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Alameda County Environmental Health

January 8, 2009

Alameda County Department of Environmental Health 1131 Harbor Bay Parkway, 2nd Floor Alameda, CA 94502

Attention: Paresh Khatri

Subject: Soil and Water Investigation Workplan Dublin Toyota UST Site, 6450 Dublin Court, Dublin, California Fuel Leak Case RO# 0000333

Ladies and Gentlemen:

Attached please find a copy of the *Soil and Water Investigation Workplan*, prepared by Gribi Associates. I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

Very truly yours,

th P Ala

Scott F. Anderson Chief Financial Officer Dublin Toyota



6450 DUBLIN COURT • DUBLIN • CA 94568 • 925 829-7700 • FAX 925 829-9025



January 8, 2009

Alameda County Environmental Health 1131 Harbor Bay Parkway, 2nd Floor Alameda, CA 94502

Attention: Mr. Paresh Khatri

Subject: Soil and Water Investigation Workplan Dublin Toyota UST Site 6450 Dublin Court, Dublin, California Fuel Leak Case RO# 0000333

Ladies and Gentlemen:

Gribi Associates is pleased to submit this Soil Water Investigation (SWI) Workplan on behalf of Dublin Toyota for the underground storage tank (UST) site located at 6450 Dublin Court in Dublin, California. This Workplan addresses technical comments and provides proposed site investigational activities to comply with requests included in a letter from Alameda County Environmental Health (ACEH) dated October 24, 2008.

SITE BACKGROUND

Site Description

The Site is located in a primarily commercial area of Dublin, California and is presently the location of a Toyota/Scion automobile dealership (Figures 1 and 2). The site comprises an irregularly shaped land parcel of nearly 3.5 acres. An irregularly shaped building is located in the center of the site parcel that houses the business activities of the dealership. The west portion of the site building is primarily a show room and sales area. The east portion of the site building is primarily used as an automotive service area. The site, with the exception of the site building, is entirely paved with asphalt.

The Site is bounded to the south by Interstate 580 freeway, to the west by Dublin Sports Grounds Park, to the north by Dublin Court followed by a retail plaza, and to the east by an office-supply warehouse store.

Site Environmental Conditions

The Dublin Toyota UST site consisted of three USTs located in a common tank farm located adjacent to the northeast corner of the maintenance garage (see Figure 3). The tank farm was composed of two 2,000-gallon steel gasoline tanks and one 1,000-gallon steel waste oil tank. The three USTs were removed from a common excavation by Scott Company on June 10, 1998.

Based on soil and grab groundwater sampling results, which showed elevated levels of gasolineand diesel-range hydrocarbons, the UST excavation cavity was over-excavated, and approximately 500 gallons of groundwater was pumped from the excavation cavity. Approximately 92 tons of hydrocarbon-impacted soil were disposed of offsite.

In December 1998, Gribi Associates drilled and sampled four investigative soil borings (IB-1 through IB-4), and drilled, installed, and sampled two groundwater monitoring wells (MW-1 and MW-2) at the site. Soil and groundwater samples collected from the borings and wells contained no significant levels of hydrocarbons, except for the groundwater sample from well MW-1, located about 15 feet southwest from the former UST cavity. Groundwater samples from this well contained levels of methyl tert-butyl ether (MTBE).

In August 2000, Gribi Associates drilled and sampled one soil boring (IB-5) sited inside the Dublin Toyota service building west from the former USTs, and drilled, installed, and sampled one groundwater monitoring well (MW-3) sited south-southwest from the former USTs. Soil analytical results from these borings showed no detectable concentrations of gasoline-range hydrocarbons. Groundwater samples from these borings showed concentrations of MTBE that were significantly lower than MTBE concentrations in MW-1, indicating lateral attenuation of MTBE impacts in groundwater southwest from the former USTs. Subsequent groundwater monitoring of the three site groundwater monitoring wells in May 2002, November 2002, and April 2003 showed decreasing concentrations of MTBE in MW-1.

In May 2005, a soil and water investigation (SWI) was conducted that consisted of drilling and sampling twelve soil boring (B-1 through B-12) at the site (*SWI Summary of Findings*, Gribi Associates, June 2005). Results of the investigation indicated groundwater MTBE impacts in a shallow "A" zone immediately downgradient from the source (former location of site USTs) and in a deeper "B" zone further downgradient from the source. The SWI summary report included a brief workplan proposing the installation of ten groundwater monitoring wells, to include four shallow "A" zone wells and six deeper "B" zone wells.

In July 2005, two 2-inch diameter extraction wells (EW-1 and EW-2) were installed in a carwash bay of the Dublin Toyota facility to a depth of approximately 15 feet below surface grade. The extraction wells were constructed within the gravel backfill of the former UST excavation.

Between February and April 2006, Gribi Associates conducted seven aggressive fluid vapor recovery (AFVR) events (*Report or Interim Remedial Measures*, Gribi Associates, April 2006). Each event consisted of approximately four hours of extraction of soil vapor and groundwater at wells EW-1 and EW-2 using a vacuum truck. During the AFVR events, groundwater and vapor samples were collected to monitor remedial progress. The combined total estimated volume of removed groundwater (approximately 3,200 gallons) and the combined total estimated mass of removed gasoline-range hydrocarbons (four pounds) during the seven AFVR events were relatively small. These results indicated that AFVR had only limited applicability as a source area remedial option for the project site. Given the results and conclusions, implementation of additional AFVR activities at the site was not recommended.



In April 2006, Gribi Associates drilled and installed ten 3/4-inch diameter groundwater monitoring wells (MW-4S, MW-4D, MW-5S, MW-5D, MW-6S, MW-6D, MW-7, MW-8, MW-9, and MW-10) at the site under a workplan that was approved by ACEH in a letter dated January 6, 2006. The locations of the monitoring wells closely mirrored the locations of the soil borings conducted during the 2005 investigation. Results of groundwater monitoring and sampling were very similar to results from the soil and water investigation conducted in May 2005. Groundwater results show elevated MTBE concentrations in Zone A (shallow aquifer) immediately downgradient from the former UST excavation and elevated MTBE levels in Zone B (deeper aquifer) further downgradient from the former UST excavation.

CONTAMINANT SOURCE AREA CHARACTERIZATION

In the letter from ACEH dated October 24, 2008, ACEH requested additional source area characterization based on sample results from the removal of site USTs in 1998. Subsequent to the removal of the USTs, an automobile carwash/detail building was erected over the former UST excavation, making access to and the determination of the UST excavation limits difficult.

Laboratory reports for groundwater samples collected from the former UST excavation wells as part of the Aggressive Fluid Vapor Recovery (AFVR) activities conducted in 2006 reported maximum groundwater concentrations of 10,000 ug/L TPH-G, 500 ug/L benzene, and 18,000 ug/L MTBE. These groundwater results show significant declines from the grab groundwater sample collected from the open excavation in 1998, which reported concentrations of 160,000 ug/L TPH-G, 6,300 ug/L benzene, and 52,000 ug/L MTBE.

Although still elevated, the residual concentrations in the former UST cavity do not appear to extend significantly beyond the limits of the former excavation area. Groundwater TPH-G, benzene, and MTBE concentrations for well MW-1, located approximately 25 feet downgradient from the UST excavation, were less than 50 ug/L, less than 0.50 ug/L, and 1,000 ug/L, respectively, during Third Quarter 2008. Furthermore, TPH-G and benzene concentrations for MW-1 have not been reported above detection limits since October 2005 and December 1998, respectively.

With the exception of MTBE, the 2005 SWI showed impacts downgradient from the former UST area to be insignificant for all gasoline constituents. Borings B-1 through B-5, which were located within 75-feet and in crossgradient to downgradient directions from the source area showed no soil concentrations of gasoline constituents other than MTBE above laboratory detection limits. Groundwater concentrations for both "A" and "B" zones from each of the five borings were also reported less than laboratory detection limits for gasoline constituents other than MTBE. The lone exception was a toluene concentration of 1.8 ug/L toluene reported for a shallow groundwater sample collected at B-3.

Results from the previous site investigations and interim remedial measures appear to provide sufficient information to adequately characterize the former UST source area. Additional



investigations into remaining residual impacts of the source area are unlikely to produce meaningful data.

SOIL AND GROUNDWATER CHARACTERIZATION

In the letter from ACEH dated October 24, 2008, ACEH requests boring logs and well completion details for the ten downgradient groundwater monitoring wells installed in April 2006. Under the workplan to install the wells that was included in *Soil and Water Investigation Summary of Findings* (Gribi Associates, June 2005) and approved by ACEH in a letter dated January 6, 2006, the wells were drilled to depth using a disposable tip, and thus, soil samples were not collected for the purpose of logging site lithology or analytical testing. The locations of the ten downgradient wells were generally in close proximity to soil borings drilled in the 2005 SWI in which soils were collected and logged, and therefore a good understanding of the soil lithology was assumed.

Although boring logs do not exist for the wells installed in April 2006, monitoring wells construction details have been merged with corresponding soil boring log data from the 2005 Soil and Water Investigation. The boring logs and well construction details are provided as Attachment A. These borings have been created for the benefit of ADCEH, and to provide visual tool to understanding site characteristics. No actual boring log data exists for the ten downgradient groundwater monitoring wells is available.

PREFERENTIAL PATHWAY STUDY

Groundwater Wells Survey

A search for domestic and irrigation groundwater wells within 0.25 mile radius from the Site was conducted by obtaining "Water Well Drillers Reports" and "Well Completion Reports" from the California Department of Water Resources and "Well Location Map" from Alameda County Zone 7 Water Agency for the area of the search. These reports included water supply (irrigation, domestic, and municipal) wells, as well as abandoned wells, monitoring wells, and remediation wells. Results of the well survey did not identify active water supply wells within a 0.25 mile radius from the Site. A copy of a "Well Location Map" provided by Zone 7 is included as Attachment B. It should be noted, that although the map identifies well "3S/1E 6F 4" as a water well, records from the DWR indicate that the well was abandoned in 1976. This fact was also confirmed by Mr. Wyman Hong, of the Zone 7 Water Agency.

Conduit Study

Gribi Associates previously conducted a utility survey that was included in the *Report of Groundwater Monitoring and SWI Workplan Addendum* dated October 18, 2004. The results of the past study, which showed no significant utilities in the immediate study areas, are provided in Figure 4 and are summarized below.



- Electrical Utilities: Electricity runs overhead to the site from Dublin Court. The only underground utilities in the study area are electrical connections to light standards in the parking area on the south side of the study area. These are very local, and would be expected to be shallow.
- Water Utilities: Below-ground water pipe runs south to the site building from Dublin Court, and there are no indications of below-ground water utilities in the study area.
- **Sewer Utilities:** Below-ground sewer pipe runs south to the site building from Dublin Court, and there are no indications of below-ground sewer utilities in the study area.
- **Storm water utilities:** There are no visible storm water storm water catch basins in the study area, and we identified no buried structures in the study area. Rather, it appears that storm water from building rain gutters and from the paved yard areas are transmitted southward to Dublin Court via over-ground sheet flow.
- **Other utilities:** Results of visual inspections, electromagnetic surveys, and records review revealed no evidence of significant buried utilities in the study area.

Based on the results of the conduit study, we would not expect MTBE migration in the study area to be associated with the presence of subsurface utilities.

Site Background Study

Gribi Associates conducted a site background study to help determine the existence of potential pathways to aid contaminant migration. Gribi Associates obtained and reviewed aerial photographs, historical topographic maps, and city directories. Sanborn Fire Insurance maps were not available for the subject site. All documents indicate that the site property remained undeveloped and likely used for agriculture through the 1960's. During the 1970's, development of the subject site area to present conditions included re-alignment of Dublin Boulevard and construction of Dublin Court. The property appears to have remained undeveloped until construction of the current automobile dealership in the early 1980's.

Although it is possible that a groundwater irrigation well may have existed on the subject property at some point in the past, redevelopment of the property has resulted in such drastic changes, that finding a former well would not be feasible. Similarly, structures that are visible directly north from the site, across what is now Dublin Court, were likely on well water. These properties have also been redeveloped to a point that no identifiable landmarks remain that could aid in the location of past wells.



Aerial Photographs

Gribi Associates reviewed aerial photographs of the subject site are for years 1939, 1950, 1958, 1965, 1982, 1993, 1998, and 2005, which were obtained from Environmental Data Resources, Inc. Copies of these photographs are included in Appendix C. Review of these photographs indicate that the site was primarily used for agriculture and remained until some time between 1965 and 1982. The 1982 photograph shows redevelopment of the subject site and surrounding properties, including construction of the existing site building. The same photograph also shows the present Dublin Boulevard and Dublin Court street configuration, which does not appear in early photographs. The pre-1982 photographs appear to show structures on land immediately north in an upgradient groundwater flow direction from the site, which are likely associated with residences and/or farming activities.

Historical Topographic Maps

Gribi Associates reviewed historical topographic maps of the subject site for years 1906, 1947, 1961, 1968, 1973, and 1980, which were obtained from Environmental Data Resources, Inc. Copies of these photographs are included in Appendix D. Topographic maps for years 1906, 1947, 1961, and 1968 show the site prior present development, and do not indicate the presence of structures on the site. Topographic maps for the years 1973 and 1980 show the present Dublin Boulevard and Dublin Court street configuration but do not indicate the presence of a site building.

City Directory

Gribi Associates reviewed Hains Criss-Cross directories for the subject property for the years 1975, 1980, 1985, 1990, 1995, 2001, and 2007, which were obtained from Environmental Data Resources, Inc. The first listing for the subject address appears in the 1985 directory, which shows the property to be occupied by Ozzie Davis Pontiac/Toyota. The property continued to be occupied by an automobile dealership for all years reviewed following 1985.

SOIL AND GROUNDWATER INVESTIGATION WORKPLAN

In order to further define MTBE impacts to groundwater and to characterize vertical soil lithology, the following workplan proposes the drilling and sampling of approximately seven cone penetration test (CPT) soil borings. Four of the CPT borings will be located onsite and three of the CPT borings will be located downgradient, along Johnson Drive. Borings located along Johnson Drive are the closest available downgradient locations from the site, without having to drill within the limits of Interstate 580, a Caltrans right-of-way.

Currently, two groundwater zones have been identified and monitored for impacts via a network of groundwater wells. The second groundwater zone begins at a depth of approximately 30 to 35 feet below grade, but the bottom has never been completely defined vertically. Use of CPT



drilling equipment is expected to provide more accurate lithology detail below the water table than traditional direct-push drilling technology. Gribi Associates will attempt to determine the lithology below the second zone and attempt to determine if additional deeper water-bearing zones exist. The depth of the CPT borings is not expected to exceed a depth of 70 feet below surface grade.

All activities will be conducted in accordance with applicable local, State, and Federal guidelines and statutes. The proposed soil and groundwater investigation will include the following workplan elements.

Pre-Field Activities

Prior to implementing this workplan, written approval will be obtained from ACEH. Also, soil boring drilling permits will be obtained from Alameda County Zone 7 Water Agency, and 72-hour notification will be given prior to implementing field activities. Proposed boring locations will be marked with white paint, and Underground Services Alert (USA) will be notified at least 48 hours prior to drilling. A private underground utility locator will also clear proposed boring locations. Prior to initiating drilling activities, a Site Safety Plan will be prepared, and a tailgate safety meeting will be conducted with all site workers.

Location of Borings

Boring CPT-1 will be sited in an expected upgradient groundwater flow direction from the former Site UST excavation cavity. Borings CPT-2, CPT-3, and CPT-4 will be sited on the Site property, in an expected downgradient groundwater flow direction from the former Site USTs. Borings CPT-5, CPT-6, and CPT-7 will be located offsite, approximately 300 feet south of the subject property on the opposite side of Interstate 580, in an expected downgradient groundwater flow directions are shown on Figure 5.

Drilling and Sampling of Borings

The seven investigative CPT borings will be drilled to a depth not expected to exceed 70 feet below surface grade using CPT drilling equipment. This method involves hydraulically pushing an electronic piezocone penetrometer to the desired total depth while measuring subsurface parameters that result in lithologic log. Based on the lithologic logging results, specific permeable lithologic zones of interest can be identified for groundwater sampling.

A minimum of two grab groundwater samples will be collected from zones of interest at each of the CPT boring location using a Hydropunch-type sampler. In this method, the sampler is advanced to the desired depth and then retracted, exposing a screened interval that allows groundwater to enter inside the probe casing. Grab groundwater samples will then be collected using a clean stainless steel bailer as follows: (1) Laboratory-supplied containers will be



completely filled directly from the bailer with a minimum of agitation; (2) After making sure that no air bubbles were present, each container will then be tightly sealed with a Teflon-lined septum; and (3) Each container will then be labeled and placed in cold storage for transport to the analytical laboratory under formal chain-of-custody. All sampling equipment will be thoroughly cleaned and decontaminated between each sample collection. Following completion, each of the CPT borings will be grouted with cement slurry to match existing surface grade.

Laboratory Analysis of Soil and Water Samples

Approximately fourteen grab groundwater sample will be collected from the seven borings and analyzed by the following methods:

- USEPA 8260B Total Petroleum Hydrocarbons as Gasoline (TPH-G)
- USEPA 8260B Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX)
- USEPA 8260B Oxygenates (TAME, TBA, DIPE, ETBE, and MTBE)

All analyses will be conducted by a State-certified analytical laboratory with standard turnaround on results.

Preparation of Summary Report

A report of findings will be prepared for submission to ACEH. This report will describe all investigative methods and results, and will include graphical depictions of site geology and contaminant soil impacts, tabulated laboratory analytical results, and laboratory data reports and chain-of-custody records.

PROJECT SCHEDULE

Subject to regulatory approval, Gribi Associates expects to complete the proposed workplan activities within approximately eight to ten weeks.



We appreciate this opportunity to provide this report for your review. Please contact us if there are questions or if additional information is required.

Very truly yours,

MARCE

Matthew A. Rosman Project Engineer

Enclosure

James & C

James E. Gribi Professional Geologist California No. 5843



c Mr. Scott Anderson, Dublin Toyota



FIGURES













ATTACHMENT A

SOIL BORING LOGS AND WELL CONSTRUCTION DETAILS



BORING NUMBER : MW-4S (B-6) BORING LOCATION: BORING TYPE: MONITORING WELL PROJECT NAME: DUBLIN TOYOTA DUBLIN, CALIFORNIA

PROJECT NUMBER:

LOG OF SOIL BORING

GRIBI Associates

START DATE: 04/03/2006

COMPLETION DATE: 04/03/2006

DRILLING CONTRACTOR: VIRONEX DRILLING METHOD: DIRECT PUSH BOREHOLE DIAMETER: 3.5 INCHES COMPLETION METHOD: WELL BORING TOTAL DEPTH: 20.0 FEET GROUNDWATER DEPTH:

DEPTH SCALE (FEET)	SAMPLE NO.	SAMPLE DEPTH	INTERVAL	PID READING BLOW COUNTS ⊊ - INITIAL ⊊ - FINAL	USCS	LOG OF MATERIAL	PIEZOMETER/		
5 - - - - - - - - - - - - - - - - - - -						0.5 - 5.0 ft. Sity, Clayey Sands (SC/SM) dark brown, moist, no odor or staining, Fill? 5.0 - 7.5 ft. Clay (CL) dark grey, moist, stiff, no odor or staining. 7.5 - 8.5 ft. Clayey Sand (SC) dark grey, moist, medium grained, wet, no odor or staining 8.5 - 12.0 ft. Clay (CL) dark grey, moist, medium stiff, no odor or staining. 12.0 -16.0 ft. Clay (CL) dark grey becoming brown, increasing silt content with depth, moist, medium stiff, no odor or staining. 16.0 -20.0 ft. Clay (CL) brown, moist, stiff, no odor or staining. 16.0 -20.0 ft. Clay (CL) brown, moist, stiff, no odor or staining. 16.0 -20.0 ft. Clay (CL) brown, moist, stiff, no odor or staining. 16.0 -20.0 ft. Clay (CL) brown, moist, stiff, no odor or staining. 16.0 -20.0 ft. Clay (CL) brown, moist, stiff, no odor or staining. 16.0 -20.0 ft. Clay (CL) brown, moist, stiff, no odor or staining. 16.0 -20.0 ft. Clay (CL) brown, moist, stiff, no odor or staining. 16.0 -20.0 ft. Clay (CL) Clay (CL) brown, moist, stiff, no odor or staining. 17.0 Ft. Clay (CL) Clay (CL) brown, moist, stiff, no odor or staining. 18.0 Ft. Clay (CL) Clay (CL) clay (CL) brown, moist, stiff, no odor or staining. 19.0 Ft. Clay (CL) clay		C	-

BORING NUMBER : MW-4D (B-6) BORING LOCATION: BORING TYPE: MONITORING WELL PROJECT NAME: DUBLIN TOYOTA DUBLIN, CALIFORNIA

PROJECT NUMBER:

LOG OF SOIL BORING

GRIBI Associates

START DATE: 04/03/2006

COMPLETION DATE: 04/03/2006

DRILLING CONTRACTOR: VIRONEX DRILLING METHOD: DIRECT PUSH BOREHOLE DIAMETER: 3.5 INCHES COMPLETION METHOD: WELL BORING TOTAL DEPTH: 40.0 FEET GROUNDWATER DEPTH:

DEPTH SCALE (FEET)	SAMPLE NO.	SAMPLE DEPTH	INTERVAL	PID READING BLOW COUNTS ⊊ - INITIAL ⊊ - FINAL	USCS	LOG OF MATERIAL		WELL INSTALLATION	
						 0.0 - 0.5 ft. Asphalt and base. 0.5 - 5.0 ft. Silty, Clayey Sands (SC/SM) dark brown, moist, no odor or staining, Fill? 5.0 - 7.5 ft. Clay (CL) dark grey, moist, stiff, no odor or staining. 7.5 - 8.5 ft. Clayey Sand (SC) dark grey, fine to medium grained, wet, no odor or staining 8.5 - 12.0 ft. Clay (CL) dark grey, moist, medium stiff, no odor or staining. 12.0 -16.0 ft. Clay (CL) dark grey becoming brown, increasing silt content with depth, moist, medium stiff, no odor or staining. 16.0 -20.0 ft. Clay (CL) brown, moist, stiff, no odor or staining. 20.0 -21.0 ft. Clayey Sand (SC) brown, moist, stiff, no odor or staining. 21.0 -24.0 ft. Silty Clay (CL) brown, moist, stiff, no odor or staining. 24.0 - 28.0 ft. No Recovery 28.0 - 32.0 ft. No Recovery 32.0 - 36.0 ft. No Recovery 36.0 - 37.0 ft. Sandy Gravel (GW) brown, fine to coarse gravel with coarse sand, wet, no odor or staining. 			
40_						37.0 - 39.0 ft. Clay (CL) olive-brown, moist, stiff, no odor or staining. <u>WELL SPECIFICATIONS</u> A - WELL SCREEN DEPTH: 39.0 FT CASING TYPE: SCH 40 PVC B - WELL SCREEN LENGTH: 10.0 FT CASING SIZE: 0.75 INCH C - DEPTH TO TOP OF SAND: 28.0 FT SLOT SIZE: 0.020 INCH D - DEPTH BENTONITE SEAL: 36.0 FT	•		

BORING NUMBER : MW-5S (B-7) BORING LOCATION: BORING TYPE: MONITORING WELL PROJECT NAME: DUBLIN TOYOTA DUBLIN, CALIFORNIA

PROJECT NUMBER:

LOG OF SOIL BORING

GRIBI Associates

START DATE: 04/03/2006

COMPLETION DATE: 04/03/2006

DRILLING CONTRACTOR: VIRONEX DRILLING METHOD: DIRECT PUSH BOREHOLE DIAMETER: 3.5 INCHES COMPLETION METHOD: WELL BORING TOTAL DEPTH: 20.0 FEET GROUNDWATER DEPTH:

DEPTH SCALE (FEET)	SAMPLE NO.	SAMPLE DEPTH	INTERVAL	PID READING BLOW COUNTS ⊊ - INITIAL ⊊ - FINAL	USCS	LOG OF MATERIAL	PIEZOMETER	WELL INSTALLATION	
						0.0 - 0.5 ft. Asphalt and base 0.5 - 4.0 ft. Sitty, Clayey Sands (SC/SM) dark brown, moist, no odor or staining, Fill?. 4.0 - 8.0 ft. Clay (CL) dark grey, moist to wet, soft to medium stiff, 6" sandy lense at approximately 6 feet, no odor or staining. 8.0 - 12.0 ft. Clay (CL) dark grey becoming grey-brown, moist, medium stiff, no odor or staining. 12.0 - 16.0 ft. Clay (CL) motiled grey and brown, increasing silt with depth, moist, stiff, no odor or staining. 12.0 - 16.0 ft. Clay (CL) motiled grey and brown, increasing fine grained sand with depth, moist, stiff, no odor or staining. 17.5 - 20.0 ft. Sand (SP) brown, fine to medium grained, wet, no odor or staining. 17.5 - 20.0 ft. Sand (SP) brown, fine to medium grained, wet, no odor or staining. 17.5 - 20.0 ft. Sand (SP) brown, fine to medium grained, wet, no odor or staining. 17.5 - VILL SCREEN DEPTH: 20.0 FT CASING TYPE: SCH 40 PVC CASING SIZE: 0.75 INCH 0 - DEPTH TORTOP OF SAND: 90 FT			

BORING NUMBER : MW-5D (B-7) BORING LOCATION: BORING TYPE: MONITORING WELL PROJECT NAME: DUBLIN TOYOTA DUBLIN, CALIFORNIA

PROJECT NUMBER:

LOG OF SOIL BORING

GRIBI Associates

START DATE: 04/03/2006

COMPLETION DATE: 04/03/2006

DRILLING CONTRACTOR: VIRONEX DRILLING METHOD: DIRECT PUSH BOREHOLE DIAMETER: 3.5 INCHES COMPLETION METHOD: WELL BORING TOTAL DEPTH: 35.0 FEET GROUNDWATER DEPTH:

DEPTH SCALE (FEET)	SAMPLE NO.	SAMPLE DEPTH	INTERVAL	PID READING BLOW COUNTS ⊊ - INITIAL ⊊ - FINAL	USCS	LOG OF MATERIAL	PIEZOMETER	
						 0.0 - 0.5 ft. Asphalt and base 0.5 - 4.0 ft. Silty, Clayey Sands (SC/SM) dark brown, moist, no odor or staining, Fill?. 4.0 - 8.0 ft. Clay (CL) dark grey, moist to wet, soft to medium stiff, 6" sandy lense at approximately 6 feet, no odor or staining. 8.0 - 12.0 ft. Clay (CL) dark grey becoming grey-brown, moist, medium stiff, no odor or staining. 12.0 - 16.0 ft. Clay (CL) mottled grey and brown, increasing silt with depth, moist, stiff, no odor or staining. 12.0 - 16.0 ft. Clay (CL) mottled grey and brown, increasing fine grained sand with depth, moist, stiff, no odor or staining. 16.0 - 17.5 ft. Clay (CL) mottled grey and brown, increasing fine grained sand with depth, moist, stiff, no odor or staining. 17.5 - 20.0 ft. Sand (SP) brown, fine to medium grained, wet, no odor or staining. 20.0 - 23.0 ft. Sand (SP) brown, fine to medium grained, wet, no odor or staining. 23.0 - 24.0 ft. Clay (CL) olive-grey, moist, stiff, no odor or staining. 24.0 - 28.0 ft. No Recovery 28.0 - 32.0 ft. No Recovery 22.0 - 35.0 ft. No Recovery 23.0 - 35.0 ft. No Recovery 24.0 - 25.0 ft. No Recovery 25.0 - 75.0 ft. No Recovery 26.0 - 13.0 ft. No Recovery 		

BORING NUMBER : MW-6S (B-8) BORING LOCATION: BORING TYPE: MONITORING WELL PROJECT NAME: DUBLIN TOYOTA DUBLIN, CALIFORNIA

PROJECT NUMBER:

LOG OF SOIL BORING

GRIBI Associates

START DATE: 04/04/2006

COMPLETION DATE: 04/04/2006

DRILLING CONTRACTOR: VIRONEX DRILLING METHOD: DIRECT PUSH BOREHOLE DIAMETER: 3.5 INCHES COMPLETION METHOD: WELL BORING TOTAL DEPTH: 20.0 FEET GROUNDWATER DEPTH:

DEPTH SC (FEET)	SAMPLE NO.	SAMPLE DEPTH	INTERVAL	PID READING BLOW COUNTS 꽃 - INITIAL 꽃 - FINAL	USCS	LOG OF MATERIAL	PIEZOMETER\ WFI1 INSTALLATIC		
						0.0 - 0.5 ft. Asphalt and base. 0.5 - 4.0 ft. Sity, Clayey Sands (SC/SM) dark brown, moist, no odor or staining, Fill?. 4.0 - 8.0 ft. Clay (CL) dark grey, moist, medium stiff, no odor or staining. 8.0 - 12.0 ft. Clay (CL) dark grey, moist, medium stiff, no odor or staining. 12.0 - 13.0 ft. Clay (CL) dark grey, moist, medium stiff, no odor or staining. 13.0 - 15.0 ft. Clay (CL) light brown, trace fine grain sand, moist, stiff, no odor or staining. 15.0 - 16.0 ft. Clay (CL) dark grey, some organic matter, moist, stiff, no odor or staining. 16.0 - 20.0 ft. Clay (CL) dark grey, some organic matter, moist, stiff, no odor or staining. 16.0 - 20.0 ft. Clay (CL) olive-brown, moist, stiff, no odor or staining. 16.0 - 20.0 ft. Clay (CL) olive-brown, moist, stiff, no odor or staining. 16.0 - 20.0 ft. Clay (CL) olive-brown, moist, stiff, no odor or staining. 0.10 - 0.0 ft. Clay (CL) olive-brown, moist, stiff, no odor or staining. 0.10 - 0.0 ft. Clay (CL) olive-brown, moist, stiff, no odor or staining. 0.10 - 0.0 ft. Clay (CL) olive-brown, moist, stiff, no odor or staining.			
						D - DEPTH BENTONITE SEAL: 7.0 FT			

BORING NUMBER : MW-6D (B-8) BORING LOCATION: BORING TYPE: MONITORING WELL PROJECT NAME: DUBLIN TOYOTA DUBLIN, CALIFORNIA

PROJECT NUMBER:

LOG OF SOIL BORING

GRIBI Associates

START DATE: 04/04/2006

COMPLETION DATE: 04/04/2006

DRILLING CONTRACTOR: VIRONEX DRILLING METHOD: DIRECT PUSH BOREHOLE DIAMETER: 3.5 INCHES COMPLETION METHOD: WELL BORING TOTAL DEPTH: 35.0 FEET GROUNDWATER DEPTH:

DEPTH SCALE (FEET)	SAMPLE NO.	SAMPLE DEPTH	INTERVAL	PID READING BLOW COUNTS ⊊ - INITIAL ⊊ - FINAL	USCS	LOG OF MATERIAL		WELL INSTALL ATION		
_					SC/ SM	 0.0 - 0.5 ft. Asphalt and base. 0.5 - 4.0 ft. Silty, Clayey Sands (SC/SM) dark brown, moist, no odor or staining, Fill?. 			D	
5 - 						4.0 - 8.0 ft. Clay (CL) dark grey, moist, medium stiff, no odor or staining.	A 			с
10 -						8.0 - 12.0 ft. Clay (CL) dark grey, moist, medium stiff, no odor or staining				
 15 _ _						 12.0 -13.0 ft. Clay (CL) dark grey, moist, medium stiff, no odor or staining. 13.0 -15.0 ft. Clay (CL) 				
						light brown, trace fine grain sand, moist, stiff, no odor or staining. 15.0 -16.0 ft. Clay (CL) dark grey, some organic matter, moist, stiff, no odor or staining. 16.0 - 20.0 ft. Clay (CL)				
20 – 					?	olive-brown, moist, stiff, no odor or staining. 20.0 - 24.0 ft. Minimal Recovery (< 1 ft.) Olive-brown clay (CL), moist, stiff, no odor or staining.				
25-					? ?	24.0 - 28.0 ft. No Recovery				-
						28.0 - 31.0 ft. Clay (CL) olive-grey, moist, stiff, no odor or staining.				¥
					SP SP	 31.0 - 32.0 ft. Sand (SP) olive-grey, fine grain, moist, no odor or staining. 32.0 - 35.0 ft. Minimal Recovery (< 1 ft.) Based on recovery and drillers observation: fine to medium 	 B 			
35 - 						grain sand from 32 to 35 feet followed by clay from 35 to 36 feet.				
40						WELL SPECIFICATIONSA - WELL SCREEN DEPTH:35.0 FTCASING TYPE: SCH 40 PVCB - WELL SCREEN LENGTH:30.0 FTCASING SIZE:0.75 INCHC - DEPTH TO TOP OF SAND:28.0 FTSLOT SIZE:0.020 INCHD - DEPTH BENTONITE SEAL:26.0 FTCOMPARINGCOMPARING				

BORING NUMBER: MW-7 BORING LOCATION: BORING TYPE: MONITORING WELL PROJECT NAME: DUBLIN TOYOTA DUBLIN, CALIFORNIA LOG OF SOIL BORING

GRIBI Associates

START DATE: 04/05/2006

DRILLING CONTRACTOR: VIRONEX DRILLING METHOD: DIRECT PUSH BOREHOLE DIAMETER: 3.5 INCHES COMPLETION METHOD: WELL BORING TOTAL DEPTH: 20.0 FEET

PIEZOMETER\ WELL INSTALLATION

D

C

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B

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PROJE	ECT NUME	BER:				COMPLETION DATE: 04/05/2006 GROUNDWATER DEPTH:
DEPTH SCALE (FEET)	SAMPLE NO.	SAMPLE DEPTH	INTERVAL	PID READING BLOW COUNTS ⊊ - INITIAL ⊊ - FINAL	USCS	LOG OF MATERIAL
						The monitoring well was drilled to depth using direct-push technology. A disposable tip was equipped on the end of the drilling equipment and advanced to the depth of the well without the collection of soil samples. There are no corresponding soil boring locations from the 2005 Soil-Water Investigation that would provide an approximate lithology for this well.
25 - - -						
30 - 						
35 - - - - 40						
40_						WELL SPECIFICATIONS A - WELL SCREEN DEPTH: 20.0 FT CASING TYPE: SCH 40 PVC B - WELL SCREEN LENGTH: 10.0 FT CASING SIZE: 0.75 INCH C - DEPTH TO TOP OF SAND: 9.0 FT SLOT SIZE: 0.020 INCH D - DEPTH BENTONITE SEAL: 7.0 FT SLOT SIZE: 0.020 INCH

BORING NUMBER : MW-8 (B-10) BORING LOCATION: BORING TYPE: MONITORING WELL PROJECT NAME: DUBLIN TOYOTA DUBLIN, CALIFORNIA

PROJECT NUMBER:

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LOG OF SOIL BORING

GRIBI Associates

START DATE: 04/05/2006

COMPLETION DATE: 04/05/2006

DRILLING CONTRACTOR: VIRONEX DRILLING METHOD: DIRECT PUSH BOREHOLE DIAMETER: 3.5 INCHES COMPLETION METHOD: WELL BORING TOTAL DEPTH: 35.0 FEET GROUNDWATER DEPTH:

DEPTH SCALE (FEET)	SAMPLE NO.	SAMPLE DEPTH	INTERVAL	PID READING BLOW COUNTS ♀ - INITIAL ♀ - FINAL	USCS	LOG OF MATERIAL		WELL INSIALLATION	
_					SC/	0.0 - 0.5 ft. Asphalt and base		1	
-					SM	0.5 - 3.0 ft. Silty, Clayey Sands (SC/SM) dark brown, moist, no odor or staining, Fill?.		 D	
5						3.0 - 4.0 ft. Clay (CL) dark grey, moist to wet, soft, no odor or staining	A		Ċ
-						4.0 - 8.0 ft. Clay (CL) dark grey, moist, soft, 6" clayey sand (SC) lense at 6 feet, no odor or staining.			
10 - 						8.0 - 12.0 ft. Clay (CL) dark grey, moist, medium stiff, 6" coarse sand (SP) lense at 8.5 feet, becoming brown at 11 feet, no odor or staining.			
15 <u>-</u>						12.0 - 16.0 ft. Clay (CL) olive-brown, silty, very stiff, 1' sandy lense at 13 feet, no odor or staining.			
20 -						16.0 - 20.0 ft. Clay (CL) olive-brown, silty, very stiff, becoming olive-grey , no odor or staining.			
-						20.0 - 24.0 ft. Clay (CL) olive-grey, moist, stiff, localized clayey silts, no odor or staining.			
25						24.0 - 28.0 ft. Clay (CL) olive-grey, moist, very stiff to hard, no odor or staining.		Ĭ	
30 -						28.0 - 30.0 ft. Clay (CL) olive-grey, increasing silt and fine grain sand with depth, becoming silty, sandy clay at 30 feet, moist, very hard, no odor or staining.	₽		
-						32.0 - 35.5 ft. Sand (SP) brown, fine to medium grain, wet, no odor or staining.	Ī		
35 - 					ISW	35.5 - 36.0 ft. Gravelly Sand (SW) fine to coarse sand with fine gravel, moderately cemented, hard, moist, no odor or staining.	 ★	3	
40						WELL SPECIFICATIONS A - WELL SCREEN DEPTH: 35.0 FT CASING TYPE: SCH 40 PVC B - WELL SCREEN LENGTH: 5.0 FT CASING STZE: 0.75 INCH			
						C - DEPTH TO TOP OF SAND: 29.0 FT D - DEPTH BENTONITE SEAL: 26.0 FT			

BORING NUMBER : MW-9 (B-11) BORING LOCATION: BORING TYPE: MONITORING WELL PROJECT NAME: DUBLIN TOYOTA DUBLIN, CALIFORNIA

PROJECT NUMBER:

LOG OF SOIL BORING

GRIBI Associates

START DATE: 04/05/2006

COMPLETION DATE: 04/05/2006

DRILLING CONTRACTOR: VIRONEX DRILLING METHOD: DIRECT PUSH BOREHOLE DIAMETER: 3.5 INCHES COMPLETION METHOD: WELL BORING TOTAL DEPTH: 35.0 FEET GROUNDWATER DEPTH:

DEPTH SCALE (FEET)	SAMPLE NO.	SAMPLE DEPTH	INTERVAL	PID READING BLOW COUNTS ♀ - INITIAL ♀ - FINAL	USCS	LOG OF MATERIAL	PIEZOMETER/	WELL INS I ALLATION	
						 0.0 - 0.5 ft. Asphalt and base. 0.5 - 4.0 ft. Silty Clayey Sands (SC/SM) dark brown, moist, no odor or staining, Fill?. 4.0 - 8.0 ft. Clay (CL) dark grey, moist, medium stiff, no odor or staining. 8.0 - 12.0 ft. Clay (CL) dark grey becoming brown-grey, moist, medium stiff, no odor or staining. 12.0 -16.0 ft. Clay (CL) brown-grey, moist, medium stiff, no odor or staining. 12.0 -16.0 ft. Clay (CL) brown-grey, moist, medium stiff, no odor or staining. 16.0 - 20.0 ft. No Recovery 20.0 - 24.0 ft. No Recovery 25.0 - 26.0 ft. Sand (SP) brown, fine to medium grain, wet, no odor or staining. 26.0 - 28.0 ft. Clay (CL) olive-grey, moist, very stiff, no odor or staining. 28.0 - 32.0 ft. No Recovery Drillers observation: clay from 28 feet to 31 feet followed by sand at about 31 feet. 32.0 - 36.0 ft. Minimal Recovery (< 1 ft.) Based on recovery and drillers observation: fine to coarse grain sand with fine to coarse gravel, wet. 			
						D - DEPTH BENTONITE SEAL: 25.0 FT			

BORING NUMBER : BORING LOCATION: BORING TYPE: MONITORING WELL PROJECT NAME: DUBLIN TOYOTA DUBLIN, CALIFORNIA LOG OF SOIL BORING

GRIBI Associates

START DATE:

COMPLETION DATE:

DRILLING CONTRACTOR: VIRONEX DRILLING METHOD: DIRECT PUSH BOREHOLE DIAMETER: 3.5 INCHES COMPLETION METHOD: WELL BORING TOTAL DEPTH: GROUNDWATER DEPTH:

PROJECT	
INCOLOI	NUMBER.

DEPTH SCALE (FEET)	SAMPLE NO.	SAMPLE DEPTH	INTERVAL	PID READING BLOW COUNTS ⊊ - INITIAL Ţ - FINAL	USCS	LOG OF MATERIAL	PIEZOMETER	WELL INSTALLATION		
_					0000	0.0 - 0.5 ft. Asphalt and base.	`[11		
_					SC/ SM	0.5 - 4.0 ft. Silty, Clayey Sands (SC/SM) dark brown, moist, no odor or staining, Fill?.		 D	,	
5 -										
_						4.0 - 8.0 π. Clay (CL) dark grey, moist, medium stiff, no odor or staining.				
10-						8.0 - 12.0 ft. Clay (CL) dark grey becoming brown-grey, moist, medium stiff, 6" fine to coarse gravel (GW) lense at 11 feet, no odor or staining.				
_						12.0 -16.0 ft Clav (CL)				
15 - - -						brown-grey, moist, medium stiff, no odor or staining.				
20 -						16.0 - 20.0 ft. Clay (CL) brown-grey, moist, medium stiff, no odor or staining.				
-						20.0 - 24.0 ft. Clay (CL) olive-grey, moist, stiff, 6" clayey sand (SC) lense at 23 feet, no odor or staining.				
25-						24.0 - 28.0 ft. Clay (CL) olive-grey, moist, stiff, no odor or staining.				
_						28.0 - 31.0 ft. Clay (CL) olive-grey, increasing silt content with depth, moist, stiff, no odor or staining.				
30 -						31.0 - 32.0 ft. Clayey Silt (ML) olive-grey, some fine grain sand, moist, medium stiff, no odor or staining.			Ĺ	/
_						32.0 - 34.0 ft. Clay (CL) olive-grey, moist, very stiff, increasing grain size with depth, no odor or staining.				
35 -						 34.0 - 36.0 ft. Silty Sand (SM) olive-brown, very fine grain, increasing grains size with depth, moist, no odor or staining. 36.0 - 39.0 ft. Sand (SP) 				
					SP ML	brown, fine to coarse with 1' gravelly lens at 37.5 feet, wet, no odor or staining. 39.0 - 40.0 ft. Sandy Silt (ML)				
					<u>r Lii</u>	brown, very fine grain sand, silty clay (CL) in shoe, moist, no odor or staining. A - WELL SCREEN DEPTH: 40.0 FT CASING TYPE: SCH 40 PVC		3	1	
						B - WELL SCREEN LENGTH: 10.0 FT CASING SIZE: 0.75 INCH C - DEPTH TO TOP OF SAND: 32.0 FT SLOT SIZE: 0.020 INCH D - DEPTH BENTONITE SEAL: 30.0 FT SLOT SIZE: 0.020 INCH				



ZONE 7 "WELL LOCATION MAP"





ZONE 7 WATER AGENCY 100 NORTH CANYONS PARKWAY LIVERMORE, CA 94551

WELL LOCATION MAP

DATE: 11/24/08

6450 Dublin Ct

ATTACHMENT C

AERIAL PHOTOGRAPHS



















ATTACHMENT D

HISTORICAL TOPOGRAPHIC MAPS





N A	TARGET QU NAME: MAP YEAR: SERIES: SCALE:	IAD PLEASANTON 1906 15 1:62500	SITE NAME: ADDRESS: LAT/LONG:	Dublin Toyota 6450 Dublin Court Dublin, CA 94568 37.7026 / 121.911	CLIENT: CONTACT: INQUIRY#: RESEARCH I	Gribi Associates Matthew Rosman 2379939.4 DATE: 12/10/2008
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N A	TARGET QU NAME: MAP YEAR: SERIES: SCALE:	AD PLEASANTON 1947 15 1:50000	SITE NAME: ADDRESS: LAT/LONG:	Dublin Toyota 6450 Dublin Court Dublin, CA 94568 37.7026 / 121.911	CLIENT: CONTACT: INQUIRY#: RESEARCH I	Gribi Associates Matthew Rosman 2379939.4 DATE: 12/10/2008
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	TARGET QUAD		SITE NAME:	Dublin Toyota	CLIENT:	Gribi Associates
N	NAME:	DUBLIN	ADDRESS:	6450 Dublin Court	CONTACT:	Matthew Rosman
	MAP YEAR:	1961		Dublin, CA 94568	INQUIRY#:	2379939.4
			LAT/LONG:	37.7026 / 121.911	RESEARCH I	DATE: 12/10/2008
•	SERIES:	7.5				
	SCALE:	1:24000				





