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Alameda County
Environmental Health

June 15, 2007

**VAPOR INTRUSION
INVESTIGATION
WORKPLAN**

7272 San Ramon Road
Dublin, California 94568

Project No. 263294
ACEHS Toxics Case # RO0002863

Prepared On Behalf Of

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1.0 INTRODUCTION

AEI Consultants (AEI) has been retained by Main Street Properties to provide environmental engineering and consulting services associated with a release of halogenated volatile organic compounds (HVOCs), particularly tetrachloroethylene (PCE), at the subject property. This work plan is in response to the Alameda County Environmental Health Services' (ACHCSA) letter, dated May 9, 2007, requesting further site investigation based on elevated concentrations of PCE detected in soil vapor during the previous investigation.

AEI will perform the activities proposed in this work plan to comply with the ACEHS' request to further investigate the extent and magnitude of vapor contamination around of the source area and to evaluate the potential risk to occupants of the adjacent school using indoor air sampling. In addition, this work plan includes discussion of remedial options to be considered after completing the site characterization.

2.0 SITE DESCRIPTION AND HISTORY

The subject property (hereinafter referred to as the "site" or "property") is one suite (7272 San Ramon Road) in a commercial building located on the west side of San Ramon Road. The site is located in a mixed residential/commercial area of Dublin, California.

AEI performed a Phase I Environmental Site Assessment (ESA) of the shopping center 7214-7300 San Ramon Road in December 2004. Historical resources and site reconnaissance revealed that one of the units of the building (7272 San Ramon Road) has been occupied by a dry-cleaning facility since 1988. The dry-cleaning and solvent storage areas are located in the back of the building; however, no information was known as to previous solvent storage areas. Based on the duration of dry-cleaning on the property, the ESA recommended that a subsurface investigation be performed to determine if a release of hazardous materials, particularly PCE, had impacted the subsurface.

AEI performed a preliminary subsurface investigation at the property on January 27, 2005. A total of three (3) soil borings (SB-1 to SB-3) were advanced to a terminus depth of 12 feet below ground surface (bgs). Three shallow soil samples and three groundwater samples were analyzed for HVOCs by EPA Method 8260B. PCE was detected in all the soil and groundwater samples analyzed, up to 0.071 milligrams per kilogram (mg/kg) in soil and 22 micrograms per liter ($\mu\text{g/L}$) in groundwater. In addition, TCE was detected in the groundwater up to 3.0 $\mu\text{g/L}$. Please refer to AEI's *Phase II Subsurface Investigation Report* of the property, dated February 8, 2005, for more detailed information.

Based on the results of sampling, the ACHCSA, in a letter dated August 30, 2005, requested that the release of HVOCs be investigated further.

AEI performed a soil, groundwater, and soil vapor investigation at the property during February 2, 3, and 6, 2006. A total of seven (7) soil borings (SB-4 to SB-10) were advanced throughout the property. Soil, groundwater, and soil vapor samples were collected and analyzed for HVOCs by EPA Method 8260B. Groundwater samples were collected from two aquifers: the uppermost (A-Zone) and the lowermost, deeper aquifer (B-Zone). PCE was detected in one soil sample at a concentration of 0.013 mg/kg. PCE was detected in groundwater samples collected from the A and B-Zones, up to concentrations of 23 µg/L and 4.9 µg/L, respectively. PCE was detected in the soil vapor samples, up to a concentration of 16,000 µg/m³. Please refer to AEI's *Site Investigation Report*, dated February 8, 2005, for more detailed information.

Based on the results of February 2006 investigation, the ACHCSA, in a letter dated August 22, 2006, requested additional investigation of the HVOC release and to evaluate the potential for vapor intrusion at the adjacent Montessorri School.

AEI performed the additional site investigation on December 27, 2006 and January 15, 2007. Five (5) soil borings were advanced throughout the property. Two borings (SB-14 and SB-15) were advanced near the front of the dry-cleaning facility, down-gradient from the dry-cleaning facility. Two borings (SB-11 and SB-12) were advanced at the rear of the dry-cleaning facility. One boring (SB-13) was advanced adjacent to the sewer line trace inside the Montessori School. The soil borings were advanced to depths ranging from approximately 5 feet bgs to 30 feet bgs. HVOCs were not detected in any soil samples. PCE and TCE were detected in groundwater at relatively low levels. PCE was detected in all four of the soil vapor samples analyzed, ranging in concentration from 270 µg/m³ up to 380,000 µg/m³ (SB-11-V-D). TCE, a potential breakdown product of PCE, was detected in three of the soil vapor samples at concentrations ranging from 4.4 µg/m³ up to 3,200 µg/m³ (SB-11-V-D). Soil boring locations (labeled SB-1 through SB-15) are shown on Figure 2 and analytical data is presented in Tables 1 through 3. Please refer to AEI's *Additional Site Investigation Report*, dated February 21, 2007 for more detailed information.

Based on the results of the additional site investigation, the ACHCSA, in a letter dated May 9, 2007, requested additional soil vapor investigation of the HVOC release and to evaluate potential risk to building occupants resulting from vapor intrusion.

3.0 GEOLOGY AND HYDROLOGY

The United States Geology Survey (USGS) Contra Costa County Quaternary Geologic 1:100,000 (1997) and USGS Contra Costa County bedrock Geologic 1:75,000 (1994) maps were reviewed. The property sits on Holocene alluvial fan deposits overlying undivided Quaternary surficial deposits. The area is generally characterized by fine to coarse grain unconsolidated sediments. The topographic map shows the property located at approximately 365 feet above mean sea level. The surface of the property is relatively flat.

The stratigraphy of the site encountered so far can be characterized by three units of soils; silty clay overlying sandy clay with interbedded sandy gravel. These units are illustrated on Figures 8 and 9, two fence diagrams across the site. Fence Diagram A-A' (Figure 10) provides a west-east profile of the subsurface. Fence Diagram B-B' (Figure 11) provides a south-north profile through the center of the dry-cleaning machine area. Please note that ground elevation north of the site building and landscaping is approximately 5 feet higher than ground elevation within the site building and its parking lot.

Two permeable, water-bearing zones were identified within the stratigraphic column to the total depth explored (30 feet bgs). Both aquifers were found within permeable sandy gravels. The upper water-bearing zone (A-Zone), approximately 2 feet thick, consists of sandy gravel and is typically encountered at a depth of approximately 10 feet bgs. The deeper water-bearing zone (B-Zone), approximately 1.5 foot thick, similarly consists of sandy gravel encountered at a depth of approximately 25 feet bgs. These two water-bearing zones are separated by an approximately 12 foot thick sandy clay. The results of groundwater samples collected from the two zones indicate that there may be some connectivity between the two zones, although contaminant concentrations are much lower in the B-zone. The clay appears to be somewhat of an effective barrier.

The topography of the area is relatively flat, but overall slopes to the east. An unnamed creek is located to the north which appears to be at a slightly lower elevation. Groundwater is expected to flow in a southeasterly or northerly direction. A review of groundwater monitoring reports for nearby sites indicate a southeasterly flow direction.

4.0 SITE CONCEPTUAL MODEL

This Site Conceptual Model is based on current data. Modifications may be made following this additional soil gas investigation.

4.1 Release Occurance

The release of the PCE into soil and groundwater was likely the result of surface spillage from the dry-cleaning machine, or possible spills of waste PCE or condensate into drains or out the rear of the facility. The TCE detected in the groundwater may be the result of natural dechlorination of PCE. No information is known about documented, or reported spills, or about previous solvent storage areas or practices. Based on analytical data from the February 2006 investigation, it is possible that buried utilities within the vicinity of the site provide preferential pathways for contaminant migration.

4.2 Release Extent

Chlorinated solvents are highly mobile chemicals. PCE is a toxic hazard by inhalation, adsorption, and ingestion. The highest detected concentrations of PCE reported since the commencement of site investigations has been 0.071 mg/kg in soil, 23 µg/L in groundwater, and 16,000 ug/m³ in soil gas. Groundwater is expected to flow to the north and/or southeast.

The lack of HVOCs in groundwater from borings SB-4 through SB-8 indicate that the contamination plume appears to be limited. HVOCs appear to have impacted the A-Zone aquifer primarily and portions of the B-Zone aquifer, although the PCE concentrations detected in the B-zone are low. This indicates that the two water-bearing zones may have only limited connectivity. Additional groundwater samples collected from the south, southeast, and southwest of the release will fill existing data gaps on the groundwater extent. A PCE A-Zone groundwater isopleths is presented on Figure 8.

Soil vapor data collected to date indicate that HVOCs in soil gas is present throughout the property, with the largest concentrations at the rear of the dry cleaning unit. It should be noted that elevated PCE concentrations were detected in soil vapor beneath the Montessori School, conceivably using the sanitary sewer system as a preferential pathway. PCE soil vapor isopleths are presented on Figure 9.

4.3 Well Survey

Well records for all wells within a ½-mile radius of the site were collected from both the Alameda County Public Works Agency and the State of California Department of Water Resources. A map with the locations of the wells identified in the survey relative to the site is presented in Figure 1. The identified nearby wells are also presented in the table below.

Exhibit 1: Nearby Wells

Owner	Map ID #	Distance (ft)	Direction	Depth (ft)	Screen Interval (ft)	Use
Dublin Historical (2 wells)	1	~ 2,000	South	NA	NA	Water Supply
Dublin Historical (abandoned)	2	~ 2,000	Southwest	NA	NA	Water Supply
Dublin Historical (abandoned)	3	~1,330	Northwest	200	160-200	Water Supply
Unocal Corp (1 well?)	4	~1,300	South	20	4-16	Monitoring
Chevron U.S.A., Inc. (4 wells?)	5	~2,000	Southeast	36	21-36	Monitoring
Unknown (1 well)	6	~500	Northeast	NA	NA	Monitoring
Texaco (6 wells)	7	~1,300	Southeast	20	8-20	Monitoring
Tosco (Union) 76	8	~1,000	Southeast	25	10-25	Monitoring
Target Stores Inc. (6 wells)	9	~2,000	Northeast	14.5	4.5-14.5	Monitoring
Montgomery Ward (4 wells)	10	~2,400	Southeast	22	7-22	Monitoring

NA – Information not available Distances and direction from the site are approximate

The two municipal well groups are the Dublin Historical Association. The screen intervals of these wells remain unknown, excluding Map ID # 3. Based on the location and distance of release at the site in relation to these water supply wells, they are not expected to represent preferential vertical conduits for contaminants at the site, nor are they expected to be threatened.

The remaining wells are monitoring and located at least ~1,000 ft. away from the site, with the exception of Map ID #5. However, based on the results of groundwater samples from borings SB-7 and SB-8, the Map ID #5 observation well is not expected to be impacted by this release and would not likely act as a vertical conduit for shallow impacted groundwater at the site.

In summary, based on the well survey and the magnitude of the site HVOC release, none of the identified wells appear to risk acting as preferential vertical conduits for migration of site contaminants nor does there appear to be active use of groundwater in the area that would be threatened by this release.

4.4 Utility Survey

A utility survey was performed by Foresite, Inc. on September 24, 2006. The purpose of the survey was to evaluate all utility lines which could potentially act as preferential pathways for contaminant migration. Using reflective induction and ground-penetrating radar, several utilities were identified and traced. An illustration of the results of this survey is presented in Figure 3.

Based on the results of the survey, the possibility exists that the sanitary sewer line running underneath the site and adjacent Montessorri School could act as a preferential pathway for soil vapor. Based on the soil vapor results of the additional soil and groundwater investigation conducted 2006/2007, the sanitary sewer line very well may be acting as a preferential pathway.

4.5 Sensitive Receptors

Sensitive receptors such as schools, day care centers, and/or medical care facilities were surveyed within a 1,000 foot radius of the site. No medical care facilities or elementary/high schools were identified within the 1,000 foot radius. As already addressed in this work plan, Montessorri School was identified immediately adjacent to the site. In addition, Kinder Care Learning Center (indicated A on Figure 1) and Joy Pre-School and Day Care (indicated B on Figure 1) were identified roughly 150 feet north (across Amador Valley Road) and roughly 1,000 feet west of the site, respectively.

5.0 PROPOSED INVESTIGATION

Based on the findings of the 2006/2007 investigation, the extent of the release in vapor phase has not fully been defined along the sanitary sewer line, particularly in an easterly direction from the onsite dry cleaners and west, behind the facility. The ACHCS has requested additional subsurface assessment of soil vapor in preparation of a feasibility study. ACHCS considers the presence of elevated concentrations of PCE in soil vapor a potential threat to human health via the vapor

intrusion into indoor air migration pathway. In order to further assess the extent of PCE in the vapor phase along the sanitary sewer line running beneath the building, additional soil vapor borings are proposed. The goal of the additional sampling is to define the extent of vapor phase contaminants in a timely and cost effective manner utilizing temporary soil gas probes and a mobile laboratory. Groundwater sampling will not be performed under this workplan.

Twenty two (22) additional borings (SB-16 through SB-37) are proposed. Soil vapor samples will be collected at depths of 5 feet bgs in each of these locations. As a contingency, ten of these borings (SB-27 – SB-37) may be performed if analytical data obtained from the mobile laboratory indicates the need to investigate further in other areas, particularly along utility lines. Please refer to Figure 3 for locations of the proposed vapor sampling locations in relation to utility corridors.

6.0 OPERATING PROCEDURES

6.1 Drilling

A drilling permit from Zone 7 Water Agency (Zone 7) in Alameda County will be obtained prior to drilling activities. Underground Service Alert will be notified to identify public utilities in the work area.

Direct push drilling work will be performed a by California C57 licensed drilling contractor. Drilling will be performed with a truck-mounted and/or limited-access Geoprobe® direct-push drilling rig or using roto-hammer. The borings will be drilled to approximately 5 feet bgs, for the collection of soil vapor samples. Soil samples will be collected from surface sediments for possible analysis. Upon completion of sampling, all drill rods and sampling equipment will be removed from the boring and they will be backfilled with cement grout in accordance with Zone 7 permit conditions.

6.2 Soil Sampling and Analyses

Drilling, borehole logging, and sample collection will be performed by AEI staff under the direction of an AEI California professional geologist. Soil will be continuously collected from selected borings in 2” diameter acrylic liners. Soil will be screened in the field with a portable photo-ionization detector (PID). Soil samples will be cut from the liners at selected depths based on field observations and PID measurements. Selected samples will be sealed with Teflon tape and end caps, labeled with a unique identifier, entered onto chain of custody, and place in a cooler with water-ice.

Laboratory work will be performed by a California Department of Health Services certified laboratory following current EPA analytical methodologies.

6.3 Soil Vapor Sampling

Each vapor probe location is expected to be advanced to approximately 5 feet bgs where a soil vapor sample will be collected. Soil gas sampling procedures, and sample analyses will be performed based on the *Advisory – Active Soil Gas Investigation*, January 28, 2005, issued by the Department of Toxic Substances Control (DTSC). Detailed operating procedures and practices are outlined below.

To obtain the soil gas samples, the temporary soil gas sampling probes will be installed in the proposed locations. The vapor probe consists of hollow ¾ inch stainless steel rods with an internally threaded bottom sub and sacrificial tip. At the desired depth, the rods are pulled back, dropping the sacrificial tip. The top of the borehole will be sealed with a temporary seal of hydrated Bentonite and an appropriate leak detection compound utilized. A ¼-inch disposable poly sampling line is then inserted inside the rods and screwed into the end sub. Air is then flushed from the rods prior to sample collection. Samples will be collected into one or more new, disposable sampling syringes. Immediately upon collection, the samples will be analyzed by the onsite mobile laboratory.

Although not expected, should no flow conditions be encountered during vapor sampling or vacuum necessary to induce flow is too high [>10 inches of mercury (in Hg)], a vapor sample will be attempted at a shallower depth. If extensive no flow conditions are encountered, soil matrix sampling in lieu of soil gas sampling may be performed. In this event, the regulatory agency and client will be contacted immediately.

Upon completion of sampling activities, all probes and sampling materials will be removed from the boreholes and each grouted to ground surface in accordance with state and local guidelines. Surfacing will then be patched.

6.4 Indoor Air Sampling

To evaluate exposure to building occupants from vapor intrusion of HVOCs from the adjacent dry cleaning unit, the ACHCSA has requested an investigation of indoor air quality of the adjacent Montessori School.

A total of four (4) indoor air sampling locations are proposed, one will be placed in the center of the large room in Montessori School, one near the utility room, one near the apparent vapor infiltration point, the northwestern corner of the school, and one outside of the building, away from the source zone. Soil gas sampling procedures, and sample analyses will be performed based on the *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air*, Interim Final, dated December 15, 2004, issued by the Department of Toxic Substances Control (DTSC) and California Environmental Protection Agency.

In order to obtain the indoor air samples, air samples will be collected into 6-liter Summa Canisters over a typical school day for students (8 hours). The flow regulators on the sampling canisters will be configured to capture an integrated air sample over the 8 hours. The canisters will be situated within the “breathing zone” for children, approximately 2 to 4 feet off the ground.

6.5 Laboratory Analysis and Sample Storage

All samples will be analyzed onsite with California DHS certified mobile laboratory equipment operated by a chemist qualified and experienced in performing soil gas analyses. Samples will be analyzed for HVOCs by EPA method 8260 along with the leak detection compounds, with appropriate detection limits (0.10 µg/L). Laboratory procedures will include appropriate quality assurance / quality control analyses, including method blanks and use of surrogates during sample analyses.

Indoor air samples will be analyzed by for HVOCs by EPA Method TO-15 by a California DHS certified laboratory.

6.6 Equipment Decontamination

Although very little waste is expected to be generated, sampling equipment, including sampling barrels, drilling rods, augers, and other equipment used to sample, will be decontaminated between samples using a triple rinse system containing Alconox™ or similar detergent. Rinse water will be contained in sealed labeled 5-gallon buckets in a secure location onsite pending proper disposal.

6.7 Waste Storage

All investigation-derived waste (IDW) will be stored onsite in sealed, labeled 55-gallon drums. IDW will include soil cuttings, plastic sample liners, and other sampling disposables. Equipment rinse water will also be stored in a 55-gallon drum, separate from solid IDW. Upon receipt of analytical results, the waste will be profiled into appropriate disposal or recycling facilities and transported from the site under appropriate manifest. Copies of manifests will be made available once final copies are received from the disposal facility.

6.8 Site Safety

AEI will prepare a site specific Health and Safety Plan conforming to Part 1910.120 (i) (2) of 29 CFR. Prior to commencement of field activities, a site safety meeting will be held at a designated command post near the working area. The Health and Safety Plan will be reviewed and emergency procedures will be outlined at this meeting, including an explanation of the hazards of the known or suspected chemicals of interest. All site

personnel will be in Level D personal protection equipment, which is the anticipated maximum amount of protection needed. A working area will be established with barricades and warning tape to delineate the zone where hard hats, steel-toed shoes and safety glasses must be worn, and where unauthorized personnel will not be allowed. The site Health and Safety Plan will be on site at all times during the project.

7.0 INTERIM REMEDIAL ACTION

The data gather to date indicates that remediation will be required, and evaluation of remedial options has been requested by the ACHCSA. Given that the primary concern is relating to vapor phase migration and potential volatile impact to indoor air and that neither a large volume of soil has been impacted nor has groundwater been significantly impacted, remedial measures will focus on reducing potential for vapor intrusion. Vapor intrusion can be mitigated with using barriers, control of subsurface vapor movement, or direct removal (or destruction) of contaminants.

Barriers are usually installed when there is access to the soil, such as a site undergoing construction, if pollutants are excavated, or where there is a bare soil basement or subfloor that is accessible. Contaminant removal or in-situ destruction could include excavation of impacted soil, vapor extraction, chemical or enhanced biological degradation, or groundwater extraction.

Vapor control involves routing soil gas around the structure, either using passive venting or vacuum enhanced removal. In both cases, vapor is drawn to a collection area (gravel filled pit, extraction wells or trenches) and routed around the building. Fans and large blowers can be utilized depending on the size of the affected area. Effluent treatment and discharge permits may be necessary depending on system configuration and flow rates. These types of systems can range from relatively small scale passive sub-slab venting systems (SSVS) such as those used in radon mitigation up to vacuum and treatment equipment more on the scale of soil-vapor extraction (SVE) systems designed for volatile mass removal. In either case, sub-slab soil gas monitoring points are installed to monitor contaminant concentration changes over time and subsurface pressure (vacuum). Based on the site conditions and data obtained to date, it is expected that vacuum assisted sub-slab venting will be appropriate for this site.

Upon completion of the site characterization, a plan will be prepared outlining a field demonstration pilot test for this approach. The plan will include specifications for extraction location(s), monitoring point locations, and procedures for evaluating depressurization and control of sub-slab vapors.

8.0 REPORTING

AEI will prepare and issue a final report upon receipt of all analytical data. The report will include logs of borings, tables or data, and figures of drilling and sampling locations, and copies of all laboratory analytical reports. A written discussion of the findings will be presented. The Site Conceptual Model and contamination risk evaluations will be updated with the forthcoming report.

If additional analyses or further investigation is deemed necessary, such recommendations may be made. The project will be overseen and the reports signed by an AEI California registered professional geologist or engineer.

9.0 SCHEDULE

Field work is anticipated to be scheduled within two weeks of approval of this work plan by the ACHCSA. The ACHCSA will be given adequate notification of the schedule should inspections be necessary. Drilling and sampling activities are expected to require approximately two days. Laboratory analytical results for indoor air sampling will be available within approximately 1-2 week of sample collection. The final report will be completed within approximately 1 month of receipt of all data.

10.0 REFERENCES

AEI Consultants, *Phase I Environmental Site Assessment*, December 10, 2004

AEI Consultants, *Phase II Subsurface Investigation Report*, February 8, 2005

Alameda County Environmental Health Services, File # RO000263, Letter dated August 30, 2005

AEI Consultants, *Site Investigation Report*, April 14, 2006

Alameda County Environmental Health Services, File # RO000263, Letter dated August 22, 2006

AEI Consultants, *Additional Site Investigation Report*, February 21, 2007.

Department of Toxic Substances Control (DTSC) *Advisory – Active Soil Gas Investigation*, January 28, 2005

USGS Contra Costa County bedrock 1:75,000 Geologic Map (1994)

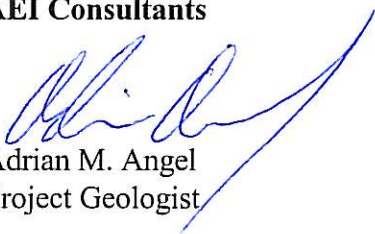
United States Geology Survey (USGS) Contra Costa County Quaternary 1:100,000 Geologic Map (1997)

11.0 SIGNATURES

This work plan has been prepared by AEI on behalf of Main Street Properties and outlines a scope of work to address the release of halogenated VOCs on the property located at 7272 San Ramon Road in the City of Dublin, Alameda County, California. The recommendations rendered in this report were based on previous field investigations and laboratory testing of material samples. This report does not reflect subsurface variations that may exist between sampling points. These variations cannot be anticipated, nor could they be entirely accounted for, in spite of exhaustive additional testing. This plan should not be regarded as a guarantee that no further contamination, beyond that which could have been detected within the scope of past investigations is present beneath the property or that all contamination present at the site will be identified, treated, or removed. Undocumented, unauthorized releases of hazardous material(s), the remains of which are not readily identifiable by visual inspection and/or are of different chemical constituents, are difficult and often impossible to detect within the scope of a chemical specific investigation and may or may not become apparent at a later time. All specified work will be performed in accordance with generally accepted practices in environmental engineering, geology, and hydrogeology and will be performed under the direction of appropriate registered professional(s).

Please contact either of the undersigned with any questions or comments at (925) 283-6000

Sincerely,
AEI Consultants



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Alameda, CA 94502

GeoTracker (electronic)

FIGURES

37°42.297' N, 121°56.195' W WGS84, Dublin, CA

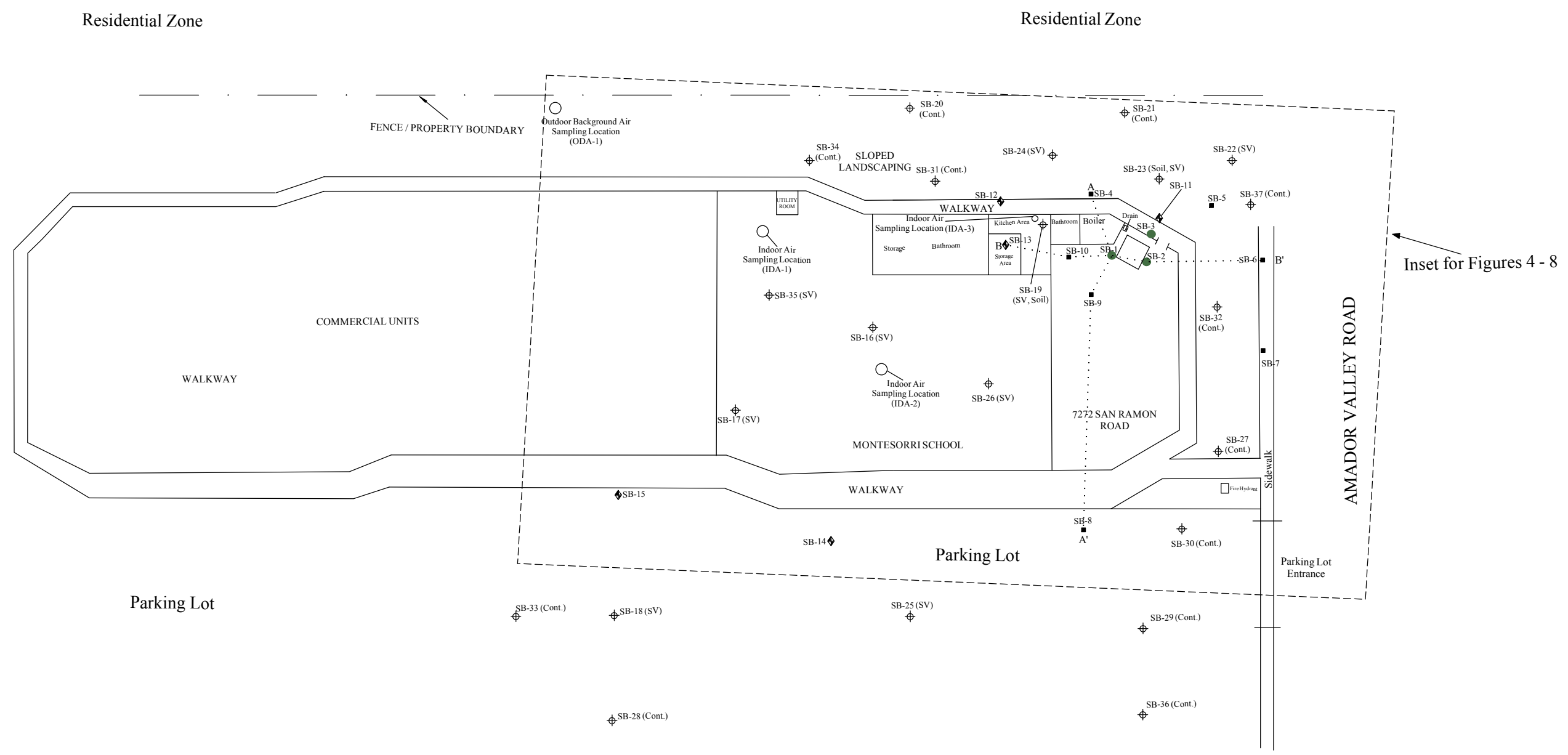


Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

- Well Locations
Letter - Child Day Care Locations

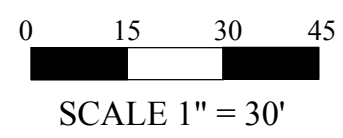
USGS TOPOGRAPHIC MAP
DUBLIN WEST QUADRANGLE
Created 1992

AEI CONSULTANTS 2500 Camino Diablo, Suite 200, Walnut Creek, CA 94597	
SITE LOCATION PLAN	
7272 San Ramon Road Dublin, CA	FIGURE 1 Job No:115876



Drafted By: Adrian Angel (Revised Feb 2007)

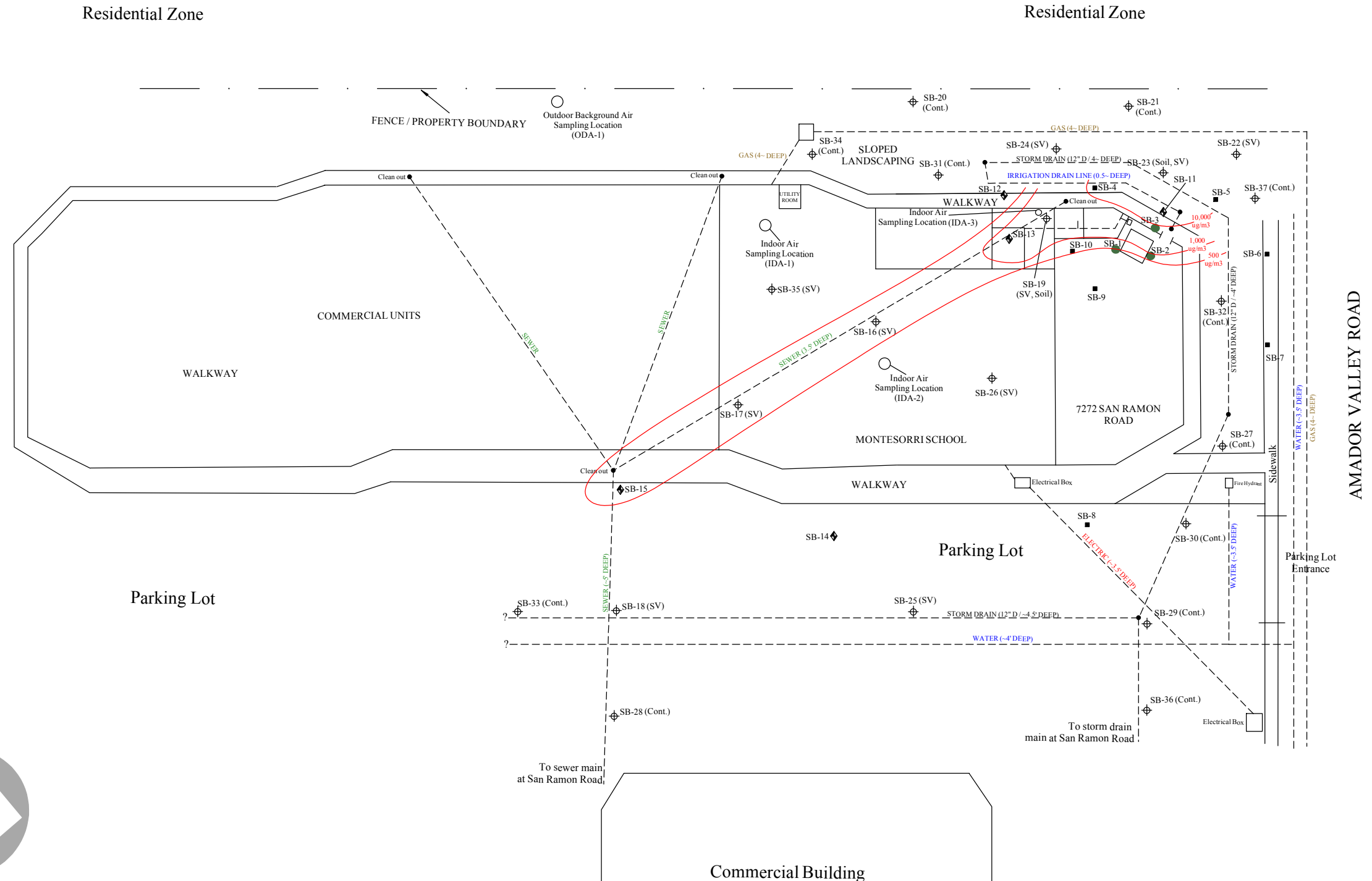
- Legend:**
- Soil Boring Locations (02/2-6/06)
 - Soil Boring Locations (01/27/05)
 - ◆ Soil Boring (12/27/06 and 1/15/07)
 - ⊕ Proposed Soil Vapor Location
 - Fence Line (See Figs 10 and 11)



*SV = Soil Vapor Sample Collection
 Soil = Soil Sample Collection
 Cont. = Contingency Boring*

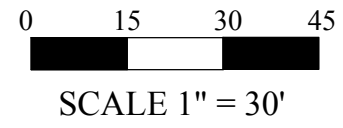
AEI CONSULTANTS 2500 CAMINO DIABLO BLVD, SUITE 200, WALNUT CREEK, CA	
SITE PLAN	
7272 San Ramon Road Dublin, CA 94568	FIGURE 2 PROJECT NO. 263294

To San Ramon Road



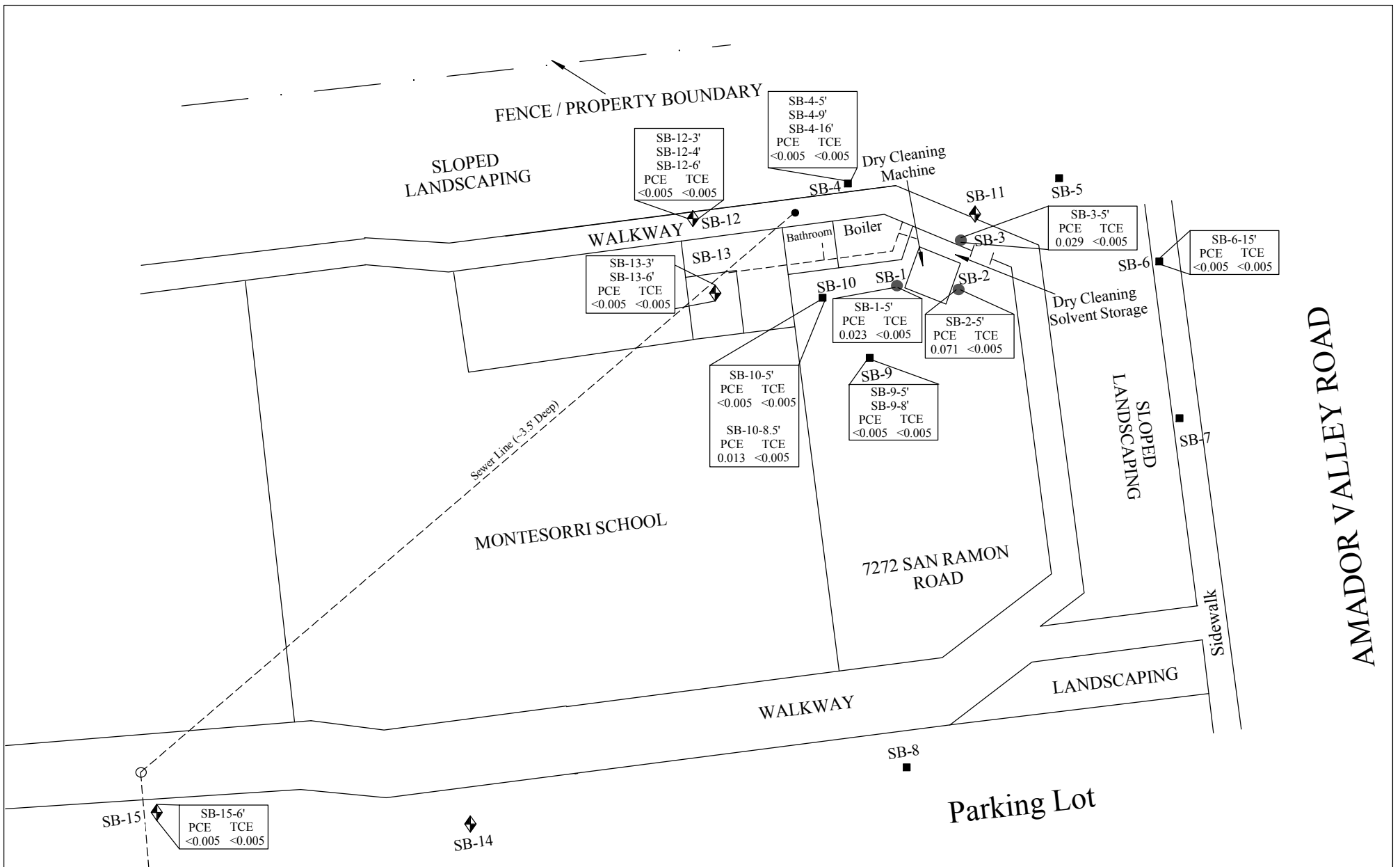
Drafted By: Adrian Angel (Revised Feb 2007)

- Legend:**
- Soil Boring Locations (02/2-6/06)
 - Soil Boring Locations (01/27/05)
 - ◆ Soil Boring (12/27/06 and 1/15/07)
 - ⊕ Proposed Soil Vapor Location
 - Utility Line
 - PCE Vapor Isoconcentration Line



SV = Soil Vapor Sample Collection
 Soil = Soil Sample Collection
 Cont. = Contingency Boring

AEI CONSULTANTS 2500 CAMINO DIABLO BLVD, SUITE 200, WALNUT CREEK, CA	
UTILITY MAP	
7272 San Ramon Road Dublin, CA 94568	FIGURE 3 PROJECT NO. 263294



LEGEND:

- Soil Boring Locations (2/2-6/06)
- Soil Boring Locations (01/27/05)
- ◆ Soil Boring Locations (12/27/06 & 01/15/07)
- Sewer Line
- - - - - Property Boundary

1 INCH = 20 FEET

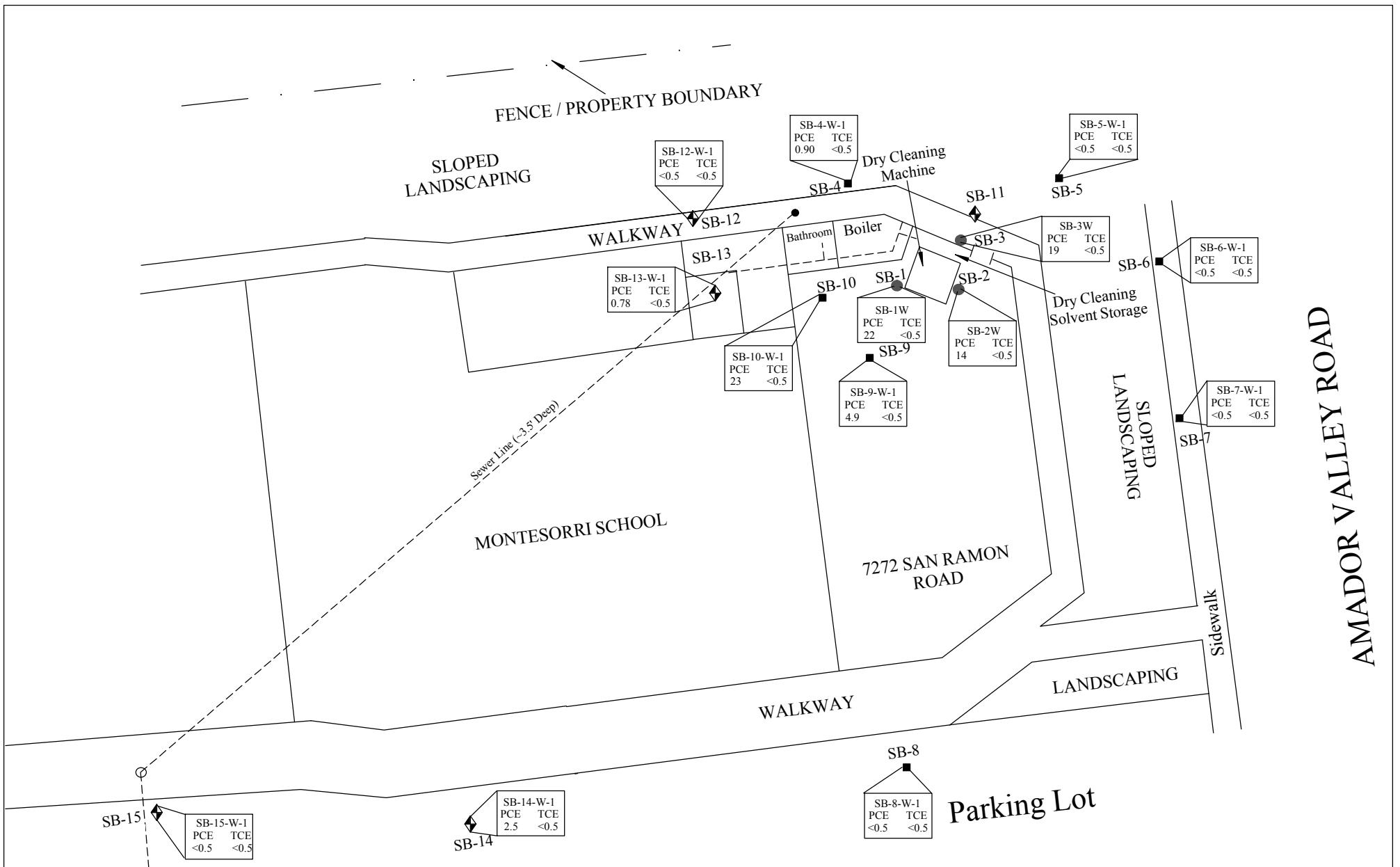
TCE - Trichloroethene
PCE - Tetrachloroethene

soil sample concentrations in units of
milligrams per kilogram (mg/kg)

AEI CONSULTANTS
2500 CAMINO DIABLO BLVD, SUITE 200, WALNUT CREEK, CA

SOIL ANALYTICAL DATA

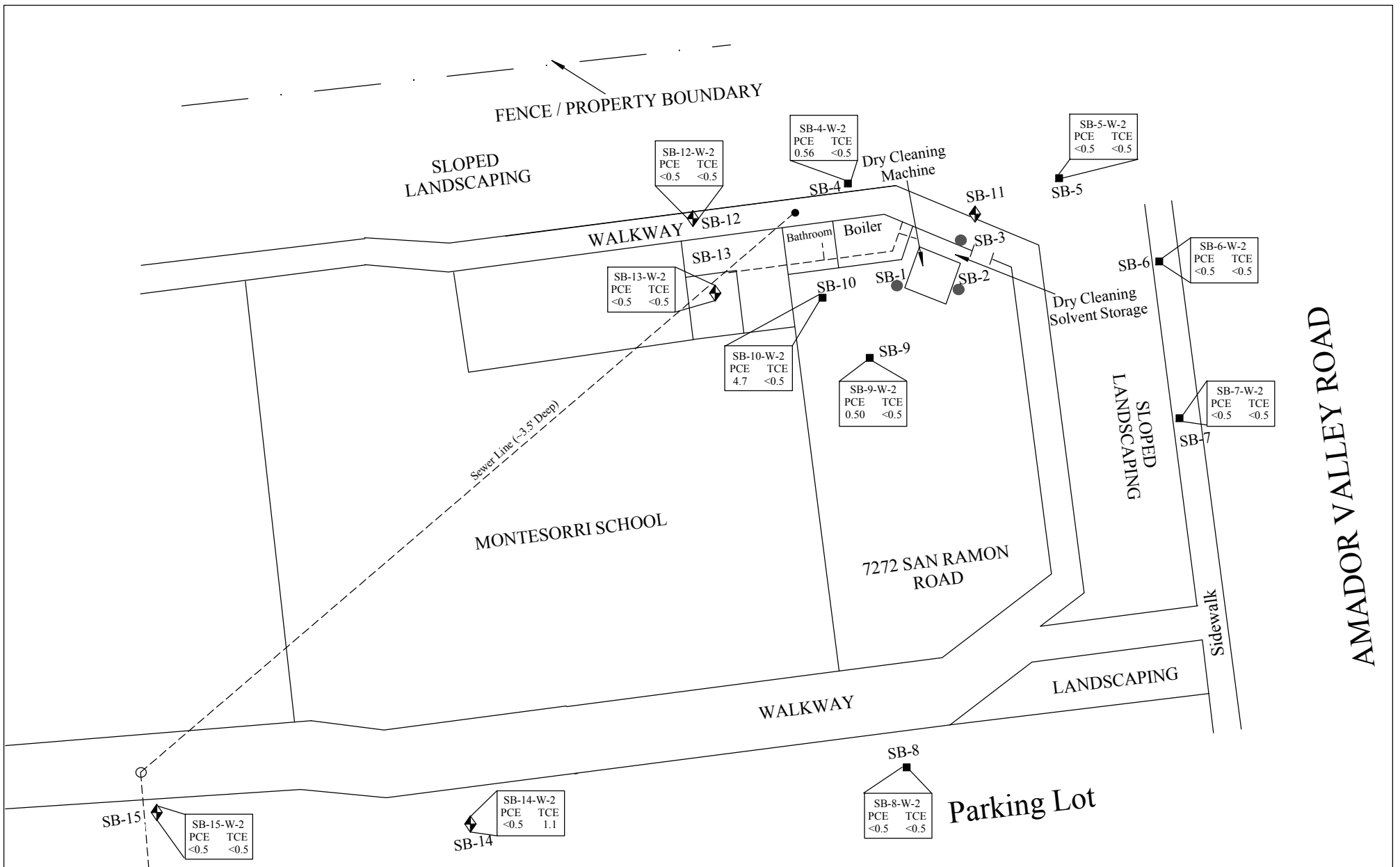
7272 SAN RAMON ROAD DUBLIN, CA 94568	FIGURE 4 PROJECT NO. 263294
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AEI CONSULTANTS
2500 CAMINO DIABLO BLVD, SUITE 200, WALNUT CREEK, CA

A-ZONE GROUNDWATER DATA

7272 SAN RAMON ROAD DUBLIN, CA 94568	FIGURE 5 PROJECT NO. 263294
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LEGEND:

- Soil Boring Locations (2/2-6/06)
- Soil Boring Locations (01/27/05)
- ◆ Soil Boring Locations (12/27/06 & 01/15/07)
- Sewer Line
- - - - - Property Boundary

Scale: 1 INCH = 20 FEET

0' 10' 20'

TCE - Trichloroethene
PCE - Tetrachloroethene

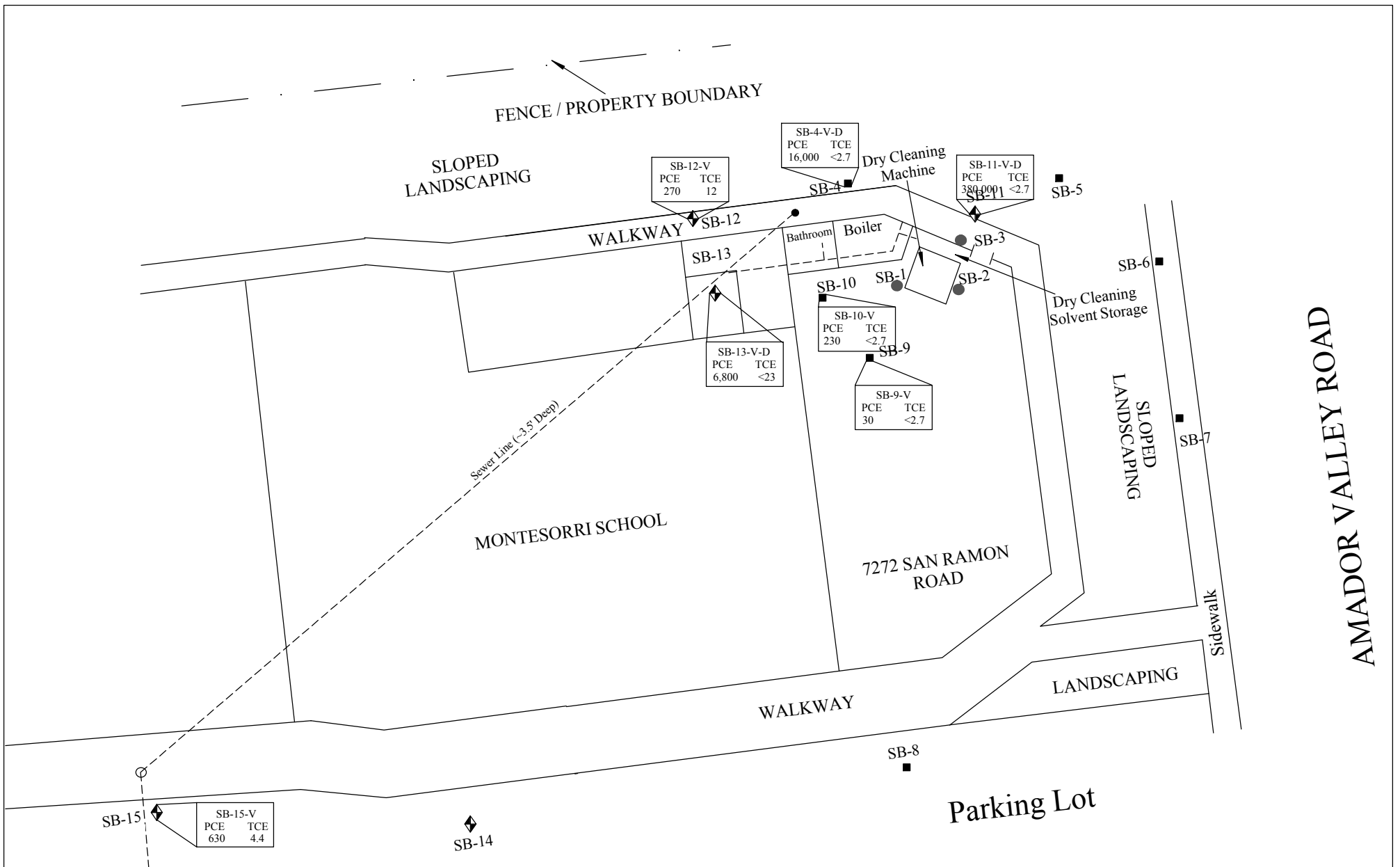
B-Zone generally screened 28-32 feet bgs from floor of dry-cleaning unit

groundwater sample concentrations in units of micrograms per liter (ug/L)

AEI CONSULTANTS
2500 CAMINO DIABLO BLVD, SUITE 200, WALNUT CREEK, CA

B-ZONE GROUNDWATER DATA

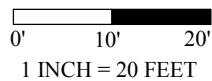
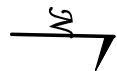
7272 SAN RAMON ROAD DUBLIN, CA 94568	FIGURE 6 PROJECT NO. 263294
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LEGEND:

- Soil Boring Locations (2/2-6/06)
- Soil Boring Locations (01/27/05)
- ◆ Soil Boring Locations (12/27/06 & 01/15/07)

- Sewer Line
- - - - - Property Boundary

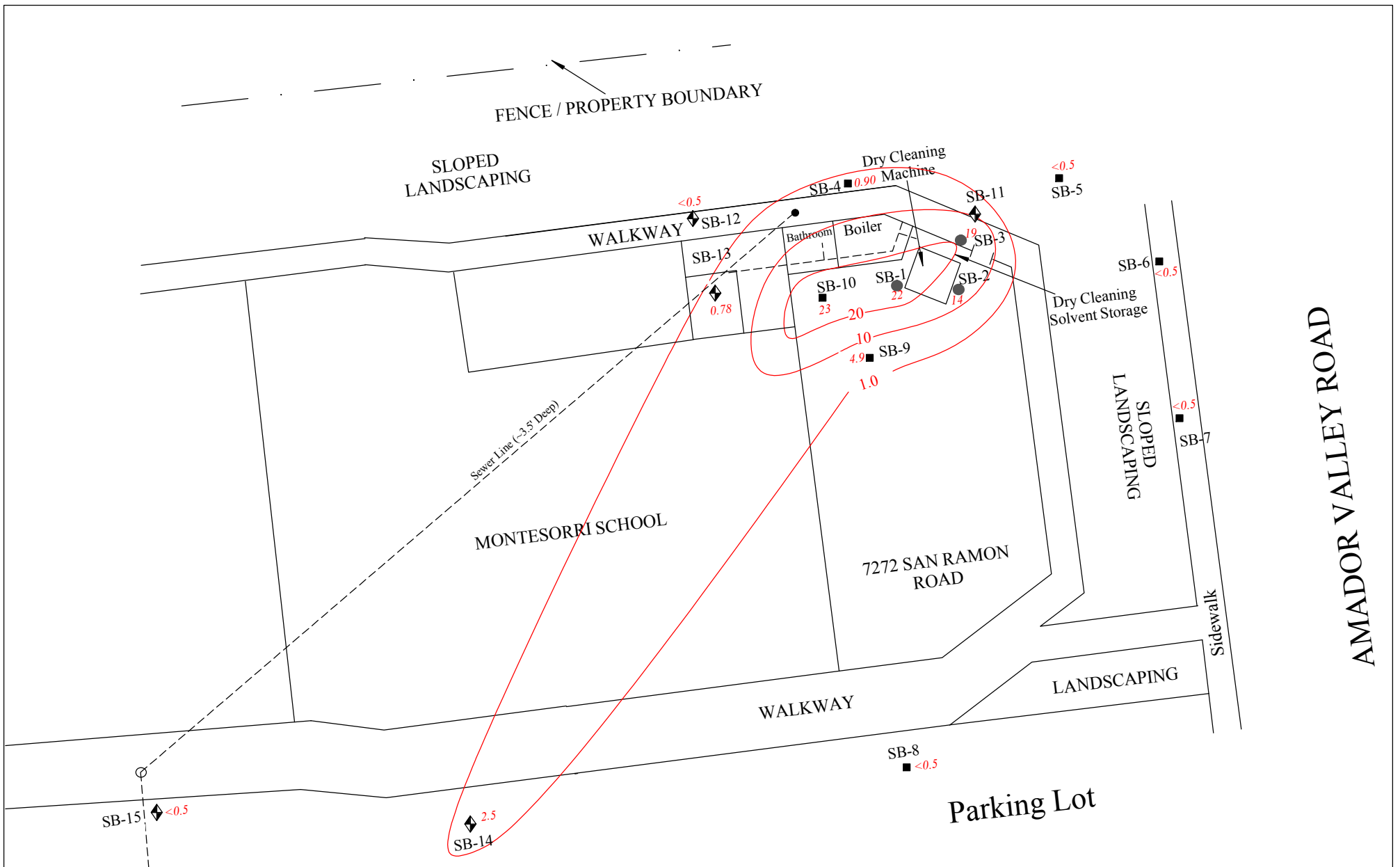


TCE - Trichloroethene
PCE - Tetrachloroethene

soil vapor sample concentrations in units of micrograms per cubic meter (ug/m3)

all soil vapor samples collected at a depth of 5 feet bgs

AEI CONSULTANTS	
2500 CAMINO DIABLO BLVD, SUITE 200, WALNUT CREEK, CA	
SOIL VAPOR SAMPLE DATA	
7272 SAN RAMON ROAD DUBLIN, CA 94568	FIGURE 7 PROJECT NO. 263294



LEGEND:

- Soil Boring Locations (2/2-6/06)
- Soil Boring Locations (01/27/05)
- ◆ Soil Boring Locations (12/27/06 & 01/15/07)
- Sewer Line
- - - - - Property Boundary

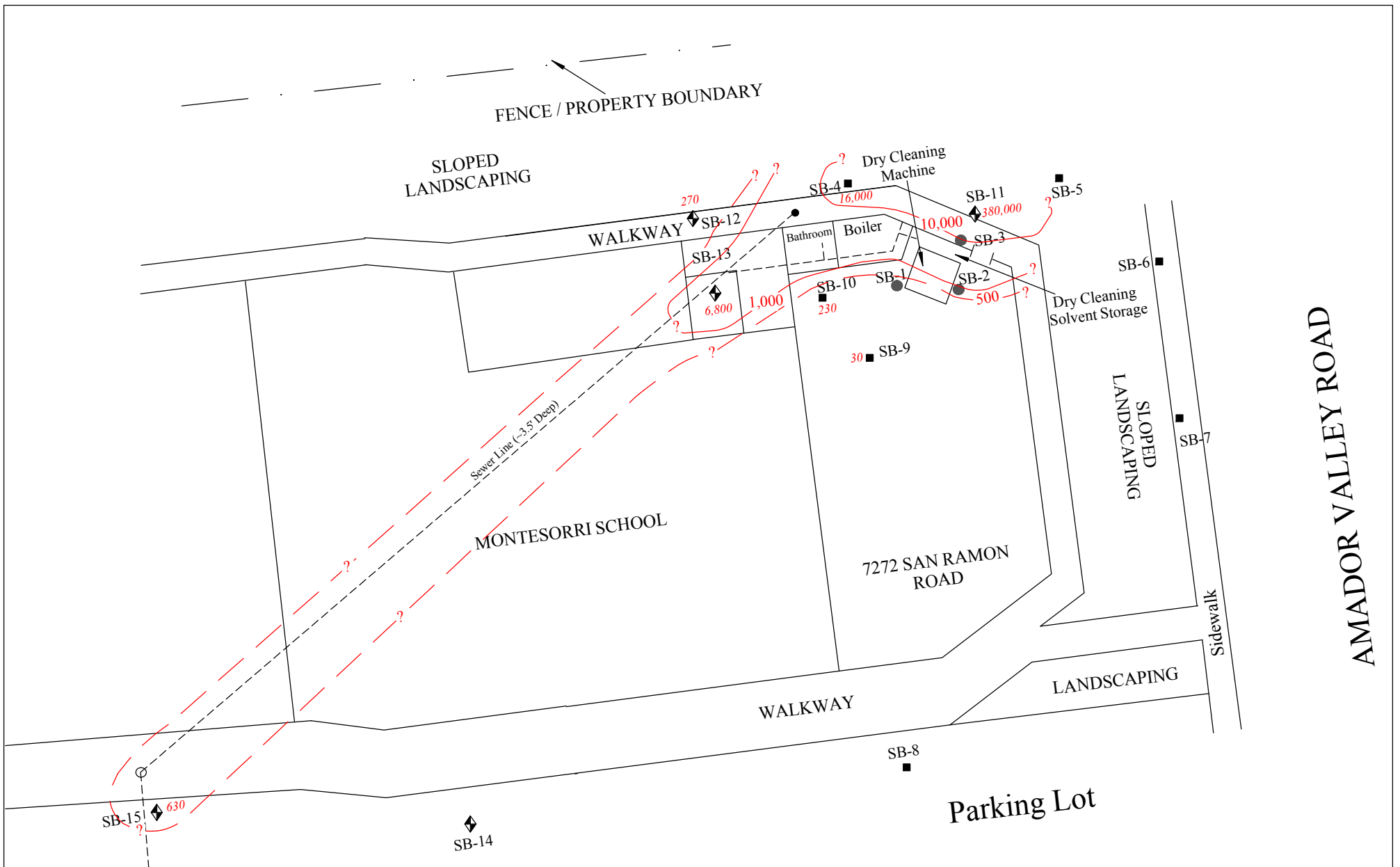
1 INCH = 20 FEET

PCE - Tetrachloroethene
 *Isopleth concentrations in micrograms per liter (ug/L)

AEI CONSULTANTS
 2500 CAMINO DIABLO BLVD, SUITE 200, WALNUT CREEK, CA

A-ZONE PCE ISOPLETH

7272 SAN RAMON ROAD DUBLIN, CA 94568	FIGURE 8 PROJECT NO. 263294
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LEGEND:

- Soil Boring Locations (2/2-6/06)
- Soil Boring Locations (01/27/05)
- ◆ Soil Boring Locations (12/27/06 & 01/15/07)
- Sewer Line
- - - - - Property Boundary

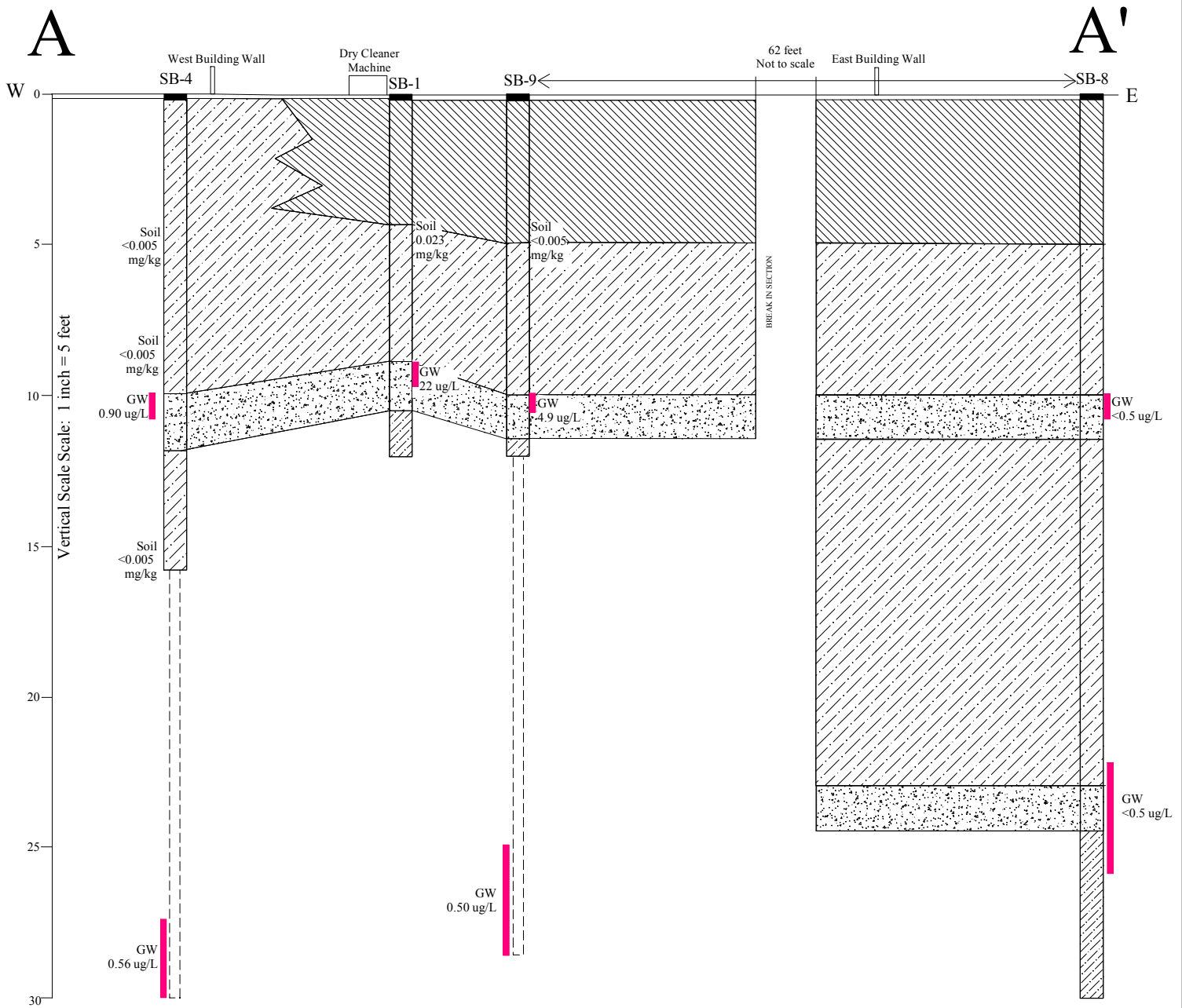
1 INCH = 20 FEET

PCE - Tetrachloroethene
 *PCE value and isopleth concentrations in micrograms per cubic meter (ug/m³)

AEI CONSULTANTS
 2500 CAMINO DIABLO BLVD, SUITE 200, WALNUT CREEK, CA

PCE SOIL VAPOR ISOPLETH

7272 SAN RAMON ROAD DUBLIN, CA 94568	FIGURE 9 PROJECT NO. 263294
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NOTE: All concentrations for PCE in Soil and Groundwater

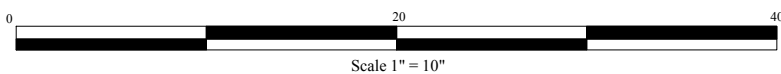
AEI CONSULTANTS

2500 CAMINO DIABLO, STE. 100, WALNUT CREEK, CA

A - A' Fence Diagram

7272 San Ramon Road
Dublin, CA

Figure 10
PROJECT NO. 115876

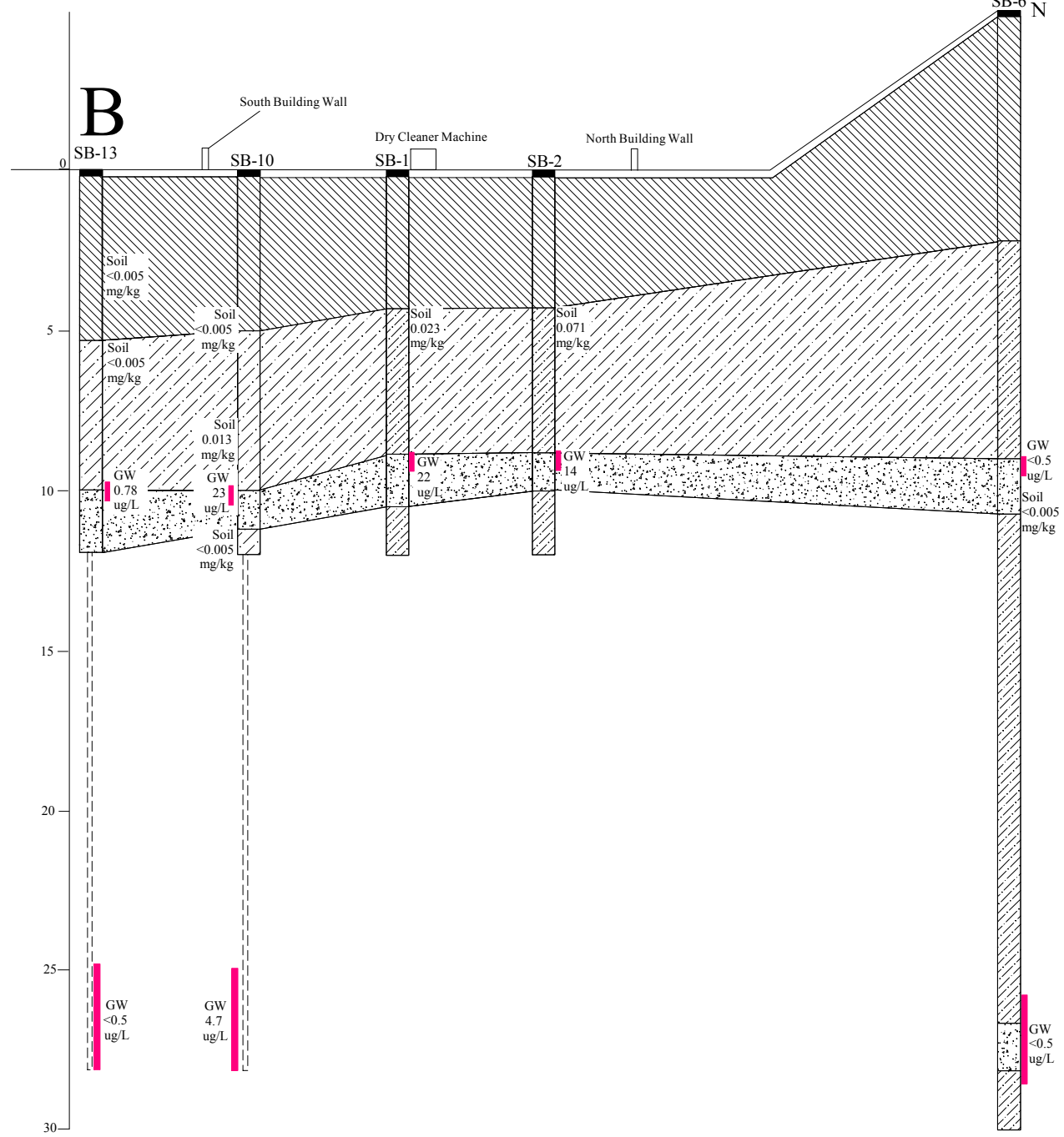


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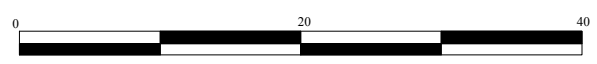
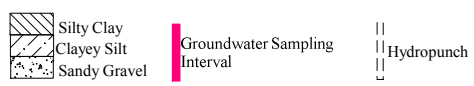
B'

N

B



Vertical Scale: 1 inch = 5 feet



NOTE: All concentrations for PCE in Soil and Groundwater

AEI CONSULTANTS 2500 CAMINO DIABLO, STE. 100, WALNUT CREEK, CA	
B - B' Fence Diagram	
7272 San Ramon Road Dublin, CA	Figure 11 PROJECT NO. 263294

TABLES

Table 1
Soil Sample Analytical Data

Sample ID	Date	Sample Depth feet bgs	PCE mg/kg	TCE	All other HVOCs
				mg/kg <i>EPA Method SW8260B</i>	mg/kg
SB-1 5'	1/27/05	5	0.023	<0.005	<MDL
SB-2 5'	1/27/05	5	0.071	<0.005	<MDL
SB-3 5'	1/27/05	5	0.029	<0.005	<MDL
SB-4-5'	2/6/06	5	<0.005	<0.005	<MDL
SB-4-9'	2/6/06	9	<0.005	<0.005	<MDL
SB-4-16'	2/6/06	16	<0.005	<0.005	<MDL
SB-6-15'	2/2/06	15	<0.005	<0.005	<MDL
SB-9-5'	2/6/06	5	<0.005	<0.005	<MDL
SB-9-8'	2/6/06	8	<0.005	<0.005	<MDL
SB-10-5'	2/6/06	5	<0.005	<0.005	<MDL
SB-10-8.5'	2/6/06	8.5	0.013	<0.005	<MDL
SB-10-12'	2/6/06	12	<0.005	<0.005	<MDL
SB-12-3'	1/16/07	3	<0.005	<0.005	<MDL
SB-12-4'	12/27/06	4	<0.005	<0.005	<MDL
SB-12-6'	12/27/06	6	<0.005	<0.005	<MDL
SB-13-3'	1/16/07	3	<0.005	<0.005	<MDL
SB-13-6'	1/16/07	6	<0.005	<0.005	<MDL
SB-15-6'	12/27/06	6	<0.005	<0.005	<MDL
ESL - DE	-	-	0.43	2.9	-
ESL - GP	-	-	0.70	0.46	-
RL	-	-	0.005	0.005	varies

PCE = tetrachloroethylene

TCE = trichloroethylene

ESLs = Environmental Screening Levels for shallow soils where groundwater is current or potential source of drinking water in residential zones, California Regional Water Quality Control Board, February 2005

DE = direct exposure

GP = groundwater protection

Soil values reported in milligrams per kilogram (mg/kg)

RL = laboratory reporting limit (with no dilution)

MDL = method detection limit

Table 2
Groundwater Sample Analytical Data

Sample ID	Date	Screen Interval feet bgs	PCE	TCE	All other HVOCs
			µg/L	µg/L <i>EPA Method SW8260B</i>	µg/L
SB-1-W	1/27/05	-	22	<0.5	<MDL
SB-2-W	1/27/05	-	14	0.62	<MDL
SB-3-W	1/27/05	-	19	3.0	<MDL
SB-4-W-1	2/6/06	(11 - 13)	0.90	<0.5	<MDL
SB-4-W-2	2/6/06	(31 - 34)	0.56	<0.5	<MDL
SB-5-W-1	2/3/06	(9 - 12)	<0.5	<0.5	<MDL
SB-5-W-2	2/3/06	(37 - 39)	<0.5	<0.5	<MDL
SB-6-W-1	2/3/06	(11-14)	<0.5	<0.5	<MDL
SB-6-W-2	2/3/06	(31 - 34)	<0.5	<0.5	<MDL
SB-7-W-1	2/3/06	(9 - 12)	<0.5	<0.5	<MDL
SB-7-W-2	2/3/06	(37 - 39)	<0.5	<0.5	<MDL
SB-8-W-1	2/2/06	(9 - 12)	<0.5	<0.5	<MDL
SB-8-W-2	2/2/06	(23 - 26)	<0.5	<0.5	<MDL
SB-9-W-1	2/6/06	(9 - 12)	4.9	<0.5	<MDL
SB-9-W-2	2/6/06	(28 - 32)	0.50	<0.5	<MDL
SB-10-W-1	2/6/06	(9 - 12)	23	<0.5	<MDL
SB-10-W-2	2/6/06	(28 - 32)	4.7	<0.5	<MDL
SB-12-W-1	1/16/07	(9 - 12)	<0.5	<0.5	<MDL
SB-12-W-2	1/16/07	(24 - 28)	<0.5	<0.5	<MDL
SB-13-W-1	1/16/07	(9 - 12)	0.78	<0.5	<MDL
SB-13-W-2	1/16/07	(24 - 28)	<0.5	<0.5	<MDL
SB-14-W-1	12/27/06	(9 - 12)	2.5	<0.5	<MDL
SB-14-W-2	12/27/06	(23 - 27)	<0.5	1.1	<MDL*
SB-15-W-1	12/27/06	(9 - 12)	<0.5	<0.5	<MDL
SB-15-W-2	12/27/06	(24 - 28)	<0.5	<0.5	<MDL**
ESL - DWT	-	-	5.0	5.0	-
RL	-	-	0.5	0.5	Varies

PCE = tetrachloroethylene

TCE = trichloroethylene

VC = vinyl chloride

ESLs = Environmental Screening Levels for shallow soils where groundwater is current or potential source of drinking water in residential zones, California Regional Water Quality Control Board, February 2005

DWT = drinking water toxicity

Groundwater values reported in micrograms per liter (ug/L)

RL = laboratory reporting limit (with no dilution)

Number following "W" designation indicates water-bearing zone (1 - A Zone, 2 - B Zone)

MDL = method detection limit

*= Toluene detected at 0.88 ug/L and xylenes at 1.0 ug/L

**= Chloroform, dibromochloromethane, and bromodichloromethane detected at 0.54, 0.91, and 0.97 ug/L, respectively

Table 3
Soil Vapor Sample Analytical Data

Sample ID	Date Collected	PCE μg/m³	TCE μg/m³ <i>EPA Method TO-15</i>	All other target HVOCs μg/m³
SB-4-V	2/6/06	13000	<2.7	<MDL
SB-4-V-D	2/6/06	16000	<2.7	<MDL
SB-9-V	2/6/06	30	<2.7	<MDL
SB-10-V	2/6/06	230	<2.7	<MDL
SB-11-V	12/27/06	320,000	2,900	<MDL
SB-11-V Duplicate	12/27/06	380,000	3,200	<MDL
SB-12-V	12/27/06	270	12	<MDL
SB-13-V	1/15/07	6,700	<23	<MDL
SB-13-V-Duplicate	1/15/07	6,800	<23	MDL
SB-15-V	12/27/06	630	4.4	<MDL*
ESL - Res	-	410	1,200	-
RL		0.5	varies	varies

PCE = tetrachloroethylene

TCE = trichloroethylene

HVOCs = halogenated volatile organic compounds

ESLs = Environmental Screening Levels for shallow soil gas in residential zones,
California Regional Water Quality Control Board, February 2005

Soil vapor concentrations reported in micrograms per cubic meter (ug/m³)

RL = laboratory reporting limit (with no dilution)

* = The lead check compound, 2-Propanol, detected at 3,200 ug/m³

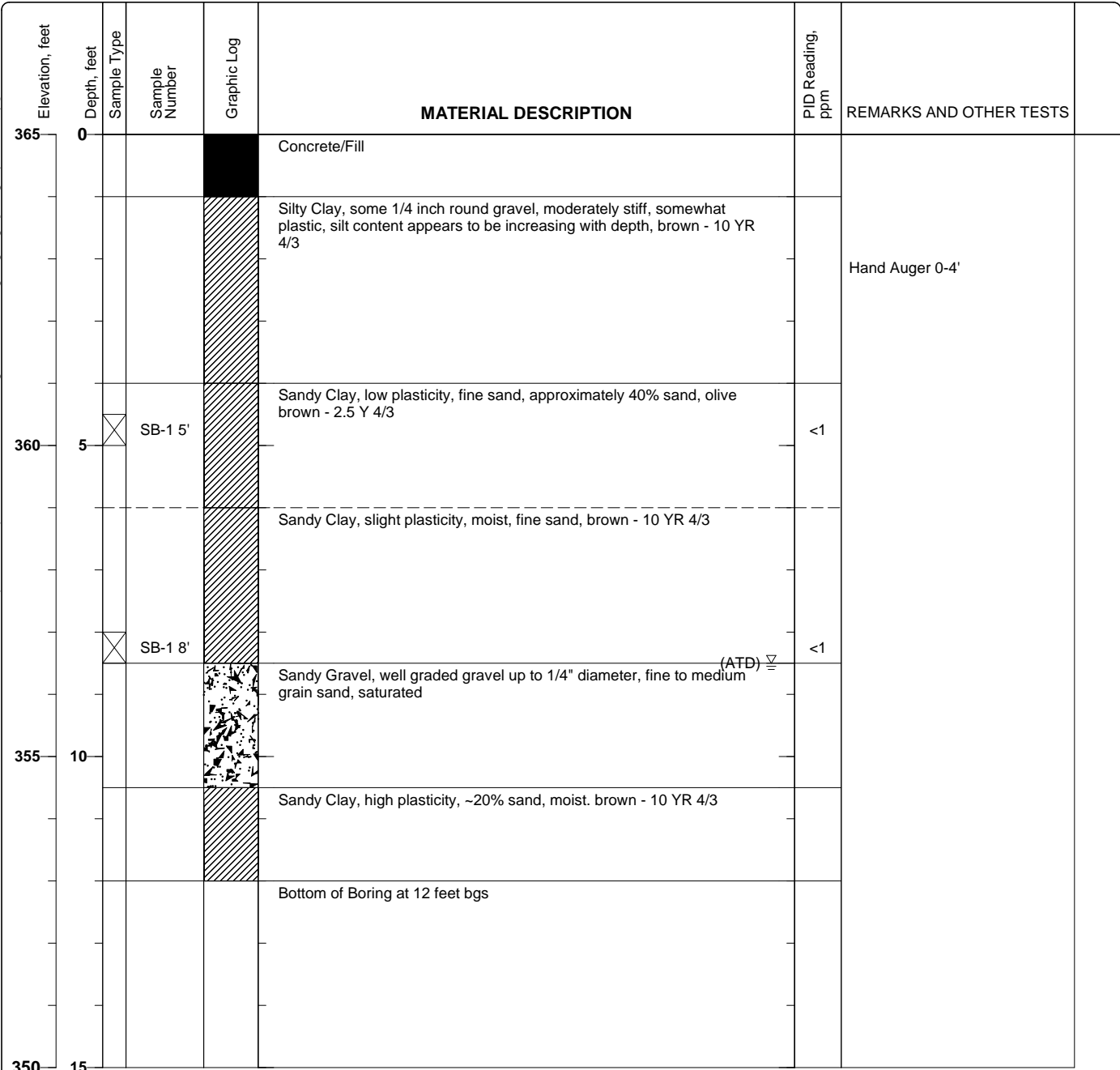
APPENDIX A
Soil Boring Logs

Project: Gabriel Chiu
Project Location: 7272 San Ramon Road
Project Number: 10365

Log of Boring SB-1
 Sheet 1 of 1

Date(s) Drilled	January 27, 2005	Logged By	JR	Checked By	PJM
Drilling Method	Direct Push	Drill Bit Size/Type		Total Depth of Borehole	12 feet bgs
Drill Rig Type	Pneumatic Hammer	Drilling Contractor	Vironex	Approximate Surface Elevation	365 feet
Groundwater Level and Date Measured	8.5 feet ATD	Sampling Method(s)	Tube	Well Permit.	
Borehole Backfill	Cement Slurry	Location			

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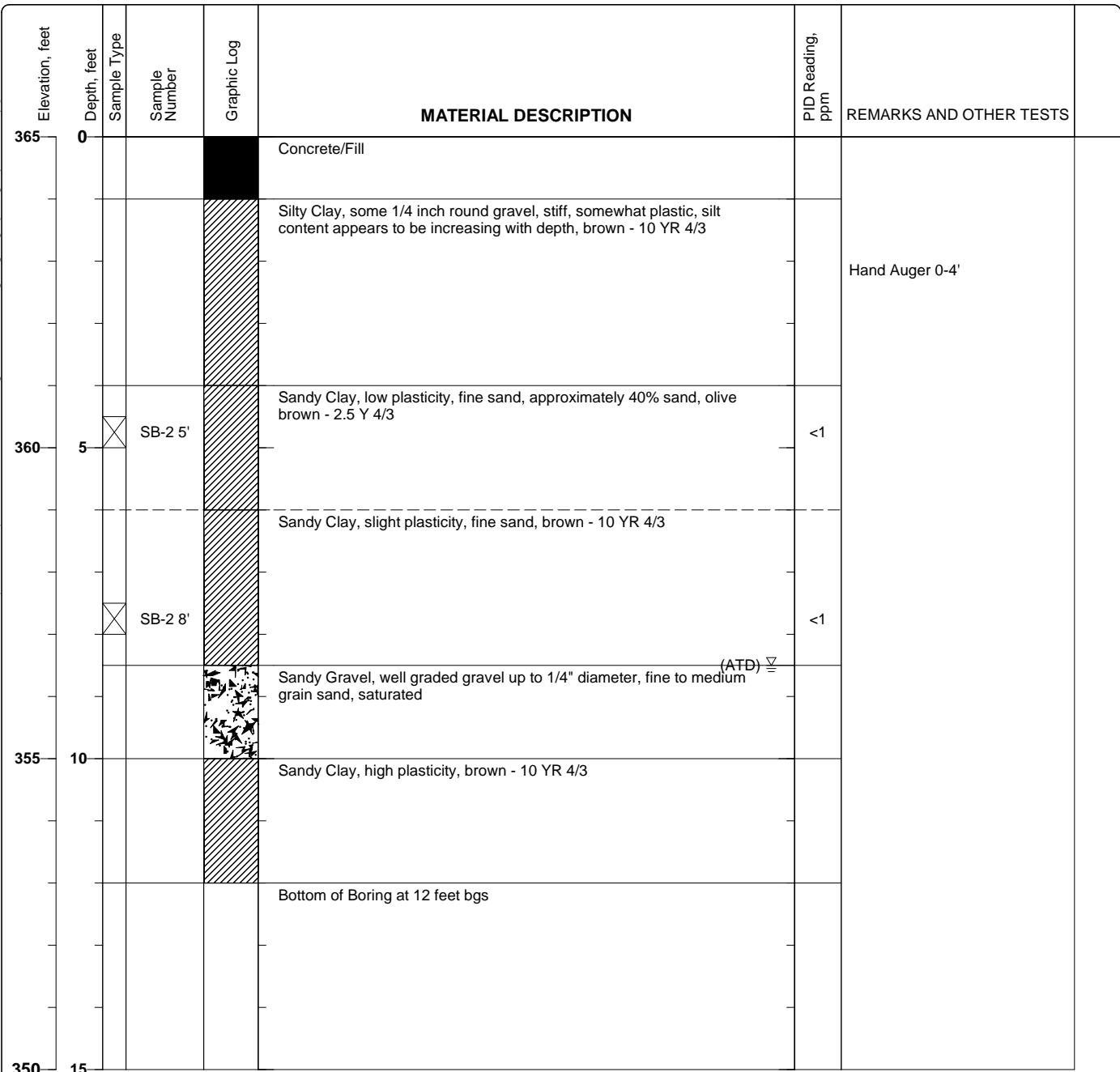
Figure

Project: Gabriel Chiu
Project Location: 7272 San Ramon Road
Project Number: 10365

Log of Boring SB-2
 Sheet 1 of 1

Date(s) Drilled	January 27, 2005	Logged By	JR	Checked By	PJM
Drilling Method	Direct Push	Drill Bit Size/Type	1 3/4 inch	Total Depth of Borehole	12 feet bgs
Drill Rig Type	Pneumatic Hammer	Drilling Contractor	Vironex	Approximate Surface Elevation	365 feet
Groundwater Level and Date Measured	8.5 feet ATD	Sampling Method(s)	Tube	Well Permit.	
Borehole Backfill	Cement Slurry	Location			

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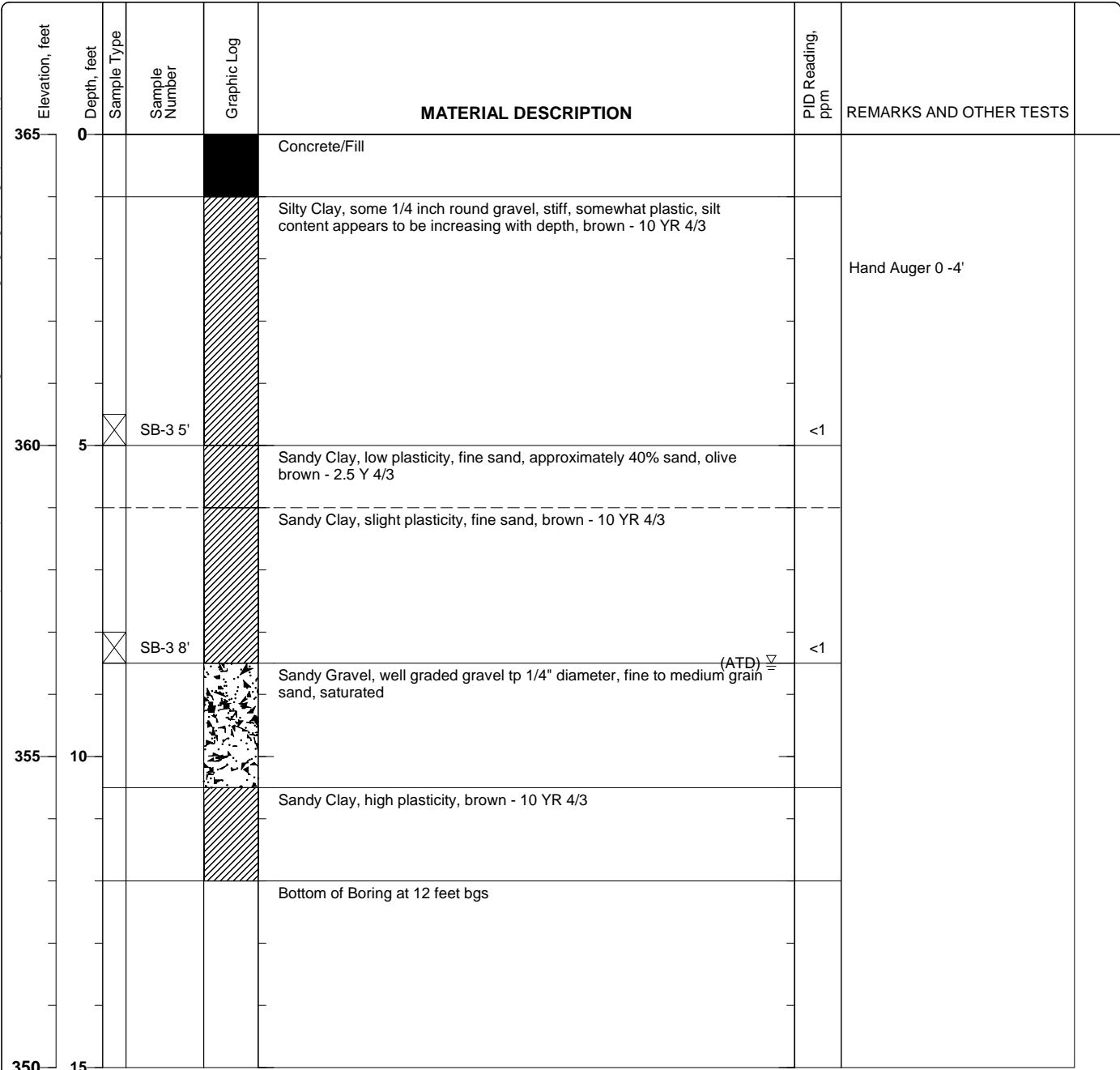
Figure

Project: Gabriel Chiu
Project Location: 7272 San Ramon Road
Project Number: 10365

Log of Boring SB-3
 Sheet 1 of 1

Date(s) Drilled	January 27, 2005	Logged By	JR	Checked By	PJM
Drilling Method	Direct Push	Drill Bit Size/Type	1 3/4 inch	Total Depth of Borehole	12 feet bgs
Drill Rig Type	Pneumatic Hammer	Drilling Contractor	Vironex	Approximate Surface Elevation	365 feet
Groundwater Level and Date Measured	8.5 feet ATD	Sampling Method(s)	Tube	Well Permit.	
Borehole Backfill	Cement Slurry	Location			

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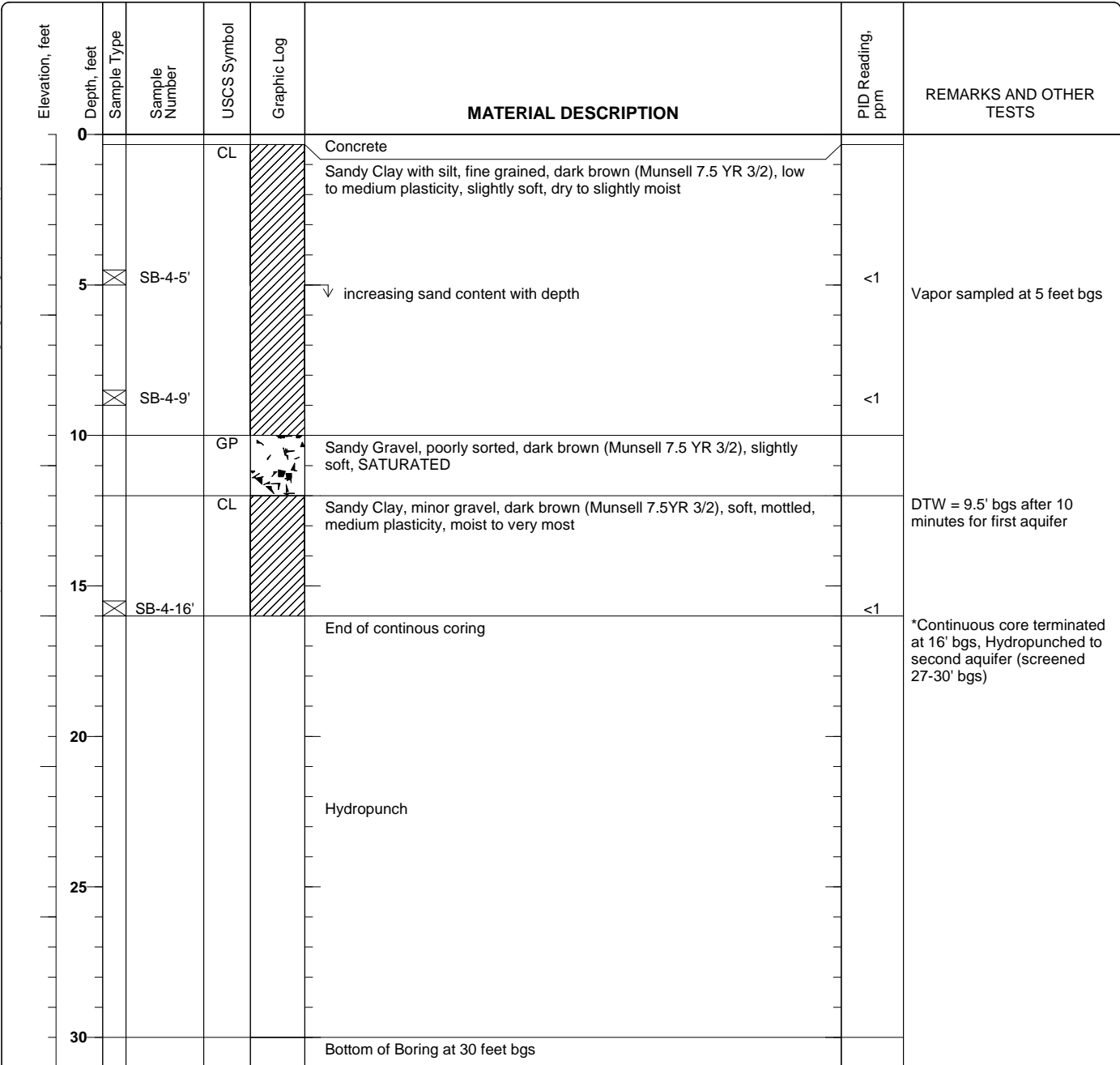


Figure

Project: Main Street
Project Location: 7272 San Ramon Rd., Dublin CA
Project Number: 115876

Log of Boring SB-4
 Sheet 1 of 1

Date(s) Drilled	February 6, 2006	Logged By	Adrian Angel	Checked By	Peter McIntyre
Drilling Method	Direct Push	Drill Bit Size/Type		Total Depth of Borehole	30 feet bgs
Drill Rig Type	Limited-Access Badger	Drilling Contractor	Vironex	Approximate Surface Elevation	
Groundwater Level and Date Measured		Sampling Method(s)	Tube	Well Permit.	
Borehole Backfill	Neat Cement Grout	Location			



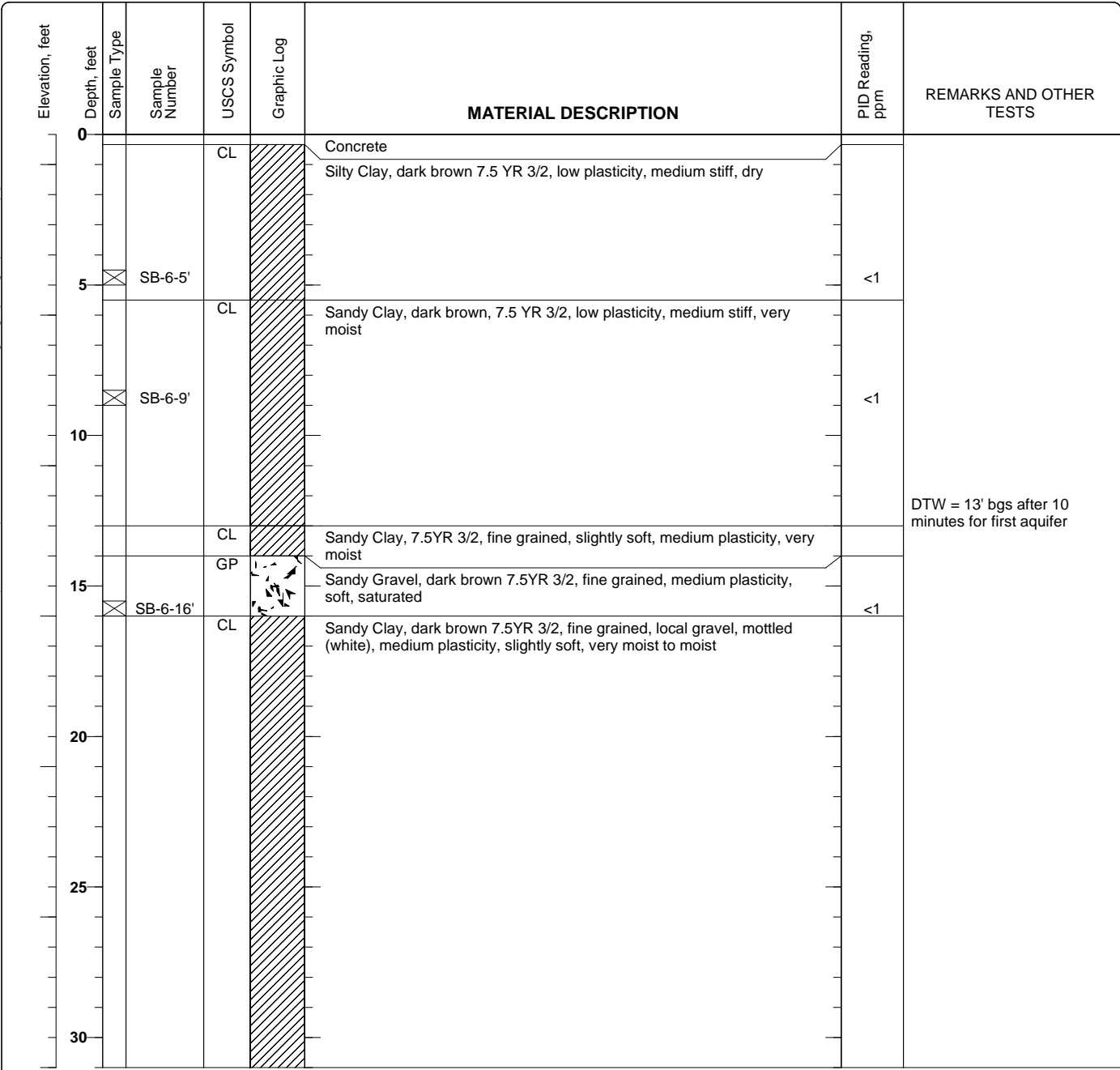
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Figure

Project: Main Street
Project Location: 7272 San Ramon Rd., Dublin CA
Project Number: 115876

Log of Boring SB-6
 Sheet 1 of 2

Date(s) Drilled	February 6, 2006	Logged By	Adrian Angel	Checked By	Peter McIntyre
Drilling Method	Direct Push	Drill Bit Size/Type	2 3/4 inch	Total Depth of Borehole	35 feet bgs
Drill Rig Type	Limited-access Geoprobe 54DT	Drilling Contractor	Vironex	Approximate Surface Elevation	
Groundwater Level and Date Measured		Sampling Method(s)	Tube	Well Permit.	
Borehole Backfill	Neat Cement Grout	Location			



DTW = 13' bgs after 10 minutes for first aquifer

Figure

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Project: Main Street

Project Location: 7272 San Ramon Rd., Dublin CA

Project Number: 115876

Log of Boring SB-6

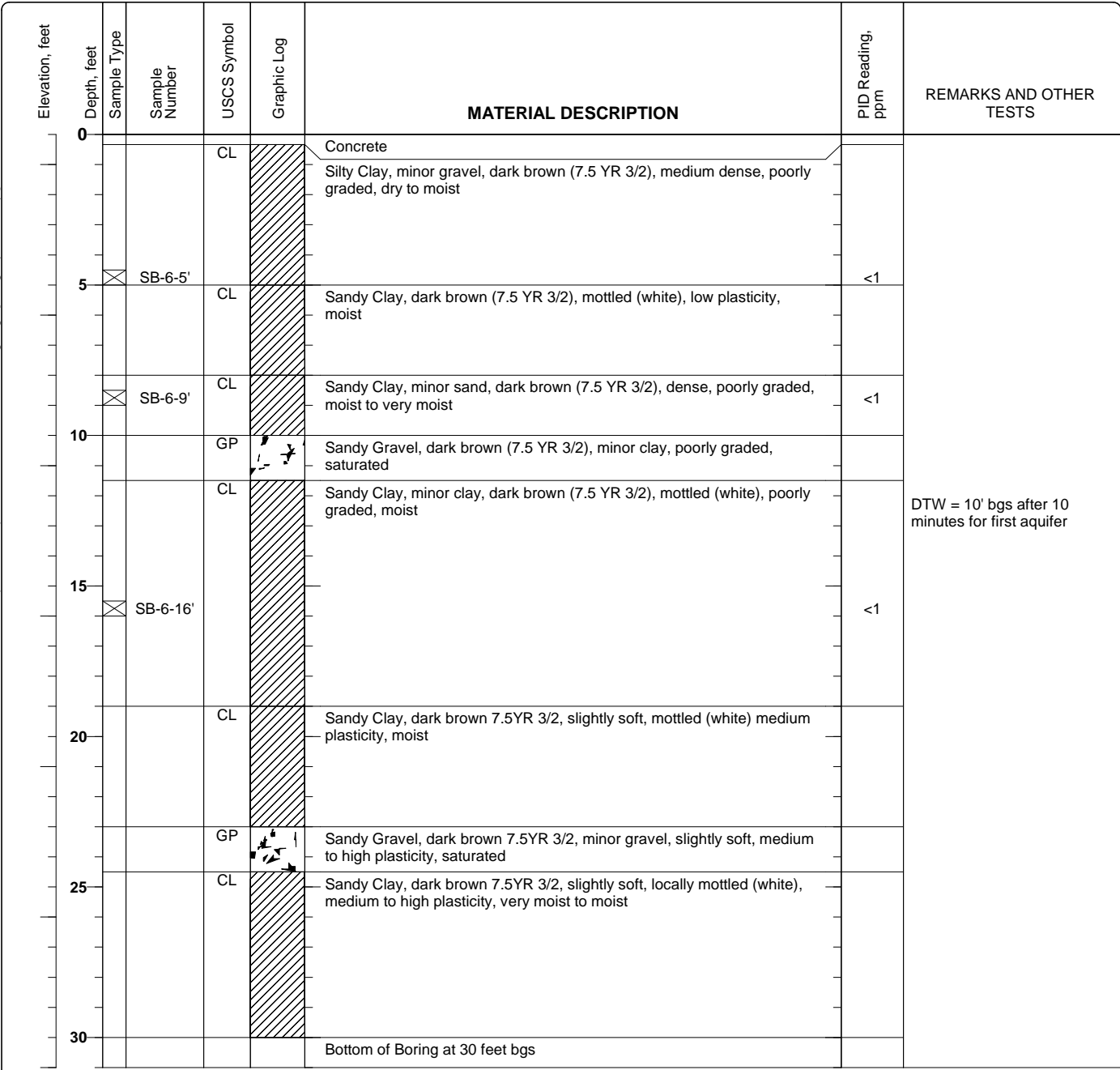
Sheet 2 of 2

Elevation, feet	Depth, feet	Sample Type	Sample Number	USCS Symbol	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
31				CL		Sandy Clay, dark brown 7.5YR 3/2, fine grained, local gravel, mottled (white), medium plasticity, slightly soft, very moist to moist (cont.)		
				GP		Sandy Gravel, dark brown 7.5YR 3/2, poorly graded, slightly soft, very wet to saturated		
				CL		Sandy Clay, dark brown 7.5YR 3/2, mottled (white), high plasticity, slightly soft, very moist to moist		
36						Bottom of Boring at 35 feet bgs		
41								
46								
51								
56								
61								

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Figure

Date(s) Drilled: February 6, 2006	Logged By: Adrian Angel	Checked By: Peter McIntyre
Drilling Method: Direct Push	Drill Bit Size/Type: 2 3/4 inch	Total Depth of Borehole: 30 feet bgs
Drill Rig Type: Limited-access Geoprobe 54DT	Drilling Contractor: Vironex	Approximate Surface Elevation
Groundwater Level and Date Measured	Sampling Method(s): Tube	Well Permit.
Borehole Backfill: Neat Cement Grout	Location	



DTW = 10' bgs after 10 minutes for first aquifer

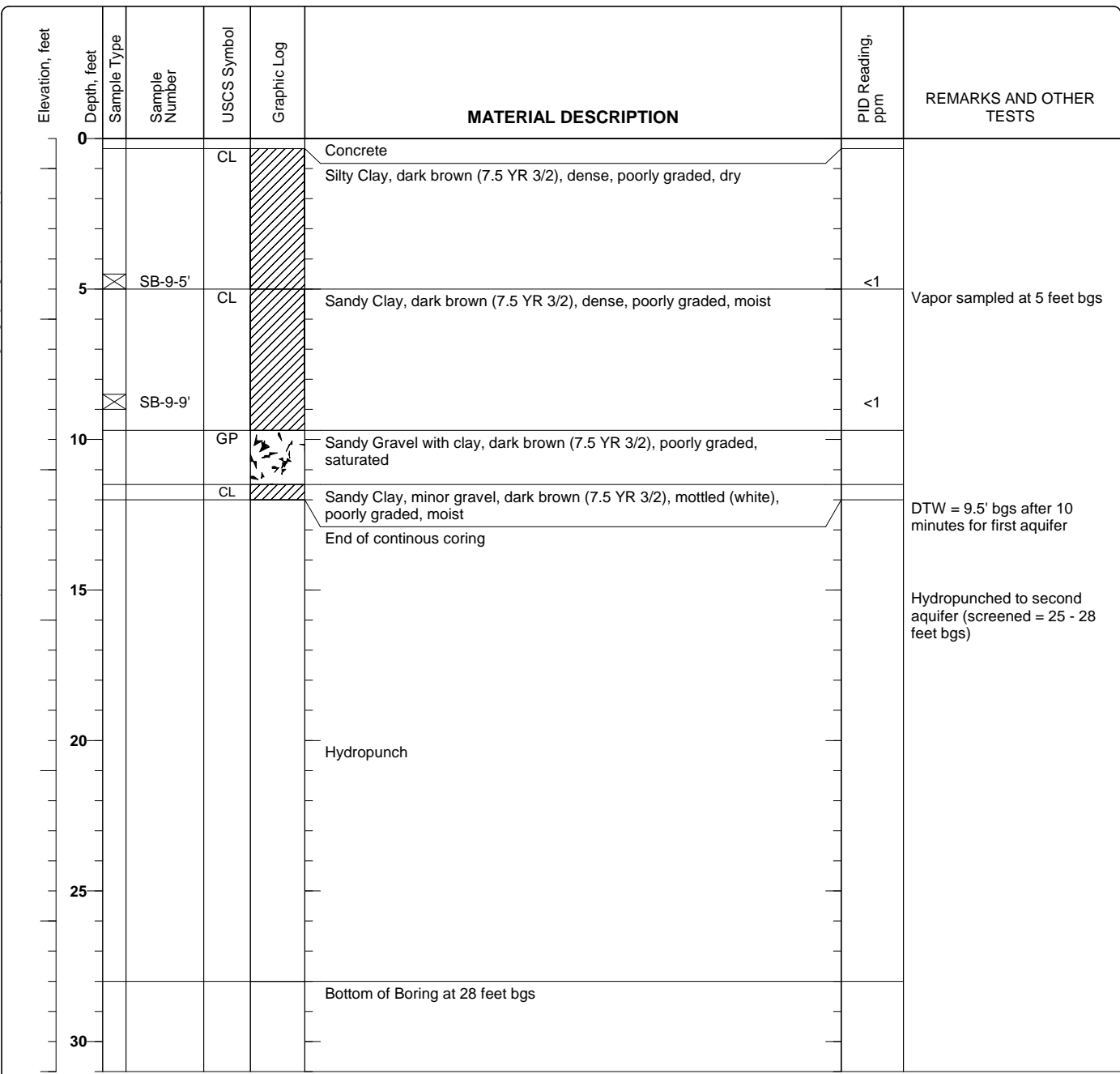
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Project: Main Street
Project Location: 7272 San Ramon Rd., Dublin CA
Project Number: 115876

Log of Boring SB-9
 Sheet 1 of 1

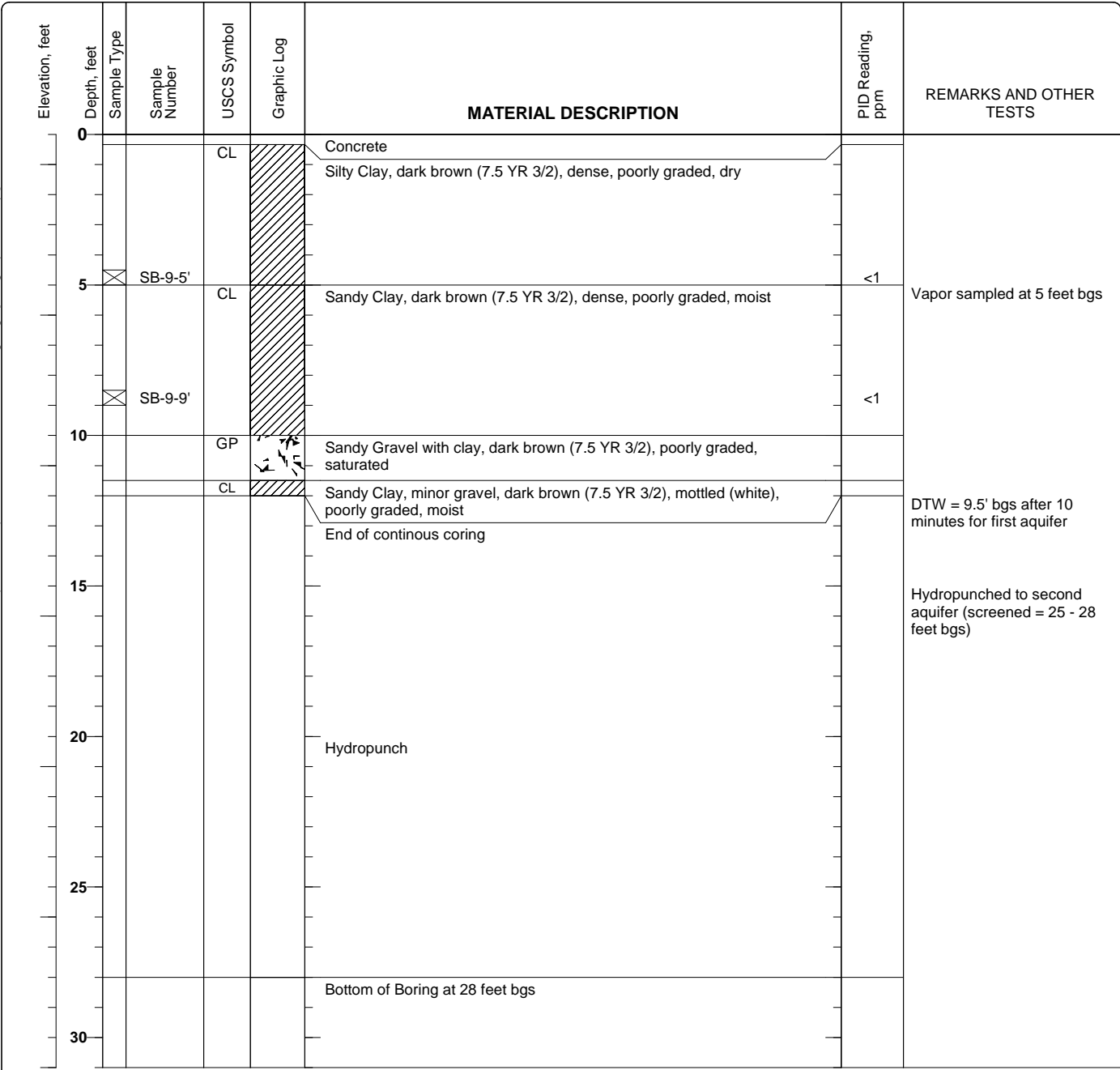
Date(s) Drilled	February 6, 2006	Logged By	Adrian Angel	Checked By	Peter McIntyre
Drilling Method	Direct Push	Drill Bit Size/Type	2 3/4 inch	Total Depth of Borehole	28 feet bgs
Drill Rig Type	Limited-access Geoprobe 54DT	Drilling Contractor	Vironex	Approximate Surface Elevation	
Groundwater Level and Date Measured		Sampling Method(s)	Tube	Well Permit.	
Borehole Backfill	Neat Cement Grout	Location			



Figure

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Date(s) Drilled February 6, 2006	Logged By Adrian Angel	Checked By Peter McIntyre
Drilling Method Direct Push	Drill Bit Size/Type 2 3/4 inch	Total Depth of Borehole 28 feet bgs
Drill Rig Type Limited-access Geoprobe 54DT	Drilling Contractor Vironex	Approximate Surface Elevation
Groundwater Level and Date Measured	Sampling Method(s) Tube	Well Permit.
Borehole Backfill Neat Cement Grout	Location	



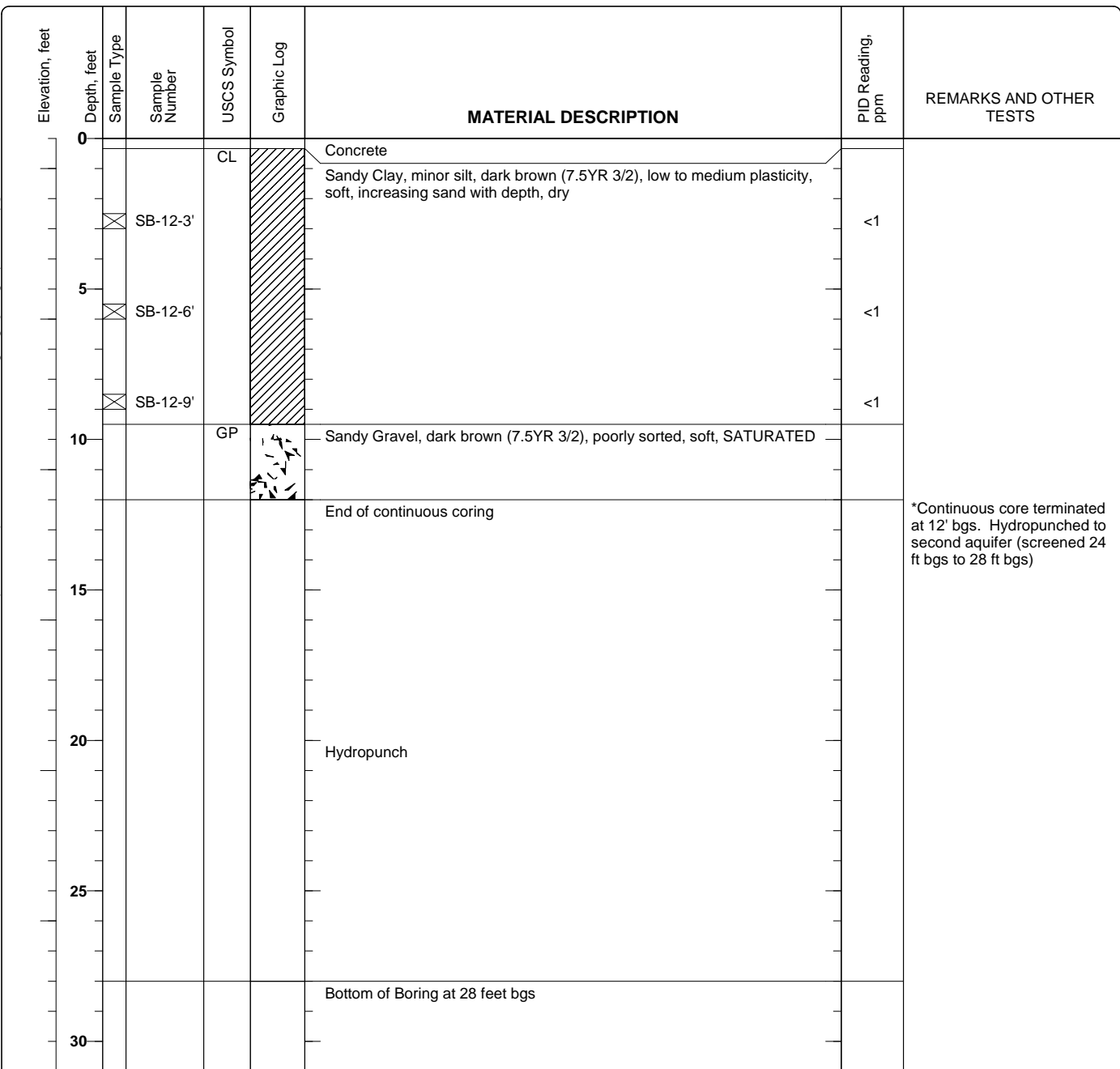
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Figure

Project: Main Street Property Services
Project Location: 7272 San Ramon Rd., Dublin, CA
Project Number: 263294

Log of Boring SB-12
 Sheet 1 of 1

Date(s) Drilled	January 15, 2007	Logged By	Adrian Angel	Checked By	Peter McIntyre
Drilling Method	Direct Push	Drill Bit Size/Type		Total Depth of Borehole	28 feet bgs
Drill Rig Type	Limited-Access Badger	Drilling Contractor	Vironex	Approximate Surface Elevation	
Groundwater Level and Date Measured		Sampling Method(s)	Tube	Well Permit.	
Borehole Backfill	Neat Cement Grout	Location			

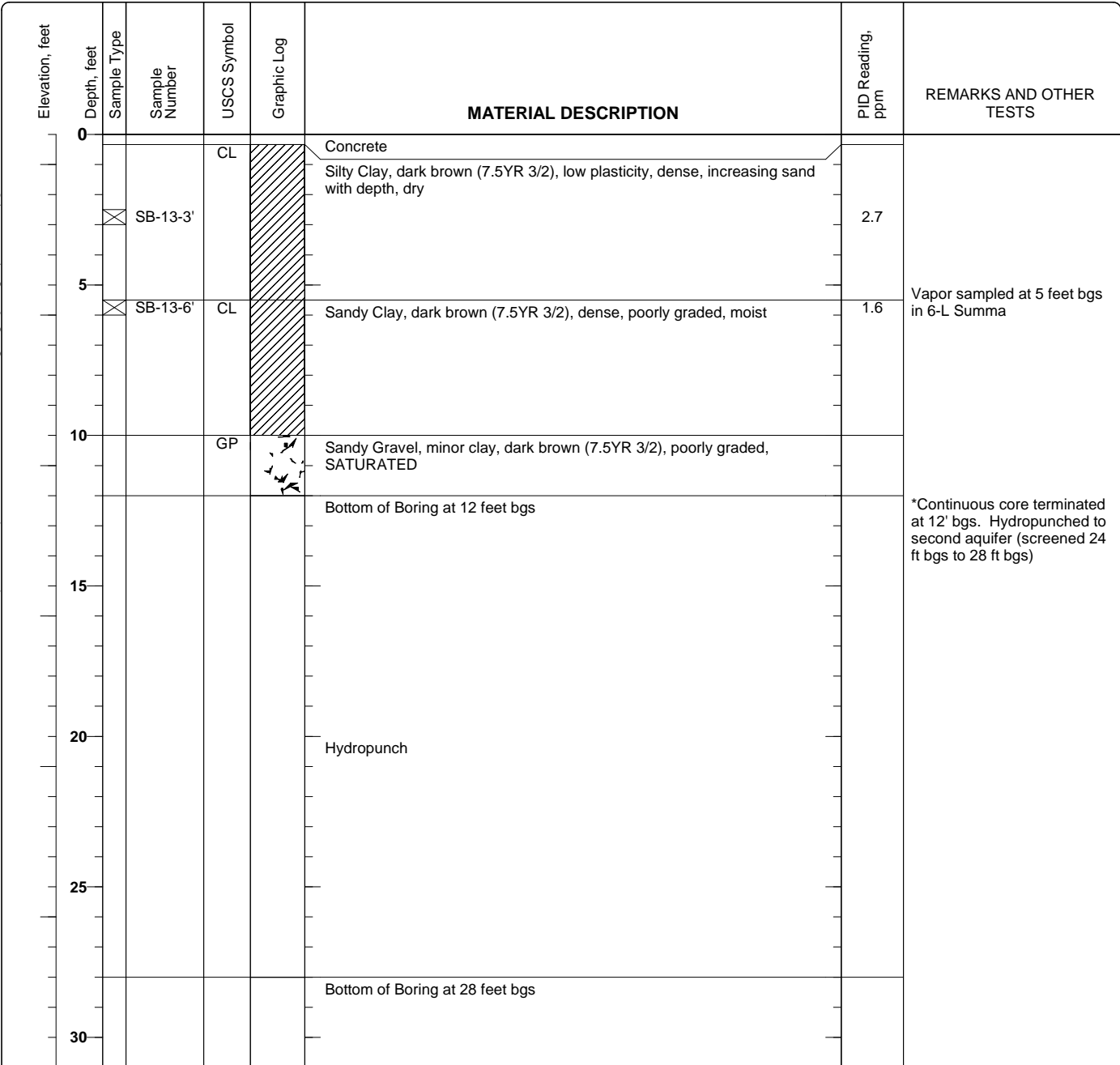


Figure

Project: Main Street Property Services
Project Location: 7272 San Ramon Rd., Dublin, CA
Project Number: 263294

Log of Boring SB-13
 Sheet 1 of 1

Date(s) Drilled	January 15, 2007	Logged By	Adrian Angel	Checked By	Peter McIntyre
Drilling Method	Direct Push	Drill Bit Size/Type	2 3/4 inch	Total Depth of Borehole	28 feet bgs
Drill Rig Type	Limited-Access Badger	Drilling Contractor	Vironex	Approximate Surface Elevation	
Groundwater Level and Date Measured		Sampling Method(s)	Tube	Well Permit.	
Borehole Backfill	Neat Cement Grout	Location			



Figure