RO2863

AEI CONSULTANTS
2500 Camino Diablo, Suite 200, Walnut Creek, CA 94597
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November 22, 2005

Mr. Jerry Wickham
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Subject: **Site Investigation Work plan**
7272 San Ramon Boulevard
Dublin, CA 94568
AEI Project No. 11172
ACEHS Toxics Case # RO000263

Dear Mr. Wickham:

Enclosed is the *Site Investigation Work Plan* for the above-referenced subject property. A copy of the work plan has been sent to our client, Mr. Bruce Burrows of Main Street Properties.

If you have any comments of recommendations concerning the work plan, please don't hesitate to contact me at (925) 283-6000 extension 132. You can notify me of the work plan's approval via phone, fax (925-283-6121) or email (aangel@aeiconsultants.com). Thanks.

Sincerely,

Adrian Angel
Staff Geologist

November 21, 2005

SITE INVESTIGATION WORKPLAN

7272 San Ramon Road
Dublin, California 94568

Project No. 11172
ACEHS Toxics Case # RO0002863

Prepared On Behalf Of

Bruce Burrows
Main Street Properties
985 Moraga Road
Lafayette, California 94549

Prepared By

AEI Consultants
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(925) 283-6000

AEI

TABLE OF CONTENTS

FIGURES

TABLES

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. AEI will perform the following activities to comply with the Alameda County Environmental Health Services' (ACEHS) request to further investigate the extent of impacted soil and groundwater at the site:

- Collect soil, groundwater, and vapor samples from 7 temporary soil borings
- Install three groundwater monitoring wells and conduct quarterly groundwater monitoring
- Prepare a report of activities 120 days after ACEHS approval of work plan

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 (µg/L) in groundwater. In addition, TCE was detected in the groundwater up to 3.0 µg/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 ACEHS, in a letter dated August 30, 2005, requested that the lateral and vertical extent of the contamination of PCE be delineated.

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 previous drilling investigation encountered sediments generally consisting of sandy clay, underlain by sandy gravel deposits. The saturated sandy gravel zone, ranging from approximately 1.5 feet to 2.5 feet thick, was encountered at approximately 8.5 feet bgs.

Based on local topography, groundwater is assumed to flow easterly-southeasterly. First groundwater is expected at approximately 8 to 12 feet below ground surface (bgs), based on the initial soil and groundwater investigation. The nearest surface water is Dublin Creek, located approximately 0.42 mile south of the property.

4.0 INITIAL SITE CONCEPTUAL MODEL

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, although it is plausible that the release had a deeper origin (sewer lines, etc.). The TCE detected in the groundwater may be the result of natural dechlorination of PCE. No information is known about documented, or reported releases, or about previous solvent storage areas or practices. AEI has contacted the City of Dublin and the current owner in an attempt to obtain utility blueprints or plans for the dry-cleaning facility to better assess potential release pathways, but was unable to locate any such documents. The sewer location shown on Figure 2 is based on visual inspection.

4.2 Release Extent

Chlorinated solvents are highly mobile chemicals. PCE is a toxic hazard by inhalation, adsorption, ingestion and eye contact. The highest detected concentrations of PCE reported in the initial Phase II investigation was 0.071 mg/kg in soil and 22 µg/L in groundwater. The highest detected concentration of PCE is the soil is under the San Francisco Bay Regional Water Quality Control Board (RWQCB) Environmental Screening Levels for Commercial and Industrial Land Use (July, 2003), and this therefore not expected to pose a significant health risk during fieldwork. Groundwater flow direction could not be estimated based on contaminant distributions, but it is expected to flow to the south and southeast.

4.3 Data Gaps

Data gaps that require further investigation during subsequent phases of work include the lateral and vertical extent of the HVOC contamination, potential pathways other than surface releases (i.e. deteriorated sewer lines, etc.), groundwater flow direction range, fluctuations in water table elevations, and vapor pathways. These will be addressed in the proposed investigation.

5.0 PROPOSED INVESTIGATION

AEI will drill seven (7) soil borings the subject property to further delineate the extent of the release. Outside of the building, three of these borings (SB-4, SB-6, and SB-8) will be continuously cored to a depth of approximately 30 feet bgs to find and sample groundwater zones present. Once the water-bearing zones have been located, AEI will use Hydropunch® technology to discretely sample groundwater in these three locations and in two other locations (SB-5 and SB-7). Inside the building, two borings (SB-9 and SB-10) will be advanced to approximately 12 feet bgs using continuous coring for soil sampling collection and then hydropunched to collect groundwater samples. Proposed boring locations (labeled SB-4 through SB-10) are shown on Figure 3. A summary of the proposed borings is listed below.

Proposed Borings at 7272 San Ramon Road, Dublin CA

Boring ID	***Purpose***	***Sample Analyses (HVOCs by EPA Method 8260+ TO 15)***		
		Soil	*Water*	*Vapor*
SB-4	Outside of dry-clean facility, to identify and sample water-bearing zones	1-2 samples	1-2 sample	1 sample
SB-5	Hydropunch groundwater sampling	None	1-2 sample	None
SB-6	Outside of dry-clean facility, to identify and sample water-bearing zones	1-2 samples	1-2 sample	None
SB-7	Hydropunch groundwater sampling	None	1-2 sample	None
SB-8	Outside of dry-clean facility, to identify and sample water-bearing zones	1-2 samples	1-2 sample	None
SB-9	Inside dry-clean facility, additional sampling	1-2 samples	1-2 samples	1 sample
SB-10	Inside dry-clean facility, additional sampling	1-2 samples	1-2 samples	1 sample

AEI will tentatively install three groundwater monitoring wells (MW-1 through MW-3). The locations of the wells have been chosen based on existing data and to triangulate groundwater flow direction. If the findings of the investigation above indicate any changes to the well installation, proposed changes to the scope of work will be sent to the ACEHS. Please refer to Figure 3 for tentative monitoring well installation locations.

6.0 OPERATING PROCEDURES

6.1 Drilling

A drilling permit from Zone 7 Water Agency (Zone 7) in Alameda County has already been obtained. Underground Service Alert will be notified to identify public utilities in the work area. A private utility locating service will be retained to clear boring locations and confirm location of sewer line and any other previously unidentified underground utilities.

Direct push drilling work will be performed a by California C57 licensed drilling contractor. Drilling will be performed with a limited-access Geoprobe® direct-push drilling rig. The borings will be drilled to the target depths outlined above, unless field observations indicate the need to collect deeper samples. 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 Hydropunch® Groundwater Sampling

This sampling method operates by advancing 1 ¾ inch hollow push rods with the filter tip in a closed configuration to the base of the desired sampling interval. Once at the desired sample depth, the push rods are retracted; exposing the encased filter screen and allowing groundwater to infiltrate hydrostatically from the formation into the inlet screen. A check valve or peristaltic pump is then used for sample collection. Upon completion of sample collection, the push rods and sampler, with the exception of the PVC screen and steel drop off tip are retrieved to the ground surface, decontaminated and prepared for the next sampling event. Groundwater samples will be collected into 40 ml volatile organic analysis (VOA) vials. The containers will be sealed so that no head-space or air bubbles are visible within the containers.

6.4 Soil Vapor Sampling

A vapor survey has been requested to investigate whether significant vapor concentrations exist in the shallow soils beneath the site. The purpose of the survey is determine if known PCE in soil and groundwater beneath the site is a potential concern for contaminant vapor intrusion into the neighboring commercial spaces.

A total of three (3) vapor sampling locations are proposed (SB-4, SB-9, and SB-10). 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.

In order 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 6-liter Summa canisters.

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.

6.5 Well Installation and Development

The drilling and well installation work will be performed under Zone 7 permit. The wells will be installed in borings drilled with a standard rotary drilling rig, running 8¼ diameter hollow stem augers. The boreholes will be advanced to approximately 14 feet bgs. The wells will be constructed with 2" diameter well casing, with 5' of factory slotted 0.010 or 0.020 inch well screen. The screen intervals shown above may be adjusted based on findings of the second investigation by the onsite geologist during drilling.

Soil samples will be collected at approximately 5' intervals, or at closer intervals, during drilling with a split spoon sampler advanced ahead of the auger bit. Samples will be utilized to characterize the sediments beneath the site and for possible chemical analyses.

The well casings will be installed through the augers. The casing will be flush threaded PVC and fitted with a bottom sump. An annular sand pack will be installed through the

augers, which will be lifted from the borehole in 1-foot lifts. A bentonite seal will be placed above the sand and the remainder of the boring will be sealed with cement grout.

The wells will be developed no sooner than 3 days after setting the well seals by surging, bailing, and purging to stabilize the sand pack and remove accumulated fines from the casing and sand pack.

Each well will be surveyed relative to each other and mean sea level by a California licensed land surveyor, with accuracy appropriate for Geotracker uploads.

6.6 Groundwater Monitoring

Monitoring and sampling of the resulting network of wells will occur on a quarterly basis for a period of one year under this work plan, with the first episode to occur within approximately one week of well development.

During each monitoring event, water levels will be measured in each well. Wells will be purged of at least 3 well volumes of water prior to sample collection. During purging the following water quality measurements will be collected: temperature, pH, specific conductivity, dissolved oxygen (DO) and oxidation-reduction potential (ORP). Groundwater samples will be collected with new, unused disposable bailers into appropriate laboratory-supplied containers.

6.7 Laboratory Analysis and Sample Storage

All samples will be sealed and labeled immediately upon collection. Samples will be placed in a cooler with water ice. Chain of custody documentation will be initiated prior to leaving the site. All samples will be delivered to a state certified laboratory on the day of collection. Soil and groundwater samples will be analyzed for HVOCs by EPA Method 8260B. Soil vapor samples will be analyzed by EPA Method TO 15.

6.8 Equipment Decontamination

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 DOT approved 55-gallon drums in a secure location onsite pending proper disposal.

6.9 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-gallond 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.

6.10 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 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. If additional analyses or further investigation is deemed necessary, such recommendations may be made. If the findings of the additional soil and groundwater investigation indicate a very limited impact, the implementation of monitoring wells could be deemed unnecessary and case closure may be pursued. The project will be overseen and the reports signed by an AEI California registered professional geologist or engineer.

8.0 SCHEDULE

Field work is anticipated to be scheduled within two weeks of approval of this work plan by the ACEHS. The ACEHS will be given adequate notification of the schedule should inspections be necessary. Drilling and sampling activities are expected to require one or two days. Laboratory analytical results 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.

9.0 REFERENCES

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

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

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

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

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

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

10.0 SIGNATURES

This 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

Adrian Michael Angel
Staff Geologist

Peter McIntyre, PG
Project Manager

REGISTERED GEOLOGIST
PETER J. MCINTYRE
No 7702
STATE OF CALIFORNIA

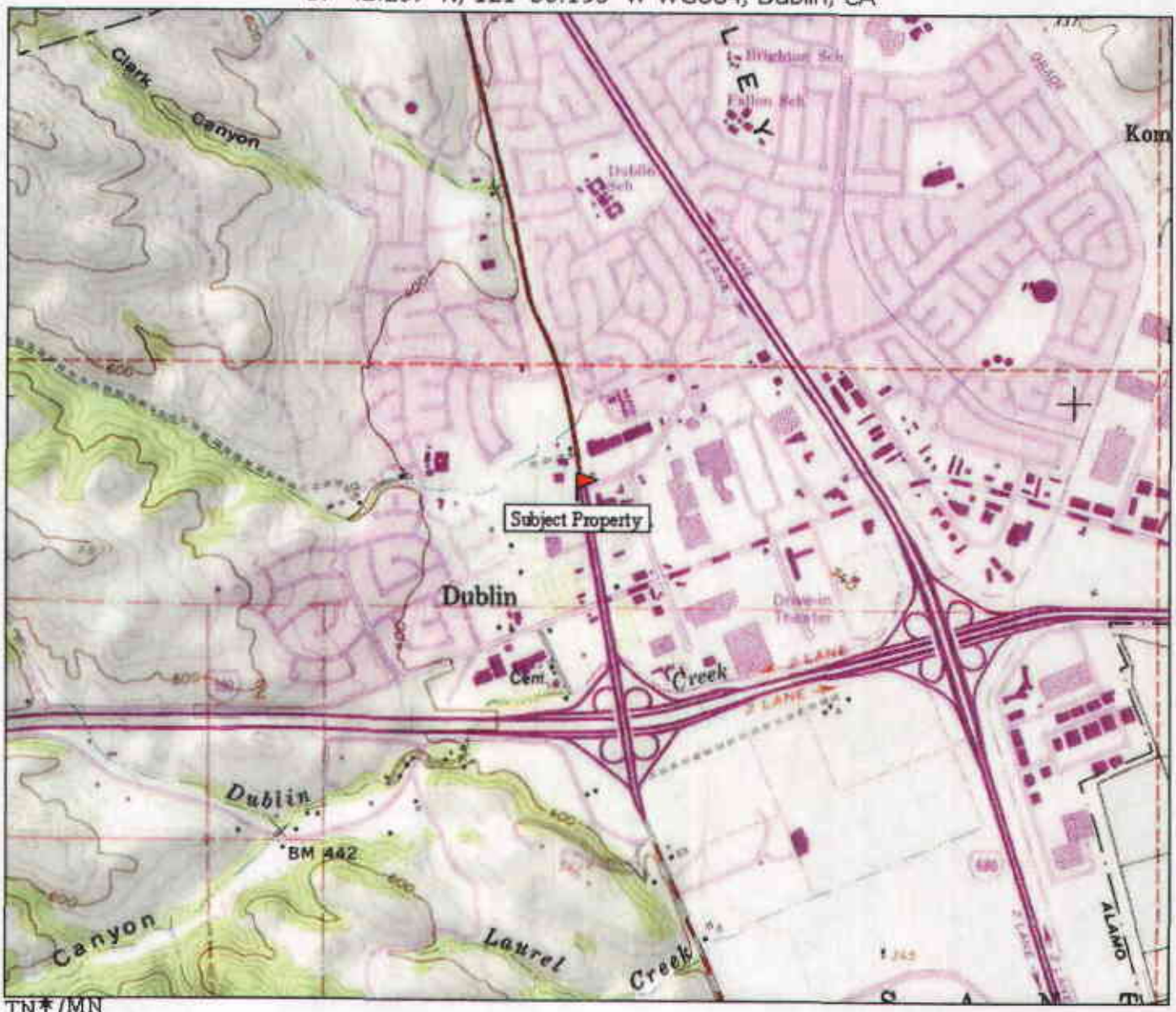
Distribution:

Gaberiel Chui
c/o Bruce Burrows
Main Street Properties
985 Moraga Road
Lafayette, CA 94549

Alameda County Environmental Health Services (ACEHS)
Attn: Mr. Jerry Wickham
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

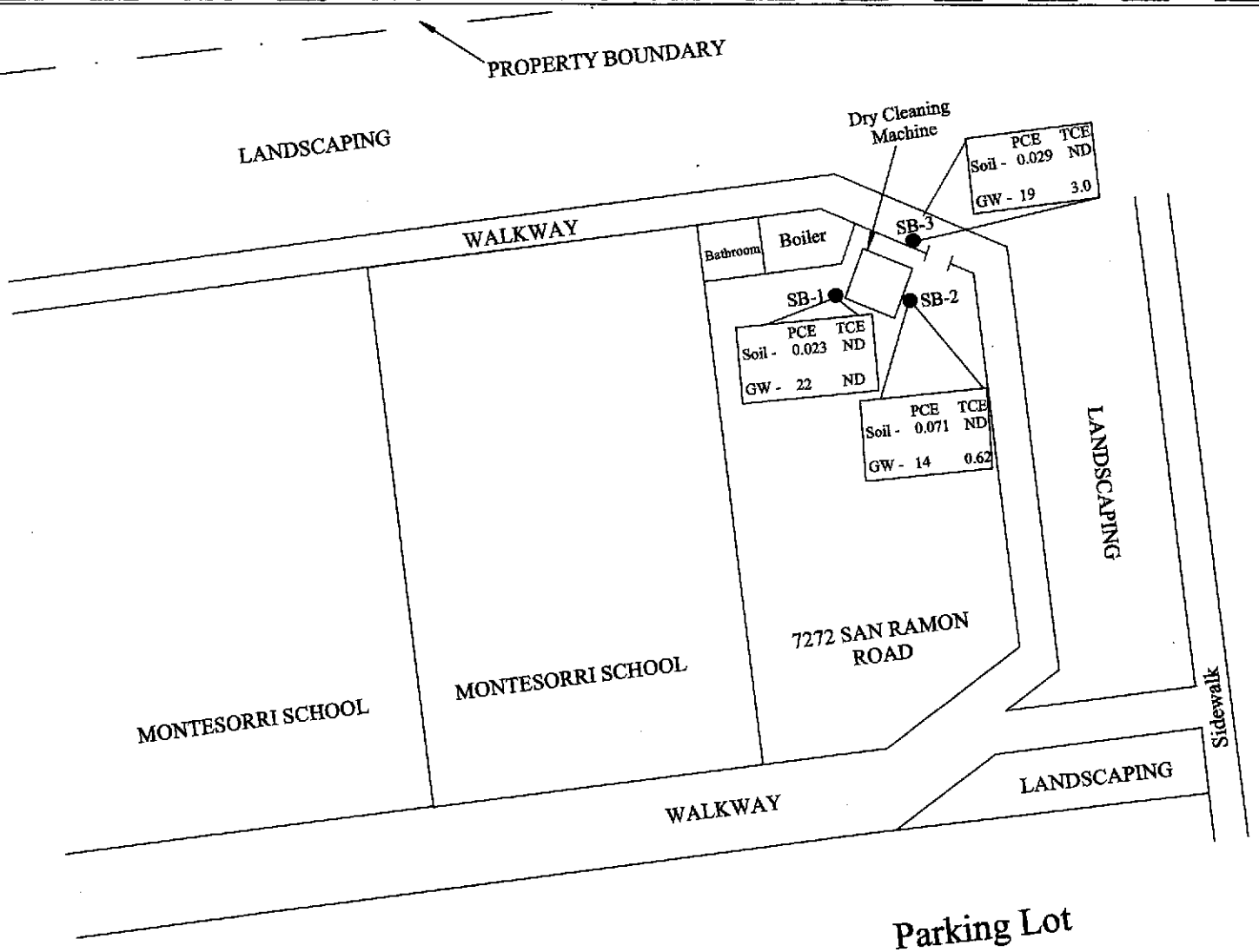
GeoTracker

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



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

AEI CONSULTANTS	
SITE LOCATION MAP	
7272 SAN RAMON ROAD DUBLIN, CALIFORNIA	**FIGURE 1** PROJECT NO. 11172



● Soil Boring Locations

Property Boundary

TCE - Trichloroethene
PCE - Tetrachloroethene

soil sample concentrations in units of milligrams per kilogram
groundater sample concentrations in units of micrograms per liter

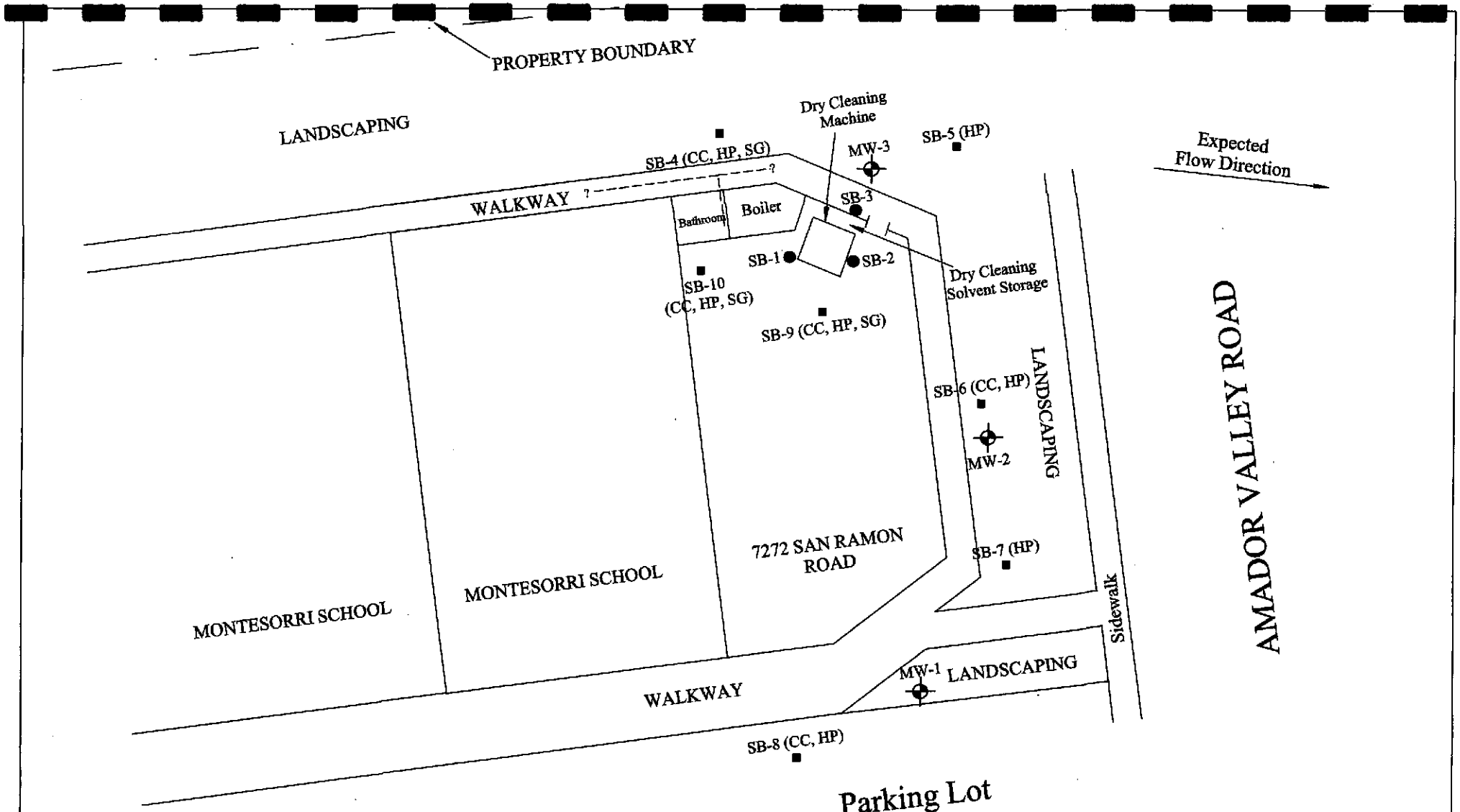
AEI CONSULTANTS

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

ANALYTICAL DATA (1/27/05)

7272 SAN RAMON ROAD
DUBLIN, CA 94568

FIGURE 2
PROJECT NO. 11172



*CC = continuous coring, HP = hydropunch, SG = soil gas

LEGEND:

- Proposed Monitoring Well Location
- Proposed Soil Boring Locations
- Soil Boring Locations (01/27/05)
- Sewer Line
- Property Boundary

N

0' 10' 20'

1 INCH = 20 FEET

AEI CONSULTANTS

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

SITE PLAN

7272 SAN RAMON ROAD
DUBLIN, CA 94568

FIGURE 3
PROJECT NO. 11172

Table 1

Soil Sample Analytical Data

Sample ID	Date Sampled	PCE mg/kg	TCE mg/kg	All other target HVOCs mg/kg
		Method EPA 8260B (8010 target list)		
SB-1 5'	1/27/2005	0.023	ND<0.005	ND<0.005
SB-2 5'	1/27/2005	0.071	ND<0.005	ND<0.005
SB-3 5'	1/27/2005	0.029	ND<0.005	ND<0.005

Notes:
PCE = Tetrachloroethene
TCE = Trichloroethene
HVOCs = Halogenated Volatile Organic Compounds
mg/kg = milligrams per kilogram
ND = not detectable within stated limits
See laboratory report for details

Table 2
Groundwater Sample Analytical Data

Sample ID	Date Sampled	PCE µg/L	TCE µg/L	All other target HVOCs µg/L
		Method EPA 8260B (8010 target list)		
SB-1W	1/27/2005	22	ND <0.5	ND <0.5
SB-2W	1/27/2005	14	0.62	ND <0.5
SB-3W	1/27/2005	19	3.0	ND <0.5

Notes:
PCE = Tetrachloroethene
TCE = Trichloroethene
HVOCs = Halogenated Volatile Organic Compounds
µg/L = micrograms per liter
ND = not detectable within stated limits
See laboratory report for details