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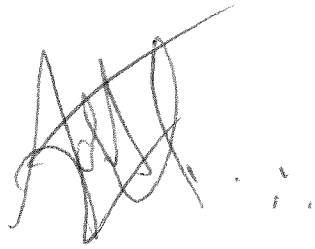
Environmental Health

Subject: 1000 N. Vasco Road, Livermore California
Fuel Leak Case No. RO0003073

PERJURY STATEMENT

"I declare that to the best of my knowledge at the present time, the information and/or recommendations contained in the attached report are true and correct."

Submitted by Responsible Party:



Scott Menard
Arbor Development Group
3650 Mt. Diablo Blvd. Suite 200
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On behalf of:
Eugene and Shirley Macedo Trust
c/o Matt Macedo
2995 Taylor Way
Byron, CA 94514

Project No.
7380.000.003

April 1, 2011

Mr. Jerry Wickham
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6540

Subject: 1000 North Vasco Road
Livermore, California

WORKPLAN FOR SITE CHARACTERIZATION

Dear Mr. Wickham:

ENGEO is pleased to present this site characterization work plan for the subject property ("Property"), located at 1000 North Vasco Road in Livermore, California (Figure 1). We have prepared this work plan based on our recent discussions with you as well as the contents of a correspondence letter dated March 24, 2011, between Alameda County Environmental Health (ACEH) and the owner of the Property, the Eugene and Shirley Macedo Trust. A leaking underground storage tank (LUST) case associated with the Property was closed in 2000; however, during recent removal of USTs and associated piping and dispenser systems, evidence of soil and groundwater impact was encountered.

REGIONAL AND SITE GEOLOGY

The site is located within the Coast Ranges geomorphic province of California. The Coast Ranges are dominated by a series of northwest-trending mountain ranges that have been folded and faulted in a tectonic regime that involves both translational and compressional deformation. The site is located in the southwest portion of the Livermore Valley, which is underlain by a thick sequence of alluvial deposits. The soil deposits in this area are mapped as Pleistocene alluvial fan and fluvial deposits (Helley & Graymer, 1997).

SUBSURFACE STRATIGRAPHY

Based on the findings of ENGEO's past field explorations at the Property, the site soils consist of fill over interbedded silty clay, sandy clay, clayey sand and silty sand with various amounts of gravel. Fill found in a boring drilled at the eastern portion of the site is approximately 2 feet thick and consists of silty clay. The sandy deposits were found to be loose to medium dense in consistency. According to CPT soundings, the sandy layers range from very thin to up to approximately 10 feet thick. The clayey soils were found to be very stiff (ENGEO, 2010).

GROUNDWATER

Groundwater has been encountered at approximate depths ranging between 8 and 15 feet below the ground surface during past geotechnical explorations, environmental investigations, and monitoring well sampling events. During groundwater sampling evens conducted in the mid-1990s, the groundwater gradient and flow were determined to be directed in a west-northwest to northwesterly direction (Krazan, 2009b). Fluctuations in groundwater levels may be expected during seasonal changes or over a period of years because of precipitation changes, perched zones, and changes in drainage patterns.

SUMMARY OF PREVIOUS ONSITE ENVIRONMENTAL INVESTIGATIONS

ENGEO; Modified Phase One Environmental Site Assessment, 1000 North Vasco Road, Livermore, California; October 27, 2006; Project No. 7380.1.001.02.

ENGEO performed a Modified Phase One Environmental Site Assessment at the Property in 2006. Two Recognized Environmental Conditions (RECs) were noted – the gas station and the automotive service facility. The gas station had been identified as a leaking underground storage tank (LUST) site. Four underground fuel storage tanks (USTs) were removed from the Property in 1994. At the time of the removal, evidence of leakage was observed at the tanks and/or associated piping. The tank pits and fuel dispenser locations were over-excavated as part of the remedial action. Hydrocarbon impact was confirmed within soils near the USTs. In May 1995, three groundwater wells were installed at the Property. One well (MW-1) exhibited detectable total petroleum hydrocarbons as diesel (TPH-d) concentrations for two (first and last) of the four quarters the wells were sampled. Gasoline was reported in one well (MW-3) during the initial 1995 sampling event. None of the BTEX (benzene, toluene, ethylbenzene and total xylene(s)) compounds were detected during the sampling events.

Alameda County Environmental Health Services (ACEH) issued a Remedial Action Completion Certification (RACC) report dated May 22, 2000, stating that no further action related to the petroleum release(s) at the Property was required, and on May 23, 2000, issued a fuel leak site closure letter acknowledging the case was closed. The Regional Water Quality Control Board (RWQCB) signed and stamped the RACC report. The Property is listed as case closed in the LUST database maintained by the RWQCB.

Kens Tire, an automotive service facility, was observed in the south-central area of the Property. Hazardous and potentially hazardous materials were stored and generated at the facility. Though good housekeeping practices were observed at this facility, ENGEO opined that it was possible that unauthorized releases may have produced localized impacts to the subject property.

Additionally, approximately 600 cubic yards of material had been stockpiled on the vacant western portion of the property, which was generated from the UST removal.

Based on the initial findings of the assessment, the work scope was revised to include soil and groundwater sampling. Borings were advanced near USTs and dispensing equipment to facilitate soil and groundwater sampling, and composite soil samples were collected from soil stockpile on the vacant western portion of the Property.

A total of 12 direct push soil borings were advanced near the former USTs and fuel dispenser islands. Most of the collected soil samples exhibited either non-detectable or trace concentrations of hydrocarbon analytes; however, two samples collected near the diesel USTs exhibited elevated total petroleum hydrocarbons as gasoline (TPH-g), TPH as diesel (TPH-d), and TPH as motor oil (TPH-mo) concentrations (maximum concentrations of 310 milligrams per kilogram (mg/kg), 730 mg/kg, and 2,200 mg/kg for TPH-g, TPH-d, and TPH-mo respectively). No BTEX or MTBE concentrations were detected in the collected soil samples.

Groundwater samples were collected from the two monitoring wells observed on the property. The groundwater samples were recovered from MW-1 (adjacent to the former diesel tank pit) and from MW-3 (near former gasoline fuel dispensers). The samples were analyzed for TPH-g, TPH-d, TPH-mo, BTEX, and MTBE. None of the samples exhibited detectable analyte concentrations.

A total of five 4-point composite soil samples were collected from the stockpiled soil. Trace concentrations of total petroleum hydrocarbons as diesel (TPH-d), TPH-motor oil (TPH-mo) and toluene were detected in some of the collected samples. These concentrations were below respective screening levels. Additionally, the samples exhibited detectable concentrations of several CAM-17 metal analytes; however, these were within expected background concentrations.

ENGEO; Supplemental Environmental Services, Shell Gas Station, 1000 North Vasco Road, Livermore, California; June 20, 2007; Project No. 7380.1.002.04.

ENGEO conducted a soil gas survey at the Property in 2007. The scope of work consisted of the recovery of three soil gas samples for laboratory analysis. One sample, G-1, was the only sample documented to contain concentrations of compounds at levels above established Environmental Screening Levels (ESLs) established by the RWQCB and California Human Health Screening Levels (CHHSLs) established by the California EPA Office Of Environmental Health Hazard Assessment. The detected concentrations of benzene and tetrachloroethylene were above these respective screening levels. Additionally, significantly elevated concentrations of hexane, tetrahydrofuran, cyclohexane, and 2, 2, 4-trimethylpentane were detected. At the time, ENGEO indicated that the elevated concentrations may have been attributable to a surface or subsurface gasoline release. However, although isopropyl alcohol (the tracer compound used at the time) was not detected, the presence of several of these compounds at elevated concentrations, without the presence of other typical gasoline constituents, indicates that the quality of this sample data may be questioned.

Krazan and Associates; Phase I Environmental Site Assessment, BOTW No. 09-510-02, Geno's Country Store, 1000 North Vasco Road, Livermore, California; April 3, 2009; Project No. 013-09074.

Krazan and Associates, Inc. (Krazan) performed a Phase I Environmental Site Assessment at the Property in 2009. Based on their assessment of the Property, Krazan identified two RECs, two potential RECs, and one historic REC. These were as follows:

RECs

- At the time of the reconnaissance, five former gasoline dispenser islands were observed to the east of the restaurant, and four former diesel dispensers were observed to the north of the restaurant. Further, Krazan noted evidence of three USTs to the north and northeast of the restaurant. According to available records, these included two 15,000-gallon gasoline tanks and one 10,000-gallon diesel tank. The tanks and associated dispensers were reportedly installed in 1994 and temporarily sealed and abandoned in 2008.

- Four storm drains were observed during the site reconnaissance. According to the property owner at the time of the assessment, these drains were reportedly not connected to the municipal sewer system that services the Property, but instead were connected to dry wells measuring approximately four to six feet in diameter and 15 feet in depth. Given the Property use and the shallow groundwater table, these storm drains were considered an REC.

Potential RECs

- At the time of the reconnaissance, approximately 200 waste tires were observed at the Property. Although not considered an environmental condition, these were considered a potential code compliance issue and potential environmental concern.

- Krazan noted that a citizen's complaint of oil in the creek north of the Property was filed in January 1999. The Livermore-Pleasanton Fire Department (LPFD) reportedly responded to the complaint and observed an oil sheen extending approximately one mile in length. A file review did not identify records associated with the spill. The Property owner at the time of the assessment indicated that he was unaware of a release associated with the Property, and an overturned tanker truck near the Property near the time of the complaint may have been responsible for the release.

Historical REC

- Krazan identified the former leaking underground storage tank (LUST) at the Property as an historical REC. Four USTs and associated piping and dispenser systems were removed in 1994. Following tank removal and overexcavation, conformation soil and groundwater sampling based on visual observation of soil staining and odor identified elevated petroleum hydrocarbons and BTEX constituents. Following additional soil excavation, it was reported that the bulk of impacted soil had been removed. Three groundwater monitoring wells were

installed to a depth of 15 feet below the ground surface. Following on-going groundwater monitoring, ACEH issued a Remedial Action Completion Certification (RACC) report in May 2000.

Krazan and Associates, Phase II Environmental Site Assessment, BOTW No. 09-510-02, Geno's Country Store, 1000 North Vasco Road, Livermore, California; September 28, 2009; Project No. 013-09074.

Krazan performed a Phase II Environmental Site Assessment at the Property in 2009. The work was performed to assess the RECs identified in the Phase I report as well as other potential subsurface areas of impact. A total of 17 soil borings were advanced to depths between 5 and 20 feet below the ground surface in the location of the USTs, piping, dispensers, dry wells, and sumps (including near the car wash and the restaurant grease trap). Soil samples collected from the USTs, piping, and dispensers (collected from 15 and 20 feet below the ground surface at the USTs and 10 and 15 feet below the ground surface at the piping/dispensers) were analyzed for the presence of TPH-g, TPH-d, BTEX, and MTBE. Samples collected near the dry wells and sumps (collected at a depth of five feet below the ground surface) were analyzed for the presence of total extractable petroleum hydrocarbons (TEPH), volatile organic compounds (VOCs), and CAM-17 metals. Additionally, a groundwater sample was collected from MW-3 (located to the east of the restaurant) and analyzed for the presence of TPH-g, TPH-d, BTEX, and MTBE.

TPH-d concentrations were detected in selected samples collected near the dispensers; however, these concentrations were below appropriate screening levels. None of the samples collected near the USTs, piping, or dispensers exhibited detectable concentrations of TPH-g, BTEX, or MTBE. None of the samples collected near the sumps or dry wells exhibited detectable concentrations of TEPH or VOCs. Detected metal analytes were below appropriate screening levels or within typical background concentrations. The groundwater sample exhibited a detected MTBE concentration of 2.2 micrograms per liter (µg/l). No other analytes were detected in the sample. Krazan attributed the MTBE detection to an offsite source.

Based on the results of the assessment, Krazan did not recommend additional subsurface assessment in the areas that had been investigated.

Tank and Pipeline Removal Narrative, 1000 N. Vasco Road Livermore, California, January 21, 2011 and January 27, 2011.

ENGEO reviewed a recently completed tank and pipeline report, summarizing work observed by Mr. Marc Papineau. Following diesel and gasoline tank removal, a total of 23 soil samples were collected, including four from the gasoline storage tank pit, four from the diesel tank pit, twelve from the piping trenches, one from the base of the vent pipe rack below elbow depth, and two from soil stockpiles generated during removal. Additionally, two pit water samples were collected (one from each of the two tank pits). The sampling was reportedly performed under the observation of Inspector Danielle Stefani of the LPFD.

Trace TPH-d concentrations were identified in some of the samples collected near the gasoline dispensers. Elevated concentrations of TPH-d (ranging from 1,400 to 3,200 mg/kg) were detected in three near-surface soil samples collected near the former diesel dispensers. Additionally, concentrations of TPH-g (240 µg/l), MTBE (0.98 µg/l) TBA (5 µg/l), toluene (6.3-7.6 µg/l), ethylbenzene (3.8-4.6 µg/l), and xylene(s) (38-41 µg/l) were detected in water sample collected from the gasoline tank pit. The diesel tank pit water sample exhibited concentrations of 540,000 µg/l of TPH-d, 190 µg/l ethylbenzene, 800 µg/l toluene, and 1,500 µg/l xylene(s).

ENGEO; Phase I Environmental Site Assessment Update, Macedo Property, Livermore, California; March 18, 2011; Project No. 7380.000.002.

ENGEO prepared a phase I environmental site assessment update in March 2011. A review of regulatory databases maintained by county, state, and federal agencies identified the Property as a previous LUST case, having been granted closure in 2000. A review of regulatory agency records and available databases did not identify contaminated facilities at elevations higher than the Property and within the appropriate ASTM search distances that would be expected to affect the Property. The report noted the recent removal of diesel and gasoline tanks from the Property as well as the reported soil and groundwater impact near the tanks and appurtenant facilities.

Several standpipes were observed around the perimeter of the automotive repair facility. The purpose of these standpipes was subsequently reported to be affiliated with an unfinished sewer system. Additionally, the potential presence of asbestos-containing building materials (ACBM) and lead-based paints was noted, and a lead-based paint and asbestos survey was recommended for completion prior to demolition or significant renovation of the structures.

Several locations across the Property were observed to include the storage and use of fresh and waste petroleum products and potentially hazardous materials, as well as waste tires. Although testing of these materials and locations was not recommended at the time of report preparation, recommendations were made for removal and proper disposal of these materials. Additionally, a recommendation was made for an environmental professional to observe demolition and grading activities in these locations to determine if environmental impact had occurred.

Based on the findings of this assessment, two Recognized Environmental Conditions (RECs) were identified: the identified soil and groundwater impact associated with the former underground storage tanks and the presence of an automotive service facility. Several potential and historical RECs were identified for the Property, including the potential presence of lead-based paint and asbestos-containing building materials, the historic LUST case (closed in 2000), and the aforementioned storage of fresh and waste petroleum product, potentially hazardous materials and waste tires.

DATA GAPS

Based on a review of the previously reported environmental investigations and mitigation activities, we have identified several data gaps associated with the Property:

- *Vertical and lateral delineation of soil impacts in the vicinity of the former USTs and dispenser systems* – During several previous investigations, soil impacts have been identified near former diesel USTs and associated dispenser systems. However, the lateral extent and depth of impact within these discrete areas are not known. Further, recent groundwater sampling has identified impact, potentially associated with the operation of the former USTs and dispenser systems. It is possible that additional vadose and/or saturated zone soil impacts exceeding respective ESLs are present at or near the former UST area. We recommend additional delineation of the vertical and lateral extent of soil impacts in these locations.

- *Lateral delineation of groundwater impacts in the vicinity of the former USTs and dispenser systems* – At the time of diesel tank removal in the mid 1990s, groundwater impact resulting from confirmed impacted soil was suspected. Groundwater wells were subsequently installed. As reported, intermittent groundwater impacts were detected in the monitoring wells; however, groundwater sampling ceased after several quarterly events, and the Property was granted site closure in 2000. Subsequent monitoring of the wells in 2006 and 2009 did not identify the presence of target analytes associated with the Property. However, during the recent UST removal, a grab groundwater sample collected from groundwater that had infiltrated into the tank excavation exhibited elevated concentrations of petroleum hydrocarbon analytes. It is unknown if this testing result represents an anomalous result of if it is indicative of the presence of groundwater impact. Therefore, we recommend a groundwater sampling program consisting of grab groundwater sampling and sampling of the existing monitoring wells to determine the extent and magnitude (if any) of groundwater impact at the Property.

- *Potential soil vapor impacts resulting from identified soil and groundwater impacts* - In 2007, ENGEO performed soil vapor sampling at the Property. The samples exhibited detectable concentrations of several target analytes. One sample, located near the gasoline UST and dispensers, exhibited elevated concentrations of several petroleum hydrocarbon constituents as well as several chlorinated solvents. Although the quality of the data is under consideration, it is unknown if elevated compounds of concern are present in soil vapor. Therefore, we recommend that a soil vapor survey be performed at the Property.

- *Potential VOC source at the Property* – As mentioned, several compounds (including chlorinated solvents) were previously detected in soil vapor samples that had not previously been considered compounds of concern at the Property. Given site use at the Property, it is conceivable that an unknown VOC source is present at the Property. Therefore, we recommend that soil, groundwater, and soil vapor samples be collected near the existing automotive service facility, to determine if a VOC source is present in this location.

- *Determination of near-surface soil impact near pad-mounted transformer* – Although a recent site reconnaissance did not identify evidence of soil impact near an existing pad-mounted transformer, a previous reconnaissance did identify soil staining near the transformer. Therefore, we recommend a limited soil sampling program of surface soils near the transformer.

To address these identified data gaps, several field sampling activities are contemplated for the Property. These activities are presented below.

PROPOSED SCOPE OF WORK

SOIL SAMPLING

Subsurface Soil Sampling

The subsurface soil sampling study will attempt to further define the inferred area of soil impact, located in the vicinity of the former USTs and dispenser systems. Soil samples will also be collected from locations adjacent to the metal sheds located in the western portion of the Property (including the automotive service facility). A total of 14 soil borings will be advanced in the locations depicted on Figure 2.

Soil samples will be retrieved within continuous Geoprobe® acetate core liners measuring 4 feet in length. Continuous soil cores from each boring will be logged by an ENGEO geologist or engineer. Specific soil samples will be collected for laboratory analysis by cutting a 6-inch portion of the Geoprobe® soil core liners corresponding to the respective desired sampling depths of approximately 4, 8, and 12 feet below the ground surface. During sampling, retrieved soils will be screened for visual and olfactory evidence of impact as well as with a photoionization detector (PID) for volatile organic vapors. Additional soil exhibiting significant PID readings will also be retained for laboratory analyses.

The sample sleeves will be sealed using Teflon sheets secured by tight fitting plastic end caps. Upon collection of samples, a sample label will be placed on the sample and will include a unique sample number, sample location, time/date collected, lab analysis, and the sampler's identification. The soil samples will be placed in an ice-cooled chest and will be submitted under documented chain of custody to a State-certified laboratory. The submitted soil samples will be analyzed for the following target analytes:

- Total petroleum hydrocarbons as gasoline (TPH-g), methyl-tert butyl ether (MTBE), benzene, toluene, ethylbenzene, and xylene(s) (BTEX) and fuel oxygenates (EPA 8260B)

- Total petroleum hydrocarbons as diesel (TPH-d) and motor oil (TPH-mo) (EPA/8015M with silica gel cleanup)

- Volatile organic compounds (VOCs) by EPA Test Method 8260B.

Soil Sampling near Existing Transformer

As discussed above, a pad-mounted transformer is located to the west of the existing restaurant structure. Although the recent site reconnaissance did not identify staining or other evidence of leakage near the transformer, a previous reconnaissance performed in 2006 identified potential surface soil staining. A total of 4 soil samples will be collected from an approximate depth of 3 inches below the ground surface at the locations shown in Figure 2. The soil samples will be recovered using 2-inch-diameter by 6-inch-long stainless steel liners. The samples will be sealed with Teflon, plastic end caps and duct tape, and preserved in an ice-cooled chest before being transported under documented chain of custody to a state-accredited fixed-base analytical laboratory. The samples will be analyzed as a four-point composite sample for the presence of polychlorinated biphenyls (PCBs) using EPA Method 8082 and total extractable petroleum hydrocarbons (TEPH) (EPA Method 8015).

Stockpiles

As reported, approximately 600 cubic yards of stockpiled soil are located at the western portion of the Property. The stockpiled soil was reportedly excavated and placed at the time of UST removal in 1994. We understand that the stockpiled material will ultimately be transported from the site for disposal and an appropriate disposal facility. Although ENGEO staff sampled the soil material in 2006 (in which trace residual petroleum hydrocarbon concentrations were detected in selected samples), ACEH has requested additional sampling.

We propose to sample the stockpiled material in general accordance with the recommendations presented in Department of Toxic Substances Control (DTSC) *Information Advisory – Clean Imported Fill Material (October 2001)*. We will collect a total of eight soil samples. The soil samples will be recovered using 2-inch-diameter by 6-inch-long stainless steel liners. The samples will be sealed with Teflon, plastic end caps and duct tape, and preserved in an ice-cooled chest before being transported under documented chain of custody to a state-accredited fixed-base analytical laboratory. The samples will be analyzed for the following:

- Total petroleum hydrocarbons as gasoline (TPH-g), methyl-tert butyl ether (MTBE), benzene, toluene, ethylbenzene, and xylene(s) (BTEX) and fuel oxygenates (EPA 8260B)

- CAM-17 metals (EPA Methods 6010B and 7471)

It has not been determined when the soil stockpiles will be removed. Upon removal, the remaining base soils will also be sampled to determine if these underlying soils had been impacted during the residence of the soil stockpiles. A total of eight soil samples will be recovered from the stockpile footprints using 2-inch-diameter by 6-inch-long stainless steel liners. The samples will be sealed with Teflon, plastic end caps and duct tape, and preserved in an ice-cooled chest before being transported under documented chain of custody to a state-accredited fixed-base analytical laboratory. The samples will be analyzed for the following:

- Total petroleum hydrocarbons as gasoline (TPH-g), methyl-tert butyl ether (MTBE), benzene, toluene, ethylbenzene, and xylene(s) (BTEX) and fuel oxygenates (EPA 8260B)

- CAM-17 metals (EPA Methods 6010B and 7471)

The results of all soil analyses will be compared to the applicable ESLs[1].

GROUNDWATER SAMPLING

In addition to soil impact, previous studies have identified groundwater impact at the Property. The groundwater study will attempt to further define the inferred area of groundwater impact, located in the vicinity of the former diesel USTs. Groundwater samples will also be collected from locations in the inferred downgradient direction form the suspected groundwater impact location. Additionally, groundwater samples will be collected from locations adjacent to the metal sheds located in the western portion of the Property (including the automotive service facility). A total of 10 grab groundwater samples will be collected from locations depicted on Figure 2. Eight of these sample locations correspond to aforementioned soil sampling locations.

The groundwater samples will be collected from the depth of the first encountered groundwater, believed to be approximately 8 to 10 feet below the ground surface. The grab groundwater samples will be collected using Geoprobe® direct push technology; continuous soil cores from each boring will be logged by an ENGEO geologist or engineer. Temporary PVC casing will be used in each borehole for the collection of grab groundwater samples using new disposable bailers. Sampling equipment will be washed and triple-rinsed between sample collection to prevent cross-contamination of samples. Following collection, well points will be removed and backfilled in accordance with Zone 7 Water Agency requirements.

Additionally, if accessible, the three existing on-site groundwater wells will be sampled. Groundwater samples will be collected from the three wells using the following procedures:

- The depth to the groundwater surface within each respective well will be measured using an electronic water level indicator.

- A minimum of three well casing volumes of groundwater will be purged from each well using a submersible pump or new single-use disposable bailers.

- Groundwater parameters, such as pH, temperature, and conductivity will be monitored and recorded during purging.

- The purge water will be transferred into labeled 55-gallon drums to be temporarily stored pending disposal. Upon review of analytical results, the drums will be transported to a disposal facility.

[1] SFRWQCB ESLs, 2008: Table A-1 – Shallow Soil Screening Levels for Residential Land Use where Groundwater is a Potential Drinking Water Source.

- Groundwater samples will be obtained using new single-use disposable bailers and transferred to laboratory provided pre-preserved sample containers, which will be labeled to indicate the sample identification, sample location, date and time of collection and sampler's identification.

- The groundwater samples will be preserved in a chilled cooler during transportation to the analytical laboratory with a chain-of custody record.

All water samples will be placed in laboratory-provided preserved or unpreserved glassware, as appropriate for the specific target analytes. Upon collection of samples, a sample label will be placed on each container that indicates the sample ID, date and time of collection and the sampler signature. The samples will be placed in an ice-cooled chest for delivery under documented chain of custody to a State-accredited laboratory for analysis. The submitted water samples will be analyzed for the following target analytes:

- Total petroleum hydrocarbons as gasoline (TPH-g), methyl-tert butyl ether (MTBE), benzene, toluene, ethylbenzene, and xylene(s) (BTEX) and fuel oxygenates (EPA 8260B)

- Total petroleum hydrocarbons as diesel (TPH-d) and motor oil (TPH-mo) (EPA/8015M with silica gel cleanup)

- Volatile organic compounds (VOCs) by EPA Test Method 8260B.

The results of the groundwater analysis will be compared to the applicable ESLs[2].

SOIL VAPOR SAMPLING

In addition to soil and groundwater sampling, we propose to perform a soil vapor sampling program. A total of 11 soil vapor monitoring wells will be installed in locations situated across the Property, as shown in Figure 2. Key areas of study include the former diesel UST and dispenser locations, the former gasoline UST and dispenser locations, and adjacent to the metal sheds located in the western portion of the Property (including the automotive service facility). The soil vapor monitoring wells will be installed using the following methodology:

- The installation and sampling of the soil vapor monitoring wells will be performed in accordance with the Department of Toxic Substances Control (DTSC) *Draft Advisory – Active Soil Gas Investigation (March 2010).*

- The soil vapor monitoring well casings will consist of ¼-inch diameter Teflon tubing equipped with a filter at the base of the tubing. The wells will be installed by hand auguring an approximately 4-inch diameter soil boring to a depth of 5.5 feet below ground surface. Upon completing the boring, we will place approximately 6-inches of a No. 3 or similar sand into the bottom of the boring. Next, we will insert the well casing into the boring so that the filter is situated at 5 feet bgs, with the top of the Teflon tubing extending

[2] SFRWQCB ESLs, 2008: Tables E-1 and F-1a – Groundwater Screening Levels for Residential Land Use where Groundwater is a Potential Drinking Water Source.

approximately two feet above the ground surface. We will then place an additional 6-inches of sand into the annular space of the boring, followed by 12-inches of hydrated bentonite. The final well seal will be installed by filling the remaining three feet of the boring with neat cement, or equivalent. We will seal the end of the Teflon tubing that extends above the ground surface during periods of non-use. A well construction diagram is included as Figure 3.

- We will collect a soil vapor sample from each of the 11 wells immediately following installation. In our opinion, it is not necessary to allow the cement to cure in order to ensure a good seal against ambient air intrusion. The sample train will be connected to the well casing with a Swagelok® threaded fitting and will consist of a stainless steel twin summa manifold with built in flow controller set to 100-200 ml/min; and two 1 Liter summa canisters. The purge canister will be connected to the manifold so that it is closest to the well casing, and the sampling canister will be connected to the manifold fitting furthest away from the well casing. Prior to sample collection, the purge canister will be opened and three purge volumes will be extracted. A purge volume consists of the internal volume of the well casing and the void space of sand pack. After purging is completed, the purge canister valve on the manifold can be closed, and the purge canister can be removed and connected to the second well. Samples will be collected by opening the sample canister valve and allowing the sample canister to extract soil vapor until the vacuum in the sample canister reaches 5 inches of mercury. The leak detection compound 1,1-Diflouroethane will be applied by wrapping a doused rag around the manifold fittings during sample collection.

- We will label each sample canister with a unique identification number, sampling time, pre and post sample vacuum readings; and the two vapor samples will be submitted to a State certified laboratory for analysis of volatile organic compounds (VOCs), including TPH-g, by EPA Test Method T0-15.

- A summary of the soil vapor monitoring well installation and the analytical results will be presented in the summary report. This will include a comparison of the soil vapor results to the Regional Water Quality Control Board (RWQCB) *shallow soil gas screening levels (ESLs) for evaluation of potential indoor air impacts* considering a residential land use scenario.

Prior to the commencement of our field exploration activities, we will mark the location of the proposed borings and contact Underground Services Alert (USA). The borings will be performed in accordance with Zone 7 Water Agency protocols and regulations. Prior to beginning the work, we will obtain a well permit from the Zone 7 Water Agency. A site-specific health and safety plan is provided as an attachment. Onsite workers will possess OSHA HAZWOPER training (24/40 hour).

We will retain a C-57 licensed drilling contractor to advance soil, groundwater, and soil vapor sampling borings. As mentioned, all borings will be logged by an ENGEO geologist or engineer under the supervision of a Professional Engineer. Soil cuttings from the borings will be logged

continuously and screened with a PID for volatile organic vapors. Soil exhibiting significant PID readings will be retained for laboratory analyses.

Soil cuttings, rinsate, and purge water generated during the filed exploration will be contained in 55-gallon drums. These materials will be transported to an offsite disposal facility within 90 days. Appropriate analytical testing will be performed on these materials for characterization purposes prior to transportation and disposal.

Following completion of the proposed field activities, a summary report, including all analytical results, will be prepared and provided in a letter report and submitted electronically to ACEH. As appropriate, all reports and analytical data will be electronically uploaded to the California State Water Resources Control Board (SWRCB) GeoTracker website.

SENSITIVE RECEPTOR SURVEY

At the request of ACEH Staff, we will prepare a sensitive receptor survey. The survey will attempt to identify all water supply wells within 2,000 feet of the Property. We will also attempt to determine the use of properties within 2,000 feet of the Property to determine the likelihood of the presence of unrecorded, unknown, or abandoned wells. We will consult records and protocols of relevant regulatory agencies, including Zone 7 Water Agency, The State of California Department of Water Resources, and the San Francisco Bay Regional Water Quality Control Board. The well survey will be completed and summarized within the summary report along with the results and summary of the site exploration activities.

TANK SPARGE PIPE AND STANDPIPES

Previous correspondence from ACEH indicated that a PVC pipe had been installed at the time of diesel UST excavation backfill in 1994. Additionally, several standpipes reportedly associated with a partially constructed sewer line were observed near the existing automotive service facility. It is unclear what agency has jurisdiction over these systems. ENGEO will contact representatives of Zone 7 Water Agency to determine if they have jurisdiction as well as preferred methods for proper abandonment. If Zone 7 Water Agency chooses not to claim jurisdiction, we will discuss with ACEH and Zone 7 Staff alternatives for proper abandonment. This may include destruction of the piping systems via pressure grouting, and cut off of the above-ground portions of the piping to two feet below the ground surface. We will also consider a total removal of the systems if structures are to be constructed at or near these locations.

SCHEDULE

We will schedule the field exploration within one to two weeks of receiving approval of this work plan. We expect the summary report will be provided within four weeks of authorization.

If you have any questions on any portion of the workplan, please call and we will be glad to discuss them with you.

Sincerely,

ENGEO Incorporated

Jeffrey A. Adams, PhD, PE
Associate

Shawn Munger, CHG, REAII
Principal

Attachments: Selected References
Figures 1 – 3
Health and Safety Plan

cc: Mr. Scott Menard, Arbor Development Group, LLC

SELECTED REFERENCES

ENGEO; Modified Phase One Environmental Site Assessment, 1000 North Vasco Road, Livermore, California; October 27, 2006, Project No. 7380.1.001.02.

ENGEO; Supplemental Environmental Services, Shell Gas Station, 1000 North Vasco Road, Livermore, California; June 20, 2007, Project No. 7380.1.002.04.

ENGEO; Phase I Environmental Site Assessment Update, Macedo Property, 1000 North Vasco Road, Livermore, California; March 18, 2011, Project No. 7380.000.002.

Helley, E. J and Graymer, R.W., 1997, Quaternary Geology of Alameda County and Parts of Contra Costa, Santa Clara, San Mateo, San Francisco, Stanislaus, and San Joaquin Counties, California; USGS, Open File Report OF-97-97.

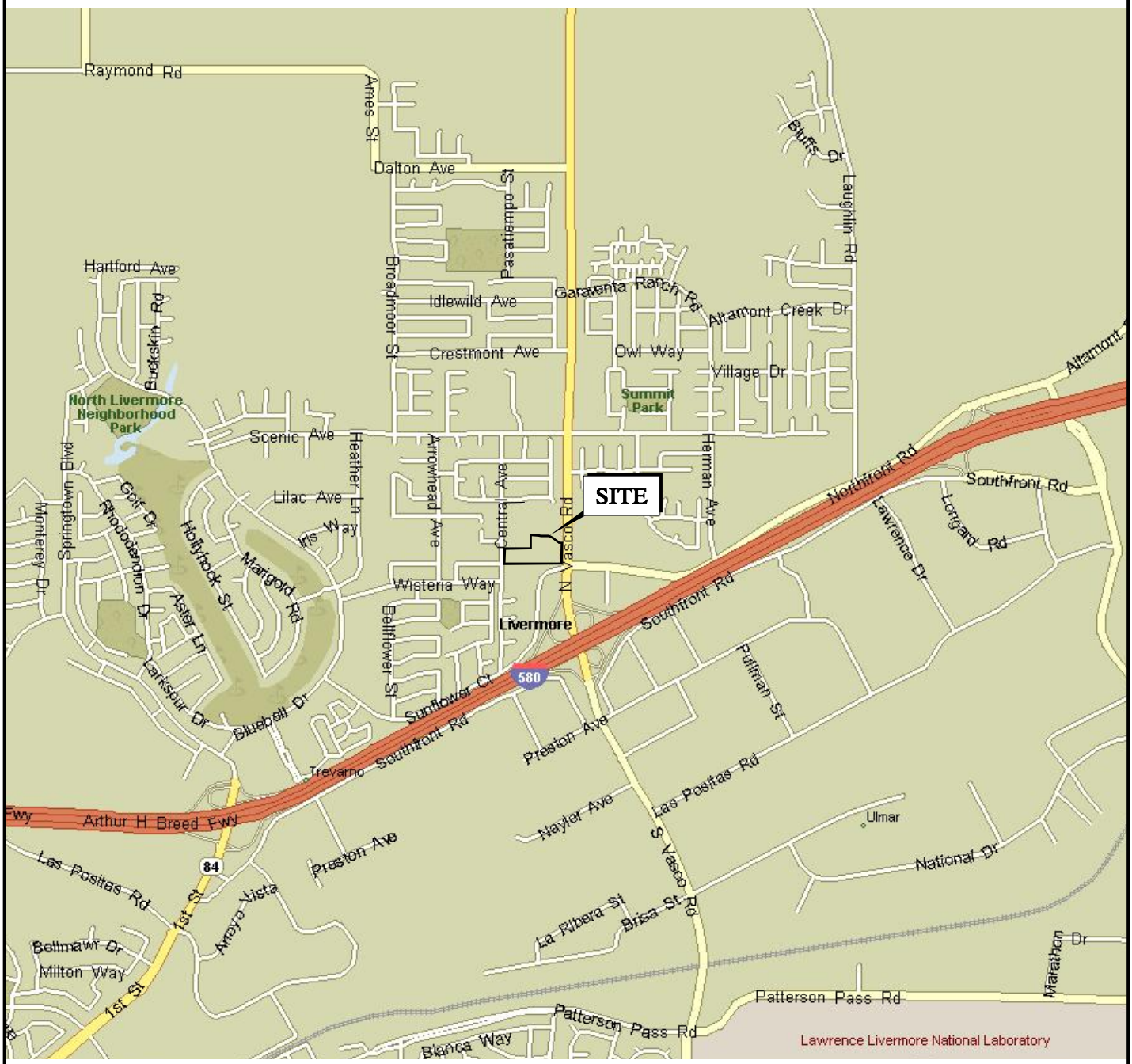
Krazan and Associates, Phase I Environmental Site Assessment, BOTW No. 09-510-02, Geno's Country Store, 1000 North Vasco Road, Livermore, California; April 3, 2009; Project No. 013-09074.

Krazan and Associates, Phase II Environmental Site Assessment, BOTW No. 09-510-02, Geno's Country Store, 1000 North Vasco Road, Livermore, California; September 28, 2009; Project No. 013-09074.

Marc Papineau, Tank and Pipeline Removal Narrative, 1000 N. Vasco Road Livermore, California, January 21, 2011 and January 27, 2011

FIGURES

Figure 1 – Vicinity Map
Figure 2 – Site Plan
Figure 3 – Soil Vapor Well Construction Diagram



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0 FEET 2000

0 METERS 1000

BASE MAP SOURCE: MS STREETS AND TRIPS

ENGEO Expect Excellence

VICINITY MAP

1000 NORTH VASCO ROAD

LIVERMORE, CALIFORNIA

PROJECT NO.: 7380.000.003			FIGURE NO. 1
SCALE: AS SHOWN			
DRAWN BY: DLB	CHECKED BY: SPM		

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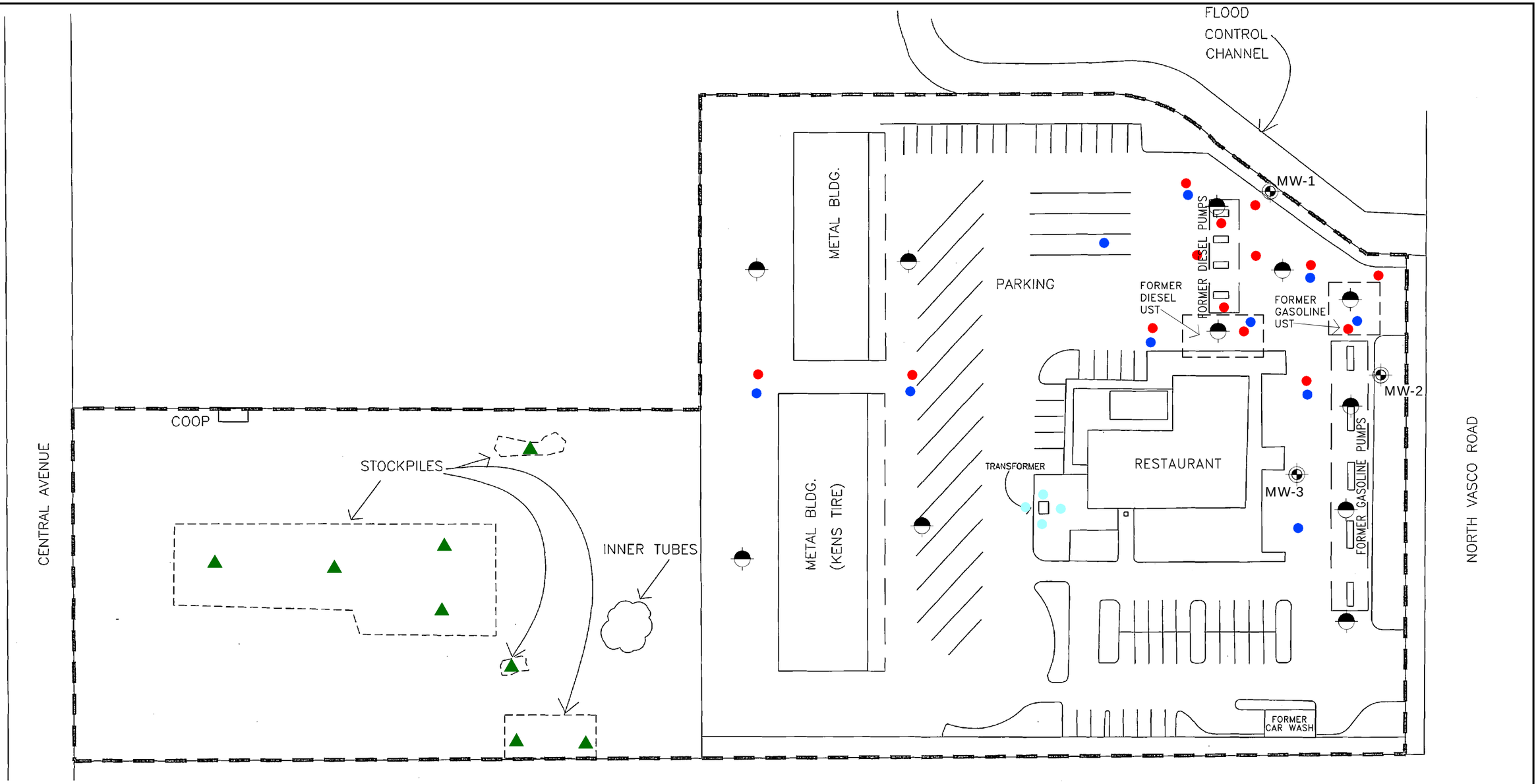

EXPLANATION

- MW-3 ⊕ APPROXIMATE LOCATION OF GROUNDWATER MONITORING WELL
- ▲ APPROXIMATE LOCATION OF PROPOSED STOCKPILE SAMPLE
- ◓ APPROXIMATE LOCATION OF PROPOSED PROPOSED SOIL VAPOR WELL
- ● APPROXIMATE LOCATION OF PROPOSED GEOPROBE SOIL SAMPLE
- ● APPROXIMATE LOCATION OF PROPOSED NEAR SURFACE SOIL SAMPLE
- ● APPROXIMATE LOCATION OF PROPOSED GROUNDWATER SAMPLE

N

BASE MAP SOURCE: H2OGEOL AND MACKAY & SOMPS

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SITE PLAN
1000 NORTH VASCO ROAD
LIVERMORE, CALIFORNIA

PROJECT NO.: 7380.000.003		FIGURE NO 2
SCALE: NO SCALE		
DRAWN BY: DLB	CHECKED BY: SPM	

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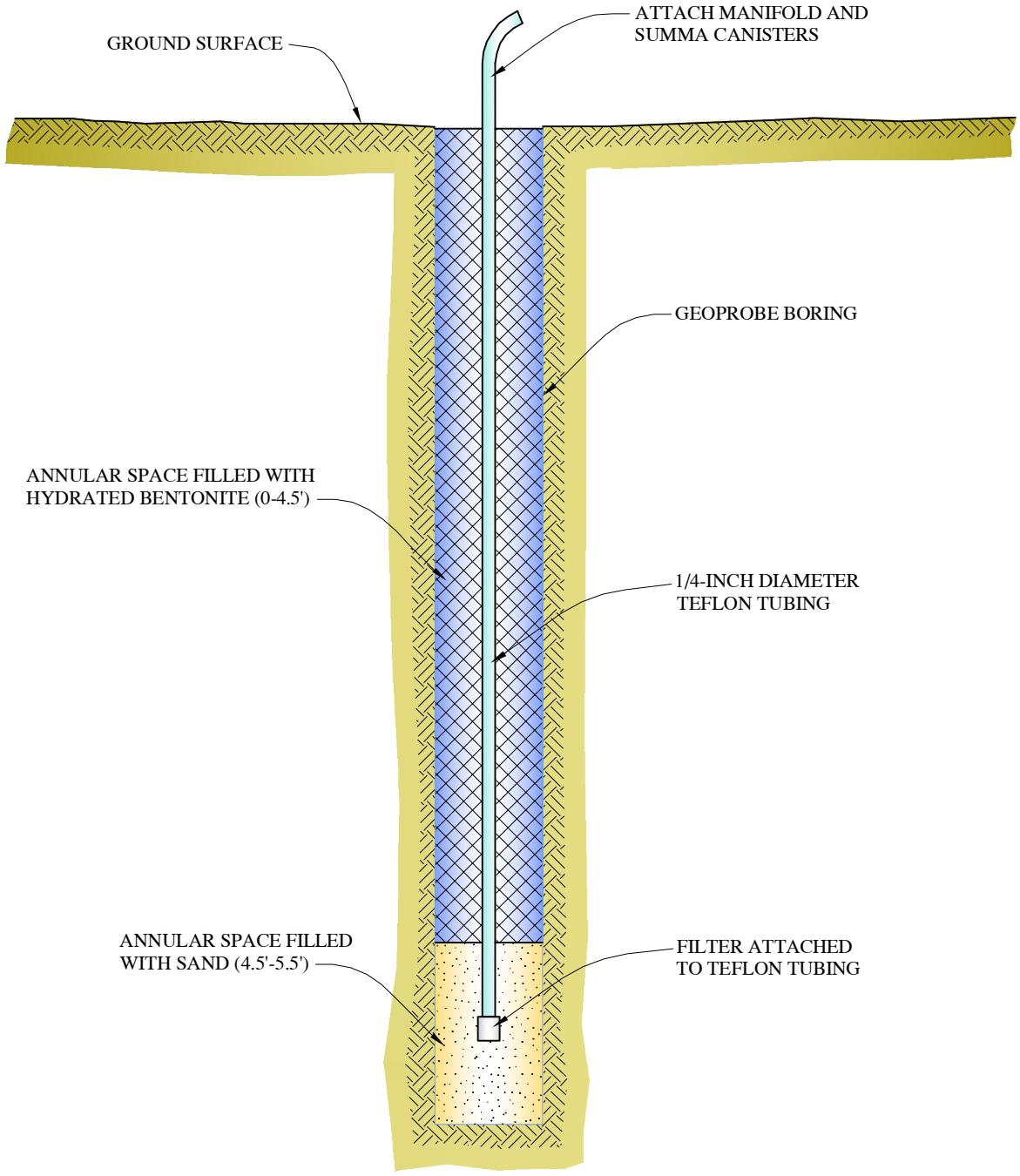

ENGEO Expect Excellence

SOIL VAPOR WELL CONSTRUCTION DIAGRAM

1000 NORTH VASCO ROAD

LIVERMORE, CALIFORNIA

PROJECT NO.: 7380.000.003		FIGURE NO 3
SCALE: NO SCALE		
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HEALTH AND SAFETY PLAN

7380.000.003
April 1, 2011

SITE HEALTH AND SAFETY PLAN

I. PROJECT INFORMATION

Project Number: 7380.000.003	**Date:** April 1, 2011
Project Name: 1000 N. Vasco Rd.	**Client:** Arbor Development Group
Contact: Jeffrey A. Adams	**Phone:** 925-866-9000
Site Location: 1000 N. Vasco Road, Livermore, CA	
Site Description: Existing restaurant and auto service facility; former service station	

Type of Work:

- ☐ **Soil Borings (geotechnical)**
- ☒ **Soil Sampling (environmental)**
- ☐ **Piezometer Installation**
- ☐ **Monitoring Well Installation**
- ☐ **Domestic/Irrigation Well Installation**
- ☐ **Inclinometer Installation**
- ☒ **Other**: **Soil vapor sampling, groundwater sampling**

Work Activities: Collection of 11 soil vapor samples, 10 GW samples, 14 subsurface soil sample locations, and other near surface soil samples.

Site Personnel:

Company:	**Responsibility:**
ENGEO	Environmental field observation and sampling
Penecore	Drilling contractor

Project Health and Safety Officer:	**Site Health and Safety Officer:**
Shawn Munger	Morgan Johnson

II. HAZARD EVALUATION

Physical Hazards

- ☒ **Heat**
- ☐ **Oxygen**
- ☒ **Noise**
- ☐ **Traffic**
- ☐ **Explosion/Fire Hazards**
- ☐ **Excavations/Trenches**
- ☒ **Slip, Trip, Fall**
- ☐ **Underground Hazards**

☒ **Equipment** ☒ **Overhead Hazards**

Expected Chemical Hazards

☐ **Not Applicable**

Chemical Name (CAS)	PEL/TLV (ppm)	IDLH (ppm)	LEL %	Field Criteria
TPH/BTEX	----	----	----	See Attached

III. PERSONAL PROTECTIVE EQUIPMENT

Level of Protection Equipment

A ☐ **B** ☐ **C** ☐ **D** ☐ **Mod. D** ☒

Personal Protective Equipment

R = Required	***A = As Needed***
R **Hard Hat**	A **Safety Glasses**
R **Safety Boots**	__ **Respirator (Type)**
R **Safety Vest**	__ **Filter (Type)**
A **Hearing Protection**	A **Gloves (Type)** Nitrile
__ **Tyvek Coveralls**	__ **Other**

Field Monitoring Equipment:

Photo ionization detector (PID)

Site Control Measures/Exclusion Zones:

Cones as necessary

IV. EMERGENCY RESPONSE

Emergency Response Plans:

Stop operations; evaluate conditions, administer first aid; call for emergency personnel; transport injured

Hospital: ValleyCare Health System	**Phone:** 925-847-3000
Address: 5555 West Las Positas Boulevard, Pleasanton, California 94588 (map attached)	
Fire Department: 911	**Police:** 911

Site Resources:

Water Supply	**Yes**	☐	**No**	☒
Telephone	**Yes**	☒	**No**	☒
Radio	**Yes**	☐	**No**	☐
Other:				

Emergency Contact:

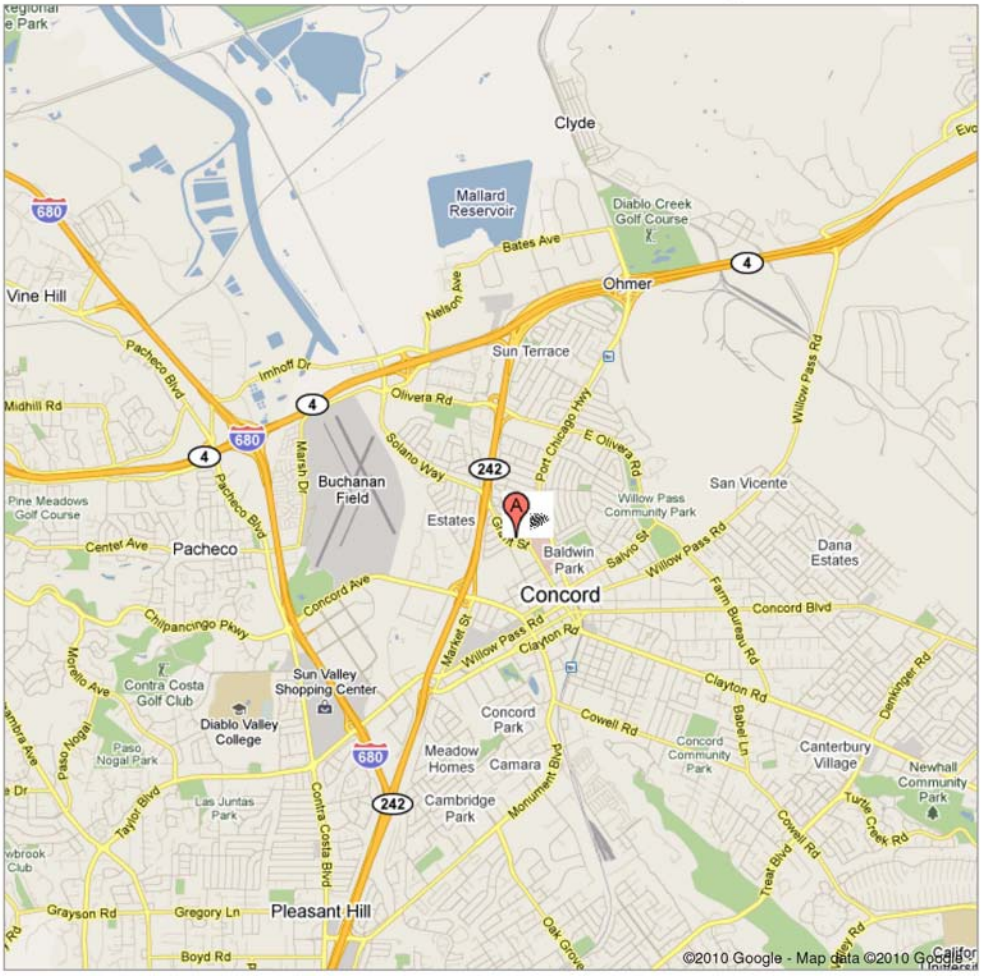
Name: Shawn Munger	**Phone:** 916-416-9000
Company: ENGEO	

Comments:

Preparer Signatures/Company:	**Date**

Google maps

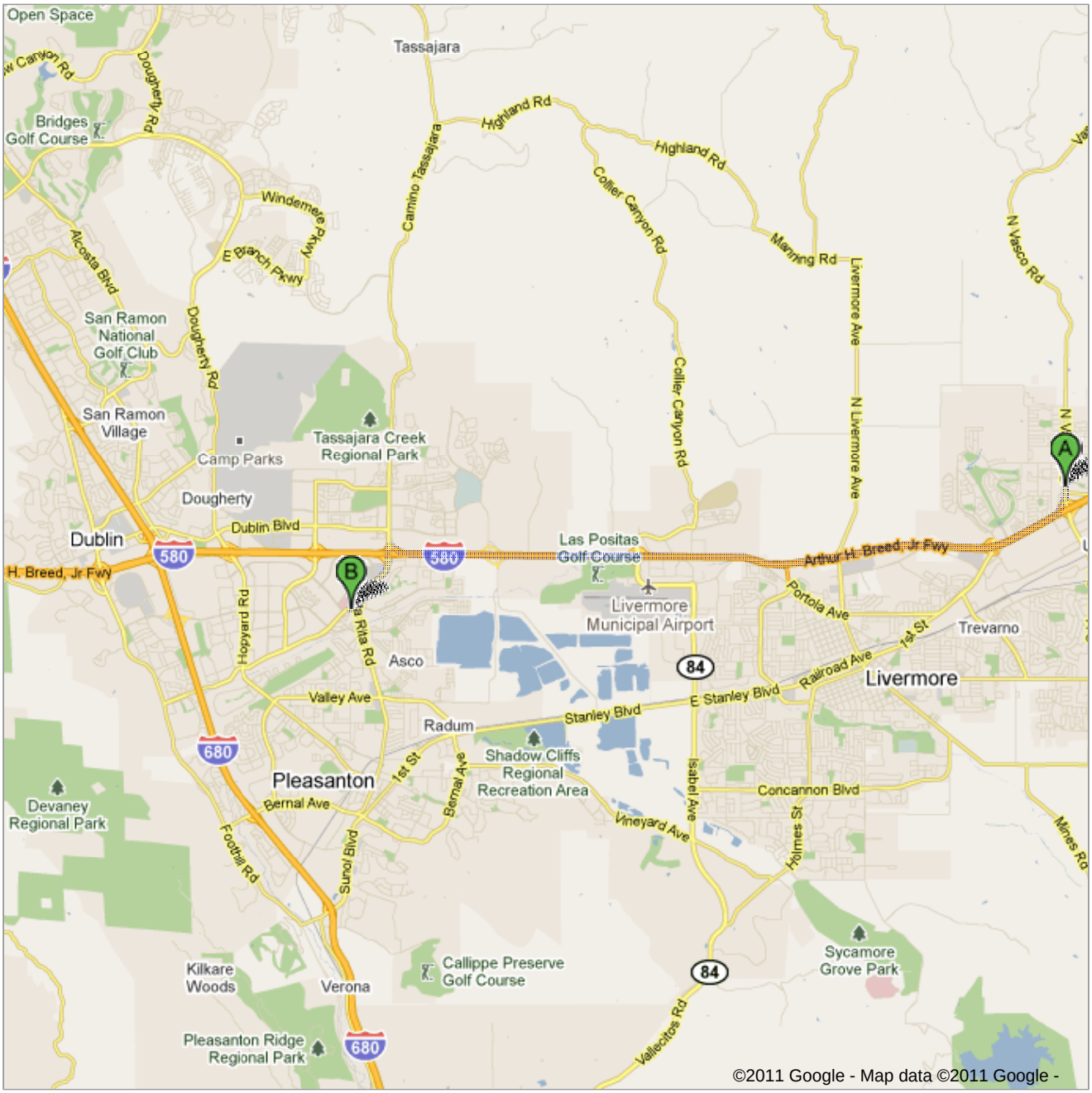
Get Google Maps on your phone
Text the word "GMAPS" to 466453



A. **John Muir Urgent Care**
2700 Grant Street, Concord, CA -
(925) 677-0500
1 review

Google maps

To see all the details that are visible on the screen, use the "Print" link next to the map.



Driving directions to 5555 W Las Positas Blvd, Pleasanton, CA 94588

1000 N Vasco Rd
Livermore, CA 94551

1. Head **south** on **N Vasco Rd** toward **Northfront Rd**

0.1 mi

2. Take the **Interstate 580 W** ramp to **Oakland**

0.5 mi

3. Merge onto **I-580 W**

7.6 mi

4. Take exit **47** for **Tassajara Rd** toward **Santa Rita Rd**

0.3 mi

5. Turn left at **Tassajara Rd**

0.1 mi

6. Continue onto **Santa Rita Rd**

0.8 mi

7. Turn right at **W Las Positas Blvd**

0.1 mi

5555 W Las Positas Blvd
Pleasanton, CA 94588

Report a problem

TABLE I

HYDROCARBON VAPOR CRITERIA AND RESPONSES

Hydrocarbon Concentrations	Response
<30 ppmv	No special action.
30 ppmv - 300 ppmv	Half-mask Organic Vapor (OV) respirators worn by all in work area.
>300 ppmv	Discontinue work activities and evacuate area. Evaluate measures to subdue excessive vapor levels.

* in parts-per-million by volume within breathing zone, measured by photoionization detector equipped with 10.04 eV bulb.