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Alameda County
Environmental Health

December 13, 2010

Paresh C. Khatri
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Re: Addendum to Interim Remedial Excavation and Proposed Soil and Groundwater Investigation at 6501 Shattuck Avenue, Oakland, CA

Dear Mr. Khatri:

SOMA Environmental Engineering, Inc. (SOMA) submits this letter as an addendum to its report dated October 28, 2010 *(titled: Addendum to Request for Expedited Completion of Remedial Excavation at 6501 Shattuck Avenue, Oakland, CA)*, and as a workplan for a proposed soil and groundwater investigation at 6501 Shattuck Avenue in Oakland. This report was prepared on request from the Alameda County Environmental Health Department (ACEH).

Addendum to Interim Remedial Excavation

Due to the presence of residual soil contamination inside the excavation pit (at levels exceeding the Environmental Screening Levels), as evidenced by samplings taken in October 2009 and July 2010, it was recommended in SOMA's report dated October 20, 2010 to implement a removal action while the excavation pit is still open. Revisions to the proposed interim remedial excavation workplan were documented in the October 28, 2010 report. While concurring with SOMA's proposal, ACEH expressed concerns that backfilling the excavations with more permeable material in areas where native soils are contaminated may cause a preferential pathway for contaminant vapor migration under the future site building, from the subsurface to indoor air. Therefore, to avoid creating a preferential pathway beneath the site, instead of the previously proposed drain rock a clayey backfill material will be utilized for backfilling the excavated area. The extent of proposed interim remedial excavation is shown on Figure 1.

As discussed in phone conversation with ACEH, in order to verify presence of residual contamination in the area where historical sample EX-3-S-W was collected, on November 30, 2010, SOMA visited the site to collect a confirmation soil sample. The above soil sampling was intended for the sidewall where elevated TPH-g and benzene concentrations were detected. In the previous confirmation soil sample, collected from excavation sidewall at 12 feet below ground surface (bgs), TPH-g and benzene were detected at 2,900 mg/kg and 5 mg/kg, respectively. When SOMA's technicians arrived at the site to collect said confirmation sample, the deepest part of excavation at that location measured only 7 feet bgs to possibly 8 feet bgs and that particular part of the excavation was submerged in at least 1 foot of standing rain water. Based on field observation, it appeared that a large part of the sidewall (next to historical confirmation sample EX-3-S-W) had collapsed, burying the excavation beneath it (pictures included at Attachment A, projected area of collapse illustrated on Figure 1). As the 12-foot bgs sampling location was not accessible at this time, SOMA would like to propose collecting a confirmation sample at 12 feet bgs (to duplicate EX-3-S-W) during the planned interim remedial action instead.

Proposed Soil and Groundwater Investigation

Based on the results of the initial soil and groundwater investigation documented in SOMA's report dated August 19, 2010, it was determined that the extent of contamination has not been fully delineated. Since the proposed interim remedial excavation is intended to remove the bulk of residual contamination in the soil, SOMA proposes installing groundwater monitoring wells to delineate the extent of contamination in the groundwater. Figure 2 shows the proposed locations of groundwater monitoring wells MW-1 through MW-3. In order to avoid installing wells that will be demolished by the scheduled site development with residential and retail units (anticipated to take place during summer 2011), the proposed wells will be located outside of the planned building footprint.

SOMA will obtain all appropriate drilling and encroachment permits for installation of the proposed wells and make all appropriate notifications to the permitting agency and Underground Service Alert (USA) prior to drilling. USA will be notified to verify that the drilling areas are clear of underground utilities. Following USA clearance, SOMA will retain a private utility locator to survey the proposed drilling areas and locate any additional subsurface conduits.

SOMA will prepare a site-specific Health and Safety Plan (HASP). The HASP will be prepared according to the Occupational Safety and Health Administration (OSHA), "Hazardous Waste Operation and Emergency Response" guidelines (29 CFR 1910.120) and the California Occupational Safety and Health Administration (Cal/OSHA) "Hazardous Waste Operation and Emergency Response" guidelines (CCR Title 8, section 5192). The HASP is designed to address safety provisions during field activities and protect the field crew from physical and chemical hazards resulting from drilling and sampling. The HASP establishes personnel responsibilities, general safe work practices, field procedures, personal protective equipment standards, decontamination procedures, and emergency action plans. The HASP will be reviewed and signed by field staff and contractors prior to beginning field operations.

At this time, SOMA proposes installing three 2-inch groundwater monitoring wells screened within the upper water bearing unit. The proposed wells will aid in delineating the extent of groundwater contamination and in verifying the site-specific groundwater flow direction. It is anticipated that the groundwater flow direction is westerly to southwesterly across the site and toward the San Francisco Bay. Wells MW-1 and MW-2 are intended to delineate the downgradient extent of contamination and well MW-3 to establish background concentrations and aid in determining the groundwater flow direction. During the latest site investigation, groundwater was observed in borings SB-1 through SB-3 between 10 and 8.5 feet bgs, respectively. Therefore, SOMA recommends installing shallow wells that are screened from 7 feet bgs to 17 feet bgs to allow for any seasonal groundwater fluctuations. In order to verify the accuracy of proposed screening intervals, prior to well constructions, SOMA proposes measuring the depth to stabilized groundwater in all well boreholes to verify the appropriateness of proposed screening intervals. Also, where feasible, SOMA will strive to minimize the screening intervals. The proposed wells will be installed with 2-inch-diameter PVC casings and 0.02-inch-wide by 1.5-inch-long factory-slotted perforations. The upper portion of the wells will consist of blank PVC. A PVC cap will be fitted to the bottom of the casing, without adhesives or tape. A 2/12 sand pack filter, or other appropriate sand pack based on the observed lithology, will be emplaced around the screen at appropriate thickness and surged to consolidate the filter pack and eliminate voids. The filter packs will be emplaced to a height of at least 1- foot above the top of the well screens. The filter packs will be sealed with at least a 1-foot-thick hydrated bentonite plug followed by an annular grout seal of neat cement. A traffic rated utility box with internal steel protective covers and locking caps will be placed over the wellhead, and will be set in concrete resting flush with existing grade.

During well installation, SOMA will utilize hollow stem auger (HSA) drilling technology to advance and install the proposed wells. SOMA anticipates that due to the restricted space at the site a limited access HSA track rig will be utilized during well installation. General field procedures are summarized in Attachment B. The crew will drill and continuously sample for lithologic logging purposes and chemical content to approximately 17 feet bgs, or deeper if obvious signs of gross soil contamination are present. If deeper sampling, beyond 20 feet bgs is necessary, based on observed site conditions, SOMA will notify ACEH immediately. Samples for chemical analysis will be collected using 6-inch sleeves. Soil samples will be collected for chemical analysis where PID readings, odor, or visual observations indicate the presence of contamination. Field observations and PID readings will be noted on geologic boring logs. SOMA's field geologist will log continuous soil cores from each boring location, characterizing the content of each soil-filled tube using the Unified Soil Classification System (USCS). Upon soil sampling, both ends of each brass tube will be secured using Teflon tape and tubes will be immediately placed in a chilled ice chest. Soil samples will be labeled with unique sample identifiers and delivered to a state-certified environmental laboratory under established chain of custody protocol for analysis. No groundwater samples will be collected during well installation activities. General field procedures are summarized in Appendix B.

Collected soil samples will be analyzed (utilizing a silica gel clean-up method where appropriate) for the following:

- TPH-g, TPH-d, and TPH-mo using EPA Method 8015
- VOCs using EPA Method 8260B

SOMA will develop newly installed wells no sooner than 72 hours after well installation. Wells will be developed by bailing out sediment-rich groundwater followed by pumping and surging. This process will continue until the purged groundwater clarifies substantially and groundwater quality parameters have stabilized. Groundwater stabilization parameters will be maintained during the development process and records of this data included as an appendix to SOMA's final report. A licensed surveyor will horizontally and vertically survey newly installed wells and the survey report will be also included as an appendix to SOMA's final report. Upon completion of well installation activities, any generated soil cuttings and purge water will be stored in 55-gallon drums. The waste will be profiled and disposed of at an appropriate off-site facility. Waste manifests will be made part of the final well installation and soil and groundwater investigation report. SOMA will monitor the newly installed wells no sooner than 1 week after well development.

If you have any questions or comments concerning the above activities, please do not hesitate to call me at (925) 734-6400.

Sincerely,

Mansour Sepehr, PhD, PE
Principal

cc: Mr. Athan Magganas

Attachment A: *Photographic documentation*
Attachment B: *General Field Procedures*

Figure 1: *Site Map showing locations of proposed hot spot removal*
Figure 2: *Contour map showing TPH-g concentrations in groundwater and location of proposed monitoring wells*

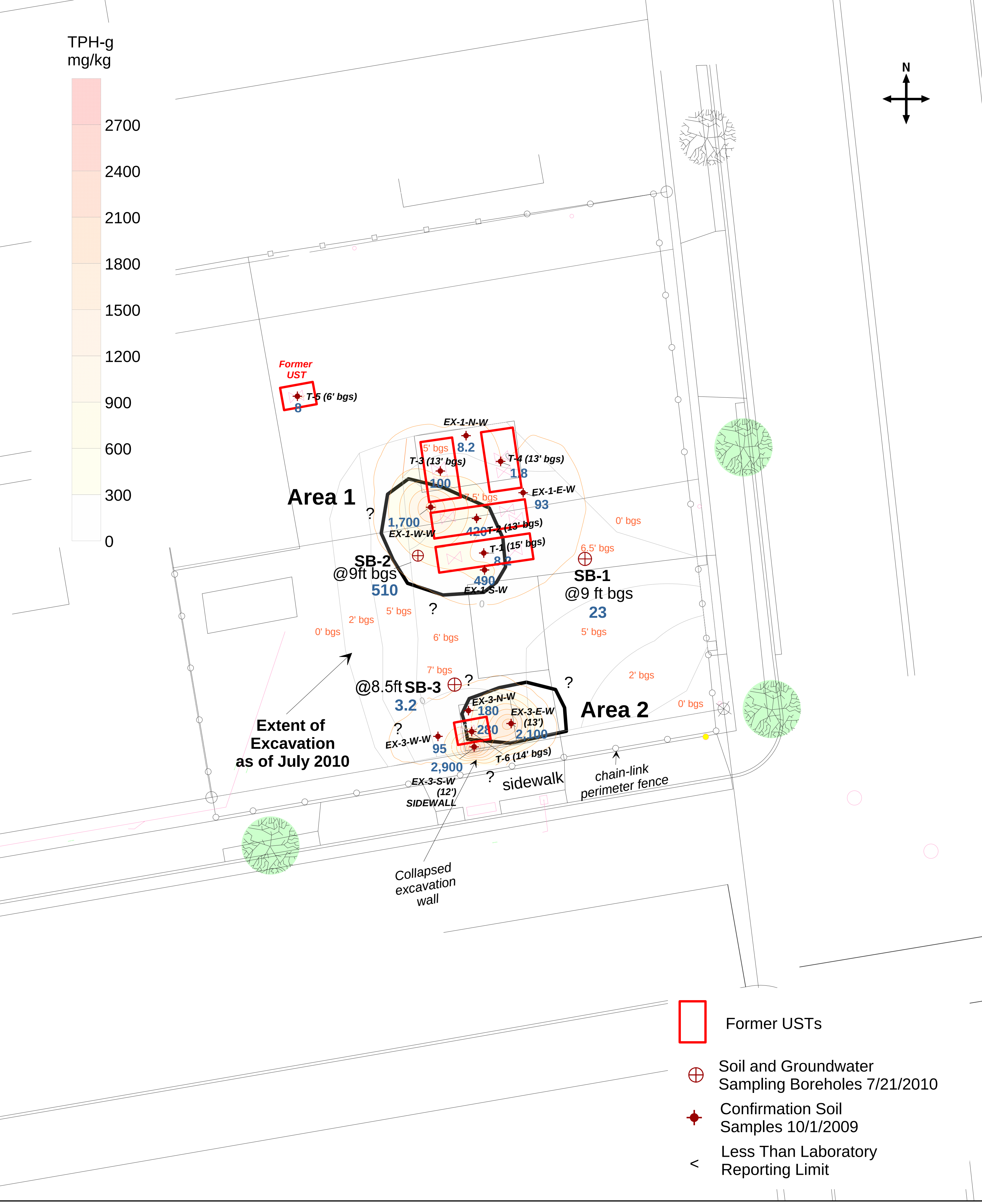
PERJURY STATEMENT

Site Location: 6501 Shattuck Avenue, Oakland, California

"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".

Athan Magganas
2550 Appian Way, Suite 201
Pinole, California 94564
Responsible Party

Manager BAUDER LLC



approximate scale in feet

0 20 40

Figure 1: Site Map showing locations of proposed hot spot removal

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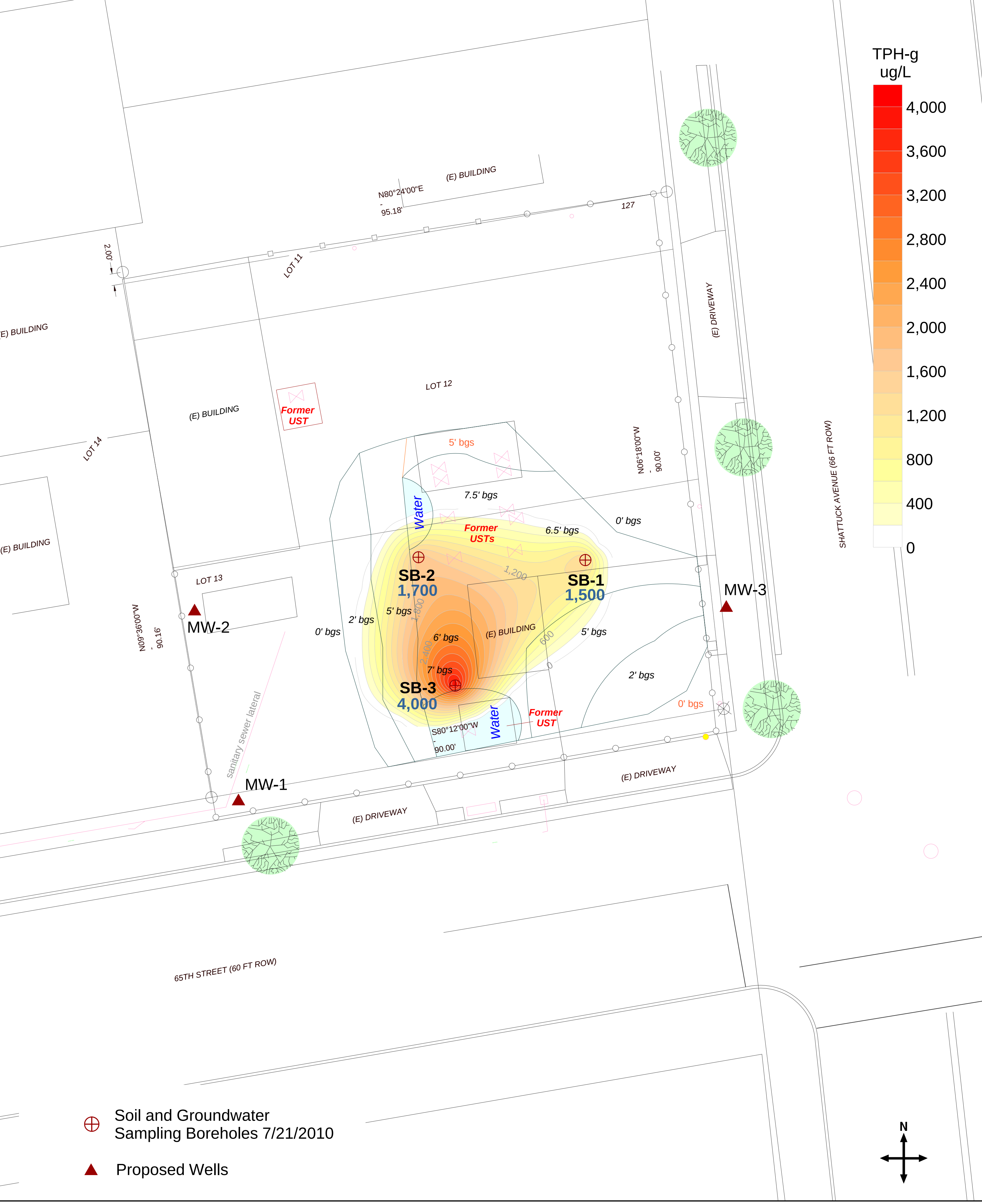

approximate scale in feet

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Figure 2: Contour map showing TPH-g concentrations in groundwater and location of proposed monitoring wells

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Plate 1. View of excavation sidewall where sample EX-3-S-W was collected

Plate 2. View of excavation sidewall where sample EX-3-S-W was collected

Plate 3. View of excavation sidewall where sample EX-3-S-W was collected

Plate 4. View of excavation sidewall where sample EX-3-S-W was collected

GENERAL FIELD PROCEDURES

<u>Hollow Stem Auger Drilling/Monitoring Well Installation</u>

Utility Locating

Prior to drilling, boring locations are marked with white paint or other discernible marking, and cleared for underground utilities through Underground Service Alert (USA). In addition, the first five feet of each borehole are air-knifed, or carefully advanced with a hand auger if shallow soil samples are necessary, to help evaluate the presence of underground structures or utilities.

Borehole Advancement

Pre-cleaned hollow stem augers (typically 8 to 10 inches in diameter) are advanced using a drill rig for the purpose of collecting samples and evaluating subsurface conditions. Upon completion of drilling and sampling, if no well is to be constructed, the augers are retracted, and the borehole is filled with neat cement grout, mixed at a ratio of 6 gallons of water per 94 pounds of Portland cement, through a tremmie pipe to displace standing water in the borehole. In areas where the borehole penetrates asphalt or concrete, the borehole is capped with an equivalent thickness of asphalt or concrete patch to match finish grade.

During the drilling process, a physical description of the encountered soil characteristics (i.e. moisture content, consistency or density, odor, color, and plasticity), drilling difficulty, and soil type as a function of depth are described on boring logs. The soil cuttings are classified in accordance with the uses.

Split-Spoon Sampling

The precleaned split spoon sampler lined with three 6-inch long brass or stainless steel tubes is driven 18 inches into the underlying soils at the desired sample depth interval. The sampler is driven by repeatedly dropping a 140-pound hammer a free fall distance of 30 inches. The number of blows (blow count) to advance the sampler for each six-inch drive length is recorded on the field logs. Once the sampler is driven the 18-inch drive length or the sampler has met refusal (typically 50 blows per six inches), the sampler is retrieved.

Of the three sample tubes, the bottom sample is generally selected for laboratory analysis. The sample is carefully packaged for chemical analysis by capping each end of the sample with a Teflon sheet followed by a tight-fitting plastic cap, and sealing the cap with nonvolatile organic compound (VOC), self-adhering silicon tape. A label is affixed to the sample indicating the sample identification number, borehole number, sampling depth, sample collection date and time, and job number. The sample is then annotated on a chain-of custody form and placed in an ice-filled cooler for transport to the laboratory.

The remaining soil samples are used for soil classification and field evaluation of headspace volatile organic vapors, where applicable, using a photo ionization or flame ionization detector calibrated to a calibration gas (typically isobutylene or hexane). VOC vapor concentrations are recorded on the boring logs.

Grab Groundwater Sample Collection

Grab groundwater samples are collected by lowering a pre-cleaned, single-sample polypropylene, disposable bailer down the borehole or temporary casing. The groundwater sample is discharged from the bailer to the sample container through a bottom emptying flow control valve to minimize volatilization.

Collected water samples are discharged directly into laboratory provided, pre-cleaned, vials or containers and sealed with Teflon-lined septum, screw-on lids. Labels documenting sample number, well identification, collection date and time, type of sample and type of preservative (if applicable, i.e. HCl for TPPH, BTEX, and fuel oxygenates) are affixed to each sample. The samples are then placed into an ice-filled cooler for delivery under chain-of-custody to a laboratory certified by the State of California to perform the specified tests.

Groundwater Monitoring Well Installation and Development

Groundwater monitoring wells are constructed by inserting or tremmieing well materials through the annulus of the hollow stem auger. The groundwater monitoring wells are constructed with a screen interval determined from the encountered soil stratigraphy, to maintain a proper seal at the surface (minimum three feet), to allow flow from permeable zones into the well, and to avoid penetrating aquicludes. Groundwater wells are installed in accordance with the conditions of the well construction permit issued by the regulatory agency exercising jurisdiction over the project site.

The well screen generally consists of schedule 40 polyvinyl chloride (PVC) casing with 0.01 to 0.02-inch factory slots. As a rule, 0.01-inch slots are used in fine-grained silts and clays, and 0.02-inch slots are used in coarse-grained materials. The screen is then filter packed with #2/12 or #3 sand, or equivalent, for the 0.01 and 0.02 inch slots, respectively.

Once the borehole has been drilled to the desired depth, the well screen and blank well casing are inserted through the annulus of the hollow stem augers. The well screen is sand packed by tremmieing the appropriate filter sand through the annulus between the casing and augers while slowly retracting the augers. During this operation, the depth of the sand pack in the auger is continuously sounded to make sure that the sand remains in the auger annulus during auger retraction to avoid short-circuiting the well. The sand pack is tremmied to approximately two feet above the screen, at which time pre-development surging is performed to consolidate the sand pack. Additional sand is added as necessary so that the sand pack extends approximately two feet above top of screen. Following construction of the sand pack, a one to two foot thick bentonite seal is tremmied over the sand and hydrated in place. The remainder of the borehole is backfilled with Portland neat cement grout (or the equivalent), mixed at ratio of 6 gallons of water per 94 pounds of neat cement. The wellhead is then capped with a locking cap and secured with a lock to protect the well from surface water intrusion and vandalism.

The wellhead is further protected from damage with traffic a rated well box in paved areas or locking steel riser in undeveloped areas. The protective boxes or risers are set in concrete. The details of well construction are recorded on well construction logs.
Following well construction, the wells are developed in accordance with agency protocols by intermittently surging and bailing the wells. Development is determined to be sufficient once pH, conductivity, and temperature stabilize to within s 0.1, s 3%, and s 10%, respectively.

Groundwater Monitoring Well Sampling

Depth to Groundwater/SPH Thickness Measurements

Prior to the beginning of purging and sampling the wells, the depth to groundwater and thickness of SPH, if present, within each well casing are measured to the nearest 0.01 foot using either an electronic water level indicator or an electronic oil-water interface probe. This is done in within as narrow a period as possible, and before the first well is purged. Measurements are taken from a point of known elevation on the top of each well casing as determined in accordance with surveys by licensed land surveyors.

Groundwater Monitoring Well Purging

Groundwater wells are purged using low-flow protocol at a flow rate of less the 1 liter per minute using a bladder pump. The purge intake is placed opposite the portion of the saturated zone expected to contain the greatest hydrocarbon impact, and the depth of the purge intake is recorded during and after purging. The water level in each well is monitored, and care is taken that the well is not dewatered. The conductivity, temperature, and pH of the delivered effluent are monitored and recorded using a flow-through cell during purge operations. Purge operations are determined to be sufficient once three successive measurements of pH, conductivity, and temperature of the purged water at 3 to 5 minute intervals following the evacuation of on system or line volume vary by s 0.1, s 3%, and s 10%, respectively. System or line volumes, actual purge volumes, and the purging equipment used are recorded on the field data sheets.

Groundwater Sample Acquisition, Handling, and Analysis

Following purging operations, groundwater samples are collected from each of the wells, using a low-flow bladder pump. The groundwater sample is discharged from the pump tubing to the sample container before the water passes through the flow-through cell. The sampling equipment is recorded on the field data sheets.

Collected water samples are discharged directly into laboratory provided, pre-cleaned, and chemically preserved sample containers for the analyses requested. Preservatives are used in the samples if appropriate for the analyses, i.e., hydrochloric acid (HCI) for TPPH, BTEX, and fuel oxygenates by EPA Method 8260B.

Labels documenting sample number, well identification, collection date and time, type of sample and type of preservative (if applicable) are affixed to each sample. The samples are then placed into an ice-filled cooler for delivery under chain of custody to a certified laboratory. The type of preservative used is documented on the chain of custody form.

To help assure the quality of the collected samples and to evaluate the potential for cross contamination during transport to the laboratory, a distilled-water trip blank accompanies the samples in the cooler. The trip blank is analyzed for the presence of volatile organic compounds of concern. For petroleum hydrocarbons, the trip blank is typically analyzed for TPPH, BTEX, and fuel oxygenates by EPA Method 8260.

Organic Vapor Procedures

Soil samples are collected for analysis in the field for ionizable organic compounds using a PID with a 10.2 eV lamp. The test procedure involves measuring approximately 30 grams from an undisturbed soil sample, placing this subsample **in** a Ziploc™-type bag or in a clean glass jar, and sealing the jar with aluminum foil secured under a ring-type threaded lid. The container is warmed for approximately 20 minutes (in the sun); then the head-space within the container is tested for total organic vapor, measured in parts per million as benzene (ppm; volume/volume). The instrument is calibrated prior to drilling. The results of the field-testing are noted on the boring logs. PID readings are useful for indicating relative levels of contamination, but cannot be used to evaluate petroleum hydrocarbon levels with the confidence of laboratory analyses.

Equipment Decontamination

Equipment that could potentially contact subsurface media and compromise the integrity of the samples is carefully decontaminated prior to drilling and sampling. Drill augers and other large pieces of equipment are decontaminated using high-pressure hot water spray. Samplers, groundwater pumps, liners and other equipment are decontaminated in an Alconox scrub solution and double rinsed in clean tap water rinse followed by a final distilled water rinse.

The rinsate and other wastewater are contained in 55-gallon DOT-approved drums, labeled (to identify the contents, generation date and project) and stored on-site pending waste profiling and disposal.

Soil Cuttings and Rinsate/Purge Water

Soil cuttings and rinsate/purge water generated during drilling and sampling are stored on-site in DOT-approved 55-gallon steel drums pending characterization. A label is affixed to the drums indicating the contents of the drum, suspected contaminants, date of generation, and the boring number from which the waste is generated. A licensed waste disposal contractor removes the drums from the site to an appropriate facility for treatment/recycling.