

RECEIVED

11:25 am, Aug 18, 2011

Alameda County  
Environmental Health



Consulting Engineers and Scientists

1870 Ogden Drive  
Burlingame, CA 94010  
(650) 292-9100  
Fax (650) 552-9012

17 August 2011

Mr. Mark Detterman  
Senior Hazardous Materials Specialist, PG, CEG  
Alameda County Environmental Health  
1131 Harbor Bay Parkway  
Alameda, California 94502-6577

Subject: Work Plan for Subslab Vapor Sampling,  
6601/6603 Bay Street and 1650 65th Street, Emeryville, California  
(EKI 950074.05)

Dear Mr. Detterman:


On behalf of Sybase, Inc. ("Sybase"), Erler & Kalinowski ("EKI"), is pleased to submit the *Work Plan for Subslab Vapor Sampling* for the properties located at 6601/6603 Bay Street (currently Shellmound Street), and 1650 65<sup>th</sup> Street, in Emeryville, California. This Work Plan is being submitted to you in response to your letter, dated 1 April 2011.

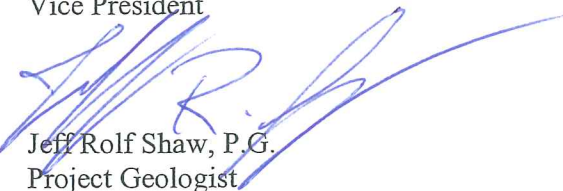
If this Work Plan meets with your approval, Sybase requests that the Alameda County Environmental Health provide a letter approving the Work Plan. We would appreciate it if you would copy the individuals listed below on correspondence regarding this site.

Please do not hesitate to call if you have any questions regarding the Work Plan.

Very truly yours,

ERLER & KALINOWSKI, INC.

  
Michelle K. King, Ph.D.  
Vice President

  
Jeff Rolf Shaw, P.G.  
Project Geologist



Expires 31 July 2013

cc: Vince Herington, Sybase  
Rob Hansen, Sybase  
Brad McInroy, Sybase  
Paul Mahoney, Sybase  
Todd Maiden, Esq., Reed Smith LLP



15 August 2011

Mr. Mark Detterman  
Senior Hazardous Materials Specialist, PG, CEG  
Alameda County Environmental Health  
1131 Harbor Bay Parkway  
Alameda, CA 94502

Subject: RO0000042/RO0000043  
Work Plan for Subslab Vapor Sampling  
6601/6603 Bay Street and 1650 65th Street  
Emeryville, California

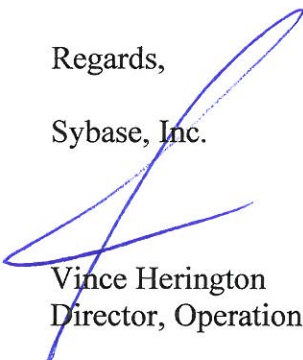
Dear Mr. Detterman,

I am a legally authorized representative of Sybase, Inc., and 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.

If you have any questions, please contact me at 925-236-4595.

Regards,

Sybase, Inc.



Vince Herington  
Director, Operations

#### ATTACHMENT

Attachment A: Work Plan for Subslab Vapor Sampling, 6601/6603 Bay Street and 1650 65th Street, Emeryville, California

**ATTACHMENT A**

**Work Plan for Subslab Vapor Sampling**

**6601/6603 Bay Street and 1650 65th Street  
Emeryville, California**

**WORK PLAN FOR  
SUBSLAB VAPOR SAMPLING**

6601/6603 Bay Street and 1650 65<sup>th</sup> Street, Emeryville, California

**TABLE OF CONTENTS**

1	INTRODUCTION .....	1
2	SUMMARY OF BACKGROUND AND SITE HISTORY .....	1
2.1	1997 Closure Request .....	2
2.2	ACEH 2008 Letter and Subsequent Activity .....	2
3	WORK PLAN IMPLEMENTATION .....	3
3.1	Preparation and Planning of Field Sampling .....	4
3.2	Implementation of Field Sampling .....	4
3.2.1	SSVP Construction and Installation.....	5
3.2.2	SSVP Sampling.....	5
3.2.3	Subslab Screening of Oxygen Concentration .....	7
3.2.4	Ambient Air Sample .....	7
3.2.5	Vapor Sample Analysis.....	7
3.3	Report Preparation .....	8
4	SCHEDULE.....	8
5	REFERENCES .....	8

**LIST OF FIGURES**

- Figure 1      Site Location
- Figure 2      Proposed Subslab Vapor Sampling Locations
- Figure 3      Schematic of Typical Sub-Slab Vapor Probe

## 1 INTRODUCTION

On behalf of Sybase, Inc. (“Sybase”), Erler & Kalinowski, Inc. (“EKI”) is pleased to submit this *Work Plan for Subslab Soil Vapor Sampling* (“Work Plan”) associated with the underground storage tanks (“USTs”) formerly located in an alleyway between 6601 and 6603 Shellmound (formerly Bay) Street, Emeryville, California (“Site”) and the adjacent property on the southern portion of the alleyway, at 1650 65<sup>th</sup> Street (Figure 1). Sybase sold the Site in 1998. The Site and the eastern portion of the 1650 65<sup>th</sup> Street property are currently occupied by Ex’pression College for Digital Arts. The western portion of the 1650 65<sup>th</sup> Street property is occupied by a facility of the U.S. Government General Services Administration. Historically, the Site was part of the former Emeryville municipal landfill.

This Work Plan has been prepared as required by the Alameda County Environmental Health department (“ACEH”) in a letter, dated 1 April 2011 (“ACEH 2011 Letter”). The work plan was developed based upon EKI’s review of available Site information as summarized below, discussions with ACEH staff in a meeting held 2 June 2011, and a site walk conducted on 13 July 2011.

The ACEH 2011 Letter requests the following:

- (1) Submittal of data to the SWRCB Geotracker database,
- (2) A vapor intrusion investigation work plan, and
- (3) Annual groundwater monitoring using existing wells MW-3, MW-5, and MW-7.

The data has been uploaded to the Geotracker website. This Work Plan provides a brief summary of background information and Site history, and proposes an investigation approach for soil vapor sampling at the Site. Groundwater monitoring will be performed after access is obtained from the property owner. Results of groundwater monitoring will be discussed in a separate document.

## 2 SUMMARY OF BACKGROUND AND SITE HISTORY

Three underground fuel storage tanks were reportedly installed at the Site in 1973.<sup>1</sup> The 6,000-gallon UST was used to store diesel (the easternmost UST) and the 7,500-gallon and 2,000-gallon USTs (central and western USTs, respectively) were used to store gasoline. The USTs were removed from the Site in 1989 (Figure 2) (Dubovsky and Petite, 1990).

---

<sup>1</sup>A report prepared by William Dubovsky Environmental and Petite Engineering, dated July 1990 (“Dubovsky and Petite, 1990” or “Dubovsky Report”) summarized the history and removal of the USTs and soil and groundwater sampling performed at that time.

From 1989 through 2010, a series of investigations was performed to characterize the lateral and vertical extent of petroleum hydrocarbons, and related constituents, in soil and groundwater at the Site. These investigations have been located in the vicinity (and downgradient) of the former USTs.

## **2.1 1997 Closure Request**

In 1997, EKI, on behalf of Sybase, submitted a closure report (EKI, 1997a) and an addendum to the closure report (EKI, 1997b). ACEH issued a letter in response, dated 23 June 1998, indicating that ACEH was ready to prepare a case closure memorandum for review by ACEH staff and submittal to the Regional Water Quality Control Board, San Francisco Bay Region (“RWQCB”). The letter further indicated that a case closure letter could be issued for the Site within 60 to 90 days of the date of the June 1998 letter (ACEH, 1998). However, a case closure letter was never received by Sybase, and since then ACEH had reportedly lost all of their files for the Site.

## **2.2 ACEH 2008 Letter and Subsequent Activity**

ACEH, in an effort to rebuild their files, requested in 2006 that Sybase provide copies of available documents associated with the Site. ACEH subsequently reviewed the Site documents, and requested in a letter dated 29 December 2008 (ACEH, 2008) that (1) the extent of separate phase and dissolved phase petroleum hydrocarbons in groundwater be defined, (2) potential preferential pathways, including both utility lines and nearby wells, be assessed, (3) the vertical and lateral extent of petroleum hydrocarbons in soil be defined, and (4) the vapor intrusion pathway be assessed by performing soil gas sampling.

Sybase submitted the *Work Plan for Additional Site Characterization*, prepared by EKI and dated 1 June 2009 (EKI, 2009), which ACEH accepted in a letter dated 14 August 2009. The work was completed in March and April 2010, and was reported to ACEH in a report entitled *Site Investigation and Closure Request Report, 6601/6603 Shellmound Street, Emeryville, California*, dated 14 May 2010 (EKI, 2010). Key conclusions presented in this report were as follows:

- The lateral extent of petroleum hydrocarbons and related constituents in groundwater have been characterized. Although a sheen is present in the vicinity and downgradient of the former tank area, the extent is limited as shown by the groundwater data at locations MW-5, MW-7, GGW-3 and GGW-4.
- The concentration of benzene in monitoring wells MW-5 and MW-7 have decreased significantly over time to below detection limits. In addition, petroleum hydrocarbon and related constituent concentrations in grab groundwater samples collected in 2010 were significantly lower than those collected in 1996.

- No lateral or vertical conduits were identified during the investigation. Wells located in the vicinity of the Site have shallow screens for groundwater investigation or remediation purposes. Potential lateral conduits were confirmed to be above the groundwater table.
- Petroleum hydrocarbon impacts from the former USTs to soil at the Site are generally in the saturated zone. VOC and PAH concentrations in soil are generally below commercial/industrial ESLs. The Site is paved and there is no direct contact based on the current usage. The 1997 Site Management Plan (“SMP”) (Appendix G) was prepared to provide for: (1) health and safety training for workers contacting soil at the site of the former USTs, (2) notification of ACEH if a change of land use is intended, and (3) the requirement that the Site property owner obtain ACEH approval prior to use of groundwater at the Site. EKI recommends that the SMP still apply to the area in the vicinity of the former USTs.
- Based on residual VOC concentrations in soil and groundwater, there is no significant vapor intrusion risk to building occupants at 1650 65<sup>th</sup> Street or 6601/6603 Shellmound Street, and closure is requested for the 6601/6603 Shellmound Street Site.

ACEH responded to the closure request with the ACEH 2011 Letter, requesting, among other things, a work plan to investigate the potential for vapor intrusion of VOCs into existing Site buildings (both 6601-6602 Shellmound and 1650 65<sup>th</sup> Street parcels). The following sections present the proposed approach to address the vapor intrusion study requested in the ACEH 2011 Letter.

### **3 WORK PLAN IMPLEMENTATION**

Sybase plans to conduct subslab soil vapor sampling from immediately below the concrete floors of Site buildings at four proposed locations, shown on Figure 2. These locations are approximate, pending a field-check for underground utilities or other location-specific constraints.

Proposed subslab sampling locations were selected to be near the former UST, in order to provide soil vapor concentration data for petroleum-related constituents from below Site buildings and the building on the adjacent 1650 65<sup>th</sup> Street property. These data will allow estimation of risk, if any, to indoor building occupants due to vapor intrusion of petroleum-related compounds, e.g., benzene, which may be associated with the former UST.



### 3.1 Preparation and Planning of Field Sampling

Sybase does not own the Site, nor does Sybase have any current contractual relationship with the Site owner, nor with the owner of the adjacent 1650 65<sup>th</sup> Street property. Sybase will negotiate an access agreement with Griffin Capital Management (“Griffin”), a representative of the current owner of the Site and the 1650 65<sup>th</sup> Street property, for installation and sampling of subslab vapor probes (“SSVPs”) in building floors on the two properties.

Prior to beginning field work, but after access is granted by Griffin for the investigation, EKI will perform the following activities:

- Visit the Site and the 1650 65<sup>th</sup> Street property with a Griffin representative and tenant representative, to mark planned sampling locations, check for access constraints, and to discuss the proposed field activity schedule. Sybase will request copies of existing utility maps from the property owners.
- Contact Underground Services Alert (“USA”) and retain a private utility locating company to clear proposed drilling locations for buried utilities.
- Identify a State of California-certified laboratory to perform the chemical analyses.
- Prepare a site-specific Health & Safety Plan for EKI field personnel, and prepare and execute any necessary subcontracts.

### 3.2 Implementation of Field Sampling

Four SSVPs will be installed within the building slabs for vapor sampling, as shown on Figure 2 and described below. The two proposed SSVP locations in the 6601-6603 Shellmound buildings are approximately upgradient of the former UST, and the two locations in the 1650 65<sup>th</sup> Street building are approximately downgradient. SSVPs will be installed at the following locations:

- near the southwest corner of the 6603 Shellmound building;
- near the southeast corner of the 6601 Shellmound building;
- near the northern edge of the 1650 65<sup>th</sup> Street building; and
- approximately 50 ft south of the northern edge of the 1650 65<sup>th</sup> Street building.

Final locations will be adjusted, as needed, based on interior layout, structures, equipment, and utilities. During sampling, a 6 to 8-hour outdoor time-weighted average



ambient air sample also will be collected to assess local air quality effects of vehicle traffic on the adjacent Interstate 80 freeway.

### 3.2.1 SSVP Construction and Installation

SSVPs will be constructed in general accordance with current guidance documents (e.g., DTSC, 2005, CalEPA, 2010). A schematic of a typical SSVP to be installed in a small-diameter hole drilled through the existing floor is shown on Figure 3. Prior to any drilling, EKI will enlist the services of a private utility-locating subcontractor to clear each planned SSVP location for subsurface utilities.

The SSVP probes will be constructed prior to mobilization to the Site. Each probe consists of an approximately six-inch long by 1/4-inch O.D. section of stainless-steel tubing, equipped with a threaded compression fitting and plug at the top, and a silicone stopper at the bottom (Figure 3).

At each cleared SSVP location, a small diameter (1.25-inch) hole will be drilled to a depth of approximately 1.5 inches into the concrete slab, using an electric rotary hammer. Centered within that hole, a smaller 7/8-inch diameter hole will be drilled through the bottom of the concrete slab, and drilling will continue another 3 to 4 inches into the baserock below the slab, to allow insertion of the sub-slab probe. A pre-assembled probe will be inserted into the hole, and the annular space will be sealed with pre-mixed anchoring expansion cement.

The top of each probe will be completed flush with the existing slab surface using the remaining cement. A hexagonal-socket threaded plug will be screwed into the sampling port of the probe, in order to keep it sealed between sampling events. After installation of an SSVP, the cement seal will be allowed to set for at least 30 minutes before sampling takes place.

No investigation-derived waste (“IDW”) is expected to be generated during SSVP installation or sampling. A minor amount of concrete dust will be created in a small area within a few inches of each drilled hole. This dust will be removed during installation using a small brush and a HEPA-filtered shop vacuum cleaner.

### 3.2.2 SSVP Sampling

Samples collected for chemical analysis, including vapor samples, duplicate vapor samples, and leak check samples, will be collected in 1-liter stainless-steel SUMMA<sup>®</sup> canisters that are batch-certified clean by the California-certified analytical laboratory that supplied them. Prior to sample collection, the threaded plug in the top of the SSVP will be removed and replaced by a closed stainless steel ball valve with threaded compression fittings that match the SSVP (e.g., Swagelok<sup>®</sup>). Sampling will not occur for a minimum of 30 minutes after installing the valve, in order to allow re-equilibration of subsurface vapor from any disturbance created by removing the plug and attaching the valve.

Prior to sampling, a short length of new PTFE (i.e., Teflon®) tubing will be connected to the valve of each SSVP via a compression fitting on the valve. The tubing will be attached to a sealed, laboratory-cleaned sampling manifold. Each manifold will contain two valved sample ports, a stainless-steel dust filter, a vacuum gauge, and a flow restrictor set to a sampling rate of 50 milliliters per minute (“mL/min”). A vacuum test of each manifold will be performed in the field prior after connecting it to the SSVP. A one-liter sample canister will be attached to one sample port on each manifold, and a purging syringe will be attached to the other port.

Prior to sampling, the initial vacuum in each canister will be recorded. Each SSVP will be purged of approximately 50 milliliters (“mL”) of soil vapor using the manual syringe. Purging is intended to remove any non-representative vapor from the SSVP prior to sample collection. The 50- mL purge volume is several times larger than the SSVP tubing volume and thus will provide an adequate purge, yet it is small relative to the 1-liter sample canisters and thus is unlikely to affect vapor sampling conditions.

After an SSVP has been purged, the purging valve on the manifold will be closed, isolating the purging syringe from the sample train. The inlet valve on the sampling canister will then be opened, to collect a sample of sub-slab soil vapor.

A leak detection protocol will be included as a quality control check for field sampling system leaks. The leak detection protocol involves (a) creating an enclosed space (“sampling shroud”) around the above-ground sampling assembly and all of its connections, (b) injecting a volatile tracer gas (1,1,1,2-tetrafluoroethane or “1,1,1,2-TFA”) into this space during the time that the SSVPs are being actively sampled, and (c) sampling this space independently of the SSVP, using a separate leak-detection (“shroud”) canister. The purpose of the leak detection protocol is to provide a means for detecting leakage of ambient air into the vapor sample through either leaks in the sampling train or cracks in the concrete floor, and to provide a quantitative means of estimating the effect of leakage, if it occurs, on the analytical results for the vapor sample.

To implement the leak detection protocol, a flexible plastic bag or box will be used as the sampling shroud, which will contain the the SSVP, sampling manifold, and sample canister. The intake tubing for the shroud canister will be inserted through a small tightly-fitting hole in the shroud. Immediately after the valve on the sampling canister is opened and SSVP sampling begins, two or three short bursts of tracer gas will be injected into the shroud through a separate hole, which then will be closed. The valve to the shroud canister then will be opened to sample the air inside the shroud.

Each canister will be allowed to fill until its remaining vacuum is approximately 2 to 5 inches of mercury (“in-Hg”), indicating the presence of a slight residual vacuum in the canister after sample collection. This procedure could take from 20 to 60 minutes, depending upon the vapor permeability of the subslab fill material.

Once vapor sampling is complete, the valves on the sampling and shroud canisters will be closed and capped. Each canister will be labeled with a unique sample identification number, sampling start time, and the sampling date. Chain-of-custody records will be initiated to document sample handling and delivery to the analytical laboratory. The canisters then will be returned to the laboratory for analysis via courier or commercial carrier. For field Quality Assurance/Quality Control (“QA/QC”) purposes, one duplicate vapor sample will be collected sequentially from one of the SSVPs. Pertinent details such as initial and final canister vacuum, start and stop time, approximate ambient temperature, and other conditions will be recorded in field notes during sampling.

### 3.2.3 Subslab Screening of Oxygen Concentration

After subslab vapor sampling is complete, a hand-held oxygen meter will be used to check the oxygen concentration in the subslab vapor environment at each SSVP, as the presence of oxygen can promote biodegradation of residual petroleum hydrocarbons in the subsurface. Monitoring of a given SSVP with the field meter will be conducted until a minimum oxygen concentration (in percent) has been noted, or until approximately four minutes has elapsed.

### 3.2.4 Ambient Air Sample

An outdoor ambient air sample will be collected over a 6 to 8-hour time period on the day that the SSVPs are installed and sampled. The sample will be collected using a batch-certified clean 6-L SUMMA<sup>®</sup> canister equipped with a 15 mL/min (or slower) flow restrictor and manifold. The ambient air sampling canister will be placed in a secure location outside and upwind of the SSVP locations at the start of the day. The start time and initial vacuum will be noted, the valve will be opened, and the canister will be left to slowly collect an integrated sample for the rated time interval of 6 to 8 hours. The ambient sample canister will be checked periodically to ensure it is undisturbed, and that the vacuum is consistent with the expected value for the time elapsed. When a small amount of vacuum remains in the canister (approximately 2 to 5 in-Hg), the valve will be closed, the time and vacuum noted, and documentation under chain of custody protocols will be prepared for the ambient sample.

Given that the chemicals of concern at the Site are petroleum-related constituents, and that the Site is adjacent to (and commonly downwind of) Interstate Highway 80, benzene, toluene, ethylbenzene, and xylenes (“BTEX”) concentrations in subslab soil vapor will be influenced by concentrations present in ambient air. Thus, the ambient air sample may aid interpretation of the subslab vapor analytical results.

### 3.2.5 Vapor Sample Analysis

Soil vapor samples (including duplicates) and the ambient air sample will be analyzed by a State of California certified laboratory using EPA Method TO-15 for BTEX compounds

and the tracer compound 1,1,1,2-TFA. Each leak-detection shroud vapor sample will be analyzed for 1,1,1,2-TFA using EPA Method TO-15.

### 3.3 Report Preparation

The results of the field program and subsequent laboratory analyses will be presented in a summary report prepared for Sybase’s submittal to ACEH. The report will summarize field protocols and observations and will include a Site map depicting the sampling locations. Significant sampling results will be discussed, and summary data tables and copies of laboratory analytical reports will be provided. Concentrations will be compared to appropriate screening criteria, and to the ambient air sample analytical results. The report and associated data will be uploaded to Geotracker at the time of report submittal.

## 4 SCHEDULE

As indicated above, preparation for the field work can commence upon approval of the Work Plan by ACEH, and once Sybase obtains written access agreements to collect planned environmental samples at each property. The work will also have to be performed at a mutually-agreeable time for the property owner and tenant. The following schedule is assumed to start once access has been granted by the property owners.

- Prepare for field sampling, e.g., mark and clear sampling locations, prepare subcontracts, schedule equipment .....2 weeks
- Implement field sampling .....1 to 2 days
- Laboratory analysis of vapor samples.....2 weeks
- Review data.....2 weeks
- Prepare written report and submit to ACEH.....4 weeks

Thus, approximately 10 to 11 weeks will be required to implement the additional investigations described in this Work Plan.

## 5 REFERENCES

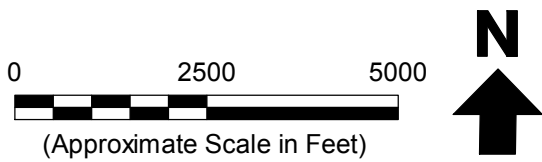
ACEH, 1998. *Case Closure for the Three Underground Storage Tanks at 6601 and 6603 Bay Street, Emeryville, California 94608 (STID #3696 and 3710)*, Alameda County Environmental Health, 23 June 1998.

- ACEH, 2008. *Fuel Leak Case No. RO0000042/RO0000043 and Geotracker Global ID T0600100825/T06001100470, Vacant Facility, 6601 and 6603 Bay Street, Emeryville, CA 94608*, Alameda County Environmental Health, 29 December 2008.
- CalEPA, 2010, *Advisory - Active Soil Gas Investigation (DRAFT). California Environmental Protection Agency, Department of Toxic Substances Control, Draft for Public Review, March 2010.*
- DTSC, 2005. *Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air*, Interim Final, Department of Toxic Substances Control, 7 February 2005.
- Dubovsky and Petite, 1990. *Environmental Report 6601 and 6603 Bay Street, Emeryville, California*, William Dubovsky Environmental and Petite Engineering, July 1990.
- EKI, 1997a. *Closure Report, Three Former Underground Storage Tanks at 6601 and 6603 Bay Street, Emeryville, California*, Erler & Kalinowski, Inc., 18 August 1997.
- EKI, 1997b. *Addendum to Closure Report – Site Management Plan, Three Former Underground Storage Tanks at 6601 and 6603 Bay Street, Emeryville, California*, Erler & Kalinowski, Inc., 24 October 1997.
- EKI, 2009, *Work Plan for Additional Site Characterization*, Erler & Kalinowski, Inc., 1 June 2009 (EKI, 2009),
- EKI, 2010, *Site Investigation and Closure Request Report, 6601/6603 Shellmound Street, Emeryville, California*, Erler & Kalinowski, Inc., 14 May 2010.



**Notes:**

1. All locations are approximate.

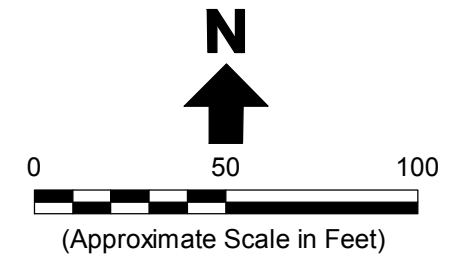
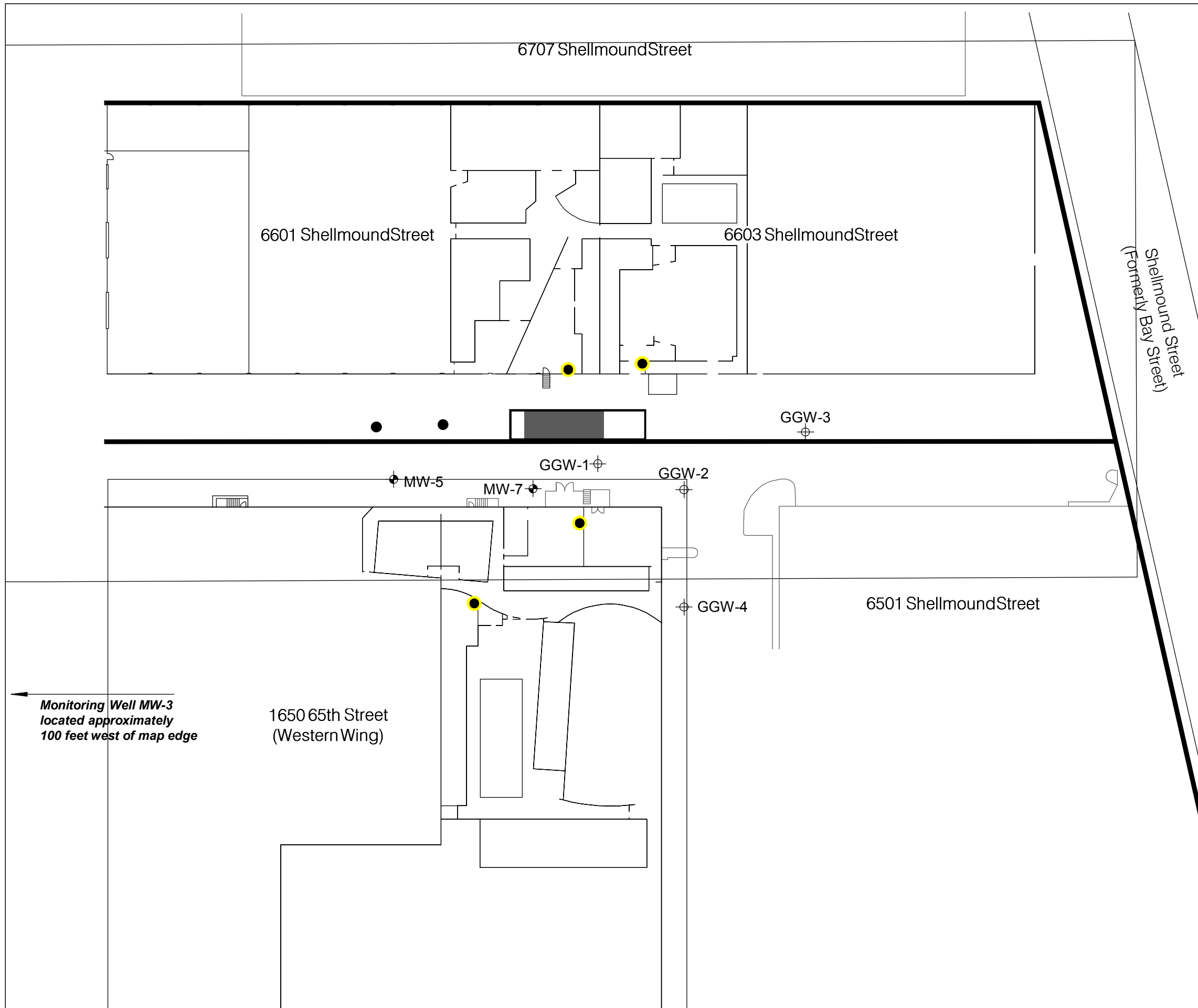


**Erler & Kalinowski, Inc.**

Site Location Map

6601/6603 Shellmound Street  
 Emeryville, CA  
 August 2011  
 EKI 950074.05

Figure 1



- Legend:**
- Property Boundary
  - Approximate Tank Area
  - Approximate Excavation Area (as depicted in Dubovsky and Petite, 1990)
  - Off-Site Monitoring Well Location
  - Grab Groundwater Sampling Location (2010)
  - Proposed Subslab Vapor Probe Location

- Notes:**
1. All locations are approximate.
  2. Basemap source: Digitized from Alta Land Survey Title Map (undated).
  3. Only major interior walls near proposed sample locations are presented. All building spaces are occupied, but not all interior walls are shown.

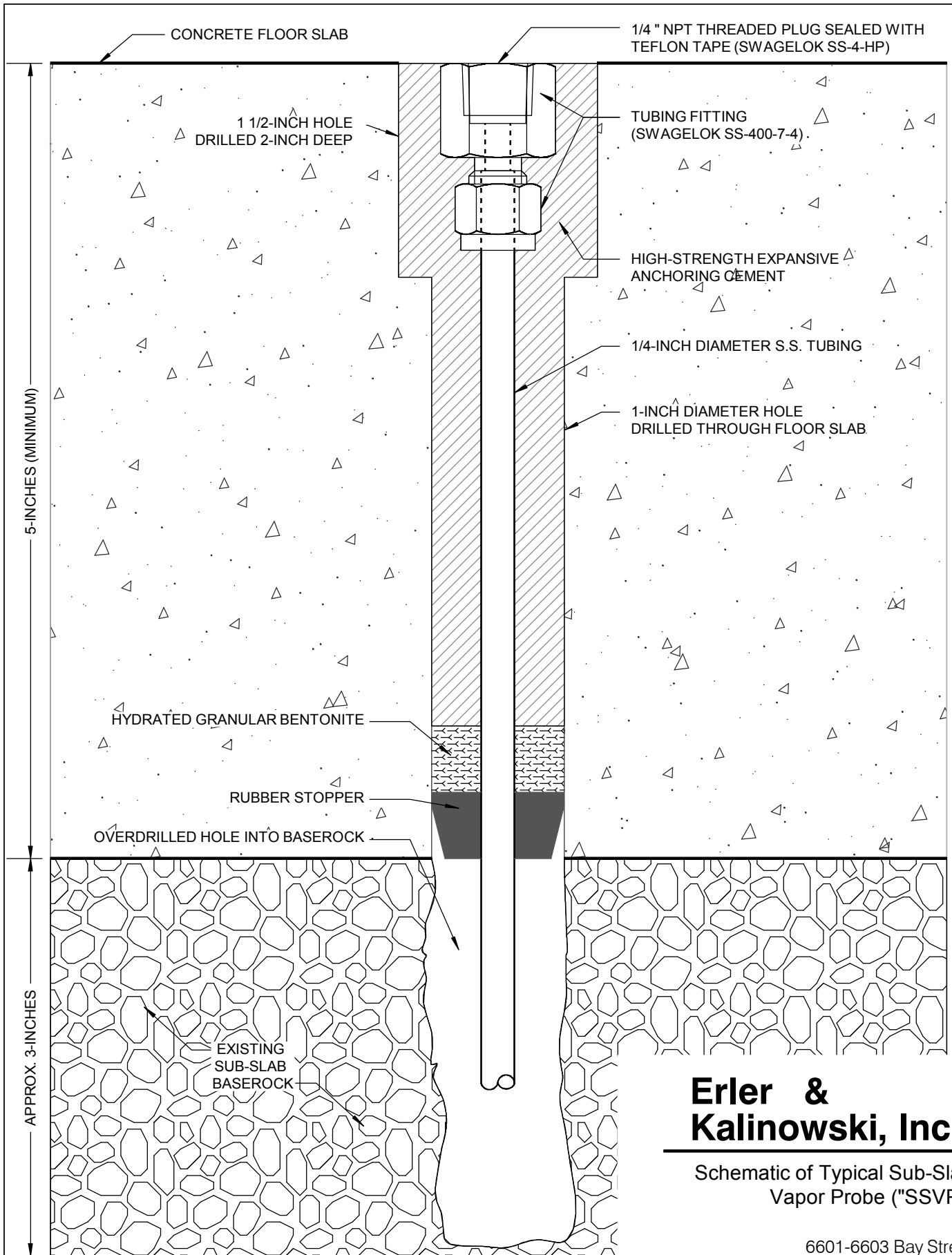
## Erler & Kalinowski, Inc.

### Proposed Subslab Vapor Probe Locations

6601/6603 Shellmound Street  
Emeryville, CA  
August 2011  
EKI 950074.05

Figure 2





**Erler & Kalinowski, Inc.**

Schematic of Typical Sub-Slab Vapor Probe ("SSVP")

6601-6603 Bay Street  
Emeryville, CA

August 2011  
EKI 950074.05

Figure 3

