PART III
ATTACHMENT III-E
APPENDIX III-E.2

SUBSURFACE INVESTIGATION REPORT

For

PESCADITO ENVIRONMENTAL RESOURCE CENTER
TYPE I MUNICIPAL SOLID WASTE MANAGEMENT FACILITY
LAREDO, WEBB COUNTY, TEXAS
MSW PERMIT NO. 2374

Prepared for

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9/18/15

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PROJECT NO. ASF13-140-00

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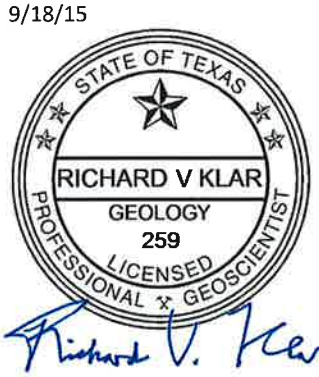

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1.0 INTRODUCTION

This Subsurface Investigation Report was prepared to present a discussion of subsurface investigation activities and findings for a municipal solid waste (MSW) permit application (MSW Permit No. 2374) for the proposed Pescadito Environmental Resource Center facility. As depicted on the attached ***Site Location Map (Figure 1)***, the proposed facility is located on an approximate 12,194-acre ranch property, located about 18 miles east of Laredo off of U.S. Highway 59 in rural south-central Webb County, Texas. Rancho Viejo Waste Management, LLC is seeking approval from the Texas Commission on Environmental Quality (TCEQ) MSW Permits Section to construct a new Type I municipal solid waste management facility at the site. The total size of the proposed MSWLF facility to be permitted is approximately 1,100 acres, which includes a municipal solid waste management landfill (MSWLF) unit comprising approximately 800 to 850 acres. As depicted on ***Figure 1***, the proposed MSW facility is fully contained within the larger 12,194-acre ranch property boundary, which is owned by an affiliate company.

Subsurface investigation activities documented and discussed herein were conducted as a collaborative effort between **Raba Kistner Environmental, Inc. (RKEI)** and our affiliate company, **Raba Kistner Consultants, Inc. (RKCI)**. This Subsurface Investigation Report (SIR) is intended to accompany the Geotechnical Data Report (GDR, Appendix III-E.3) for this permit application that was prepared under separate cover by **RKCI**.

2.0 FIELD EXPLORATION PROGRAM

The total size of the proposed facility is approximately 1,100 acres (i.e., proposed permit boundary), although the area of the proposed Type I MSW landfill unit will comprise approximately 800 to 850 acres. As described in more detail in the following subsections, the field exploration program, which formed the basis of the subsurface investigation for this site, was accomplished in four (4) discrete phases conducted from November 2009 through January 2012.

The approved Soil Boring Plan (SBP) for this project consists of an original SBP dated February 1, 2011 and a revised SBP submitted on March 21, 2011. The revised SBP was approved by TCEQ in a letter dated April 11, 2011. A copy of the referenced acceptance letter is included herein as ***Appendix A***. Subsurface investigation for the proposed facility permit boundary area was collectively evaluated by the installation of a total of 57 exploratory soil borings, 19 piezometers, and 2 exploratory test pits at the locations shown on the ***Boring/Test Pit Location Map (Figure 2)***.

As presented on ***Figure 2***, soil borings installed during preliminary study phases (i.e., Phases I and II) are designated as B-1 through B-27 (excluding B-9), whereas borings installed following TCEQ approval of the SBP (i.e., Phase III) are designated as B-9, B-101 through B-126, B-11A, B-109A, B-114A, and DB-1, respectively. Borehole geophysical logging was conducted in selected Phase III borings and an adjacent ranch water-supply well as part of the Phase III study effort. Exploratory test pits (Phase IV) designated as TP-1 and TP-2 were conducted as the final subsurface investigation effort in January 2012.

The geographic positions and elevations of all borings, piezometers, and test pits were obtained by **RKEI** using survey-grade (real-time kinematic) global positioning system (GPS) technology. Data collected as part of the subsurface investigation effort was additionally post-processed and tied to the spatial reference framework established for the United States by the National Geodetic Survey (NGS). Specifically, the NGS operates the On-line Positioning User Service (OPUS) as a means to provide GPS

users efficient access to their National Spatial Reference System. In association with all phases of GPS field data collection, submitted data files were processed with respect to a minimum of three NGS continuously operating reference stations selected by OPUS. The establishment of the well-defined NGS reference framework facilitated necessary correction of GPS field measurements and the final reporting of accurate spatial position data relative to the NGS reference framework. The geographic positions and elevations established for soil borings, piezometers, test pits, and staff gauges installed to evaluate water levels in four existing surface water impoundments are provided in ***Table 1 – Soil Boring/Test Pit/Staff Gauge Position Table***.

In all instances, GPS survey data was tied to existing benchmarks established for this project along the perimeter of the proposed landfill permit boundary by a registered professional land surveyor (RPLS). An existing conditions topographic survey for the landfill site was performed by Dallas Aerial Survey (2/15/2010) based on physical benchmarks established along the site perimeter by Mejia Engineering Company (Gilbert L. Cade, IIII RPLS) using conventional survey methods. A copy of the final exhibit provided by Dallas Aerial Survey was provided as a reference to evaluate the consistency of GPS data collected in conjunction with the subsurface investigation pertaining to the positions and ground surface elevations of exploratory borings and test pits. Comparison of GPS data to position and elevation data established independently by the RPLS was conducted and, as demonstrated by this analysis, indicates that reported GPS horizontal and vertical position data is adequate for purposes of the subsurface investigation. When considered with respect to independently established benchmark locations and topographic survey points, GPS data developed as part of the subsurface investigation effort is accurate to within 1 meter ground surface resolution.

Boring logs containing information specified pursuant to *§330.63(e)(4)* generated following the completion of all phases of subsurface investigation in addition to a key to terms and symbols are provided in ***Appendix B***. As part of the field exploration program, borehole geophysical logs were obtained to complement borehole logging data at the majority of Phase III (open-hole) boring locations. Additionally, geophysical logs were obtained at 7 of the 9 cased piezometers installed as part of the Phase I and II study effort in addition to the existing water-supply well located on the adjacent ranch property completed to a depth of about 1,166 feet within the underlying Yegua Aquifer. The location of the water-supply well is provided on ***Figure 2***. Geophysical logs for all borehole logging activities are provided in ***Appendix C***.

The following sections present a more detailed discussion of subsurface investigation activities and findings.

2.1 SOIL BORING PLAN

The number and depths of borings installed to achieve site characterization objectives was determined in consultation with the TCEQ MSW Waste Permits section as part of the formal regulatory review process. The SBP was formally approved by the TCEQ MSW Waste Permits Section in correspondence dated April 11, 2011 and proposed installation of 27 additional soil borings to depths ranging from 120 to 160 feet below ground surface (bgs), 10 of which would be converted to piezometers, for a combined total of 57 soil borings and 19 piezometers. In addition to the soil borings and piezometers explicitly proposed as part of the Boring Location Plan, borings/piezometers designated as B-11A, B-109A, and B-114A were installed to further evaluate shallow groundwater conditions associated with saturated soil conditions observed at adjacent borings. As further discussed in ***Section 2.3.1***, boring DB-1 was

advanced to a depth of 502 feet bgs to further evaluate hydrogeologic conditions within the underlying Yegua-Jackson Group formation to facilitate collection of deep geophysical logging data.

Collective subsurface characterization activities for the proposed landfill permit boundary area was therefore evaluated by the installation of a total of 57 exploratory soil borings, 19 piezometers, borehole geophysical logging, and 2 exploratory test pits at the locations shown on ***Figure 2***. Information pertaining to the installation of exploratory soil borings advanced during all phases of subsurface investigation, including drilling and sampling methods, is summarized in the following tables.

Summary of Exploratory Borings – Phase I

Soil Boring	Installation Date	Depth (Feet bgs)	Drilling Method	Sampling Method
B-1	11/09/09	95.7	ARD/HSA	SSP
B-2	11/12/09	77.5	ARD	SSP

Notes:
ARD – Air Rotary Drill
HSA – Hollow Stem Auger Drill
SSP – Split Spoon Sample

Summary of Exploratory Borings – Phase II

Soil Boring	Installation Date	Depth (Feet bgs)	Drilling Method	Sampling Method
B-3	06/09/10	160	RSD	RSTS
B-4	07/01/10	120	RSD	RSTS
B-5	06/29/10	160	RSD	RSTS
B-6	06/13/10	160	RSD	RSTS
B-7	07/07/10	160	RSD	RSTS
B-8	06/26/10	120	RSD	RSTS
B-10	07/14/10	120	RSD	RSTS
B-11	06/10/10	160	RSD	RSTS
B-12	06/25/10	160	RSD	RSTS
B-13	06/11/10	160	RSD	RSTS
B-14	06/23/10	160	RSD	RSTS
B-15	06/24/10	120	RSD	RSTS
B-16	06/25/10	160	RSD	RSTS
B-17	06/23/10	120	RSD	RSTS
B-18	07/15/10	160	RSD	RSTS
B-19	06/22/10	160	RSD	RSTS
B-20	07/15/10	120	RSD	RSTS
B-21	07/19/10	160	RSD	RSTS
B-22	07/18/10	120	RSD	RSTS
B-23	07/15/10	120	RSD	RSTS
B-24	07/23/10	160	RSD	RSTS
B-25	07/20/10	120	RSD	RSTS
B-26	07/22/10	160	RSD	RSTS
B-27	07/22/10	120	RSD	RSTS

Notes:
RSD – RotoSonic Drill
RSTS – RotoSonic Tube Sample

Summary of Exploratory Borings – Phase III

Soil Boring	Installation Date	Depth (Feet bgs)	Drilling Method	Sampling Method
B-9	4/5/11	160	RSD	RSTS
B-11A	06/25/11	104	RSD	RSTS
B-101	07/06/11	151	WRD	MPB/Core
B-102	07/09/11	160	WRD	MPB/Core
B-103	04/06/11	120	RSD	RSTS
B-104	04/07/11	120	RSD	RSTS
B-105	04/06/11	160	RSD	RSTS
B-106	07/10/11	120	MRD	MPB/Core
B-107	04/08/11	160	RSD	RSTS
B-108	04/09/11	120	RSD	RSTS
B-109	04/11/11	160	RSD	RSTS
B-109A	06/25/11	85	RSD	RSTS
B-110	05/11/11	120	RSD	RSTS
B-111	05/10/11	120	RSD	RSTS
B-112	05/05/11	160	RSD	RSTS
B-113	04/13/11	160	RSD	RSTS
B-114	05/03/11	120	RSD	RSTS
B-114A	05/25/11	20	RSD	RSTS
B-115	05/09/11	120	RSD	RSTS
B-116	04/15/11	160	RSD	RSTS
B-117	05/02/11	120	RSD	RSTS
B-118	04/29/11	160	RSD	RSTS
B-119	04/19/11	160	RSD	RSTS
B-120	04/18/11	120	RSD	RSTS
B-121	05/08/11	120	RSD	RSTS
B-122	04/16/11	160	RSD	RSTS
B-123	04/29/11	160	RSD	RSTS
B-124	05/06/11	160	RSD	RSTS
B-125	04/17/11	121	RSD	RSTS
B-126	05/07/11	160	RSD	RSTS
DB-1	06/07/11	502	RSD	RSTS

Notes:
RSD – RotoSonic Drill
RSTS – RotoSonic Tube Sample
WRD – Wet Rotary Drill
Core – NX Core Sample
MPB – Modified Pitcher Barrel Sample

Summary of Test Pit Investigation – Phase IV

Soil Boring	Installation Date	Depth (Feet bgs)	Drilling Method	Sampling Method
TP-1	1/16/12	21	Excavator	Undisturbed Block and Push Tube
TP-2	1/17/12	26	Excavator	Undisturbed Block and Push Tube

As summarized on ***Table 2 – Summary of Soil Boring/Test Pit Depths and Elevations***, all exploratory borings/test pits with the exception of B-114A and TP-1 were advanced to depths ranging from approximately 7 to 474.5 feet into the unweathered portion of the Yegua-Jackson Group formation (Stratum IV). The following sections provide a more detailed discussion of subsurface investigation activities and findings.

2.2 PRELIMINARY ASSESSMENT (PHASES I AND II)

2.2.1 Soil Borings

The subsurface investigation (Phase I) initiated in November 2009 consisted of 2 initial borings designated as B-1 and B-2, both of which were converted to permanent piezometers. Initial study borings were installed by Vortex Drilling, Inc. There were significant difficulties achieving target exploration depths and obtaining representative soil/rock samples utilizing conventional hollow-stem auger and air-rotary drilling methods due to presence of thinly interbedded rock units (i.e., sandstone, siltstone, and claystone). Boring B-1 reached a total depth of 95.7 feet and B-2 reached a total depth of 78.5 feet.

The Phase II investigation consisted of 24 borings advanced using RotoSonic drilling methods to achieve targeted (full-design) depth into the Yegua-Jackson Group formation. These borings were drilled by Boart Longyear Company and designated as B-3 through B-8, and B-10 through B-27. A total of 7 of the Phase II borings were converted to permanent piezometers (B-6, B-10, B-13, B-18, B-24, B-26, and B-27). Phase II investigation efforts were completed in July 2010 and resulted in the installation of a total of 24 borings and 7 piezometers. As presented in the preceding *Summary of Exploratory Borings – Phase II* table in ***Section 2.1***, the boring depths ranged from 120 to 160 feet deep. As depicted on ***Figure 2***, Phase II exploratory borings were installed at an approximate 1,000 feet to 1,500 feet grid spacing.

Although the application of RotoSonic drilling methods was able to penetrate the Yegua-Jackson strata efficiently and obtain near-continuous core samples, the samples obtained from the RotoSonic drilling process were considered suitable only for classification testing purposes and did not provide undisturbed samples necessary to fulfill required geotechnical testing applications (i.e., permeability). Further, the RotoSonic drilling methods used to recover the majority of the soil samples employed high frequency mechanical vibration that, in some instances, may have disturbed the soils such that structural features characteristic of stiff, overconsolidated clayey soils typical of the Yegua-Jackson and/or associated with formation secondary porosity (i.e., fissuring, fracturing and/or jointing) were obscured during visual examination of the samples. However, features indicative of active weathering processes along clay parting surfaces, including ferrous staining and/or mineralization associated with the presence and migration of subsurface water, were not obscured as the result of the drilling process and are noted in the boring logs where encountered.

All borings not completed as piezometers were plugged with a Portland cement/bentonite grout slurry to the ground surface in accordance with State of Texas requirements following completion of drilling, sampling, and observation activities.

2.2.2 Piezometers

Intermediate water level measurements were generally obtained prior to the completion of the drilling process at borings installed primarily in association with Phase II of the subsurface investigation. It was observed at several locations that despite the presence/absence of free water, boreholes that were left open to depths of approximately 10 feet overnight during the drilling process did not produce measurable accumulations of shallow subsurface water. Similarly, in situations where shallow borings (i.e., less than 10 feet) were left open for up to 24-48 hours (i.e., over the weekend), no measurable accumulations of shallow subsurface water were observed in boreholes at the time the drilling process was resumed.

It is considered likely that RotoSonic drilling methods introduced disturbance to the surrounding soil strata, thereby enhancing localized effective porosity and influencing water levels initially observed in open borings and screened piezometers. The RotoSonic drilling method also introduces water into the borehole to provide cooling of the drilling tool and casing. Although water levels reported throughout the site in piezometers or open borings are associated with seepage or drainage within the geologic strata (i.e., water-bearing strata), more significant (measurable) water presence was generally observed at boring locations that were installed to depths greater than 17-20 feet and left open overnight or for longer periods in conjunction with the rotosonic drilling process. On the basis of empirical observations, it was noted that some degree of local porosity enhancement was likely affected during the drilling process as evidenced by apparently more rapid rates of seepage. Water level measurements (open arrows) plotted on boring logs in ***Appendix B*** reflect water level conditions recorded in conjunction with the drilling process.

In an attempt to evaluate the hydraulic interconnectivity of shallow groundwater present in subsurface soil units, Phase I and II piezometers were installed and generally screened within the following discrete depth intervals: 10 to 30 feet, 30 to 45 feet, 40 to 60 feet, 45 to 60 feet, and 60 to 75 feet. Subsequent to the completion of well surging activities necessary to remove drilling artifacts, water levels at all piezometer locations achieved consistent static elevations.

2.3 SUBSURFACE INVESTIGATION (PHASE III)

The Phase III program was initiated in April 2011 following approval of the Boring Location Plan and involved the installation of 31 additional borings, generally ranging in depths from about 120 to 160 feet, including 10 that were converted to piezometers. Drilling activities associated with the Phase III study effort were completed in July 2011. Note that borings identified throughout this report by an "A" after the boring number represent extra "twin" borings used for piezometer installation only and were drilled in the vicinity of the original boring some time after it had been completed. The following subsections provide a detailed discussion of Phase III assessment activities and findings.

2.3.1 Soil Borings and Piezometers

Phase III field activities were conducted during April through July 2011, and involved the advancement and sampling of 31 soil borings. Phase III study borings were designated as B-9, B-101

through B-126, B-11A, B-109A, B-114A, and DB-1, respectively. As presented on ***Figure 2***, boring locations were installed to tighten the grid pattern established during the completion of Phase II assessment activities. As is evident from the map, these borings are uniformly distributed and located within about 500 to 1,100 feet of each other. With the exception of a single 502-foot depth boring designated as DB-1, boring depths ranged from 120 feet to 160 feet below ground surface.

Given their familiarity with site conditions, Boart Longyear Company was engaged to install the majority of Phase III study borings and associated piezometers. With the exception of borings B-101, B-102, and B-106, RotoSonic methods were employed for the Phase III study effort resulting in the acquisition of relatively continuous soil samples comprised of 5 to 20 foot long sample runs. In harder depth intervals containing interbedded sandstone and siltstone units, it was necessary to collect samples along shorter sample runs to promote continuous recoveries. Once extruded from the sampling device, the intact samples were visually identified and then cut into manageable lengths for visual classification and geotechnical sample preservation purposes. The samples obtained from the RotoSonic drilling method were utilized for classification testing purposes only as these were not undisturbed and therefore not suitable for geotechnical testing requirements.

In an unsuccessful initial attempt to obtain additional undisturbed geotechnical samples for permeability testing, borings B-101, B-102, and B-106 were installed and sampled by Geoprojects International, Inc., a qualified drilling contractor specializing in conventional soil/rock coring techniques, using wet rotary drilling techniques. Samples were obtained in conjunction with this drilling effort using standard NX-coring methods in addition to a modified Pitcher Barrel Sampler.

Owing to differences in the drilling process between Phases II and III of the subsurface investigation effort, intermediate water levels were typically obtained immediately following completion of the Phase III borings and not following an overnight or 24-48 hour (weekend) observation period. Throughout the Phase III drilling program, the majority of borings that were not converted to piezometers were installed and plugged during a single day such that the water level measurements (open arrows) plotted on boring logs in ***Appendix B*** reflect water level conditions just prior to borehole plugging.

As further discussed in ***Section 4.1*** of this report, a total of 10 piezometers were installed in conjunction with the Phase III study effort to further evaluate shallow groundwater conditions throughout the proposed landfill area, including areas where thicker sand lenses/bedding units were indicated within the targeted exploration interval by adjacent boring log data. Following the completion of drilling and sampling activities, all borings that were not completed as piezometers were plugged in accordance with State of Texas requirements as described with respect to Phase II activities. Depth to water measurements observed during drilling at all study boring locations in addition to most recent static levels are presented on boring logs provided in ***Appendix B***.

In the furtherance of site characterization goals, a single deep boring designated as DB-1 was installed within the northwest portion of the site to a depth of 502 feet below existing ground surface. The referenced boring was installed to further evaluate conditions within the unweathered Yegua-Jackson Group formation (Stratum IV) and confirm the absence of a perennial aquifer to depths of at least 500 feet below the proposed landfill. In addition to visual logging and classification of soil strata, the entire depth of the borehole was logged using borehole geophysical methods in a consistent manner with other Phase III study borings.

2.3.2 Borehole Geophysical Logging

Borehole geophysical logging activities were conducted as part of the Phase III study to further evaluate geologic/hydrogeologic conditions and augment existing site characterization data obtained as the result of borehole sampling and logging efforts. Downhole geophysical logging data was collected for consideration by the project team and development of the separate Geology Report ***(Attachment III-E)*** and Regional Geology and Hydrogeology Report ***(Attachment III-E.1)*** included as part of the landfill permit application. In all instances, geophysical logging activities were conducted by Geo Cam, a qualified services provider headquartered in San Antonio, Texas. Borehole geophysical logging efforts were conducted in accordance with the following schedule:

- Select PVC-cased Phase I and II piezometers (i.e., B-1, B-2, B-10, B-18, B-24, and B-27), which were installed to depths ranging from 45 to 75 feet bgs, were logged utilizing electromagnetic (EM) induction conductivity, single-point electrical resistivity, and natural gamma methods.

- A majority of open Phase III borings, generally ranging from 120 to 160 feet bgs in depth, and deep boring DB-1 advanced to a depth of 502 feet bgs, were logged utilizing electrical resistivity, spontaneous potential, natural gamma, and caliper methods. Due to borehole collapse, it was not possible to obtain geophysical logs at borings B-110, B-114, and B-120. Due to the shallow depth of boring B-114A, geophysical logging was not conducted.

- An existing water-supply well located on the adjacent ranch property that is utilized to support agricultural and livestock operations for the surrounding ranch property and located approximately 1,000 feet southwest of the proposed permit boundary was logged to its total depth of 1,166 feet bgs utilizing single-point electrical resistivity, spontaneous potential, natural gamma, and caliper methods.

The data was used for the following purposes:

- Confirmation of regional characteristics including depth to recognized aquifers – as indicated at the end of Section 2.3 on pages 7 and 8. Dr. Clark reviewed that information during preparation of ***Appendix III-E.1 – Regional Geology and Hydrogeology.***

- Assistance in evaluating both the contact between the Yegua and Jackson and also any change in deposition associated with either formation at the site. The gamma radiation tool was particularly selected because the Jackson typically has a slight radioactive signature as compared to the Yegua. See discussion in first paragraph on page 18 of ***Attachment III-E.1 – Regional Geology and Hydrogeology***.

- Assistance in selecting borings and depth intervals potentially representing more permeable materials, i.e., sandy/silty units, so that piezometers could be installed in those materials for hydrogeologic testing.

In general, borehole geophysical logging results at both cased piezometers and open borings confirmed that the subsurface stratigraphy is dominated by clays and sandy clays containing thinly to very thinly interbedded sandstone, siltstone, and claystone layers, with isolated thicker occurrences of sand, sandstone and siltstone, particularly with increasing depth into the

unweathered portion of the Yegua-Jackson Group formation (i.e. Stratum IV discussed below). Geophysical logging results were also considered with respect to the screened interval depths of piezometers B-11A, B-101, B-102, B-106, B-109A, B-114A, B-115, B-118, B-124, and B-126 based on the interpreted occurrence of thicker sand and/or sandstone lenses/bedding units within discrete borehole depth intervals.

Geophysical logging data for deep boring DB-1 and the adjacent water supply well were not utilized directly as part of the subsurface investigation effort, but was considered by the project team for development of the separate Regional Geology and Hydrogeology Report ***(Attachment III-E.1)***. Specifically, this information was considered with respect to other geophysical data available in published literature and utilized to better ascertain the location/position of the proposed landfill site with respect to regional geology and hydrogeology. The location of the water-supply well is presented on ***Figure 2***. Copies of all referenced geophysical logging data generated in conjunction with the collective subsurface investigation effort for this site are provided in ***Appendix C***.

2.4 SUBSURFACE INVESTIGATION (PHASE IV)

Two exploratory test pits, designated as TP-1 and TP-2, were excavated in January 2012 to supplement the results of the previous Phase I-III investigations and to provide undisturbed soil samples for geotechnical testing purposes (e.g., permeability testing). Test pits were excavated in the east-central portion of the site. Test pit locations are shown on ***Figure 2***. Specific objectives of the test pit installations were as follows:

(i) examine larger-scale subsurface soil structural relationships and formational contacts;

(ii) further evaluate the occurrence and quantity of shallow groundwater and the relationship of subsurface soil unit hydraulic connection(s); and

(iii) provide representative, undisturbed soil samples for laboratory in-situ vertical axis and horizontal axis coefficient of permeability testing for all four subsurface strata previously identified in Phases I-III.

Test pits were installed by Ellis and Ellis, Inc., a local excavation contractor, utilizing a tracked hydraulic excavator (i.e., Caterpillar 330D). As presented on ***Figure 2***, test pit locations were selected in relatively close proximity to each other in areas initially inferred to possess greater and lesser accumulations of Recent-Pleistocene (R-P) sediments discussed in ***Section 3.1***. Test pit TP-1, located at a slightly lower surface elevation and in close proximity to the mapped extent of the 100-year floodplain associated with the unnamed tributary of San Juanita Creek, was expected to exhibit a greater thickness of R-P sediments relative to the upland TP-2 location. The pits were excavated to uniform depths of 21 feet bgs (TP-1) and 26 feet bgs (TP-2). Detailed descriptions of soil conditions encountered during the test pit excavation process are provided on ***Table 3 – Summary of Observations During Test Pit Installation*** with corresponding primary stratum designations. All four identified strata described in ***Section 3.0*** were encountered and sampled successfully.

As presented on ***Table 3***, Stratum IV was not encountered in test pit TP- 1, but was identified in TP-2, which was installed to a total depth of 26 feet. Care was taken to identify and collect unweathered samples from the test pit to meet testing criteria set forth in *§330.63(e)(5)(B)*. Specifically, approximately 1 x 1 x 1 foot blocks of unweathered strata were trimmed from various intervals near the

base of TP-2 at depths ranging from 20 to 22 feet below ground surface. Based on prior evaluation of core samples collected throughout the previous phases of the subsurface investigation, undisturbed samples collected at this location are considered to be representative of Stratum IV throughout the site.

Test pit TP-1 was left open for approximately 24 hours following excavation in order to evaluate the nature and occurrence of near-surface shallow groundwater seepage at this location. As indicated on ***Table 3***, slight groundwater seepage was initially observed in TP-1 in the north (upgradient) face of the excavation at 7 feet bgs during excavation through the contact between the Recent-Pleistocene (Stratum I discussed below) and subsequently observed in the highly-weathered Yegua-Jackson (Stratum II discussed below) at a depth of approximately 11 to 11.5 feet bgs along a bedding contact within the uppermost, very weathered Yegua-Jackson. However, the observed seepage, for the most part, was observed to have dried up overnight and no accumulation of groundwater was observed in TP-1 throughout the 24-hour observation period. No indication of shallow groundwater seepage or accumulation was observed during excavation of TP-2 to a total depth of 26 feet bgs.

Following the completion of sample collection and logging efforts, test pits were backfilled using excavated soils. Soils were placed and compacted using the hydraulic excavator in approximate 1 to 2 foot lifts. Backfilling resulted in near-restoration to original ground surface contours.

3.0 DISCUSSION OF SITE STRATIGRAPHY

As described previously herein, the existing subsurface characterization of the proposed landfill permit boundary is supported by a total of 57 soil borings, 19 piezometers, 2 test pits, and borehole geophysical logging of selected borings and the nearby ranch well. The subsurface conditions encountered at the boring locations are depicted on boring logs provided in ***Appendix B*** and represent an interpretation of the subsurface conditions based on collective field logging efforts, visual examination of field samples, and laboratory classification testing results of selected field samples. It should be noted that the lines designating the interfaces between individual strata on the boring logs represent approximate boundaries, and transitions between strata are in many instances gradual. Materials classification testing results (i.e., soils properties) for laboratory samples are discussed separately in the Geotechnical Data Report for this permit application.

As indicated previously, it was noted that the RotoSonic drilling methods used to recover the majority of the soil samples employed high frequency mechanical vibration that, in some instances, disturbed the soils such that structural features characteristic of stiff, overconsolidated clayey soils typical of the Yegua-Jackson and/or associated with formation secondary porosity (i.e., fissuring, fracturing and/or jointing) may have been obscured during visual examination of the samples. However, features indicative of weathering along clay parting surfaces including ferrous staining and/or mineralization associated with the presence and migration of subsurface water, which were not obscured as the result of the drilling process, are noted in the boring logs where encountered.

Boring and test pit information indicates that the subsurface stratigraphy at the site consists predominantly of clay and sandy clay soils containing very thinly interbedded sandstone, siltstone, and claystone rock units. Below the surficial Recent-Pleistocene (R-P) deposits, the samples of soil strata encountered in the borings to depths on the order of 160 feet below existing ground surface are typical of the Yegua-Jackson Group formation. Interpretive geologic cross sections were developed on the basis of boring log and test pit data. Cross sections are labeled A-A' through J-J' and provided on ***Figures 4 through 13***, respectively. The locations of geologic cross sections are depicted on ***Figure 3 – Cross-***

Section Index Map. As presented on the referenced figures, four primary stratigraphic units have been designated at the site based upon review and interpretation of boring logs and geologic sections, in addition to consideration of borehole geophysical logging data, and test pit information and photographs. The following sections provide a description and discussion of primary stratigraphic units.

3.1 STRATUM I – RECENT-PLEISTOCENE SOILS

This stratum consists of Recent-Pleistocene (R-P) deposits and generally corresponds to surface and near-surface soil strata logged within low-lying portions of the site underlain by Quaternary Alluvium (Qal) as designated on the published geologic maps of the area, in addition to upland areas having little to no topographic slope. This stratum consists of clays and sandy clays, with limited sand and occasional gravel and cobbles. The clays are stiff to firm, brown to light brown, and occur at ground surface (where present) to depths of approximately 18 feet bgs.

At most boring/test pit locations the base of Stratum I may be identified by the presence of a thin gravel layer containing a wide variety of igneous and sedimentary rock types. Stratum I was not identified at all boring locations and is inferred to be absent in areas of the site having a slight to moderate topographic slope adjacent to upland areas. Seasonally, perched subsurface water may be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone.

3.2 STRATUM II – HIGHLY WEATHERED EOCENE RESIDUUM

This stratum corresponds to highly weathered surface and near-surface Eocene age soil strata logged throughout the majority of the site, both below the Qal, and in upland areas designated on the *Geologic Atlas of Texas Laredo Sheet (1976)* geologic map as the Yegua-Jackson Group formation (Y-J). This stratum is essentially a weathered-in-place (residual) soil horizon exhibiting similar structure and layering as underlying, less-weathered materials. This stratum consists of predominantly clay with minor sandy clay with ferrous staining, calcareous nodules, and organic (plant root) materials. The clays are fissured, stiff to hard, overconsolidated, and brown to light reddish brown with some brownish gray to greenish gray layers. At some locations, gypsum (selenite) and ironstone concretions were encountered. This stratum occurs from ground surface (where exposed) or below Stratum I soils to depths of up to 10 feet bgs, with a maximum thickness of 10 feet. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck in *Soil Mechanics in Engineering Practice* (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

As a result of post-Eocene geologic processes, Stratum II is not uniformly developed or laterally continuous throughout the site; and therefore was not always identified discretely in boring logs. In many instances, Stratum II was not logged as a separate unit, but simply described as the uppermost weathered portion of Stratum III as described below. Seasonally, the perched shallow subsurface water associated with Stratum I may also be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone. Below this depth, scattered ephemeral saline water lenses occur throughout the remaining vertical extent of weathered Stratum II and/or Stratum III soils.

3.3 STRATUM III – WEATHERED EOCENE SOILS

This near-surface stratum underlies Stratum I and Stratum II throughout the site and is considered to represent Eocene sediments associated with the upper weathered (e.g., ferrous stained) surface of the Yegua-Jackson Group formation (Y-J). This stratum consists of clay and sandy, silty clay with thinly to very thinly interbedded claystone, siltstone, and sandstone seams and lenses (i.e., bedding units typically 1 to 2 feet or less). The clays are fissured, hard, overconsolidated, light brown and brown to reddish brown with some olive to pale yellow layers, with scattered greenish gray to gray mottling and ferrous staining, and have a blocky structure. Stratum III is encountered at depths ranging from approximately 2 to 39 feet bgs, and ranges from approximately 8 to 33 feet in total thickness.

This stratum is generally differentiated from Stratum IV as defined below by its consistently weathered appearance along partings (i.e., ferrous and carbonaceous staining), isolated presence of weathered zones containing groundwater, and the less frequent occurrence of interbedded sandstone, siltstone, or claystone layers. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

3.4 STRATUM IV – RELATIVELY UNWEATHERED EOCENE SOILS

This stratum underlies Strata III throughout the site, was encountered to total exploration depth for the landfill project on the order of 160 to 500 feet (based on single deep boring, DB-1), and is considered to represent relatively unweathered Eocene soils of the Yegua-Jackson Group formation (Y-J). This stratum consists predominantly of clay and sandy, silty clay, with thinly to very thinly interbedded claystone, siltstone and sandstone seams and lenses (i.e., bedding units 1 to 2 feet or less). The clays are hard and fractured, overconsolidated, light green to green and greenish gray (with some dark gray to gray and brown to reddish brown layer with scattered greenish gray mottling) with some ferrous staining, and have a blocky (intensely fissured) structure. Stratum IV is encountered throughout the site at depths ranging from approximately 16 feet to greater than 160 feet bgs, and has a thickness exceeding 144 feet.

As indicated on boring logs, this stratum is complexly interbedded and does exhibit significant variation in the nature and occurrence of indurated materials, although very thinly interbedded claystone units are most frequently encountered throughout. Although relatively unweathered relative to Stratum III, zones of localized weathering indicated by ferrous staining and weathered surfaces of clay partings are present likely in association with shallow groundwater movement. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

3.5 DISCUSSION OF SOIL CONDITIONS

As discussed in the preceding section, interpretation of collective site characterization data supports the designation of four primary stratigraphic units, each defined by grouping soils that possess similar physical and engineering characteristics (i.e., Recent-Pleistocene soils [Stratum I], highly weathered Eocene soil residuum [Stratum II], weathered Eocene soils [Stratum III], and relatively unweathered Eocene soils [Stratum IV]). Descriptions of these primary stratigraphic units are summarized on

interpretive cross sections ***(Figures 4 through 13)***. Further discussion of site-specific geologic conditions is provided in the following paragraphs.

As presented on cross sections and boring logs, the nature and occurrence of primary stratigraphic units was found to be quite uniform within site boundaries. Except for a mantle of alluvial soils throughout the central portion of the site associated with the unnamed tributary of San Juanita Creek, subsurface soils consist predominantly of clays and sandy clays characteristic of the Yegua-Jackson Group formation. The extent of the alluvial soils is best illustrated on cross sections C-C', E-E', H-H', I-I', and J-J' ***(Figures 6, 8, 11, 12, and 13, respectively)***. Throughout the remainder of the site not directly influenced by surface drainage processes associated with the San Juanita Creek tributary, the relative thickness of the Stratum III and Stratum IV primary stratigraphic units is essentially uniform.

Although zones of significant weathering corresponding to Stratum II/III undifferentiated generally mimic surface topography and are most pronounced below existing surface drainage (i.e., 100-yr floodplain) areas, these zones extend to depths on the order of 20 to 40 feet bgs, corresponding to elevations of about 520 to 500 feet MSL. In order to better illustrate site-specific geologic conditions independent of map scale, a stylized rendering of subsurface soil conditions was developed and is presented as ***Figure 14 – Conceptual Geologic Section***. The referenced figure was developed based on review of interpretive geologic sections in addition to direct observations of primary stratigraphic units exposed during excavation of the exploratory test pits (Phase IV). Salient information presented on the conceptual section is summarized below:

- Upland areas occurring primarily within the north and east portions of the site are characterized by a thin veneer of Stratum I soils, which in many areas, have been eroded and washed into adjacent low-lying or basin areas associated with broad, but relatively shallow, surface drainage features. In gently sloping upland areas throughout the site, Stratum I soils are mostly eroded away, with remaining residual gravels observed at the ground surface.

- Although no water quality testing was performed in conjunction with the subsurface investigation, an apparent ephemeral fresh water lens was observed to be present following rainfall events to depths on the order of 1 to 3 feet bgs based on observations during test pit excavation. The presence of this apparently fresh (or relatively less saline) water lens controls the thickness of the plant root zone. Plant roots were not observed to extend beyond this apparent fresh water interval and, in fact, were observed to bend sharply upwards at the apparent fresh/saline water zone contact. Below this depth, scattered ephemeral saline water lenses occur throughout the remaining vertical extent of weathered Stratum II and/or Stratum III soils. Subsurface water observed in deeper (Eocene) soil intervals corresponding to Stratum II and Stratum III was considered to be relatively more saline based on plant root zone observations, in addition to the taste of the water from both intervals.

- Highly weathered residuum (Stratum II) present along gently sloping upland areas throughout the site are not well developed or laterally continuous owing to dissection by surface drainage features and the associated accumulation of Stratum I alluvial soils. Stratum II is the uppermost, highly weathered portion of underlying Stratum III sediments not always identified in boring logs.

- Stratum III soils were encountered at relatively consistent depth intervals throughout the site indicating a zone of weathering consistently on the order of 20 to 40 feet thick.

As discussed in more detail in the Geotechnical Data Report for this permit application, subsurface investigation has demonstrated the presence of very stiff to hard, overconsolidated, clayey soils typical of the Yegua-Jackson Group formation from near ground surface to the maximum exploration depths on the order of 120 to 160 feet bgs. Fat clays (CH) and lean clays (CL) represent the predominant soil types observed in all study borings and the test pits. Thinly interbedded layers of clayey sands (CL), poorly graded sands (SP), silts (ML), and elastic silts (MH) were also repeatedly observed within Eocene strata. Typically at depths below about 20 to 40 feet, corresponding to the top of the relatively unweathered Eocene strata (Stratum IV), frequent very thinly interbedded rock strata consisting of fine-grained sandstone, siltstone, and claystone were observed within clay soils.

4.0 GROUNDWATER DATA

Information developed in conjunction with subsurface investigation activities pertaining to the nature and occurrence of shallow groundwater at the site, within the depth interval of exploration in the Yegua-Jackson Group formation (aquifer), is provided herein. To the depths explored as part of this investigation, the obtained groundwater data indicates the following conditions to be present at the site:

- Subsurface water quantity appears to be limited and occurs intermittently, but the flow direction appears to mimic surface drainage patterns to the south.
- Shallow subsurface water present below the plant root zone appears to be very saline.
- Static water levels are relatively shallow throughout the site and generally correspond to the contact between Recent Pleistocene and Eocene strata and/or zones of weathering within uppermost Eocene strata. Limited subsurface water is also present within deeper Eocene strata.
- Matrix saturated conditions within the Eocene strata appear to be associated with thicker silt or sand units and/or sand partings and fractures observed in the predominantly clayey soils of the Yegua-Jackson Group formation.
- Because of the high clay content, subsurface strata described in ***Section 3.0*** would appear to be relatively and/or practically impermeable.

The following discussion provides a description of piezometer installation activities and water level measurements, in addition to other pertinent groundwater observations obtained in conjunction with drilling activities, test pit observations and at staff gauges installed at the four surface water impoundments located within the site boundaries.

4.1 PIEZOMETER INSTALLATION

As presented on ***Figure 15 – Piezometer/Staff Gauge Location Map***, a total of 19 soil borings installed during the three assessment phases were converted to permanent piezometers constructed in accordance with applicable TCEQ and Texas Department of Licensing and Regulation (TDLR) requirements. Piezometers were generally distributed across the proposed landfill area to allow for good spatial distribution of groundwater monitoring points, but concentrated along the landfill perimeter and inferred downgradient (south) boundary. Piezometers installed during the initial phases of investigation are designated as B-1, B-2, B-6, B-10, B-13, B-18, B-24, B-26, and B-27, whereas

piezometers installed following approval of the Soil Boring Plan are designated as B-11A, B-101, B-102, B-106, B-109A, B-114A, B-115, B-118, B-124, and B-126, respectively.

On the basis of preliminary observations during the initial drilling programs, which indicated essentially dry drilling conditions, piezometers were installed and screened to evaluate zones (contiguous depth intervals) where perched lenses of shallow groundwater or apparent groundwater seepage was identified. Observations during drilling predominantly did not indicate matrix saturation conditions, but rather that the occurrence of shallow groundwater throughout the exploration depth interval is limited primarily to zones of weathering along clay/sand partings and fractures. Very thin zones of matrix saturation were observed primarily in association with isolated sand lenses encountered throughout the SITE. Direct observations made in conjunction with test pit installation (TP-1) indicated first shallow water seepage at the Stratum II/III interface at a depth of about 11 to 11.5 feet bgs. As reported previously, however, seepage at TP-1 was observed to have dried up overnight, for the most part, and did not result in a significant (measureable) accumulation in the excavation following the completion of an approximate 24-hr observation period.

In an attempt to evaluate the occurrence of shallow groundwater present in subsurface soil units, piezometers installed during Phase I and II study efforts were screened at several discrete (15 to 20 feet) intervals between 10 to 75 feet relative to existing ground surface. Deeper piezometers installed as part of the Phase III study effort targeted deeper intervals within Stratum IV on the order of about 60 to 84 feet and 80 to 113 feet, respectively. Phase III piezometers designated as B-11A, B-109A, and B-114A, respectively, were installed to further evaluate the presence of shallow groundwater associated with sand/silt or sandstone intervals reported in conjunction with borehole logging efforts, as these may represent zones of localized saturation. As presented on ***Figure 15*** and depicted on geologic cross sections presented on ***Figures 4 through 13***, specific screen depth intervals correlate to the following:

- ~10 to 45 ft well screen: Stratum I/III, Stratum III, and Stratum III/IV
- ~30 to 60 ft well screen: Stratum IV
- ~60 to 84 ft well screen: Stratum IV
- ~80 to 113 ft well screen: Stratum IV

Construction details for all piezometers installed as part of the collective subsurface investigation program are provided on ***Table 4 – Summary of Piezometer Construction Details and Screen Elevations***, which includes pertinent monitoring point construction details such as installation date, installation contractor, total well depths, well screen information, top-of-casing elevations, etc. Well construction diagrams were also prepared to graphically illustrate information summarized on the referenced table and are provided as ***Appendix D***. State of Texas Well Reports prepared by the licensed well installation contractors (i.e., Vortex Drilling, Inc., Boart Longyear Drilling Services, and Geoprojects International, Inc.) are provided as ***Appendix E***.

Following installation, all piezometers were surged by the installation contractor prior to the acquisition of static depth to water measurements to remove drilling artifacts (i.e., remove fine sediments from filter packs). Very slow recharge rates were generally observed during this process, and it was noted that piezometers at all locations were purged essentially to dryness following the removal of one well volume of water. Typically, water levels did not fully recover following purging activities for periods of 24 to 48 hours. Due to slow recharge conditions, surging activities were conducted over the course of several days at most piezometer locations, irrespective of screen depth interval.

4.2 WATER LEVEL MEASUREMENTS

4.2.1 Observations During Drilling

On the basis of logging observations made during all phases of exploratory drilling, shallow groundwater, where encountered, was first observed at depths of about 4.5 to 31 feet in open borings, but consistently rose to depths of about 4 to 12 feet after about 24 to 48 hours of observation, irrespective of boring depth, provided that borings were deep enough to penetrate into Stratum III or IV (i.e., generally greater than 10 feet). As reported on soil boring logs in ***Appendix B***, the presence of wet soil or matrix saturated conditions was only observed in 10 of the 57 exploratory boring locations installed as part of the collective subsurface assessment effort. Matrix saturated conditions observed during soil boring logging activities are summarized as follows:

- B-5 – (85-95 ft), Laminated sandstone layers (Stratum IV)
- B-6 – (26-31.5 ft), Sandy clay with sandstone lenses (Stratum III)
- B-8 – (46-56 ft), Thinly interbedded sandstone (Stratum IV)
- B-11 – (47-47.5 ft), Silt (Stratum IV)
- B-16 – (27-34 ft), Thinly interbedded siltstone; and (100-104 ft), Sandstone lenses (Stratum IV)
- B-18 – (7-13 ft), Sand with scattered gravel (Stratum I); and (18-26 ft), Sand layers (Stratum III)
- B-19 – (39-50 ft), Scattered sandstone lenses (Stratum IV)
- B-101 – (25 ft), Sand lens (Stratum III)
- B-114 – (10-12 ft), Sand with gravel (Stratum I)
- B-120 – (21.5-23 ft), Sand lens (Stratum III)

As indicated above, discrete zones of matrix saturation were observed at various depth intervals in association with sand or silt deposits, sand lenses, or sandstone/siltstone bedding units. Discrete matrix saturated intervals were observed at relatively shallow depths less than 35-40 feet (i.e., above Stratum IV) at 5 boring locations: B-6, B-18, B-101, B-114, and B-120. It was noted that below 35 to 40 feet bgs, observations during drilling predominantly indicated limited matrix saturation conditions associated with isolated sand lenses and that the occurrence of shallow groundwater throughout the exploration depth interval was limited to these lenses and zones of weathering along sand partings and fractures in the clays.

It was noted in conjunction with the field exploration effort that sonic drilling is analogous to driving a pipe into the ground using repeated blows of a hammer. Subsurface materials in front of the pipe are either displaced (forced) into the pipe or outside. In hard materials, the material contacted by the pipe leading edge must be pulverized so that it can be displaced and allow the pipe to advance. Sonic drilling recovers a near-continuous core (sample); however, the drilling/sampling procedure causes disturbance to the sample. As a consequence, the samples are typically unsuitable for geotechnical testing that requires an "undisturbed" sample. In sonic drilling in hard materials, water is used to cool the bit (pipe leading edge), assist in displacement of the pulverized material (cuttings), lubricate the drill casing/sampling barrel (pipe), and stabilize the borehole. Exposure of the pulverized material to water sometimes creates a "paste" or "skin" on the recovered sample. Recovered samples logged as "moist" or "slightly moist" condition were based solely on observations of the sample interior or matrix and not the outer skin condition and/or infrequently observed slight penetration of drilling water in some disturbed samples.

4.2.2 Water Levels Measured in Piezometers

Following piezometer installation and the completion of surging activities, static water levels were generally obtained following the completion of all phases of subsurface exploration. A summary of static water level measurements obtained at respective piezometer locations is provided as ***Table 5 – Summary of Static Water Level Measurements – Piezometers***. As presented on the referenced table, water levels have generally exhibited a decreasing trend throughout the monitoring period likely associated with persistent drought conditions experienced by the region during 2010 and 2011. On average, water level measurements at individual piezometer locations associated with the most recent gauging event conducted on January 10, 2012 are on the order of 0.5 to 4 feet lower than recorded immediately following piezometer installation. Maximum overall water level declines are noted for older piezometers installed as part of the initial Phase I and II study efforts.

Although the occurrence of shallow groundwater is primarily limited to fractures and horizontal partings within respective stratigraphic units, water level contour maps were generated for the shallow groundwater using a contouring algorithm that assumed homogeneous, isotropic subsurface conditions. Initially, combined maps comprising ***Figures 16 through 19*** were generated using all available piezometer data for each of the gauging events. In order to evaluate seasonal fluctuations in shallow subsurface water levels, piezometer gauging events were distributed throughout the full duration of the subsurface investigation program as indicated below. Hydraulic interconnection between near-surface and deeper stratigraphic units was a primary assumption for these combined data plots.

- Combined Water Level Contour Map 10/19/10 ***(Figure 16)***
- Combined Water Level Contour Map 3/23/11 ***(Figure 17)***
- Combined Water Level Contour Map 7/19-20/11 ***(Figure 18)***
- Combined Water Level Contour Map 1/10/12 ***(Figure 19)***

Based on review of initial plots, it was observed that dissimilar static water levels were present between adjacent piezometers at a number of locations in association with both the 7/19-20/11 and 1/10/12 data plots, primarily in association with piezometers screened at relatively deep intervals (Phase III piezometer screen depths installed between 60 to 113 feet) within Stratum IV. As presented on ***Figures 18 and 19***, these differences in static water level elevations appear to represent the presence of sinks or mounds in an otherwise gently sloping water table surface. In all instances, water level elevations reported for deep piezometers are approximately 1.5 to 4.5 feet greater than at adjacent shallow piezometers and likely represent increased pressure conditions within the deeper Stratum IV interval. These differences are best illustrated by comparison of water level elevations for B-10 to B-106 and B-109A, and B-24 to B-124 and B-126.

To further evaluate shallow groundwater conditions, data presented on ***Figures 18 and 19*** pertaining to shallow (i.e., 10 to 60 feet) and deep (i.e., 60 to 113 feet) piezometer screen depths were plotted and contoured separately for each well gauging event. These water level contour maps are provided as ***Figures 20 and 21*** (Shallow Water Level Contour Map with Staff Gauge Data – 7/19-20/11 and Deep Water Level Contour Map – 7/19-20/11, respectively) and ***Figures 22 and 23*** (Shallow Water Level Contour Map with Staff Gauge Data – 1/10/12 and Deep Water Level Contour Map – 1/10/12, respectively), associated with the 7/19-20/11 and 1/10/12 gauging events, respectively. When considered separately as presented on referenced figures, plotted water level

contour data for designated shallow and deep depth intervals generally do not indicate sharp perturbations.

Assuming that sufficient connectivity exists for groundwater flow to occur, groundwater gradients are consistently on the order of 0.007 to 0.008 ft/ft to the south-southwest.

4.2.3 Staff Gauge Measurements

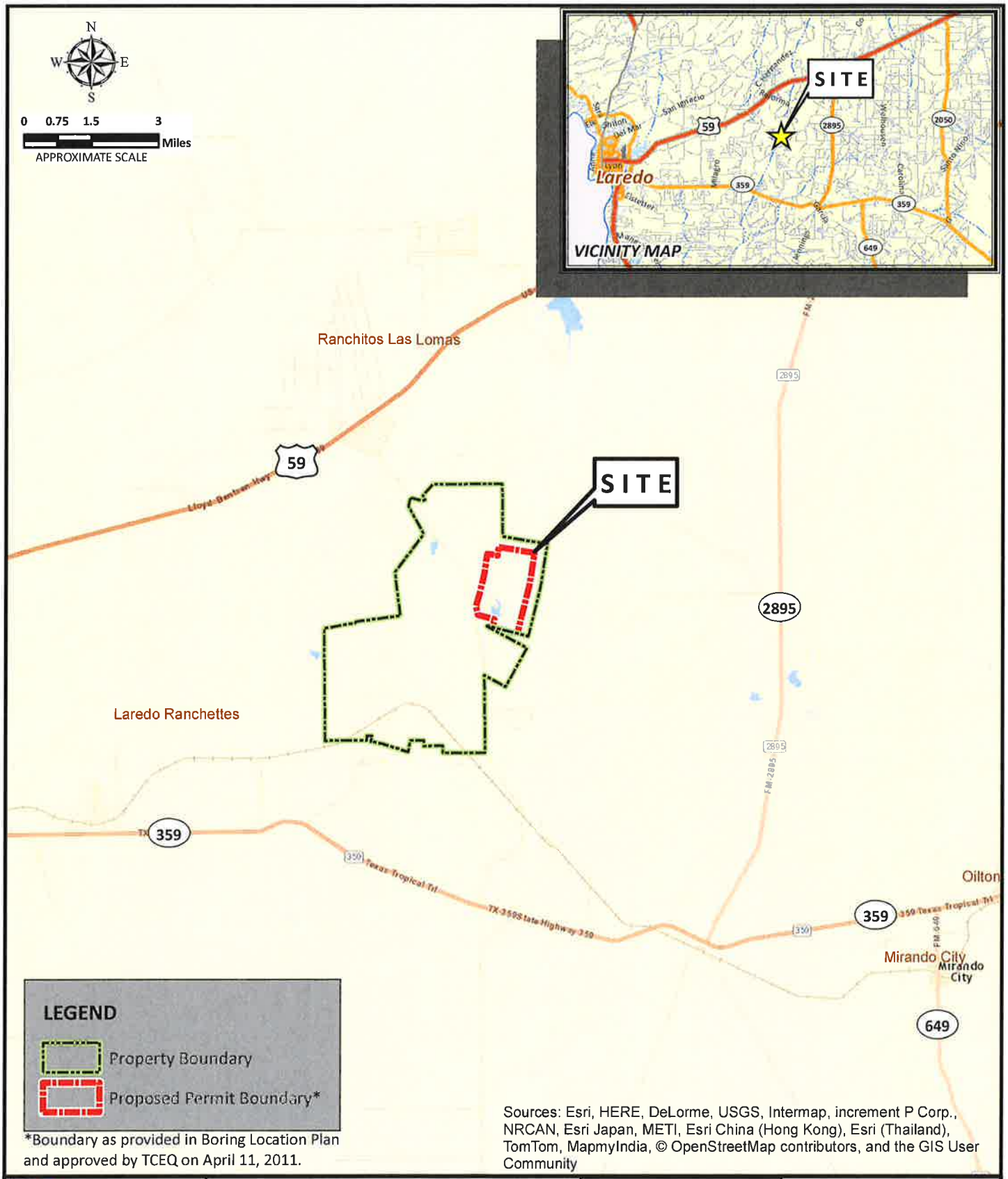
At the onset of Phase III study efforts, fixed measurement stations or staff gauges were installed adjacent to four existing (perennial) surface water impoundments as depicted on ***Figure 15*** to augment/correlate groundwater gauging data obtained at piezometer locations. Staff gauges were designated as SG-1 through SG-4. A summary of water level measurements obtained at respective staff gauge locations from May 2011 through January 2012 is provided as ***Table 6 – Summary of Static Water Level Measurements – Staff Gauges***. Review of water level elevations indicates relatively consistent water levels for various gauging events although "dry conditions" were noted for select events at SG-2 and SG-4 locations. It should be noted that dry staff gauge readings do not indicate that the ponds were completely dry, but merely that the installed staff gauges were stranded on dry ground by dropping water levels in the perennial ponds.

Although water levels in surface water impoundments was observed to fluctuate in direct response to rainfall events, water level measurements obtained during dry conditions correspond favorably with groundwater elevations reports at adjacent piezometers. In particular, water level elevations reported at SG-4 were typically measured within 0.5 to 2.5 feet of shallow groundwater levels at the adjacent B-114A piezometer. To better illustrate this, water level measurements from staff gauges were included in water level contour plots provided on ***Figures 20 and 22***. Collective piezometer gauging and soil boring logging data suggest a possible relationship between the relatively consistent water levels observed in the surface water impoundments (stock tanks) and the localized occurrences of shallow groundwater observed in proximal soil borings and piezometers.

4.2.4 Observations From Test Pits

Test pit TP-1 was left open for approximately 24 hours following excavation in order to evaluate the nature and occurrence of near-surface shallow groundwater seepage at this location. As indicated on ***Table 3***, slight groundwater seepage was observed in TP-1 during excavation in the north (upgradient) face of the excavation at 7 feet bgs during excavation through the contact between the Recent-Pleistocene (Stratum I), and subsequently observed in the highly weathered Yegua-Jackson (Stratum II) at a depth of approximately 11 to 11.5 feet bgs along a bedding contact within the uppermost, very weathered Yegua-Jackson (Stratum II). However, the observed seepage, for the most part, was observed to have dried up overnight and no accumulation of groundwater was observed in TP-1 throughout the 24-hour observation period. No indication of shallow groundwater seepage or accumulation was observed during excavation of TP-2 to a total depth of 26 feet bgs.

FIGURES



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SITE LOCATION MAP

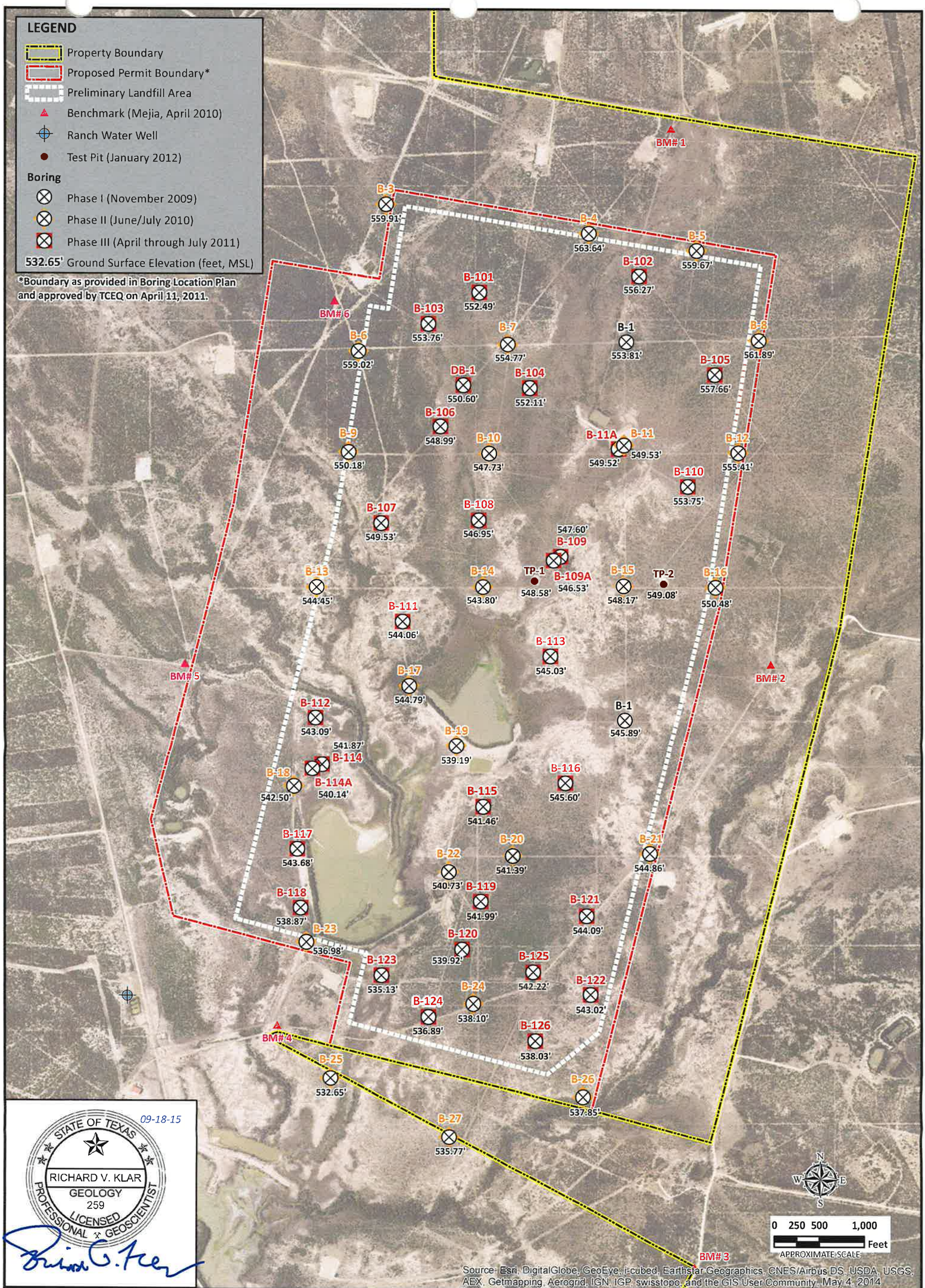
PESCADITO ENVIRONMENTAL RESOURCE CENTER
TYPE I MSW MANAGEMENT FACILITY
RANCHO VIEJO WASTE MANAGEMENT, LLC
WEBB COUNTY, TEXAS
MSW PERMIT NO. 2374

PROJECT No.:	ASF13-140-00
ISSUE DATE:	02-25-15
DRAWN BY:	LAW
CHECKED BY:	PMS
REVIEWED BY:	RVK

FIGURE 1

NOTE: This Drawing is Provided for Illustration Only, May Not be to Scale and is Not Suitable for Design or Construction Purposes

Revised: 09-18-15



09-18-15

STATE OF TEXAS
RICHARD V. KLAR
GEOLOGY
259
LICENSED
PROFESSIONAL GEOSCIENTIST

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, May 4, 2014

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Note: Benchmark locations (Benchmark Data Table) taken from Mejia Engineering Company, Boundary & Improvement Survey (Gilbert L. Cade III, R.P.L.S. #5060), April 9, 2010.

BORING/TEST PIT LOCATION MAP

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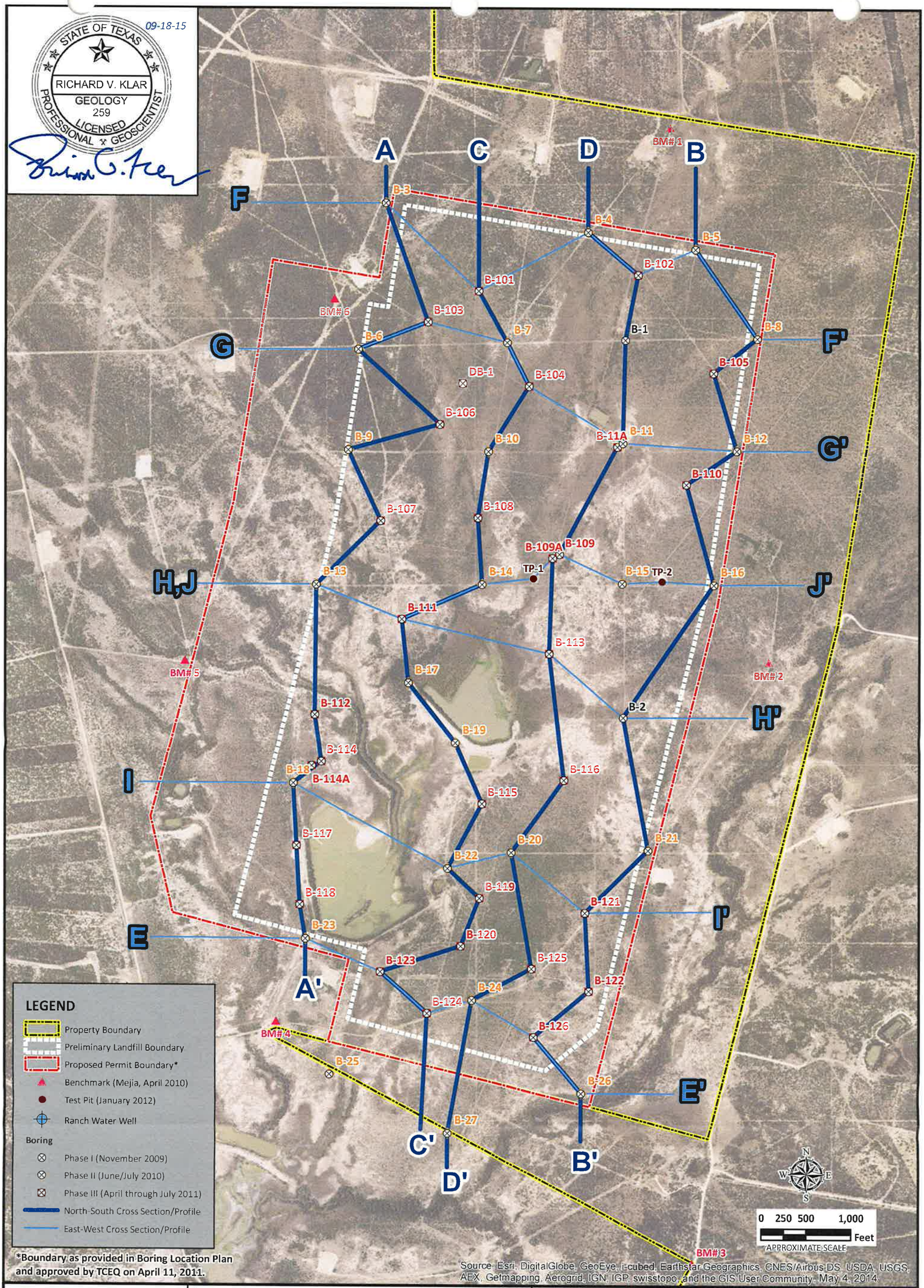
FIGURE

2



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CROSS SECTION INDEX MAP

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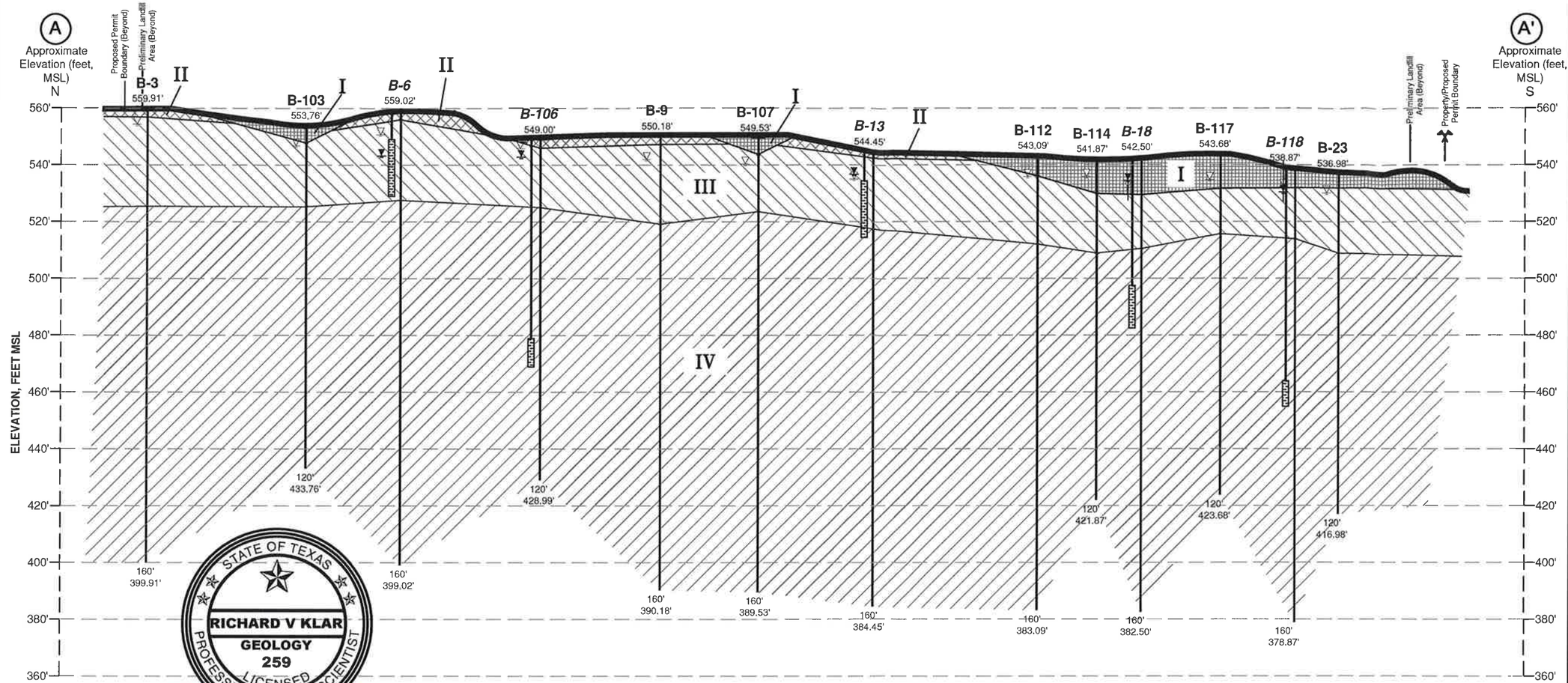
FIGURE 3

NOTE: This Drawing is Provided for Illustration Only, May Not be to Scale and is Not Suitable for Design or Construction Purposes



STATE OF TEXAS
RICHARD V KLAR
GEOLOGY
259
LICENSED
PROFESSIONAL GEOSCIENTIST

09-18-15

LEGEND

- B-6 — Boring Designation (Italics indicates Piezometer)
- 559.02' — Ground Surface Elevation, feet MSL
- Top of Screened Interval
- Bottom of Screened Interval
- 160' — Total Depth
- 399.02' — Bottom Elevation, feet MSL
- Water level measured in borehole during drilling or within 24-48 hours of completion.
- Static water level measured in piezometer on 1/10/12.
- Stratum I
- Stratum II
- Stratum III
- Stratum IV

VERTICAL: 0 40 80 SCALE IN FEET
HORIZONTAL: 0 1000 2000

PRIMARY STRATIGRAPHIC UNITS

STRATUM I - Recent-Pleistocene Soils:
This stratum consists of Recent-Pleistocene (R-P) deposits and generally corresponds to surface and near-surface soil strata logged within low-lying portions of the site underlain by Quaternary Alluvium (Qal) as designated on the published geologic maps of the area, in addition to upland areas having little to no topographic slope. This stratum consists of clays and sandy clays, with limited sand and occasional gravel and cobbles. The clays are stiff to firm, brown to light brown, and occur at ground surface (where present) to depths of approximately 18 feet bgs. At most boring/test pit locations the base of Stratum I may be identified by the presence of a thin gravel layer containing a wide variety of igneous and sedimentary rock types. Stratum I was not identified at all boring locations and is inferred to be absent in areas of the site having a slight to moderate topographic slope adjacent to upland areas. Seasonally, perched subsurface water may be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone.

STRATUM II - Highly Weathered Eocene Residuum:
This stratum corresponds to highly weathered surface and near-surface Eocene age soil strata logged throughout the majority of the site, both below the Qal, and in upland areas designated on the *Geologic Atlas of Texas Laredo Sheet (1976)* geologic map as the Yegua-Jackson Group formation (Y-J). This stratum is essentially a weathered-in-place (residual) soil horizon exhibiting similar structure and layering as underlying, less-weathered materials. This stratum consists of predominantly clay with minor sandy clay with ferrous staining, calcareous nodules, and organic (plant root) materials. The clays are fissured, stiff to hard, overconsolidated, and brown to light reddish brown with some brownish gray to greenish gray layers. At some locations, gypsum (selenite) and ironstone concretions were encountered. This stratum occurs from ground surface (where exposed) or below Stratum I soils to depths of up to 10 feet bgs, with a maximum thickness of 10 feet. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck in *Soil Mechanics in Engineering Practice* (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values. As a result of post-Eocene geologic processes, Stratum II is not uniformly developed or laterally continuous throughout the site; and therefore was not always identified discretely in boring logs. In many instances, Stratum II was not logged as a separate unit, but simply described as the uppermost weathered portion of Stratum III as described below. Seasonally, the perched shallow subsurface water associated with Stratum I may also be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone. Below this depth, scattered ephemeral saline water lenses occur throughout the remaining vertical extent of weathered Stratum II and/or Stratum III soils.

STRATUM III - Weathered Eocene Sediments:
This near-surface stratum underlies Stratum I and Stratum II throughout the site and is considered to represent Eocene sediments associated with the upper weathered (e.g., ferrous stained) surface of the Yegua-Jackson Group formation (Y-J). This stratum consists of clay and sandy, silty clay with thinly to very thinly interbedded claystone, siltstone, and sandstone seams and lenses (i.e., bedding units typically 1 to 2 feet or less). The clays are fissured, hard, overconsolidated, light brown and brown to reddish brown with some olive to pale yellow layers, with scattered greenish gray to gray mottling and ferrous staining, and have a blocky structure. Stratum III is encountered at depths ranging from approximately 2 to 39 feet bgs, and ranges from approximately 8 to 33 feet in total thickness. This stratum is generally differentiated from Stratum IV as defined below by its consistently weathered appearance along partings (i.e., ferrous and carbonaceous staining), isolated presence of weathered zones containing groundwater, and the less frequent occurrence of interbedded sandstone, siltstone, or claystone layers. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

STRATUM IV - Relatively Unweathered Eocene Soils:
This stratum underlies Strata III throughout the site, was encountered to total exploration depth for the landfill project on the order of 160 to 500 feet (based on single deep boring, DB-1), and is considered to represent relatively unweathered Eocene soils of the Yegua-Jackson Group formation (Y-J). This stratum consists predominantly of clay and sandy, silty clay, with thinly to very thinly interbedded claystone, siltstone and sandstone seams and lenses (i.e., bedding units 1 to 2 feet or less). The clays are hard and fractured, overconsolidated, light green to green and greenish gray (with some dark gray to gray and brown to reddish brown layer with scattered greenish gray mottling) with some ferrous staining, and have a blocky (intensely fissured) structure. Stratum IV is encountered throughout the site at depths ranging from approximately 16 feet to greater than 160 feet bgs, and has a thickness exceeding 144 feet. As indicated on boring logs, this stratum is complexly interbedded and does exhibit significant variation in the nature and occurrence of indurated materials, although very thinly interbedded claystone units are most frequently encountered throughout. Although relatively unweathered relative to Stratum III, zones of localized weathering indicated by ferrous staining and weathered surfaces of clay partings are present likely in association with shallow groundwater movement. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

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INTERPRETIVE GEOLOGIC CROSS SECTION A-A'

PESCADITO ENVIRONMENTAL RESOURCE CENTER
TYPE I MSW MANAGEMENT FACILITY
RANCHO VIEJO WASTE MANAGEMENT, LLC
WEBB COUNTY, TEXAS - MSW PERMIT No. 2374

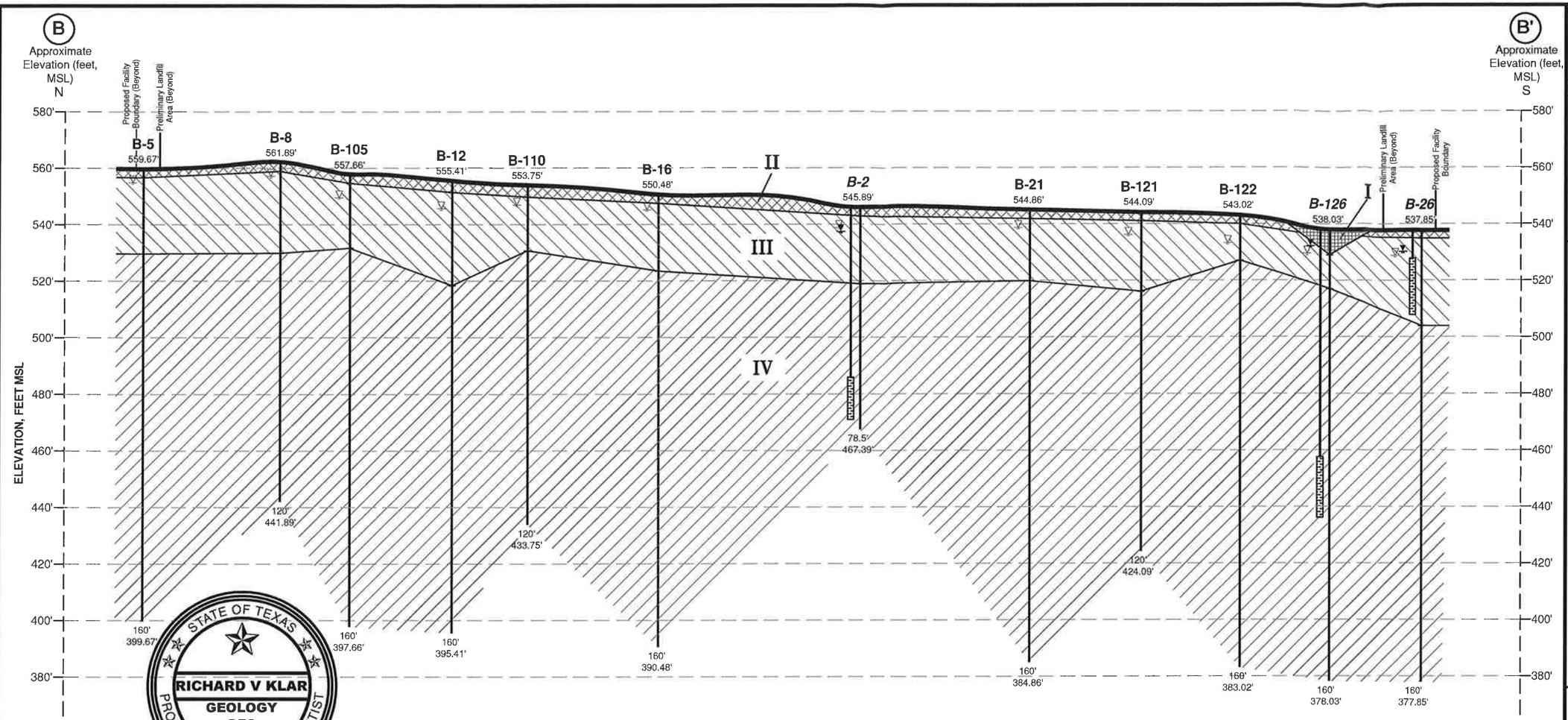
REVISIONS:

No.	DATE	DESCRIPTION
1	09-18-15	

PROJECT No.:	ASF13-140-00
ISSUE DATE:	02-25-15
DRAWN BY:	LAW
CHECKED BY:	PMS
REVIEWED BY:	RVK

FIGURE 4

L:\Active Projects\San Antonio\2013\ASF13-140-01 Pescadito Environmental Resource - RVK\SIR\N001 Working Figures\FIG 4_XSECT A-A.dwg



LEGEND

- B-126 — Boring Designation (Italics indicates Piezometer)
- 538.03' — Ground Surface Elevation, feet MSL
- Top of Screened Interval
- Bottom of Screened Interval
- 160' — Total Depth
- 378.03' — Bottom Elevation, feet MSL
- Water level measured in borehole during drilling or within 24-48 hours of completion.
- Static water level measured in piezometer on 1/10/12.
- Stratum I
- Stratum II
- Stratum III
- Stratum IV

VERTICAL: 0 40 80 SCALE IN FEET

HORIZONTAL: 0 1000 2000

PRIMARY STRATIGRAPHIC UNITS

STRATUM I - Recent-Pleistocene Soils:
This stratum consists of Recent-Pleistocene (R-P) deposits and generally corresponds to surface and near-surface soil strata logged within low-lying portions of the site underlain by Quaternary Alluvium (Qal) as designated on the published geologic maps of the area, in addition to upland areas having little to no topographic slope. This stratum consists of clays and sandy clays, with limited sand and occasional gravel and cobbles. The clays are stiff to firm, brown to light brown, and occur at ground surface (where present) to depths of approximately 18 feet bgs. At most boring/test pit locations the base of Stratum I may be identified by the presence of a thin gravel layer containing a wide variety of igneous and sedimentary rock types. Stratum I was not identified at all boring locations and is inferred to be absent in areas of the site having a slight to moderate topographic slope adjacent to upland areas. Seasonally, perched subsurface water may be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone.

STRATUM II - Highly Weathered Eocene Residuum:
This stratum corresponds to highly weathered surface and near-surface Eocene age soil strata logged throughout the majority of the site, both below the Qal, and in upland areas designated on the *Geologic Atlas of Texas Laredo Sheet (1976)* geologic map as the Yegua-Jackson Group formation (Y-J). This stratum is essentially a weathered-in-place (residual) soil horizon exhibiting similar structure and layering as underlying, less-weathered materials. This stratum consists of predominantly clay with minor sandy clay with ferrous staining, calcareous nodules, and organic (plant root) materials. The clays are fissured, stiff to hard, overconsolidated, and brown to light reddish brown with some brownish gray to greenish gray layers. At some locations, gypsum (selenite) and ironstone concretions were encountered. This stratum occurs from ground surface (where exposed) or below Stratum I soils to depths of up to 10 feet bgs, with a maximum thickness of 10 feet. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck in *Soil Mechanics in Engineering Practice* (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values. As a result of post-Eocene geologic processes, Stratum II is not uniformly developed or laterally continuous throughout the site; and therefore was not always identified discretely in boring logs. In many instances, Stratum II was not logged as a separate unit, but simply described as the uppermost weathered portion of Stratum III as described below. Seasonally, the perched shallow subsurface water associated with Stratum I may also be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone. Below this depth, scattered ephemeral saline water lenses occur throughout the remaining vertical extent of weathered Stratum II and/or Stratum III soils.

STRATUM III - Weathered Eocene Sediments:
This near-surface stratum underlies Stratum I and Stratum II throughout the site and is considered to represent Eocene sediments associated with the upper weathered (e.g., ferrous stained) surface of the Yegua-Jackson Group formation (Y-J). This stratum consists of clay and sandy, silty clay with thinly to very thinly interbedded claystone, siltstone, and sandstone seams and lenses (i.e., bedding units typically 1 to 2 feet or less). The clays are fissured, hard, overconsolidated, light brown and brown to reddish brown with some olive to pale yellow layers, with scattered greenish gray to gray mottling and ferrous staining, and have a blocky structure. Stratum III is encountered at depths ranging from approximately 2 to 39 feet bgs, and ranges from approximately 8 to 33 feet in total thickness. This stratum is generally differentiated from Stratum IV as defined below by its consistently weathered appearance along partings (i.e., ferrous and carbonaceous staining), isolated presence of weathered zones containing groundwater, and the less frequent occurrence of interbedded sandstone, siltstone, or claystone layers. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

STRATUM IV - Relatively Unweathered Eocene Soils:
This stratum underlies Strata III throughout the site, was encountered to total exploration depth for the landfill project on the order of 160 to 500 feet (based on single deep boring, DB-1), and is considered to represent relatively unweathered Eocene soils of the Yegua-Jackson Group formation (Y-J). This stratum consists predominantly of clay and sandy, silty clay, with thinly to very thinly interbedded claystone, siltstone and sandstone seams and lenses (i.e., bedding units 1 to 2 feet or less). The clays are hard and fractured, overconsolidated, light green to green and greenish gray (with some dark gray to gray and brown to reddish brown layer with scattered greenish gray mottling) with some ferrous staining, and have a blocky (intensely fissured) structure. Stratum IV is encountered throughout the site at depths ranging from approximately 16 feet to greater than 160 feet bgs, and has a thickness exceeding 144 feet. As indicated on boring logs, this stratum is complexly interbedded and does exhibit significant variation in the nature and occurrence of indurated materials, although very thinly interbedded claystone units are most frequently encountered throughout. Although relatively unweathered relative to Stratum III, zones of localized weathering indicated by ferrous staining and weathered surfaces of clay partings are present likely in association with shallow groundwater movement. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

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INTERPRETIVE GEOLOGIC CROSS SECTION B-B'

PESCADITO ENVIRONMENTAL RESOURCE CENTER
TYPE I MSW MANAGEMENT FACILITY
RANCHO VIEJO WASTE MANAGEMENT, LLC
WEBB COUNTY, TEXAS - MSW PERMIT No. 2374

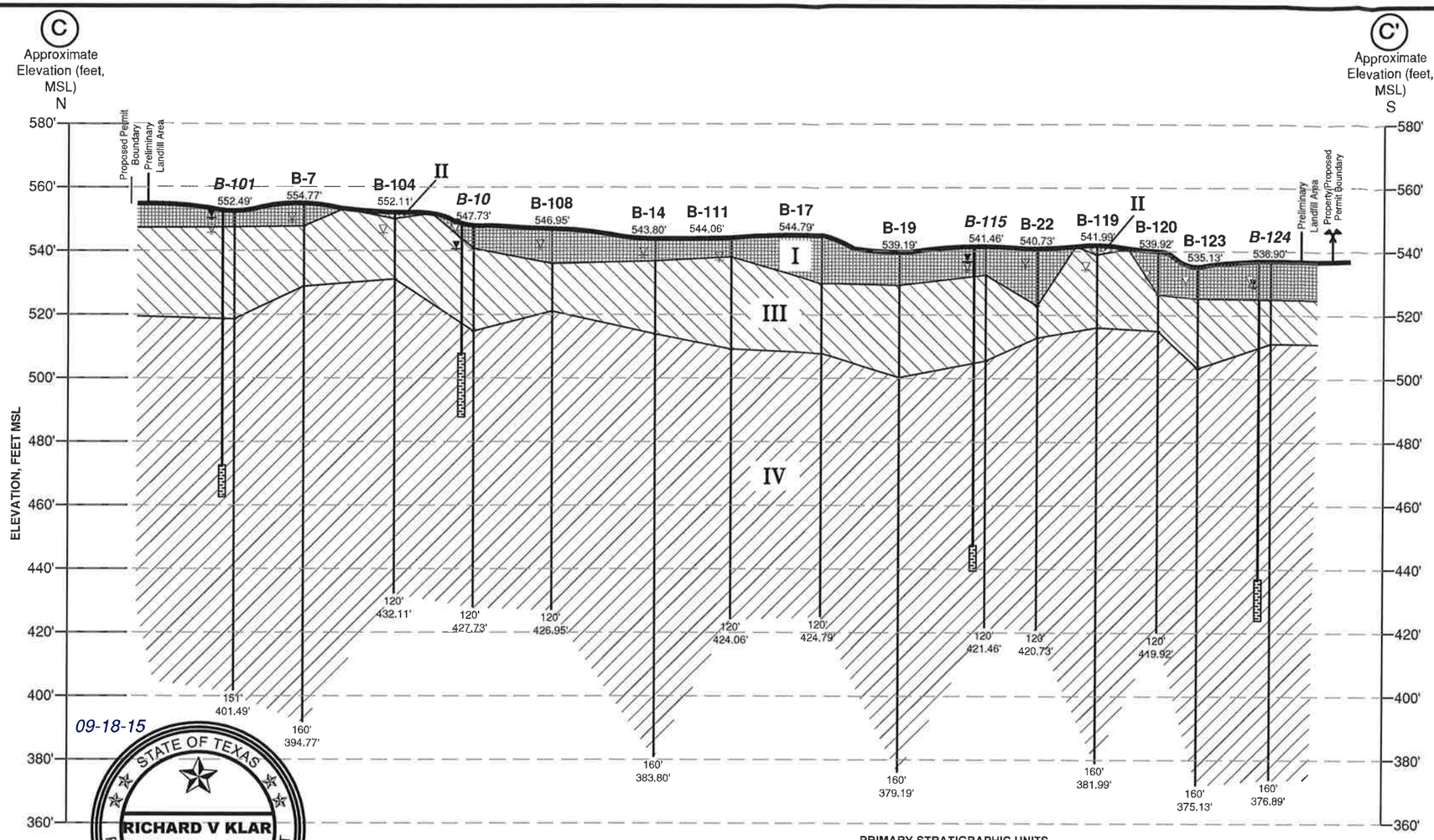
REVISIONS:

No.	DATE	DESCRIPTION
1	09-18-15	

PROJECT No.:	ASF13-140-00
ISSUE DATE:	02-25-15
DRAWN BY:	LAW
CHECKED BY:	PMS
REVIEWED BY:	RVK

FIGURE 5

L:\Active Projects\San Antonio\2013\ASF13-140-01 Pescadito Environmental Resource - RVK\SIR\N001 Working Figures\FIG 5_XSECT B-B.dwg



09-18-15

STATE OF TEXAS
RICHARD V KLAR
GEOLOGY
259
LICENSED
PROFESSIONAL GEOSCIENTIST

LEGEND

- B-101 — Boring Designation (Italics indicates Piezometer)
- 552.49' — Ground Surface Elevation, feet MSL
- Top of Screened Interval
- Bottom of Screened Interval
- 151' — Total Depth
- 401.49' — Bottom Elevation, feet MSL
- Water level measured in borehole during drilling or within 24-48 hours of completion.
- Static water level measured in piezometer on 1/10/12.
- Stratum I
- Stratum II
- Stratum III
- Stratum IV

VERTICAL: 0 40 80 SCALE IN FEET
HORIZONTAL: 0 1200 2400

PRIMARY STRATIGRAPHIC UNITS

STRATUM I - Recent-Pleistocene Soils:
This stratum consists of Recent-Pleistocene (R-P) deposits and generally corresponds to surface and near-surface soil strata logged within low-lying portions of the site underlain by Quaternary Alluvium (Qal) as designated on the published geologic maps of the area, in addition to upland areas having little to no topographic slope. This stratum consists of clays and sandy clays, with limited sand and occasional gravel and cobbles. The clays are stiff to firm, brown to light brown, and occur at ground surface (where present) to depths of approximately 18 feet bgs. At most boring/test pit locations the base of Stratum I may be identified by the presence of a thin gravel layer containing a wide variety of igneous and sedimentary rock types. Stratum I was not identified at all boring locations and is inferred to be absent in areas of the site having a slight to moderate topographic slope adjacent to upland areas. Seasonally, perched subsurface water may be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone.

STRATUM II - Highly Weathered Eocene Residuum:
This stratum corresponds to highly weathered surface and near-surface Eocene age soil strata logged throughout the majority of the site, both below the Qal, and in upland areas designated on the *Geologic Atlas of Texas Laredo Sheet (1976)* geologic map as the Yegua-Jackson Group formation (Y-J). This stratum is essentially a weathered-in-place (residual) soil horizon exhibiting similar structure and layering as underlying, less-weathered materials. This stratum consists of predominantly clay with minor sandy clay with ferrous staining, calcareous nodules, and organic (plant root) materials. The clays are fissured, stiff to hard, overconsolidated, and brown to light reddish brown with some brownish gray to greenish gray layers. At some locations, gypsum (selenite) and ironstone concretions were encountered. This stratum occurs from ground surface (where exposed) or below Stratum I soils to depths of up to 10 feet bgs, with a maximum thickness of 10 feet. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck in *Soil Mechanics in Engineering Practice* (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values. As a result of post-Eocene geologic processes, Stratum II is not uniformly developed or laterally continuous throughout the site; and therefore was not always identified discretely in boring logs. In many instances, Stratum II was not logged as a separate unit, but simply described as the uppermost weathered portion of Stratum III as described below. Seasonally, the perched shallow subsurface water associated with Stratum I may also be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone. Below this depth, scattered ephemeral saline water lenses occur throughout the remaining vertical extent of weathered Stratum II and/or Stratum III soils.

STRATUM III - Weathered Eocene Sediments:
This near-surface stratum underlies Stratum I and Stratum II throughout the site and is considered to represent Eocene sediments associated with the upper weathered (e.g., ferrous stained) surface of the Yegua-Jackson Group formation (Y-J). This stratum consists of clay and sandy, silty clay with thinly to very thinly interbedded claystone, siltstone, and sandstone seams and lenses (i.e., bedding units typically 1 to 2 feet or less). The clays are fissured, hard, overconsolidated, light brown and brown to reddish brown with some olive to pale yellow layers, with scattered greenish gray to gray mottling and ferrous staining, and have a blocky structure. Stratum III is encountered at depths ranging from approximately 2 to 39 feet bgs, and ranges from approximately 8 to 33 feet in total thickness. This stratum is generally differentiated from Stratum IV as defined below by its consistently weathered appearance along partings (i.e., ferrous and carbonaceous staining), isolated presence of weathered zones containing groundwater, and the less frequent occurrence of interbedded sandstone, siltstone, or claystone layers. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

STRATUM IV - Relatively Unweathered Eocene Soils:
This stratum underlies Strata III throughout the site, was encountered to total exploration depth for the landfill project on the order of 160 to 500 feet (based on single deep boring, DB-1), and is considered to represent relatively unweathered Eocene soils of the Yegua-Jackson Group formation (Y-J). This stratum consists predominantly of clay and sandy, silty clay, with thinly to very thinly interbedded claystone, siltstone and sandstone seams and lenses (i.e., bedding units 1 to 2 feet or less). The clays are hard and fractured, overconsolidated, light green to green and greenish gray (with some dark gray to gray and brown to reddish brown layer with scattered greenish gray mottling) with some ferrous staining, and have a blocky (intensely fissured) structure. Stratum IV is encountered throughout the site at depths ranging from approximately 16 feet to greater than 160 feet bgs, and has a thickness exceeding 144 feet. As indicated on boring logs, this stratum is complexly interbedded and does exhibit significant variation in the nature and occurrence of indurated materials, although very thinly interbedded claystone units are most frequently encountered throughout. Although relatively unweathered relative to Stratum III, zones of localized weathering indicated by ferrous staining and weathered surfaces of clay partings are present likely in association with shallow groundwater movement. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

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INTERPRETIVE GEOLOGIC CROSS SECTION C-C'

PESCADITO ENVIRONMENTAL RESOURCE CENTER
TYPE I MSW MANAGEMENT FACILITY
RANCHO VIEJO WASTE MANAGEMENT, LLC
WEBB COUNTY, TEXAS - MSW PERMIT No. 2374

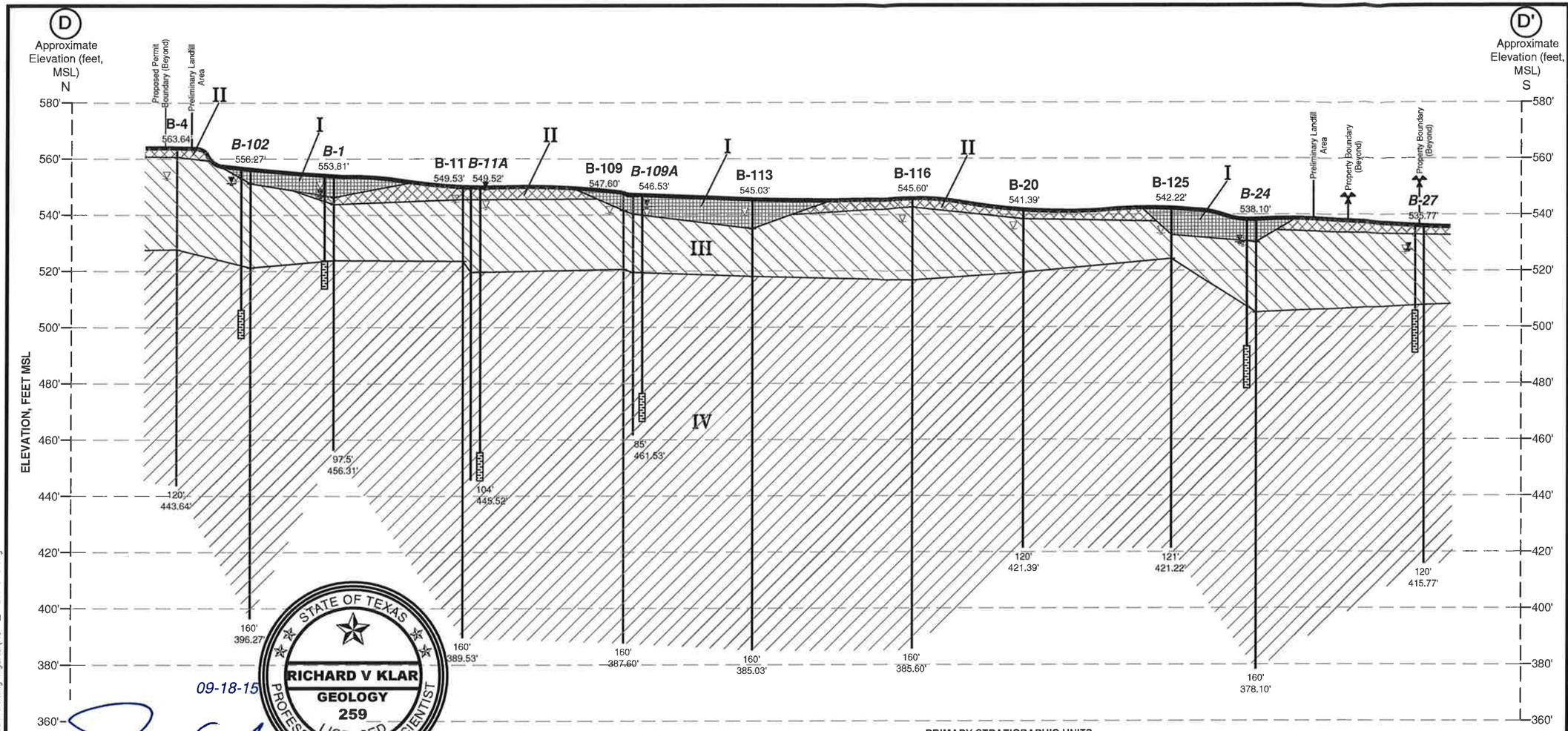
REVISIONS:

No.	DATE	DESCRIPTION
1	09-18-15	

PROJECT No.:	ASF13-140-00
ISSUE DATE:	02-25-15
DRAWN BY:	LAW
CHECKED BY:	PMS
REVIEWED BY:	RVK

FIGURE 6

L:\Active Projects\San Antonio\2013\ASF13-140-01 Pescadito Environmental Resource - RVK\SIR\N001 Working Figures\FIG 6_XSECT C-C.dwg



09-18-15

STATE OF TEXAS
RICHARD V KLAR
GEOLOGY
259
LICENSED
PROFESSIONAL GEOSCIENTIST

LEGEND

B-102 — Boring Designation (Italics indicates Piezometer)
556.27' — Ground Surface Elevation, feet MSL
Top of Screened Interval
Bottom of Screened Interval
160' — Total Depth
396.27' — Bottom Elevation, feet MSL
Water level measured in borehole during drilling or within 24-48 hours of completion.
Static water level measured in piezometer on 1/10/12.

Stratum I
Stratum II
Stratum III
Stratum IV

VERTICAL: 0 40 80
HORIZONTAL: 0 1000 2000
SCALE IN FEET

PRIMARY STRATIGRAPHIC UNITS

STRATUM I - Recent-Pleistocene Soils:
This stratum consists of Recent-Pleistocene (R-P) deposits and generally corresponds to surface and near-surface soil strata logged within low-lying portions of the site underlain by Quaternary Alluvium (Qal) as designated on the published geologic maps of the area, in addition to upland areas having little to no topographic slope. This stratum consists of clays and sandy clays, with limited sand and occasional gravel and cobbles. The clays are stiff to firm, brown to light brown, and occur at ground surface (where present) to depths of approximately 18 feet bgs. At most boring/test pit locations the base of Stratum I may be identified by the presence of a thin gravel layer containing a wide variety of igneous and sedimentary rock types. Stratum I was not identified at all boring locations and is inferred to be absent in areas of the site having a slight to moderate topographic slope adjacent to upland areas. Seasonally, perched subsurface water may be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone.

STRATUM II - Highly Weathered Eocene Residuum:
This stratum corresponds to highly weathered surface and near-surface Eocene age soil strata logged throughout the majority of the site, both below the Qal, and in upland areas designated on the *Geologic Atlas of Texas Laredo Sheet (1976)* geologic map as the Yegua-Jackson Group formation (Y-J). This stratum is essentially a weathered-in-place (residual) soil horizon exhibiting similar structure and layering as underlying, less-weathered materials. This stratum consists of predominantly clay with minor sandy clay with ferrous staining, calcareous nodules, and organic (plant root) materials. The clays are fissured, stiff to hard, overconsolidated, and brown to light reddish brown with some brownish gray to greenish gray layers. At some locations, gypsum (selenite) and ironstone concretions were encountered. This stratum occurs from ground surface (where exposed) or below Stratum I soils to depths of up to 10 feet bgs, with a maximum thickness of 10 feet. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck in *Soil Mechanics in Engineering Practice* (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values. As a result of post-Eocene geologic processes, Stratum II is not uniformly developed or laterally continuous throughout the site; and therefore was not always identified discretely in boring logs. In many instances, Stratum II was not logged as a separate unit, but simply described as the uppermost weathered portion of Stratum III as described below. Seasonally, the perched shallow subsurface water associated with Stratum I may also be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone. Below this depth, scattered ephemeral saline water lenses occur throughout the remaining vertical extent of weathered Stratum II and/or Stratum III soils.

STRATUM III - Weathered Eocene Sediments:
This near-surface stratum underlies Stratum I and Stratum II throughout the site and is considered to represent Eocene sediments associated with the upper weathered (e.g., ferrous stained) surface of the Yegua-Jackson Group formation (Y-J). This stratum consists of clay and sandy, silty clay with thinly to very thinly interbedded claystone, siltstone, and sandstone seams and lenses (i.e., bedding units typically 1 to 2 feet or less). The clays are fissured, hard, overconsolidated, light brown and brown to reddish brown with some olive to pale yellow layers, with scattered greenish gray to gray mottling and ferrous staining, and have a blocky structure. Stratum III is encountered at depths ranging from approximately 2 to 39 feet bgs, and ranges from approximately 8 to 33 feet in total thickness. This stratum is generally differentiated from Stratum IV as defined below by its consistently weathered appearance along partings (i.e., ferrous and carbonaceous staining), isolated presence of weathered zones containing groundwater, and the less frequent occurrence of interbedded sandstone, siltstone, or claystone layers. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

STRATUM IV - Relatively Unweathered Eocene Soils:
This stratum underlies Strata III throughout the site, was encountered to total exploration depth for the landfill project on the order of 160 to 500 feet (based on single deep boring, DB-1), and is considered to represent relatively unweathered Eocene soils of the Yegua-Jackson Group formation (Y-J). This stratum consists predominantly of clay and sandy, silty clay, with thinly to very thinly interbedded claystone, siltstone and sandstone seams and lenses (i.e., bedding units 1 to 2 feet or less). The clays are hard and fractured, overconsolidated, light green to green and greenish gray (with some dark gray to gray and brown to reddish brown layer with scattered greenish gray mottling) with some ferrous staining, and have a blocky (intensely fissured) structure. Stratum IV is encountered throughout the site at depths ranging from approximately 16 feet to greater than 160 feet bgs, and has a thickness exceeding 144 feet. As indicated on boring logs, this stratum is complexly interbedded and does exhibit significant variation in the nature and occurrence of indurated materials, although very thinly interbedded claystone units are most frequently encountered throughout. Although relatively unweathered relative to Stratum III, zones of localized weathering indicated by ferrous staining and weathered surfaces of clay partings are present likely in association with shallow groundwater movement. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

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San Antonio, Texas 78249
www.rkci.com
P 210 :: 699 :: 9090
F 210 :: 699 :: 6426
TBPE Firm F-3257 / TBPG Firm 50220

INTERPRETIVE GEOLOGIC CROSS SECTION D-D'

PESCADITO ENVIRONMENTAL RESOURCE CENTER
TYPE I MSW MANAGEMENT FACILITY
RANCHO VIEJO WASTE MANAGEMENT, LLC
WEBB COUNTY, TEXAS - MSW PERMIT No. 2374

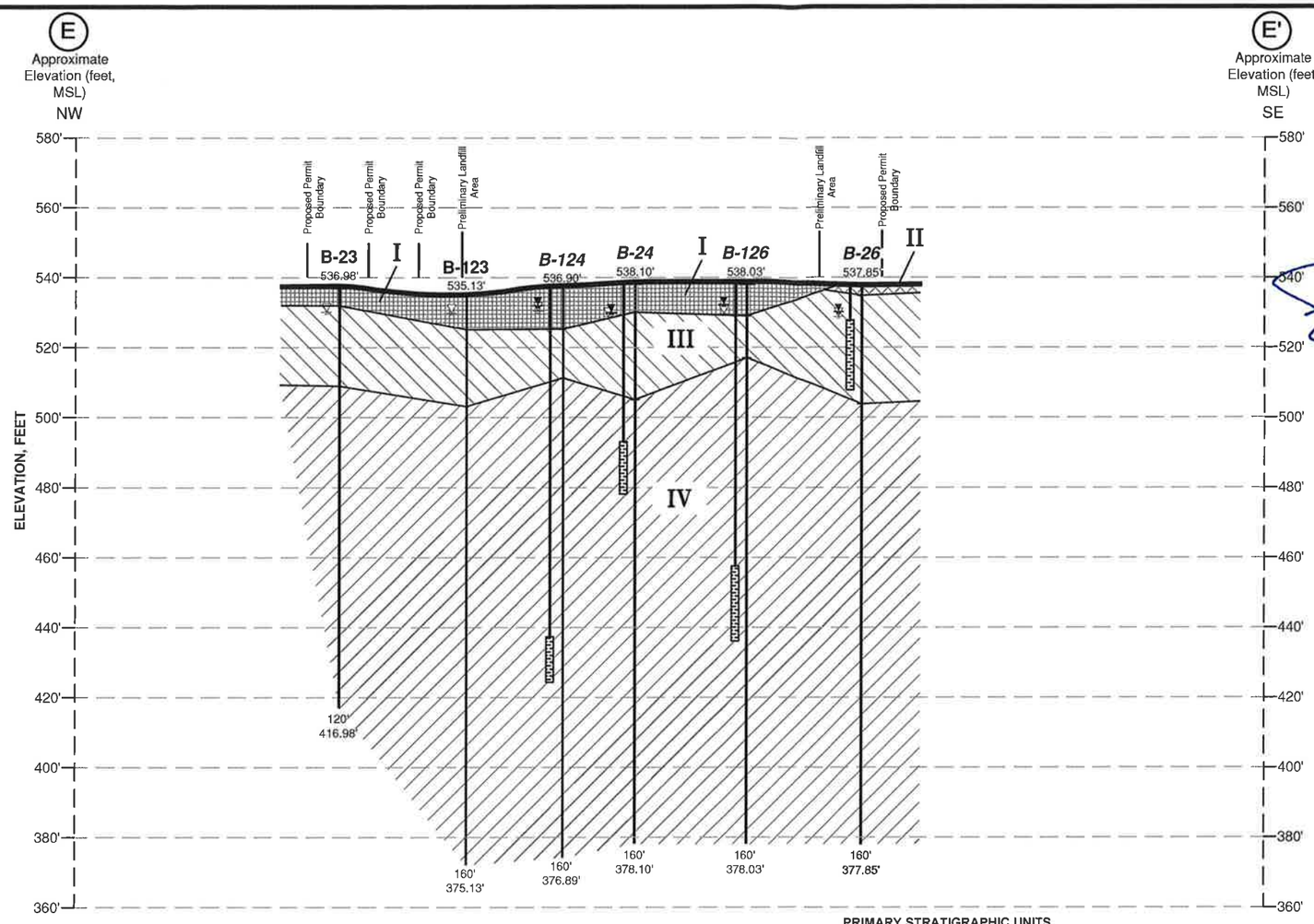
REVISIONS:

No.	DATE	DESCRIPTION
1	09-18-15	

PROJECT No.:	ASF13-140-00
ISSUE DATE:	02-25-15
DRAWN BY:	LAW
CHECKED BY:	PMS
REVIEWED BY:	RVK

FIGURE
7

L:\Active Projects\San Antonio\2013\ASF13-140-01 Pescadito Environmental Resource - RVK\SIR\MOD1 Working Figures\FIG 7_XSECT D-D.dwg



09-18-15

STATE OF TEXAS
RICHARD V KLAR
GEOLOGY
259
LICENSED
PROFESSIONAL GEOSCIENTIST

RABA KISTNER ENVIRONMENTAL
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INTERPRETIVE GEOLOGIC CROSS SECTION E-E'

PESCADITO ENVIRONMENTAL RESOURCE CENTER
TYPE I MSW MANAGEMENT FACILITY
RANCHO VIEJO WASTE MANAGEMENT, LLC
WEBB COUNTY, TEXAS - MSW PERMIT No. 2374

LEGEND

B-124 — Boring Designation (Italics indicates Piezometer)
536.89' — Ground Surface Elevation, feet MSL
Top of Screened Interval
Bottom of Screened Interval
160' — Total Depth
384.45' — Bottom Elevation, ft MSL

Water level measured in borehole during drilling or within 24-48 hours of completion.

Static water level measured in piezometer on 1/10/12.

Stratum I
Stratum II
Stratum III
Stratum IV

VERTICAL: 0 40 80
HORIZONTAL: 0 1000 2000
SCALE IN FEET

PRIMARY STRATIGRAPHIC UNITS

STRATUM I - Recent-Pleistocene Soils:
This stratum consists of Recent-Pleistocene (R-P) deposits and generally corresponds to surface and near-surface soil strata logged within low-lying portions of the site underlain by Quaternary Alluvium (Qal) as designated on the published geologic maps of the area, in addition to upland areas having little to no topographic slope. This stratum consists of clays and sandy clays, with limited sand and occasional gravel and cobbles. The clays are stiff to firm, brown to light brown, and occur at ground surface (where present) to depths of approximately 18 feet bgs. At most boring/test pit locations the base of Stratum I may be identified by the presence of a thin gravel layer containing a wide variety of igneous and sedimentary rock types. Stratum I was not identified at all boring locations and is inferred to be absent in areas of the site having a slight to moderate topographic slope adjacent to upland areas. Seasonally, perched subsurface water may be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone.

STRATUM II - Highly Weathered Eocene Residuum:
This stratum corresponds to highly weathered surface and near-surface Eocene age soil strata logged throughout the majority of the site, both below the Qal, and in upland areas designated on the *Geologic Atlas of Texas Laredo Sheet (1976)* geologic map as the Yegua-Jackson Group formation (Y-J). This stratum is essentially a weathered-in-place (residual) soil horizon exhibiting similar structure and layering as underlying, less-weathered materials. This stratum consists of predominantly clay with minor sandy clay with ferrous staining, calcareous nodules, and organic (plant root) materials. The clays are fissured, stiff to hard, overconsolidated, and brown to light reddish brown with some brownish gray to greenish gray layers. At some locations, gypsum (selenite) and ironstone concretions were encountered. This stratum occurs from ground surface (where exposed) or below Stratum I soils to depths of up to 10 feet bgs, with a maximum thickness of 10 feet. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck in *Soil Mechanics in Engineering Practice* (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values. As a result of post-Eocene geologic processes, Stratum II is not uniformly developed or laterally continuous throughout the site; and therefore was not always identified discretely in boring logs. In many instances, Stratum II was not logged as a separate unit, but simply described as the uppermost weathered portion of Stratum III as described below. Seasonally, the perched shallow subsurface water associated with Stratum I may also be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone. Below this depth, scattered ephemeral saline water lenses occur throughout the remaining vertical extent of weathered Stratum II and/or Stratum III soils.

STRATUM III - Weathered Eocene Sediments:
This near-surface stratum underlies Stratum I and Stratum II throughout the site and is considered to represent Eocene sediments associated with the upper weathered (e.g., ferrous stained) surface of the Yegua-Jackson Group formation (Y-J). This stratum consists of clay and sandy, silty clay with thinly to very thinly interbedded claystone, siltstone, and sandstone seams and lenses (i.e., bedding units typically 1 to 2 feet or less). The clays are fissured, hard, overconsolidated, light brown and brown to reddish brown with some olive to pale yellow layers, with scattered greenish gray to gray mottling and ferrous staining, and have a blocky structure. Stratum III is encountered at depths ranging from approximately 2 to 39 feet bgs, and ranges from approximately 8 to 33 feet in total thickness. This stratum is generally differentiated from Stratum IV as defined below by its consistently weathered appearance along partings (i.e., ferrous and carbonaceous staining), isolated presence of weathered zones containing groundwater, and the less frequent occurrence of interbedded sandstone, siltstone, or claystone layers. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

STRATUM IV - Relatively Unweathered Eocene Soils:
This stratum underlies Strata III throughout the site, was encountered to total exploration depth for the landfill project on the order of 160 to 500 feet (based on single deep boring, DB-1), and is considered to represent relatively unweathered Eocene soils of the Yegua-Jackson Group formation (Y-J). This stratum consists predominantly of clay and sandy, silty clay, with thinly to very thinly interbedded claystone, siltstone and sandstone seams and lenses (i.e., bedding units 1 to 2 feet or less). The clays are hard and fractured, overconsolidated, light green to green and greenish gray (with some dark gray to gray and brown to reddish brown layer with scattered greenish gray mottling) with some ferrous staining, and have a blocky (intensely fissured) structure. Stratum IV is encountered throughout the site at depths ranging from approximately 16 feet to greater than 160 feet bgs, and has a thickness exceeding 144 feet. As indicated on boring logs, this stratum is complexly interbedded and does exhibit significant variation in the nature and occurrence of indurated materials, although very thinly interbedded claystone units are most frequently encountered throughout. Although relatively unweathered relative to Stratum III, zones of localized weathering indicated by ferrous staining and weathered surfaces of clay partings are present likely in association with shallow groundwater movement. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

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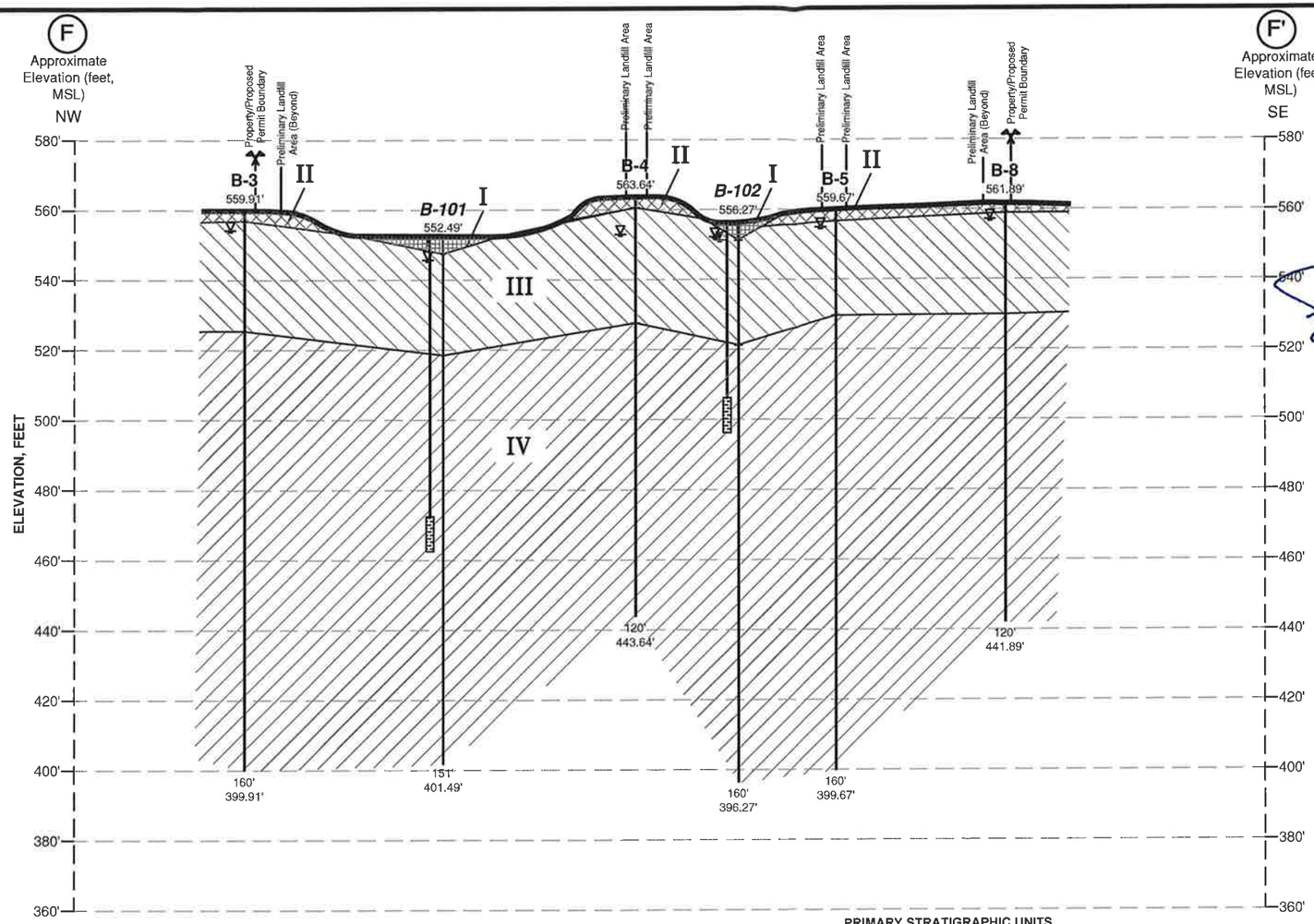
FIGURE 8

L:\Active Projects\San Antonio\2013\ASF13-140-01 Pescadito Environmental Resource - RVK\SIR\NOD1 Working Figures\FIG 8_XSECT E-E'.dwg



PRIMARY STRATIGRAPHIC UNITS

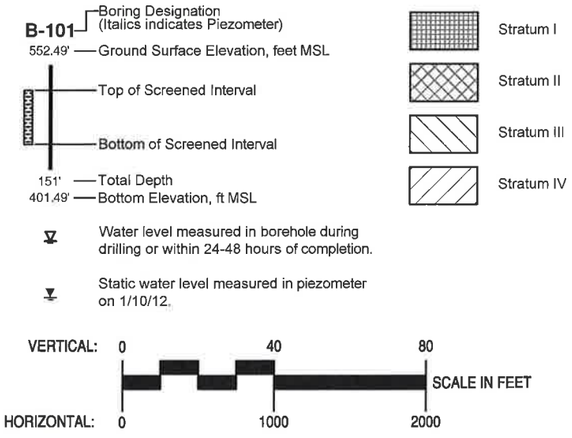
STRATUM I - Recent-Pleistocene Soils:
This stratum consists of Recent-Pleistocene (R-P) deposits and generally corresponds to surface and near-surface soil strata logged within low-lying portions of the site underlain by Quaternary Alluvium (Qal) as designated on the published geologic maps of the area, in addition to upland areas having little to no topographic slope. This stratum consists of clays and sandy clays, with limited sand and occasional gravel and cobbles. The clays are stiff to firm, brown to light brown, and occur at ground surface (where present) to depths of approximately 18 feet bgs. At most boring/test pit locations the base of Stratum I may be identified by the presence of a thin gravel layer containing a wide variety of igneous and sedimentary rock types. Stratum I was not identified at all boring locations and is inferred to be absent in areas of the site having a slight to moderate topographic slope adjacent to upland areas. Seasonally, perched subsurface water may be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone.

STRATUM II - Highly Weathered Eocene Residuum:
This stratum corresponds to highly weathered surface and near-surface Eocene age soil strata logged throughout the majority of the site, both below the Qal, and in upland areas designated on the *Geologic Atlas of Texas Laredo Sheet (1976)* geologic map as the Yegua-Jackson Group formation (Y-J). This stratum is essentially a weathered-in-place (residual) soil horizon exhibiting similar structure and layering as underlying, less-weathered materials. This stratum consists of predominantly clay with minor sandy clay with ferrous staining, calcareous nodules, and organic (plant root) materials. The clays are fissured, stiff to hard, overconsolidated, and brown to light reddish brown with some brownish gray to greenish gray layers. At some locations, gypsum (selenite) and ironstone concretions were encountered. This stratum occurs from ground surface (where exposed) or below Stratum I soils to depths of up to 10 feet bgs, with a maximum thickness of 10 feet. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck in *Soil Mechanics in Engineering Practice* (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values. As a result of post-Eocene geologic processes, Stratum II is not uniformly developed or laterally continuous throughout the site; and therefore was not always identified discretely in boring logs. In many instances, Stratum II was not logged as a separate unit, but simply described as the uppermost weathered portion of Stratum III as described below. Seasonally, the perched shallow subsurface water associated with Stratum I may also be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone. Below this depth, scattered ephemeral saline water lenses occur throughout the remaining vertical extent of weathered Stratum II and/or Stratum III soils.

STRATUM III - Weathered Eocene Sediments:
This near-surface stratum underlies Stratum I and Stratum II throughout the site and is considered to represent Eocene sediments associated with the upper weathered (e.g., ferrous stained) surface of the Yegua-Jackson Group formation (Y-J). This stratum consists of clay and sandy, silty clay with thinly to very thinly interbedded claystone, siltstone, and sandstone seams and lenses (i.e., bedding units typically 1 to 2 feet or less). The clays are fissured, hard, overconsolidated, light brown and brown to reddish brown with some olive to pale yellow layers, with scattered greenish gray to gray mottling and ferrous staining, and have a blocky structure. Stratum III is encountered at depths ranging from approximately 2 to 39 feet bgs, and ranges from approximately 8 to 33 feet in total thickness. This stratum is generally differentiated from Stratum IV as defined below by its consistently weathered appearance along partings (i.e., ferrous and carbonaceous staining), isolated presence of weathered zones containing groundwater, and the less frequent occurrence of interbedded sandstone, siltstone, or claystone layers. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

STRATUM IV - Relatively Unweathered Eocene Soils:
This stratum underlies Strata III throughout the site, was encountered to total exploration depth for the landfill project on the order of 160 to 500 feet (based on single deep boring, DB-1), and is considered to represent relatively unweathered Eocene soils of the Yegua-Jackson Group formation (Y-J). This stratum consists predominantly of clay and sandy, silty clay, with thinly to very thinly interbedded claystone, siltstone and sandstone seams and lenses (i.e., bedding units 1 to 2 feet or less). The clays are hard and fractured, overconsolidated, light green to green and greenish gray (with some dark gray to gray and brown to reddish brown layer with scattered greenish gray mottling) with some ferrous staining, and have a blocky (intensely fissured) structure. Stratum IV is encountered throughout the site at depths ranging from approximately 16 feet to greater than 160 feet bgs, and has a thickness exceeding 144 feet. As indicated on boring logs, this stratum is complexly interbedded and does exhibit significant variation in the nature and occurrence of indurated materials, although very thinly interbedded claystone units are most frequently encountered throughout. Although relatively unweathered relative to Stratum III, zones of localized weathering indicated by ferrous staining and weathered surfaces of clay partings are present likely in association with shallow groundwater movement. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

LEGEND



09-18-15

STATE OF TEXAS
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INTERPRETIVE GEOLOGIC CROSS SECTION F-F'

PESCADITO ENVIRONMENTAL RESOURCE CENTER
TYPE I MSW MANAGEMENT FACILITY
RANCHO VIEJO WASTE MANAGEMENT, LLC
WEBB COUNTY, TEXAS - MSW PERMIT No. 2374

REVISIONS:

No.	DATE	DESCRIPTION
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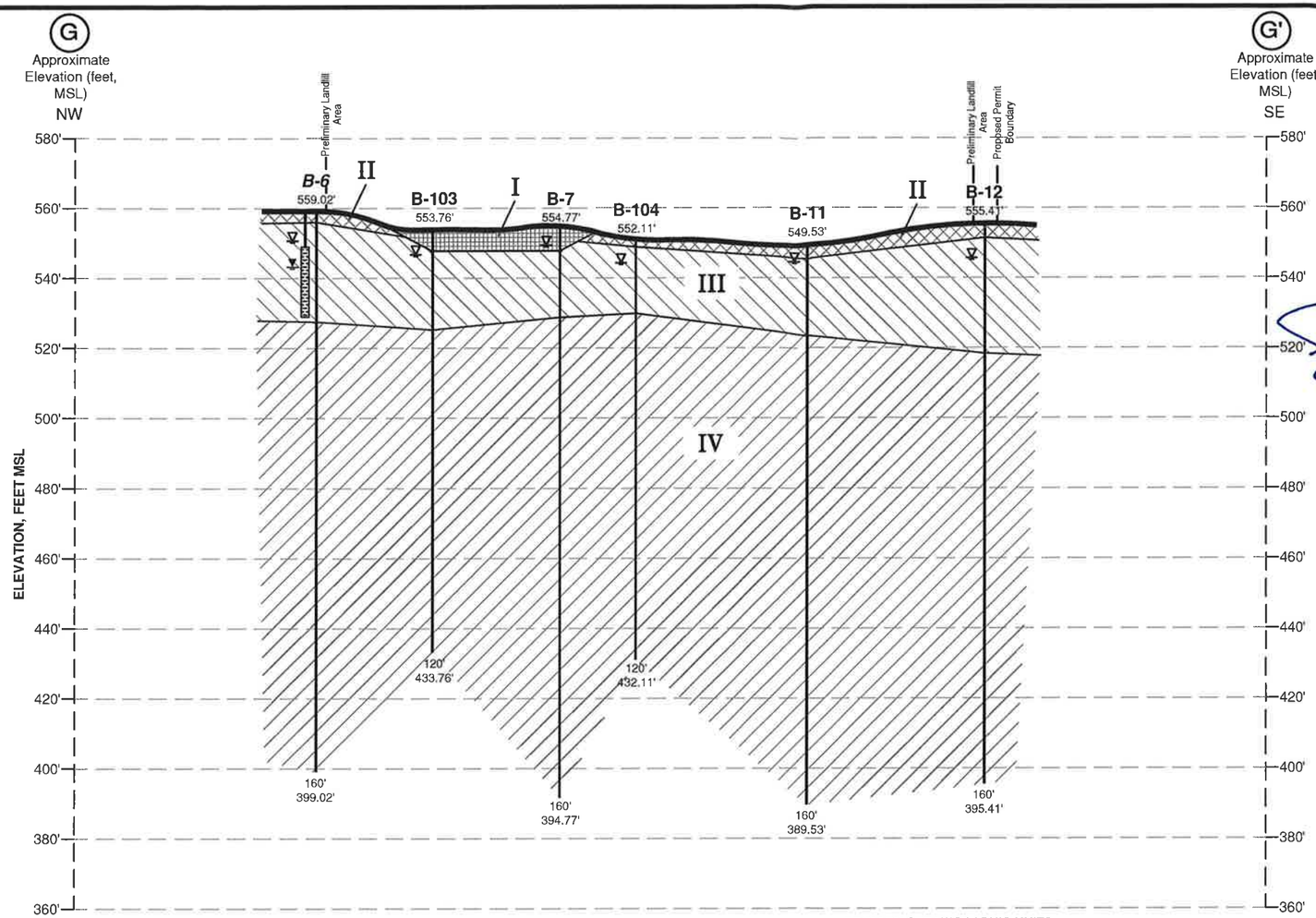
ISSUE DATE:	02-25-15
DRAWN BY:	LAW
CHECKED BY:	PMS
REVIEWED BY:	RVK

FIGURE 9

L:\Active Projects\San Antonio\2013\ASF13-140-01 Pescadito Environmental Resource - RVK\SIR\N001 Working Figures\FIG 9_XSECT F-F.dwg



PRIMARY STRATIGRAPHIC UNITS

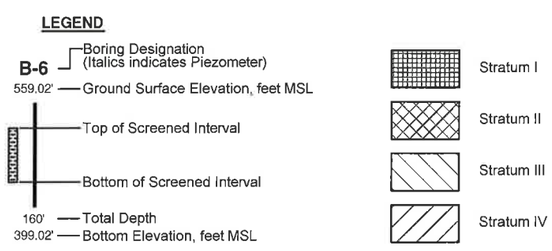
STRATUM I - Recent-Pleistocene Soils:
This stratum consists of Recent-Pleistocene (R-P) deposits and generally corresponds to surface and near-surface soil strata logged within low-lying portions of the site underlain by Quaternary Alluvium (Qal) as designated on the published geologic maps of the area, in addition to upland areas having little to no topographic slope. This stratum consists of clays and sandy clays, with limited sand and occasional gravel and cobbles. The clays are stiff to firm, brown to light brown, and occur at ground surface (where present) to depths of approximately 18 feet bgs. At most boring/test pit locations the base of Stratum I may be identified by the presence of a thin gravel layer containing a wide variety of igneous and sedimentary rock types. Stratum I was not identified at all boring locations and is inferred to be absent in areas of the site having a slight to moderate topographic slope adjacent to upland areas. Seasonally, perched subsurface water may be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone.

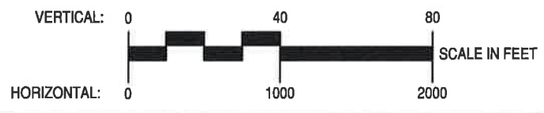
STRATUM II - Highly Weathered Eocene Residuum:
This stratum corresponds to highly weathered surface and near-surface Eocene age soil strata logged throughout the majority of the site, both below the Qal, and in upland areas designated on the *Geologic Atlas of Texas Laredo Sheet (1976)* geologic map as the Yegua-Jackson Group formation (Y-J). This stratum is essentially a weathered-in-place (residual) soil horizon exhibiting similar structure and layering as underlying, less-weathered materials. This stratum consists of predominantly clay with minor sandy clay with ferrous staining, calcareous nodules, and organic (plant root) materials. The clays are fissured, stiff to hard, overconsolidated, and brown to light reddish brown with some brownish gray to greenish gray layers. At some locations, gypsum (selenite) and ironstone concretions were encountered. This stratum occurs from ground surface (where exposed) or below Stratum I soils to depths of up to 10 feet bgs, with a maximum thickness of 10 feet. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck in *Soil Mechanics in Engineering Practice* (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values. As a result of post-Eocene geologic processes, Stratum II is not uniformly developed or laterally continuous throughout the site; and therefore was not always identified discretely in boring logs. In many instances, Stratum II was not logged as a separate unit, but simply described as the uppermost weathered portion of Stratum III as described below. Seasonally, the perched shallow subsurface water associated with Stratum I may also be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone. Below this depth, scattered ephemeral saline water lenses occur throughout the remaining vertical extent of weathered Stratum II and/or Stratum III soils.

STRATUM III - Weathered Eocene Sediments:
This near-surface stratum underlies Stratum I and Stratum II throughout the site and is considered to represent Eocene sediments associated with the upper weathered (e.g., ferrous stained) surface of the Yegua-Jackson Group formation (Y-J). This stratum consists of clay and sandy, silty clay with thinly to very thinly interbedded claystone, siltstone, and sandstone seams and lenses (i.e., bedding units typically 1 to 2 feet or less). The clays are fissured, hard, overconsolidated, light brown and brown to reddish brown with some olive to pale yellow layers, with scattered greenish gray to gray mottling and ferrous staining, and have a blocky structure. Stratum III is encountered at depths ranging from approximately 2 to 39 feet bgs, and ranges from approximately 8 to 33 feet in total thickness. This stratum is generally differentiated from Stratum IV as defined below by its consistently weathered appearance along partings (i.e., ferrous and carbonaceous staining), isolated presence of weathered zones containing groundwater, and the less frequent occurrence of interbedded sandstone, siltstone, or claystone layers. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

STRATUM IV - Relatively Unweathered Eocene Soils:
This stratum underlies Strata III throughout the site, was encountered to total exploration depth for the landfill project on the order of 160 to 500 feet (based on single deep boring, DB-1), and is considered to represent relatively unweathered Eocene soils of the Yegua-Jackson Group formation (Y-J). This stratum consists predominantly of clay and sandy, silty clay, with thinly to very thinly interbedded claystone, siltstone and sandstone seams and lenses (i.e., bedding units 1 to 2 feet or less). The clays are hard and fractured, overconsolidated, light green to green and greenish gray (with some dark gray to gray and brown to reddish brown layer with scattered greenish gray mottling) with some ferrous staining, and have a blocky (intensely fissured) structure. Stratum IV is encountered throughout the site at depths ranging from approximately 16 feet to greater than 160 feet bgs, and has a thickness exceeding 144 feet. As indicated on boring logs, this stratum is complexly interbedded and does exhibit significant variation in the nature and occurrence of indurated materials, although very thinly interbedded claystone units are most frequently encountered throughout. Although relatively unweathered relative to Stratum III, zones of localized weathering indicated by ferrous staining and weathered surfaces of clay partings are present likely in association with shallow groundwater movement. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

LEGEND





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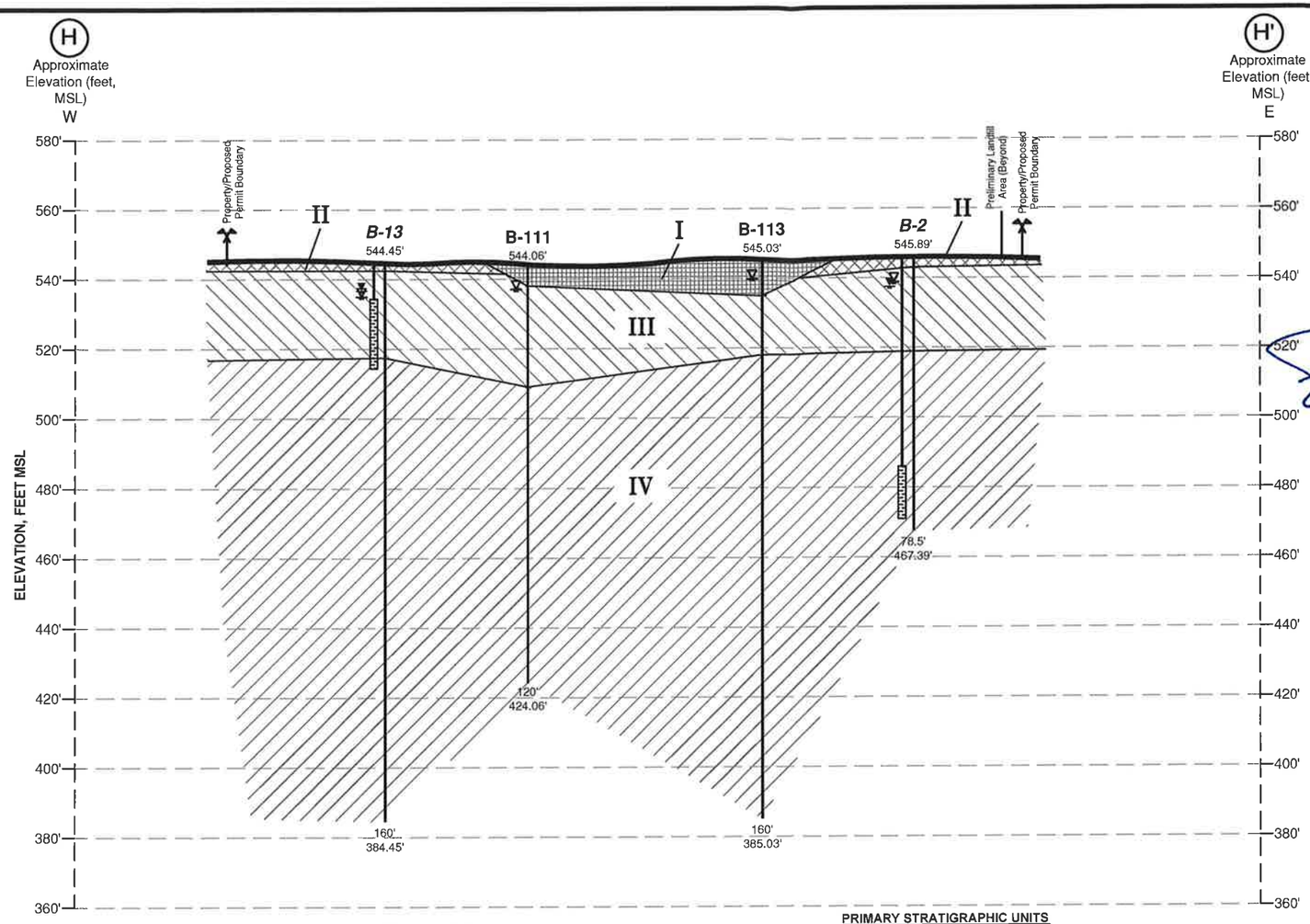
REVIEWED BY:	RVK

FIGURE

10

L:\Active Projects\San Antonio\2013\ASF13-140-01 Pescadito Environmental Resource - RVK\SIR\MXD1 Working Figures\FIG 10_XSECT G-G.dwg



LEGEND

B-13 — Boring Designation (Italics indicates Piezometer)

544.45' — Ground Surface Elevation, feet MSL

Top of Screened Interval

Bottom of Screened Interval

160' — Total Depth

384.45' — Bottom Elevation, feet MSL

Water level measured in borehole during drilling or within 24-48 hours of completion.

Static water level measured in piezometer on 1/10/12.

Stratum I

Stratum II

Stratum III

Stratum IV

VERTICAL: 0 40 80 SCALE IN FEET

HORIZONTAL: 0 1000 2000

PRIMARY STRATIGRAPHIC UNITS

STRATUM I - Recent-Pleistocene Soils:
This stratum consists of Recent-Pleistocene (R-P) deposits and generally corresponds to surface and near-surface soil strata logged within low-lying portions of the site underlain by Quaternary Alluvium (Qal) as designated on the published geologic maps of the area, in addition to upland areas having little to no topographic slope. This stratum consists of clays and sandy clays, with limited sand and occasional gravel and cobbles. The clays are stiff to firm, brown to light brown, and occur at ground surface (where present) to depths of approximately 18 feet bgs. At most boring/test pit locations the base of Stratum I may be identified by the presence of a thin gravel layer containing a wide variety of igneous and sedimentary rock types. Stratum I was not identified at all boring locations and is inferred to be absent in areas of the site having a slight to moderate topographic slope adjacent to upland areas. Seasonally, perched subsurface water may be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone.

STRATUM II - Highly Weathered Eocene Residuum:
This stratum corresponds to highly weathered surface and near-surface Eocene age soil strata logged throughout the majority of the site, both below the Qal, and in upland areas designated on the *Geologic Atlas of Texas Laredo Sheet (1976)* geologic map as the Yegua-Jackson Group formation (Y-J). This stratum is essentially a weathered-in-place (residual) soil horizon exhibiting similar structure and layering as underlying, less-weathered materials. This stratum consists of predominantly clay with minor sandy clay with ferrous staining, calcareous nodules, and organic (plant root) materials. The clays are fissured, stiff to hard, overconsolidated, and brown to light reddish brown with some brownish gray to greenish gray layers. At some locations, gypsum (selenite) and ironstone concretions were encountered. This stratum occurs from ground surface (where exposed) or below Stratum I soils to depths of up to 10 feet bgs, with a maximum thickness of 10 feet. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck in *Soil Mechanics in Engineering Practice* (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values. As a result of post-Eocene geologic processes, Stratum II is not uniformly developed or laterally continuous throughout the site; and therefore was not always identified discretely in boring logs. In many instances, Stratum II was not logged as a separate unit, but simply described as the uppermost weathered portion of Stratum III as described below. Seasonally, the perched shallow subsurface water associated with Stratum I may also be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone. Below this depth, scattered ephemeral saline water lenses occur throughout the remaining vertical extent of weathered Stratum II and/or Stratum III soils.

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This near-surface stratum underlies Stratum I and Stratum II throughout the site and is considered to represent Eocene sediments associated with the upper weathered (e.g., ferrous stained) surface of the Yegua-Jackson Group formation (Y-J). This stratum consists of clay and sandy, silty clay with thinly to very thinly interbedded claystone, siltstone, and sandstone seams and lenses (i.e., bedding units typically 1 to 2 feet or less). The clays are fissured, hard, overconsolidated, light brown and brown to reddish brown with some olive to pale yellow layers, with scattered greenish gray to gray mottling and ferrous staining, and have a blocky structure. Stratum III is encountered at depths ranging from approximately 2 to 39 feet bgs, and ranges from approximately 8 to 33 feet in total thickness. This stratum is generally differentiated from Stratum IV as defined below by its consistently weathered appearance along partings (i.e., ferrous and carbonaceous staining), isolated presence of weathered zones containing groundwater, and the less frequent occurrence of interbedded sandstone, siltstone, or claystone layers. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

STRATUM IV - Relatively Unweathered Eocene Soils:
This stratum underlies Strata III throughout the site, was encountered to total exploration depth for the landfill project on the order of 160 to 500 feet (based on single deep boring, DB-1), and is considered to represent relatively unweathered Eocene soils of the Yegua-Jackson Group formation (Y-J). This stratum consists predominantly of clay and sandy, silty clay, with thinly to very thinly interbedded claystone, siltstone and sandstone seams and lenses (i.e., bedding units 1 to 2 feet or less). The clays are hard and fractured, overconsolidated, light green to green and greenish gray (with some dark gray to gray and brown to reddish brown layer with scattered greenish gray mottling) with some ferrous staining, and have a blocky (intensely fissured) structure. Stratum IV is encountered throughout the site at depths ranging from approximately 16 feet to greater than 160 feet bgs, and has a thickness exceeding 144 feet. As indicated on boring logs, this stratum is complexly interbedded and does exhibit significant variation in the nature and occurrence of indurated materials, although very thinly interbedded claystone units are most frequently encountered throughout. Although relatively unweathered relative to Stratum III, zones of localized weathering indicated by ferrous staining and weathered surfaces of clay partings are present likely in association with shallow groundwater movement. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

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INTERPRETIVE GEOLOGIC CROSS SECTION H-H'

PESCADITO ENVIRONMENTAL RESOURCE CENTER
TYPE I MSW MANAGEMENT FACILITY
RANCHO VIEJO WASTE MANAGEMENT, LLC
WEBB COUNTY, TEXAS - MSW PERMIT No. 2374

REVISIONS:

No.	DATE	DESCRIPTION
1	09-18-15	

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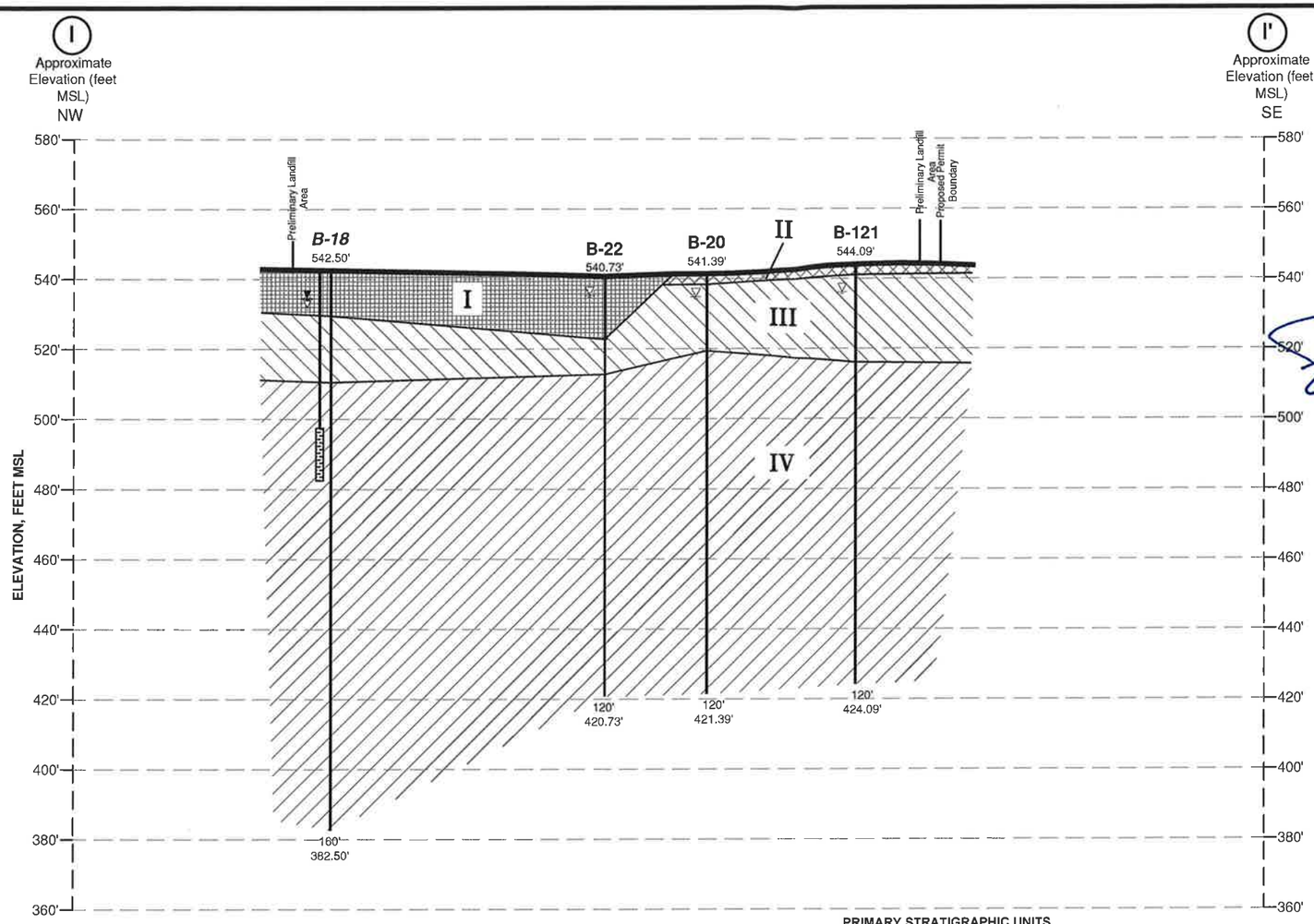
REVIEWED BY:	RVK

FIGURE 11

L:\Active Projects\San Antonio\2013\ASF13-140-01 Pescadito Environmental Resource - RVK\SIR\NOD1 Working Figures\FIG 11_XSECT H-H'.dwg



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LEGEND

- B-18 — Boring Designation (Italics indicates Piezometer)
- 542.50' — Ground Surface Elevation, feet MSL
- Top of Screened Interval
- Bottom of Screened Interval
- 160' — Total Depth
- 382.50' — Bottom Elevation, feet MSL
- Water level measured in borehole during drilling or within 24-48 hours of completion.
- Static water level measured in piezometer on 1/10/12.
- Stratum I
- Stratum II
- Stratum III
- Stratum IV

VERTICAL: 0 40 80 SCALE IN FEET
HORIZONTAL: 0 1000 2000

PRIMARY STRATIGRAPHIC UNITS

STRATUM I - Recent-Pleistocene Soils:
This stratum consists of Recent-Pleistocene (R-P) deposits and generally corresponds to surface and near-surface soil strata logged within low-lying portions of the site underlain by Quaternary Alluvium (Qal) as designated on the published geologic maps of the area, in addition to upland areas having little to no topographic slope. This stratum consists of clays and sandy clays, with limited sand and occasional gravel and cobbles. The clays are stiff to firm, brown to light brown, and occur at ground surface (where present) to depths of approximately 18 feet bgs. At most boring/test pit locations the base of Stratum I may be identified by the presence of a thin gravel layer containing a wide variety of igneous and sedimentary rock types. Stratum I was not identified at all boring locations and is inferred to be absent in areas of the site having a slight to moderate topographic slope adjacent to upland areas. Seasonally, perched subsurface water may be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone.

STRATUM II - Highly Weathered Eocene Residuum:
This stratum corresponds to highly weathered surface and near-surface Eocene age soil strata logged throughout the majority of the site, both below the Qal, and in upland areas designated on the *Geologic Atlas of Texas Laredo Sheet (1976)* geologic map as the Yegua-Jackson Group formation (Y-J). This stratum is essentially a weathered-in-place (residual) soil horizon exhibiting similar structure and layering as underlying, less-weathered materials. This stratum consists of predominantly clay with minor sandy clay with ferrous staining, calcareous nodules, and organic (plant root) materials. The clays are fissured, stiff to hard, overconsolidated, and brown to light reddish brown with some brownish gray to greenish gray layers. At some locations, gypsum (selenite) and ironstone concretions were encountered. This stratum occurs from ground surface (where exposed) or below Stratum I soils to depths of up to 10 feet bgs, with a maximum thickness of 10 feet. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck in *Soil Mechanics in Engineering Practice* (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values. As a result of post-Eocene geologic processes, Stratum II is not uniformly developed or laterally continuous throughout the site; and therefore was not always identified discretely in boring logs. In many instances, Stratum II was not logged as a separate unit, but simply described as the uppermost weathered portion of Stratum III as described below. Seasonally, the perched shallow subsurface water associated with Stratum I may also be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone. Below this depth, scattered ephemeral saline water lenses occur throughout the remaining vertical extent of weathered Stratum II and/or Stratum III soils.

STRATUM III - Weathered Eocene Sediments:
This near-surface stratum underlies Stratum I and Stratum II throughout the site and is considered to represent Eocene sediments associated with the upper weathered (e.g., ferrous stained) surface of the Yegua-Jackson Group formation (Y-J). This stratum consists of clay and sandy, silty clay with thinly to very thinly interbedded claystone, siltstone, and sandstone seams and lenses (i.e., bedding units typically 1 to 2 feet or less). The clays are fissured, hard, overconsolidated, light brown and brown to reddish brown with some olive to pale yellow layers, with scattered greenish gray to gray mottling and ferrous staining, and have a blocky structure. Stratum III is encountered at depths ranging from approximately 2 to 39 feet bgs, and ranges from approximately 8 to 33 feet in total thickness. This stratum is generally differentiated from Stratum IV as defined below by its consistently weathered appearance along partings (i.e., ferrous and carbonaceous staining), isolated presence of weathered zones containing groundwater, and the less frequent occurrence of interbedded sandstone, siltstone, or claystone layers. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

STRATUM IV - Relatively Unweathered Eocene Soils:
This stratum underlies Strata III throughout the site, was encountered to total exploration depth for the landfill project on the order of 160 to 500 feet (based on single deep boring, DB-1), and is considered to represent relatively unweathered Eocene soils of the Yegua-Jackson Group formation (Y-J). This stratum consists predominantly of clay and sandy, silty clay, with thinly to very thinly interbedded claystone, siltstone and sandstone seams and lenses (i.e., bedding units 1 to 2 feet or less). The clays are hard and fractured, overconsolidated, light green to green and greenish gray (with some dark gray to gray and brown to reddish brown layer with scattered greenish gray mottling) with some ferrous staining, and have a blocky (intensely fissured) structure. Stratum IV is encountered throughout the site at depths ranging from approximately 16 feet to greater than 160 feet bgs, and has a thickness exceeding 144 feet. As indicated on boring logs, this stratum is complexly interbedded and does exhibit significant variation in the nature and occurrence of indurated materials, although very thinly interbedded claystone units are most frequently encountered throughout. Although relatively unweathered relative to Stratum III, zones of localized weathering indicated by ferrous staining and weathered surfaces of clay partings are present likely in association with shallow groundwater movement. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

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INTERPRETIVE GEOLOGIC CROSS SECTION I-I'

PESCADITO ENVIRONMENTAL RESOURCE CENTER
TYPE I MSW MANAGEMENT FACILITY
RANCHO VIEJO WASTE MANAGEMENT, LLC
WEBB COUNTY, TEXAS - MSW PERMIT No. 2374

REVISIONS:

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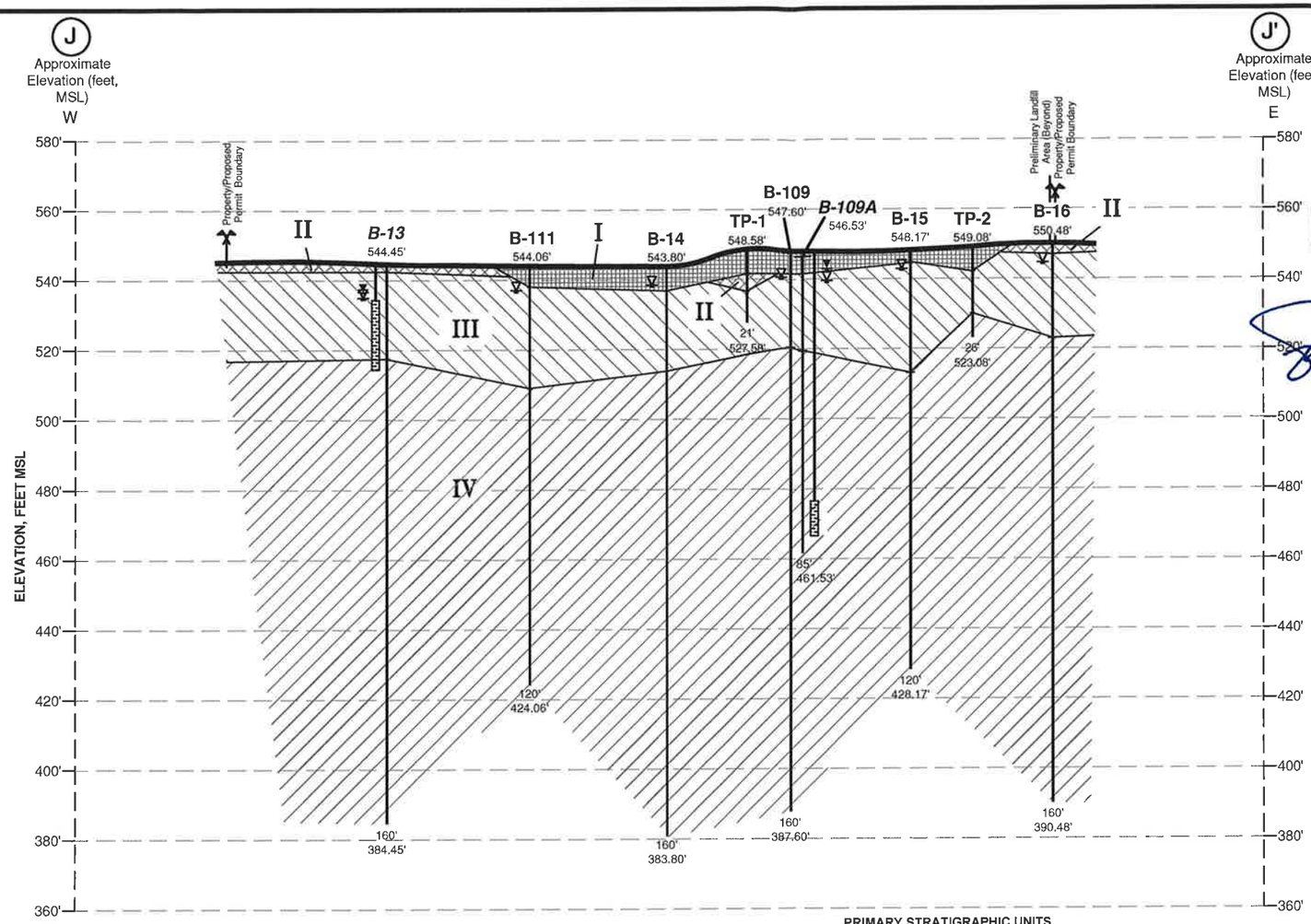
REVIEWED BY:	RVK

FIGURE
12

L:\Active Projects\San Antonio\2013\ASF13-140-01 Pescadito Environmental Resource - RVK\SIR\NOD1 Working Figures\FIG 12_XSECT I-I.dwg



LEGEND

B-13 — Boring Designation (Italics indicates Piezometer)

544.45' — Ground Surface Elevation, feet MSL

Top of Screened Interval

Bottom of Screened Interval

160' — Total Depth

384.45' — Bottom Elevation, feet MSL

Water level measured in borehole during drilling or within 24-48 hours of completion.

Static water level measured in piezometer on 1/10/12.

Stratum I

Stratum II

Stratum III

Stratum IV

VERTICAL: 0 40 80 SCALE IN FEET

HORIZONTAL: 0 1000 2000

PRIMARY STRATIGRAPHIC UNITS

STRATUM I - Recent-Pleistocene Soils:
This stratum consists of Recent-Pleistocene (R-P) deposits and generally corresponds to surface and near-surface soil strata logged within low-lying portions of the site underlain by Quaternary Alluvium (Qal) as designated on the published geologic maps of the area, in addition to upland areas having little to no topographic slope. This stratum consists of clays and sandy clays, with limited sand and occasional gravel and cobbles. The clays are stiff to firm, brown to light brown, and occur at ground surface (where present) to depths of approximately 18 feet bgs. At most boring/test pit locations the base of Stratum I may be identified by the presence of a thin gravel layer containing a wide variety of igneous and sedimentary rock types. Stratum I was not identified at all boring locations and is inferred to be absent in areas of the site having a slight to moderate topographic slope adjacent to upland areas. Seasonally, perched subsurface water may be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone.

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This stratum corresponds to highly weathered surface and near-surface Eocene age soil strata logged throughout the majority of the site, both below the Qal, and in upland areas designated on the *Geologic Atlas of Texas Laredo Sheet (1976)* geologic map as the Yegua-Jackson Group formation (Y-J). This stratum is essentially a weathered-in-place (residual) soil horizon exhibiting similar structure and layering as underlying, less-weathered materials. This stratum consists of predominantly clay with minor sandy clay with ferrous staining, calcareous nodules, and organic (plant root) materials. The clays are fissured, stiff to hard, overconsolidated, and brown to light reddish brown with some brownish gray to greenish gray layers. At some locations, gypsum (selenite) and ironstone concretions were encountered. This stratum occurs from ground surface (where exposed) or below Stratum I soils to depths of up to 10 feet bgs, with a maximum thickness of 10 feet. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck in *Soil Mechanics in Engineering Practice* (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values. As a result of post-Eocene geologic processes, Stratum II is not uniformly developed or laterally continuous throughout the site; and therefore was not always identified discretely in boring logs. In many instances, Stratum II was not logged as a separate unit, but simply described as the uppermost weathered portion of Stratum III as described below. Seasonally, the perched shallow subsurface water associated with Stratum I may also be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone. Below this depth, scattered ephemeral saline water lenses occur throughout the remaining vertical extent of weathered Stratum II and/or Stratum III soils.

STRATUM III - Weathered Eocene Sediments:
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INTERPRETIVE GEOLOGIC CROSS SECTION J-J'

PESCADITO ENVIRONMENTAL RESOURCE CENTER
TYPE I MSW MANAGEMENT FACILITY
RANCHO VIEJO WASTE MANAGEMENT, LLC
WEBB COUNTY, TEXAS - MSW PERMIT No. 2374

REVISIONS:

No.	DATE	DESCRIPTION
1	09-18-15	

PROJECT No.: ASF13-140-00

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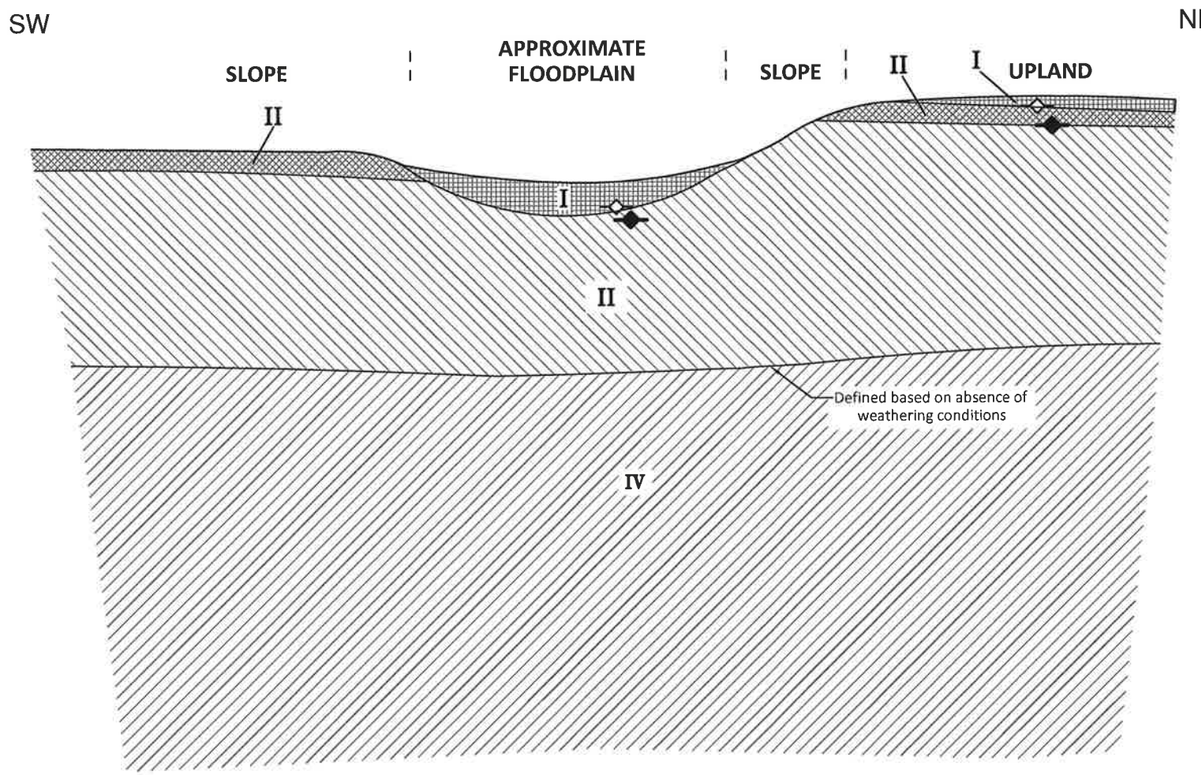
CHECKED BY:	PMS
REVIEWED BY:	RVK

FIGURE 13

L:\Active Projects\San Antonio\2013\ASF13-140-01 Pescadito Environmental Resource - RVK\SIR\N001 Working Figures\FIG 13_XSECT J-J.dwg



NOTES:
1. VERTICAL CHANGES ARE EXAGGERATED FOR ILLUSTRATIVE PURPOSES.
2. THE FRESH WATER LENSE AND SALINE WATER ARE EXAMPLES OF SHALLOW GROUNDWATER OCCURRENCE AT RECENT-PLEISTOCENE/EOCENE CONTACT BASED ON TEST PIT OBSERVATIONS.
3. THIS ILLUSTRATION IS REPRESENTATIVE OF GEOLOGIC CONDITIONS THAT EXIST WITHIN BOTH THE NORTH AND SOUTH PORTIONS OF THE PROPOSED LANDFILL FOOTPRINT.

09-18-15

STATE OF TEXAS
RICHARD V KLAR
GEOLOGY
259
LICENSED
PROFESSIONAL GEOSCIENTIST

LEGEND

- Stratum I
- Stratum II
- Stratum III
- Stratum IV
- Fresh water lense
- Saline water

VERTICAL: 0 20 40 SCALE IN FEET
HORIZONTAL: 0 1000 2000
SCALE IS APPROXIMATE

PRIMARY STRATIGRAPHIC UNITS

STRATUM I - Recent-Pleistocene Soils:
This stratum consists of Recent-Pleistocene (R-P) deposits and generally corresponds to surface and near-surface soil strata logged within low-lying portions of the site underlain by Quaternary Alluvium (Qal) as designated on the published geologic maps of the area, in addition to upland areas having little to no topographic slope. This stratum consists of clays and sandy clays, with limited sand and occasional gravel and cobbles. The clays are stiff to firm, brown to light brown, and occur at ground surface (where present) to depths of approximately 18 feet bgs. At most boring/test pit locations the base of Stratum I may be identified by the presence of a thin gravel layer containing a wide variety of igneous and sedimentary rock types. Stratum I was not identified at all boring locations and is inferred to be absent in areas of the site having a slight to moderate topographic slope adjacent to upland areas. Seasonally, perched subsurface water may be encountered in this stratum. Based on observations during test pit excavation, an ephemeral fresh water lens appears to be present following rainfall events to depths on the order of 1 to 3 feet bgs, which controls the thickness of the plant root zone.

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STRATUM IV - Relatively Unweathered Eocene Soils:
This stratum underlies Strata III throughout the site, was encountered to total exploration depth for the landfill project on the order of 160 to 500 feet (based on single deep boring, DB-1), and is considered to represent relatively unweathered Eocene soils of the Yegua-Jackson Group formation (Y-J). This stratum consists predominantly of clay and sandy, silty clay, with thinly to very thinly interbedded claystone, siltstone and sandstone seams and lenses (i.e., bedding units 1 to 2 feet or less). The clays are hard and fractured, overconsolidated, light green to green and greenish gray (with some dark gray to gray and brown to reddish brown layer with scattered greenish gray mottling) with some ferrous staining, and have a blocky (intensely fissured) structure. Stratum IV is encountered throughout the site at depths ranging from approximately 16 feet to greater than 160 feet bgs, and has a thickness exceeding 144 feet. As indicated on boring logs, this stratum is complexly interbedded and does exhibit significant variation in the nature and occurrence of indurated materials, although very thinly interbedded claystone units are most frequently encountered throughout. Although relatively unweathered relative to Stratum III, zones of localized weathering indicated by ferrous staining and weathered surfaces of clay partings are present likely in association with shallow groundwater movement. Transmissive secondary soil structure (i.e., fissures, fractures, joints, and horizontal bedding) is present, but pursuant to criteria established by Terzaghi and Peck (1967), materials are classified as relatively or practically impermeable based on measured laboratory permeability values.

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CONCEPTUAL GEOLOGIC SECTION

PESCADITO ENVIRONMENTAL RESOURCE CENTER
TYPE I MSW MANAGEMENT FACILITY
RANCHO VIEJO WASTE MANAGEMENT, LLC
WEBB COUNTY, TEXAS - MSW PERMIT No. 2374

REVISIONS:

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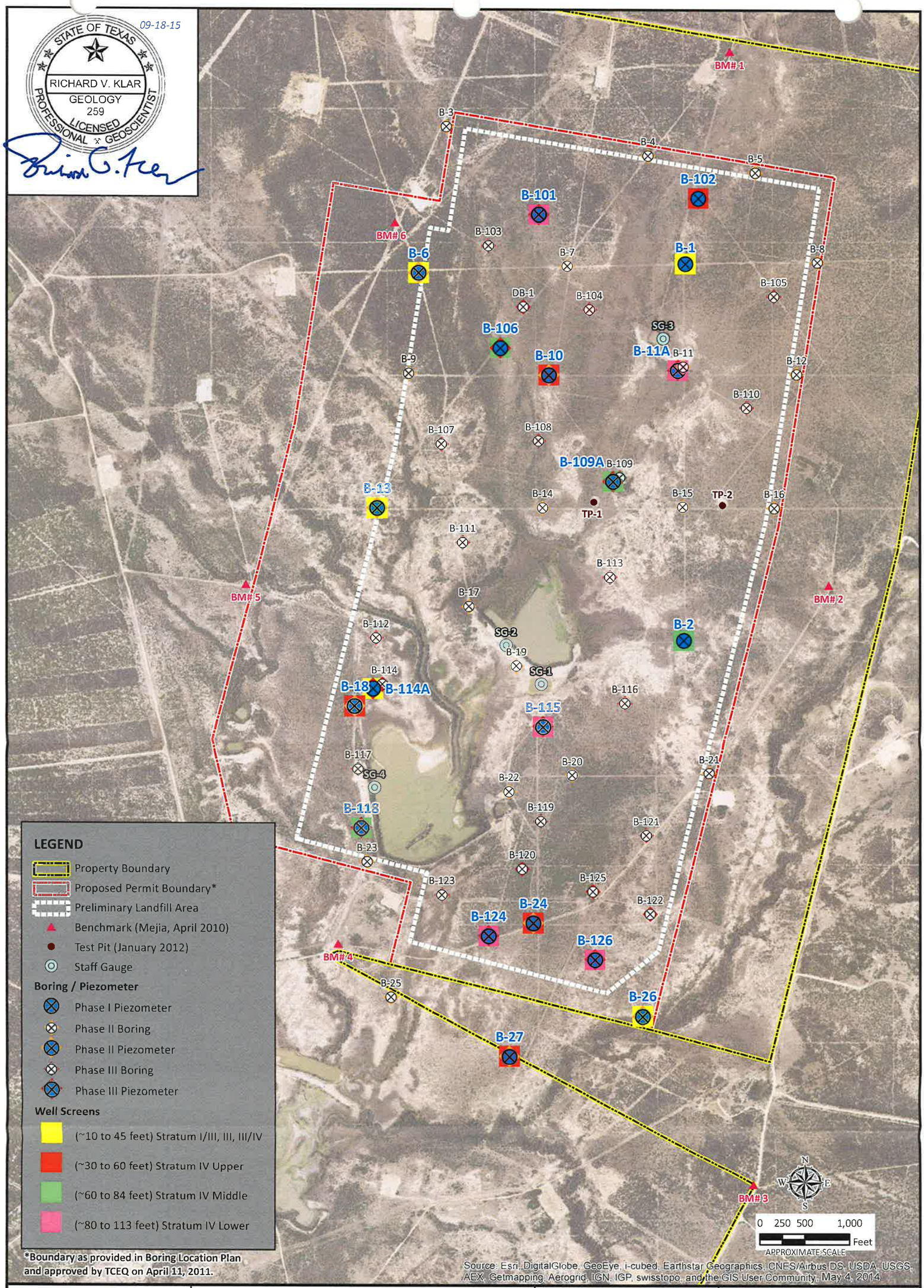
CHECKED BY:	PMS
REVIEWED BY:	RVK

FIGURE
14

L:\Active Projects\San Antonio\2013\ASF13-140-01 Pescadito Environmental Resource - RVK\SIR\NO01 Working Figures\FIG 14_Conceptual Geologic Section.dwg



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TBPE Firm F-3257 / TBPG Firm 50220

Note: Benchmark locations (Benchmark Data Table) taken from Mejia Engineering Company, Boundary & Improvement Survey (Gilbert L. Cade III, R.P.L.S. #5060), April 9, 2010.

PIEZOMETER/STAFF GAUGE LOCATION MAP

PESCADITO ENVIRONMENTAL RESOURCE CENTER
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RANCHO VIEJO WASTE MANAGEMENT, LLC
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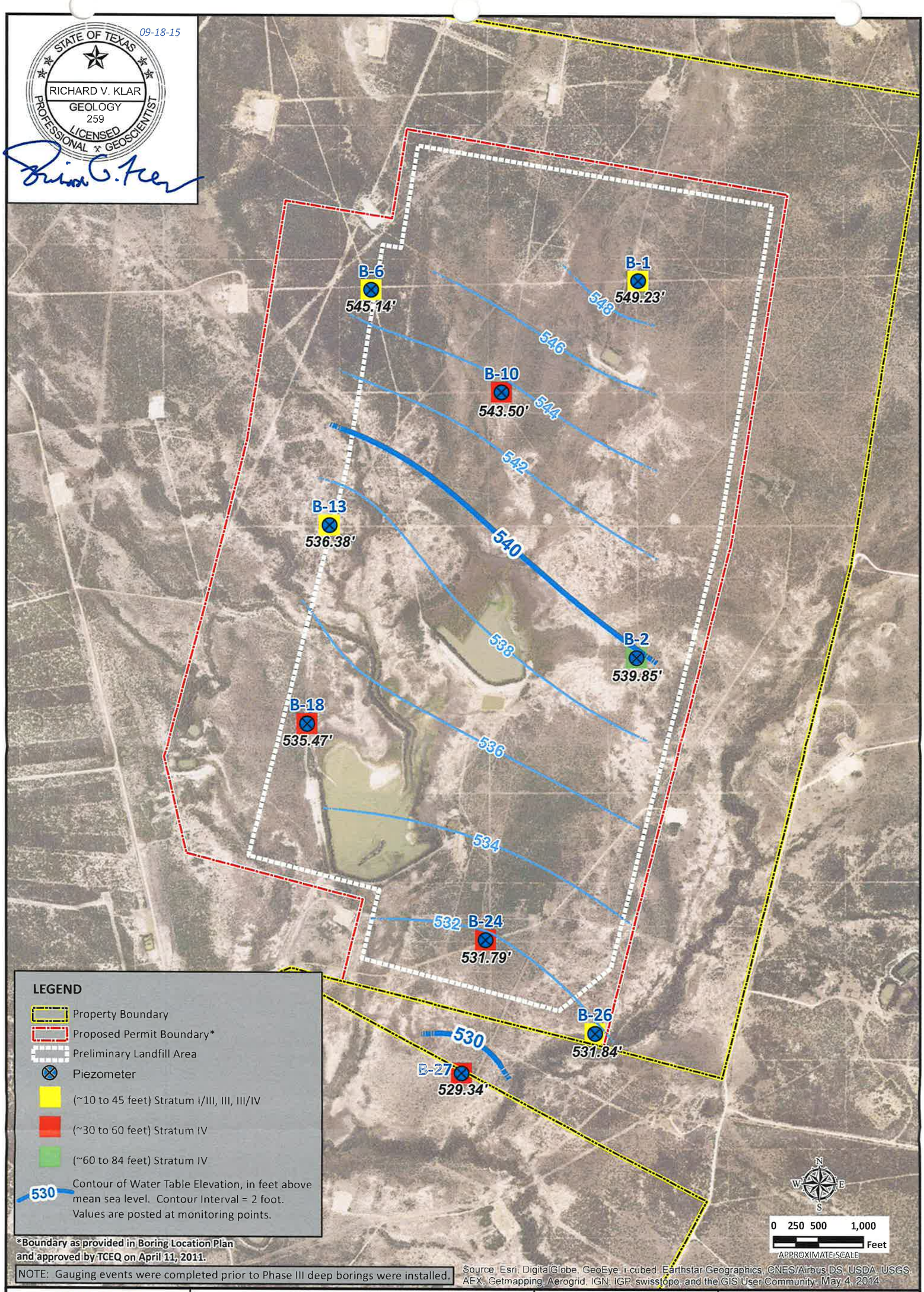
FIGURE

15

NOTE: This Drawing is Provided for Illustration Only, May Not be to Scale and is Not Suitable for Design or Construction Purposes



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Note: Benchmark locations (Benchmark Data Table) taken from Mejia Engineering Company, Boundary & Improvement Survey (Gilbert L. Cade III, R.P.L.S. #5060), April 9, 2010.

COMBINED WATER LEVEL CONTOUR MAP
10/19/10
PESCADITO ENVIRONMENTAL RESOURCE CENTER
TYPE I MSW MANAGEMENT FACILITY
RANCHO VIEJO WASTE MANAGEMENT, LLC
WEBB COUNTY, TEXAS
MSW PERMIT No. 2374

REVISIONS:

No.	DATE	DESCRIPTION
1	09-18-15	

PROJECT No.:	ASF13-140-00
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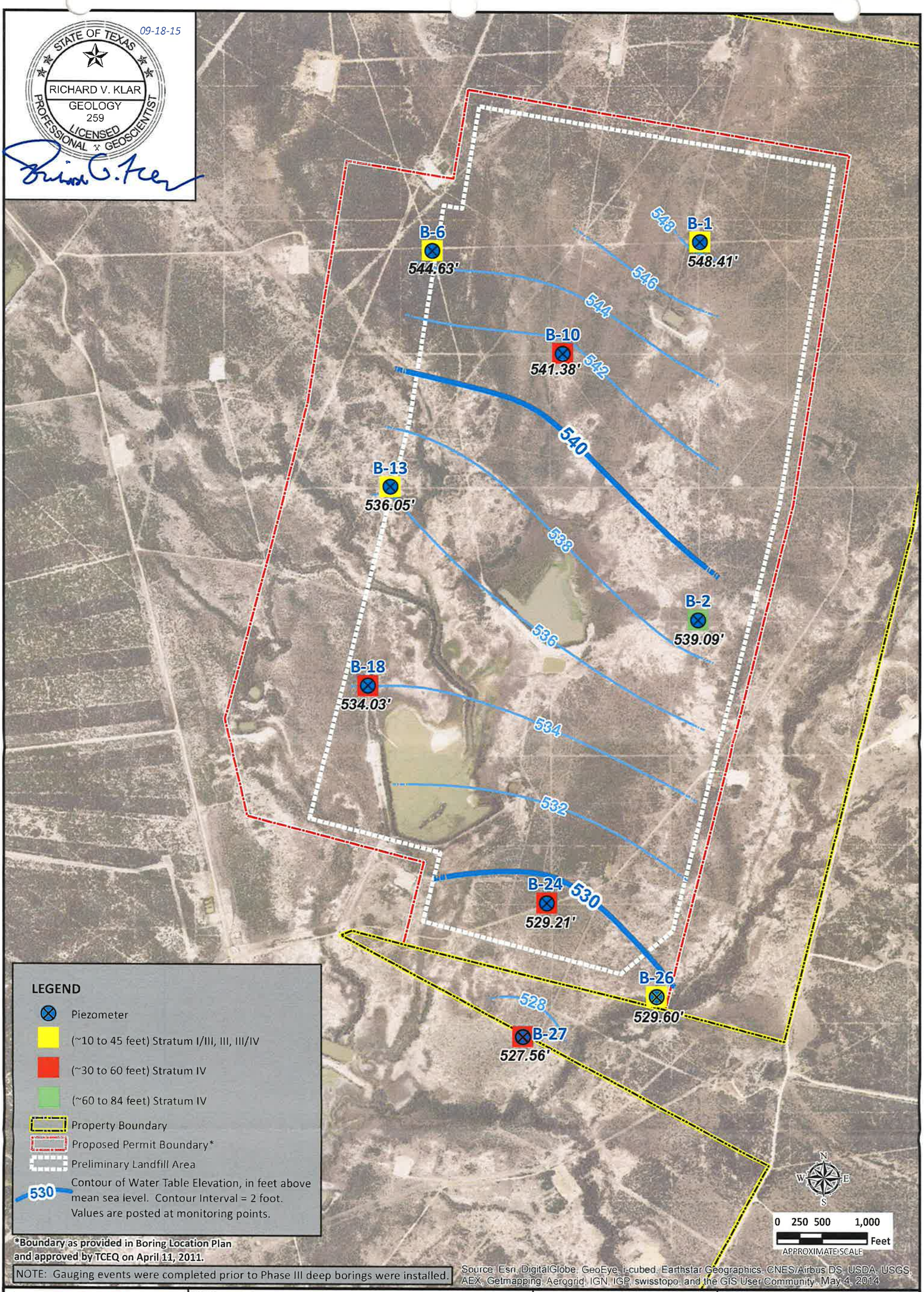
FIGURE
16

NOTE: This Drawing is Provided for Illustration Only, May Not be to Scale and is Not Suitable for Design or Construction Purposes



*Boundary as provided in Boring Location Plan and approved by TCEQ on April 11, 2011.

NOTE: Gauging events were completed prior to Phase III deep borings were installed.

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, May 4, 2014

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Note: Benchmark locations (Benchmark Data Table) taken from Mejia Engineering Company, Boundary & Improvement Survey (Gilbert L. Cade III, R.P.L.S. #5060), April 9, 2010.

COMBINED WATER LEVEL CONTOUR MAP
3/23/11
PESCADITO ENVIRONMENTAL RESOURCE CENTER
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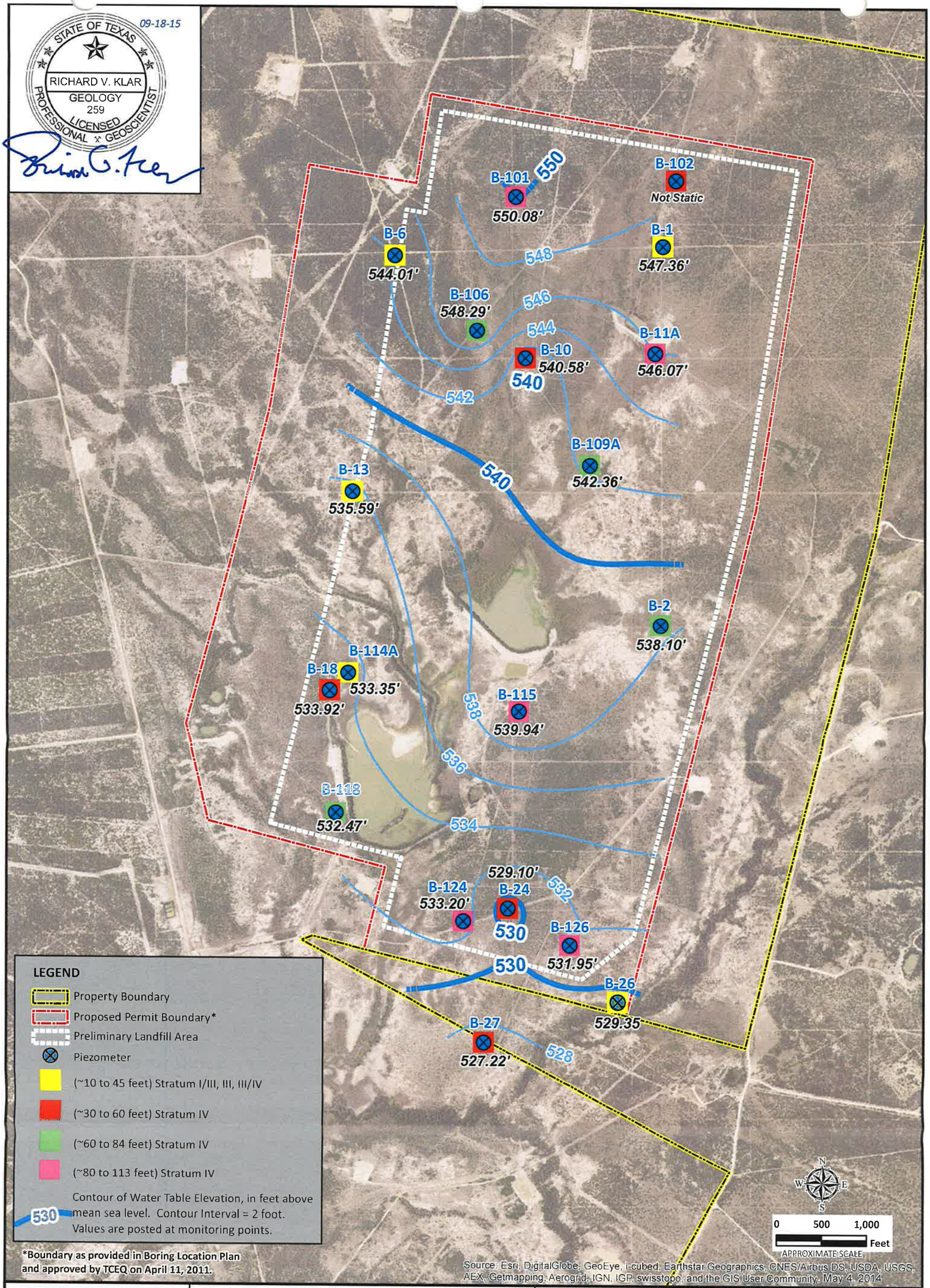
FIGURE
17

NOTE: This Drawing is Provided for Illustration Only, May Not be to Scale and is Not Suitable for Design or Construction Purposes



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COMBINED WATER LEVEL CONTOUR MAP
7/19-20/11

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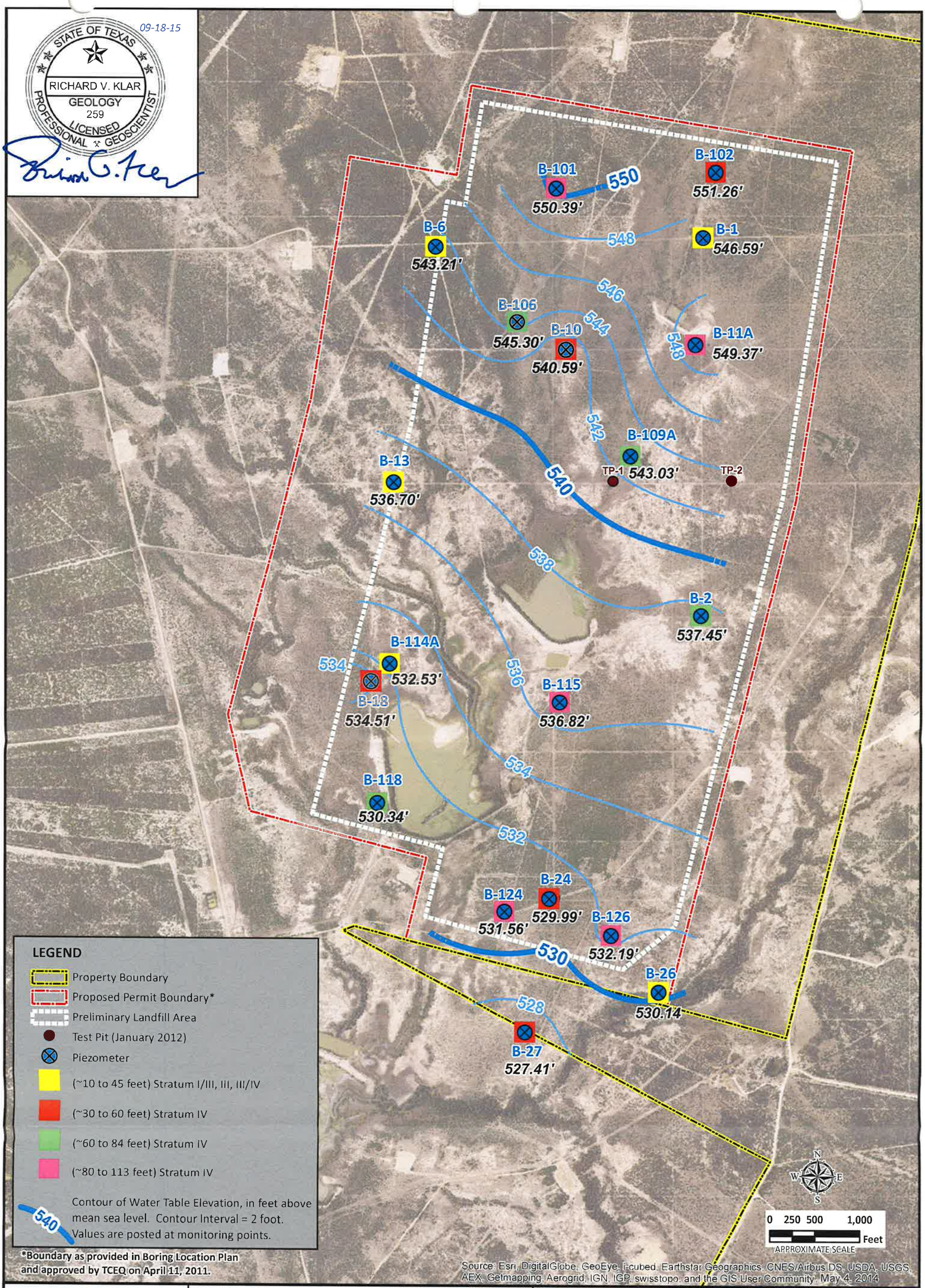
FIGURE

18

NOTE: This Drawing is Provided for Illustration Only, May Not be to Scale and is Not Suitable for Design or Construction Purposes



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COMBINED WATER LEVEL CONTOUR MAP 1/10/12

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REVISIONS:		
No.	DATE	DESCRIPTION
1	09-18-15	

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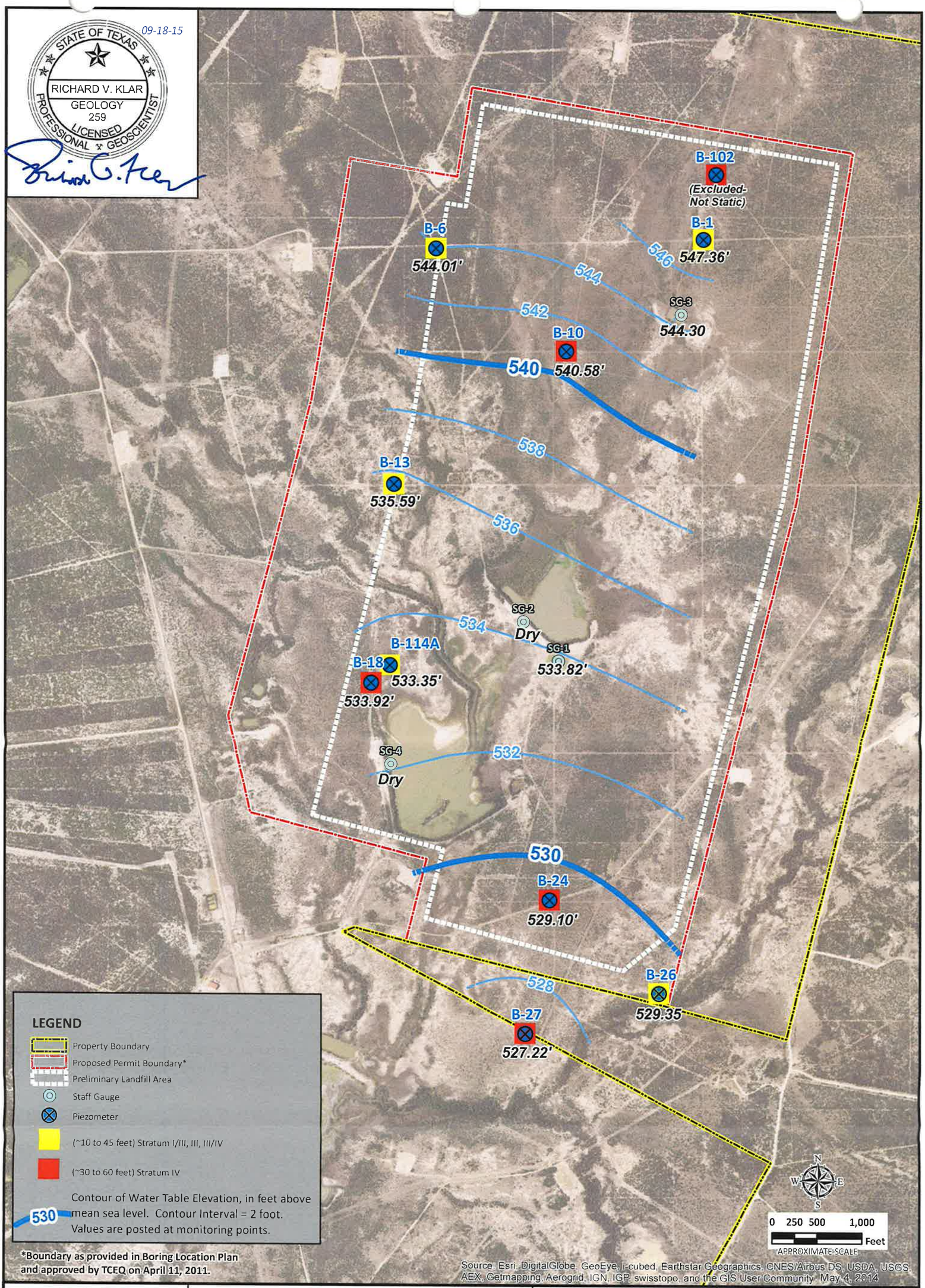
FIGURE

19

NOTE: This Drawing is Provided for Illustration Only, May Not be to Scale and is Not Suitable for Design or Construction Purposes



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SHALLOW WATER LEVEL CONTOUR MAP WITH STAFF GAUGE DATA - 7/19-20/11

PESCADITO ENVIRONMENTAL RESOURCE CENTER
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No.	DATE	DESCRIPTION
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FIGURE

20

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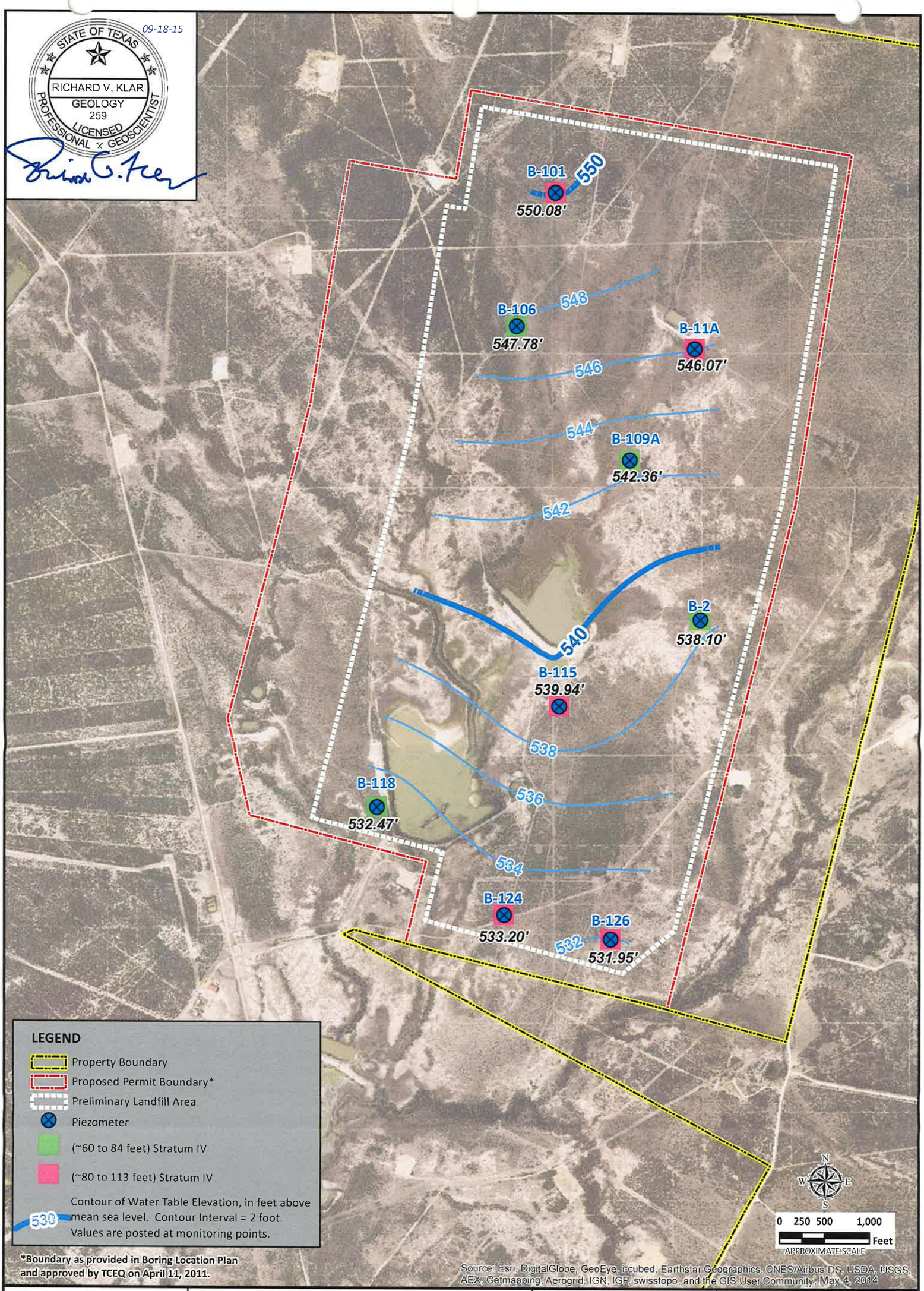

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DEEP WATER LEVEL CONTOUR MAP
7/19-20/11

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REVISIONS: No.	DATE	DESCRIPTION
1	09-18-15	

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FIGURE
21

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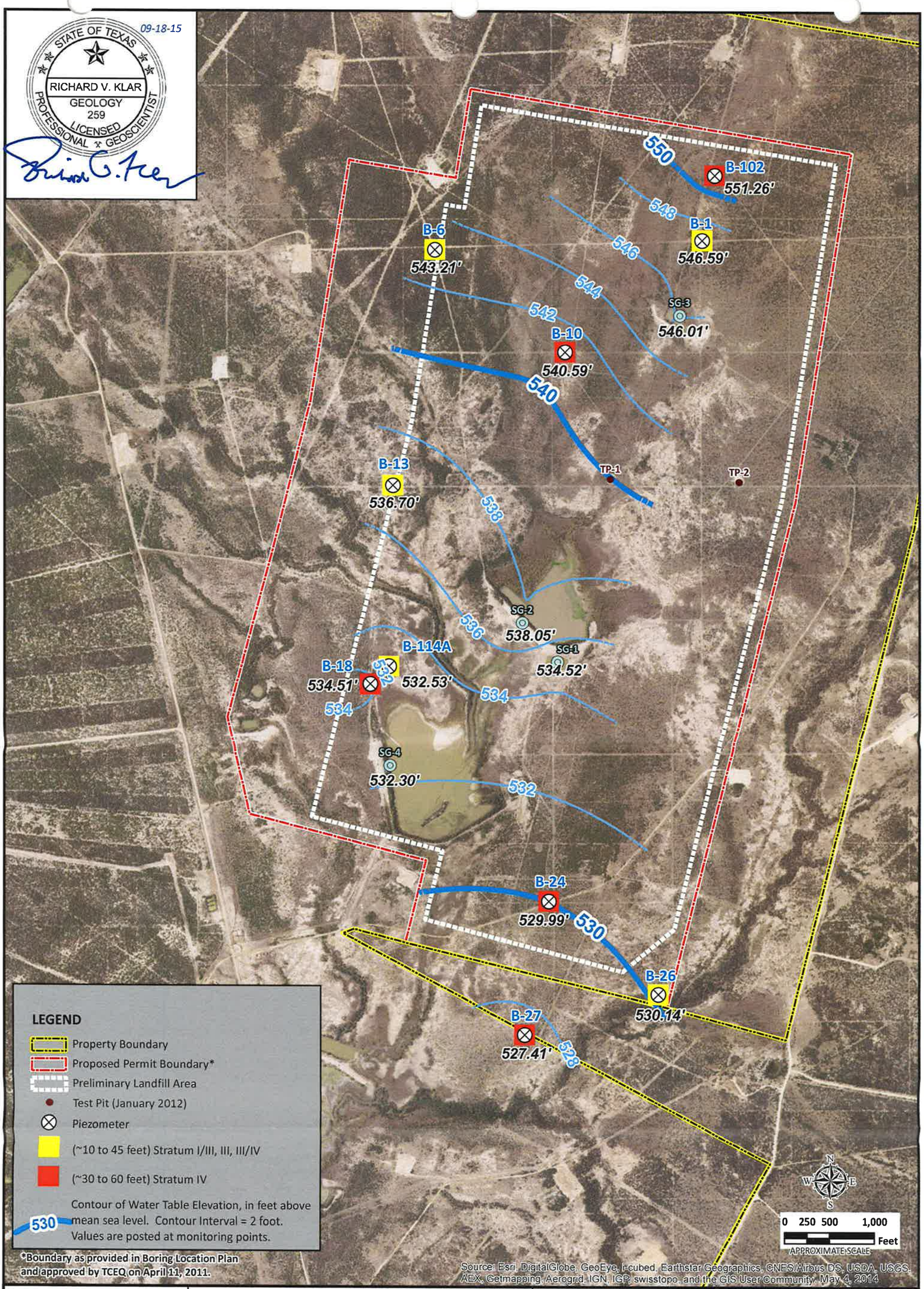

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SHALLOW WATER LEVEL CONTOUR MAP WITH STAFF GAUGE DATA - 01/10/12

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No.	DATE	DESCRIPTION
1	09-18-15	

PROJECT No.:	ASF13-140-00
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FIGURE

22

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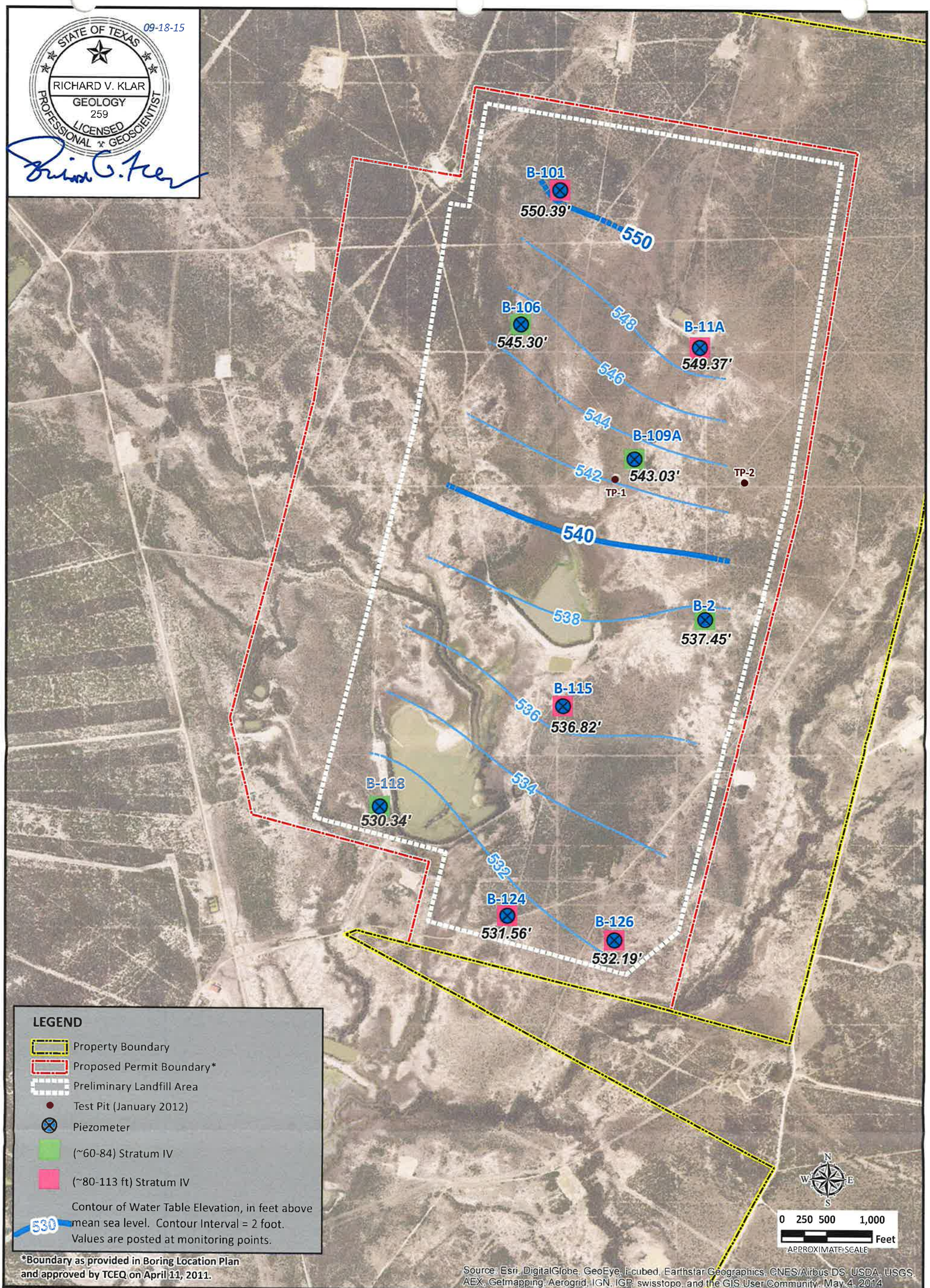

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DEEP WATER LEVEL CONTOUR MAP
01/10/12

PESCADITO ENVIRONMENTAL RESOURCE CENTER
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FIGURE
23

NOTE: This Drawing is Provided for Illustration Only, May Not be to Scale and is Not Suitable for Design or Construction Purposes

TABLE 1

SOIL BORING/TEST PIT/STAFF GAUGE POSITION TABLE

SOIL BORING/TEST PIT/STAFF GAUGE POSITION TABLE

Pescadito Environmental Resource Center
Type I MSW Management Facility
Rancho Viejo Waste Management, LLC
Webb County, Texas
MSW Permit No. 2374

Soil Boring/Test Pit/Staff Gauge Designation	Survey Date	Ground Surface Elevation (feet, MSL (NAD 83))	Geographic		State Plane (TX-South)	
			Longitude hddd°mm'ss.s"	Latitude hddd°mm'ss.s"	Easting (feet)	Northing (feet)
SOIL BORINGS						
B-1	10/19/2010	553.81	-99°09 15.67252	27°34 28.69043	772273.60	17098253.56
B-2	10/19/2010	545.89	-99°09 15.81350	27°33 47.13971	772239.16	17094057.78
B-3	10/19/2010	559.91	-99°09 45.27954	27°34 43.68767	769617.37	17099781.90
B-4	10/19/2010	563.64	-99°09 20.32337	27°34 40.54554	771861.32	17099452.87
B-5	10/19/2010	559.67	-99°09 07.04395	27°34 38.71716	773055.27	17099262.05
B-6	10/19/2010	559.02	-99°09 48.65062	27°34 27.59904	769305.50	17098158.84
B-7	10/19/2010	554.77	-99°09 30.27359	27°34 28.37174	770959.56	17098228.21
B-8	10/19/2010	561.89	-99°08 59.34976	27°34 28.87048	773742.49	17098264.15
B-9	5/3/2011	550.18	-99°09 49.85489	27°34 16.53325	769191.25	17097041.97
B-10	10/19/2010	547.73	-99°09 32.54381	27°34 16.37950	770748.95	17097018.28
B-11	10/19/2010	549.53	-99°09 15.93379	27°34 17.32189	772244.14	17097105.67
B-11A	7/21/2011	549.52	-99°09 15.82777	27°34 17.39297	772185.30	17097065.63
B-12	10/19/2010	555.41	-99°09 01.86660	27°34 16.50955	773509.58	17097017.09
B-13	10/19/2010	544.45	-99°09 53.75188	27°34 01.70887	768832.69	17095546.84
B-14	10/19/2010	543.80	-99°09 33.28350	27°34 01.77077	770674.68	17095543.42
B-15	10/19/2010	548.17	-99°09 15.97600	27°34 01.88521	772232.26	17095546.87
B-16	10/19/2010	550.48	-99°09 04.64405	27°34 01.76411	773251.96	17095529.37
B-17	10/19/2010	544.79	-99°09 42.37214	27°33 50.88992	769851.03	17094448.94
B-18	10/19/2010	542.50	-99°09 56.49292	27°33 39.85212	768574.38	17093341.02
B-19	10/19/2010	539.19	-99°09 36.51160	27°33 44.30858	770374.96	17093781.59
B-20	10/19/2010	541.39	-99°09 29.59867	27°33 32.29043	770990.76	17092564.74
B-21	10/19/2010	544.86	-99°09 12.67810	27°33 32.54666	772513.69	17092582.70
B-22	10/19/2010	540.73	-99°09 37.43785	27°33 30.48970	770284.30	17092386.59
B-23	10/19/2010	536.98	-99°09 54.94697	27°33 22.74159	768704.40	17091612.45
B-24	10/19/2010	538.10	-99°09 34.42010	27°33 16.00877	770548.25	17090922.87
B-25	10/19/2010	532.65	-99°09 51.97500	27°33 07.80343	768963.93	17090102.58
B-26	10/19/2010	537.85	-99°09 20.86833	27°33 05.79338	771762.56	17089884.96
B-27	10/19/2010	535.77	-99°09 37.34558	27°33 01.36532	770277.21	17089445.54
B-101	7/21/2011	552.49	-99°09 33.79830	27°34 34.05732	770645.39	17098804.00

SOIL BORING/TEST PIT/STAFF GAUGE POSITION TABLE

Pescadito Environmental Resource Center
Type I MSW Management Facility
Rancho Viejo Waste Management, LLC
Webb County, Texas
MSW Permit No. 2374

Soil Boring/Test Pit/Staff Gauge Designation	Survey Date	Ground Surface Elevation (feet, MSL (NAD 83))	Geographic		State Plane (TX-South)	
			Longitude hddd°mm'ss.s"	Latitude hddd°mm'ss.s"	Easting (feet)	Northing (feet)
SOIL BORINGS						
B-102	7/21/2011	556.27	-99°09 14.10830	27°34 35.88121	772418.12	17098978.96
B-103	5/3/2011	553.76	-99°09 40.05169	27°34 30.61699	770080.87	17098459.53
B-104	5/3/2011	552.11	-99°09 27.53319	27°34 23.59018	771203.64	17097744.07
B-105	5/3/2011	557.66	-99°09 04.75992	27°34 25.08419	773253.69	17097884.31
B-106	7/21/2011	548.99	-99°09 38.54200	27°34 19.36844	770210.77	17097322.93
B-107	5/3/2011	549.53	-99°09 45.82069	27°34 08.75679	769550.16	17096254.79
B-108	5/3/2011	546.95	-99°09 33.82255	27°34 09.10708	770630.04	17096284.51
B-109	5/3/2011	547.60	-99°09 23.75147	27°34 05.09403	771534.22	17095874.54
B-109A	7/21/2011	546.53	-99°09 23.81677	27°34 05.14058	771460.08	17095832.16
B-110	5/3/2011	553.75	-99°09 08.08633	27°34 12.81205	772947.96	17096646.60
B-111	5/3/2011	544.06	-99°09 43.17785	27°33 57.92788	769782.25	17095160.03
B-112	5/3/2011	543.09	-99°09 53.86791	27°33 47.35922	768814.61	17094097.85
B-113	5/3/2011	545.03	-99°09 24.97624	27°33 54.15080	771418.25	17094770.05
B-114	5/3/2011	541.87	-99°09 53.07040	27°33 42.25926	768883.67	17093582.47
B-114A	7/21/2011	540.14	-99°09 53.46745	27°33 42.25242	768779.90	17093534.96
B-115	7/21/2011	541.46	-99°09 33.22009	27°33 37.64035	770667.66	17093106.68
B-116	5/3/2011	545.60	-99°09 23.09477	27°33 40.22916	771580.26	17093363.35
B-117	5/3/2011	543.68	-99°09 56.07198	27°33 32.97719	768608.60	17092646.59
B-118	7/21/2011	538.87	-99°09 54.90247	27°33 26.93711	768642.70	17091989.17
B-119	5/3/2011	541.99	-99°09 33.49257	27°33 27.22666	770637.64	17092055.23
B-120	5/3/2011	539.92	-99°09 35.78451	27°33 21.96451	770428.60	17091524.93
B-121	5/3/2011	544.09	-99°09 20.44820	27°33 25.65966	771810.79	17091890.87
B-122	5/3/2011	543.02	-99°09 19.96015	27°33 17.02162	771850.19	17091018.37
B-123	5/3/2011	535.13	-99°09 45.71248	27°33 19.11181	769533.57	17091241.54
B-124	7/21/2011	536.89	-99°09 39.92992	27°33 14.59191	770051.61	17090782.39
B-125	5/3/2011	542.22	-99°09 27.02918	27°33 19.48726	771215.27	17091270.66
B-126	7/21/2011	538.03	-99°09 26.78411	27°33 11.99201	771233.38	17090513.67
DB-1	12/29/2011	550.60	-99°09 35.71860	27°34 23.87799	770467.22	17097776.98

SOIL BORING/TEST PIT/STAFF GAUGE POSITION TABLE

Pescadito Environmental Resource Center
Type I MSW Management Facility
Rancho Viejo Waste Management, LLC
Webb County, Texas
MSW Permit No. 2374

Soil Boring/Test Pit/Staff Gauge Designation	Survey Date	Ground Surface Elevation (feet, MSL (NAD 83))	Geographic		State Plane (TX-South)	
			Longitude hddd°mm'ss.s"	Latitude hddd°mm'ss.s"	Easting (feet)	Northing (feet)
TEST PITS						
TP-1	12/29/2011	548.58	-99°09 26.94209	27°34 02.43268	771245.69	17095607.29
TP-2	12/29/2011	549.08	-99°09 11.04230	27°34 02.11784	772676.36	17095568.06
STAFF GAUGES						
SG-1	7/21/2011	536.26	-99°09 32.68225	27°33 42.76707	770650.66	17093577.12
SG-2	7/21/2011	538.47	-99°09 37.01549	27°33 47.07673	770262.94	17094014.33
SG-3	7/21/2011	546.81	-99°09 18.35166	27°34 20.49050	771959.82	17097379.59
SG-4	7/21/2011	533.10	-99°09 53.58063	27°33 30.87891	768763.73	17092386.57

NOTES:

1. A Leica System 1200 survey grade satellite based global positioning system (GPS) was used for the survey which incorporates satellites managed by the Department of Defense to allow for accurate geographic position measurement worldwide. Raw GPS data were collected using the Leica System 1200 Real Time Kinematic (RTK) rover interfaced with a Leica System 1200 base station. Use of the coupled RTK rover and the stationary base station provided for real time correction of raw GPS observables and generally afforded sub-meter position accuracy.
2. Geographic coordinates are additionally presented in State Plane TX-South Zone 5 in feet.
3. Reference datum is North American Datum (NAD) 1983 (horizontal) and NAVD 88 = North American Vertical Datum, 1988.
4. GPS data were collected by Richard Sample, Jason Smith and Clint Laffere (**RKEI** Geoscience Professionals)

TABLE 3

SUMMARY OF OBSERVATIONS DURING TEST PIT INSTALLATION

SUMMARY OF OBSERVATIONS DURING TEST PIT INSTALLATION

Pescadito Environmental Resource Center
Type I MSW Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas
MSW Permit No. 2374

Test Pit Designation	Date Excavated	Surface Elevation (Survey-Grade GPS (feet above MSL))	Total Depth (feet)	Geologic Formation	Boring Log		Stratum Designation
					Depth Interval (feet)	Lithologic Description	
TP-1	1/16/2012	548.58	21	Recent Pleistocene (R-P)	0 - 7	CLAY; sandy, soft to firm, brown to dark brown, moist - scattered plant roots to 3' - calcareous nodules and flocculated appearance from 3' to 7' - gravel layer from 6.5' to 7' - sand increasing below 6.5'	I*
				Eocene (Y-J)	7 - 12	CLAY; weathered, blocky, firm to stiff, tan to light greenish-gray, moist - large gypsum (selenite) crystals from 7' to 9' - slight apparent groundwater seepage from 11' to 11.5'	II*
					12 - 21	CLAY; blocky, hard, greenish-gray to reddish-brown with green mottling, moist, with ferrous staining in soil partings - reddish-brown with green mottling from 12' to 14' and 18' to 21'	III*
TP-2	1/16-17/2012	549.08	26	Recent Pleistocene (R-P)	0 - 7	CLAY; silty, light brown to tan, soft to firm, moist, with scattered calcareous nodules - plant roots to 3' - flocculated appearance from 2' to 4'	I
				Eocene (Y-J)	7 - 19	CLAY; stiff to hard, brown and tan to reddish and greenish-brown, moist, with ferrous and black carbonaceous staining along partings - calcareous nodules from 5' to 10' - thinly interbedded very fine-grained brown sandstone from 11.5' to - zone of oxidation with iron nodule formation from 13' to 14' - light green to brown lenticular very fine-grained sandstone from 14' to 14.5' (not continuous)	III*
					19 - 26	CLAY; hard, tan to light green and light brown, moist, with scattered very thinly interbedded clay-shale and scattered calcareous nodules - general absence of weathered characteristics along sand partings	IV*

* Discrete samples were taken In order to facilitate geotechnical testing requirements.

09-18-15

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PROJECT No. ASF13-140-00

RABA KISTNER ENVIRONMENTAL

Initial Submittal: 02-25-15;
Revised: 09-18-15

TABLE 3

TABLE 5

SUMMARY OF STATIC WATER LEVEL MEASUREMENTS – PIEZOMETERS

SUMMARY OF STATIC WATER LEVEL MEASUREMENTS - PIEZOMETERS

Pescadito Environmental Resource Center
Type I MSW Management Facility
Rancho Viejo Waste Management, LLC
Webb County, Texas
MSW Permit No. 2374

Piezometer Designation	Piezometer Installation Date	Boring Total Depth (feet, bgs)	Piezometer Total Depth (feet, TOC)	Screened Interval (feet, bgs)	TOC Elevation[(1)] (feet, NAD 83)	Measure-ment Date	Depth to Water (feet, TOC)	Groundwater Elevation (feet, NAD 83)
B-1	11/10/2009	97.5	48.08	(30 - 45)	555.61	6/12/2010	4.42	551.20
						6/13/2010	4.33	551.28
						6/14/2010	4.25	551.36
						6/16/2010	4.17	551.45
						6/22/2010	4.42	551.20
						6/25/2010	6.01	549.60
						6/28/2010	6.50	549.11
						7/21/2010	6.00	549.61
						8/11/2010	6.08	549.53
						10/19/2010	6.38	549.23
						2/3/2011	7.40	548.21
						3/23/2011	7.20	548.41
						4/7/2011	7.29	548.32
						4/12/2011	7.41	548.20
						4/19/2011	7.40	548.21
						4/26/2011	7.39	548.22
						4/30/2011	7.58	548.03
						5/24/2011	7.68	547.93
						6/5/2011	7.87	547.74
						6/14/2011	7.94	547.67
						6/22/2011	8.04	547.57
						6/29/2011	8.10	547.51
						7/11/2011	8.15	547.46
						7/19/2011	8.25	547.36
						1/10/2012	9.02	546.59
B-2	11/12/2009	78.5	76.33	(60 - 75)	547.59	6/12/2010	7.08	540.51
						6/13/2010	6.92	540.67
						6/14/2010	6.92	540.67
						6/16/2010	6.83	540.76
						6/22/2010	6.87	540.72
						6/25/2010	6.92	540.67
						6/28/2010	6.99	540.60
						7/6/2010	7.50	540.09
						7/7/2010	7.58	540.01
						7/13/2010	7.42	540.17
						7/16/2010	7.33	540.26
						7/21/2010	7.58	540.01
						8/11/2010	7.79	539.80
						10/19/2010	7.74	539.85
						2/3/2011	8.50	539.09
						3/23/2011	8.50	539.09
						4/7/2011	8.99	538.60

PROJECT No. ASF13-140-00

SUMMARY OF STATIC WATER LEVEL MEASUREMENTS - PIEZOMETERS

Pescadito Environmental Resource Center
Type I MSW Management Facility
Rancho Viejo Waste Management, LLC
Webb County, Texas
MSW Permit No. 2374

Piezometer Designation	Piezometer Installation Date	Boring Total Depth (feet, bgs)	Piezometer Total Depth (feet, TOC)	Screened Interval (feet, bgs)	TOC Elevation[(1)] (feet, NAD 83)	Measure-ment Date	Depth to Water (feet, TOC)	Groundwater Elevation (feet, NAD 83)
B-2	11/12/2009	77.5	76.33	(60 - 75)	547.59	4/12/2011	8.93	538.66
						4/19/2011	9.08	538.51
						4/26/2011	9.05	538.54
						4/30/2011	9.16	538.43
						5/24/2011	9.21	538.38
						6/5/2011	9.29	538.30
						6/14/2011	9.33	538.26
						6/22/2011	9.39	538.20
						6/29/2011	9.44	538.15
						7/11/2011	9.44	538.15
						7/19/2011	9.49	538.10
						1/10/2012	10.14	537.45
B-6	6/13/2010	160.0	33.88	(10 - 30)	562.48	6/14/2010	18.33	544.15
						6/16/2010	18.75	543.73
						6/22/2010	18.58	543.90
						6/25/2010	18.75	543.73
						6/28/2010	18.67	543.81
						7/6/2010	21.50	540.98
						7/7/2010	21.50	540.98
						7/13/2010	20.08	542.40
						7/16/2010	19.25	543.23
						7/21/2010	18.42	544.06
						8/11/2010	18.10	544.38
						10/19/2010	17.34	545.14
						2/3/2011	17.80	544.68
						3/23/2011	17.85	544.63
						4/7/2011	20.73	541.75
						4/12/2011	20.41	542.07
						4/19/2011	20.02	542.46
						4/26/2011	19.70	542.78
						4/30/2011	19.53	542.95
						5/24/2011	18.80	543.68
						6/5/2011	18.61	543.87
						6/14/2011	18.54	543.94
						6/22/2011	18.49	543.99
						6/29/2011	18.45	544.03
						7/11/2011	18.47	544.01
						7/19/2011	18.47	544.01
						1/10/2012	19.27	543.21
B-10	7/14/2010	120.0	55.31	(40 - 60)	550.86	7/16/2010	1.83	549.03
						7/19/2010	7.08	543.78
						7/21/2010	7.00	543.86

PROJECT No. ASF13-140-00

SUMMARY OF STATIC WATER LEVEL MEASUREMENTS - PIEZOMETERS

Pescadito Environmental Resource Center
Type I MSW Management Facility
Rancho Viejo Waste Management, LLC
Webb County, Texas
MSW Permit No. 2374

Piezometer Designation	Piezometer Installation Date	Boring Total Depth (feet, bgs)	Piezometer Total Depth (feet, TOC)	Screened Interval (feet, bgs)	TOC Elevation[(1)] (feet, NAD 83)	Measure-ment Date	Depth to Water (feet, TOC)	Groundwater Elevation (feet, NAD 83)
B-10	7/14/2010	120.0	55.31	(40 - 60)	550.86	8/11/2010	7.42	543.44
						10/19/2010	7.36	543.50
						2/3/2011	8.50	542.36
						3/23/2011	9.48	541.38
						4/7/2011	9.21	541.65
						4/12/2011	9.54	541.32
						4/19/2011	9.31	541.55
						4/26/2011	9.63	541.23
						4/30/2011	9.79	541.07
						5/24/2011	9.89	540.97
						6/5/2011	9.99	540.87
						6/14/2011	10.01	540.85
						6/22/2011	10.08	540.78
						6/29/2011	10.21	540.65
						7/11/2011	10.28	540.58
						7/19/2011	10.28	540.58
						1/10/2012	10.27	540.59
B-11A	6/25/2011	104	107.95	(94 - 104)	553.59	7/11/2011	5.50	548.09
						7/19/2011	7.52	546.07
						1/10/2012	4.22	549.37
B-13	6/12/2010	160.0	32.83	(10 - 30)	548.14	6/14/2010	9.50	538.64
						6/16/2010	9.52	538.62
						6/22/2010	9.58	538.56
						6/25/2010	9.75	538.39
						6/28/2010	9.58	538.56
						7/6/2010	12.42	535.72
						7/7/2010	12.58	535.56
						7/13/2010	12.33	535.81
						7/16/2010	12.25	535.89
						7/21/2010	11.25	536.89
						8/11/2010	11.42	536.72
						10/19/2010	11.76	536.38
						2/3/2011	11.34	536.80
						3/23/2011	12.09	536.05
						4/7/2011	11.97	536.17
						4/12/2011	11.82	536.32
						4/19/2011	12.06	536.08
						4/26/2011	12.19	535.95
						4/30/2011	12.23	535.91
						5/24/2011	12.20	535.94
						6/5/2011	12.33	535.81
						6/14/2011	12.43	535.71

PROJECT No. ASF13-140-00

SUMMARY OF STATIC WATER LEVEL MEASUREMENTS - PIEZOMETERS

Pescadito Environmental Resource Center
Type I MSW Management Facility
Rancho Viejo Waste Management, LLC
Webb County, Texas
MSW Permit No. 2374

Piezometer Designation	Piezometer Installation Date	Boring Total Depth (feet, bgs)	Piezometer Total Depth (feet, TOC)	Screened Interval (feet, bgs)	TOC Elevation[(1)] (feet, NAD 83)	Measure-ment Date	Depth to Water (feet, TOC)	Groundwater Elevation (feet, NAD 83)
B-13	6/12/2010	160.0	32.83	(10 - 30)	548.14	6/22/2011	11.48	536.66
						6/29/2011	12.52	535.62
						7/11/2011	12.48	535.66
						7/19/2011	12.55	535.59
						1/10/2012	11.44	536.70
B-18	7/17/2010	120.0	63.50	(45 - 60)	545.85	7/21/2010	10.58	535.27
						8/11/2010	10.33	535.52
						10/19/2010	10.38	535.47
						2/3/2011	10.80	535.05
						3/23/2011	11.82	534.03
						4/7/2011	10.99	534.86
						4/12/2011	10.99	534.86
						4/19/2011	11.14	534.71
						4/26/2011	11.28	534.57
						4/30/2011	11.09	534.76
						5/24/2011	10.92	534.93
						6/5/2011	11.53	534.32
						6/14/2011	11.51	534.34
						6/22/2011	11.52	534.33
						6/29/2011	11.65	534.20
						7/11/2011	11.88	533.97
						7/19/2011	11.93	533.92
						1/10/2012	11.34	534.51
B-24	7/23/2010	160.0	62.76	(45 - 60)	541.03	8/11/2010	9.21	531.82
						10/19/2010	9.24	531.79
						2/3/2011	9.30	531.73
						3/23/2011	11.82	529.21
						4/7/2011	10.80	530.23
						4/12/2011	10.80	530.23
						4/19/2011	10.94	530.09
						4/26/2011	11.04	529.99
						4/30/2011	11.09	529.94
						5/24/2011	11.31	529.72
						6/5/2011	11.46	529.57
						6/14/2011	11.59	529.44
						6/22/2011	11.70	529.33
						6/29/2011	11.79	529.24
						7/11/2011	11.87	529.16
						7/19/2011	11.93	529.10
						1/10/2012	11.04	529.99
B-26	7/22/2010	160.0	32.42	(10 - 30)	540.79	8/11/2010	9.08	531.70
						10/19/2010	8.95	531.84

PROJECT No. ASF13-140-00

SUMMARY OF STATIC WATER LEVEL MEASUREMENTS - PIEZOMETERS

Pescadito Environmental Resource Center
Type I MSW Management Facility
Rancho Viejo Waste Management, LLC
Webb County, Texas
MSW Permit No. 2374

Piezometer Designation	Piezometer Installation Date	Boring Total Depth (feet, bgs)	Piezometer Total Depth (feet, TOC)	Screened Interval (feet, bgs)	TOC Elevation[1] (feet, NAD 83)	Measure-ment Date	Depth to Water (feet, TOC)	Groundwater Elevation (feet, NAD 83)
B-26	7/22/2010	160.0	32.42	(10 - 30)	540.79	2/3/2011	10.40	530.39
						3/23/2011	11.19	529.60
						4/7/2011	11.29	529.50
						4/12/2011	11.23	529.56
						4/19/2011	11.36	529.43
						4/26/2011	11.38	529.41
						4/30/2011	11.40	529.39
						5/24/2011	11.18	529.61
						6/5/2011	11.41	529.38
						6/14/2011	11.59	529.20
						6/22/2011	11.48	529.31
						6/29/2011	11.56	529.23
						7/11/2011	11.45	529.34
						7/19/2011	11.44	529.35
						1/10/2012	10.65	530.14
B-27	7/22/2010	120.0	47.78	(30 - 45)	538.66	8/11/2010	9.25	529.41
						10/19/2010	9.32	529.34
						2/3/2011	10.50	528.16
						3/23/2011	11.10	527.56
						4/7/2011	10.96	527.70
						4/12/2011	10.98	527.68
						4/19/2011	11.04	527.62
						4/26/2011	11.08	527.58
						4/30/2011	11.11	527.55
						5/24/2011	10.98	527.68
						6/5/2011	11.28	527.38
						6/14/2011	11.37	527.29
						6/22/2011	11.41	527.25
						6/29/2011	11.48	527.18
						7/11/2011	11.43	527.23
						7/19/2011	11.44	527.22
						1/10/2012	11.25	527.41
B-101	7/7/2011	151	88.01	(80 - 90)	557.96	7/20/2011	7.88	550.08
						1/10/2012	7.57	550.39
B-102	7/9/2011	160	64.01	(50 - 60)	559.89	7/20/2011	24.81[5]	535.08
						1/10/2012	8.63	551.26
B-106	7/10/2011	120	83.16	(70 - 80)	552.29	7/20/2011	4.51	547.78
						1/10/2012	7.50	544.79
B-109A	6/25/2011	85	84.41	(70 - 80)	549.04	7/11/2011	6.20	542.84
						7/19/2011	6.68	542.36
						1/10/2012	6.01	543.03

PROJECT No. ASF13-140-00

SUMMARY OF STATIC WATER LEVEL MEASUREMENTS - PIEZOMETERS

Pescadito Environmental Resource Center
Type I MSW Management Facility
Rancho Viejo Waste Management, LLC
Webb County, Texas
MSW Permit No. 2374

Piezometer Designation	Piezometer Installation Date	Boring Total Depth (feet, bgs)	Piezometer Total Depth (feet, TOC)	Screened Interval (feet, bgs)	TOC Elevation[1] (feet, NAD 83)	Measure-ment Date	Depth to Water (feet, TOC)	Groundwater Elevation (feet, NAD 83)
B-114A	6/25/2011	20	23.02	(10 - 20)	542.62	6/29/2011	18.55[5]	524.07
						7/11/2011	9.22	533.40
						7/19/2011	9.27	533.35
						1/10/2012	10.09	532.53
B-115	5/9/2011	120	104.48	(94 - 102)	543.95	7/11/2011	4.00	539.95
						7/19/2011	4.01	539.94
						1/10/2012	7.13	536.82
B-118	4/29/2011	160	87.88	(75 - 84)	542.20	6/29/2011	9.68	532.52
						7/11/2011	9.64	532.56
						7/19/2011	9.73	532.47
						1/10/2012	11.86	530.34
B-124	5/6/2011	160	117.06	(100 - 113)	539.45	6/29/2011	10.73[5]	528.72
						7/11/2011	6.20	533.25
						7/19/2011	6.25	533.20
						1/10/2012	7.89	531.56
B-126	5/7/2011	160	105.95	(80.5 - 102)	540.55	6/29/2011	11.88[5]	528.67
						7/11/2011	8.64	531.91
						7/19/2011	8.60	531.95
						1/10/2012	8.36	532.19

NOTES:

1. A Leica System 1200 survey grade satellite based global positioning system (GPS) was used for the survey which incorporates satellites managed by the Department of Defense to allow for accurate geographic position measurement worldwide. Raw GPS data were collected using the Leica System 1200 Real Time Kinematic (RTK) rover interfaced with a Leica System 1200 base station. Use of the coupled RTK rover and the stationary base station provided for real time correction of raw GPS observables and generally afforded sub-meter position accuracy. The units were equipped with Intuicom® radios to transmit and receive laterally coordinated positional data between each of the units.
2. bgs = below ground surface
3. Reference datum is North American Datum (NAD) 1983 (horizontal) and NAVD 88 = North American Vertical Datum, 1988.
4. TOC = top of casing
5. Water level not static post-development purging.

TABLE 6

SUMMARY OF STATIC WATER LEVEL MEASUREMENTS – STAFF GAUGES

SUMMARY OF STATIC WATER LEVEL MEASUREMENTS - STAFF GAUGES

Pescadito Environmental Resource Center
Type I MSW Management Facility
Rancho Viejo Waste Management, LLC
Webb County, Texas
MSW Permit No. 2374

Staff Gauge Designation	Ground Surface Elevation (feet, NAD 83)	Measurement Date	Top of T-Post Elevation (feet, NAD 83)	Depth to Water (feet, Top of T-Post)	Surface Water Elevation (feet, NAD 83)
SG-1 (B-19 Tank)	536.26	5/24/2011	540.22	4.79	535.43
		6/5/2011		5.02	535.20
		6/22/2011		5.50	534.72
		6/29/2011		6.81	533.41
		7/11/2011		5.60	534.62
		7/20/2011		6.40	533.82
		1/10/2012		5.70	534.52
SG-2 (B-17 Tank)	538.47	5/24/2011	542.83	4.91	537.92
		6/5/2011		NM	Dry
		6/22/2011		5.30	537.53
		6/29/2011		NM	Dry
		7/11/2011		NM	Dry
		7/20/2011		NM	Dry
		1/10/2012		4.78	538.05
SG-3 (B-11A Tank)	546.81	5/24/2011	551.00	4.81	546.19
		6/5/2011		5.10	545.90
		6/22/2011		5.60	545.40
		6/29/2011		6.21	544.79
		7/11/2011		5.80	545.20
		7/20/2011		6.70	544.30
		1/10/2012		4.99	546.01
SG-4 (Burrito Tank)	533.10	5/24/2011	537.42	4.31	533.11
		6/5/2011		4.57	532.85
		6/22/2011		5.10	532.32
		6/29/2011		5.74	531.68
		7/11/2011		5.30	532.12
		7/20/2011		NM	Dry
		1/10/2012		5.12	532.30

NOTES:

1. A Leica System 1200 survey grade satellite based global positioning system (GPS) was used for the survey which incorporates satellites managed by the Department of Defense to allow for accurate geographic position measurement worldwide. Raw GPS data were collected using the Leica System 1200 Real Time Kinematic (RTK) rover interfaced with a Leica System 1200 base station. Use of the coupled RTK rover and the stationary base station provided for real time correction of raw GPS observables and generally afforded sub-meter position accuracy.
2. NM = not measured
3. Reference datum is North American Datum (NAD) 1983 (horizontal) and NAVD 88 = North American Vertical Datum, 1988.

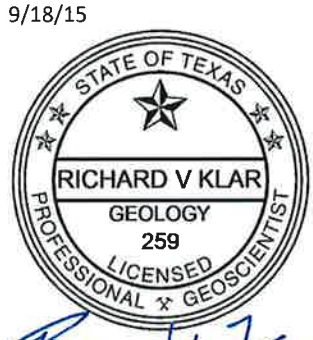
PROJECT No. ASF13-140-00

APPENDIX B

BORING LOGS AND KEY TO TERMS AND SYMBOLS

(Boring Logs B-1 through B-26, B-27, B-11A, B-109A, B-114A, B-101 through B-126, and DB-1)

9/18/15



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LOG OF BORING NO. B-1

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Hollow Stem Auger & NX Core

LOCATION: N 17098253.56; E 772273.60

SURFACE ELEVATION: 553.81 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (553.81 ft):*** CLAYEY SAND (SC), medium dense, tan to brown, moist				
	- light brown from 3' to 7.5'	12		34	50
5	- scattered small caliche pockets, widely scattered small gravels and decreasing sand from 5' to 7.5'	11			
	STRATUM II (546.31 ft): FAT CLAY (CH), blocky, bentonitic, stiff to hard, tan to light green and brown, moist, with trace carbonaceous material and ferrous staining	10			
	- scattered greenish-gray flocculated clay from 7.5' to 8	16			
10	- soft from 8.2' to 10'	30		92	86
	STRATUM III (543.81 ft): FAT CLAY (CH), mildly calcareous, hard, brown, moist, with widely scattered gypsum crystals	25			
		27			
15	- sandy parting at 10.6', at 13.3' and at 16.4'	40			
		50		87	86
20		50/4			
	- laminated from 25' to 30'	50/5.5			
25	***STRATUM IV (523.81 ft):*** SILTSTONE, moderately fractured, hard, light gray, moist				
	CORE RUN (30'-35') = 46% RQD				
	- moderately hard, with white very thinly interbedded, fine-grained sandstone and widely scattered organic matter from 35' to 39'				
30	CORE RUN (35'-40') = 81% RQD				
	- gray to green at 38.6'				
	CLAY-SHALE, stiff to hard, gray-green, moist to wet, with widely scattered carbonaceous material along partings				
35	- free water observed at 38.9'				
	SANDSTONE, fine grained, medium bedded, gray, moist, with very thinly interbedded fine-grained sandstone and mudstone				
	- clay partings at 41.5' and at 45.25'				
40	CORE RUN (40'-45') = 78% RQD				
	- increasing clay content from 43.8' to 53'; decreasing grain size with depth				
	CORE RUN (45'-50') = 31% RQD				
45	CORE RUN (50'-53') = 67% RQD				
	FAT CLAY (CH), blocky, stiff to hard, tan to light green, moist, with very thinly interbedded sandstone lenses			113	89
	- less indurated, with very thinly interbedded, fine-grained, light red sandstone at 54'				
50	SANDY FAT CLAY (CH), hard, partially indurated, gray to brown, moist to wet	50/1			
55					
60					

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

116 (LIQUID LIMIT)

110 (LIQUID LIMIT)

152 (LIQUID LIMIT)

DEPTH DRILLED:	97.5 ft	**DEPTH TO WATER:**	7.22 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	11/9/2009	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-1

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Hollow Stem Auger & NX Core

LOCATION: N 17098253.56; E 772273.60

SURFACE ELEVATION: 553.81 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	SANDY FAT CLAY (CH), hard, partially indurated, gray to brown, moist to wet *(continued)* - sandstone stringer from 68' to 70'	50/2		72	65
	- free water observed at 70'				
75	FAT CLAY (CH), hard, gray, moist to wet, with very thinly interbedded indurated siltstone - increasing indurated siltstone layers from 75' to 95'	50/5		74	81
80		50			
85	- moist, with glauconite from 85' to 95'	50/6			
90					
95	FAT CLAY (CH), blocky, hard, very dark brown to reddish-brown with gray mottling, moist to wet - free water observed at 95'	50/6		43	
100	Boring Terminated				
105					
110					
115					
120					
125					

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

91

95

DEPTH DRILLED:	97.5 ft	**DEPTH TO WATER:**	7.22 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	11/9/2009	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-2

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Hollow Stem Auger & NX Core

LOCATION: N 17094057.78; E 772239.16

SURFACE ELEVATION: 545.89 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT²	PLASTICITY INDEX	% -200
	STRATUM II (545.89 ft): FAT CLAY (CH), firm, dark gray to brown, moist				43	
5	***STRATUM III (542.89 ft):*** FAT CLAY (CH), bentonitic, firm to hard, tan to light brown, moist					
10		16				
15	- slightly sandy, tan, with gypsum crystals and widely scattered carbonaceous material from 12.5' to 22.5'			163	125	98
20		27				
25	SANDY FAT CLAY (CH), hard, gray to green, moist - partially indurated layers interbedded with clay from 25' to 27'			112	83	69
30	***STRATUM IV (518.89 ft):*** FAT CLAY (CH), hard, gray to green, moist to wet	50/6		143	115	99
35		50/6				
40	- free water observed from 38.5'	50		116	84	99
	- moisture decreases from 41.5' to 42.5' - blocky, dark brown, moist from 42.5' to 55					
45	- sandy, moderately hard, red-gray from 45' to 50'	50/6			48	99
50	- gray from 50' to 55'	50				
55	- weakly-indurated, gray to brown from 55' to 70'	50/6				
60		49			50	88

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT

10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

DEPTH DRILLED:	78.5 ft	**DEPTH TO WATER:**	10.14 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	11/12/2009	**DATE MEASURED:**	1/10/2012		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-2

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Hollow Stem Auger & NX Core

LOCATION: N 17094057.78; E 772239.16

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
			SURFACE ELEVATION: 545.89 ft					
70			***STRATUM IV (518.89 ft):*** FAT CLAY (CH), hard, gray to green, moist to wet *(continued)*					
			- soft, gray to green, slightly moist from 70' to 75'					
			- free water observed from 70' to 75'					
75			SILTSTONE, sandy, moderately hard, gray, moist					
			Boring Terminated					
80								
85								
90								
95								
100								
105								
110								
115								
120								
125								

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	78.5 ft	**DEPTH TO WATER:**	10.14 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	11/12/2009	**DATE MEASURED:**	1/10/2012		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-3

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17099781.90; E 769617.37

SURFACE ELEVATION: 559.91 ft

STRATUM II (559.91 ft):
FAT CLAY (CH), hard, brown to reddish-brown, moist, with organic matter and ferrous staining
- cherty gravels at ground surface
- blocky, light green from 2' to 3'

STRATUM III (556.91 ft):
FAT CLAY (CH), calcareous, hard, moist

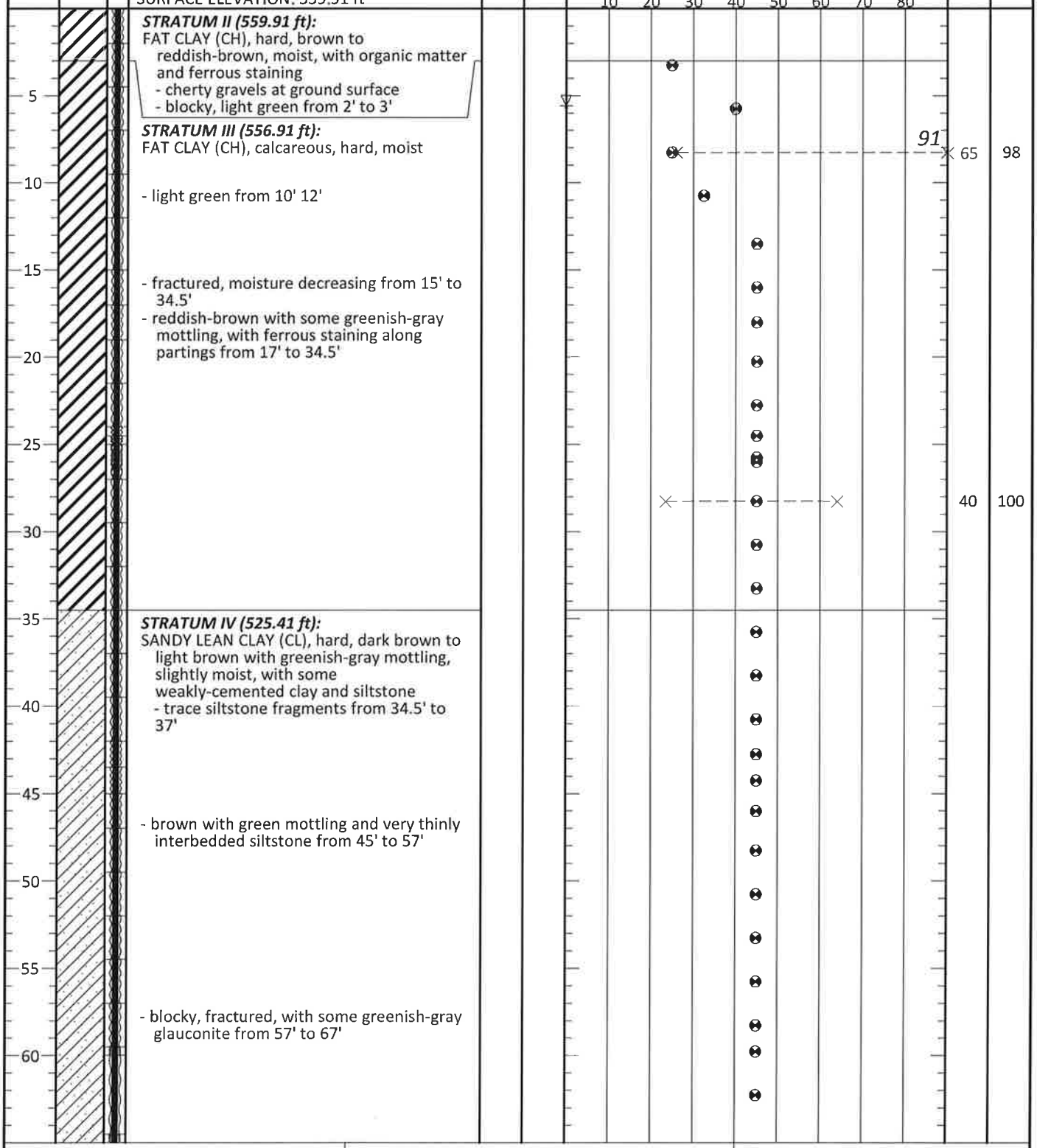
- light green from 10' 12'

- fractured, moisture decreasing from 15' to 34.5'
- reddish-brown with some greenish-gray mottling, with ferrous staining along partings from 17' to 34.5'

STRATUM IV (525.41 ft):
SANDY LEAN CLAY (CL), hard, dark brown to light brown with greenish-gray mottling, slightly moist, with some weakly-cemented clay and siltstone
- trace siltstone fragments from 34.5' to 37'

- brown with green mottling and very thinly interbedded siltstone from 45' to 57'

- blocky, fractured, with some greenish-gray glauconite from 57' to 67'



DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0			SURFACE ELEVATION: 559.91 ft				
5			***STRATUM II (559.91 ft):*** FAT CLAY (CH), hard, brown to reddish-brown, moist, with organic matter and ferrous staining - cherty gravels at ground surface - blocky, light green from 2' to 3'				
10			***STRATUM III (556.91 ft):*** FAT CLAY (CH), calcareous, hard, moist - light green from 10' 12'			65	98
15			- fractured, moisture decreasing from 15' to 34.5' - reddish-brown with some greenish-gray mottling, with ferrous staining along partings from 17' to 34.5'				
20							
25							
30						40	100
35			***STRATUM IV (525.41 ft):*** SANDY LEAN CLAY (CL), hard, dark brown to light brown with greenish-gray mottling, slightly moist, with some weakly-cemented clay and siltstone - trace siltstone fragments from 34.5' to 37'				
40							
45			- brown with green mottling and very thinly interbedded siltstone from 45' to 57'				
50							
55							
60			- blocky, fractured, with some greenish-gray glauconite from 57' to 67'				

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.58 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/9/2010	**DATE MEASURED:**	6/9/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-3

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17099781.90; E 769617.37

SURFACE ELEVATION: 559.91 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
	FAT CLAY (CH), hard, light green, slightly moist to moist			17	69
70			117	41	91
	FAT CLAY (CH), hard, dark brown to reddish-brown with greenish-gray mottling and some light gray mottling, slightly moist to moist, with blocky to laminated siltstone layers				
75					
80					
85					
90					
95					
100	- blocky, fractured, dark brown to light brown with greenish-gray mottling from 99' to 102' - calcareous, green to light green from 102' to 106'		107		
105					
	LEAN CLAY (CL), hard, reddish-brown with light green pockets, slightly moist to moist, with greenish-gray coloration and some caliche pockets			18	99
110					
115	FAT CLAY (CH), hard, reddish-brown with light green colored pockets, slightly moist to moist, with greenish-gray coloration and some caliche pockets		109	27	100
120			106		
125					

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.58 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/9/2010	**DATE MEASURED:**	6/9/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-3

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17099781.90; E 769617.37

SURFACE ELEVATION: 559.91 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT^2 (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			LEAN CLAY (CL), hard, greenish-gray to light green, slightly moist to moist, with light green coloration *(continued)* - very thinly interbedded, fine-grained sandstone from 134' to 135' - brown to light brown from 135' to 148'		114		23	99
140								
145			- calcareous from 146' to 148'					
150			FAT CLAY (CH), blocky, fractured, hard, dark brown to brown with greenish-gray mottling, slightly moist to moist					
155			- greenish-gray below 154'					
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.58 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/9/2010	**DATE MEASURED:**	6/9/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. B-4

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17099452.87; E 771861.32

SURFACE ELEVATION: 563.64 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM II (563.64 ft):*** FAT CLAY (CH), stiff to hard, brown to light brown, moist to slightly moist, with caliche pockets and some organic matter				
5	***STRATUM III (560.64 ft):*** FAT CLAY (CH), hard, brown to light brown, slightly moist, with caliche pockets and ferrous staining along partings				
10			106	26	97
	- greenish-gray seams from 12' to 14'				
15					
20					
25					
	- dark gray seam from 28' to 29'				
30					
35					
	STRATUM IV (527.64 ft): FAT CLAY (CH), hard, dark gray to gray, slightly moist, with very thinly interbedded, fine-grained sandstone				
40					
45	POORLY GRADED SAND (SP), very dense, partially cemented, greenish-gray to light gray, slightly moist				
50					
55	FAT CLAY (CH), hard, greenish-gray to light gray with some dark gray mottling, slightly moist to moist, with ferrous staining, caliche pockets, and weakly-cemented thin siltstone layers				
60	- dark green to green siltstone layers from 55' to 58'				
	- green to light green with very thinly interbedded gray to light gray sandstone and green siltstone from 58' to 72'				

SHEAR STRENGTH, TONS/FT²

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT

10 20 30 40 50 60 70 80

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	10.67 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/1/2010	**DATE MEASURED:**	7/1/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-4

Pescadito Environmental Resource Center - Type I MSW Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17099452.87; E 771861.32

SURFACE ELEVATION: 563.64 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			FAT CLAY (CH), hard, greenish-gray to light gray with some dark gray mottling, slightly moist to moist, with ferrous staining, caliche pockets, and weakly-cemented thin siltstone layers *(continued)*		95	169	143	90
			- free water observed from 72' to 88'					
75								
80								
85			- silty, sandy gray with dark gray to greenish-gray mottling from 85' to 88'					
90			FAT CLAY (CH), hard, brown to reddish-brown with greenish-gray mottling and pinkish-gray mottling, moist, with caliche pockets		106		21	99
95					105		31	100
100								
105			- caliche pockets increasing from 107' to 109'					
110			- blocky, fractured from 109' to 120'					
115								
120			Boring Terminated					
125								

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	10.67 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/1/2010	**DATE MEASURED:**	7/1/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-5

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17099262.05; E 773055.27

SURFACE ELEVATION: 559.67 ft

DEPTH, FT	DESCRIPTION OF MATERIAL
0	***STRATUM II (559.67 ft):*** FAT CLAY (CH), stiff, brown to reddish-brown, moist, with caliche pockets and some organic matter
5	***STRATUM III (556.67 ft):*** FAT CLAY (CH), hard, reddish-brown with greenish-gray to gray mottling, slightly moist
10	- caliche pockets from 12' to 14'
15	
20	- light brown with ferrous staining along partings from 18' to 20'
25	
30	- reddish-brown with green and greenish-gray mottling, with ferrous staining along partings from 28' to 30'
	STRATUM IV (529.67 ft): FAT CLAY (CH), blocky, hard, wet to moist, with ferrous staining
35	- free water observed from 30' to 34'
40	- fractured, dark green and dark gray sandstone layers from 39' to 62'
45	
50	
55	
60	- very thinly interbedded sandstone from 62' to 68'

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT

10 20 30 40 50 60 70 80

DEPTH, FT	PLASTICITY INDEX	% -200
20	49	100
50	58	99

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	4.75 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/29/2010	**DATE MEASURED:**	6/29/2010		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-5

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17099262.05; E 773055.27

SURFACE ELEVATION: 559.67 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			***STRATUM IV (529.67 ft):*** FAT CLAY (CH), blocky, hard, wet to moist, with ferrous staining *(continued)*					
75			- fractured, dark gray to green, with sandstone layers (approximately 1-3 inches thick) from 71' to 80'					
80			- dark gray to gray sandstone layers and an increase of green sand from 80' to 85'			112	83	98
85			- wet to saturated sandstone layers from 85' to 95' - with dark gray laminated sandstone layers from 85' to 123'					
90								
95								
100			- dark gray sandstone layers from 100' to 102' - fractured from 100' to 123'					
105								
110							59	98
115								
120								
125			FAT CLAY (CH), calcareous, hard, brown to reddish-brown with greenish-gray and gray mottling, slightly moist - reddish-brown from 126' to 130'					

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	4.75 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/29/2010	**DATE MEASURED:**	6/29/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-5

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17099262.05; E 773055.27

SURFACE ELEVATION: 559.67 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			FAT CLAY (CH), calcareous, hard, brown to reddish-brown with greenish-gray and gray mottling, slightly moist *(continued)*					
			- brown to reddish-brown with greenish-gray mottling from 136' to 139'					
140								
145								
150			- caliche pockets from 150' to 160'					
155								
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	4.75 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/29/2010	**DATE MEASURED:**	6/29/2010		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-6

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17098158.84; E 769305.50

SURFACE ELEVATION: 559.02 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM II (559.02 ft):*** FAT CLAY (CH), hard, brown to greenish-gray, moist to slightly moist, with ferrous staining, flocculated clay, and some organic matter				
5	***STRATUM III (556.02 ft):*** FAT CLAY (CH), hard, brown to reddish-brown with some greenish-gray mottling, slightly moist, with scattered glauconite - caliche pockets from 5' to 12'			32	69
10					
15					
20					
25	SANDY FAT CLAY (CH), hard, greenish-gray to gray - wet to saturated from 26' to 31.5' - wet sandstone lenses from 29' to 31.5'			41	62
30	***STRATUM IV (527.52 ft):*** FAT CLAY (CH), blocky, fractured, hard, brown to light brown, slightly moist, with scattered fine-grained sandstone lenses				
35					
40	- greenish-gray to green, with very thinly interbedded sandstone from 41' to 47'				
45	- free water observed from 44' to 47'				
50	- brown to light gray with siltstone fragments from 47' to 51'				
55	- dark green to greenish-gray from 51' to 53' - dark brown to reddish-brown from 53' to 62'			41	100
60					
	- greenish-gray to dark green, moist to slightly moist from 62' to 74'				

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	15.81 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/13/2010	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-6

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17098158.84; E 769305.50

SURFACE ELEVATION: 559.02 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	***STRATUM IV (527.52 ft):*** FAT CLAY (CH), blocky, fractured, hard, brown to light brown, slightly moist, with scattered fine-grained sandstone lenses *(continued)*				
75	LEAN CLAY (CL), hard, dark brown and dark green with reddish-brown mottling, moist to slightly moist, with siltstone layers and some ferrous staining				
80	- caliche pockets from 83' to 127'				
85					
90					
95					
100			106	16	100
105	- light green mottling from 104.5' to 107'				
110					
115					
120					
125			100	13	99

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	15.81 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/13/2010	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SI TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-6

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17098158.84; E 769305.50

SURFACE ELEVATION: 559.02 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
			SILT (ML), calcareous, very dense, dark brown and dark green with reddish-brown mottling, moist to slightly moist, with siltstone fragments and some ferrous staining *(continued)*		97		21	98
135			LEAN CLAY (CL), hard, calcareous, dark brown and dark green with reddish-brown mottling, moist to slightly moist, with siltstone fragments and some ferrous staining					
140			FAT CLAY (CH), hard, greenish-gray, moist - free water observed from 134' to 142'					
			SANDSTONE, slightly moist					
145			FAT CLAY (CH), hard, greenish-gray, moist			184	144	96
150								
			- free water observed from 149' to 157'					
155								
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	15.81 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/13/2010	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-7

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17098228.21; E 770959.56

SURFACE ELEVATION: 554.77 ft

DEPTH, FT	DESCRIPTION OF MATERIAL
0	***STRATUM I (554.77 ft):*** FAT CLAY (CH), firm, brown to light brown, moist, with caliche pockets, scattered gravel and some organic matter
10	***STRATUM III (547.77 ft):*** FAT CLAY (CH), hard, light yellow with green-brown mottling, moist, with ferrous staining along partings
20	- green to greenish-gray from 18' to 26'
30	***STRATUM IV (528.77 ft):*** LEAN CLAY (CL), hard, greenish-gray to light gray, moist to wet, with gray seams, some ferrous staining and very thinly interbedded sandstone
35	- free water observed from 32' to 40'
40	FAT CLAY (CH), blocky, hard, brown to reddish-brown with greenish-gray and light gray mottling, moist, with some caliche pockets and very thinly interbedded brown sandstone
45	- greenish-gray from 44' to 46'
45	- light reddish-brown from 46' to 47'
60	- greenish-gray to green from 58' to 64'

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT: 10 20 30 40 50 60 70 80

BLOWS PER FT | UNIT DRY WEIGHT, pcf | PLASTICITY INDEX | % -200

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 7/7/2010

DEPTH TO WATER: 5.33 ft
DATE MEASURED: 7/7/2010

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-7

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17098228.21; E 770959.56

SURFACE ELEVATION: 554.77 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	SANDY FAT CLAY (CH), hard, light brown to reddish-brown with greenish-gray mottling, slightly moist to moist, with very thinly interbedded dark gray sandstone *(continued)*				
	- green sand with sandstone fragments from 72' to 76'				
75					
	- dark green to brown sand with very thinly interbedded sandstone from 76' to 82'				
80					
	- caliche pockets from 82' to 86'				
85			116	53	96
	- brown sand from 88' to 90'				
90	FAT CLAY (CH), hard, light greenish-gray to green, slightly moist, with scattered caliche pockets				
95					
	- laminated sandstone from 96' to 98'				
100					
	- brown to reddish-brown with greenish-gray mottling from 100 to 132'				
	- laminated sandstone from 102' to 104'				
105	- caliche pockets from 104' to 108'				
110					
	- dark green to gray laminated sandstone from 112' to 116'				
115					
	- dark gray to green laminated sandstone layers from 116' to 132'				
120					
125			108	74	98

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

96

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.33 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/7/2010	**DATE MEASURED:**	7/7/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-7

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17098228.21; E 770959.56

SURFACE ELEVATION: 554.77 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			FAT CLAY (CH), blocky, calcareous, hard, brown to reddish-brown with greenish-gray to light gray mottling, slightly moist, with sandstone fragments					
			Core barrel broke, sample interval from 136' to 147' was not collected.					
140								
145								
			SANDY LEAN CLAY (CL), blocky, hard, reddish-brown with greenish-gray to light gray mottling, slightly moist, with caliche pockets and scattered sandstone lenses					
150			- light greenish-gray to green from 152' to 160'					
155								
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.33 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/7/2010	**DATE MEASURED:**	7/7/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-8

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17098264.15; E 773742.49

SURFACE ELEVATION: 561.89 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM II (561.89 ft):*** FAT CLAY (CH), stiff to hard, brown to light brown, moist, with caliche pockets and some organic matter				
5	***STRATUM III (558.89 ft):*** FAT CLAY (CH), hard, light brown and light green, slightly moist, with ferrous staining along partings and caliche pockets				
10				43	87
15					
20					
25	- reddish-brown from 23' to 32'				
30	- free water observed from 30' to 32'			49	96
35	***STRATUM IV (529.89 ft):*** FAT CLAY (CH), hard, brown and green, moist - yellow from 35' to 40'				
40	- silty from 38' to 40' - caliche pockets from 38' to 42' - laminated sandstone layers from 40' to 42' - free water observed from 42' to 46'				
45	- light reddish-brown with ferrous staining from 44' to 46' - greenish-gray, wet to saturated, with very thinly interbedded sandstone from 46' to 56'				
50					
55	- caliche pockets and ferrous staining from 56' to 57' - gray, slightly moist, with very thinly interbedded sandstone from 57' to 93'				
60					

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	7.08 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/26/2010	**DATE MEASURED:**	6/26/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-8

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17098264.15; E 773742.49

SURFACE ELEVATION: 561.89 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			***STRATUM IV (529.89 ft):*** FAT CLAY (CH), hard, brown and green, moist *(continued)*					
75			- green from 76' to 79'			102	76	100
80			- gray from 79' to 93'					
85							45	96
90								
95			FAT CLAY (CH), hard, gray, slightly moist, with very thinly interbedded sandstone					
100			- greenish-gray from 98' to 107'					
105							45	98
110			- green, with ferrous staining and caliche pockets from 107' to 120'					
115								
120			Boring Terminated					
125								

DEPTH DRILLED: 120.0 ft
DATE DRILLED: 6/26/2010

DEPTH TO WATER: 7.08 ft
DATE MEASURED: 6/26/2010

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-9

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097041.97; E 769191.25

SURFACE ELEVATION: 550.18 ft

SHEAR STRENGTH, TONS/FT²
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT
10 20 30 40 50 60 70 80

STRATUM II (550.18 ft):
LEAN CLAY (CL), calcareous, stiff to hard, brown and light brown, moist, with caliche pockets and scattered gypsum crystals

STRATUM III (547.18 ft):
LEAN CLAY (CL), hard, brown to light brown and reddish-brown with greenish mottling, moist to slightly moist, with weakly-indurated layers

- ferrous staining along partings at 16'
- siltstone from 16' to 18.5'

- Driller's Note: Injected more water, harder below 31'

STRATUM IV (519.18 ft):
LEAN CLAY (CL), hard, gray to light gray and greenish, slightly moist, with scattered very thinly interbedded siltstone seams and transitions to claystone

LEAN CLAY (CL), blocky, bentonitic, hard, reddish-brown to brown and light brown with light green mottling, moist to slightly moist

DEPTH, FT	PLASTICITY INDEX	% -200
20	28	95
60	25	100

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	8.20 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/5/2011	**DATE MEASURED:**	4/5/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-9

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097041.97; E 769191.25

SURFACE ELEVATION: 550.18 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	LEAN CLAY (CL), blocky, bentonitic, hard, reddish-brown to brown and light brown with light green mottling, moist to slightly moist *(continued)* - glauconitic, light brown with greenish-mottling from 69' to 75'				
75	LEAN CLAY (CL), hard, reddish-brown to brown with green mottling, moist to slightly moist - very fine-grained sand from 75' to 81'				
80					
85					
90					
95					
100					
105	- glauconite coatings along partings from 103' to 116'			34	98
110					
115	- light brown below 116'				
120					
125	LEAN CLAY (CL), glauconitic, hard, greenish-gray and light brown, slightly moist, with very thinly interbedded siltstone and/or claystone				

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	8.20 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/5/2011	**DATE MEASURED:**	4/5/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-9

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097041.97; E 769191.25

SURFACE ELEVATION: 550.18 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
135			LEAN CLAY (CL), glauconitic, hard, greenish-gray and light brown, slightly moist, with very thinly interbedded siltstone and/or claystone *(continued)*				
			- no glauconite from 136' to 142.5'				
140							
			LEAN CLAY (CL), hard, light brown to reddish-brown and brown, slightly moist			27	100
145							
150							
			- glauconitic, light gray, with very thinly interbedded siltstone from 153' to 155'				
155							
160			Boring Terminated				
165							
170							
175							
180							
185							
190							

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	8.20 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/5/2011	**DATE MEASURED:**	4/5/2011		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-10

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097018.28; E 770748.95

SURFACE ELEVATION: 547.73 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (547.73 ft):*** FAT CLAY (CH), stiff to very firm, light brown to dark brown, moist, with caliche pockets and organic matter				
10	***STRATUM III (540.73 ft):*** FAT CLAY (CH), hard, light brown, moist - reddish-brown with light gray mottling from 10' to 13' - sandy from 13' to 15' - reddish-brown with ferrous staining along partings and scattered green fine-grained sand pockets from 15' to 27'				
30	- ferrous staining from 30' to 33'				
35	***STRATUM IV (514.73 ft):*** SANDY LEAN CLAY (CL), hard, greenish-gray to light gray, moist, with very thinly interbedded sandstone - free water observed from 33' to 37'		120	12	57
45	- free water observed from 47' to 51'				
50	FAT CLAY (CH), calcareous, hard, dark greenish-gray to green, moist, with very thinly interbedded sandstone				
55	- brown to reddish-brown from 57' to 60'				
60	LEAN CLAY (CL), hard, light greenish-gray to green, slightly moist				

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	7.14 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/14/2010	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-10

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097018.28; E 770748.95

SURFACE ELEVATION: 547.73 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	LEAN CLAY (CL), hard, light greenish-gray to green, slightly moist *(continued)*				
75				18	97
80	- dark brown with greenish-gray mottling from 78' to 82' - laminated sandstone layers from 78' to 88' - dark brown to brown from 82' to 85'				
85					
90	FAT CLAY (CH), hard, dark gray to dark green, slightly moist, with scattered sandstone lenses				
95					
100					
105	LEAN CLAY (CL), hard, brown to reddish-brown with greenish-gray and olive mottling, slightly moist, with caliche pockets				
110				23	100
115	FAT CLAY (CH), hard, dark brown to brown, slightly moist, with very thinly interbedded sandstone				
120	Boring Terminated				
125					

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	7.14 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/14/2010	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-11

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097105.67; E 772244.14

SURFACE ELEVATION: 549.53 ft

STRATUM II (549.53 ft):
FAT CLAY (CH), firm, brown to light brown, moist, with scattered organic matter and ferrous staining

STRATUM III (545.53 ft):
FAT CLAY (CH), blocky, stiff to hard, brown to light brown, slightly moist, with ferrous staining along partings and scattered caliche pockets

STRATUM IV (523.53):
FAT SANDY CLAY (CH), hard, greenish-gray to green, slightly moist, with very thinly interbedded sandstone and siltstone
- ferrous staining from 30' to 47'

- dark green with greenish-gray mottling from 33' to 47'

SILT (ML), blocky, very dense, dark green to green, moist, with very thinly interbedded clay-shale layers
- wet to saturated from 47' to 47.5'
- moist from 47.5' to 63'

- ferrous staining from 53' to 54'
- dark brown to brown with greenish-gray mottling from 54' to 63'

- brown to reddish-brown with

DEPTH, FT	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
35		118	88	80
60		88	18	97

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SI TELY FROM THE PROJECT REPORT

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 6/10/2010
DEPTH TO WATER: 4.83 ft
DATE MEASURED: 6/10/2010
PROJ. No.: ASF13-140-00

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-11

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097105.67; E 772244.14

SURFACE ELEVATION: 549.53 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
	greenish-gray mottling, moist to slightly moist, with laminated siltstone layers from 63' to 78'			16	99
70					
				12	100
75	SILT (ML), blocky, very dense, dark green to green, moist, with very thinly interbedded clay-shale layers *(continued)*				
	- dark brown to brown, with scattered caliche pockets from 72' to 78'				
80	FAT CLAY (CH), hard, greenish-gray to green, moist to slightly moist				
	- reddish-brown from 78' to 81'				
85	- free water observed from 82' to 82.5'				
90					
	LEAN CLAY (CL), hard, reddish-brown, moist to slightly moist			20	91
95					
100	SILTY SAND (SM), very dense, dark brown to light brown with greenish-gray mottling, moist to slightly moist			6	36
	FAT CLAY (CH), hard, dark brown to light brown with greenish-gray mottling, moist to slightly moist				
105	- brown from 103' to 114'				
110					
115	- greenish-gray to green from 114' to 118'				
	- silty, dark brown to brown with greenish-gray mottling, from 118' to 137'				
120					
125			103	28	99

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT

10 20 30 40 50 60 70 80

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	4.83 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/10/2010	**DATE MEASURED:**	6/10/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-11

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097105.67; E 772244.14

SURFACE ELEVATION: 549.53 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			FAT CLAY (CH), hard, dark brown to light brown with greenish-gray mottling, moist to slightly moist *(continued)*				30	100
140			SANDY FAT CLAY (CH), hard, greenish-gray to green, moist					
145								
150								
155			FAT CLAY (CH), hard, brown to reddish-brown with greenish-gray mottling, slightly moist, with very thinly interbedded clay-shale and siltstone - light green and reddish mottling from 156' to 160'					
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

NOTE: THESE LOGS SHOULD NOT BE USED SI TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	4.83 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/10/2010	**DATE MEASURED:**	6/10/2010		

LOG OF BORING NO. B-11A

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097065.63; E 772185.30

SURFACE ELEVATION: 549.52 ft

DEPTH, FT	DESCRIPTION OF MATERIAL
0	***STRATUM II (549.52 ft):*** FAT CLAY (CH), firm, brown, moist, with caliche pockets and flocculated clay
5	***STRATUM III (545.52 ft):*** FAT CLAY (CH), stiff, brown to light brown, slightly moist
10	
15	- light brown to light gray, with glauconite and very thinly interbedded sandstone from 12' to 24'
20	
25	- gray, with ferrous staining along partings and glauconite from 24' to 30'
30	***STRATUM IV (519.52 ft):*** FAT CLAY (CH), hard, green to red-orange and gray, slightly moist, with dark green glauconite pockets and very thinly interbedded claystone, siltstone and sandstone
35	
40	
45	- sandstone at 44' - claystone from 44' to 50'
50	LEAN CLAY (CL), blocky, gray and reddish-brown, slightly moist, with green glauconite and thinly interbedded clay-shale layers
55	
60	- sandy, reddish-brown, slightly moist to dry from 60' to 86'

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT: 10 20 30 40 50 60 70 80

BLOWS PER FT | UNIT DRY WEIGHT, pcf | PLASTICITY INDEX | % -200

DEPTH DRILLED:	104.0 ft	**DEPTH TO WATER:**	0.15 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/25/2011	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-11A

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097065.63; E 772185.30

SURFACE ELEVATION: 549.52 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			LEAN CLAY (CL), blocky, gray and reddish-brown, slightly moist, with green glauconite and thinly interbedded clay-shale layers *(continued)* - sandstone fragments at 70' - ferrous staining from 70' to 86'					
75								
80								
85								
90			FAT CLAY (CH), hard, greenish-gray to green, moist to slightly moist with very thinly interbedded sandstone					
95								
100			- sand content increasing from 98' to 104'					
105			Boring Terminated					
110								
115								
120								
125								

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	104.0 ft	**DEPTH TO WATER:**	0.15 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/25/2011	**DATE MEASURED:**	1/10/2012		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-12

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097017.09; E 773509.58

SURFACE ELEVATION: 555.41 ft

DEPTH, FT	DESCRIPTION OF MATERIAL
	STRATUM II (555.41 ft): FAT CLAY (CH), firm to hard, light brown to green, slightly moist
5	***STRATUM III (551.41 ft):*** FAT CLAY (CH), firm, light brown, slightly moist, with ferrous staining along partings and scattered caliche pockets - light yellow from 4' to 7'
10	- blocky, reddish-brown from 10' to 12'
15	
20	- light brown to reddish-brown with green color from 18' to 22'
25	- brown to light brown with green color from 22' to 31'
30	
35	- reddish-brown with green color and ferrous staining from 31' to 37'
40	***STRATUM IV (518.41 ft):*** FAT CLAY (CH), blocky, hard, green and light brown, slightly moist, with ferrous staining and very thinly interbedded sandstone
45	- light gray to green from 44' to 50'
50	- light gray, with scattered ferrous staining from 50' to 72'
55	
60	

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
85	54	81

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 6/25/2010

DEPTH TO WATER: 9.75 ft
DATE MEASURED: 6/25/2010

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-12

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097017.09; E 773509.58

SURFACE ELEVATION: 555.41 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	***STRATUM IV (518.41 ft):*** FAT CLAY (CH), blocky, hard, green and light brown, slightly moist, with ferrous staining and very thinly interbedded sandstone *(continued)*				
	- gray to light gray from 72' to 89'				
85	- fractured from 86' to 89' - increased thin sandstone interbeds from 87' to 97' - free water observed from 87' to 97'		103		47
95	FAT CLAY (CH), hard, gray to light gray, slightly moist				
100	- blocky, gray from 102' to 116'				
105			102	74	99
115	- gray to green from 116' to 121'				
120	FAT CLAY (CH), hard, brown to green, slightly moist, with very thinly interbedded sandstone				
125					

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

100

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	9.75 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/25/2010	**DATE MEASURED:**	6/25/2010		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-12

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097017.09; E 773509.58

SURFACE ELEVATION: 555.41 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			- light brown to gray from 129' to 131' - caliche pockets from 129' to 131' FAT CLAY (CH), hard, brown to green, slightly moist, with very thinly interbedded sandstone *(continued)*					
140			- sandstone from 140' to 146'		103		56	93
145								
150								
155								
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 6/25/2010

DEPTH TO WATER: 9.75 ft
DATE MEASURED: 6/25/2010

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-13

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095546.84; E 768832.69

SURFACE ELEVATION: 544.45 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM II (544.45 ft):*** FAT CLAY (CH), soft, dark brown to brown, moist, with scattered organic matter				
5	***STRATUM III (542.45 ft):*** FAT CLAY (CH), hard, brown with greenish-gray mottling, slightly moist, with caliche pockets				
10	- silty, reddish-brown from 10' to 12'				
15	- ferrous staining along partings from 13' to 15'				
	- free water observed from 17' to 18'				
20	- silty, dark gray, with ferrous staining and scattered clay-shale fragments from 19' to 27'				
25					
30	***STRATUM IV (517.45 ft):*** FAT CLAY (CH), hard, reddish-brown to gray, slightly moist - ferrous staining from 27' to 35'				
35	- reddish-brown from 35' to 45'				
40				33	99
45	FAT CLAY (CH), hard, green to gray, slightly moist, with very thinly interbedded siltstone and sandstone - brown with greenish-gray mottling from 47' to 57'				
50					
55	- greenish-gray to green with laminated siltstone layers from 57' to 63'				
60	- brown with greenish-gray mottling and				

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	7.75 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/11/2010	**DATE MEASURED:**	1/10/2012		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-13

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095546.84; E 768832.69

SURFACE ELEVATION: 544.45 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
			dark brown with laminated siltstone layers from 63' to 69'				
70							
75			FAT CLAY (CH), hard, green to gray, slightly moist, with very thinly interbedded siltstone and sandstone *(continued)* - greenish-gray to green with sandstone layers from 69' to 71' - free water observed from 71' to 75' - free water observed from 80' to 86'			43	71
80							
85							
			FAT CLAY (CH), hard, dark brown to brown, slightly moist, with thinly interbedded siltstone				
90			- green to gray from 90' to 94'				
95			- silt to siltstone, blocky from 94' to 108'			61	99
100							
105							
110							
115			- dark gray mottling from 113' to 115.5'				
			FAT CLAY (CH), hard, dark greenish-gray to green, slightly moist, with very thinly interbedded clay-shale				
120						56	100
125			- dark gray from 124' to 128'				
			- dark greenish-gray to green from 128' to				

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	7.75 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/11/2010	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-13

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095546.84; E 768832.69

SURFACE ELEVATION: 544.45 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT²	PLASTICITY INDEX	% -200
150			FAT CLAY (CH), hard, dark greenish-gray to green, slightly moist, with very thinly interbedded clay-shale *(continued)*					
150			- brown with greenish-gray and dark gray mottling from 150' to 160'				61	99
160			Boring Terminated					

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 — PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT — 10 20 30 40 50 60 70 80

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	7.75 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/11/2010	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-14

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095543.42; E 770674.68

SURFACE ELEVATION: 543.80 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (543.80 ft):*** FAT CLAY (CH), firm to stiff, brown to light brown, moist, with caliche pockets, organic matter and scattered gravel				
5					
10	***STRATUM III (536.80 ft):*** FAT CLAY (CH), stiff to hard, brown to light brown to reddish-brown with greenish-gray to gray mottling, moist to slightly moist, with ferrous staining along partings and caliche pockets				
15	- greenish-gray mottling from 15' to 16'				
20					
25					
30	***STRATUM IV (513.80 ft):*** FAT CLAY (CH), hard, greenish-gray to green, moist to wet, with very thinly interbedded sandstone			43	76
35	- free water observed from 30' to 35'				
40	LEAN CLAY (CL), hard, dark brown, moist to slightly moist			32	98
45					
50	- greenish-gray from 48' to 50'				
55	- brown to light brown with very thinly interbedded sandstone from 50' to 56'			20	89
60	- dark brown with greenish-gray mottling and ferrous staining from 56' to 58' - light brown from 58' to 66'			25	75

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.33 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/23/2010	**DATE MEASURED:**	6/23/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-14

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095543.42; E 770674.68

SURFACE ELEVATION: 543.80 ft

DEPTH, FT	DESCRIPTION OF MATERIAL
	LEAN CLAY (CL), hard, dark brown, moist to slightly moist *(continued)*
70	FAT CLAY (CH), hard, greenish-gray, slightly moist to moist, with ferrous staining and very thinly interbedded sandstone
	- dark brown, with laminated siltstone layers from 72' to 73'
75	- light gray to light brown, with scattered sandstone lenses from 73' to 77'
80	
85	
90	LEAN CLAY (CL), hard, brown to reddish-brown with greenish-gray mottling, slightly moist, with ferrous staining and scattered caliche pockets
95	- green mottling from 92' to 100'
	- increase of caliche pockets from 96' to 98'
100	
105	FAT CLAY (CH), hard, greenish-gray to gray and brown to reddish-brown, slightly moist
	- greenish-gray mottling, with very thinly interbedded sandstone
110	
115	
	- free water observed from 116' to 117'
	- light brown to brown with sandstone fragments from 118' to 120'
120	
	FAT CLAY (CH), hard, reddish-brown with greenish-gray mottling, slightly moist, with ferrous staining and very thinly interbedded sandstone
125	- greenish-gray to green from 123' to 130'

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

BLOWS PER FT | UNIT DRY WEIGHT, pcf | PLASTICITY INDEX | % -200

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.33 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/23/2010	**DATE MEASURED:**	6/23/2010		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-14

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095543.42; E 770674.68

SURFACE ELEVATION: 543.80 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			FAT CLAY (CH), hard, reddish-brown with greenish-gray mottling, slightly moist, with ferrous staining and very thinly interbedded sandstone *(continued)* - dark gray from 131' to 132' - reddish-brown, with scattered caliche pockets from 132' to 140'					
140			- dark green sandstone fragments from 140' to 141' - greenish-gray to green with some gray mottling from 141' to 145'					
145			FAT CLAY (CH), hard, dark brown to light brown, moist, with scattered caliche pockets and scattered very thinly interbedded sandstone					
150								
155			- dark gray and greenish-gray mottling, with increase in caliche pockets from 153' to 160'					
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.33 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/23/2010	**DATE MEASURED:**	6/23/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. B-15

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095546.87; E 772232.26

SURFACE ELEVATION: 548.17 ft

DEPTH, FT	DESCRIPTION OF MATERIAL
0	***STRATUM I (548.17 ft):*** FAT CLAY (CH), firm, brown, moist, with organic matter and scattered gravel
5	***STRATUM III (544.67 ft):*** FAT CLAY (CH), hard, light brown to light gray, slightly moist, with ferrous staining and scattered caliche pockets - dark brown from 7' to 8' - light yellow from 8' to 15'
15	- light brown from 15' to 25'
25	- dark brown from 25' to 26' - light gray to greenish-gray, with scattered ferrous staining along partings from 26' to 35'
35	***STRATUM IV (513.17 ft):*** FAT CLAY (CH), blocky, hard, dark green to green, moist, with very thinly interbedded sandstone - dark green sandstone layers from 35' to 39' - free water observed from 39' to 50'
45	- dark gray to greenish-gray mottling from 48' to 52'
50	- greenish-gray to gray from 52' to 55'
55	- dark brown to reddish-brown with greenish-gray mottling from 57' to 64'
60	

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

PLASTICITY INDEX	% -200
166	
136	100

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	5.25 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/24/2010	**DATE MEASURED:**	6/24/2010		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-15

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095546.87; E 772232.26

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
			SURFACE ELEVATION: 548.17 ft					
			- dark gray to gray with dark brown siltstone inclusions and greenish-gray mottling 64' to 66'					
70			***STRATUM IV (513.17 ft):*** FAT CLAY (CH), blocky, hard, dark green to green, moist, with very thinly interbedded sandstone *(continued)*					
			- greenish-gray with sandstone lenses from 66' to 70'					
75			- free water observed from 70' to 88'					
80								
85			SANDY LEAN CLAY (CL), hard, dark gray to gray, slightly moist				20	52
90							33	55
95			SANDY FAT CLAY (CH), blocky, hard, reddish-brown with greenish-gray mottling, moist, with caliche pockets					
100			- dark brown to reddish-brown with gray mottling, with very thinly interbedded sandstone from 97' to 105'					
105			- free water observed from 105' to 108'				59	67
110								
115								
120			Boring Terminated					
125								

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	5.25 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/24/2010	**DATE MEASURED:**	6/24/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-16

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095529.37; E 773251.96

SURFACE ELEVATION: 550.48 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
0			***STRATUM II (550.48 ft):*** FAT CLAY (CH), firm, dark brown, moist, with organic matter					
5			***STRATUM III (547.48 ft):*** SANDY LEAN CLAY (CL), firm to hard, light brown to dark brown, moist		101		22	54
10			- greenish to light brown from 7' to 20' - ferrous staining along partings from 7' to 27'					
15								
20			- light brown from 20' to 27'					
25								
30			***STRATUM IV (523.48 ft):*** FAT CLAY (CH), blocky, hard, dark gray, moist, with very thinly interbedded siltstone - wet to saturated, with thinly interbedded sandstone from 27' to 34'					
35			- dark gray to light gray, moist from 34 to 49'					
40			- scattered caliche pockets from 38' to 40'					
45			- free water observed from 42' to 52'					
50			- dark gray to green from 49' to 61'					
55								
60			- light gray to greenish-gray from 61' to 80'		86	131	97	89

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 6/25/2010

DEPTH TO WATER: 5.33 ft
DATE MEASURED: 6/25/2010

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-16

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095529.37; E 773251.96

SURFACE ELEVATION: 550.48 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			***STRATUM IV (523.48 ft):*** FAT CLAY (CH), blocky, hard, dark gray, moist, with very thinly interbedded siltstone *(continued)*					
75			- free water observed from 75' to 80'					
80								
85			FAT CLAY (CH), hard, brown to reddish-brown with green mottling, slightly moist, with scattered sandstone lenses		112	114	92 56	98
90			- greenish-gray from 89' to 90' - brown to reddish-brown with greenish-gray mottling from 90' to 100'					
95								
100			- greenish-gray, wet to saturated sandstone lenses from 100' to 104'					
105			- brown to light brown from 104' to 108'`					
110			- dark greenish-gray to green from 108' to 122'					
115								
120			SANDY LEAN CLAY (CL), hard, dark gray to brown with greenish-gray mottling, moist		120		23	71
125								

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.33 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/25/2010	**DATE MEASURED:**	6/25/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-16

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095529.37; E 773251.96

SURFACE ELEVATION: 550.48 ft

DEPTH, FT	DESCRIPTION OF MATERIAL
135	SANDY LEAN CLAY (CL), hard, dark gray to brown with greenish-gray mottling, moist *(continued)*
	- dark brown, moist to wet from 135' to 136'
140	FAT CLAY (CH), hard, brown to light brown, slightly moist - light gray, with sandstone fragments from 137' to 138' - light brown to dark brown from 138' to 146'
145	
	- gray to light gray with greenish mottling, with very thinly interbedded green sandstone from 146' to 160'
150	FAT CLAY (CH), hard, brown to reddish-brown with greenish-gray mottling, slightly moist, with scattered caliche pockets
155	
	- blocky from 156' to 160'
160	Boring Terminated
165	
170	
175	
180	
185	
190	

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

BLOWS PER FT | UNIT DRY WEIGHT, pcf | PLASTICITY INDEX | % -200

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.33 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/25/2010	**DATE MEASURED:**	6/25/2010		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-17

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17094448.94; E 769851.03

SURFACE ELEVATION: 544.79 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (544.79 ft):*** CLAYEY SAND (SC), medium dense, brown to light brown, moist - fill dirt from levee to 10'				
10	- brown, with organic matter and scattered gravel from 10' to 15'			21	49
15	***STRATUM III (529.79 ft):*** FAT CLAY (CH), hard, reddish-brown with some greenish-gray and light green mottling, moist to slightly moist - trace of ferrous staining from 15' to 17' - light brown from 17' to 20' - gray to light gray, with ferrous staining along partings and scattered very thinly interbedded sandstone from 20' to 29'			16	49
30	- brown to reddish-brown with greenish-gray to gray mottling from 28' to 32' - caliche pockets from 28' to 37' - greenish-gray mottling from 29' to 32'				
40	***STRATUM IV (507.79 ft):*** FAT CLAY (CH), hard, brown to reddish-brown with greenish-gray to gray mottling, slightly moist, with caliche pockets - light brown to gray, with very thinly interbedded sandstone from 37' to 43' - greenish-gray to gray from 43' to 50'				
55	- some light green mottling from 57' to 59'			30	93
60					

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT

10 20 30 40 50 60 70 80

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	-	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/23/2010	**DATE MEASURED:**	-		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-17

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17094448.94; E 769851.03

SURFACE ELEVATION: 544.79 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	- light gray to greenish-gray from 64' to 67' - reddish-brown from 67' to 69'				
	LEAN CLAY (CL), hard, greenish-gray, slightly moist, with caliche pockets			29	86
80	FAT CLAY (CH), hard, dark gray to gray, slighty moist to moist, with very thinly interbedded sandstone				
90	- greenish-gray from 89' to 93'				
95	FAT CLAY (CH), calcareous, hard, brown to reddish-brown with greenish-gray mottling, slightly moist				
100	- brown to light brown with scattered sandstone layers from 101' to 107'				
105	- greenish-gray with gray mottling from 107' to 116'				
110					
115	- light brown from 116' to 120'				
120	Boring Terminated				
125					

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

SYMBOL / SAMPLES

DEPTH DRILLED: 120.0 ft
DATE DRILLED: 6/23/2010

DEPTH TO WATER: -
DATE MEASURED: -

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-18

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17093341.02; E 768574.38

SURFACE ELEVATION: 542.50 ft

STRATUM I (542.50 ft):
FAT CLAY (CH), hard, dark brown, moist, with organic matter

SAND, firm, light brown, moist
- wet to saturated, with scattered gravel from 7' to 13'

STRATUM III (529.50 ft):
FAT CLAY (CH), calcareous, hard, brown to reddish-brown, moist with gray and greenish-gray mottling, moist

- soft, brown to light brown, wet to saturated, with gray to greenish-gray clayey sand layers from 18' to 26'

- hard, moist, with scattered caliche pockets from 26' to 29'

- brown to dark gray from 29' to 32'

STRATUM IV (510.50 ft):
FAT CLAY (CH), hard, reddish-brown to brown with greenish-gray and gray mottling, moist, with scattered caliche pockets and very thinly interbedded sandstone
- red-gray to gray mottling from 35' to 65'

- caliche pockets from 42' to 74'

- green sandstone fragments from 63' to 65'

DEPTH, FT	PLASTICITY INDEX	% -200
5	32	70

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED: 160.0 ft	**DEPTH TO WATER:** 7.99 ft	**PROJ. No.:** ASF13-140-00
DATE DRILLED: 7/15/2010	**DATE MEASURED:** 1/10/2012	

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-18

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17093341.02; E 768574.38

SURFACE ELEVATION: 542.50 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			***STRATUM IV (510.50 ft):*** FAT CLAY (CH), hard, reddish-brown to brown with greenish-gray and gray mottling, moist, with scattered caliche pockets and very thinly interbedded sandstone *(continued)* - greenish-gray to light green from 65' to 74'			138	96	97
75								
80								
85			- green sandstone lenses from 85' to 94'					
90								
95			FAT CLAY (CH), hard, dark brown to brown, slightly moist, with scattered sandstone layers					
100								
105					109		25	100
110								
115								
120			FAT CLAY (CH), hard, red-gray with greenish-gray mottling, slightly moist, with scattered sandstone layers					
125			- green to light green from 124' to 132'					

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 7/15/2010

DEPTH TO WATER: 7.99 ft
DATE MEASURED: 1/10/2012

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-18

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17093341.02; E 768574.38

SURFACE ELEVATION: 542.50 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			FAT CLAY (CH), hard, red-gray with greenish-gray mottling, slightly moist, with scattered sandstone layers *(continued)* - greenish-gray and dark gray mottling, with scattered ferrous staining from 132' to 144'					
140								
145			- reddish-brown to brown with greenish-gray mottling from 144' to 160'					
150							29	99
155								
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	7.99 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/15/2010	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-19

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17093781.59; E 770374.96

SURFACE ELEVATION: 539.19 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (539.19 ft):*** FAT CLAY (CH), firm, brown to light brown, moist to wet, with some organic matter				
5	- free water observed from 4.5' to 10'				
10	***STRATUM III (529.19 ft):*** FAT CLAY (CH), firm to hard, light brown to brown, moist to wet - free water observed from 10' to 12'			12	52
15	- ferrous staining along partings 12' to 19'				
20	- dark brown from 19' to 20'				
25	ELASTIC SILT (MH), very dense, dark brown to reddish-brown with greenish-gray mottling, moist to slightly moist				
30	- reddish-brown with calcareous material below 27'			33	95
35					
40	***STRATUM IV (500.19 ft):*** SANDY FAT CLAY (CH), hard, green to light green, wet to saturated, with scattered sandstone lenses			57	60
45					
50	FAT CLAY (CH), greenish-gray to dark green, moist to slightly moist, with thinly interbedded sandstone and siltstone				
55	- greenish-gray to gray, with laminated sandstone layers from 52' to 59'				
60	- calcareous, dark brown to gray with greenish-gray mottling from 56' to 59' - reddish-brown, with ferrous staining from 59' to 75'		110	33	96

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SI .TELY FROM THE PROJECT REPORT

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 6/22/2010

DEPTH TO WATER: -
DATE MEASURED: -

PROJ. No.: ASF13-140-00

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-19

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17093781.59; E 770374.96

SURFACE ELEVATION: 539.19 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			FAT CLAY (CH), greenish-gray to dark green, moist to slightly moist, with thinly interbedded sandstone and siltstone *(continued)*					
75			- greenish-gray, with very thinly interbedded, fine-grained sandstone from 75' to 85'					
80					139		55	86
85			- brown from 85' to 87' - greenish-gray from 87' to 89'					
90			FAT CLAY (CH), calcareous, blocky, hard, reddish-brown to dark gray with greenish-gray mottling, slightly moist					
95								
100								
105								
110			- dark green to green with clay-shale fragments from 110' to 113'					
115								
120			- greenish-gray to green, moist, with scattered sandstone fragments from 117' to 126' - free water observed from 120' to 126'					
125								
			- sandstone fragments 126' to 128' - ferrous staining from 128' to 130'					

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	-	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/22/2010	**DATE MEASURED:**	-		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. B-19

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17093781.59; E 770374.96

SURFACE ELEVATION: 539.19 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT^2 (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			FAT CLAY (CH), calcareous, hard, greenish-gray to green, moist					
140			- sandstone layers from 137' to 139'					
145			- laminated sandstone layers from 140' to 142'					
150								
155								
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 6/22/2010

DEPTH TO WATER: -
DATE MEASURED: -

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SI TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-20

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17092564.74; E 770990.76

SURFACE ELEVATION: 541.39 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM II (541.39 ft):*** FAT CLAY (CH), stiff to firm, brown to light brown, moist, with organic matter, and traces of caliche pockets				
5	***STRATUM III (538.39 ft):*** LEAN CLAY (CL), hard, light brown to reddish-brown, slightly moist				
10				15	99
15	- blocky from 13' to 15' - greenish-gray to green sandstone layers from 15' to 22'				
20					
25	***STRATUM IV (519.39 ft):*** FAT CLAY (CH), blocky, hard, dark brown to reddish-brown, moist, with very thinly interbedded sandstone and siltstone				
30	- brown to reddish-brown from 29' to 41'				
35	- caliche pockets below 35' - red-gray mottling from 37' to 41'				
40					
45					
50					
55	- reddish-brown with dark gray to gray mottling, with scattered fine-grained sandstone from 52' to 54' - greenish-gray from 54' to 71'				
60					
	- scattered dark gray seams from 62' to 71'				

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	6.58 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/15/2010	**DATE MEASURED:**	7/15/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-20

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17092564.74; E 770990.76

SURFACE ELEVATION: 541.39 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70			***STRATUM IV (519.39 ft):*** FAT CLAY (CH), blocky, hard, dark brown to reddish-brown, moist, with very thinly interbedded sandstone and siltstone *(continued)*				
75			LEAN CLAY (CL), calcareous, hard, brown to reddish-brown with green, gray and red-gray mottling, slightly moist, with caliche pockets - increase in caliche pockets from 75' to 120'		116	21	93
80							
85			- free water observed from 84' to 87'				
90			FAT CLAY (CH), hard, brown to reddish-brown with greenish-gray to gray mottling, moist, with very thinly interbedded dark brown sandstone and scattered caliche pockets				
95			- sandstone fragments from 95' to 100'				
100			- white caliche pockets from 100' to 103'				
105			- gray and greenish-gray sand from 103' to 109'			43	100
110							
115							
120			Boring Terminated				
125							

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SI TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	6.58 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/15/2010	**DATE MEASURED:**	7/15/2010		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-21

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17092582.70; E 772513.69

SURFACE ELEVATION: 544.86 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM II (544.86 ft):*** FAT CLAY (CH), stiff to hard, light brown, slightly moist, with scattered caliche pockets				
5	***STRATUM III (541.86 ft):*** FAT CLAY (CH), stiff to hard, light brown, slightly moist, with scattered caliche pockets				
10	- calcareous, green color transition from 9' to 14'				
15	- ferrous staining along partings from 14' to 22'				
20			98	46	96
25	***STRATUM IV (519.86 ft):*** FAT CLAY (CH), hard, reddish-brown and green, slightly moist, with green sand pockets				
30					
35					
40					
45	- green mottling from 42' to 59'				
50					
55					
60	- blocky, with caliche pockets from 59' to 64'			43	94

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	6.17 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/19/2010	**DATE MEASURED:**	7/19/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-21

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17092582.70; E 772513.69

SURFACE ELEVATION: 544.86 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	- green from 64' to 67' ***STRATUM IV (519.86 ft):*** FAT CLAY (CH), hard, reddish-brown and green, slightly moist, with green sand pockets *(continued)* - brown from 67' to 77'				
75					
80	- ferrous staining from 80' to 87'				
85					
90	FAT CLAY (CH), blocky, hard, reddish-brown with green mottling, slightly moist, with caliche pockets				
95					
100	- fractured, brown to dark brown with some greenish-gray mottling from 100' to 105'				
105	- greenish-gray mottling increasing from 103' to 105' - dark green to green, with very thinly interbedded dark green sandstone from 105' to 124'				
110					
115					
120					
125	- brown to reddish-brown with greenish-gray and gray mottling from 124' to 140' - gray seam with greenish-gray mottling from 127' to 130'			31	100

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	6.17 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/19/2010	**DATE MEASURED:**	7/19/2010		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-21

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17092582.70; E 772513.69

SURFACE ELEVATION: 544.86 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			FAT CLAY (CH), blocky, hard, reddish-brown with green mottling, slightly moist, with caliche pockets *(continued)* - brown to reddish-brown with greenish-gray mottling from 130' to 140'					
140			FAT CLAY (CH), hard, green to light green, slightly moist					
145								
150								
155								
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	6.17 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/19/2010	**DATE MEASURED:**	7/19/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. B-22

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17092386.59; E 770284.30

SURFACE ELEVATION: 540.73 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0			***STRATUM I (540.73 ft):*** SANDY FAT CLAY (CH), stiff to hard, brown to light brown, moist, with caliche pockets and scattered gravel				
5							
10							
15			- light gray, with ferrous staining and traces of caliche pockets from 16' to 18'				
20			***STRATUM III (522.73 ft):*** ELASTIC SILT (MH), very dense, reddish-brown, slightly moist, with ferrous staining along partings and scattered caliche pockets		99	19	96
25			- green to light gray from 22' to 28'				
30			***STRATUM IV (512.73 ft):*** FAT CLAY (CH), hard, green, slightly moist, with scattered ferrous staining				
35			- brown from 33' to 36'				
40			- brown, gray and green with ferrous staining and scattered caliche pockets from 40' to 55'				
45							
50							
55			- brown to light brown with green mottling from 55' to 59'				
60			SAND, hard, green to light gray, slightly moist - scattered light brown clay from 60' to 63'				

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED: 120.0 ft
DATE DRILLED: 7/18/2010

DEPTH TO WATER: 5.50 ft
DATE MEASURED: 7/18/2010

PROJ. No.: ASF13-140-00

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-22

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17092386.59; E 770284.30

SURFACE ELEVATION: 540.73 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
			SAND, hard, green to light gray, slightly moist *(continued)*					
70			FAT CLAY (CH), blocky, hard, light brown with orange to green mottling, slightly moist, with ferrous staining and scattered caliche pockets					
75			- light green from 76' to 79'					
80			ELASTIC SILT (MH), dense, reddish-brown, slightly moist, with scattered caliche pockets - green from 82' to 92'					
85								
90					100		30	98
95			- light gray to brown from 93' to 100'					
100			- ferrous staining from 101' to 104'					
105			FAT CLAY (CH), hard, green to brown, slightly moist					
110								
115								
120			Boring Terminated					
125								

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	5.50 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/18/2010	**DATE MEASURED:**	7/18/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-23

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17091612.45; E 768704.40

SURFACE ELEVATION: 536.98 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (536.98 ft):*** FAT CLAY (CH), stiff to very firm, brown to light brown, moist, with organic matter and ferrous staining				
5	***STRATUM III (531.98 ft):*** FAT CLAY (CH), hard, light yellow to light brown, slightly moist, with traces of ferrous staining along partings and scattered caliche pockets				
10	- grayish-brown to light brown from 11' to 14'				
15	- reddish-brown from 14' to 15' - light gray with green mottling from 15' to 18'				
20	- red-gray from 18' to 23'				
25	- reddish-brown with greenish-gray and gray mottling from 23' to 28'				
30	***STRATUM IV (508.98 ft):*** FAT CLAY (CH), hard, slightly moist, with scattered very thinly interbedded sandstone				
35	- gray and greenish-gray mottling, calcareous from 33' to 45'		104	37	100
40					
45	SILT (ML), dense, gray with greenish-gray mottling, slightly moist, with caliche pockets and sandstone fragments		99	19	100
50	FAT CLAY (CH), hard, greenish-gray to brown with green mottling, slightly moist, with scattered caliche pockets				
55	- blocky, gray from 53' to 57'				
60	- brown with greenish-gray and gray mottling from 57' to 63'				
	- reddish-brown, with caliche pockets from				

SHEAR STRENGTH, TONS/FT²

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT

10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	6.83 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/15/2010	**DATE MEASURED:**	7/15/2010		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-23

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17091612.45; E 768704.40

SURFACE ELEVATION: 536.98 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70			63' to 72' FAT CLAY (CH), hard, greenish-gray to brown with green mottling, slightly moist, with scattered caliche pockets *(continued)*				
75			FAT CLAY (CH), hard, dark brown to light brown, slightly moist, with scattered very thinly interbedded gray sandstone and red-gray laminations				
80							
85							
90			- blocky, greenish-gray to light green from 87' to 95' - gray mottling from 89' to 95'				
95							
100			- light gray and dark brown, with very thinly interbedded sandstone from 95' to 104'				
105			LEAN CLAY (CL), hard, greenish-gray to light green, slightly moist, with green sandstone fragments - moist from 107' to 110'				
110							
115						24	100
120			Boring Terminated				
125							

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	6.83 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/15/2010	**DATE MEASURED:**	7/15/2010		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-24

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17090922.87; E 770548.25

SURFACE ELEVATION: 538.10 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (538.10 ft):*** SANDY FAT CLAY (CH), firm to stiff, light brown, moist, with organic matter, small gravel, and scattered caliche pockets				
10	***STRATUM III (530.10 ft):*** FAT CLAY (CH), stiff to hard, pinkish-red with some greenish-gray and gray mottling, slightly moist, with scattered caliche pockets				
15	- reddish-brown from 16' to 22'				
35	***STRATUM IV (505.10 ft):*** LEAN CLAY (CL), hard, light reddish-brown with greenish-gray and gray mottling, slightly moist, with very thinly interbedded sandstone and scattered caliche pockets			13	96
40	FAT CLAY (CH), hard, reddish-brown with greenish-gray and gray mottling, slightly moist, with very thinly interbedded sandstone - green to light green seams from 42' to 45'				
55	- greenish-gray to light green from 55' to 69'				

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SI TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	8.11 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/23/2010	**DATE MEASURED:**	1/10/2012		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-24

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17090922.87; E 770548.25

SURFACE ELEVATION: 538.10 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	FAT CLAY (CH), hard, reddish-brown with greenish-gray and gray mottling, slightly moist, with very thinly interbedded sandstone *(continued)* - reddish-brown with greenish-gray mottling from 69' to 73'			28	98
75	FAT CLAY (CH), hard, green to light green, moist				
80	- dark brown to brown, with caliche pockets and greenish-gray sandy seams from 81' to 84'				
85	- calcareous, brown to reddish-brown with greenish-gray and gray mottling from 84' to 88'				
90	- greenish-gray and gray, with very thinly interbedded sandstone from 88' to 94'				
95	Core barrel broke at 94', lost samples from 94' to 106'				
100					
105	FAT CLAY (CH), hard, light greenish-gray to green, slightly moist				
110	LEAN CLAY (CL), hard, brown to light brown, slightly moist - greenish-gray mottling from 111' to 114'			24	94
115	- dark gray with greenish-gray very thinly interbedded sandstone from 114' to 117'				
120	- reddish-brown to light brown, with dark gray and greenish-gray very thinly interbedded sandstone from 117' to 120'				
125	FAT CLAY (CH), hard, green to light green, slightly moist				
	- scattered light brown, greenish-gray very				

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	8.11 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/23/2010	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. B-24

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17090922.87; E 770548.25

SURFACE ELEVATION: 538.10 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
			thinly interbedded sandstone from 128' to 131'				
135			FAT CLAY (CH), hard, green to light green, slightly moist *(continued)* - brown to reddish-brown with some greenish-gray and gray mottling 131' to 143'				
140							
145			- green from 143' to 150'				
150			- reddish-brown to brown with greenish-gray and gray mottling from 150' to 156'			38	95
155			- greenish-gray and gray from 156' to 158'				
160			- greenish-gray to green from 158' to 160'				
			Boring Terminated				
165							
170							
175							
180							
185							
190							

SHEAR STRENGTH, TONS/FT^2
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT
10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	8.11 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/23/2010	**DATE MEASURED:**	1/10/2012		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-25

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17090102.58; E 768963.93

SURFACE ELEVATION: 532.65 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (532.65 ft):*** FAT CLAY (CH), hard, brown to light brown with some greenish-gray mottling, moist, with organic matter, ferrous staining and scattered caliche pockets				
5					
10	***STRATUM III (525.65 ft):*** FAT CLAY (CH), hard, light greenish-gray, moist, with ferrous staining along partings and scattered caliche pockets				
15					
20	- dark gray to gray mottling from 18' to 25'				
25	- reddish-brown with gray and greenish-gray mottling from 21' to 25' - caliche pockets from 21' to 33' - dark gray to gray mottling, with some greenish-gray mottling from 25' to 30'				
30			105	30	99
35	***STRATUM IV (499.65 ft):*** LEAN CLAY (CL), blocky, fractured, hard, greenish-gray with green and dark gray mottling, moist to slightly moist, with some brown to reddish-brown coloration			20	93
40					
45	FAT CLAY (CH), hard, dark green to green with green and dark gray mottling, moist to slightly moist, with scattered very thinly interbedded sandstone				
50	- dark gray to green from 50' to 60'				
55				26	100
60	- green sandstone layers from 60' to 64'				

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	-	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/20/2010	**DATE MEASURED:**	-		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-25

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17090102.58; E 768963.93

SURFACE ELEVATION: 532.65 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			FAT CLAY (CH), hard, dark green to green with green and dark gray mottling, moist to slightly moist, with scattered very thinly interbedded sandstone *(continued)*					
75								
80								
85			FAT CLAY (CH), fractured, hard, brown to reddish-brown with greenish-gray and gray mottling, slightly moist to moist, with scattered caliche pockets and very thinly interbedded sandstone				43	99
90								
95			- greenish-gray to green with dark gray mottling, with scattered sandstone fragments from 97' to 100' - dark gray mottling increasing from 100' to 102' - green increasing from 102' to 104'					
100								
105								
110								
115								
120			Boring Terminated					
125								

DEPTH DRILLED: 120.0 ft
DATE DRILLED: 7/20/2010

DEPTH TO WATER: -
DATE MEASURED: -

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-26

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17089884.96; E 771762.56

SURFACE ELEVATION: 537.85 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM II (537.85 ft):*** FAT CLAY (CH), firm to hard, light brown, moist, with organic matter and scattered caliche pockets				
5	***STRATUM III (534.85 ft):*** LEAN CLAY (CL), hard, brown to reddish-brown, moist, with scattered caliche pockets				
10					
15	- brown to light brown sand, with ferrous staining along partings from 13' to 34'				
20	- green from 18' to 28'			25	81
25					
30					
35	***STRATUM IV (503.85 ft):*** FAT CLAY (CH), hard, light greenish-gray to green with greenish-gray mottling, slightly moist to moist				
40					
45	- brown to reddish-brown with greenish-gray mottling, with scattered caliche pockets and very thinly interbedded sandstone from 45' to 56'				
50					
55	- caliche pockets from 53' to 87'				
60	- greenish-gray from 56' to 67'				

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	7.70 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/22/2010	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-26

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17089884.96; E 771762.56

SURFACE ELEVATION: 537.85 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	***STRATUM IV (503.85 ft):*** FAT CLAY (CH), hard, light greenish-gray to green with greenish-gray mottling, slightly moist to moist *(continued)* - brown to reddish-brown with greenish-gray and gray mottling from 67' to 87'				
75					
	- dark gray to gray mottling from 77' to 83'				
80					
85	- greenish-gray from 83' to 87'			30	85
90	FAT CLAY (CH), hard, brown to reddish-brown with greenish-gray and gray mottling, slightly moist, with scattered caliche pockets and very thinly interbedded sandstone - green to light green gray from 89' to 95'			55	99
95	- brown to reddish-brown from 95' to 97'				
	- reddish-brown and gray with dark gray and some green sandstone fragments from 97' to 124'				
100					
105	- calcareous, brown to reddish-brown with greenish-gray and gray mottling from 104' to 114'				
110					
115					
	- dark brown to brown from 117' to 119'				
120					
125	FAT CLAY (CH), fractured, hard, dark green to green, moist, with scattered caliche pockets				

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	7.70 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/22/2010	**DATE MEASURED:**	1/10/2012		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-26

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17089884.96; E 771762.56

SURFACE ELEVATION: 537.85 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			FAT CLAY (CH), fractured, hard, dark green to green, moist, with scattered caliche pockets *(continued)*					
140								
145							45	100
150								
155								
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 7/22/2010

DEPTH TO WATER: 7.70 ft
DATE MEASURED: 1/10/2012

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-27

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17089445.54; E 770277.21

SURFACE ELEVATION: 535.77 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM II (535.77 ft):*** FAT CLAY (CH), firm, light brown, moist, with organic matter and traces of small caliche pockets				
5	***STRATUM III (532.77 ft):*** FAT CLAY (CH), hard, light brown to red with light reddish-brown coloration, moist to slightly moist, with scattered ferrous staining along partings and caliche pockets				
20	- green and light reddish-brown coloration from 21' to 25'				
25	***STRATUM IV (510.77 ft):*** LEAN CLAY (CL), hard, light brown, slightly moist, with very thinly interbedded brown to light brown sandstone			20	98
45	FAT CLAY (CH), hard, light green and gray to reddish-brown, slightly moist, with scattered caliche pockets and very thinly interbedded sandstone - light greenish-gray to green sandy clay, with ferrous staining from 47' to 50' - green from 50' to 54' - reddish-brown with gray to greenish-gray mottling, with scattered caliche pockets from 54' to 73'				

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	8.36 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/22/2010	**DATE MEASURED:**	1/10/2012		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-27

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17089445.54; E 770277.21

SURFACE ELEVATION: 535.77 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT^2 (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			FAT CLAY (CH), hard, light green and gray to reddish-brown, slightly moist, with scattered caliche pockets and very thinly interbedded sandstone *(continued)*					
75								
80			FAT CLAY (CH), fractured, hard, greenish-gray to green, slightly moist, with scattered thinly interbedded green sandstone					
85								
90								
95								
100								
105			FAT CLAY (CH), hard, brown to reddish-brown with greenish-gray and dark gray to gray mottling, slightly moist					
110							24	
115								
120			Boring Terminated					
125								

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	8.36 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/22/2010	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-101

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Wet Rotary, Core & GPI Modified Pitcher Barrel

LOCATION: N 17098804.00; E 770645.39

SURFACE ELEVATION: 552.49 ft

STRATUM I (552.49 ft):
FAT CLAY (CH), firm, tan and brown, moist

STRATUM III (547.49 ft):
FAT CLAY (CH), hard, tan to greenish-gray, slightly moist, with ferrous staining along partings
- scattered fine-grained sand from 10' to 15'

- greenish-tan from 15' to 20'

- tan from 20' to 25'

- saturated, with fine-grained sand at 25'

NO RECOVERY

- interbedded dark gray claystone from 30' to 33'

- interbedded gray to brown claystone from 33' to 34'

STRATUM IV (518.49 ft):
FAT CLAY (CH), hard, dark grayish-brown to brown, slightly moist, with scattered very thinly interbedded gray and brown siltstone/claystone

- reddish-brown, with caliche pockets, ferrous staining and reddish-brown claystone from 55' to 60'

SANDSTONE, very fine-grained, massive, gray, slightly moist, with fine laminations

- reddish-brown clay seam and brown siltstone from 62.5' to 63'

DEPTH DRILLED:	151.0 ft	**DEPTH TO WATER:**	2.10 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/6/2011	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-101

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Wet Rotary, Core & GPI Modified Pitcher Barrel

LOCATION: N 17098804.00; E 770645.39

SURFACE ELEVATION: 552.49 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
			SANDSTONE, very fine-grained, massive, gray, slightly moist, with fine laminations *(continued)*					
70			FAT CLAY (CH), hard, grayish-brown, slightly moist, with very thinly interbedded claystone/siltstone - dark green siltstone and a trace of sand from 70' to 72'					
75			- dark green siltstone and a trace of sand from 75' to 85'					
80								
85			- grayish-green, with fine-grained sandstone from 85' to 89.5'					
90								
			NO RECOVERY					
95			FAT CLAY (CH), hard, brown to grayish-brown, slightly moist, with very thinly interbedded claystone/siltstone					
100			- interbedded gray siltstone from 100' to 115'					
105								
110								
115			NO RECOVERY					
120			- interbedded brown siltstone from 120' to 141'					
125								

DEPTH DRILLED:	151.0 ft	**DEPTH TO WATER:**	2.10 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/6/2011	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-101

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Wet Rotary, Core & GPI Modified Pitcher Barrel

LOCATION: N 17098804.00; E 770645.39

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT²	PLASTICITY INDEX	% -200
			SURFACE ELEVATION: 552.49 ft			0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0		
						PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT		
						10 20 30 40 50 60 70 80		
135								
140			- interbedded grayish-green siltstone/claystone from 141' to 146'					
145								
			SANDSTONE, fine-grained, greenish-gray, slightly moist					
150			Boring Terminated					
155								
160								
165								
170								
175								
180								
185								
190								

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	151.0 ft	**DEPTH TO WATER:**	2.10 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/6/2011	**DATE MEASURED:**	1/10/2012		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-102

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Wet Rotary, Core & GPI Modified Pitcher Barrel

LOCATION: N 17098978.96; E 772418.12

SURFACE ELEVATION: 556.27 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
0			***STRATUM I (556.27 ft):*** FAT CLAY (CH), dark brown to brown, slightly moist - organic material to 2' - scattered gravel from 2' to 5'					
5			***STRATUM III (551.27 ft):*** FAT CLAY (CH), stiff to hard, tan to brown, slightly moist, with ferrous staining along partings and scattered caliche pockets					
10								
15								
20			NO RECOVERY - Driller's note: silty, fine-grained sand on core barrel					
		P	- caliche pockets from 21' to 23'					
		P	- black laminations at partings from 23' to 35'					
25								
30								
35			***STRATUM IV (521.27 ft):*** FAT CLAY (CH), light gray to gray, slightly moist, with very thinly interbedded sandstone					
40								
45								
50			SILTSTONE, light gray, slightly moist, with mechanical breaks					
55			SANDSTONE, light gray, dry					
			NO RECOVERY					
60		P	FAT CLAY (CH), hard, brown, slightly moist, with very thinly interbedded light gray siltstone					
		P	- gray, with lignite seams from 60' to 62.5'					

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 7/9/2011

DEPTH TO WATER: 5.01 ft
DATE MEASURED: 1/10/2012

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-102

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Wet Rotary, Core & GPI Modified Pitcher Barrel

LOCATION: N 17098978.96; E 772418.12

SURFACE ELEVATION: 556.27 ft

DEPTH, FT	DESCRIPTION OF MATERIAL
70	LEAN CLAY (CL), hard, dark gray to greenish-gray, slightly moist, with very thinly interbedded sandstone and siltstone *(continued)*
	- interbedded gray-green siltstone from 65' to 68'
	- strongly cemented, fine-grained, grayish-green sandstone from 69.5' to 70'
75	- interbedded very fine-grained gray sandstone or siltstone from 70' to 86'
80	
85	
	- interbedded weakly-indurated gray siltstone from 86' to 88'
90	FAT CLAY (CH), hard, dark gray to brown and reddish-brown, slightly moist, with very thinly interbedded claystone/mudstone
	- interbedded greenish-gray claystone from 90' to 92.5
95	- interbedded gray claystone from 95' to 96'
	- very thinly interbedded gray siltstone/claystone from 96' to 105'
100	
105	FAT CLAY (CH), hard, reddish-brown to brown, slightly moist, with very thinly interbedded claystone and siltstone
	- thinly interbedded claystone from 105' to 122'
110	
115	- grayish-brown to reddish-brown from 113.8' to 120'
120	
	- brown, with interbedded claystone/siltstone from 122' to 138'
125	

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT: 10 20 30 40 50 60 70 80

BLOWS PER FT | UNIT DRY WEIGHT, pcf | PLASTICITY INDEX | % -200

NOTE: THESE LOGS SHOULD NOT BE USED S' .TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.01 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/9/2011	**DATE MEASURED:**	1/10/2012		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-102

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Wet Rotary, Core & GPI Modified Pitcher Barrel

LOCATION: N 17098978.96; E 772418.12

SURFACE ELEVATION: 556.27 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			FAT CLAY (CH), hard, reddish-brown to brown, slightly moist, with very thinly interbedded claystone and siltstone *(continued)*					
140		P	- grayish-green, with interbedded siltstone from 138' to 141'					
		P	SANDSTONE, fine-grained, dense, grayish-green, slightly moist					
145			FAT CLAY (CH), hard, grayish-brown, slightly moist - very thinly interbedded siltstone from 145' to 150'					
150			- very thinly interbedded claystone from 150' to 160'					
155								
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.01 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/9/2011	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-103

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17098459.53; E 770080.87

SURFACE ELEVATION: 553.76 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (553.76 ft):*** SANDY LEAN CLAY (CL), silty, calcareous, soft to firm, dark brown and light brown to light green and gray, moist, with organic matter				
5					
6	***STRATUM III (547.76 ft):*** LEAN CLAY (CL), blocky, hard, dark reddish-brown with green mottling, moist			25	64
10	- gypsum crystals along weathered partings from 11.5' to 16'				
15					
20					
25					
28.5	***STRATUM IV (525.26 ft):*** LEAN CLAY (CL), blocky, hard, brown and reddish-brown and light gray with greenish mottling, moist to slightly moist - light gray to light green, with very thinly interbedded fine-grained sandstone and siltstone from 28.5' to 34'				
30					
35					
40					
45					
46	- light gray to light green, with very thinly fine-grained sandstone and siltstone from 46' to 51.5'			27	91
50					
55					
56.6	SANDSTONE, fine-grained, hard, green to tan, slightly moist				
58	- softer with clay seams from 56.6' to 58'				
60					

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	7.00 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/6/2011	**DATE MEASURED:**	4/6/2011		

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-103

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17098459.53; E 770080.87

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
			SURFACE ELEVATION: 553.76 ft					
70			LEAN CLAY (CL), hard, brown to dark reddish-brown with green mottling, moist to slightly moist					
			- light gray interbeds from 71' to 80'					
75								
80			- slightly moist, with a trace of sand from 81' to 82'					
			- gray sandstone fragments from 82' to 92'					
85			- very thinly interbedded brown clay-shale from 85' to 90'					
90							62	92
95								
			FAT CLAY (CH), hard, brown to dark reddish-brown with greenish-gray mottling, moist to slightly moist, with very thinly interbedded sandstone					
100			- light gray mottling from 100' to 105'					
105			- light brown with gray sandstone interbeds from 105' to 110'					
110			- brown to light brown with greenish-gray mottling from 110' to 120'					
			- glauconitic from 112' to 118'					
115								
120			Boring Terminated					
125								

DEPTH DRILLED: 120.0 ft
DATE DRILLED: 4/6/2011

DEPTH TO WATER: 7.00 ft
DATE MEASURED: 4/6/2011

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-104

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097744.07; E 771203.64

SURFACE ELEVATION: 552.11 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM II (552.11 ft):*** FAT CLAY (CH), very firm, dark brown, moist, with organic matter				
5	***STRATUM III (550.11 ft):*** FAT CLAY (CH), very firm to hard, light brown, moist, with caliche pockets, ferrous staining along partings, and gypsum crystals			38	98
15	- hard, gray and light brown, slightly moist from 16' to 21'				
20	***STRATUM IV (531.11 ft):*** FAT CLAY (CH), hard, greenish-gray, slightly moist, with very thinly interbedded clay-shale and sandstone				
25	- thinly interbedded claystone from 21' to 25'				
	- dark gray clay seams from 27' to 30'				
30	- ferrous staining and very thinly interbedded claystone from 30' to 36'				
35	- caliche pockets from 36' to 37'				
	- dark greenish-gray, with weakly-indurated claystone from 37' to 40'				
40	- ferrous staining from 40' to 50'				
	- glauconite at partings from 40' to 54'				
50				27	92
55	- sandstone fragments from 54' to 55'				
	FAT CLAY (CH), blocky, hard, brown, slightly moist, with very thinly interbedded sandstone and clay-shale				
60	- caliche pockets from 55' to 56'				
	- weakly-indurated clay-shale from 60' to 70'				

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT

10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	6.50 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/7/2011	**DATE MEASURED:**	4/7/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-104

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097744.07; E 771203.64

SURFACE ELEVATION: 552.11 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	FAT CLAY (CH), blocky, hard, brown, slightly moist, with very thinly interbedded sandstone and clay-shale *(continued)*				
75	- clay-shale from 75' to 77'				
80					
85					
90	- green with gray-green siltstone fragments from 86' to 87' SILTSTONE, light grayish-green, slightly moist			16	53
95	FAT CLAY (CH), hard, grayish-green, slightly moist				
100					
105	- caliche pockets from 102' to 103'				
110	- weakly-indurated siltstone from 106' to 108'				
115	SANDSTONE, very fine-grained, greenish-gray, slightly moist - clay seams from 115' to 118'				
120	Boring Terminated				
125					

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	6.50 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/7/2011	**DATE MEASURED:**	4/7/2011		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-105

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097884.31; E 773253.69

SURFACE ELEVATION: 557.66 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM II (557.66 ft):*** FAT CLAY (CH), stiff, dark brown to brown, moist, with organic matter and caliche pockets				
5	***STRATUM III (554.66 ft):*** FAT CLAY (CH), hard, light brown to green, slightly moist - ferrous staining along partings and gypsum crystals from 8' to 16'				
10				31	92
15	- trace of caliche from 13' to 16' - weakly-indurated claystone fragments from 15' to 16' and from 17' to 18' - reddish-brown from 16' to 17'				
20					
25	- interbedded brown clay from 24' to 26'				
30	***STRATUM IV (531.66 ft):*** FAT CLAY (CH), hard, greenish-gray to gray with dark green mottling, slightly moist to moist, with ferrous staining and very thinly interbedded siltstone and sandstone - siltstone fragments from 26' to 44'				
35					
40					
45	- dark green mottling from 41' to 44'				
50	LEAN CLAY (CL), greenish-gray with brown mottling, slightly moist to moist - gray and dark gray from 50' to 55'			52	65
55					
60	- siltstone from 55' to 56' - very thinly interbedded sandstone from 56' to 57' - very thinly interbedded sandstone from 58' to 63.5' - gray from 60' to 90'				

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	8.10 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/6/2011	**DATE MEASURED:**	4/6/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-105

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097884.31; E 773253.69

SURFACE ELEVATION: 557.66 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			LEAN CLAY (CL), greenish-gray with brown mottling, slightly moist to moist *(continued)* - gray and dark gray from 66' to 71' - very thinly interbedded sandstone from 69' to 70' - very thinly interbedded sandstone from 71' to 72.5'					
75								
80								
85			FAT CLAY (CH), hard, gray to dark gray, slightly moist					
90								
95			- very thinly interbedded sandstone from 96' to 98'				38	54
100			- very thinly interbedded sandstone from 100' to 106'					
105			- glauconite at partings from 103' to 116'					
110			- greenish-light gray from 110' to 116'					
115			NO RECOVERY					
120			FAT CLAY (CH), hard, reddish-brown to gray-brown with gray mottling, slightly moist					
125								

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 4/6/2011

DEPTH TO WATER: 8.10 ft
DATE MEASURED: 4/6/2011

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-105

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097884.31; E 773253.69

SURFACE ELEVATION: 557.66 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			FAT CLAY (CH), hard, reddish-brown to gray-brown with gray mottling, slightly moist *(continued)*				22	87
140			- scattered brown mottling from 140' to 142'					
145			- very thinly interbedded siltstone from 146' to 160'					
150								
155								
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 4/6/2011

DEPTH TO WATER: 8.10 ft
DATE MEASURED: 4/6/2011

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-106

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Wet Rotary, Core & GPI Modified Pitcher Barrel

LOCATION: N 17097322.93; E 770210.77

SURFACE ELEVATION: 548.99 ft

DEPTH, FT	DESCRIPTION OF MATERIAL
0	***STRATUM II (548.99 ft):*** FAT CLAY (CH), firm, brown to tan, moist, with organic matter and caliche pockets
5	***STRATUM III (545.99 ft):*** FAT CLAY (CH), stiff to hard, tan and brown to reddish-brown, slightly moist, with ferrous staining along partings and caliche pockets
10	
15	
20	- fine-grained brownish-gray sandstone fragments from 20' to 21'
25	***STRATUM IV (524.99):*** FAT CLAY (CH), hard, dark greenish-gray, slightly moist, with very thinly interbedded greenish-gray siltstone and sandstone
30	SANDSTONE, very thinly interbedded, fine-grained, gray, slightly moist
35	- some clay from 33' to 35'
40	- interbedded brown claystone from 38' to 40'
45	FAT CLAY (CH), hard, brown to reddish-brown, slightly moist, with very fine-grained sand and widely scattered very thinly interbedded siltstone and claystone
50	- greenish-gray to brown, with interbedded siltstone from 46' to 70'
55	
60	

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

BLOWS PER FT | UNIT DRY WEIGHT, pcf | PLASTICITY INDEX | % -200

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	6.20 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/10/2011	**DATE MEASURED:**	1/10/2012		

Initial Submittal: 02-25-15; Revised: 09-18-15

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. B-106

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Wet Rotary, Core & GPI Modified Pitcher Barrel

LOCATION: N 17097322.93; E 770210.77

SURFACE ELEVATION: 548.99 ft

DEPTH, FT	DESCRIPTION OF MATERIAL
70	FAT CLAY (CH), hard, brown to reddish-brown, slightly moist, with very fine-grained sand and widely scattered very thinly interbedded siltstone and claystone *(continued)*
	- brown with some green, with interbedded claystone from 70' to 71.8'
	- sandy from 71.8' to 72'
75	SANDSTONE, very fine-grained, gray, dry
	FAT CLAY (CH), hard, gray and brown with greenish-gray mottling, slightly moist
80	
85	
90	- brown, with caliche pockets from 88' to 90'
95	- blocky, reddish-brown with gray mottling at 96'
	- grayish-brown to brown, with very thinly interbedded claystone from 98' to 105'
100	
105	- greenish-gray to grayish-green, with interbedded claystone/siltstone from 113' to 114'
110	
	NO RECOVERY
115	FAT CLAY (CH), hard, grayish-green, slightly moist
	- interbedded fine-grained, grayish-green sandstone from 117.5' to 118'
120	- interbedded siltstone from 118' to 120'
	Boring Terminated
125	

BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) | PLASTIC LIMIT | WATER CONTENT | LIQUID LIMIT (10 20 30 40 50 60 70 80) | PLASTICITY INDEX | % -200

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	6.20 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	7/10/2011	**DATE MEASURED:**	1/10/2012		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-107

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17096254.79; E 769550.16

SURFACE ELEVATION: 549.53 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (549.53 ft):*** FAT CLAY (CH), very firm to stiff, dark brown to brown, moist, with scattered organic matter and caliche pockets				
5					
10	***STRATUM III (543.53 ft):*** LEAN CLAY (CL), stiff to hard, light brown to dark brown, slightly moist, with scattered ferrous staining along partings				
15				19	88
20	- interbedded claystone fragments from 22' to 24'				
25	- caliche pockets from 25' to 26'				
30	***STRATUM IV (523.53 ft):*** FAT CLAY (CH), hard, brown to gray and greenish-gray, slightly moist, with caliche pockets, scattered glauconite at partings and scattered very thinly interbedded siltstone and claystone - claystone fragments from 30' to 31.5'				
35	- claystone fragments from 34' to 36'				
40	- reddish-brown, with ferrous staining from 37' to 71'				
45					
50					
55	- caliche pockets from 55' to 66'			36	99
60					

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	9.20 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/8/2011	**DATE MEASURED:**	4/8/2011		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-107

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17096254.79; E 769550.16

SURFACE ELEVATION: 549.53 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	- thinly interbedded brown claystone from 66' to 71'				
75	SILTSTONE, dark greenish-gray to light greenish-gray, slightly moist				
80	FAT CLAY (CH), hard, brown to reddish-brown, slightly moist - very thinly interbedded greenish-gray siltstone from 79' to 96'				
90				25	98
95	- caliche pockets and glauconite from 96' to 100'				
100					
105	- caliche pockets and glauconite from 105' to 106'				
110	- caliche pockets and glauconite from 108' to 116'				
115	- siltstone fragments from 116' to 117'				
120	- very thinly interbedded light greenish-gray siltstone from 119' to 122'				
125	FAT CLAY (CH), hard, dark green to yellowish-green, slightly moist			34	95

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 4/8/2011

DEPTH TO WATER: 9.20 ft
DATE MEASURED: 4/8/2011

PROJ. No.: ASF13-140-00

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-107

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17096254.79; E 769550.16

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
			SURFACE ELEVATION: 549.53 ft					
			FAT CLAY (CH), hard, dark green to yellowish-green, slightly moist *(continued)*					
135								
			- greenish-gray mottling from 138' to 144'					
140								
145			- large caliche pockets from 145' to 146'					
			- very thinly interbedded light gray siltstone from 147' to 148'					
150			- very thinly interbedded grayish-brown claystone from 151' to 160'					
155								
			- light brown from 158' to 160'					
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	9.20 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/8/2011	**DATE MEASURED:**	4/8/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-108

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17096284.51; E 770630.04

SURFACE ELEVATION: 546.95 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (546.95 ft):*** FAT CLAY (CH), firm, brown to grayish-tan, moist, with organic matter, ferrous staining and caliche pockets				
5	- scattered large gravel from 6.5' to 7'				
10	***STRATUM III (535.95 ft):*** FAT CLAY (CH), hard, light brown to reddish-brown with greenish-gray mottling, slightly moist, with ferrous staining along partings				
15					
20	- caliche pockets at 17'			30	100
25					
30	***STRATUM IV (520.95 ft):*** FAT CLAY (CH), hard, greenish-gray and brown with greenish-gray mottling, slightly moist, with very thinly interbedded siltstone and claystone				
35					
40					
45					
50					
55	- caliche pockets with glauconite at partings from 52' to 62' - dark brown to light brown with greenish-gray mottling from 52' to 65'			34	100
60					

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT

10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	6.00 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/9/2011	**DATE MEASURED:**	4/9/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-108

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17096284.51; E 770630.04

SURFACE ELEVATION: 546.95 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			***STRATUM IV (520.95 ft):*** FAT CLAY (CH), hard, greenish-gray and brown with greenish-gray mottling, slightly moist, with very thinly interbedded siltstone and claystone *(continued)*					
75								
80			- light greenish-gray, with very thinly interbedded very fine-grained sandstone from 79' to 82'					
85			- light greenish-gray, with very thinly interbedded very fine-grained sandstone from 83' to 84'					
			- caliche pockets from 88' to 90'					
90			FAT CLAY (CH), hard, brown, with light greenish-gray mottling, slightly moist					
95							35	100
100			- green mottling from 98' to 99'					
105								
110			- very thinly interbedded siltstone from 109' to 120'					
115								
120			Boring Terminated					
125								

DEPTH DRILLED: 120.0 ft
DATE DRILLED: 4/9/2011

DEPTH TO WATER: 6.00 ft
DATE MEASURED: 4/9/2011

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-109

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095874.54; E 771534.22

SURFACE ELEVATION: 547.60 ft

STRATUM I (547.60 ft):
SANDY LEAN CLAY (CL), hard, brown to light brown, slightly moist, with organic matter and caliche pockets
- ferrous staining and traces of small gravel from 3.5' to 6'

STRATUM III (541.60 ft):
SANDY LEAN CLAY (CL), silty, hard, light brown to tan and light gray, slightly moist, with caliche pockets and ferrous staining along partings

STRATUM IV (520.60 ft):
LEAN CLAY (CL), hard, brown to reddish-brown, slightly moist, with green glauconite and gray caliche and very thinly interbedded sandstone

- sandstone layers from 50' to 56'
- brown from 51.5' to 52'
- firm to hard, green to gray, moist from 56' to 60'

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT²	PLASTICITY INDEX	% -200
20						92	62	99
55							10	40

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0
PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	7.00 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/11/2011	**DATE MEASURED:**	4/11/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-109

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095874.54; E 771534.22

SURFACE ELEVATION: 547.60 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			***STRATUM IV (520.60 ft):*** LEAN CLAY (CL), hard, brown to reddish-brown, slightly moist, with green glauconite and gray caliche and very thinly interbedded sandstone *(continued)* - brown to light brown from 67' to 70' - brown to red at 70'					
75			- brown from 74' to 77'					
80			- green to brown from 77' to 88'					
85								
90			LEAN CLAY (CL), hard, reddish-brown to brown, slightly moist, with green to light green glauconite					
95								
100							44	100
105			- gray to light brown, with very thinly interbedded sandstone from 101' to 116'					
110								
115			- brown from 112' to 113'					
120			LEAN CLAY (CL), hard, blocky, brown to reddish-brown, slightly moist, with green glauconite and ferrous staining					
125								

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 4/11/2011

DEPTH TO WATER: 7.00 ft
DATE MEASURED: 4/11/2011

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-109

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095874.54; E 771534.22

SURFACE ELEVATION: 547.60 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
135	LEAN CLAY (CL), hard, blocky, brown to reddish-brown, slightly moist, with green glauconite and ferrous staining *(continued)*				
	- brown to green from 136' to 143'			27	98
140					
145	SANDY LEAN CLAY (CL), silty, hard, light gray to green and reddish-brown with dark gray mottling, slightly moist, with very thinly interbedded siltstone				
150					
	- glauconite from 152' to 160'				
155	- gray with brown mottling from 155' to 160'				
160	Boring Terminated				
165					
170					
175					
180					
185					
190					

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	7.00 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/11/2011	**DATE MEASURED:**	4/11/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-109A

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095832.16; E 771460.08

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
			SURFACE ELEVATION: 546.53 ft					
5			***STRATUM I (546.53 ft):*** SANDY LEAN CLAY (CL), firm, brown to light brown, moist, with caliche pockets and organic matter					
10			***STRATUM III (540.53 ft):*** LEAN CLAY (CL), sandy, stiff, light brown with some green mottling, slightly moist, with ferrous staining along partings - green with scattered red sandy pockets from 6' to 10'					
15								
20			- green at 20'					
25								
30			***STRATUM IV (519.53 ft):*** LEAN CLAY (CL), hard, reddish-brown, slightly moist, with green glauconite and caliche pockets					
35			- very thinly interbedded siltstone from 34' to 40'					
40			- very thinly interbedded sandstone from 40' to 56'					
45								
50			- sandy from 50' to 66'					
55								
60								

DEPTH DRILLED:	85.0 ft	**DEPTH TO WATER:**	3.50 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/25/2011	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

LOG OF BORING NO. B-109A

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095832.16; E 771460.08

SURFACE ELEVATION: 546.53 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT, WATER CONTENT, LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			***STRATUM IV (519.53 ft):*** LEAN CLAY (CL), hard, reddish-brown, slightly moist, with green glauconite and caliche pockets *(continued)* - brown from 66' to 76' - reddish-brown claystone from 68' to 70'					
75			- green and light gray from 76' to 80'					
80			- ferrous staining and very thinly interbedded brown claystone from 80' to 85'					
85			Boring Terminated					
90								
95								
100								
105								
110								
115								
120								
125								

DEPTH DRILLED:	85.0 ft	**DEPTH TO WATER:**	3.50 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/25/2011	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-110

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17096646.60; E 772947.96

SURFACE ELEVATION: 553.75 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM II (553.75 ft):*** LEAN CLAY (CL), firm, brown to light brown, moist, with ferrous staining, caliche pockets and flocculated clay				
5	***STRATUM III (549.75 ft):*** SANDY LEAN CLAY (CL), stiff to hard, light gray to light brown with orange and yellow mottling, moist to slightly moist, with ferrous staining along partings				
20	- light brown to reddish-brown with greenish-gray mottling, with caliche pockets, and a trace of sand from 18' to 23'				
25	***STRATUM IV (530.75 ft):*** SANDY LEAN CLAY (CL), hard, light grayish-brown and reddish-brown, slightly moist, with ferrous staining and very thinly interbedded sandstone and siltstone			42	59
40	- claystone fragments from 40' to 47.5'				
47.5	- sandy clay from 47.5' to 67'			NP	48

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	6.80 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	5/11/2011	**DATE MEASURED:**	5/11/2011		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-110

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17096646.60; E 772947.96

SURFACE ELEVATION: 553.75 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			***STRATUM IV (530.75 ft):*** SANDY LEAN CLAY (CL), hard, light grayish-brown and reddish-brown, slightly moist, with ferrous staining and very thinly interbedded sandstone and siltstone *(continued)*					
75								
80			- siltstone fragments from 82' to 85'					
85			FAT CLAY (CH), hard, reddish-brown with greenish-gray mottling, slightly moist, with caliche pockets, with scattered very thinly interbedded siltstone					
90								
95								
100							34	100
105			- greenish-gray mottling from 103' to 106'					
110								
115								
120			Boring Terminated					
125								

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	6.80 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	5/11/2011	**DATE MEASURED:**	5/11/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-111

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095160.03; E 769782.25

SURFACE ELEVATION: 544.06 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
0			***STRATUM I (544.06 ft)*** SANDY LEAN CLAY (CL), firm, light brown, moist, with caliche pockets and ferrous staining					
5								
10			***STRATUM III (538.06 ft)*** FAT CLAY (CH), firm to hard, light brown to dark brown and reddish-brown with greenish-gray mottling, slightly moist, with caliche pockets, scattered ferrous staining along partings, and scattered silt and fine-grained sand					
15								
20								
25							27	100
30								
35			***STRATUM IV (509.06 ft)*** FAT CLAY (CH), hard, reddish-brown with greenish-gray mottling to greenish-gray to red with gray mottling, slightly moist, with very thinly interbedded sandstone and siltstone and scattered caliche pockets - widely scattered claystone interbeds from 35' to 52.5'					
40								
45								
50			- ferrous staining and gypsum crystals from 48' to 52.5'					
55								
60			- ferrous staining from 57' to 64'				36	
							36	99

DEPTH DRILLED: 120.0 ft
DATE DRILLED: 5/10/2011

DEPTH TO WATER: 7.00 ft
DATE MEASURED: 5/10/2011

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-111

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17095160.03; E 769782.25

SURFACE ELEVATION: 544.06 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			***STRATUM IV (509.06 ft)*** FAT CLAY (CH), hard, reddish-brown with greenish-gray mottling to greenish-gray to red with gray mottling, slightly moist, with very thinly interbedded sandstone and siltstone and scattered caliche pockets *(continued)*					
75								
80								
85								
90								
95								
100			FAT CLAY (CH), hard, reddish-brown to green to greenish-gray, slightly moist, with a trace of sand - very thinly interbedded green claystone from 97' to 110'				23	84
105								
110			- ferrous staining, scattered caliche pockets, and some silt from 110' to 120'					
115								
120			Boring Terminated					
125								

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	7.00 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	5/10/2011	**DATE MEASURED:**	5/10/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-112

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17094097.85; E 768814.61

SURFACE ELEVATION: 543.09 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
0			***STRATUM I (543.09 ft):*** SANDY FAT CLAY (CH), stiff, dark brown to tan, slightly moist, with organic matter					
			NO RECOVERY					
5			- sand with scattered gravel from 6' to 7'					
			STRATUM III (536.09 ft): FAT CLAY (CH), hard, light brown, slightly moist, with caliche pockets					
10			- brown to reddish-brown with greenish-gray and orange-brown mottling from 9' to 27'					
15								
			- gray mottling from 18' to 26'					
20								
25			- ferrous staining along partings from 24' to 26'					
			- silty, light greenish-gray with light brown mottling from 27' to 31'					
30			***STRATUM IV (512.09 ft):*** FAT CLAY (CH), hard, reddish-brown to brown with greenish-gray mottling, slightly moist					
35			- caliche pockets and glauconite from 32' to 34'					
			- caliche pockets and scattered ferrous staining from 35' to 40'					
40			- gray with greenish-gray and brown mottling, with scattered fine-grained sand and very thinly interbedded gray very fine-grained sandstone to siltstone from 35' to 50'					
45			- dark grayish-brown from 41' to 43'					
50			- silty, light greenish-gray from 50' to 52'					
			- dark gray with grayish-green mottling from 52' to 54'					
55			- caliche pockets and scattered weakly-indurated reddish-brown claystone from 52' to 61'					
			- reddish-brown with grayish-green mottling from 54' to 61'					
60								100
			- silty, dark green to light grayish-green, with scattered fine-grained sand and weakly-indurated siltstone or claystone from 61' to 66'					

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	7.20 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	5/5/2011	**DATE MEASURED:**	5/5/2011		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-112

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17094097.85; E 768814.61

SURFACE ELEVATION: 543.09 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			***STRATUM IV (512.09 ft):*** FAT CLAY (CH), hard, reddish-brown to brown with greenish-gray mottling, slightly moist *(continued)* - blocky, reddish-brown with greenish-gray mottling, with large caliche pockets and very thinly interbedded gray-brown claystone from 66' to 68' - reddish-brown from 68' to 73' - light greenish-gray, with a trace of fine-grained sand from 73' to 74' - caliche pockets and glauconite from 74' to 75'					
75								
80			- thinly interbedded very fine-grained sandstone or siltstone from 79' to 83' - orange-brown mottling from 81.5' to 82'					
85			FAT CLAY (CH), hard, grayish-green with brown mottling, slightly moist - very thinly interbedded very fine-grained sandstone or siltstone from 83' to 85' - gray with greenish-gray and brown mottling from 85' to 88' - scattered weakly-indurated claystone interbeds from 85' to 96' - reddish-brown with greenish-gray mottling from 88' to 91' - dark brownish-gray from 91' to 96'					
90								
95								
100			- light greenish-gray to brown with greenish-gray mottling from 96' to 101' - interbedded gray and brown claystone or siltstone from 96' to 105' - dark grayish-brown with gray mottling from 101' to 103'				65	99
105			- widely scattered fine-grained sand and gray sandstone from 105' to 108'					
110			- interbedded weakly-indurated gray-brown claystone from 108' to 122'					
115								
120								
125								

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	7.20 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	5/5/2011	**DATE MEASURED:**	5/5/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-112

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17094097.85; E 768814.61

SURFACE ELEVATION: 543.09 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			FAT CLAY (CH), hard, grayish-green with brown mottling, slightly moist *(continued)*				33	92
140								
145								
150			- weakly-indurated reddish-brown claystone fragments, widely scattered fine-grained sand with very thinly interbedded sandstone from 148' to 154'					
155								
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	7.20 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	5/5/2011	**DATE MEASURED:**	5/5/2011		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-113

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17094770.05; E 771418.25

SURFACE ELEVATION: 545.03 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
0			***STRATUM I (545.03 ft):*** SANDY LEAN CLAY (CL), silty, firm, brown to dark brown, moist, with organic matter and caliche nodules					
5			- scattered gypsum crystals from 5' to 10'					
10			***STRATUM III (535.03 ft):*** LEAN CLAY (CL), hard, brown to light gray to yellowish, slightly moist, with green glauconite, ferrous staining along partings, and a trace of sand					
15			- friable, with caliche pockets from 12' to 15'					
20			- gray to reddish-brown from 15' to 27'					
25								
30			***STRATUM IV (518.03 ft):*** SANDY LEAN CLAY (CL), hard, gray to light gray and brown, slightly moist, with very thinly interbedded sandstone				23	95
35			- brown with green glauconite and caliche pockets at 30'					
40								
45			- sandstone fragments at 46'					
50								
55			- silty, green to light gray from 55' to 57'					
60								

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.20 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/13/2011	**DATE MEASURED:**	4/13/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-113

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17094770.05; E 771418.25

SURFACE ELEVATION: 545.03 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	***STRATUM IV (518.03 ft):*** SANDY LEAN CLAY (CL), hard, gray to light gray and brown, slightly moist, with very thinly interbedded sandstone *(continued)* - green glauconite from 67' to 69'			27	90
75	FAT CLAY (CH), hard, brown to reddish-brown with greenish-gray mottling, slightly moist				
80					
85					
90					
95	- very thinly interbedded brown siltstone from 93' to 97'				
100	- very thinly interbedded light gray siltstone from 97' to 98' - very thinly interbedded brown siltstone from 99' to 104'				
105	LEAN CLAY (CL), hard, grayish-green to reddish-brown, slightly moist, with very thinly interbedded siltstone			33	69
110	- silty from 110' to 115'				
115					
120	- caliche pockets from 116' to 117' - green mottling from 117' to 120'				
125	- caliche pockets and scattered ferrous staining from 124' to 129'				

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.20 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/13/2011	**DATE MEASURED:**	4/13/2011		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-113

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17094770.05; E 771418.25

SURFACE ELEVATION: 545.03 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			LEAN CLAY (CL), hard, grayish-green to reddish-brown, slightly moist, with very thinly interbedded siltstone *(continued)*					
140								
145								
150			LEAN CLAY (CL), hard, light gray to dark gray, slightly moist, with very thinly interbedded siltstone - dark gray from 149.5' to 150'					
155			- gray from 152' to 157'					
160			- greenish-gray to light brown and gray, with weakly-indurated gray siltstone from 157' to 160' Boring Terminated					
165								
170								
175								
180								
185								
190								

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.20 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/13/2011	**DATE MEASURED:**	4/13/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-114

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17093582.47; E 768883.67

SURFACE ELEVATION: 541.87 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (541.87 ft):*** FAT CLAY (CH), soft to firm, brown to light brown and tan to reddish-brown with green mottling, slightly moist, with organic matter and caliche pockets - sandy from 3' to 10'				
10	POORLY GRADED SAND (SP), loose, tan, wet to saturated, with ferrous staining, caliche pockets and organic matter - small gravel at 12'				
15	***STRATUM III (529.87 ft):*** FAT CLAY (CH), hard, reddish-brown with greenish-gray mottling to tannish-gray, slightly moist - caliche pockets from 12' to 26'				
20					
25	- scattered ferrous staining along partings from 22' to 26' - weakly-indurated claystone fragments from 24' to 26'				
30				21	89
35	***STRATUM IV (508.87 ft):*** SANDY LEAN CLAY (CL), hard, gray to brown with gray mottling and greenish-gray with brown mottling, slightly moist - scattered fine-grained sand and very thinly interbedded sandstone from 33' to 37' - scattered interbedded siltstone from 37' to 41' - very thinly interbedded gray-brown, well-indurated siltstone or claystone from 41' to 50'				
40					
45					
50	- hard, dark grayish-brown with gray mottling from 48' to 50'				
55	FAT CLAY (CH), hard, brown to reddish-brown with greenish-gray mottling to light grayish-brown with gray mottling, slightly moist, with scattered very thinly interbedded brown claystone			27	100
60	- caliche pockets from 62' to 63'				

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	6.00 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	5/3/2011	**DATE MEASURED:**	5/3/2011		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-114

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17093582.47; E 768883.67

SURFACE ELEVATION: 541.87 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70			FAT CLAY (CH), hard, brown to reddish-brown with greenish-gray mottling to light grayish-brown with gray mottling, slightly moist, with scattered very thinly interbedded brown claystone *(continued)*				
			- caliche pockets from 67' to 68'				
75			- yellow mottling, with weathered ferrous staining along partings from 74' to 75'				
80			- weakly-indurated brown very thinly interbedded claystone from 80' to 89'				
85							
90			- scattered fine-grained sand and fine-grained sandstone fragments from 89' to 93'				
95						28	88
100							
105							
110			- glauconite from 110' to 111'				
115							
120			Boring Terminated				
125							

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	6.00 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	5/3/2011	**DATE MEASURED:**	5/3/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-114A

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17093534.96; E 768779.90

SURFACE ELEVATION: 540.14 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
0			***STRATUM I (540.14 ft):*** SANDY LEAN CLAY (CL), soft to firm, dark brown, moist, with organic matter, caliche pockets and ferrous staining					
5								
10								
15			***STRATUM III (528.14 ft):*** LEAN CLAY (CL), hard, reddish-brown, slightly moist, with ferrous staining, glauconite, and a trace of sand					
20			Boring Terminated					
25								
30								
35								
40								
45								
50								
55								
60								

DEPTH DRILLED:	20.0 ft	**DEPTH TO WATER:**	7.61 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	5/25/2011	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-115

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17093106.68; E 770667.66

SURFACE ELEVATION: 541.46 ft

SHEAR STRENGTH, TONS/FT²
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0
PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT
10 20 30 40 50 60 70 80

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (541.46 ft):*** SANDY LEAN CLAY (CL), silty, firm to hard, brown, moist, with caliche pockets and ferrous staining				
10	***STRATUM III (532.46 ft):*** FAT CLAY (CH), hard, light brown and brown to reddish-brown and gray with greenish-gray mottling, slightly moist, with some sand - ferrous staining along partings from 9' to 14' - scattered brown claystone fragments from 14' to 36'				
25	- ferrous staining from 27' to 31'				
35	***STRATUM IV (505.46 ft):*** FAT CLAY (CH), hard, light grayish-green to reddish-brown with light brown mottling, slightly moist - scattered caliche pockets from 36' to 41' - very thinly interbedded fine-grained sandstone from 41' to 55'			30	99
50	- ferrous staining at 53' - green claystone fragments at 55'				
60	- very thinly interbedded gray-green claystone from 61' to 68'				

DEPTH DRILLED: 120.0 ft
DATE DRILLED: 5/9/2011

DEPTH TO WATER: 4.64 ft
DATE MEASURED: 1/10/2012

PROJ. No.: ASF13-140-00

TELY FROM THE PROJECT REPORT

NOTE: THESE LOGS SHOULD NOT BE USED SI

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-115

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17093106.68; E 770667.66

SURFACE ELEVATION: 541.46 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			***STRATUM IV (505.46 ft):*** FAT CLAY (CH), hard, light grayish-green to reddish-brown with light brown mottling, slightly moist *(continued)*					
75			- sandy from 75' to 78'				61	100
80								
85								
90								
95			NO RECOVERY - Driller's Note: Cracked core barrel					
100								
105								
110								
115			FAT CLAY (CH), hard, light gray to reddish-brown with scattered greenish-gray mottling, slightly moist, with scattered caliche pockets					
120			Boring Terminated					
125								

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	4.64 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	5/9/2011	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-116

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17093363.35; E 771580.26

SURFACE ELEVATION: 545.60 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM II (545.60 ft):*** FAT CLAY (CH), hard, light brown, moist, with organic matter and caliche pockets				
5	***STRATUM III (542.60 ft):*** FAT CLAY (CH), hard, brown to reddish-brown, slightly moist - caliche pockets from 7' to 12'				
10					
15	- greenish-gray mottling from 12' to 29'				
20	- caliche pockets from 20' to 21'				
25					
30	- caliche pockets from 27' to 28'				
35	***STRATUM IV (516.60 ft):*** FAT CLAY (CH), hard, grayish-brown and gray and reddish-brown with scattered brown mottling, slightly moist - ferrous staining from 29' to 31' - very thinly interbedded siltstone from 31' to 35'			28	93
40	- very thinly interbedded siltstone from 38' to 41'				
45					
50					
55					
60					

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SI TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	8.20 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/15/2011	**DATE MEASURED:**	4/15/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-116

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17093363.35; E 771580.26

SURFACE ELEVATION: 545.60 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
			- weakly-indurated siltstone from 64' to 66'					
			STRATUM IV (516.60 ft):					
			FAT CLAY (CH), hard, grayish-brown and gray and reddish-brown with scattered brown mottling, slightly moist *(continued)*					
70			- caliche pockets and glauconite from 66' to 71'				24	99
75								
80								
85								
90			- 6 gray siltstone seam at 89.5' - very thinly interbedded gray and brown siltstone from 90' to 100'					
95			- caliche pockets and glauconite from 95' to 100'					
100								
105								
110			- very thinly interbedded gray and brown siltstone from 108' to 112'				30	98
115								
			FAT CLAY (CH), hard, greenish-gray with brown mottling and reddish-brown with gray mottling, slightly moist					
120			- caliche pockets at 116.5'					
125								

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	8.20 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/15/2011	**DATE MEASURED:**	4/15/2011		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-116

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17093363.35; E 771580.26

SURFACE ELEVATION: 545.60 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
135			FAT CLAY (CH), hard, greenish-gray with brown mottling and reddish-brown with gray mottling, slightly moist *(continued)* - blocky from 130' to 135'				
140			- caliche pockets at 141'				
145			- caliche pockets from 145' to 148'			31	100
150							
155			- caliche pockets from 155' to 157'				
160			Boring Terminated				
165							
170							
175							
180							
185							
190							

SHEAR STRENGTH, TONS/FT^2
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT
10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	8.20 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/15/2011	**DATE MEASURED:**	4/15/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-117

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17092646.59; E 768608.60

SURFACE ELEVATION: 543.68 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (543.68 ft):*** SANDY LEAN CLAY (CL), firm to stiff, brown, moist, with caliche pockets and organic matter			NP	33
10	***STRATUM III (531.68 ft):*** SANDY LEAN CLAY (CL), stiff, tan to brown with reddish mottling, moist to slightly moist, with ferrous staining along partings and gypsum crystals				
25	- green with brown mottling from 24' to 25'				
25	- light greenish-gray with brown mottling from 26' to 28'				
30	***STRATUM IV (515.68 ft):*** FAT CLAY (CH), hard, blocky, reddish-brown with scattered gray mottling, slightly moist, with very thinly interbedded grayish-brown siltstone and claystone				
30	- dark grayish-brown from 31' to 32'				
30	- weakly-indurated from 31' to 39'				
30	- glauconite and caliche pockets from 33' to 35'				
30	- brown with greenish-gray mottling from 37' to 42'				
40	- grayish-green with scattered dark green mottling, with scattered silt from 42' to 46'			30	99
55	- light greenish-gray with brown mottling from 55' to 56'				
55	- silt increasing, dark gray with gray siltstone from 57' to 58'				

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	8.90 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	5/2/2011	**DATE MEASURED:**	5/2/2011		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-117

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17092646.59; E 768608.60

SURFACE ELEVATION: 543.68 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	FAT CLAY (CH), hard, dark gray with grayish-green mottling, slightly moist, with very thinly interbedded weakly-indurated dark gray claystone and sandstone *(continued)* - brown with gray mottling from 66' to 69' - grayish-green with brown mottling, with a trace of sand from 69' to 72' - scattered fine-grained sandstone from 72' to 82'				
75					
80				76	97
85					
90					
95	- blocky, fractured, with dark gray interbeds from 93' to 94' - scattered fine-grained sandstone from 94' to 102'				
100					
105	- light brown and gray from 106' to 108'				
110					
115	- gray with greenish-gray claystone from 114' to 116' - greenish-gray with brown mottling and greenish-gray siltstone and very fine-grained sandstone from 116' to 120' - caliche pockets from 118' to 119'				
120	Boring Terminated				
125					

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

99

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	8.90 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	5/2/2011	**DATE MEASURED:**	5/2/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-118

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17091989.17; E 768642.70

SURFACE ELEVATION: 538.87 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (538.87 ft):*** FAT CLAY (CH), stiff to very firm, brown to light brown, moist, with organic matter and caliche pockets			31	63
5	- small gravel from 6' to 7'				
10	***STRATUM III (531.87 ft):*** FAT CLAY (CH), hard, greenish-tan and brown with orange mottling, slightly moist, with scattered ferrous staining along partings and caliche pockets				
15					
20	- tan with orange-brown mottling, with a trace of fine-grained sand from 18' to 20' - silty from 18' to 22' - greenish-gray with tan and green mottling from 20' to 24' - sandy from 22' to 25'				
25	- dark gray with some orange-brown mottling from 24' to 25'				
30	***STRATUM IV (513.87 ft):*** FAT CLAY (CH), hard, reddish-brown with gray mottling, slightly moist - weakly-indurated brown claystone from 25' to 36'				
35					
40	- grayish-green, with scattered fine-grained sand from 36' to 37.5' - brown to reddish-brown with greenish-gray mottling, with scattered caliche pockets and glauconite seams from 37.5' to 47'			30	98
45					
50	- brownish-dark gray, with very thinly interbedded sandstone from 47' to 48' - greenish-gray with brown mottling from 48' to 63'				
55					
60					
	- dark brownish-gray with brown mottling,				

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	8.53 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/29/2011	**DATE MEASURED:**	1/10/2012		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-118

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17091989.17; E 768642.70

SURFACE ELEVATION: 538.87 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
	with glauconite and scattered caliche pockets from 63' to 67'				
	STRATUM IV (513.87 ft):				
70	FAT CLAY (CH), hard, reddish-brown with gray mottling, slightly moist *(continued)*				
	- sandy from 68' to 79'				
75					
80	- very thinly interbedded siltstone from 79' to 84'			30	90
85	FAT CLAY (CH), hard, grayish-brown, brown and reddish-brown with light greenish-gray mottling, slightly moist				
	- glauconite at partings from 84' to 98'				
90					
95					
100	- caliche pockets from 98' to 99'				
	- blocky, reddish-brown, with thinly interbedded, weakly-indurated reddish-brown claystone fragments from 98' to 103'				
105					
110					
115	LEAN CLAY (CL), hard, gray, slightly moist, with very thinly interbedded fine-grained sand and weakly-indurated gray siltstone				
120				61	83
125					

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	8.53 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/29/2011	**DATE MEASURED:**	1/10/2012		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-118

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17091989.17; E 768642.70

SURFACE ELEVATION: 538.87 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			FAT CLAY (CH), hard, brown to reddish-brown with gray mottling, slightly moist *(continued)* - interbedded gray-brown siltstone from 133' to 140'					
140			- greenish-gray with brown mottling and gray siltstone from 139' to 141'					
145								
150			- green mottling, with caliche pockets from 151' to 153'					
155								
160			Boring Terminated				41	97
165								
170								
175								
180								
185								
190								

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 4/29/2011

DEPTH TO WATER: 8.53 ft
DATE MEASURED: 1/10/2012

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-119

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17092055.23; E 770637.64

SURFACE ELEVATION: 541.99 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM II (541.99 ft):*** FAT CLAY (CH), stiff, brown to tan, moist, with organic matter and caliche pockets				
5	***STRATUM III (538.99 ft):*** FAT CLAY (CH), stiff, light brown to tan with orange mottling, moist - caliche pockets and ferrous staining along partings from 7' to 9'			30	62
15	- ferrous staining seam and gypsum crystals from 14.5' to 14.75' - interbedded gray-brown claystone from 16' to 26'				
25	***STRATUM IV (515.99 ft):*** LEAN CLAY (CL), hard, greenish-gray and brown to reddish-brown with yellow mottling, slightly moist, with very thinly interbedded claystone and sandstone				
35	- light gray from 36' to 42'				
40	- glauconite at partings from 40' to 42'			37	62
	- grayish-green from 42' to 52'				
50	- brown mottling from 51' to 52' - caliche pockets from 52' to 53'				
55	- caliche pockets from 56' to 61'				
60					

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	7.80 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/19/2011	**DATE MEASURED:**	4/19/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-119

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17092055.23; E 770637.64

SURFACE ELEVATION: 541.99 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT^2 (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			SANDY SILT (ML), slightly firm, greenish-dark gray, very moist, with a trace of clay - Driller's note: easy drilling with rapid penetration					
75			FAT CLAY (CH), hard, reddish-brown to light greenish-gray, slightly moist - very thinly interbedded reddish-brown claystone from 74' to 78'					
80							28	86
85			- caliche pockets from 82.5' to 83' - reddish-brown claystone interbeds from 83' to 87'					
90			LEAN CLAY (CL), hard, light grayish-green to gray and brown to reddish-brown with green and yellow mottling, slightly moist, with very thinly interbedded weakly to moderately-indurated gray siltstone and claystone					
95								
100								
105								
110			- glauconite and caliche pockets from 111.5' to 112.5'					
115								
120			- caliche pockets from 117' to 118'				40	100
125			- caliche pockets from 125' to 126'					

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 4/19/2011

DEPTH TO WATER: 7.80 ft
DATE MEASURED: 4/19/2011

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-119

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17092055.23; E 770637.64

SURFACE ELEVATION: 541.99 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			LEAN CLAY (CL), hard, light grayish-green to gray and brown to reddish-brown with green and yellow mottling, slightly moist, with very thinly interbedded weakly to moderately-indurated gray siltstone and claystone *(continued)*					
			- interbedded gray siltstone from 133' to 142'					
140								
			- interbedded gray claystone from 142' to 153					
145								
150								
			- dark gray, with interbedded dark gray claystone from 153' to 156'					
155								
			NO RECOVERY - Driller's note: cracked core barrel; not safe to extrude					
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

NOTE: THESE LOGS SHOULD NOT BE USED SI TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	7.80 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/19/2011	**DATE MEASURED:**	4/19/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-120

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17061524.93; E 770428.60

SURFACE ELEVATION: 539.92 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (539.92 ft):*** FAT CLAY (CH), stiff to hard, brown to light brown, moist, with caliche pockets - organic matter to 2'				
5					
	- sandy, moist to wet from 8' to 12'				
10					87
	- clayey sand lens from 11.5' to 12' - gravel from 12' to 13.5				
15	***STRATUM III (526.42 ft):*** LEAN CLAY (CL), hard, grayish-brown with green mottling, slightly moist - ferrous staining along partings from 16' to 25'			32	
20					
	- wet to saturated, poorly graded, fine-grained sand from 21.5' to 23'				
25	***STRATUM IV (514.92 ft):*** FAT CLAY (CH), hard, light brown and green to reddish-brown with green mottling, slightly moist - ferrous staining from 29' to 33'				
30					
35					
	- scattered caliche pockets from 36' to 40'				
40					
	- very thinly interbedded brown claystone from 40' to 62'				
45					
	- indurated siltstone interbeds from 45' to 51' - light greenish-gray to brown and reddish-brown from 45' to 58'			25	73
50					
55					
	- very thinly interbedded light grayish-brown and brown claystone from 54' to 56'				
	- brown to reddish-brown with greenish-gray mottling from 58' to 62'				
60					
	- very thinly interbedded claystone from 62' to 63.5'				

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	8.50 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/18/2011	**DATE MEASURED:**	4/18/2011		

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-120

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17061524.93; E 770428.60

SURFACE ELEVATION: 539.92 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	***STRATUM IV (514.92 ft):*** FAT CLAY (CH), hard, light brown and green to reddish-brown with green mottling, slightly moist *(continued)*				
	FAT CLAY (CH), hard, light grayish-brown to gray, slightly moist - interbedded claystone from 71' to 73'				
75	- brown to reddish-brown with gray mottling and caliche pockets from 76' to 83'				
80	- blocky from 82' to 112'				
85				34	99
90					
95					
100					
105					
110					
115	- brown with dark gray mottling, with very thinly interbedded gray claystone from 112' to 120'				
120	Boring Terminated				
125					

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	8.50 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/18/2011	**DATE MEASURED:**	4/18/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-121

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17091890.87; E 771810.79

SURFACE ELEVATION: 544.09 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM II (544.09 ft):*** SANDY LEAN CLAY (CL), stiff to hard, light brown to brown and reddish-brown, moist, with organic matter, caliche pockets, and ferrous staining				
5	***STRATUM III (541.09 ft):*** LEAN CLAY (CL), hard, reddish-brown with greenish-gray mottling to greenish-gray, slightly moist, with caliche pockets				
10				31	96
15	- scattered sand from 13.5' to 24'				
20	- ferrous staining along partings from 18' to 20'				
25	- sandy from 24' to 28'				
30	***STRATUM IV (516.09 ft):*** SANDY LEAN CLAY (CL), silty, hard, greenish-gray with light brown mottling, slightly moist, with scattered ferrous staining - grayish-green sandstone fragments at 28' - very thinly interbedded brown claystone from 30' to 34'				
40					
45	- brown to reddish-brown with greenish-gray mottling, with very thinly interbedded brown claystone, silt and fine-grained sand from 43' to 72'				
50				26	88
55	- blocky from 52' to 66'				
60					

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	7.90 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	5/8/2011	**DATE MEASURED:**	5/8/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-121

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17091890.87; E 771810.79

SURFACE ELEVATION: 544.09 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	***STRATUM IV (516.09 ft):*** SANDY LEAN CLAY (CL), silty, hard, greenish-gray with light brown mottling, slightly moist, with scattered ferrous staining *(continued)*				
75	- very thinly interbedded sandstone from 72' to 88' - grayish-brown with greenish-gray mottling, with some fine-grained sand from 72' to 91.5'				
80					
85					
90	- blocky, with very thinly interbedded claystone from 88' to 91.5'			50	93
95	FAT CLAY (CH), blocky, fractured, hard, reddish-brown to dark grayish-brown with gray and greenish-gray mottling, slightly moist, with a trace of sand and scattered ferrous staining				
100					
105					
110					
115					
120	Boring Terminated				
125					

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	120.0 ft	**DEPTH TO WATER:**	7.90 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	5/8/2011	**DATE MEASURED:**	5/8/2011		

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-122

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17091018.37; E 771850.19

SURFACE ELEVATION: 543.02 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
0			***STRATUM II (543.02 ft):*** FAT CLAY (CH), very firm to stiff, brown to tan, moist, with organic matter and caliche pockets					
5			***STRATUM III (540.02 ft):*** FAT CLAY (CH), hard, light brown, slightly moist, with caliche pockets and scattered gypsum crystals					
10								
15			- ferrous staining along partings from 13' to 13.5'				24	95
20			***STRATUM IV (527.02 ft):*** FAT CLAY (CH), hard, gray to brown, slightly moist, with very thinly interbedded grayish-brown siltstone					
25								
30								
35								
40			- reddish-brown with greenish-gray mottling from 37' to 76'					
45								
50							26	98
55								
60								

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 4/16/2011

DEPTH TO WATER: 9.80 ft
DATE MEASURED: 4/16/2011

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-122

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17091018.37; E 771850.19

SURFACE ELEVATION: 543.02 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	***STRATUM IV (527.02 ft):*** FAT CLAY (CH), hard, gray to brown, slightly moist, with very thinly interbedded grayish-brown siltstone *(continued)* - brown-gray mottling from 65' to 69' - glauconite at partings and gray siltstone from 69' to 75'				
75	- grayish-green with caliche at partings from 75' to 76'				
	FAT CLAY (CH), hard, brown with greenish-gray mottling, slightly moist - caliche pockets from 76' to 77'				
80	- caliche pockets from 83' to 84'				
85	- very thinly interbedded gray siltstone from 87' to 94'				66
90				31	
95	- very thinly interbedded brown claystone from 94' to 98'				
100					
105	- very thinly interbedded greenish-gray siltstone from 104' to 111'				
110					
115	- very thinly interbedded gray to light brown claystone from 111' to 116'				
120	- yellow mottling from 118' to 119' - caliche pockets from 118.5' to 120'				
125	- caliche pockets at 124'				
	- very thinly interbedded brown claystone from 126' to 131'			28	95

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	9.80 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/16/2011	**DATE MEASURED:**	4/16/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-122

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17091018.37; E 771850.19

SURFACE ELEVATION: 543.02 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT^2 (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			FAT CLAY (CH), hard, brown with greenish-gray mottling, slightly moist *(continued)* - caliche pockets from 131' to 137'					
140			FAT CLAY (CH), hard, light grayish-brown and dark brown to brown with gray mottling, slightly moist, with very thinly interbedded gray siltstone					
145			- sandy from 146' to 148' - dark grayish-green with brown mottling and intermittent yellow mottling, with ferrous staining from 146' to 152'					
150			- caliche pockets from 152' to 156'					
155								
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 4/16/2011

DEPTH TO WATER: 9.80 ft
DATE MEASURED: 4/16/2011

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-123

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17091241.54; E 769533.57

SURFACE ELEVATION: 535.13 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (535.13 ft):*** SANDY LEAN CLAY (CL), firm to stiff, light brown to brown, moist, with organic matter and caliche pockets				
5					
	- scattered gravel from 8' to 10'				
10	***STRATUM III (525.13 ft):*** FAT CLAY (CH), hard, light brown to reddish-brown with gray and scattered orange mottling, slightly moist			23	83
15	- scattered ferrous staining along partings from 10' to 17'				
	- caliche pockets from 12' to 17'				
	- fine-grained sand from 17' to 22'				
20					
	- green mottling, with caliche pockets from 22' to 26'				
25					
	- light greenish-gray mottling from 26' to 32'				
30					
	STRATUM IV (503.13 ft): FAT CLAY (CH), hard, brown to reddish-brown and dark grayish-brown to gray with brown and greenish-gray mottling, slightly moist				
35	- scattered fine-grained sand from 36' to 40'				
	- caliche pockets and glauconite from 40' to 46'				
40					
45					
50				38	94
55					
	- brown with gray mottling, with thinly interbedded moderately-indurated brown to reddish-brown claystone from 56' to 80.5'				
60					
	- scattered fine-grained sand, with				

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.30 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/29/2011	**DATE MEASURED:**	4/29/2011		

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-123

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17091241.54; E 769533.57

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
			SURFACE ELEVATION: 535.13 ft					
			weakly-indurated sandstone from 63' to 64'					
70			***STRATUM IV (503.13 ft):*** FAT CLAY (CH), hard, brown to reddish-brown and dark grayish-brown to gray with brown and greenish-gray mottling, slightly moist *(continued)*					
75								
			- caliche pockets from 78' to 80.5'					
80								
85			FAT CLAY (CH), hard, gray and brown to reddish-brown with greenish-gray mottling, slightly moist - scattered fine-grained sand, very thinly interbedded fine-grained sandstone/siltstone from 84' to 88'					
90							14	54
			- scattered fine-grained sand from 92' to 98'					
95			- very thinly fine-grained sandstone/siltstone from 94' to 96'					
			- interbedded brown claystone from 98' to 105'					
100								
105			- scattered fine-grained sand from 105' to 115'					
110								
			- very thinly interbedded fine-grained sandstone/siltstone from 112' to 115'					
115			- interbedded brown claystone from 115' to 125'					
120								
			- scattered fine-grained sand from 120' to 135'					
125							24	49

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 4/29/2011

DEPTH TO WATER: 5.30 ft
DATE MEASURED: 4/29/2011

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-123

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17091241.54; E 769533.57

SURFACE ELEVATION: 535.13 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
135			FAT CLAY (CH), hard, gray and brown to reddish-brown with greenish-gray mottling, slightly moist *(continued)*					
140								
145								
150			- very thinly interbedded, very fine-grained gray sandstone/siltstone from 151' to 154'					
155			- interbedded grayish-brown claystone from 154' to 160'					
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.30 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/29/2011	**DATE MEASURED:**	4/29/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-124

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17090782.39; E 770051.61

SURFACE ELEVATION: 536.89 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
	NO RECOVERY				
5	***STRATUM I (531.89 ft):*** FAT CLAY (CH), soft to firm, dark brown, slightly moist, with organic matter, caliche pockets and ferrous staining - fine-grained sand from 6' to 7.5'				
10					
15	***STRATUM III (524.89 ft):*** FAT CLAY (CH), hard, reddish-brown to dark brown with greenish-gray and brown mottling, slightly moist, with caliche pockets				
20	- ferrous staining and weathering along partings from 21' to 26'			18	93
25					
30	***STRATUM IV (510.89 ft):*** SANDY LEAN CLAY (CL), hard, grayish-green to reddish-brown with greenish-gray mottling, slightly moist to moist - brown with greenish-gray mottling, with interbedded brown claystone and siltstone from 29' to 35'				
35	- green with brown mottling from 35' to 39'				
40					
45	- reddish-brown, with very thinly interbedded claystone from 42' to 47'				
50	- brown, very thinly interbedded claystone from 50' to 57'				
55					
60	- gray with green mottling from 57' to 62'			50	99

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.33 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	5/6/2011	**DATE MEASURED:**	1/10/2012		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-124

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17090782.39; E 770051.61

SURFACE ELEVATION: 536.89 ft

DEPTH, FT	DESCRIPTION OF MATERIAL
70	***STRATUM IV (510.89 ft):*** SANDY LEAN CLAY (CL), hard, grayish-green to reddish-brown with greenish-gray mottling, slightly moist to moist *(continued)*
	- brown with scattered light greenish-gray mottling, with very thinly interbedded brown claystone from 67' to 71'
75	
80	
	- interbeds and induration decreasing from 82' to 93'
85	
90	
	- gray with light brown mottling from 91' to 92'
95	FAT CLAY (CH), hard, dark grayish-green with dark gray mottling, slightly moist to moist
	- gray from 94' to 100'
100	- greenish-gray siltstone from 99.5' to 99.75'
	- gray to greenish-gray to brown-gray, with thinly interbedded gray sandstone and claystone from 100' to 113'
105	
110	- caliche pockets from 109' to 110'
115	
	- reddish-brown with greenish-gray mottling, with weakly-indurated reddish-brown claystone from 117' to 123'
120	
	- grayish-brown to grayish-green with claystone inclusions from 123' to 126'
125	
	- reddish-brown with greenish-gray mottling with weakly-indurated claystone from

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

PLASTICITY INDEX	% -200
109	
86	99

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.33 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	5/6/2011	**DATE MEASURED:**	1/10/2012		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-124

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17090782.39; E 770051.61

SURFACE ELEVATION: 536.89 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
			127' to 134.5' FAT CLAY (CH), hard, dark grayish-green with dark gray mottling, slightly moist to moist *(continued)* - caliche pockets from 131' to 134.5' - gray, with very thinly interbedded siltstone from 134.5' to 135'				43	96
135								
140			- gray, with very thinly interbedded well-indurated sandstone/siltstone from 141' to 150'					
145								
150			- greenish-gray from 148' to 150' - reddish-brown with very thinly interbedded gray siltstone and weakly-indurated claystone from 150' to 154'					
155			- trace of fine-grained sand from 154' to 160'					
160			Boring Terminated					
165								
170								
175								
180								
185								
190								

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 5/6/2011

DEPTH TO WATER: 5.33 ft
DATE MEASURED: 1/10/2012

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-125

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17091270.66; E 771215.27

SURFACE ELEVATION: 542.22 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (542.22 ft):*** SANDY LEAN CLAY (CL), very firm, light brown to brown, moist, with organic matter and caliche pockets and large rounded gravel				
5	- ferrous stained sand and caliche from 6.5' to 9.5'				
10	***STRATUM III (532.72 ft):*** LEAN CLAY (CL), hard, light brown to tannish-green and orange mottling, slightly moist, with gypsum crystals and ferrous staining along partings				
15				21	96
20	***STRATUM IV (524.22 ft):*** FAT CLAY (CH), hard, grayish-light brown to reddish-brown with greenish-gray mottling, slightly moist, with very thinly interbedded claystone and siltstone				
25	- blocky, reddish-brown with light greenish-gray mottling from 26' to 40'				
30	- caliche pockets and weakly-indurated gray to brown claystone from 32' to 35'				
35					
40	- glauconite at partings from 39' to 40'				
45					
50					
55	- sandy from 54' to 56'			22	87
	SANDY SILT (ML), very firm to stiff, light greenish-gray, moist, with some clay				
60	LEAN CLAY (CL), stiff, light grayish-green, slightly moist				
	- large caliche pockets from 63' to 65'				

SHEAR STRENGTH, TONS/FT²: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

DEPTH DRILLED:	121.0 ft	**DEPTH TO WATER:**	9.00 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/17/2011	**DATE MEASURED:**	4/17/2011		

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-125

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17091270.66; E 771215.27

SURFACE ELEVATION: 542.22 ft

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
70	FAT CLAY (CH), blocky, hard, reddish-brown to brown with light greenish-gray mottling, slightly moist, with very thinly interbedded brown claystone/shale and siltstone *(continued)*				
75	- large caliche pockets from 74' to 76'				
80	- weakly-indurated siltstone from 82' to 83'				
85	- reddish-brown with light gray mottling from 86' to 92'				
90					
95	- reddish-brown with light gray mottling from 94' to 97'			28	98
	- light greenish-gray siltstone from 97' to 98.5'				
100	FAT CLAY (CH), hard, reddish-brown, slightly moist, with interbedded gray-brown claystone - gray mottling from 101' to 107' - yellow mottling from 103' to 104'				
105	- caliche pockets at 106'				
110	- caliche pockets from 111' to 113'				
115	- caliche at partings from 116' to 118'				
120	- caliche at partings from 119' to 120'				
	Boring Terminated				
125					

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

DEPTH DRILLED:	121.0 ft	**DEPTH TO WATER:**	9.00 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	4/17/2011	**DATE MEASURED:**	4/17/2011		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-126

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17090513.67; E 771233.38

SURFACE ELEVATION: 538.03 ft

SHEAR STRENGTH, TONS/FT²
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0
PLASTIC LIMIT — WATER CONTENT — LIQUID LIMIT
10 20 30 40 50 60 70 80

DEPTH, FT	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
0	***STRATUM I (538.03 ft):*** FAT CLAY (CH), stiff, brown to light brown, moist, with organic matter and caliche pockets				
5	- sandy from 2' to 9'				
10	***STRATUM III (529.03 ft):*** LEAN CLAY (CL), very firm to stiff, tan to reddish-brown with orange mottling, slightly moist, with ferrous staining along partings and scattered caliche pockets				
15					
20					
21	***STRATUM IV (517.03 ft):*** FAT CLAY (CH), hard, reddish-brown to gray, slightly moist, with thinly interbedded well-indurated claystone, siltstone and fine-grained sandstone			27	98
25	- interbedded siltstone from 21' to 26'				
30	- sandy from 29' to 37'				
35					
40					
42	- grayish-brown to reddish-brown from 42' to 44'				
45	- claystone fragments decreasing from 42' to 52'				
47	- greenish-gray with brown mottling from 44' to 47'				
49	- blocky, brown from 47' to 49'				
50	- reddish-brown with greenish-gray mottling from 49' to 60'				
52	- large claystone fragments from 52' to 55'				
55					
59	- caliche pockets from 59' to 60'			35	100
60	- brown with greenish-gray mottling, with glauconite pockets from 60' to 63'				
63	- caliche pockets from 63' to 70'				

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 5/7/2011

DEPTH TO WATER: 5.84 ft
DATE MEASURED: 1/10/2012

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-126

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17090513.67; E 771233.38

SURFACE ELEVATION: 538.03 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
70			- reddish-brown to gray, with some fine-grained sand, thinly interbedded gray sandstone from 63' to 71' ***STRATUM IV (517.03 ft):*** FAT CLAY (CH), hard, reddish-brown to gray, slightly moist, with thinly interbedded well-indurated claystone, siltstone and fine-grained sandstone *(continued)* - greenish-gray from 71' to 76'					
75			- brown with greenish-gray mottling from 76' to 81'					
80			- gray, with very thinly interbedded sandstone from 81' to 83' - brown with gray mottling, with interbedded brown claystone from 83' to 84'					
85			FAT CLAY (CH), hard, light greenish-gray to gray and reddish-brown, slightly moist					
90			- brown and gray from 91' to 94.5' - thinly interbedded reddish-brown claystone from 92' to 93'					
95			- reddish and chocolate brown with greenish-gray mottling from 94.5' to 97'					
			- dark greenish-gray, with scattered fine-grained sand from 97' to 102'				50	100
100								
105			- reddish-brown with greenish-gray mottling, with caliche pockets from 102' to 115'					
110								
115			FAT CLAY (CH), hard, green with light brown mottling, slightly moist					
120								
125								

DEPTH DRILLED: 160.0 ft
DATE DRILLED: 5/7/2011

DEPTH TO WATER: 5.84 ft
DATE MEASURED: 1/10/2012

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. B-126

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

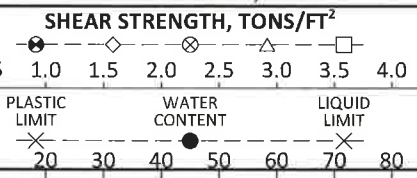
DRILLING METHOD: Rotosonic

LOCATION: N 17090513.67; E 771233.38

SURFACE ELEVATION: 538.03 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	PLASTICITY INDEX	% -200
135			FAT CLAY (CH), hard, green with light brown mottling, slightly moist *(continued)* - weakly-indurated gray claystone from 131' to 134' - caliche pockets from 132' to 133' - brown with gray mottling from 134' to 136' - thinly interbedded gray siltstone and a trace of fine-grained sand from 136' to 141'			38	97
140							
145			- gray with brown mottling from 145' to 148'				
150							
155			- gray from 151' to 152' - brown to reddish-brown with gray and greenish-gray mottling, with indurated reddish-brown claystone from 152' to 160'				
160			Boring Terminated				
165							
170							
175							
180							
185							
190							

SHEAR STRENGTH, TONS/FT^2



NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	160.0 ft	**DEPTH TO WATER:**	5.84 ft	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	5/7/2011	**DATE MEASURED:**	1/10/2012		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. DB-1

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097776.98; E 770467.22

SURFACE ELEVATION: 550.60 ft

DEPTH, FT	DESCRIPTION OF MATERIAL
0	***STRATUM I (550.60 ft):*** FAT CLAY (CH), firm, tan to brown, moist, with caliche pockets, organic matter, ferrous staining and scattered sand
5	***STRATUM III (547.60 ft):*** CLAY, stiff to hard, light greenish-brown to reddish-brown, slightly moist, with ferrous staining along partings and scattered caliche pockets
10	
13	- greenish-tan from 13' to 16'
15	
16	- grayish-brown with green mottling from 16' to 18'
18	- reddish-brown with green and some orange mottling from 18' to 27.5'
20	
25	
27.5	***STRATUM IV (523.10 ft):*** FAT CLAY (CH), hard, greenish-gray with light brown mottling, slightly moist
30	- sandy from 30.5' to 34.5'
34.5	- brown with green mottling, with scattered brown claystone fragments from 34.5' to 36'
35	
36	- brown, with widely scattered fine-grained sand and scattered ferrous staining from 36' to 49'
40	
45	
49	- green siltstone from 49' to 50'
50	- thinly interbedded brown claystone from 50' to 51'
51	- thinly interbedded greenish-gray fine-grained sandstone from 51' to 55'
55	- brown, with interbedded gray-brown siltstone/claystone from 55' to 57'
57	- gray siltstone/claystone from 58.5' to 61'
60	
61	- green claystone from 62' to 64.5'
64.5	

SYMBOL | SAMPLES | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) | PLASTIC LIMIT | WATER CONTENT | LIQUID LIMIT (10 20 30 40 50 60 70 80) | PLASTICITY INDEX | % -200

DEPTH DRILLED: 502.0 ft
DATE DRILLED: 6/7/2011

DEPTH TO WATER: -
DATE MEASURED: -

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. DB-1

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Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097776.98; E 770467.22

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT²	PLASTICITY INDEX	% -200
			SURFACE ELEVATION: 550.60 ft			0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0		
			SANDSTONE, very fine-grained, grayish-green, slightly moist, with greenish-gray clay *(continued)*			PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT		
70			FAT CLAY (CH), hard, grayish-green to brown and reddish-brown, slightly moist - very thinly interbedded grayish-green fine-grained sandstone from 66' to 72' - brown with gray mottling and gray-brown siltstone from 70' to 72' - reddish-brown with greenish-gray mottling from 72' to 84'			10 20 30 40 50 60 70 80		
75								
80			- very thinly interbedded brown claystone from 79' to 81'					
85			- caliche pockets from 83.5' to 84' NO RECOVERY - very thinly interbedded gray fine-grained sandstone from 86' to 90'					
90			- scattered gray siltstone from 90' to 101'					
95								
100								
105			- greenish-gray with light brown mottling, with scattered fine-grained sandstone from 101' to 103' - caliche pockets from 104' to 105' FAT CLAY (CH), hard, brown with green mottling to reddish-brown with light gray mottling, slightly moist - scattered brown claystone from 105' to 106' - glauconite pockets from 106' to 107' - orange-brown mottling from 106' to 110' - scattered brown claystone from 110' to 119'					
110								
115			- orange-brown mottling from 116' to 125'					
120			- grayish-brown siltstone from 120' to 122'					
125			- scattered weakly-indurated grayish-green claystone from 125' to 126' - reddish-brown with light gray mottling, with thinly interbedded brown claystone from 126' to 129'					

DEPTH DRILLED: 502.0 ft
DATE DRILLED: 6/7/2011

DEPTH TO WATER: -
DATE MEASURED: -

PROJ. No.: ASF13-140-00

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Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. DB-1

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Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097776.98; E 770467.22

SURFACE ELEVATION: 550.60 ft

DEPTH, FT	DESCRIPTION OF MATERIAL
135	- greenish-gray with light brown mottling, with very fine-grained greenish-gray sandstone, caliche pockets, and gypsum crystals from 129' to 131' FAT CLAY (CH), hard, brown with green mottling to reddish-brown with light gray mottling, slightly moist *(continued)* - thinly interbedded brown siltstone/claystone from 131' to 136' - dark gray with greenish-gray mottling and some orange mottling, with scattered gray claystone from 136' to 139'
140	
145	- brown with dark gray and greenish-gray mottling, with scattered silt and interbedded brown with green siltstone from 146' to 149'
150	- light greenish-gray from 149' to 151' - fine-grained, thinly interbedded grayish-brown and greenish-gray sandstone from 149' to 151' - sandstone fragments from 151' to 151.5' - brown with light gray and greenish-gray mottling from 151' to 152' - gray with light green mottling from 151' to 153' - brown with greenish-gray mottling from 153' to 156'
155	
160	FAT CLAY (CH), hard, grayish-brown to reddish-brown, slightly moist - very fine-grained gray sandstone from 156' to 164'
165	- grayish-light brown siltstone from 164' to 166' - sandy, with thinly interbedded, very fine-grained gray sandstone from 166' to 168'
170	- reddish-brown to brown with greenish-gray and orange-brown mottling with scattered fine-grained sand from 168' to 171' - scattered brown claystone from 168' to 173'
175	- greenish-gray with light brown mottling from 171' to 173' - greenish-gray and reddish-brown with fine-grained sand from 173' to 174' - dark grayish-green with brown mottling with siltstone from 173' to 176'
180	- greenish-gray and light brown and gray fine-grained sandstone from 176' to 183' - dark brown with dark green mottling from 183' to 186' - siltstone interbeds from 184' to 186' - moderately-indurated claystone from 186' to 191.5'
185	
190	- gray with very fine-grained sandstone from 191.5' to 192'

SHEAR STRENGTH, TONS/FT^2: 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0

PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT: 10 20 30 40 50 60 70 80

BLOWS PER FT | UNIT DRY WEIGHT, pcf | PLASTICITY INDEX | % -200

DEPTH DRILLED: 502.0 ft
DATE DRILLED: 6/7/2011

DEPTH TO WATER: -
DATE MEASURED: -

PROJ. No.: ASF13-140-00

NOTE: THESE LOGS SHOULD NOT BE USED SEPARATELY FROM THE PROJECT REPORT

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. DB-1

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097776.98; E 770467.22

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
			SURFACE ELEVATION: 550.60 ft					
			FAT CLAY (CH), hard, grayish-brown to reddish-brown, slightly moist *(continued)* - siltstone from 196' to 199'					
200			- brown claystone from 199' to 199.5' - brown to reddish-brown with light gray mottling from 200' to 205'					
205			- green, with fine-grained sand and very fine-grained sandstone from 205' to 207' - thinly interbedded brown claystone from 207' to 222'					
210			- glauconite and caliche pockets from 211' to 212' - reddish-brown to brown, with light greenish-gray mottling from 212' to 222'					
215								
220			- brown claystone from 222' to 222.5' - thinly interbedded brown claystone from 222.5' to 228'					
225								
230			- grayish-green with brown mottling and grayish-green very fine-grained sandstone interbeds from 230' to 236'					
235			- reddish-brown with light gray mottling and brown claystone from 236' to 240'					
240			FAT CLAY (CH), hard, reddish-brown and gray-green, slightly moist, with thinly interbedded dark grayish-green claystone and siltstone - gypsum crystals and caliche pockets from 240' to 242' and from 245' to 246'					
245								
250			- blocky, brown to reddish-brown with light gray mottling, with brown claystone from 249' to 253'					
			NO RECOVERY					
255								

NOTE: THESE LOGS SHOULD NOT BE USED SE TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	502.0 ft	**DEPTH TO WATER:**	-	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/7/2011	**DATE MEASURED:**	-		

Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. DB-1

Pescadito Environmental Resource Center - Type I MSW
Management Facility - Rancho Viejo Waste Management, LLC
Webb County, Texas - MSW Permit No. 2374

RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097776.98; E 770467.22

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
			SURFACE ELEVATION: 550.60 ft					
			- grayish-brown claystone from 263' to 266'					
265								
270								
275			NO RECOVERY					
			CLAYSTONE or SILTSTONE, hard, brown and gray, slightly moist					
280								
285			SANDSTONE, very fine-grained, gray, slightly moist, with interbedded clays containing very thinly interbedded sandstone					
			- clay from 288' to 296'					
290			- caliche pockets from 290' to 295'					
295								
300								
305			- interbedded gray sandy clay 304' to 306'					
310			- greenish-gray siltstone from 309' to 312'					
315			- interbedded hard gray sandy clay from 314' to 316'					
320								

DEPTH DRILLED: 502.0 ft
DATE DRILLED: 6/7/2011

DEPTH TO WATER: -
DATE MEASURED: -

PROJ. No.: ASF13-140-00

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Initial Submittal: 02-25-15; Revised: 09-18-15

LOG OF BORING NO. DB-1

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RABA KISTNER
TBPE Firm Registration No. F-3257

DRILLING METHOD: Rotosonic

LOCATION: N 17097776.98; E 770467.22

SURFACE ELEVATION: 550.60 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
330			SANDSTONE, very fine-grained, gray, slightly moist, with interbedded clays containing very thinly interbedded sandstone *(continued)*					
335			- interbedded gray and dark gray sandy clay and thinly interbedded gray sandstone from 332' to 336'					
340			- dark gray from 338' to 340' - with pyrite and oyster shells from 339' to 340'					
345								
350								
355			FAT CLAY (CH), hard, gray to dark brownish-gray and reddish-brown, slightly moist - thinly interbedded gray sandstone from 355' to 356'					
360			NO RECOVERY - Driller's note: sample washed out					
365								
370			- dark green siltstone from 366' to 368'					
375								
380			- very fine-grained greenish-gray sandstone from 376' to 377' - brown claystone from 378' to 379' - very fine-grained brownish-gray sandstone from 380' to 381'					
385			FAT CLAY (CH), hard, brown with green mottling, slightly moist, with fine-grained sand - green from 382' to 386' NO RECOVERY					

NOTE: THESE LOGS SHOULD NOT BE USED SI TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	502.0 ft	**DEPTH TO WATER:**	-	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/7/2011	**DATE MEASURED:**	-		

Initial Submittal: 02-25-15; Revised: 09-18-15

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DRILLING METHOD: Rotosonic

LOCATION: N 17097776.98; E 770467.22

SURFACE ELEVATION: 550.60 ft

DEPTH, FT	DESCRIPTION OF MATERIAL
395	- very fine-grained greenish-gray sandstone from 389' to 391' *(continued)* - light to dark gray claystone from 391' to 395'
400	- green claystone from 395' to 397'
405	- dark greenish-gray siltstone/claystone from 400' to 404'
410	- very fine-grained dark greenish-gray sandstone from 404' to 406'
415	NO RECOVERY - Driller's note: Soft zone/caving
420	
425	
430	SANDSTONE, very fine-grained, brown to light green, slightly moist
435	
440	FAT CLAY (CH), hard, green to brown and reddish-brown, slightly moist, with thinly interbedded sandstone and claystone
445	- caliche pockets and thinly interbedded fine-grained greenish-gray sandstone from 445' to 446'
450	

SYMBOL | SAMPLES | BLOWS PER FT | UNIT DRY WEIGHT, pcf | SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) | PLASTIC LIMIT | WATER CONTENT | LIQUID LIMIT (10 20 30 40 50 60 70 80) | PLASTICITY INDEX | % -200

DEPTH DRILLED: 502.0 ft
DATE DRILLED: 6/7/2011

DEPTH TO WATER: -
DATE MEASURED: -

PROJ. No.: ASF13-140-00

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DRILLING METHOD: Rotosonic

LOCATION: N 17097776.98; E 770467.22

SURFACE ELEVATION: 550.60 ft

DEPTH, FT	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	BLOWS PER FT	UNIT DRY WEIGHT, pcf	SHEAR STRENGTH, TONS/FT² (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0) / PLASTIC LIMIT / WATER CONTENT / LIQUID LIMIT (10 20 30 40 50 60 70 80)	PLASTICITY INDEX	% -200
460			FAT CLAY (CH), hard, green to brown and reddish-brown, slightly moist, with thinly interbedded sandstone and claystone *(continued)* - caliche pockets and interbedded fine-grained green and gray sandstone from 455' to 456' - dark gray siltstone from 456' to 460'					
465								
470			- wet from 468' to 470'					
475								
480			NO RECOVERY					
485								
490			- caliche pockets from 490' to 494'					
495								
500			Boring Terminated					
505								
510								
515								

NOTE: THESE LOGS SHOULD NOT BE USED SI TELY FROM THE PROJECT REPORT

DEPTH DRILLED:	502.0 ft	**DEPTH TO WATER:**	-	**PROJ. No.:**	ASF13-140-00
DATE DRILLED:	6/7/2011	**DATE MEASURED:**	-		

Initial Submittal: 02-25-15; Revised: 09-18-15

KEY TO TERMS AND SYMBOLS

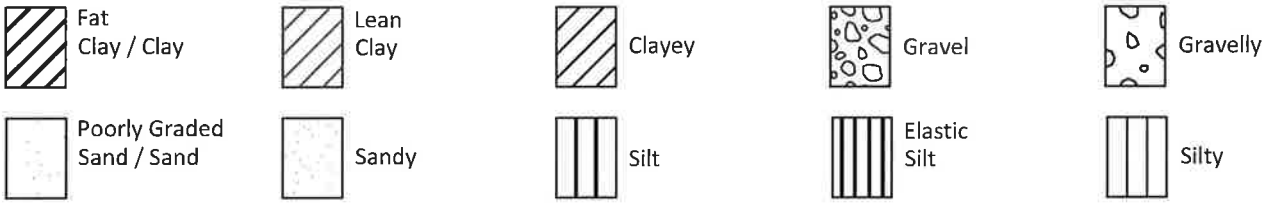
TERMINOLOGY

Terms used in this report to describe soils with regard to their consistency or conditions are in general accordance with the discussion present in Article 45 of SOILS MECHANICS IN ENGINEERING PRACTICE, Terzaghi and Peck, John Wiley & Sons, Inc., 1967, using information available from the field and laboratory investigations. Terms used for describing soils according to texture or grain size distribution are in general accordance with the UNIFIED SOIL CLASSIFICATION SYSTEM.

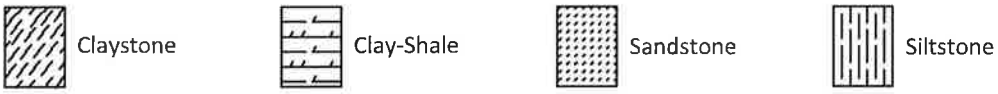
The depths shown on the boring logs are not exact, and have been estimated to the nearest half-foot. Depth measurements may be presented in a manner that implies greater precision in depth measurement, (e.g. 6.51 feet). The reader should understand and interpret this information only within the stated half-foot tolerance on depth measurements.

MATERIAL TYPES

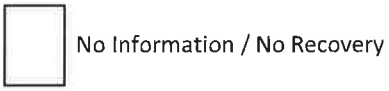
SOIL TERMS



ROCK TERMS



OTHER



FIELD PERCENTAGE TERMS

Trace	- Occurrence of subject mineral or constituent is estimated to comprise 1-3% of soil or rock sample matrix based on visual observations.
Scattered	- Occurrence of subject mineral or constituent is estimated to comprise more than 3% but less than 15% of soil or rock sample matrix based on visual observations. When subject mineral or constituent occurrence is estimated to be greater than 15%, the sample is simply classified as "sandy", "silty", "clayey", or "with glauconite", "with organic matter", etc.
Intermittent	- Said typically when the occurrence of a subject mineral or constituent within a fairly homogenous soil or rock sample matix is observed to alternately cease or stop for a time and then begin again as a function of sample depth.

BEDDING

Massive	- 3 feet thick or greater.
Thickly Bedded	- beds from 1 to 3 feet thick.
Medium Bedded	- beds from 4 inches to 1 foot thick.
Thinly Bedded	- 2 inches to 4 inches thick.
Very Thinly Bedded	- 2 inches thick or less.

KEY TO TERMS AND SYMBOLS (CONT'D)

SAMPLE TYPES

SAMPLING METHODS

RELATIVELY UNDISTURBED SAMPLING

Cohesive soil samples were collected using 3 inch thin-walled tubes in general accordance with the Standard Practice for Thin-Walled Tube Sampling of Soils (ASTM D1587) or Geoprojects International (GPI) modified pitcher barrel sampler. Granular soils samples were collected using 2 inch split-spoon samplers in general accordance with the Standard Method for Penetration Test and Split-Barrel Sampling of Soils (ASTM D1586).

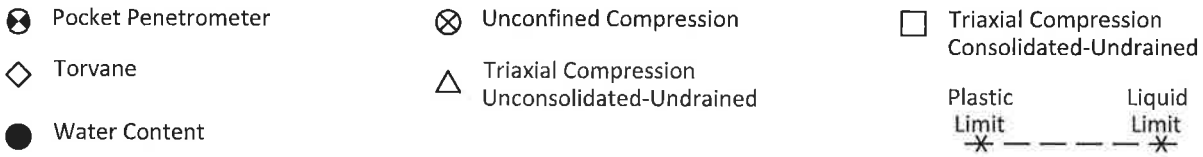
STANDARD PENETRATION TEST (SPT)

A 2 inch-OD, 1-3/8 inch-ID split-spoon sampler is driving 1.5 feet into undisturbed soil with a 140 pound hammer free falling 30 inches. After the sampler is seated 6 inches into undisturbed soil, the number of blows required to drive the sampler is the last 12 inches is the Standard Penetration Resistance of "N" value, which is recorded as blows per foot as described below.

SPLIT-BARREL SAMPLER DRIVING RECORD

Blows per foot	Description
25	- 25 blows drove sampler 12 inches, after initial 6 inches of seating.
50/7"	- 50 blows drove sampler 7 inches, after initial 6 inches of seating.
Ref/3"	- 50 blows drove sampler 3 inches during inital 6 inch seating interval.

STRENGTH TEST TYPES



NOTE: Values symbolized on boring logs represent shear strengths unless otherwise noted.

RELATIVE DENSITY

Resistance Blows per foot	Relative Density
0 - 4	Very Loose
4 - 10	Loose
10 - 30	Medium Dense
30 - 50	Dense
>50	Very Dense

COHESIVE STRENGTH

Resistance Blows per foot	Relative Density	Cohesion TSF
0 - 2	Very Soft	0 - 2
2 - 4	Soft	2 - 4
4 - 8	Firm	4 - 8
8 - 15	Stiff	8 - 15
15 - 30	Very Stiff	15 - 30
>30	Hard	>30

PLASTICITY

Plasticity Index	Degree of Plasticity
0 - 5	None
5 - 10	Low
10 - 20	Moderate
20 - 40	Plastic
>40	Highly Plastic

FIELD HARDNESS

Very Soft	- Can be deformed by hand.
Soft to Firm	- Can be scratched with fingernail.
Firm to Stiff	- Can be scratched easily with a knife.
Hard	- Can be scratched with difficulty with a knife.
Very Hard	- Cannot be scratched with a knife.

KEY TO TERMS AND SYMBOLS (CONT'D)

MOISTURE CONDITION

Dry	- Absence of moisture, completely dry to the touch.
Slightly Moist	- No visible water, but clay soils from sample matrix can be grooved or partially smoothed with a knife.
Moist	- Damp but no visible water, clay soils from sample matrix can be grooved or smoothed with a knife.
Free Water	- Noted observations of visible water in recovered samples. The term is not intended to imply matrix-saturated conditions or the collection of soil sample(s) from within zone(s) of saturation.
Wet	- Visible free water in sample matrix at some locations associated with matrix-saturated conditions.
Saturated	- Visible free water drains easily from sample; sample matrix is typically wet.

▽ Water level measured in borehole during drilling or within 24-48 hours of completion.

▼ Static water level

SEDIMENTARY TEXTURE

Texture	Grained Diameter	Particle	Rock Name
*	80 mm	Cobble	Conglomerate
*	5 - 80 mm	Gravel	---
Coarse Grained	2 - 5 mm	---	---
Medium Grained	0.4 - 2 mm	Sand	Sandstone
Fine Grained	0.1 - 0.4 mm	---	---
Very Fine Grained	0.1 mm	Clay, Silt	Shale, Claystone Siltstone

SOIL STRUCTURE

Bentonitic	- General term applied to clay soils, likely containing montmorillonite (smectite) as an essential mineral, having the ability to swell in water.
Blocky	- Cohesive soil that can be broken into small angular lumps which resist further breakdown.
Calcareous	- Having appreciable quantities of carbonate.
Carbonate	- Having more than 50% carbonate content.
Cemented	- Said of soil particles or clastic sediments that are bound together by cementing agents including colloidal clay, hydrates or iron, or calcium carbonate. Three degrees of cementation are typically reported: weakly-cemented, strongly-cemented, and indurated.
Fissured	- Breaks along definite plane of fracture with little resistance to fracturing.
Flocculated	- Rough surface with the appearance of apparent sand particles, but actually consisting of clay soils (no sand) that are loosely aggregated, with individual clay particles held together tightly in clot-like masses that appear as small lumps, clusters, or granules in soil samples.
Fractured	- General term for any break in soil structure or rock, whether or not it causes displacement, due to mechanical failure by stress including cracks, joints, and faults.
Friable	- Said of a rock or partially indurated soil stratum that crumbles naturally or is easily broken, pulverized, or reduced to powder. Also said of a moist soil consistency that crushes easily under gentle to moderate pressure and coheres when pressed together.
Glauconite	- General name applied to a group of green minerals occurring in soils, generally consisting of hydrous silicates of potassium and iron. It is commonly formed in the sedimentary environment by diagenetic processes (i.e., following deposition of clay soils, etc.).
Indurated	- Hardened by lithification.
Interbedded	- Said of bedding units that lay between or alternate with beds of different character.
Interlayered	- Alternating layers of different soil type.
Intermixed	- Pockets of different soil type and layered or laminated structure is not evident.
Laminated	- Alternating partings or seam of different soil type.
Layer	- Inclusion greater than 3-inches thick extending through the sample.
Lens	- Geologic deposit bounded by converging surfaces, one of which is usually curved, that is generally thick in the middle and thinning out toward the edges.
Mottled	- Said of a soil that is irregularly marked with spots or patches of different color or texture, usually indicating poor aeration or seasonal wetness.
Organic Matter	- Decayed plant root or other organic carbon matter present in surface soils
Parting	- Inclusion less than 1/8-inch thick extending through the sample.
Pocket	- Inclusion of material of different texture that is smaller than the diameter of the sample.
Seam	- Inclusion 1/8-inch to 3-inches thick extending through the sample.
Slickensided	- Having planes of weakness that appear slick and glossy.
Stratified	- Alternating layers of material or color with layers at least 6mm thick.
Weathered	- Said of soil or rocks that are changed in color, texture, composition, firmness, or form with little or no transport of the loosened or altered material resulting from exposure to atmospheric agents at or near the Earth's surface. Most weathering occurs at the surface, but may occur at considerable depths as in well-jointed or fractured rocks or sediments that permit penetration of atmospheric oxygen and/or circulating surface waters.

APPENDIX D

PIEZOMETER CONSTRUCTION DIAGRAMS

(B-1, B-2, B-6, B-10, B-11A, B-13, B-18, B-24, B-26, B-27, B-101, B-102, B-106, B-109A, B-114A, B-115, B-118, B-124 AND B-126)

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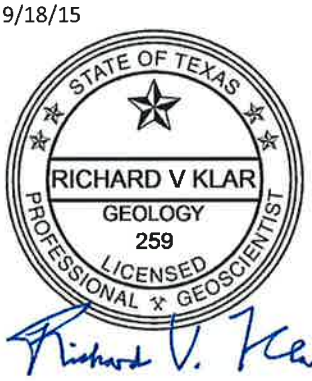

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