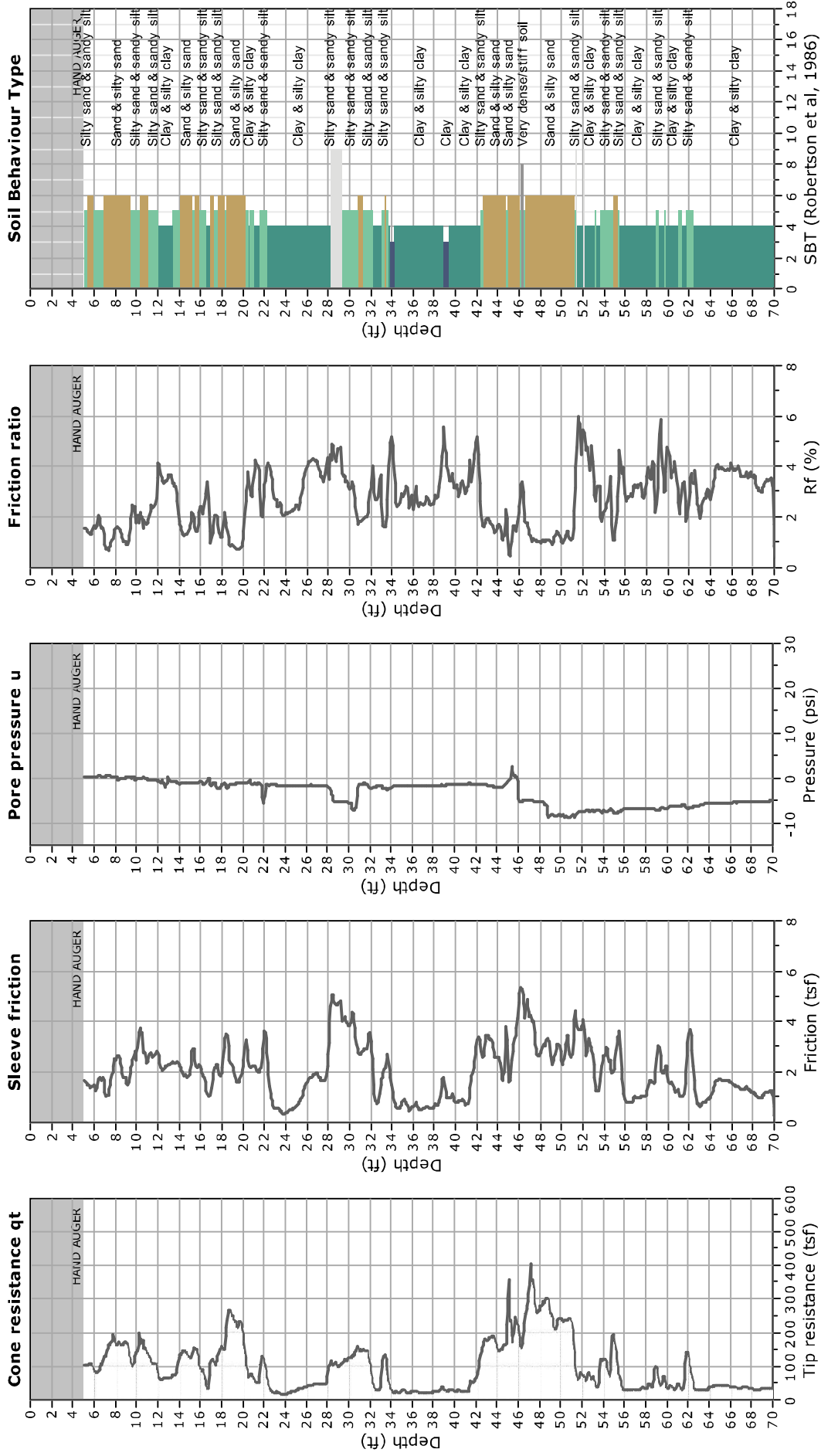
Project: Geocoin Consultants

Location: 9900 Wilshire Blvd. Beverly Hills, CA

CPT: C-2

Total depth: 70.31 ft, Date: 10/31/2013

Cone Type: Vertek





Kehoe Testing and Engineering

714-901-7270

rich@kehoetesting.com

www.kehoetesting.com

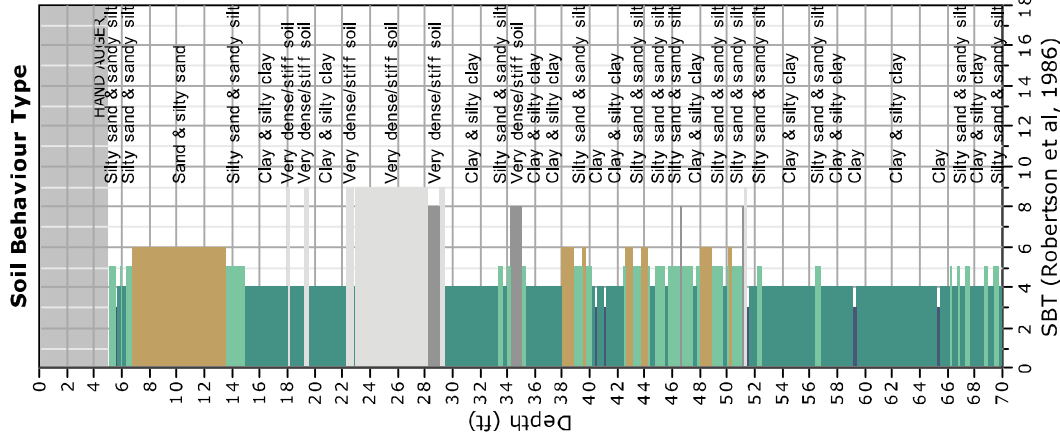
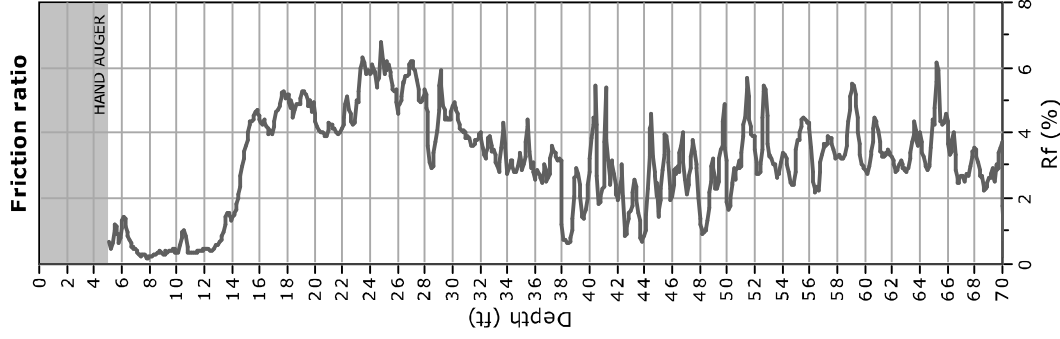
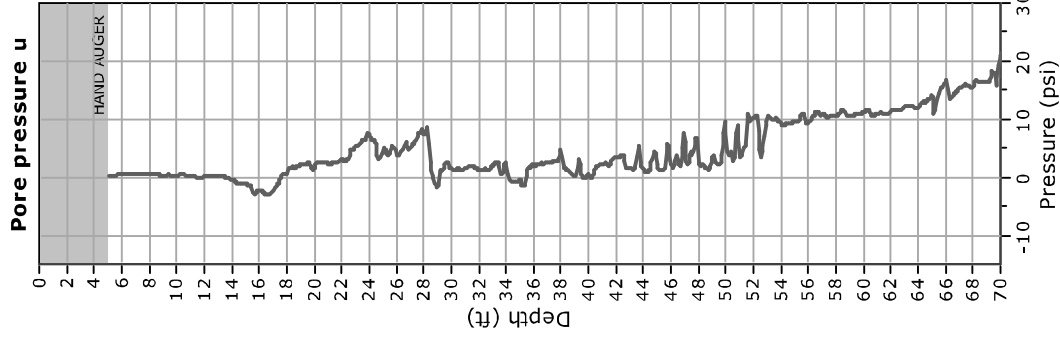
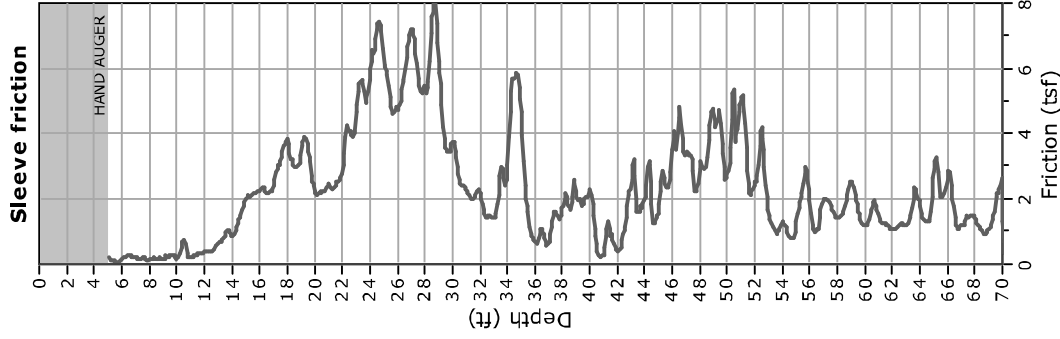
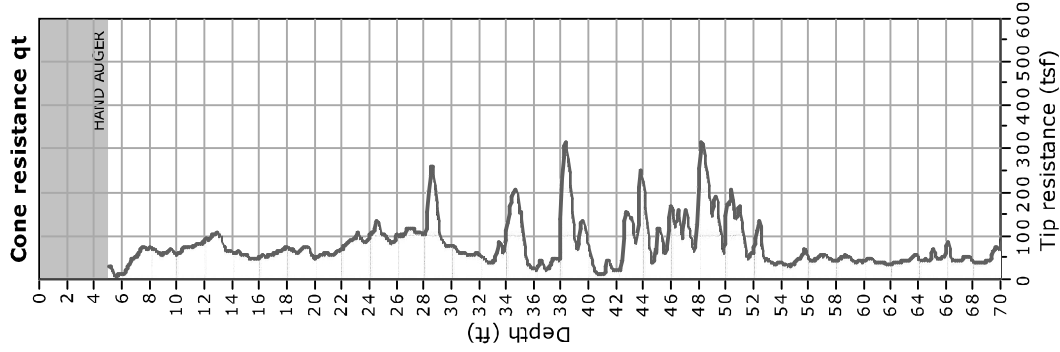
Project: Geokon Consultants

Location: 9900 Wilshire Blvd. Beverly Hills, CA

CPT: C-4

Total depth: 70.33 ft, Date: 10/30/2013

Cone Type: Vertek





Kehoe Testing and Engineering

714-901-7270

rich@kehoetesting.com

www.kehoetesting.com

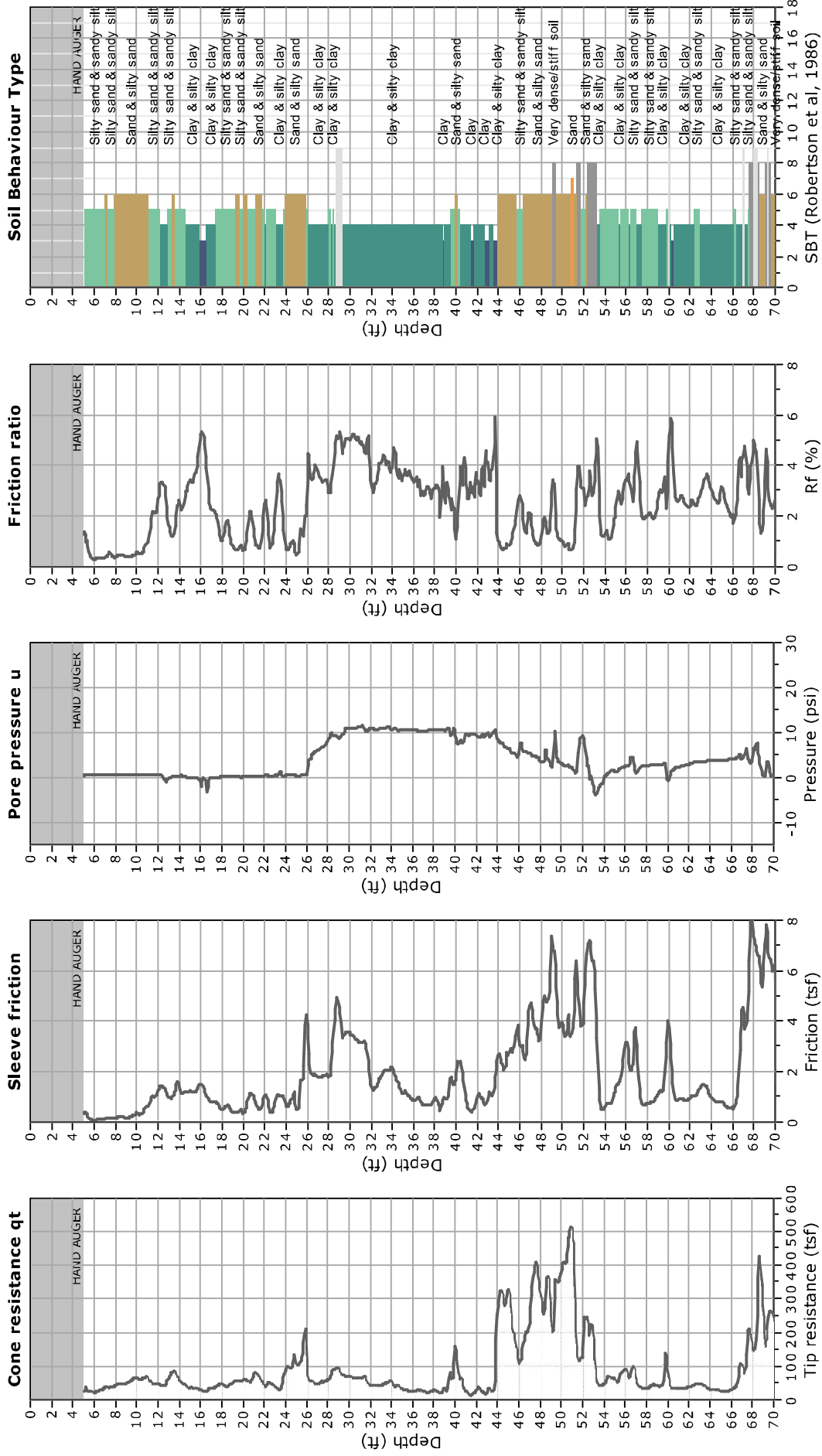
Project: Geokon Consultants

Location: 9900 Wilshire Blvd. Beverly Hills, CA

CPT: C-5

Total depth: 70.39 ft, Date: 10/30/2013

Cone Type: Vertek





Kehoe Testing and Engineering

714-901-7270

rich@kehoetesting.com

www.kehoetesting.com

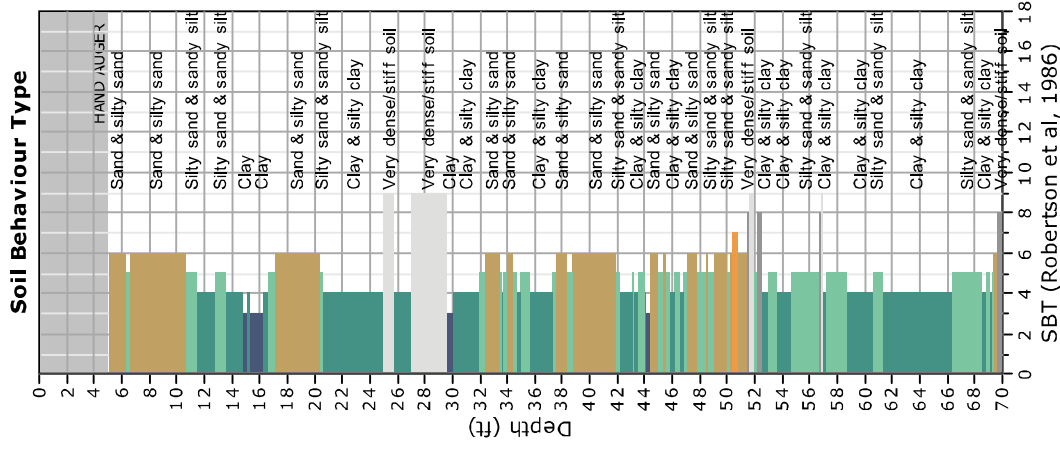
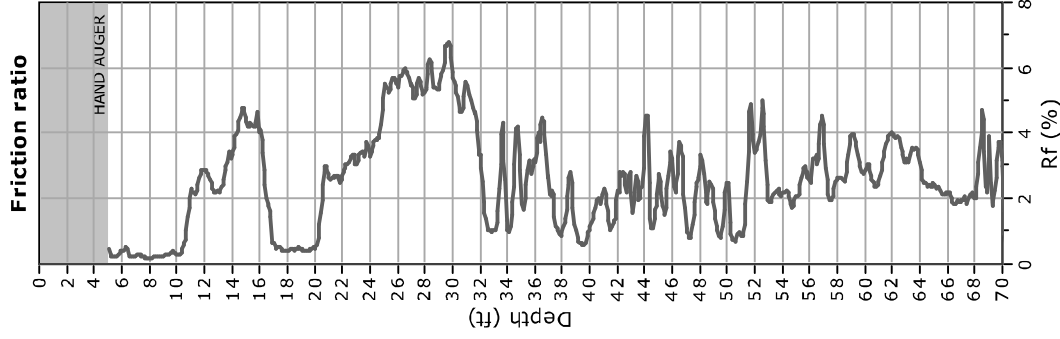
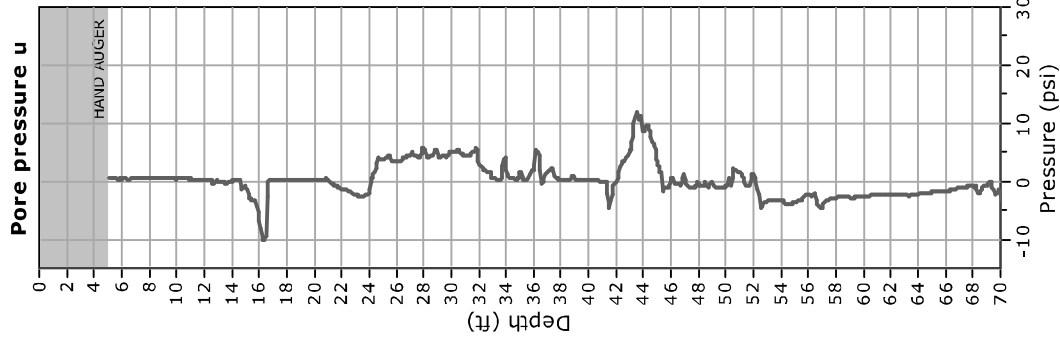
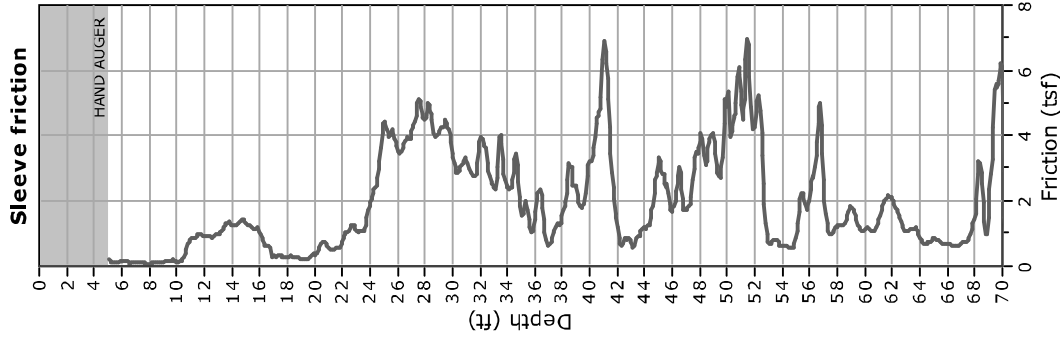
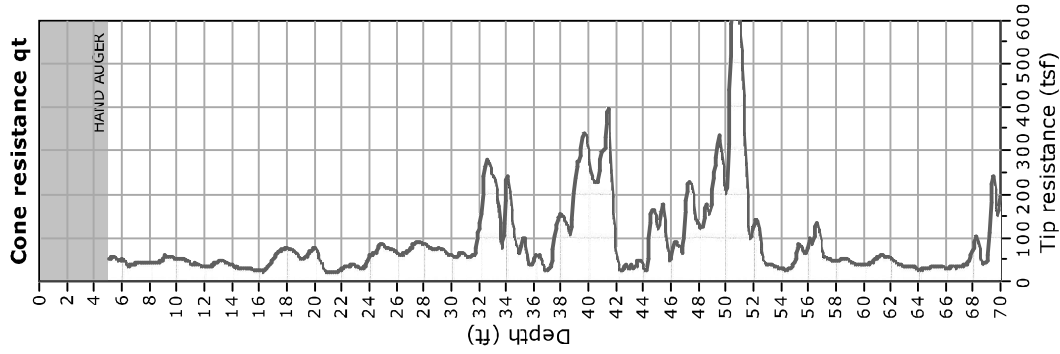
Project: Geokon Consultants

Location: 9900 Wilshire Blvd. Beverly Hills, CA

CPT: C-6

Total depth: 70.44 ft, Date: 10/30/2013

Cone Type: Vertek





Kehoe Testing and Engineering

714-901-7270

rich@kehoetesting.com

www.kehoetesting.com

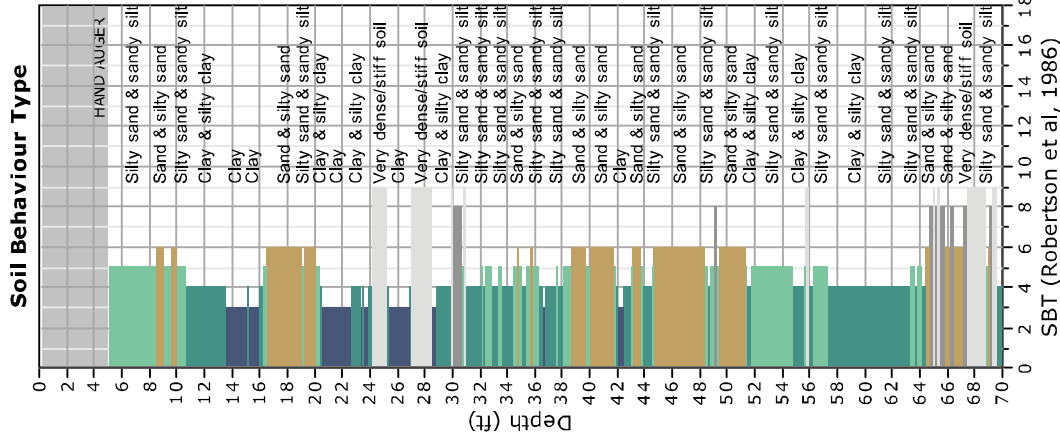
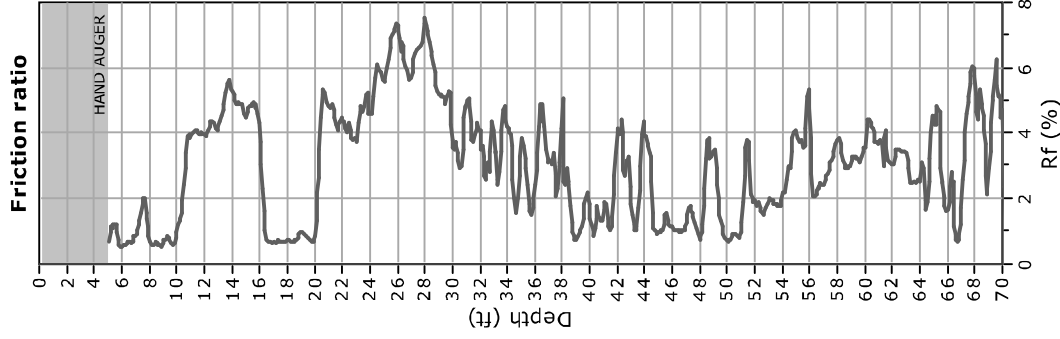
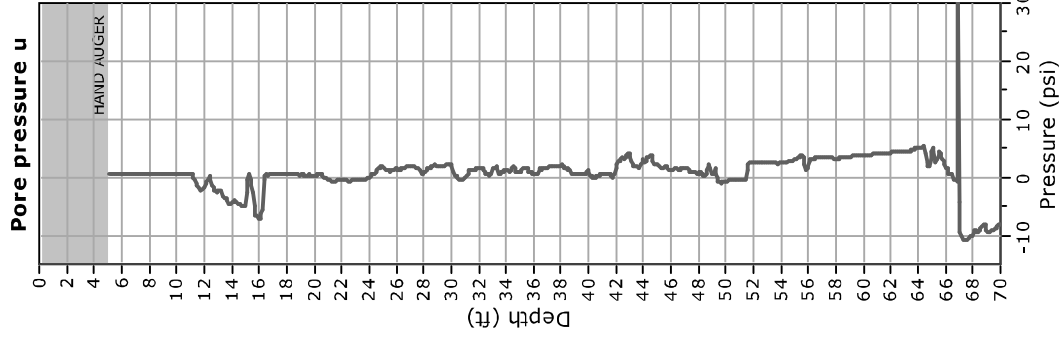
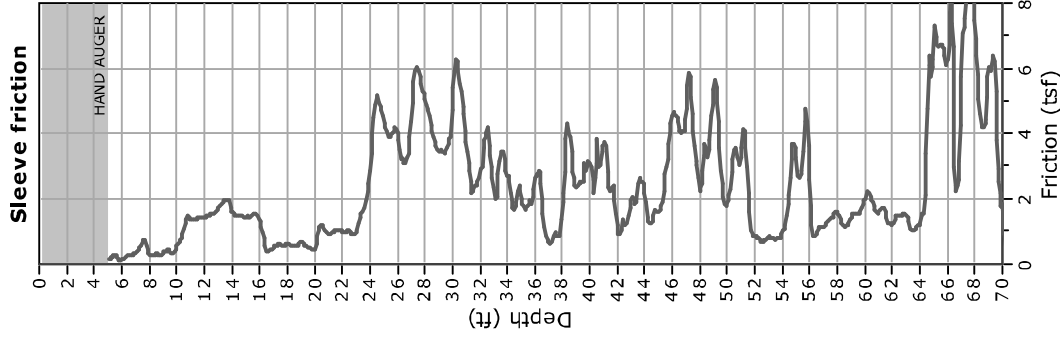
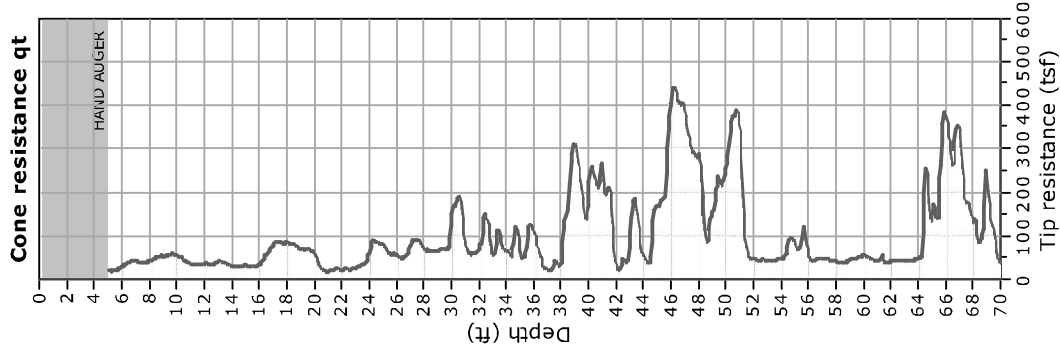
Project: Geokon Consultants

Location: 9900 Wilshire Blvd. Beverly Hills, CA

CPT: C-7

Total depth: 70.48 ft, Date: 10/30/2013

Cone Type: Vertek





Kehoe Testing and Engineering

714-901-7270

rich@kehoetesting.com

www.kehoetesting.com

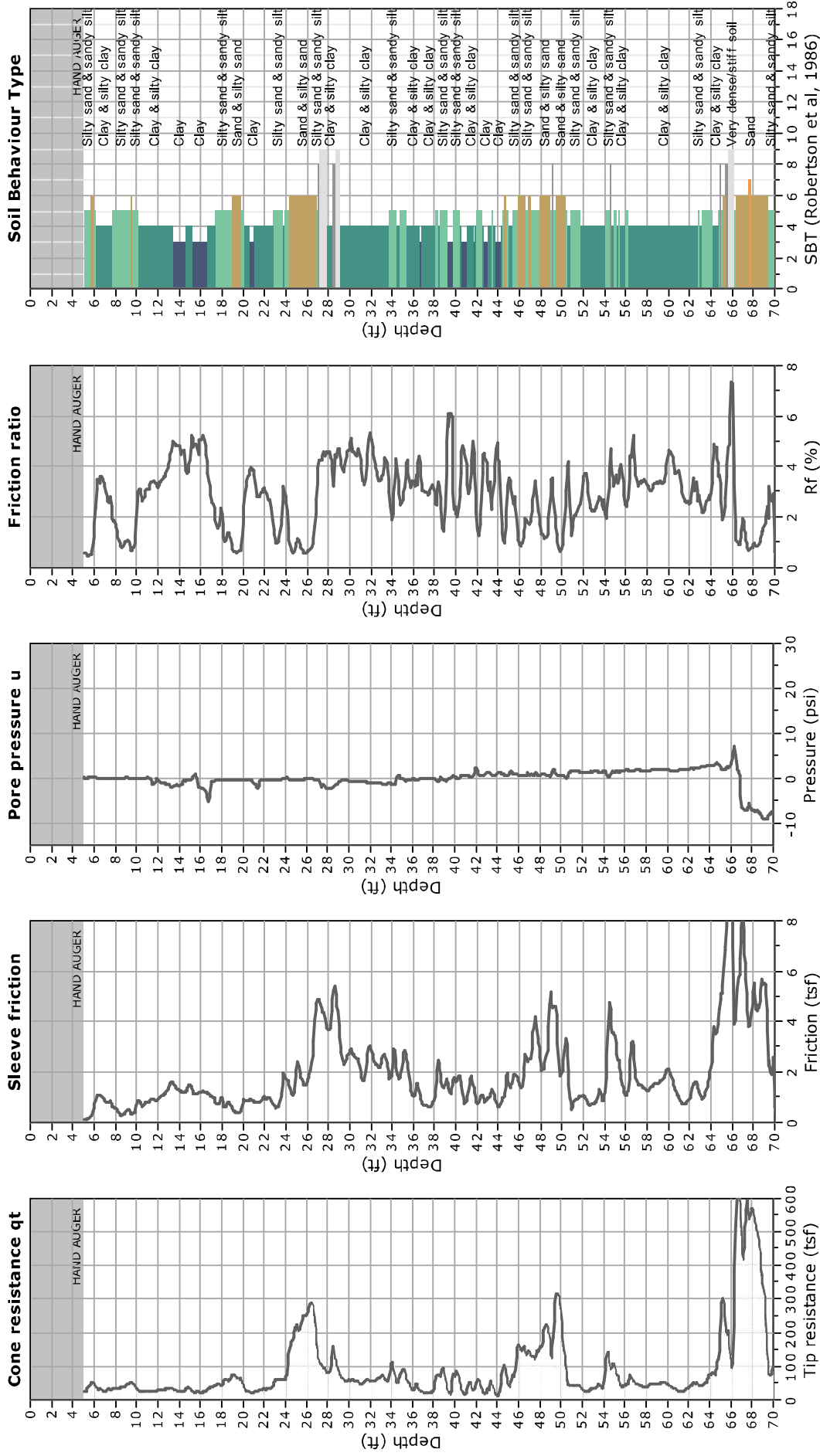
Project: Geoco Consultants

Location: 9900 Wilshire Blvd. Beverly Hills, CA

CPT: C-8

Total depth: 70.29 ft, Date: 10/31/2013

Cone Type: Vertek



EXPLORATION MAP

EL RODEO
605 WHITTIER DRIVE
BEVERLY HILLS, CALIFORNIA

Proj: 10274.006

Eng/Geol: TCB/JAR

Scale: 1"=30'

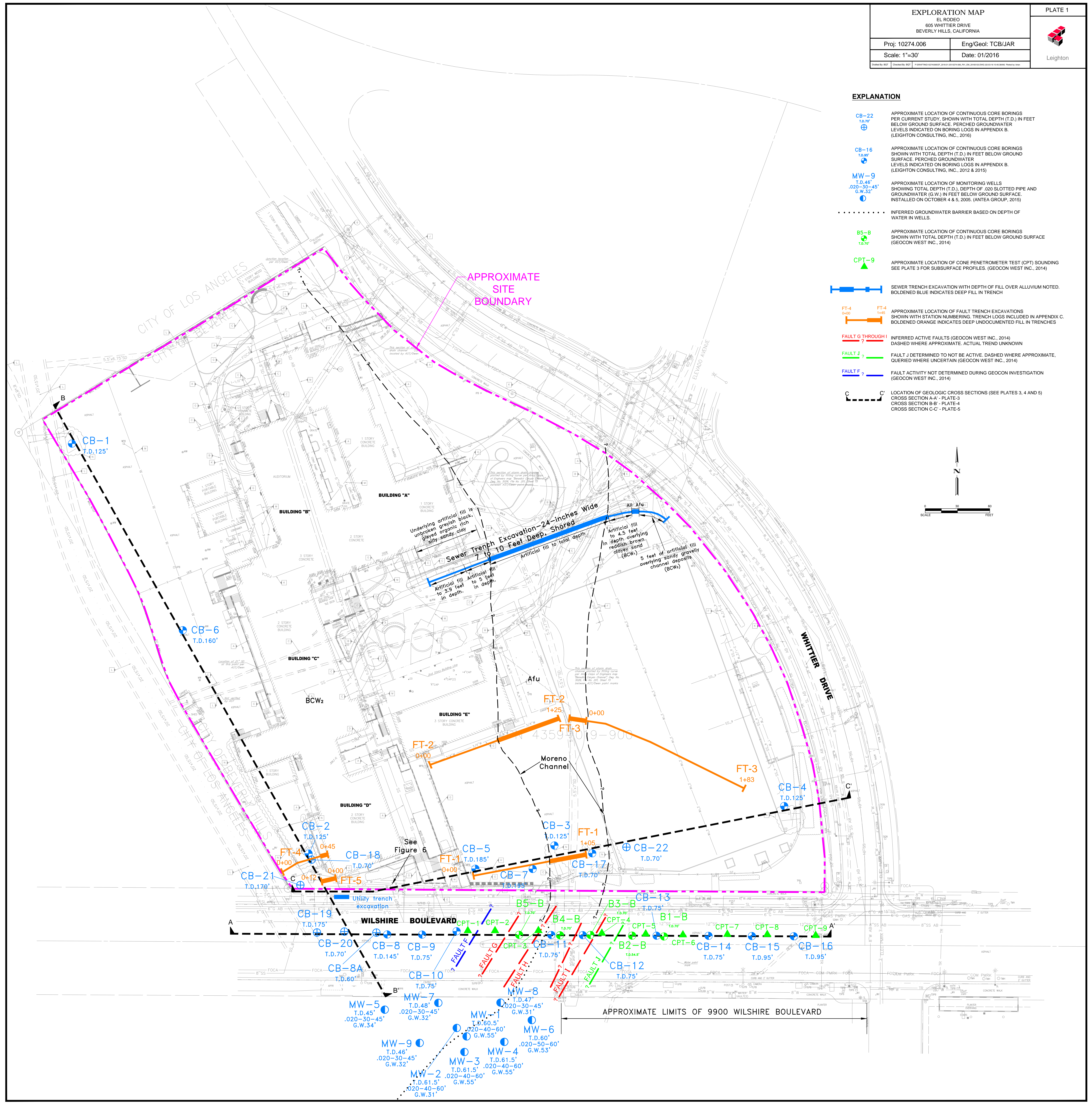
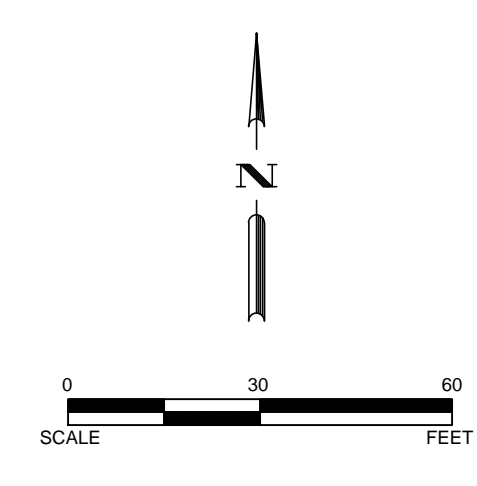
Date: 01/2016

PLATE 1



EXPLANATION

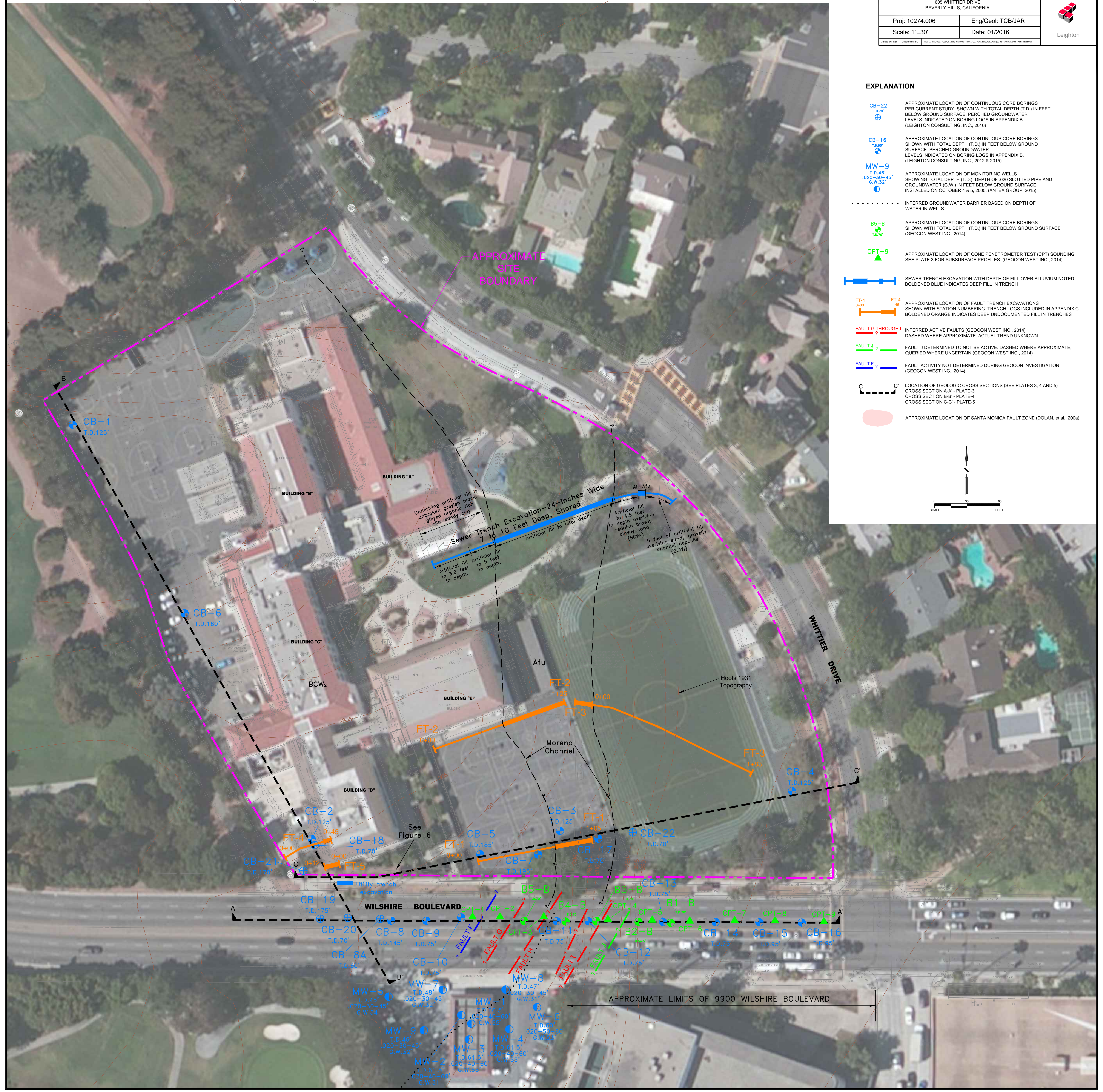
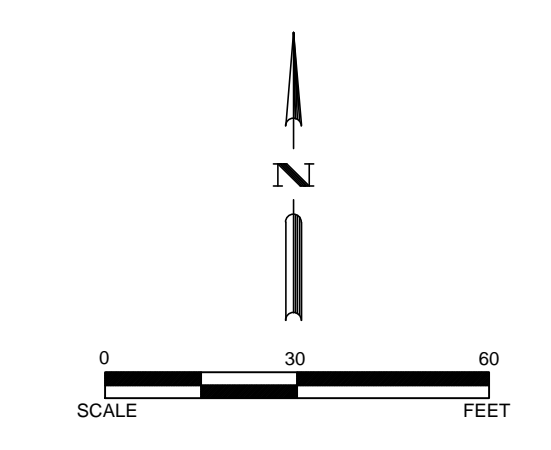
- CB-22
1.6.70' \oplus APPROXIMATE LOCATION OF CONTINUOUS CORE BORINGS PER CURRENT STUDY. SHOWN WITH TOTAL DEPTH (T.D.) IN FEET BELOW GROUND SURFACE. PERCHED GROUNDWATER LEVELS INDICATED ON BORING LOGS IN APPENDIX B. (LEIGHTON CONSULTING, INC., 2016)
- CB-16
1.0.85' \oplus APPROXIMATE LOCATION OF CONTINUOUS CORE BORINGS SHOWN WITH TOTAL DEPTH (T.D.) IN FEET BELOW GROUND SURFACE. PERCHED GROUNDWATER LEVELS INDICATED ON BORING LOGS IN APPENDIX B. (LEIGHTON CONSULTING, INC., 2012 & 2015)
- MW-9
T.D. 46'
.020-30'-45'
G.W. 32' \odot APPROXIMATE LOCATION OF MONITORING WELLS SHOWING TOTAL DEPTH (T.D.), DEPTH OF .020 SLOTTED PIPE AND GROUNDWATER (G.W.) IN FEET BELOW GROUND SURFACE. INSTALLED ON OCTOBER 4 & 5, 2005. (ANTEA GROUP, 2015)
- INFERRED GROUNDWATER BARRIER BASED ON DEPTH OF WATER IN WELLS.
- B5-B
1.0.70' \oplus APPROXIMATE LOCATION OF CONTINUOUS CORE BORINGS SHOWN WITH TOTAL DEPTH (T.D.) IN FEET BELOW GROUND SURFACE (GEOCON WEST INC., 2014)
- CPT-9 \blacktriangle APPROXIMATE LOCATION OF CONE PENETROMETER TEST (CPT) SOUNDING SEE PLATE 3 FOR SUBSURFACE PROFILES. (GEOCON WEST INC., 2014)
- Sewer Trench Excavation with depth of fill over alluvium noted. BOLDENED BLUE INDICATES DEEP FILL IN TRENCH
- FT-4
0+00 FT-4
1+45 APPROXIMATE LOCATION OF FAULT TRENCH EXCAVATIONS SHOWN WITH STATION NUMBERING. TRENCH LOGS INCLUDED IN APPENDIX C. BOLDENED ORANGE INDICATES DEEP UNDOCUMENTED FILL IN TRENCHES
- FAULT G THROUGH I ? INFERRED ACTIVE FAULTS (GEOCON WEST INC., 2014) DASHED WHERE APPROXIMATE. ACTUAL TREND UNKNOWN
- FAULT J ? FAULT J DETERMINED TO NOT BE ACTIVE. DASHED WHERE APPROXIMATE. QUERIED WHERE UNCERTAIN (GEOCON WEST INC., 2014)
- FAULT F ? FAULT ACTIVITY NOT DETERMINED DURING GEOCON INVESTIGATION (GEOCON WEST INC., 2014)
- C --- C' LOCATION OF GEOLOGIC CROSS SECTIONS (SEE PLATES 3, 4 AND 5)
CROSS SECTION A-A - PLATE-3
CROSS SECTION B-B - PLATE-4
CROSS SECTION C-C - PLATE-5





EXPLANATION

- CB-22**
1.0.70'
APPROXIMATE LOCATION OF CONTINUOUS CORE BORINGS PER CURRENT STUDY, SHOWN WITH TOTAL DEPTH (T.D.) IN FEET BELOW GROUND SURFACE. PERCHED GROUNDWATER LEVELS INDICATED ON BORING LOGS IN APPENDIX B. (LEIGHTON CONSULTING, INC., 2016)
- CB-16**
1.0.85'
APPROXIMATE LOCATION OF CONTINUOUS CORE BORINGS SHOWN WITH TOTAL DEPTH (T.D.) IN FEET BELOW GROUND SURFACE. PERCHED GROUNDWATER LEVELS INDICATED ON BORING LOGS IN APPENDIX B. (LEIGHTON CONSULTING, INC., 2012 & 2015)
- MW-9**
T.D. 46'
020'-30'-45"
G.W. 32'
APPROXIMATE LOCATION OF MONITORING WELLS SHOWING TOTAL DEPTH (T.D.), DEPTH OF 320 SLOTTED PIPE AND GROUNDWATER (G.W.) IN FEET BELOW GROUND SURFACE. INSTALLED ON OCTOBER 4 & 5, 2005. (ANTEA GROUP, 2015)
-
INFERRED GROUNDWATER BARRIER BASED ON DEPTH OF WATER IN WELLS.
- B5-B**
1.0.70'
APPROXIMATE LOCATION OF CONTINUOUS CORE BORINGS SHOWN WITH TOTAL DEPTH (T.D.) IN FEET BELOW GROUND SURFACE (GEOCON WEST INC., 2014)
- CPT-9**
APPROXIMATE LOCATION OF CONE PENETROMETER TEST (CPT) SOUNDING SEE PLATE 3 FOR SUBSURFACE PROFILES. (GEOCON WEST INC., 2014)
- FT-4**
0+00 FT-4
1+45'
APPROXIMATE LOCATION OF FAULT TRENCH EXCAVATIONS SHOWN WITH STATION NUMBERING. TRENCH LOGS INCLUDED IN APPENDIX C. BOLDENED ORANGE INDICATES DEEP UNDOCUMENTED FILL IN TRENCHES
- FAULT G THROUGH**
7
INFERRED ACTIVE FAULTS (GEOCON WEST INC., 2014) DASHED WHERE APPROXIMATE. ACTUAL TREND UNKNOWN
- FAULT J**
5
FAULT J DETERMINED TO NOT BE ACTIVE. DASHED WHERE APPROXIMATE. QUERIED WHERE UNCERTAIN (GEOCON WEST INC., 2014)
- FAULT F**
?
FAULT ACTIVITY NOT DETERMINED DURING GEOCON INVESTIGATION (GEOCON WEST INC., 2014)
- C**
C'
LOCATION OF GEOLOGIC CROSS SECTIONS (SEE PLATES 3, 4 AND 5)
CROSS SECTION A-A' - PLATE-3
CROSS SECTION B-B' - PLATE-4
CROSS SECTION C-C' - PLATE-5
- APPROXIMATE LOCATION OF SANTA MONICA FAULT ZONE (DOLAN, et al., 200a)



Underlying artificial fill is unbroken grayish black clayey sandy clay

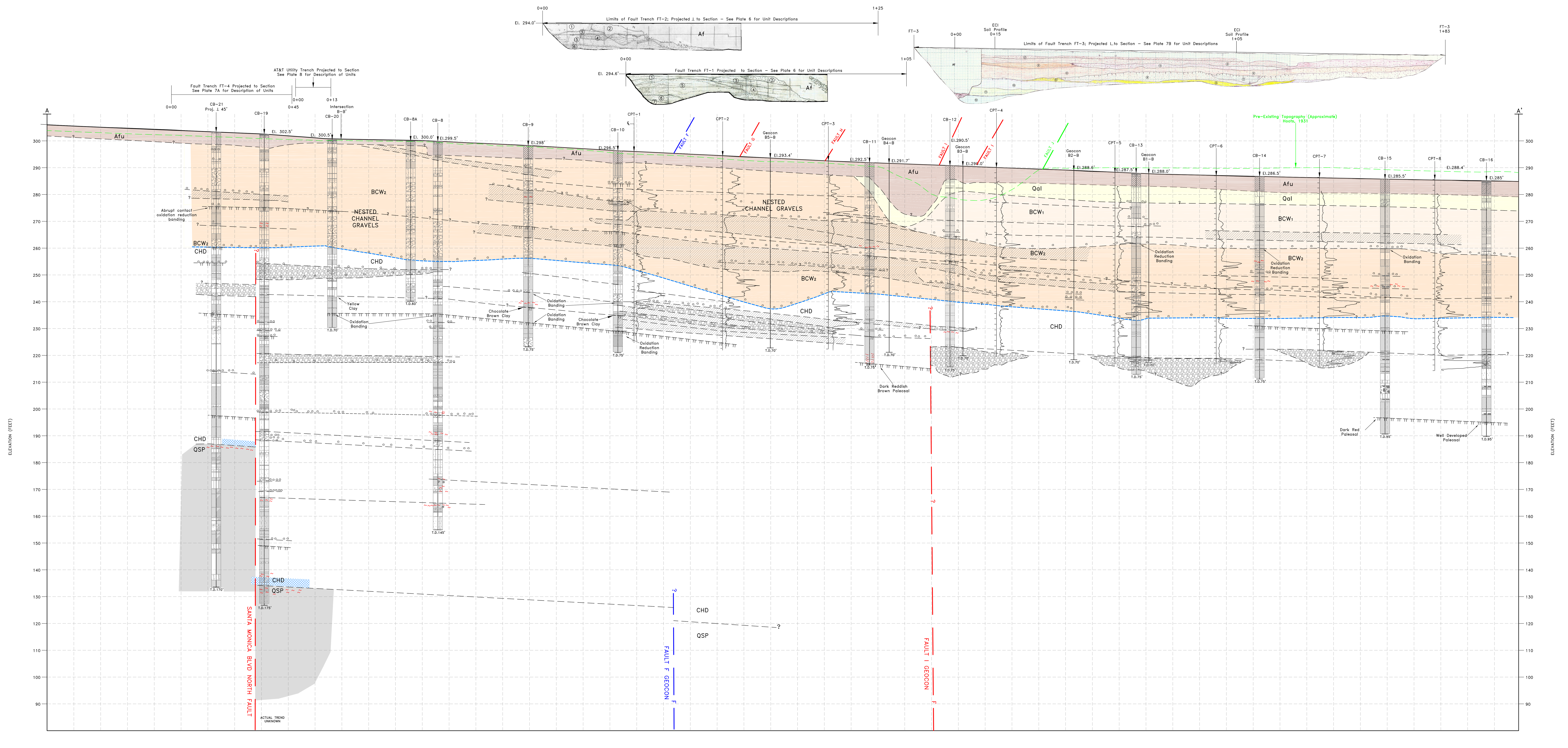
Artificial fill to 5 feet in depth

Artificial fill to 3.9 feet in depth

Artificial fill to 4.5 feet in depth overlying reddish brown clayey sand (BCW)

5 feet of artificial fill overlying sandy gravelly channel deposits (BCW)

APPROXIMATE LIMITS OF 9900 WILSHIRE BOULEVARD



UNIT DESCRIPTIONS

Artificial Fill, Undocumented (Afu): Locally derived sandy silt and silty sand, locally with clay and varying amounts of gravel and man-made debris. Abundant concrete rubble, in places exceeding 24-inches in diameter, observed in the backfill of Moreno Creek drainage in trenches FT-1 and FT-2. Localized sewage along non-tracks observed in backfill along southern side of trench FT-1 and near storm drain in trench FT-2. In Cross-Sections A-A' and B-B', this unit includes the section not logged from the auger spots and the hand-augered section at the top of the CPTs.

Modern and Holocene Alluvium in Historical Channel of Moreno Creek (Qw): Silty sand to clayey sand grading to sand at depth, with minor gravel and thin gravel beds, light yellowish brown, brown to dark reddish brown; massive to crudely stratified; small fragments of asphalt observed locally in CB-3.

Holocene and Pleistocene Alluvium of Benedict Canyon Wash (Qal): Sandy clay to clayey sand grading laterally to silty sand to sand with silt, coarsening downward near the pathway of the channel to sand with gravel; sandy gravel or gravelly sand; brown, dark yellowish brown, dark brown to reddish brown; locally laminated; gravel consists of fine- to coarse-grained subangular to subrounded fragments of siltstone and slate; few common manganese oxide and iron oxide stains; few roots.

Pleistocene Alluvium of Benedict Canyon Wash (BCW1): Sandy clay, clayey sand, sand with clay, and silty sand with clay, grading laterally to silty sand and sand with silt; near the channel centerline, deposit coarsens downward to gravelly sand to clayey sand with gravel; dark yellowish brown, brown, dark brown to reddish brown; mottled, locally gleyed; slightly moist to moist; massive to thinly laminated; few to many scattered gravel that consist of subangular to subrounded and tabular fragments of siltstone, slate and weathered basalt. Terrestrial deposit consisting of fluvial, alluvial fan, and mudflow sediments emanating from the Santa Monica Mountains via Benedict Canyon Wash and its tributaries.

Pleistocene Alluvium of Benedict Canyon Wash (BCW2): Sandy clay, clayey sand and silty clay grading laterally to silty sand to sand with silt, with lenses and interbeds of sandy gravel, coarsening downward to a basal channel deposit of sand, gravelly sand and gravel; dark grayish brown, reddish brown, very dark brown, and dark yellowish brown; locally mottled and gleyed; oxidation reduction banding; iron oxide and manganese oxide stains common on rock clasts and along basal channel contact; gravel consists of fine- to medium-grained subrounded to subangular fragments of siltstone, slate, basalt and quartz. Unit is characterized by moderate to well-developed paleosols with many moderately thick to thick clay films on ped faces and moderate to strong angular blocky soil structure. Distinctive erosional contact with underlying Cheviot Hills deposits.

Pleistocene Cheviot Hills Deposits (CHD): Sandy clay, clayey sand, and silty clay; with thin silty sand and gravel layers and beds; brown, reddish brown, brown, and grayish brown; locally gleyed; moist to wet along sand beds; manganese oxide stains, streaks and nodules; iron oxide stains on rock fragments, and forming oxidation-reduction banding; gravel consists of subrounded to subangular fragments of siltstone and slate. At depth, unit includes abundant calcium carbonate in the form of specks, filaments, horizontal layers, and coatings on ped faces; color changes to grayish brown, gray, and blue green remineralized of the Loma Mar; iron oxide staining along layers and locally on ped faces. Unit has been modified by soil-forming processes, with pedogenic characteristics, including clay films on ped faces and moderate to strong angular blocky soil structure, observed at several locations, including directly or below in contact with the overlying Benedict Canyon Wash deposits. Terrestrial deposit consisting of fluvial and alluvial sediments derived from the San Pedro Formation deposited over a long period of time, with depositional hiatuses that allowed for soil development. This unit was exposed at the surface for thousands of years before it was buried by the Pleistocene alluvium of Benedict Canyon Wash.

Quaternary San Pedro Formation (QSP): Sand with scattered gravel; few silty to clayey laminations; yellow, olive brown to reddish orange brown; loose to hard; clay near upper contact, becoming moist to wet at depth; sand fraction consists of fine to coarse, well rounded quartz grains; scattered bi-valve shell fragments. Transitional terrestrial to marine unit deposited in a wave-dominated (beach) environment.

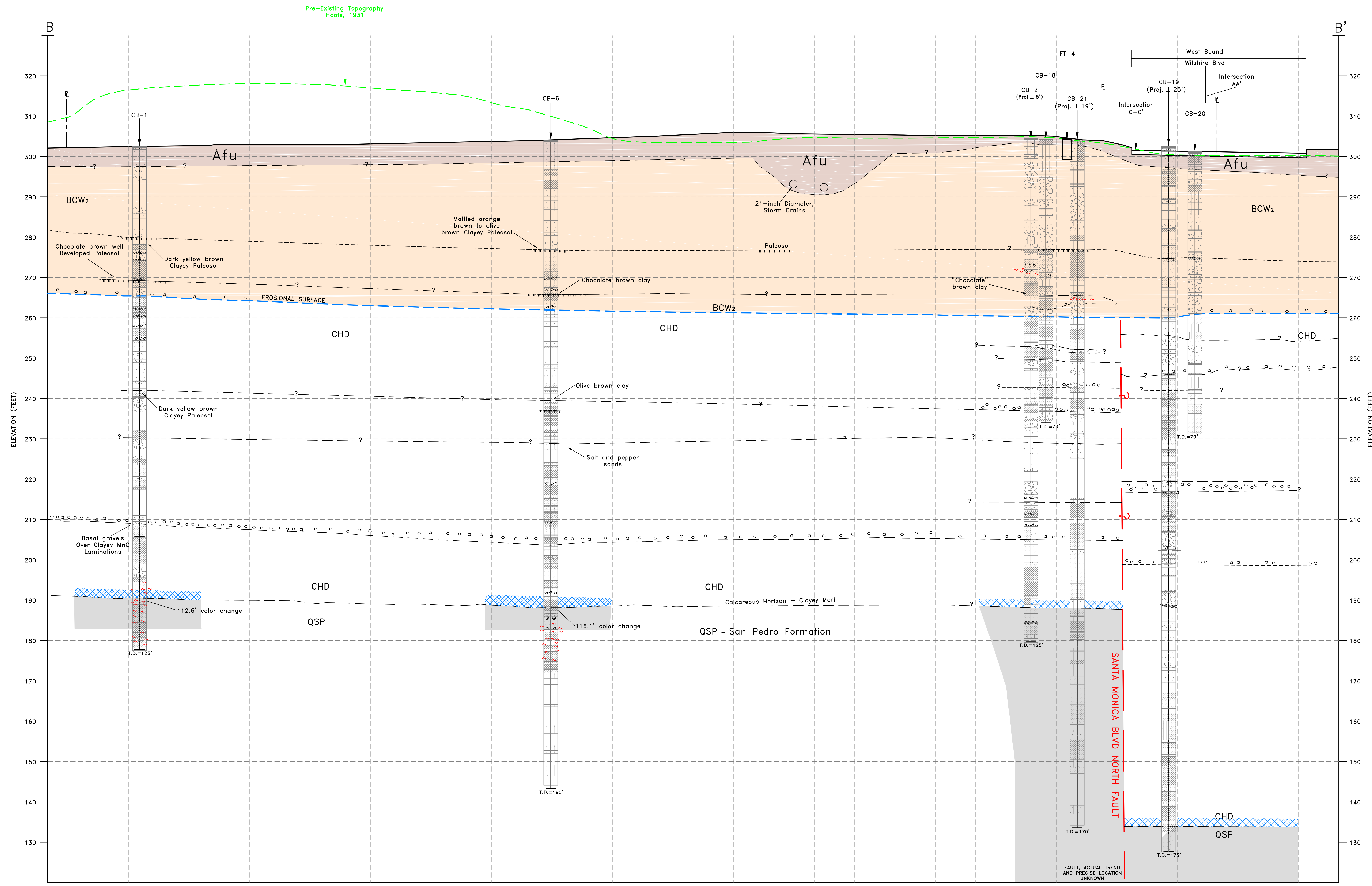
EXPLANATION

- Basal gravel, abrupt erosive contact
- CaCO₃ stringers and along soil faces as vertical deposits
- CaCO₃ nodules
- Deposits poor to well-developed soil structure (GP-QM)
- Geologic contact, dashed where approximate, queried where uncertain
- Rock Clasts
- Fault contact, dashed where approximate, queried where uncertain, trend unknown
- Silty SAND (SM)
- SAND (SP)
- GRAVEL with varying proportions of silt and sand (GP-QM)
- CLAY with proportional amounts of silt and/or sand (CL-CL-M)
- Clayey SAND (SC)
- GRAVEL with CLAY (GC)
- SILT with proportional amounts of clay and sand (ML, ML-CL)
- NO RECOVERY

REVISED GEOLOGIC CROSS SECTION A-A'
 EL. RCGIO
 605 WHITTIER DRIVE
 BEVERLY HILLS, CALIFORNIA

Proj: 10274.006 Eng/Geol: TCB/JAR
 Scale: 1"=10' Date: 02/2016

PLATE 3



EXPLANATION

- Basal gravel, abrupt erosive contact
- CaCO₃ stringers and along soil faces as vertical deposits
- CaCO₃ nodules
- Denotes poor to well developed soil structure
- Geologic contact, dashed where approximate, queried where uncertain
- Rock Clasts
- Fault contact, dashed where approximate, queried where uncertain, trend unknown
- CLAY with proportional amounts of silt and/or sand (CL, CL-ML)
- CLAYEY SAND (SC)
- SILT with proportional amounts of clay and sand (ML, ML-CL)
- Silty SAND (SM)
- SAND (SP)
- GRAVEL with varying proportions of silt and sand (GP-GM)
- GRAVEL with CLAY (GC)
- No Recovery (NR)

UNIT DESCRIPTIONS:

Artificial Fill, Undocumented (Afu): Locally derived sandy silt and silty sand, locally with clay and varying amounts of gravel and man-made debris. Abundant concrete rubble, in places exceeding 24-inches in diameter, observed in the backfill of Moreno Creek drainage in trenches FT-1 and FT-2. Localized seepage along foot traces observed in backfill along southern sidewall of trench FT-1 and near storm drain inlet of trench FT-2. In Cross-Sections A-A' and B-B', this unit includes the section not logged from the auger spoils and the hand-augered section at the top of the CPTs.

Modern and Holocene Alluvium in Historical Channel of Moreno Creek (Qsp): Silty sand to clayey sand grading to sand at depth, with minor gravel and thin gravel beds; light yellowish brown, brown to dark reddish brown, massive to crudely stratified; small fragments of asphalt observed locally in CB-3.

Holocene and Pleistocene Alluvium of Benedict Canyon Wash (Qal): Sandy clay to clayey sand grading laterally to silty sand to sand with silt; coarsening downward near the thalweg of the channel to sand with gravel, sandy gravel or gravelly sand; brown, dark yellowish brown, dark brown to reddish brown; locally laminated; gravel consist of fine- to medium-grained subrounded to subangular fragments of siltstone and slate; few to common manganese oxide and iron oxide stains; few roots.

Pleistocene Alluvium of Benedict Canyon Wash (BCW1): Sandy clay, clayey sand, and silty clay, grading laterally to silty sand and sand with silt; near the channel centerline, deposit coarsens downward to gravelly sand to clayey sand with gravel; dark grayish brown, reddish brown, dark brown to reddish brown, mottled, locally gleyed; slightly moist to moist; massive to thinly laminated; few to many scattered gravel that consist of subangular to subrounded and tabular fragments of siltstone, slate and weathered basalt. Terrestrial deposit consisting of fluvial, alluvial fan, and mudflow sediments emanating from the Santa Monica Mountains via Benedict Canyon Wash and its tributaries.

Pleistocene Alluvium of Benedict Canyon Wash (BCW2): Sandy clay, clayey sand and silty clay grading laterally to silty sand to sand with silt; with lenses and interbeds of sandy gravel; coarsening downwards to a basal channel deposit of sand, gravelly sand and gravel; dark grayish brown, reddish brown, very dark brown, and dark yellowish brown; locally mottled and/or gleyed; oxidation-reduction banding; iron oxide and manganese oxide stains common on rock clasts and along basal channel contact; gravel consist of fine- to medium-grained subrounded to subangular fragments of siltstone, slate, basalt and quartz. Unit is characterized by moderate to well-developed paleosols with many moderately thick to thick clay films on ped faces and moderate to strong angular blocky soil structure. Distinctive erosional contact with underlying Cheviot Hills deposits.

Pleistocene Cheviot Hills Deposits (CHD): Sandy clay, clayey sand, and silty clay, with thin silty sand and gravel layers and beds; brown, reddish brown, brown, and grayish brown; locally gleyed; moist to wet along sand beds; manganese oxide stains, streaks and nodules; iron oxide stains on rock fragments, and forming oxidation-reduction banding; gravel consist of subrounded to subangular fragments of siltstone and slate. At depth, unit includes abundant calcium carbonate in the form of specks, filaments, horizontal layers, and coatings on ped faces; color changes to grayish brown, gray, and blue green reminiscent of the Loma Marl; iron oxide staining along layers and locally on ped faces. Unit has been modified by soil-forming processes, with pedogenic characteristics, including clay films on ped faces and moderate to strong angular blocky soil structure, observed at several intervals, including directly at or below its contact with the overlying Benedict Canyon Wash deposits. Terrestrial deposit consisting of fluvial and alluvial sediments derived from the San Pedro Formation deposited over a long period of time, with depositional hiatuses that allowed for soil development. This unit was exposed at the surface for thousands of years before it was buried by the Pleistocene alluvium of Benedict Canyon Wash.

Quaternary San Pedro Formation (Qsp): Sand with scattered gravel; few silty to clayey laminations; yellow, olive brown to reddish orange brown; loose to hard; dry near upper contact, becoming moist to wet at depth; sand fraction consists of fine to coarse, well-rounded quartz grains; scattered bi-valve shell fragments. Transitional terrestrial to marine unit deposited in a wave-dominated (beach) environment.

SCALE VERTICALLY EXAGGERATED
HORIZONTAL 1"=20'
VERTICAL 1"=10'

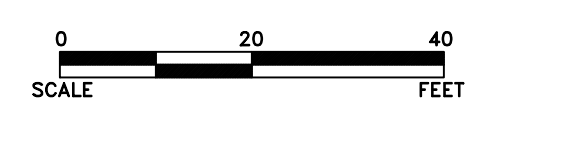
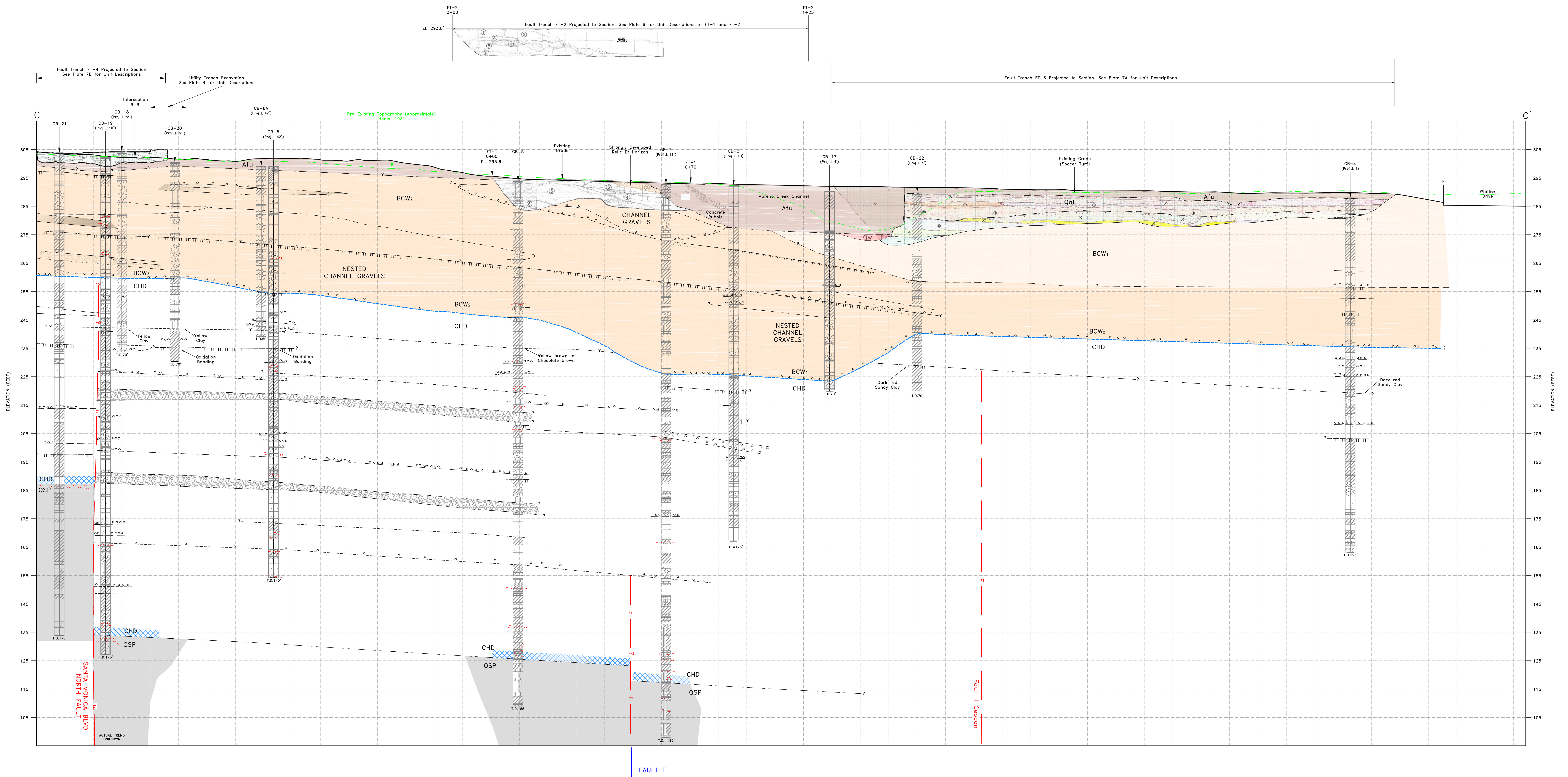


	PLATE 4 REVISED GEOLOGIC CROSS-SECTION B-B' EL RODEO 605 WHITTIER DRIVE BEVERLY HILLS, CALIFORNIA	
	Proj: 10274.006 Scale: Vertical 1"=10' Horizontal 1"=20'	Eng/Geol: TCB/JAR Date: 02/2016



UNIT DESCRIPTIONS:

Artificial Fill, Undocumented (Afu): Locally derived sandy silt and silty sand, locally with clay and varying amounts of gravel and man-made debris. Abundant concrete rubble, in places exceeding 24 inches in diameter, observed in the backfill of Moreno Creek drainage in trenches FT-1 and FT-2. Localized seepage along root traces observed in backfill along southern sidewalk of trench FT-1 and near storm drain line of trench FT-2. In Cross-Sections A-A' and B-B', this unit includes the section not logged from the auger spots and the hand-augered section at the top of the CPTs.

Modern and Holocene Alluvium in Historical Channel of Moreno Creek (Qw): Silty sand to clayey sand grading to sand at depth, with minor gravel and thin gravel beds; light yellowish brown, brown to dark reddish brown; massive to crudely stratified; small fragments of asphalt observed locally in CB-3.

Holocene and Pleistocene Alluvium of Benedict Canyon Wash (Qal): Sandy clay to clayey sand grading laterally to silty sand to sand with silt; coarsening downward near the thalweg of the channel to sand with gravel, silty sand or gravelly sand, brown, dark yellowish brown, dark brown to reddish brown; locally laminated gravel consists of fine- to coarse-grained subangular to subrounded fragments of siltstone and slate; few to common manganese oxide and iron oxide stains; few roots.

Pleistocene Alluvium of Benedict Canyon Wash (BCW1): Silty clay, clayey sand, sand with clay, and silty sand with clay, grading laterally to silty sand and sand with silt; near the channel thalweg, deposit coarsens downward to gravelly sand to clayey sand with gravel, dark yellowish brown, brown, dark brown to reddish brown; mottled, locally gleyed; slightly moist to moist; massive to finely laminated; few to many scattered gravel that consist of subangular to subrounded and tabular fragments of siltstone, slate and weathered basalt. Terrrestrial deposit consisting of fluvial, alluvial fan, and mudflow sediments emanating from the Santa Monica Mountains via Benedict Canyon Wash and its tributaries.

Pleistocene Alluvium of Benedict Canyon Wash (BCW2): Silty clay, clayey sand and silty clay grading laterally to silty sand to sand with silt, with lenses and inclusions of sandy gravel; coarsening downward to a basal channel deposit of sand, gravelly sand and gravel; dark grayish brown, reddish brown, very dark brown, and dark yellowish brown; locally mottled and/or gleyed; oxidation-reduction banding; iron oxide and manganese oxide stains common on rock clasts and along basal channel contact; gravel consist of fine- to medium-grained subrounded to subangular fragments of siltstone, slate, basalt and quartz. Unit is characterized by moderate to well-developed paleosols with many moderately thick to thick clay films on ped faces and moderate to strong angular blocky soil structure. Distinctive erosional contact with underlying Cheviot Hills deposits.

Pleistocene Cheviot Hills Deposits (CHD): Silty sand, clayey sand, and silty clay, with thin silty sand and gravel layers and beds; brown, reddish brown, brown, and grayish brown; locally gleyed; moist to wet along sand beds; manganese oxide stains, streaks and nodules; iron oxide stains on rock fragments, and forming oxidation-reduction banding; gravel consist of subrounded to subangular fragments of siltstone and slate. At depth, unit includes abundant calcium carbonate in the form of specks, filaments, horizontal layers, and coatings on ped faces; color changes to grayish brown, gray, and blue green reminiscent of the Loma Mar; iron oxide staining along layers and locally on ped faces. Unit has been modified by soil-forming processes, with pedogenic characteristics, including clay films on ped faces and moderate to strong angular blocky soil structure, observed at several intervals, including directly at or below its contact with the overlying Benedict Canyon Wash deposits. Terrrestrial deposit consisting of fluvial and alluvial sediments derived from the San Pedro Formation deposited over a long period of time, with depositional hiatuses that allowed for soil development. This unit was exposed at the surface for thousands of years before it was buried by the Pleistocene alluvium of Benedict Canyon Wash.

Quaternary San Pedro Formation (Qsp): Sand with scattered gravel; few silty clayey laminae; yellow, olive brown to reddish orange brown; loose to hard; clay near upper contact, becoming moist to wet at depth; sand fraction consists of fine to coarse, well-rounded quartz grains, scattered bi-vax shell fragments. Transitional terrestrial to marine unit deposited in a wave-dominated (beach) environment.

EXPLANATION

Basal gravel, abrupt erosive contact

CaCO₃ stringers and along soil faces as vertical deposits

CaCO₃ nodules

Denotes poor to well developed soil structure

Geologic contact, dashed where approximate, queried where uncertain

Rock Clasts

Fault contact, dashed where approximate, queried where uncertain. Trend unknown

Silty SAND (SM)

SAND (SP)

GRAVEL with varying proportions of silt and sand (GP-GM)

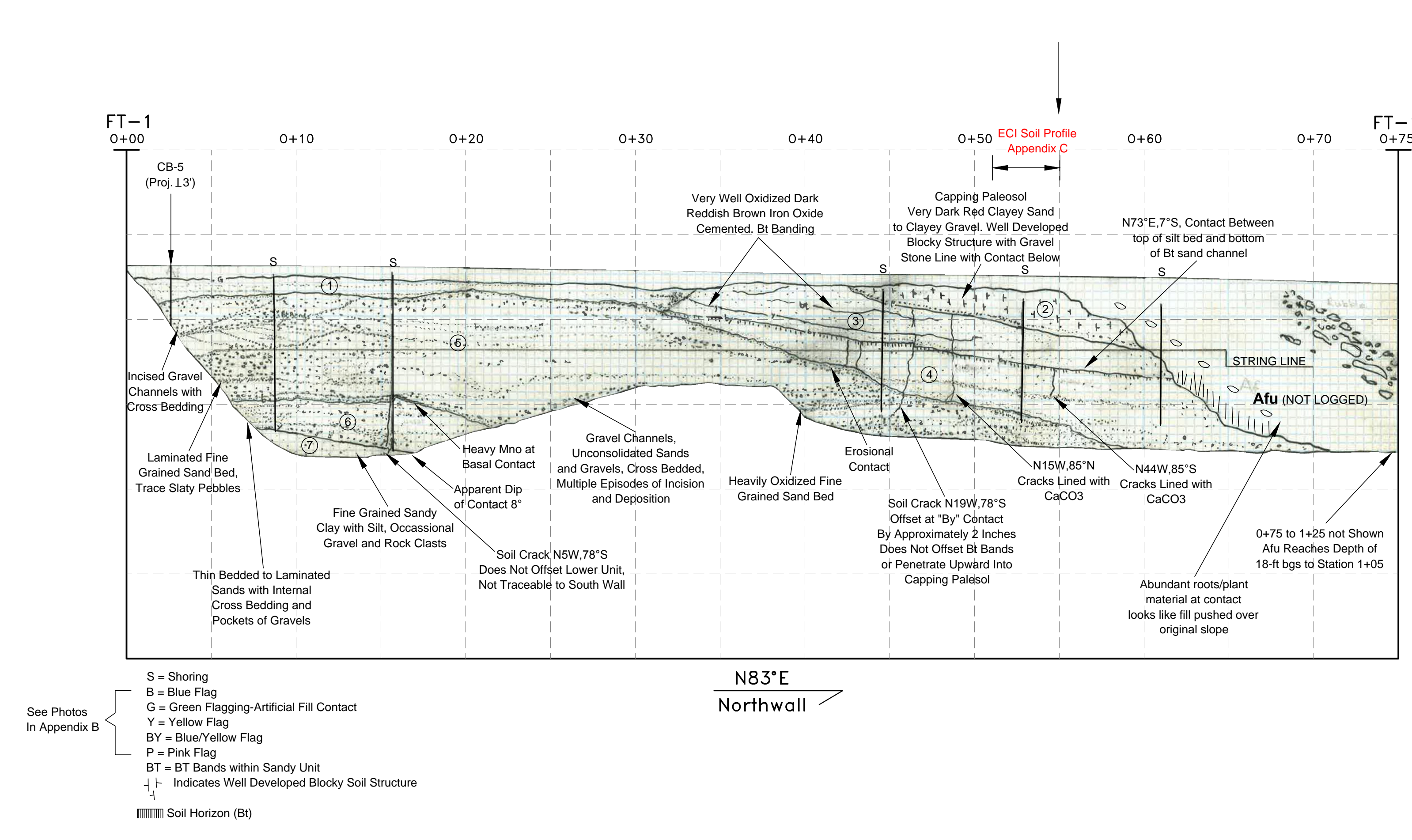
GRAVEL with CLAY (GC)

NO RECOVERY

CLAY with proportional amounts of silt and/or sand (CL, CL-ML)

Clayey SAND (SC)

SILT with proportional amounts of clay and sand (ML, ML-CL)



Earth Units-FT-1: Pleistocene Alluvium of Benedict Canyon Wash (BCW)

Unit 1: Silty SAND (SM) with clay, 10YR 4/4, dark yellowish brown, finely bedded fine gravel to massive sandy matrix, predominantly fine grained subangular frosted quartz sand grains, silty fine pebbly gravel with oxidation rimming of flattened, tabular silty sand grains.

Unit 2: Sandy CLAY to Clayey SAND (CL-SC), 7.5YR 4/3 to 10YR 3/4, brown to dark brown, very fine grained sand with silty rock fragments, well developed ped faces, blocky structure, oxidized quartz sand grains and clay development along ped faces and in pores. Basal fine gravel line in sandy clay matrix. Calculated minimum age of 34k (ECI Appendix C), but estimated to be >100ka.

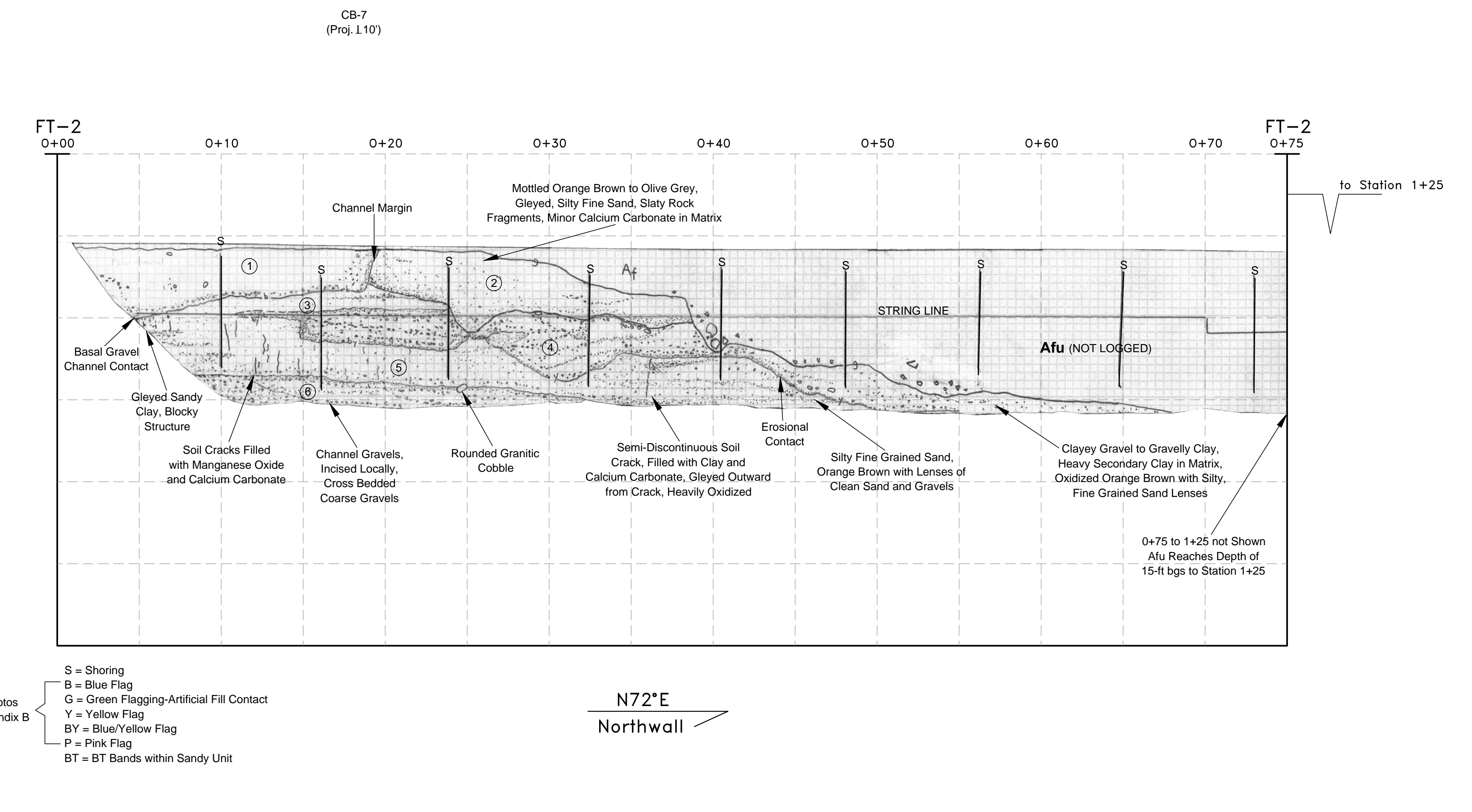
Unit 3: Silty SAND to SAND (SM-SP), 10YR 4/6, dark yellowish brown, fine grained subangular to subrounded quartz and silty sand grains. Contains interbedded and oxidized sandy laminations cemented with iron oxide. Most quartz grains display frosted or oxidized surface, minor clear quartz sand size grains included.

Unit 4: Sandy SILT to Silty SAND with Clay (ML-SM), 10YR 5/4, yellowish brown to brown, windblown silt in upper portion, very fine grained massive subangular sand with secondary clay to fine gravelly interbeds, iron oxide coating of quartz and grains and pores, lower portion becomes Gravelly SAND to Sandy GRAVEL (SP-GP), 10YR 3/4 to 10YR 5/4, dark yellowish brown to brown, fine to coarse grained, frosted to clear, subangular to subrounded quartz sand grains, fine to coarse weathered, flattened and tabular silty gravels with highly weathered manganese oxide stained siltstone rock clasts.

Unit 5: Silty GRAVEL to Sandy GRAVEL (GM-GP), 10YR 5/3 to 5/4, brown to yellowish brown, main channel deposit, interbedded gravel and sand, cross bedded to very fine laminations, fine to coarse grained clear to frosted quartz sand grains, fine to coarse flattened, tabular silty and siltstone gravels, severely weathered basalt fragments, patchy manganese oxide rimming of siltstone rock fragments. Heavy manganese oxide development at basal contact with lower unit No. 6.

Unit 6: Silty SAND (SM) with clay, 10YR 4/3 to 7.5YR 4/3, brown to dark brown, very fine grained subangular to subrounded quartz sand grains and occasional silty gravel, gleyed.

Unit 7: Sandy CLAY with Silt (CL-ML), 10YR 5/2, dark greyish brown to brown, fine grained subrounded to subangular quartz sand grains, occasional gravel and severely weathered silty and siltstone rock clasts.



Earth Units-FT-2: Pleistocene Alluvium of Benedict Canyon Wash (BCW)

Unit 1: Sandy Silty GRAVEL (GP-GM), 10YR 4/1 to 10YR 4/5, grey to dark grey, fine to coarse grained, subrounded to subangular, heavily oxidized quartz sand grains, weathered silty rock fragments, dull grey on weathered surface to dark greyish black on fresh, severely weathered siltstone displaying oxidation along interior laminations with oxide rimming of outer cast surfaces. Abundant secondary clay, gleying in matrix.

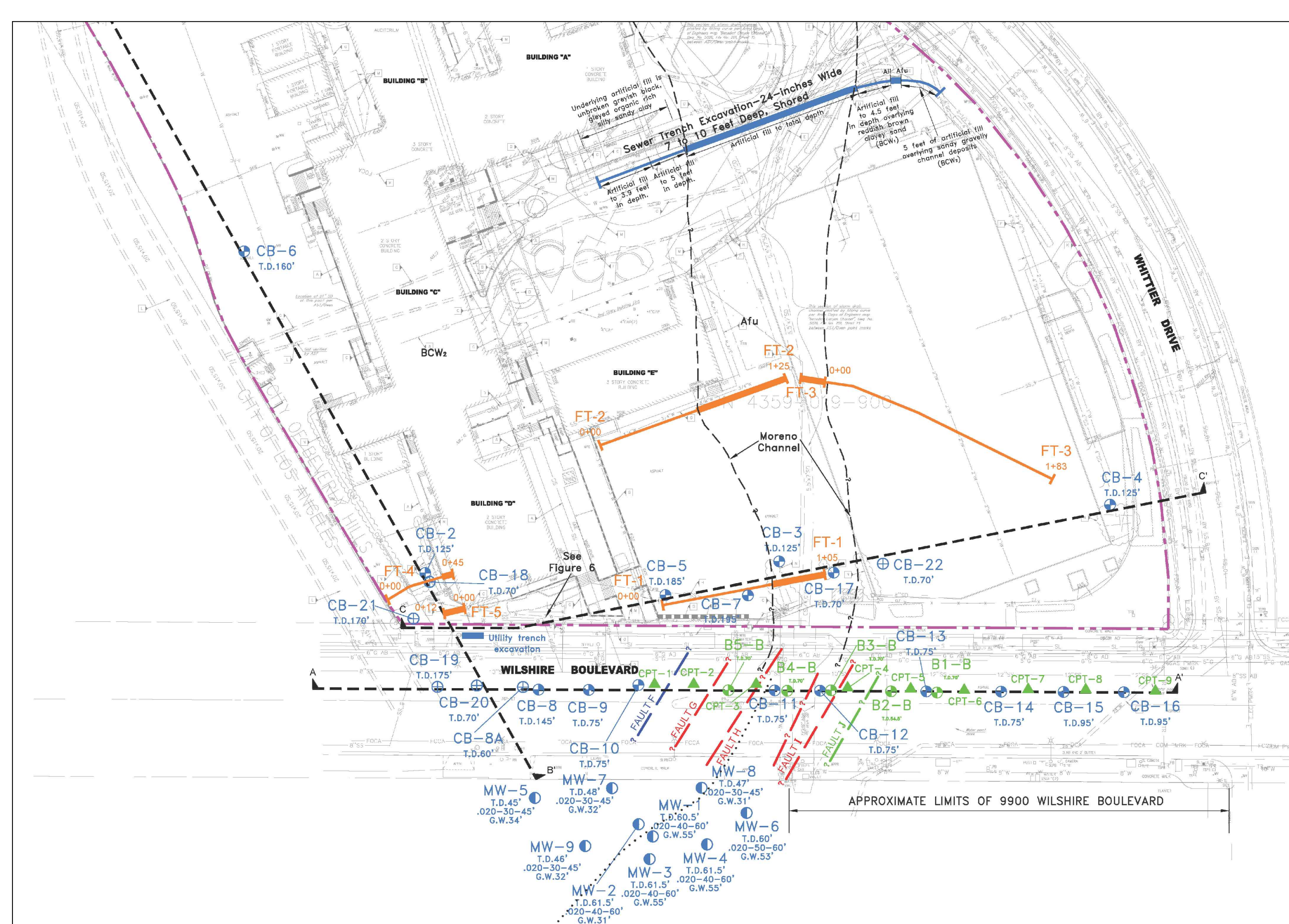
Unit 2: Sandy SILT with Clay (ML-CL), 2.5YR 5/3, olive brown, upper unit, very fine grained subangular to subrounded sand grains, gleying of matrix, lower unit becomes Silty SAND (SM), 10YR 5/6, dark yellowish brown, fine grained subrounded quartz sand, flattened and weathered siltstone and silty sand grains, iron oxide coating of fine gravel sized siltstone clasts, trace of severely weathered and oxidized sand size basalt fragments.

Unit 3: Silty CLAY (CL), 10YR 5/3, brown, very fine grained sand, porous, 1-2mm voids with CaCO3 lined pores, gleyed along ped faces.

Unit 4: Sandy GRAVEL (GP-GM), 10YR 5/6 to 10YR 3/3, yellowish brown to dark brown, fine to coarse grained, subrounded to subangular sandy matrix supporting subangular to subrounded fine to coarse gravels, severely weathered equigranular granitic clasts, oxidized and decomposing basalt fragments with silica veined silty rock fragments in well defined channel. Contains small cobbles. Becomes clayey gravel to gravelly clay with increasing distance from main channel.

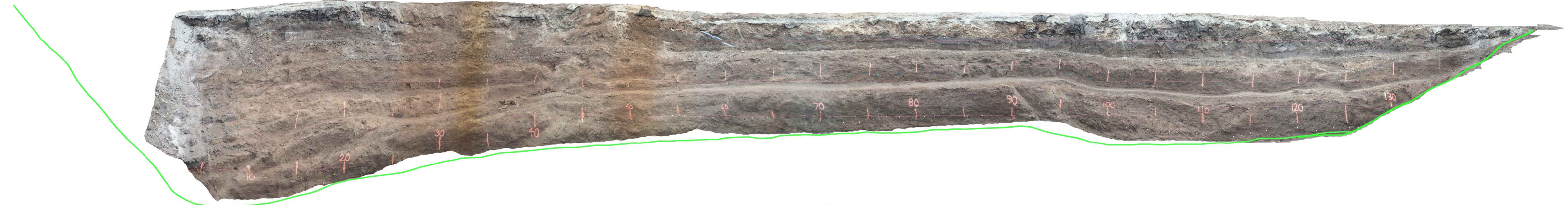
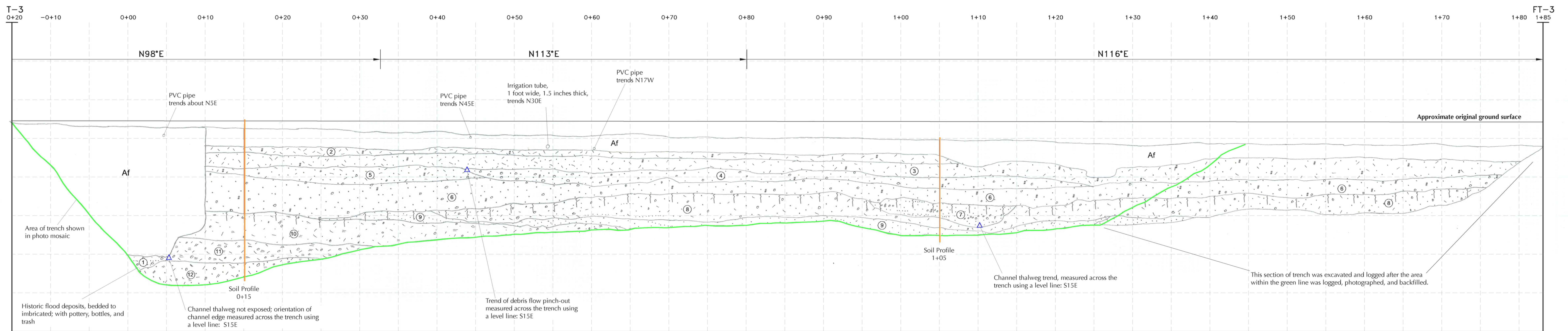
Unit 5: Sandy SILT with Clay (ML) to Sandy CLAY (CL), 10YR 3/3 to 10YR 3/4, dark brown sandy silt to dark reddish brown sandy clay, very fine grained, gleyed with subangular clear and oxidized quartz sand grains. Porous with manganese oxide lining of 1 to 3 mm pores and 80:1 Cracks.

Unit 6: Sandy GRAVEL with Clay (GC), 10YR 4/4, dark brown to dark yellowish brown, fine to medium grained subrounded siltstone and oxidized quartz sand grains, fine to coarse silty, tabular gravels. Locally incised with cross bedded coarse gravels.



INDEX MAP

North to Northeast Wall



Photos of sufficient quality to prepare a mosaic of the trench extension were not available.

- ### Geologic Descriptions of Units
- Unit 1:** Orange brown to dark brown sand, gravelly sand and silty sand; bedded, with fining upward sequences, locally imbricated; scattered fragments of glass, pottery and metal indicate this is a historical deposit. (Historic Moreno Creek Flood Deposit)
 - Unit 2:** Very dark brown to dark grayish brown silty clay; massive; few scattered gravel-sized chips of Monterey siltstone and Santa Monica slate. (Debris Flow Deposit)
 - Unit 3:** Brown to very dark grayish brown sandy clay to silty clay; massive; scattered subangular gravel generally less than 1-inch in diameter consisting predominantly of Santa Monica slate and Monterey siltstone; gravel scattered throughout the unit; present only on east side of trench, from about Station 0+44 onward; erosional contact with unit below. (Debris Flow Deposit)
 - Unit 4:** Brown to dark brown sandy clay to clayey sand; massive; with coarse sand and fine subangular, disc shaped gravel up to 3/4-inch in diameter consisting of Santa Monica slate and Monterey siltstone; gravel scattered throughout the unit; present only on east side of trench, from about Station 0+44 onward; erosional contact with unit below. (Debris Flow Deposit)
 - Unit 5:** Brown to orange brown clayey sand to sandy clay; massive; scattered fine gravel-sized clasts of Santa Monica slate and Monterey siltstone; abundant pinhole-sized pores, locally extensively bioturbated; incised into and removed to the east by Unit 4. (Debris Flow Deposit)
 - Unit 6:** Brown to dark brown clayey sand to gravelly clayey sand; massive; many gravels to 1-inch in diameter and few gravels to pebbles to 3-inches in diameter consisting of Santa Monica slate and Monterey siltstone; base of unit locally contains pockets of indurated silt; unit thins eastward where it is incised into by Unit 4; erosional contact with unit below. (Debris Flow Deposit)
 - Unit 7:** Brown to dark brown grading down to yellowish brown to reddish brown, gravelly silty to clayey sand and sandy gravel; generally massive with pockets or lenses of gravel at the top, bedded at the bottom; gravels are subrounded to rounded and consist predominantly of Santa Monica slate; slightly pedogenically altered at the top; erosional contact with unit below. (Fluvial Deposit grading upward to possible very fluid Debris Flow Deposit)
 - Unit 8:** Brown to dark brown sandy clay to gravelly sandy clay; massive; with localized pockets of angular to subrounded fine to medium gravel; many pores; pedogenically altered where not incised by Unit 7. (Debris Flow Deposit)
 - Unit 9:** Brown to dark brown gravelly sand; bedded, with fining-upward sequences; gravel consists of 1/4- to 1-inch in diameter clasts predominantly of Santa Monica slate; erosional contact with Unit 10 below. (Fluvial Deposit)
 - Unit 10:** Brown to dark yellowish brown sandy to silty clay grading eastward to clay, locally with many subangular gravel to 1/2-inch in diameter; many pores; gradual contact to Unit 11 below. (Debris Flow Deposit)
 - Unit 11:** Brown to dark brown sandy clay grading down to silty clay; massive to locally weakly bedded; with gravel-sized clasts consisting of weathered Monterey siltstone and Santa Monica slate; significant pinhole-sized pores; clear to gradual contact to Unit 12 below. (Debris Flow Deposit)
 - Unit 12:** Brown to dark yellowish brown sandy to silty clay, locally gravelly; massive; clasts consist predominantly of weathered Monterey siltstone; with randomly oriented vertical fractures, root holes, and surfaces filled in with fine sand; fractures dip up and down, suggesting wetting and drying locally with significant pinhole-sized pores. (Debris Flow Deposit)

Soil Descriptions, Profile at Station 0+15

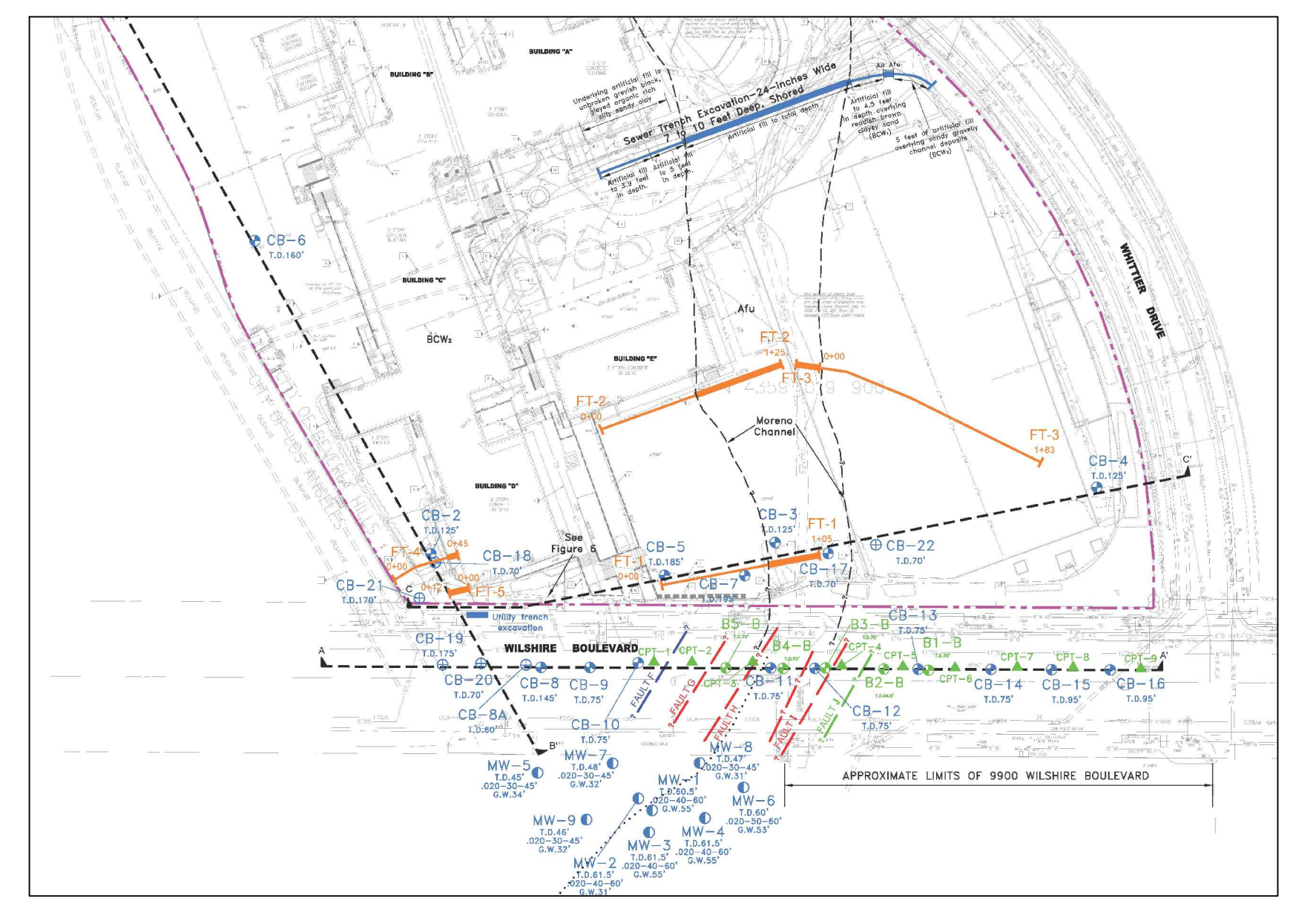
Depth (ft)	Horizon	Description
0 - 1.83	Fill	Not described. Mixture of different soils, with brick and asphalt fragments.
1.83 - 2.62	A/Bt1	SILTY CLAY; very dark brown (10YR 2/2) when damp and moist; moderate medium to coarse angular blocky soil structure; firm when moist, very sticky and very plastic when wet; few thin clay films bridging grains, few thin clay films on clasts; scattered fine gravel consisting predominantly of Santa Monica slate; with organics; abrupt wavy boundary.
2.62 - 3.64	Bt2	SILTY CLAY; brown (10YR 4/3) with dark brown (7.5YR 3/2) clay films when damp, very dark grayish brown (10YR 3/2) with dark brown (7.5YR 3/2) clay films when moist; moderate to strong medium angular blocky soil structure; very friable when moist, very sticky and very plastic when wet; common thin and few moderately thick clay films on ped faces, common moderately thick clay films on clasts, common thin clay films bridging grains; dark organics and/or clay coatings on ped faces; boundary not observed, at bench.
3.64 - 4.26	Bt3	SILTY CLAY LOAM; brown (10YR 4/3) when damp, very dark grayish brown (10YR 3/2) when moist; strong very coarse angular blocky soil structure; firm when moist, sticky and plastic when wet; common thin clay films on ped faces, many thin clay films bridging grains, common thin clay films in pores, common thin clay films on clasts, many moderately thick clay films coating clast pockets; many root casts around clast pockets; abrupt wavy boundary.
4.26 - 5.25	2Bt4	Fine SANDY CLAY; brown (10YR 4/3) with brown (7.5YR 4/2) clay films when damp, very dark grayish brown (10YR 3/2) when moist; moderate medium angular blocky soil structure; firm when moist, slightly sticky and plastic when wet; common thin clay films on ped faces, few thin clay films on clasts, common moderately thick clay films coating clast pockets; abrupt to clear wavy boundary.
5.25 - 7.48	2BtC1	SANDY CLAY LOAM to fine SANDY CLAY; dark brown (10YR 3/3) when damp, very dark grayish brown (10YR 3/2) when moist; massive breaking to weak to moderate medium angular blocky soil structure grading downward to moderate medium angular blocky soil structure; firm when moist, slightly sticky to sticky and plastic when wet; few thin clay films on ped faces, few thin clay films on clasts, few thin clay films coating clast pockets; scattered gravel; many pores; extensively bioturbated at top; clear wavy boundary.
7.48 - 8.79	3Bt5	SANDY CLAY LOAM; brown (10YR 4/3) when dry, dark brown (10YR 3/3) when moist; strong medium to coarse angular blocky soil structure; hard when dry, friable when moist, sticky and plastic when wet; few thin clay films on ped faces and bridging grains, common thin clay films coating clast pockets; abrupt to clear wavy boundary.
8.79 - 9.81	3BtC2	LOAMY SAND; brown (10YR 5/3) when dry, dark brown (10YR 3/3) when moist; moderate fine to medium angular blocky soil structure; hard and fragile when dry, friable when moist, non-sticky and very slightly plastic when wet; few thin clay films on ped faces; many rounded to subangular gravel and pebbles of Santa Monica slate and Monterey siltstone; abrupt to clear wavy boundary.
9.81 - 10.43	4AB	LOAMY SAND to fine SANDY LOAM; brown (10YR 5/3) when dry, brown (10YR 4/3) when moist; moderate to strong fine angular blocky soil structure; slightly hard to very hard and fragile when dry, friable to firm when moist, sticky and slightly plastic when wet; very few thin clay films in pores and on clasts; with gravel and pebbles; clay concentrated in zones; clear wavy boundary.
10.43 - 11.09	4Btj	SANDY CLAY LOAM; dark brown (10YR-7.5YR 3/3) when damp and moist; weak fine angular blocky soil structure breaking to single-grained; firm when moist, slightly sticky to sticky and plastic when wet; few thin clay films on ped faces, few thin clay films lining clast pockets; common scattered fine gravel of Santa Monica slate; with clay-rich zones locally; abrupt wavy boundary.
11.09 - 14.14	5Bt6	SILTY CLAY LOAM; brown (10YR 5/3) with brown (7.5YR 5/3) clay films when dry, dark brown (7.5YR 3/3) when moist; strong medium to coarse angular blocky soil structure; firm when moist, sticky to very sticky and slightly plastic to plastic when wet, common thin clay films in pores and on clasts, common thin and few moderately thick clay films lining clast pockets; common subangular gravel up to 1/2-inch in diameter; many pores; gradual boundary.
14.14 - 15.03	5Bt7	SANDY CLAY LOAM; brown (7.5-10YR 5/3) when dry, brown (7.5YR 4/3) when moist; weak to strong medium to coarse angular blocky soil structure; slightly hard and fragile when dry, firm when moist, sticky and plastic when wet; common thin clay films in pores, few thin clay films on clasts, common thin and few moderately thick clay films coating clast pockets; many pores; abrupt wavy boundary.
15.03 - 16.80	6Bt8	SILTY CLAY; brown (7.5YR 4/3) when dry, dark brown (7.5YR 3/2.5) when moist; strong medium to coarse angular blocky soil structure; hard when dry, friable to firm when moist, very sticky and very plastic when wet; few thin clay films on ped faces and bridging grains, common thin clay films on clasts, common thin to moderately thick clay films lining clast pockets; clasts consist of approximately equal amounts of Santa Monica slate and Monterey siltstone; clear to gradual wavy boundary.
16.80 - 17.98	6BtC3	Fine SANDY CLAY LOAM; brown (7.5YR 5/3) with brown (7.5YR 4/3) clay films when dry, brown (7.5YR 3/3) when moist; moderate to strong medium to coarse angular blocky soil structure; hard when dry, firm when moist, sticky and slightly plastic when wet; very few thin clay films on ped faces, common thin clay films coating clast pockets; many pinhole-sized pores; many weathered clasts of Monterey siltstone, few clasts of Santa Monica slate; sand in root casts; abrupt wavy boundary.
17.98 - 18.60	7Bt9	Fine SANDY CLAY LOAM; brown (7.5YR 4/3) when dry, dark brown (7.5YR 3/3) when moist; moderate fine to medium angular blocky soil structure; slightly hard and fragile when dry, firm when moist, slightly sticky and plastic when wet; few thin clay films coating clasts; sand in vertical fractures associated with wetting/drying and roots; clear smooth to wavy boundary.
18.60 - 19.46+	8Btj2	Fine SILTY CLAY; brown (7.5YR 4/3) when dry, dark brown (7.5YR 3/3) when moist; moderate to strong medium angular blocky soil structure; hard when dry, firm when moist, slightly sticky and plastic when wet; very few thin clay films coating clasts; many pinhole-sized pores and roots; common root holes; root holes filled with sand; many weathered clasts of Monterey siltstone; more fine gravel than above; lower boundary not observed.

Soil Descriptions, Profile at Station 1+05

Depth (ft)	Horizon	Description
0 - 1.97	Fill	Not described. Mixture of imported gravel, imported light yellowish brown to reddish brown clayey soil, with bricks, asphalt fragments, and other debris.
1.97 - 2.99	Bt1	CLAY to SILTY CLAY; very dark grayish brown (10YR 3.5/2) with very dark brown to very dark grayish brown (10YR 2.5/2) clay films and few scattered black (10YR 2/1) mottles when dry, very dark brown to very dark grayish brown (10YR 2.5/2) when moist; strong coarse angular blocky soil structure; hard when dry, firm when moist, sticky and very plastic when wet; many moderately thick clay films on ped faces and bridging grains, common thin clay films on ped faces, many thin clay films in pores; many pores, roots and root casts; organic-rich; few scattered gravel-sized chips of Monterey siltstone; locally looks mixed, possibly reworked; abrupt to clear wavy boundary.
2.99 - 3.64	BC _{lum}	CLAY LOAM with CLAY lamellae; brown (10YR 4/3) with very dark grayish brown (10YR 3/2) clay films when dry, very dark grayish brown (10YR 3/2) when moist; strong medium to coarse angular blocky soil structure; soft when dry, friable when moist, sticky and plastic to very plastic when wet; few to common thin clay films on ped faces, many thin clay films bridging grains and in pores; in the lamellae, many thin and common moderately thick clay films on ped faces and many thin clay films in pores; common pinhole-sized pores; clear wavy boundary.
3.64 - 4.66	2Bt2	SANDY CLAY; brown (10-7.5YR 4/3) with brown (7.5YR 4/4) clay films locally when dry, dark brown (7.5YR 3/2) with dark reddish brown (5YR 3/2) mottles when moist; strong coarse to very coarse angular blocky soil structure; soft to slightly hard when dry, friable when moist, very sticky and very plastic when wet; common moderately thick and many thin clay films on ped faces, few to common thin clay films bridging grains, continuous thin clay films in pores; common to many large pores; scattered subangular gravel generally less than 1-inch in diameter consisting predominantly of Santa Monica slate; clear wavy boundary.
4.66 - 6.04	2Bt3	SANDY CLAY; brown (10-7.5YR 4/3) with brown (7.5YR 4/3.5) clay films when dry, dark brown (7.5YR 3/2) with dark brown (7.5YR 3/3) clay films when moist; moderate medium to coarse angular blocky soil structure; slightly hard to hard when dry, slightly firm to firm when moist, very sticky and plastic when wet; few to common thin clay films on ped faces, common to many thin and few moderately thick clay films bridging grains, common thin clay films on clasts; more sand, coarser sand and more gravel than horizon above; fewer pores than above ranging in size from pinhole to 3mm in diameter; clear wavy boundary.
6.04 - 6.46	3Bt4	SANDY CLAY LOAM; brown (10-7.5YR 4/3) with dark brown (7.5YR 3/2) clay films when dry, dark brown (7.5YR 3/2) with dark brown (7.5YR 3/3) clay films when moist; moderate medium to coarse angular blocky soil structure; soft and slightly friable when dry, friable to slightly firm when moist, slightly sticky to sticky and plastic when wet; many thin and common moderately thick clay films on ped faces, common thin clay films bridging grains and in pores, many thin clay films on clast pockets; many pores ranging in size from pinhole to >3mm in diameter; more sand and more gravel than horizon above; abrupt to clear wavy boundary.
6.46 - 7.81	4Btj	SANDY CLAY LOAM grading down to SANDY LOAM; brown and dark yellowish brown (10YR 4/3 and 4/4) when dry, dark brown (7.5YR 3/2) when moist; moderate medium to coarse angular blocky soil structure; soft and slightly friable when dry, very friable when moist, slightly sticky and very slightly to slightly plastic when wet; common to many thin clay films on ped faces, common thin clay films bridging grains, many thin clay films in pores locally, many thin clay films coating clasts; fining upward with increasing gravel downward; more sand and fine gravel than horizon above; clear to gradual wavy boundary. (Alluvium)
7.81 - 8.53	4BC _{lum2}	Gravelly SANDY LOAM with SANDY LOAM lamellae; brown (10YR 4/3) when dry, dark brown (7.5YR 3/2.5) when moist; weak medium subangular blocky soil structure breaking to single-grained, moderate medium subangular blocky soil structure in lamellae; soft to loose when dry, very friable when moist, non-sticky to very slightly sticky and non-plastic when wet; common thin to moderately thick clay films bridging grains, few thin clay films on ped faces, few to common thin clay films on clasts, many thin clay films on clast pockets; fine to medium sand with common coarse sand and subrounded to rounded gravel consisting predominantly of Santa Monica slate; abrupt to clear wavy boundary. (Very fluid debris flow deposit or alluvium, generally massive, locally with lenses.)
8.53 - 9.71	5Bt _{lum3}	Gravelly LOAMY SAND with SANDY LOAM lamellae; brown (10YR 4/3) when dry, dark brown (10-7.5YR 3/3) when moist; single-grained; loose when dry and when moist, non-sticky and non-plastic when wet; few pores ranging in size from pinhole to 2 mm in diameter; abrupt wavy to irregular boundary that incises into underlying surface. Lamellae are brown (10-7.5YR 4/3) when dry, dark brown (7.5YR 3/3) when moist; moderate fine to medium subangular blocky soil structure; slightly hard when dry, very friable when moist; non-sticky to very slightly sticky and non-plastic when wet; many thin and common moderately thick clay films bridging grains, few thin clay films on ped faces, common thin clay films in clast pockets; 1/2- to 1-inch thick, irregularly spaced from 1/4- to 1/2-inch apart at top, to 1-2 inches at bottom. (Alluvium; strata visible.)
9.71 - 10.07	6Bt5	SANDY LOAM to SANDY CLAY LOAM; brown and dark yellowish brown (10YR 4/3 and 4/4) with brown (7.5YR 4/3) clay films when dry, dark brown (10-7.5YR 3/3) with dark brown (7.5YR 3/3) clay films when moist; moderate fine angular blocky soil structure; hard and fragile when dry, friable when moist, slightly sticky to sticky and slightly plastic to plastic when wet; common thin and few moderately thick clay films on ped faces, common thin clay films in pores, many thin clay films bridging grains; many pores ranging in size from pinhole to 2 mm in diameter, loose fine sand in larger pores; few to common subangular to subrounded fine gravel to 1/2-inch in diameter, consisting predominantly of Santa Monica slate, few Monterey siltstone chips; clear wavy boundary.
10.07 - 11.25	6Bt6	SANDY CLAY LOAM to SANDY CLAY; brown (10YR 4.5/3) with brown (7.5YR 4/3) clay films when dry, dark brown (7.5YR 3/2) when moist; weak to moderate medium angular blocky soil structure; slightly hard to hard and slightly friable when dry, friable to slightly firm when moist, slightly sticky to sticky and plastic when wet; many thin and few moderately thick clay films on ped faces, many thin to moderately thick clay films bridging grains, common thin clay films in pores; coarser-grained than horizon above, fining-upward sequence with unit above; common pores; clear wavy boundary. (Debris flow deposit)
11.25 - 12.04	7C _{lum}	Gravelly SAND with SANDY LOAM lamellae; brown (10YR 4/3) when dry, dark brown (7.5YR 3/3) when moist; single-grained; loose when dry and moist, non-sticky and non-plastic when wet; gravel consists predominantly of Santa Monica slate, 1/4- to 1-inch in diameter; abrupt wavy to irregular boundary that incises into underlying surface. Lamellae are brown (10-7.5YR 4/3) when dry, dark brown (7.5YR 3/3) when moist; weak fine to medium subangular blocky soil structure; soft when dry, very friable when moist, very slightly sticky and non-plastic to very slightly sticky when wet; 1/4- to 1/2-inch thick, spaced 1 to 2 inches apart. (Fluvial deposit, stratified, with fining-upward sequences.)
12.04 - 12.37+	8Bt7	CLAY; dark yellowish brown to brown (10-7.5YR 4/4) with dark brown (7.5YR 3/3) clay films when dry, dark brown (7.5YR 3/2.5) when moist; strong fine to medium subangular blocky soil structure; extremely hard when dry, firm when moist, very sticky and very plastic when wet; common thin and few moderately thick clay films on ped faces, common thin clay films bridging grains, many thin clay films in pores, many moderately thick clay films on clasts; many pinhole-sized pores; boundary not observed.

Symbols

	Clay		Sharp contact
	Silt		Approximate contact
	Sand		Buried Soil Horizon
	Gravel and Pebbles		Soil development
	Cobbles		Pipe
	Unit Label		Channel Margin Orientation



Log of Fault Trench FT-3

El Rodeo K-8 School Fault Study

Leighton
Proj: 10274.006
Eng/Geol: TCB/JAR

Earth Consultants International
Project Number: 3205.09
Date: 2016

Plate 1

PLATE 7A

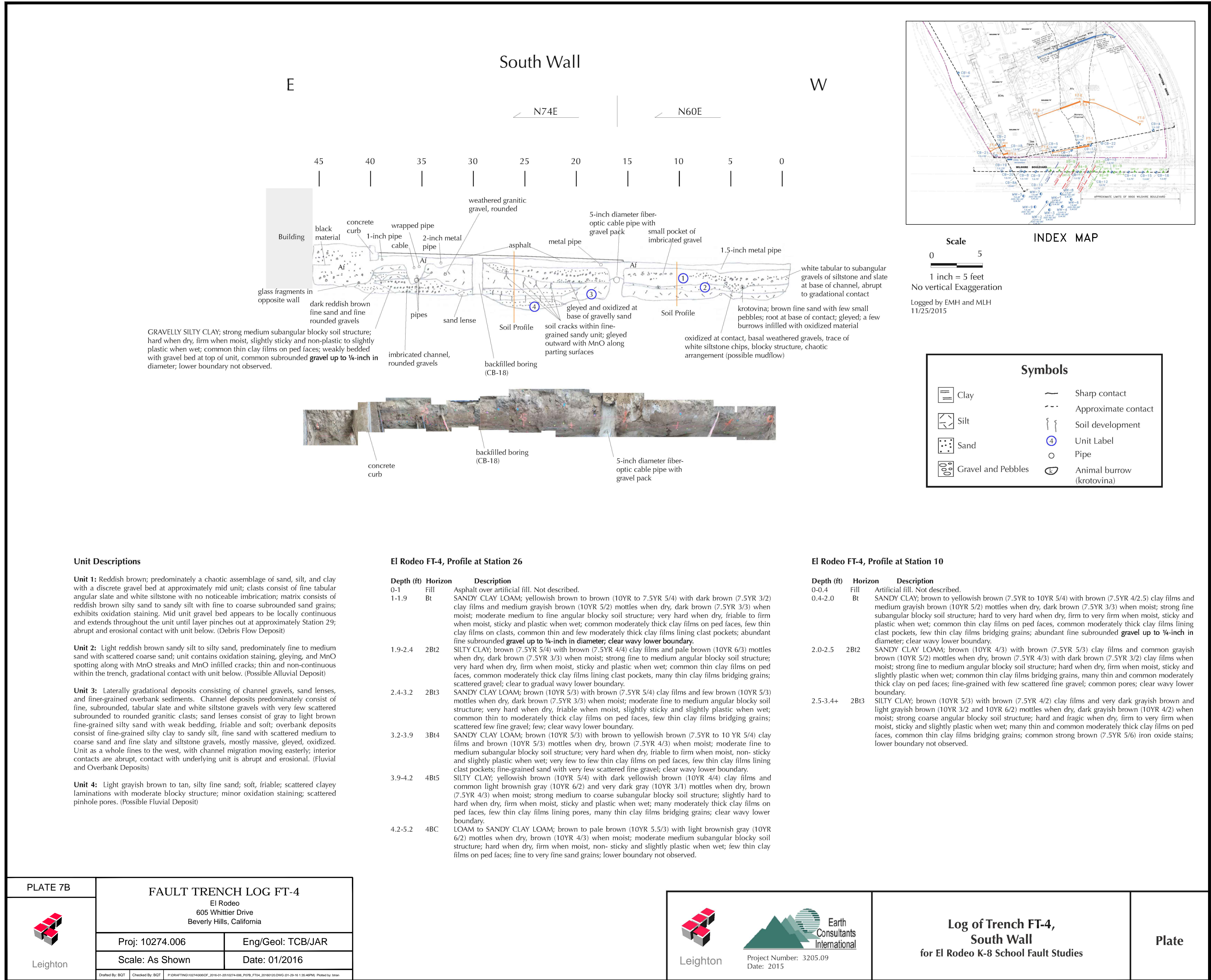
FAULT TRENCH LOG FT-3

El Rodeo
605 Whittier Drive
Beverly Hills, California

Proj: 10274.006 Eng/Geol: TCB/JAR

Scale: As Shown Date: 01/2016

Leighton



INDEX MAP

Scale: 1 inch = 5 feet
No vertical Exaggeration

Logged by EMH and MLH
11/25/2015

Symbols

<ul style="list-style-type: none"> Clay Silt Sand Gravel and Pebbles 	<ul style="list-style-type: none"> Sharp contact Approximate contact Soil development Unit Label Pipe Animal burrow (krotovina)
--	--

Unit Descriptions

Unit 1: Reddish brown; predominately a chaotic assemblage of sand, silt, and clay with a discrete gravel bed at approximately mid unit; clasts consist of fine tabular angular slate and white siltstone with no noticeable imbrication; matrix consists of reddish brown silty sand to sandy silt with fine to coarse subrounded sand grains; exhibits oxidation staining. Mid unit gravel bed appears to be locally continuous and extends throughout the unit until layer pinches out at approximately Station 29; abrupt and erosional contact with unit below. (Debris Flow Deposit)

Unit 2: Light reddish brown sandy silt to silty sand, predominately fine to medium sand with scattered coarse sand; unit contains oxidation staining, gleying, and MnO spotting along with MnO streaks and MnO infilled cracks; thin and non-continuous within the trench, gradational contact with unit below. (Possible Alluvial Deposit)

Unit 3: Laterally gradational deposits consisting of channel gravels, sand lenses, and finer-grained overbank sediments. Channel deposits predominately consist of fine, subrounded, tabular slate and white siltstone gravels with very few scattered subrounded to rounded granitic clasts; sand lenses consist of gray to light brown fine-grained silty sand with weak bedding, friable and soft; overbank deposits consist of fine-grained silty clay to sandy silt, fine sand with scattered medium to coarse sand and fine silty and siltstone gravels, mostly massive, gleyed, oxidized. Unit as a whole fines to the west, with channel migration moving easterly; interior contacts are abrupt, contact with underlying unit is abrupt and erosional. (Fluvial and Overbank Deposits)

Unit 4: Light grayish brown to tan, silty fine sand; soft, friable; scattered clayey laminations with moderate blocky structure; minor oxidation staining; scattered pinhole pores. (Possible Fluvial Deposit)

El Rodeo FT-4, Profile at Station 26

Depth (ft)	Horizon	Description
0-1	Fill	Asphalt over artificial fill. Not described.
1-1.9	Bt	SANDY CLAY LOAM; yellowish brown (10YR to 7.5YR 5/4) with dark brown (7.5YR 3/2) clay films and medium grayish brown (10YR 5/2) mottles when dry, dark brown (7.5YR 3/3) when moist; moderate medium to fine angular blocky soil structure; very hard when dry, friable when moist, sticky and plastic when wet; common moderately thick clay films on ped faces, few thin clay films on clasts, common thin and few moderately thick clay films lining clast pockets; abundant fine subrounded gravel up to ¼-inch in diameter; clear wavy lower boundary.
1.9-2.4	2Bt2	SILTY CLAY; brown (7.5YR 5/4) with brown (7.5YR 4/4) clay films and pale brown (10YR 6/3) mottles when dry, dark brown (7.5YR 3/3) when moist; strong fine to medium angular blocky soil structure; very hard when dry, firm when moist, sticky and plastic when wet; common thin clay films on ped faces, common moderately thick clay films lining clast pockets, many thin clay films bridging grains; scattered gravel; clear to gradual wavy lower boundary.
2.4-3.2	2Bt3	SANDY CLAY LOAM; brown (10YR 5/3) with brown (7.5YR 5/4) clay films and few brown (10YR 5/3) mottles when dry, dark brown (7.5YR 3/3) when moist; moderate fine to medium angular blocky soil structure; very hard when dry, friable when moist, slightly sticky and slightly plastic when wet; common thin to moderately thick clay films on ped faces, few thin clay films bridging grains; scattered few fine gravel; few; clear wavy lower boundary.
3.2-3.9	3Bt4	SANDY CLAY LOAM; brown (10YR 5/3) with brown to yellowish brown (7.5YR to 10 YR 5/4) clay films and brown (10YR 5/3) mottles when dry, brown (7.5YR 4/3) when moist; moderate fine to medium subangular blocky soil structure; very hard when dry, friable to firm when moist, non-sticky and slightly plastic when wet; very few to few thin clay films on ped faces, few thin clay films lining clast pockets; fine-grained sand with very few scattered fine gravel; clear wavy lower boundary.
3.9-4.2	4Bt5	SILTY CLAY; yellowish brown (10YR 5/4) with dark yellowish brown (10YR 4/4) clay films and common light brownish gray (10YR 6/2) and very dark gray (10YR 3/1) mottles when dry, brown (7.5YR 4/3) when moist; strong medium to coarse subangular blocky soil structure; slightly hard to hard when dry, firm when moist, sticky and plastic when wet; many moderately thick clay films on ped faces, few thin clay films lining pores, many thin clay films bridging grains; clear wavy lower boundary.
4.2-5.2	4Bc	LOAM to SANDY CLAY LOAM; brown to pale brown (10YR 5.5/3) with light brownish gray (10YR 6/2) mottles when dry, brown (10YR 4/3) when moist; moderate medium subangular blocky soil structure; hard when dry, firm when moist, non-sticky and slightly plastic when wet; few thin clay films on ped faces; fine to very fine sand grains; lower boundary not observed.

El Rodeo FT-4, Profile at Station 10

Depth (ft)	Horizon	Description
0-0.4	Fill	Artificial fill. Not described.
0.4-2.0	Bt	SANDY CLAY; brown to yellowish brown (7.5YR to 10YR 5/4) with brown (7.5YR 4/2.5) clay films and medium grayish brown (10YR 5/2) mottles when dry, dark brown (7.5YR 3/3) when moist; strong fine subangular blocky soil structure; hard to very hard when dry, firm to very firm when moist, sticky and plastic when wet; common thin clay films on ped faces, common moderately thick clay films lining clast pockets, few thin clay films bridging grains; abundant fine subrounded gravel up to ¼-inch in diameter; clear wavy lower boundary.
2.0-2.5	2Bt2	SANDY CLAY LOAM; brown (10YR 4/3) with brown (7.5YR 5/3) clay films and common grayish brown (10YR 5/2) mottles when dry, brown (7.5YR 4/3) with dark brown (7.5YR 3/2) clay films when moist; strong fine to medium angular blocky soil structure; hard when dry, firm when moist, sticky and slightly plastic when wet; common thin clay films bridging grains, many thin and common moderately thick clay on ped faces; fine-grained with few scattered fine gravel; common pores; clear wavy lower boundary.
2.5-3.44	2Bt3	SILTY CLAY; brown (10YR 5/3) with brown (7.5YR 4/2) clay films and very dark grayish brown and light grayish brown (10YR 3/2 and 10YR 6/2) mottles when dry, dark grayish brown (10YR 4/2) when moist; strong coarse angular blocky soil structure; hard and fragile when dry, firm to very firm when moist, sticky and slightly plastic when wet; many thin and common moderately thick clay films on ped faces, common thin clay films bridging grains; common strong brown (7.5YR 5/6) iron oxide stains; lower boundary not observed.

PLATE 7B

FAULT TRENCH LOG FT-4
El Rodeo
605 Whittier Drive
Beverly Hills, California

Proj: 10274.006 Eng/Geol: TCB/JAR

Scale: As Shown Date: 01/2016

Drafted By: BOT Checked By: BOT P:\DRAFTING\10274006\Footer_2016-01-20\10274-006_F07B_FT04_20160120.DWG (01-28-16 1:35:46PM) Plotted by: tstan

Project Number: 3205.09
Date: 2015

**Log of Trench FT-4,
South Wall**
for El Rodeo K-8 School Fault Studies

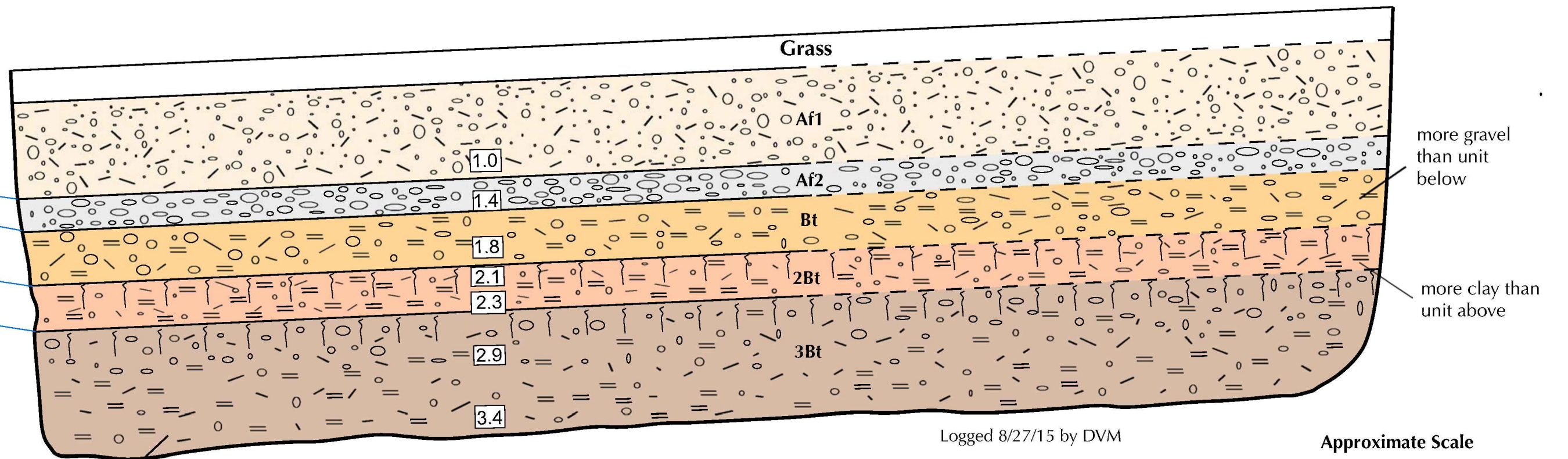
Plate

← N3°E
South Wall

E 13 12 11 10 9 8 7 6 5 4 3 2 1 W



Stratigraphy and sample locations (pink flags) on the south wall of the Wilshire Boulevard Utility Trench. View to the southwest. Blue lines show the approximate location of contacts denoted on the geologic log to the right of photo.



gravel concentrated in upper-half of unit

Logged 8/27/15 by DVM

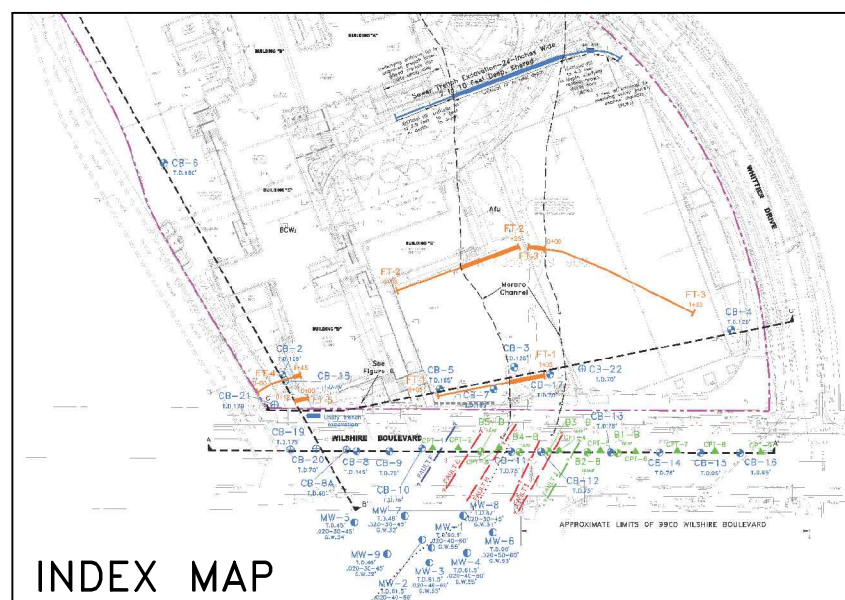
Approximate Scale
0 1
1 inch = 1 feet
No vertical Exaggeration

Symbols

- Clay
- Silt
- Sand
- Gravel and Pebbles
- Sharp contact
- Approximate contact
- Soil development
- 3.4 Sample location for unit descriptions

Soil Descriptions

- Sample @1.0' - **Fill (Af1):** SILTY CLAY LOAM; brown (10YR 4/3) when dry, very dark grayish brown (10YR 3/2) when moist; moderate fine subangular blocky soil structure; hard when dry, slightly firm when moist, sticky and plastic when wet; many fine to medium roots; common gravel and pebbles, many broken pebbles; abrupt smooth lower boundary. [Topped by 0.3' (9 cm) of grass.]
- Sample @1.4' - **Fill (Af2):** Fine to coarse SAND with gravel; gray (2.5Y 5.5/1) when dry, very dark gray (2.5Y 3/1) when moist; single-grained; loose when dry and moist, non-sticky and non-plastic when wet; broken white granitic gravel and cobbles; abrupt smooth lower boundary.
- Sample @1.75' - **Bt Soil Horizon:** SANDY CLAY LOAM; dark grayish brown (10YR 4/2) when dry, dark brown (10YR 3/3) when moist; strong fine angular blocky soil structure; hard when dry, firm when moist, sticky and plastic when wet; common thin clay films coating clasts; common to many gravel, few to common pebbles; abrupt to clear wavy lower boundary.
- Sample @2.1' - **2Bt2 Soil Horizon:** SILTY CLAY; brown (7.5YR 4/3) with dark gray (7.5YR 4/1) clay films when dry, brown (7.5YR 4/3) when moist; strong coarse angular blocky soil structure; extremely hard when dry, extremely firm when moist, very sticky and very plastic when wet; many moderately thick clay films on ped faces, many thin clay films bridging grains, common moderately thick clay films coating clasts, common moderately thick to thick clay films lining clast pockets; common fine gravel; gradual wavy lower boundary.
- Sample @2.3' - **2Bt3 Soil Horizon:** SANDY CLAY; brown (7.5YR 4/3) with dark brown (7.5YR 3/2) clay films when dry, brown (7.5YR 4/3) when moist; moderate medium subangular blocky soil structure; very hard when dry, very firm when moist, very sticky and plastic when wet; few moderately thick clay films on ped faces, common moderately thick clay films bridging grains, common thin to moderately thick clay films coating clasts, common moderately thick clay films lining clast pockets; many platy to subrounded gravel; abrupt to clear wavy lower boundary.
- Sample @2.9' - **3Bt4 Soil Horizon:** SILTY CLAY LOAM; brown (7.5YR 4/3) when dry, dark brown (7.5YR 3/3) when moist; moderate medium subangular blocky soil structure; hard when dry, firm when moist, sticky and plastic when wet; few thin clay films on ped faces, few moderately thick and common thin clay films coating clasts, common moderately thick clay films lining clast pockets; with pebbles; fewer gravel than above; gradual lower boundary.
- Sample @3.4' - **3Bt5 Soil Horizon:** SANDY CLAY LOAM; brown and dark brown (7.5YR 4/3 and 3/2) with brown (7.5YR 4/4) clay films when dry, brown (7.5YR 4/3) when moist; moderate medium subangular blocky soil structure; very hard when dry, friable when moist, very sticky and very plastic when wet; few moderately thick clay films on ped faces, common moderately thick clay films bridging grains, few moderately thick clay films lining clast pockets; lower boundary not observed.



INDEX MAP



Project Number: 3205.09
Date: November 2015

WISHIRE BOULEVARD UTILITY TRENCH

EI Rodeo
605 Whittier Drive
Beverly Hills, California

Proj: 10274.006

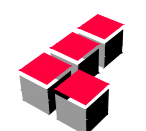
Eng/Geol: TCB/JAR

Scale: As Shown

Date: 01/2016

Drafted By: BQT Checked By: BQT P:\DRAFTING\10274\006\0F_2016-01-20\10274-006_P08_VBUT_20160120.DWG (11-29-16 1:37:24PM) Plotted by: btran

PLATE 8



Leighton