Ms. Dilan Roe
Alameda County Environmental Health Care Services
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Re: 6310 Houston Place, Dublin, California 94568
ACEHS Case No. RO0002862, GeoTracker ID T0600113164

Dear Ms. Roe:

I declare, under penalty of perjury, that the information and or recommendations contained in the attached document are true and correct to the best of my knowledge.

Sincerely,

Mr. Cary Grayson

STRATUS
ENVIRONMENTAL, INC.

3330 Cameron Park Drive, Ste 550
Cameron Park, California 95682
(530) 676-6004 ~ Fax: (530) 676-6005

December 6, 2013
Project No. 2094-6310-01

Ms. Dilan Roe, P.E.
Alameda County Environmental Health Department
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(via Geotracker & Alameda County FTP site)

Re: Data Gap Investigation Work Plan, 6310 Houston Place, Dublin, California (ACEHD Case No. RO0002862, GeoTracker ID T0600113164)

Dear Ms. Roe:

On behalf of Mr. Cary Grayson, Stratus Environmental, Inc. (Stratus) has prepared this *Draft Data Gap Investigation Work Plan* (Work Plan) for the property located at 6310 Houston Place in Dublin, California (the site; Figures 1 and 2). Alameda County Environmental Health Department (ACEHD) currently regulates an environmental case at the subject property relating to the presence of petroleum hydrocarbon (diesel) contaminants in the shallow subsurface. In a letter dated June 13, 2013, ACEHD personnel requested that the extent of petroleum hydrocarbon impact to the subsurface be further investigated, on the basis of an incomplete Site Conceptual Model (SCM). ACEHD notes that reported groundwater flow directions have varied over time, and given this condition, the downgradient extent of impact to the subsurface is not sufficiently defined.

This document proposes the advancement of soil borings in seven locations for the purpose of soil and groundwater sampling. By advancing a relatively large number of borings, our intention is to collect sufficient data during one site mobilization to enable ACEHD to consider the site's environmental case for closure under the State Water Resources Control Board's Low Threat Closure Policy (LTCP). A detailed description of the activities included as part of the proposed subsurface investigation is provided in the following subsections of this Work Plan.

SITE DESCRIPTION

The site is located in a commercial, light industrial, and residential area of Dublin, California, on the south side of Houston Place, near the intersection with Dougherty Road. The subject property is currently developed as an internally-segmented tilt-up commercial building and associated parking areas, housing two automobile repair shops and storage warehousing units (Figure 2). Neighboring properties are developed as

automobile repair shops, a landscaping supply yard, light industrial manufacturing, and residential apartment buildings.

PROJECT APPROACH AND SITE CONCEPTUAL MODEL

Figure 3 presents a summary of groundwater analytical data from sampling of the site's seven groundwater monitoring wells during the fourth quarter 2012. The data shows that all monitoring wells situated within approximately 50 feet of a former diesel underground storage tank (UST) are impacted with diesel range organics (DRO), at a maximum concentration of 3,200 micrograms per liter (µg/L). Data from three distant groundwater monitoring wells, located southwest, south, and southeast of the former USTs (DW-4, DW-7, and DW-6, respectively) indicate an absence of DRO in these areas.

In the July 2013 letter, ACEHD expressed significant concern about the absence of analytical data 'downgradient' of the USTs under the current groundwater flow direction (west/southwest during fourth quarter 2012). In our opinion, the available site data indicates a relatively stable plume of DRO that has migrated only a minimal distance from the former UST complex, regardless of the reported groundwater flow direction calculated from depth to groundwater measurements over time. Most likely, variability in groundwater flow direction through time has resulted in a condition where minimal lateral contaminant transport has occurred in a preferred direction.

This document proposes to advance seven soil borings for collection of soil and groundwater samples in areas of the site where existing data is lacking. The locations of the proposed borings are shown on Figure 2, and were selected to provide data on soil and groundwater contaminants in various directions from the former USTs. Stratus will also collect groundwater samples from existing wells DW-1 through DW-7 at the time of the proposed investigation, so that current well data can be compared with the new soil boring analytical results.

A review of available soil boring logs prepared for the site indicates that clayey sand/silty sand strata are encountered below approximately 15 feet below ground surface (bgs) at most boring locations. Stratus intends to target groundwater sampling within these strata, as it is our opinion that lateral migration of fuel contaminants would be more likely to occur at this interval of the subsurface instead of finer grained soils located below static water table levels (i.e. between about 6 and 15 feet bgs). Soil samples collected within the 6 to 15-foot depth interval will be submitted for chemical analysis in order to supplement the direct push groundwater samples collected from deeper within the subsurface.

The scope of work presented in this document was developed to expand upon the available historical data set, and thus improve the SCM for the site. Once the analytical data is collected, Stratus should be able to both provide a more thorough evaluation of contaminant distribution, which would be suggestive of historical groundwater flow and

plume transport, and also potential risk associated with remaining contaminants in the subsurface. The scope of work presented below was intended to allow for collection of sufficient subsurface data to allow for a sufficiently complete and focused SCM to enable a site closure evaluation under LTCP criteria. While some aspects of site subsurface conditions may never be fully explained, such as precise reasoning for variations in groundwater flow direction, we believe that analytical data collected during this phase of work will allow for a more thorough assessment of the lateral extent of impact to the subsurface, and an indirect assessment of groundwater flow by evaluating the distribution of contaminants that have been transported within shallow groundwater. This information will thus allow for an improvement of the SCM for the site, and an adequate data set for consideration of site closure under the LTCP.

SCOPE OF WORK

The objective of the proposed scope of work is to collect sufficient data necessary to allow for an evaluation of the site's environmental case to closure. In order to accomplish this objective, and provide a more complete SCM for the site, Stratus is proposing the following work activities:

- Advance direct push soil borings at seven locations to approximately 20 feet bgs using a limited access direct push drilling rig.
- Collect soil samples from the soil boring for lithologic comparison and laboratory analysis.
- Retain a grab groundwater sample from each boring location.

The proposed scope of work has been subdivided into four tasks, as outlined below. All work will be conducted under the direct supervision of a State of California Professional Geologist or Professional Engineer, and will be conducted in accordance with standards established by the *Tri-Regional Board Staff Recommendations of Preliminary Investigation and Evaluation of Underground Tank Sites* (RWQCB, April 2004).

Task 1: Pre-field Activities

Following approval of this Work Plan by ACEHD, the following activities will be completed:

- Secure an access agreement from the owner of property at 6302 Houston Place.
- Obtain drilling permits from Alameda County Public Works Agency (ACPWA).
- Retain and schedule a licensed C-57 drilling contactor.
- Update the site specific Health and Safety Plan.

- Mark boring locations and contact Underground Service Alert to locate underground utilities in the vicinity of the work site.
- Notify ACPWA, ACEHD, the property owner, and the facility tenant of the proposed work schedule.

Task 2: Field Work

Soil Borings

A Stratus geologist, under the direct supervision of a California Registered Professional Geologist, will oversee a C-57 licensed drilling contractor advance borings GP-1 through GP-7 using a direct push drilling rig to a depth of approximately 20 feet bgs. The initial 3 feet of each boring will be cleared using hand tools to reduce the possibility of damaging underground utilities. The soil borings will be continuously cored using a double-walled sampling system equipped with disposable acetate liners. During advancement of the borings, soil samples will be retained in approximately 2 to 4-foot intervals, depending upon the advancement length of each coring sampler. The bottom end of the acrylic lined soil sample section will be lined with Teflon™ sheets, capped, and sealed. Each sample will be labeled, placed in a resealable plastic bag, and stored in an ice-chilled cooler. The samples will remain chilled until relinquished to a state-certified analytical laboratory. Chain-of-custody procedures will be followed from the time the samples are collected until the time the samples are relinquished to the laboratory. A minimum of two soil samples collected from each soil boring will be submitted for chemical analysis. The exact number of samples submitted will be determined at the time of the investigation. Photo-ionization detector (PID) screening of the samples (described below) will be used to assist in the determination of which samples will be submitted for chemical analysis.

The entire soil core will be classified onsite using the Unified Soil Classification System and recorded, along with other pertinent geologic information, on a boring log. Select sections of the soil core will also be placed and sealed in plastic bags to allow the accumulation of VOC vapors within the airspace in the bags. A PID will be used to measure VOC concentrations from each sample in parts per million (ppm), and will be recorded on the boring log. Appendix A includes a description of the field practices and procedures that will be used by Stratus personnel during implementation of this scope of work.

Waste Management

Drill cuttings and wastewater generated during the field activities will be contained in DOT-approved 55-gallon steel drums. The drums will be appropriately labeled and

stored at the site pending proper disposal. A licensed contractor will transport the soil and wastewater to an appropriate facility for disposal.

Task 3: Laboratory Analysis

Soil and groundwater samples will be forwarded to a state-certified laboratory for chemical analyses. The samples will be analyzed for DRO (with silica gel treatment), using U.S. Environmental Protection Agency (USEPA) Method 8015 Modified, and for benzene, toluene, ethylbenzene, total xylenes, naphthalene, and methyl tertiary butyl ether (MTBE) using USEPA Method SW8260B. In addition, groundwater samples will be analyzed for hexavalent chromium, at low level reporting limits (which requires a 24-hour turn around time), using USEPA Method 7199.

Task 4: Report Preparation

Following completion of the additional site characterization activities, a site assessment report will be prepared. The report will include, but not be limited to, a scaled site plan, soil boring logs, well details, tabulated analytical results, and a certified analytical report. In addition, the report will be discussed in the context of a SCM, to satisfy the previous request by ACEHD. The report will be uploaded to Geotracker upon finalization.

SCHEDULE

Upon approval of this document, Stratus will forward an access agreement to the nearby property owner for approval. Once this agreement has been obtained, drilling permit applications will be submitted to ACPWA and the work will be scheduled. Approximately 2-3 weeks will likely be necessary for a C-57 licensed contractor to become available. The report will be submitted within approximately 4 to 6 weeks of receiving all analytical results.

LIMITATIONS

This Work Plan was prepared in general accordance with accepted standards of care that existed at the time this work was performed. No other warranty, expressed or implied, is made. Conclusions and recommendations are based on field observations and data obtained from this work and previous investigations. It should be recognized that definition and evaluation of geologic conditions is a difficult and somewhat inexact science. Judgments leading to conclusions and recommendations are generally made with an incomplete knowledge of the subsurface conditions present. More extensive studies may be performed to reduce uncertainties. This Work Plan is solely for the use and information of our client unless otherwise noted.

Please contact Trevor Hartwell at (916) 313-9966 if you have any questions regarding this document or the project in general.

Sincerely,

STRATUS ENVIRONMENTAL, INC.

for:

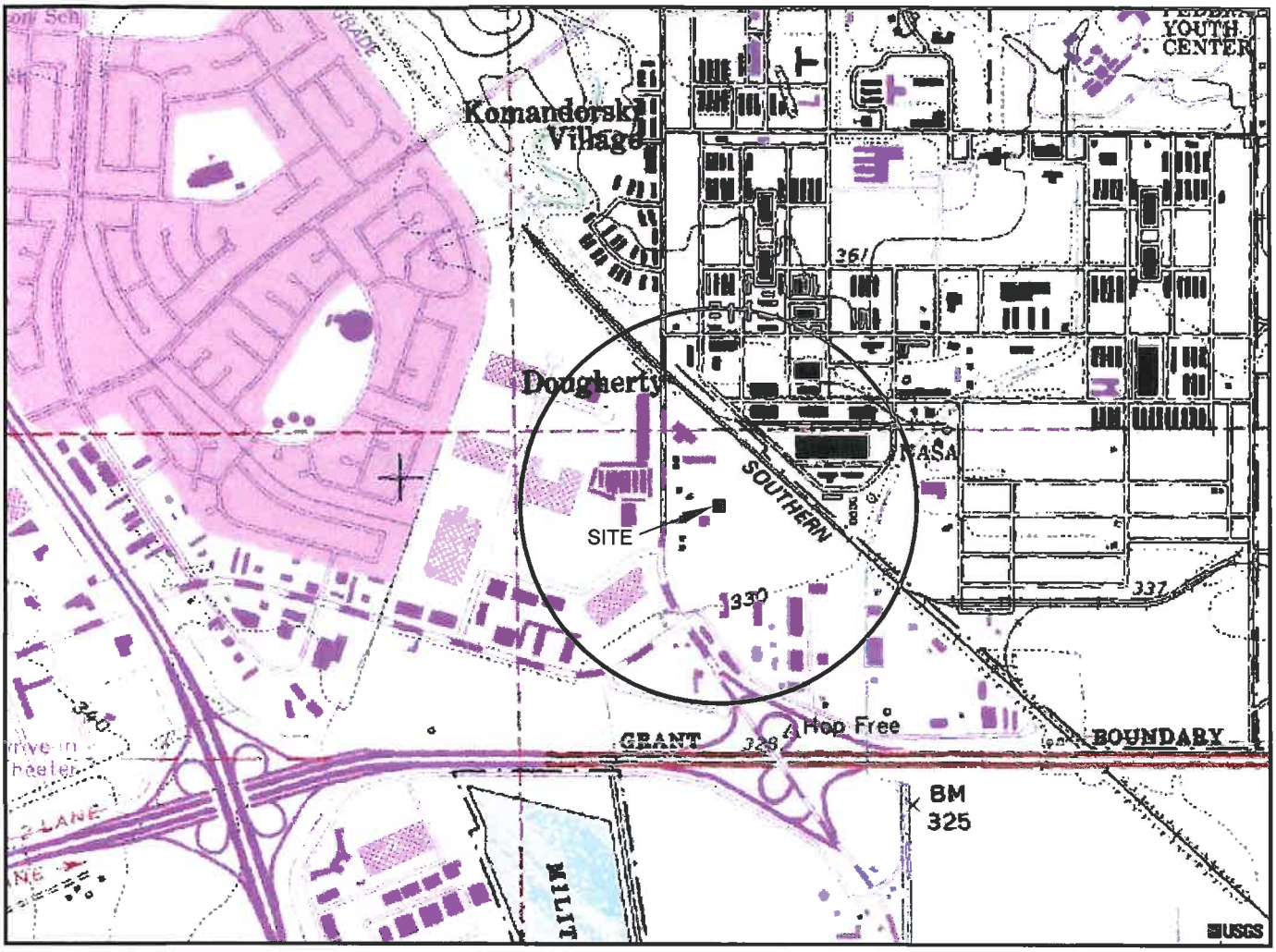
Scott G. Bittinger, P.G.
Project Geologist

Kasey Jones
Project Manager

REGISTERED GEOLOGIST
Scott G. Bittinger
No. 7447
CALIFORNIA

Attachments:
Figure 1 Site Location Map
Figure 2 Site Plan
Figure 3 Groundwater Analytical Summary Map, Fourth Quarter 2012
Appendix A Field Practices and Procedures

cc: Mr. Cary Grayson (carybgrayson@gmail.com)
Mr. Robert Basile, 320 Red Maple Drive, Danville, CA 94506



GENERAL NOTES:
BASE MAP FROM U.S.G.S.
DUBLIN, CA.
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1989

N

QUADRANGLE LOCATION

0 1800 FT

APPROXIMATE SCALE

STRATUS ENVIRONMENTAL, INC.

6310 HOUSTON PLACE
DUBLIN, CALIFORNIA

SITE LOCATION MAP

FIGURE
1

PROJECT NO.
2094-6310-01

N

HOUSTON PLACE

DRIVEWAY

SIDEWALK

DRIVEWAY

SIDEWALK

PROPERTY LINE

WALL

PLANTER

6310 HOUSTON PLACE

GP-3

PROPERTY LINE

PARKING

DW-5

GP-4

FORMER TANK HOLD

FORMER DIESEL UST

SB-1

DW-2

FORMER TANK HOLD

GP-5

6302 HOUSTON PLACE

SB-3

GP-7

FORMER DISPENSER ISLAND

GP-1

SB-4

DW-4

SB-2

DW-3

SB-5

DW-1

GP-6

FENCE

PROPERTY LINE

TRASH ENCLOSURE

TRASH ENCLOSURE

GP-2

DW-6

DW-7

LEGEND

DW-1 MONITORING WELL LOCATION

SB-1 SOIL BORING LOCATION

GP-1 PROPOSED DIRECT PUSH BORING LOCATION

Bay Co NSitemplan
October 16, 2013
REV
JMP
Bay Counties

STRATUS ENVIRONMENTAL, INC.

0 30 FT

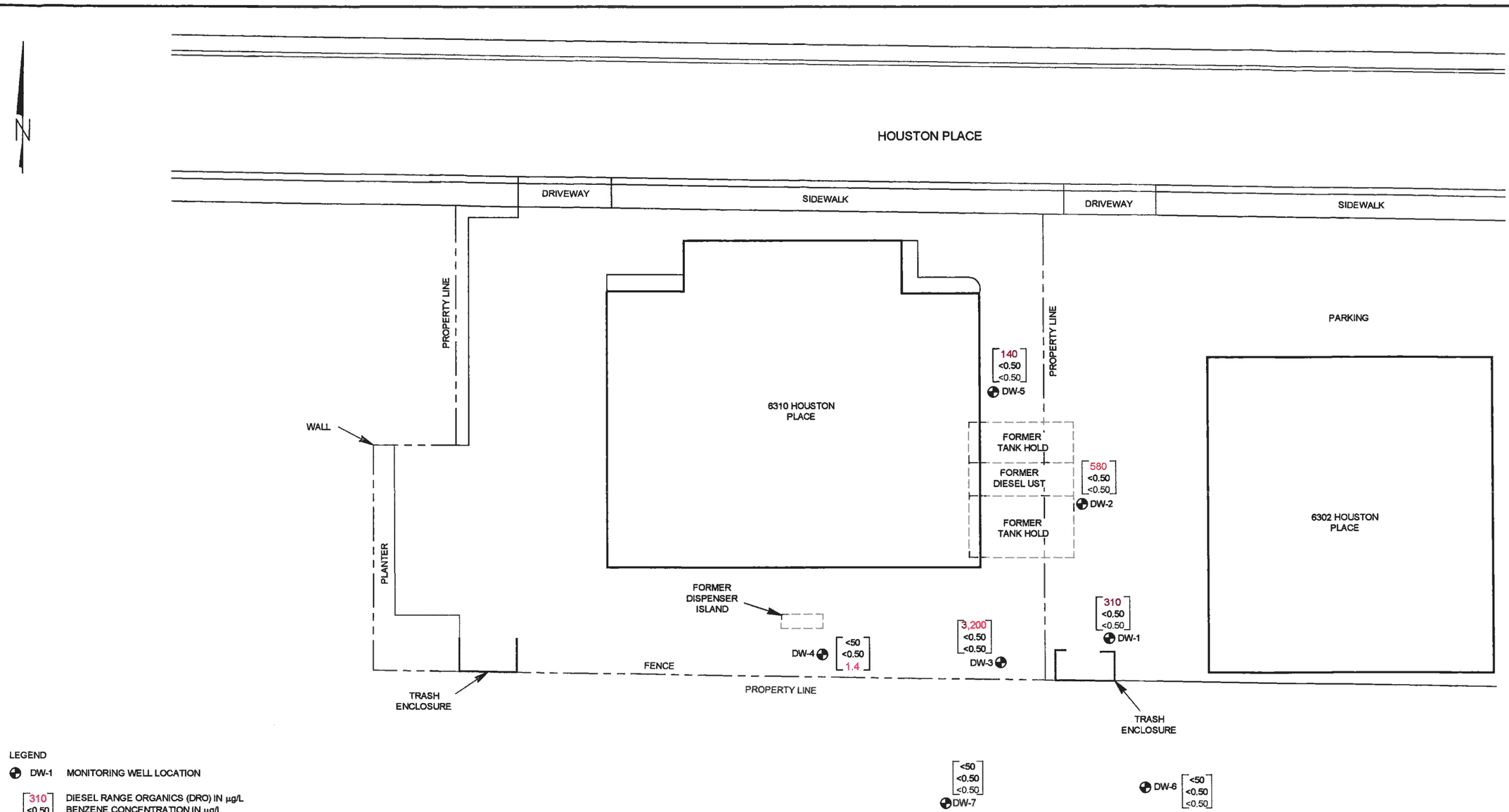
APPROXIMATE SCALE

6310 HOUSTON PLACE
DUBLIN, CALIFORNIA

SITE PLAN

FIGURE
2

PROJECT NO.
2094-6310-01



LEGEND

DW-1 MONITORING WELL LOCATION

310 DIESEL RANGE ORGANICS (DRO) IN µg/L
<0.50 BENZENE CONCENTRATION IN µg/L
<0.50 METHYL TERTIARY BUTYL ETHER (MTBE) IN µg/L

WELLS SAMPLED 12/13/12
DRO ANALYZED BY EPA METHOD 8015B
BENZENE & MTBE ANALYZED BY EPA METHOD 8260B

Bay Co QF 11X17 October 16, 2013 REV JMP Bay Counties\Quarterly

STRATUS ENVIRONMENTAL, INC.

0 30 FT
SCALE

6310 HOUSTON PLACE
DUBLIN, CALIFORNIA

GROUNDWATER ANALYTICAL SUMMARY
4th QUARTER 2012

FIGURE
3

PROJECT NO.
2094-6310-01

APPENDIX A

FIELD PRACTICES AND PROCEDURES

FIELD PRACTICES AND PROCEDURES

General procedures used by Stratus in site assessments for drilling exploratory borings, collecting samples, and installing monitoring wells are described herein. These general procedures are used to provide consistent and reproducible results; however, some procedure may be modified based on site conditions. A California state-registered geologist supervises the following procedures.

PRE-FIELD WORK ACTIVITIES

Health and Safety Plan

Field work performed by Stratus at the site is conducted according to guidelines established in a Site Health and Safety Plan (SHSP). The SHSP is a document which describes the hazards that may be encountered in the field and specifies protective equipment, work procedures, and emergency information. A copy of the SHSP is at the site and available for reference by appropriate parties during work at the site.

Locating Underground Utilities

Prior to commencement of any work that is to be below surface grade, the location of the excavation, boring, etc., is marked with white paint as required by law. An underground locating service such as Underground Service Alert (USA) is contacted. The locating company contacts the owners of the various utilities in the vicinity of the site to mark the locations of their underground utilities. Any invasive work is preceded by hand augering to a minimum depth of five feet below surface grade to avoid contact with underground utilities.

FIELD METHODS AND PROCEDURES

Exploratory Soil Borings

Soil borings will be drilled using a truck-mounted, hollow stem auger drill rig. Soil samples for logging will be obtained from auger-return materials and by advancing a modified California split-spoon sampler equipped with brass or stainless steel liners into undisturbed soil beyond the tip of the auger. Soils will be logged by a geologist according to the Unified Soil Classification System and standard geological techniques. Drill cuttings well be screened using a portable photoionization detector (PID) or a flame ionization detector (FID). Exploratory soil borings not used for monitoring well installation will be backfilled to the surface with a bentonite-cement slurry pumped into the boring through a tremie pipe.

Soil sampling equipment will be cleaned with a detergent water solution, rinsed with clean water, and equipped with clean liners between sampling intervals. Augers and

samplers will be steam cleaned between each boring to reduce the possibility of cross contamination. Steam cleaning effluent will be contained in 55-gallon drums and temporarily stored on site. The disposal of the effluent will be the responsibility of the client.

Drill cuttings generated during the drilling procedure will be stockpiled on site. Stockpiled drill cuttings will be placed on and covered with plastic sheeting. The stockpiled soil is typically characterized by collecting and analyzing composite samples from the stockpile. Stratus Environmental will recommend an appropriate method for disposition of the cuttings based on the analytical results. The client will be responsible for disposal of the drill cuttings.

Soil Sample Collection

During drilling, soil samples will be collected in cleaned brass, two by six inch tubes. The tubes will be set in an 18-inch-long split-barrel sampler. The sampler will be conveyed to bottom of the borehole attached to a wire-line hammer device on the drill rig. When possible, the split-barrel sampler will be driven its entire length, either hydraulically or by repeated pounding a 140-pound hammer using a 30-inch drop. The number of drops (blows) used to drive the sampler will be recorded on the boring log. The sampler will be extracted from the borehole, and the tubes containing the soil samples will be removed. Upon removal, the ends of the lowermost tube will be sealed with Teflon sheets and plastic caps. Soil samples for chemical analysis will be labeled, placed on ice, and delivered to a state-certified analytical laboratory, along with the appropriate chain-of-custody documentation.

Soil Classification

As the samples are obtained in the field, they will be classified by the field geologist in accordance with the Unified Soil Classification System. Representative portions of the samples will be retained for further examination and for verification of the field classification. Logs of the borings indicating the depth and identification of the various strata and pertinent information regarding the method of maintaining and advancing the borehole will be prepared.

Soil Sample Screening

Soil samples selected for chemical analysis will be determined from a head-space analysis using a PID or an FID. The soil will be placed in a Ziploc® bag, sealed, and allowed to reach ambient temperature, at which time the PID probe will be inserted into the Ziploc® bag. The total volatile hydrocarbons present are detected by the PID and reported in parts per million by volume (ppmv). The PID will be calibrated to an isobutylene standard.

Generally two soil samples from each soil boring will be submitted for chemical analysis unless otherwise specified in the scope of work. Soil samples selected for analysis typically represent the highest PID reading recorded for each soil boring and the sample just above first-encountered groundwater.

Stockpiled Drill Cuttings and Soil Sampling

Soil generated during drilling operations will be stockpiled on-site. The stockpile will be set on and covered by plastic sheeting in a manner to prevent rain water from coming in contact with the soil. Prior to collecting soil samples, Stratus personnel will calculate the approximate volume of soil in the stockpile. The stockpile will then divided into sections, if warranted, containing the predetermined volume sampling interval. Soil samples will be collected at 0.5 to 2 feet below the surface of the stockpile. Four soil samples will be collected from the stockpile and composited into one sample by the laboratory prior to analysis. The soil samples will be collected in cleaned brass, two by six inch tubes using a hand driven sampling device. To reduce the potential for cross-contanlination between samples, the sampler will be cleaned between each sampling event. Upon recovery, the sample container will be sealed at each end with Teflon sheeting and plastic caps to minimize the potential of volatilization and cross-contanlination prior to chemical analysis. The soil sample will be labeled, placed on ice, and delivered to a state-certified analytical laboratory, along with the appropriate chain-of-custody documentation.

Direct Push Technology, Soil Sampling

GeoProbe™ is a drilling method of advancing small diameter borings without generating soil cuttings. The GeoProbe™ system consists of a 2-inch diameter, 5-feet long, stainless steel soil sampling tool that is hydraulically advanced into subsurface soils by a small, truck-mounted rig. The sampling tool is designed similar to a California-modified split-spoon sampler, and lined with a 5-foot long, clear acrylic sample tube that enables continuous core sampling.

To collect soil samples, the sampler is advanced to the desired sampling depth. The mouth of the sampling tool is plugged to prevent soil from entering the sampler. Upon reaching the desired sampling depth, the plug at the mouth of the sample tool is disengaged and retracted, the sampler is advanced, and the sampler is filled with soil. The sample tool is then retrieved from the boring, and the acrylic sample tube removed. The sample tool is then cleaned, a new acrylic tube is placed inside and the sampling equipment is advanced back down the borehole to the next sample interval.

The Stratus geologist describes the entire interval of soil visible in the acrylic tube. The bottom-most 6-inch long section is cut off and retained for possible chemical analysis. The ends of the chemical sample are lined with Teflon™ sheets, capped, labeled, and placed in an ice-chilled cooler for transport to California Department of Health Services-certified analytical laboratory under chain-of-custody.

Direct Push Technology, Water Sampling

A well known example of direct push technology for water sampling is the Hydropunch®. For the purpose of this field method the term hydropunch will be used instead of direct push technology for water sampling.

The hydropunch is typically used with a drill rig. A boring is drilled with hollow stem-augers to just above the sampling zone. In some soil conditions the drill rig can push directly from the surface to the sampling interval. The hydropunch is conveyed to the bottom of the boring using drill rods. Once on bottom the hydropunch is driven a maximum of five feet. The tool is then opened by lifting up the drill rod no more than four feet. Once the tool is opened, water enters and a sample can be collected with a bailer or tubing utilizing a peristaltic pump. Soil particles larger than silt are prevented from entering the tool by a screen within the tool. The water sample is collected, labeled, and handled according to the Quality Assurance Plan.

Monitoring Well Installation

Monitoring wells will be completed by installing 2 to 6 inch-diameter Schedule 40 polyvinyl chloride (PVC) casing. The borehole diameter for a monitoring well will be a minimum of four inches larger than the outside diameter of the casing. The 2-inch-diameter flush-threaded casing is generally used for wells dedicated for groundwater monitoring purposes.

A monitoring well is typically cased with threaded, factory-perforated and blank Schedule 40 PVC. The perforated interval consists of slotted casing, generally with 0.01 or 0.02 inch-wide by 1.5-inch-long slots, with 42 slots per foot. The screened sections of casing are factory machine slotted and will be installed approximately 5 feet above and 10 feet below first-encountered water level. The screened interval will allow for seasonal fluctuation in water level and for monitoring floating product. A threaded or slip PVC cap is secured to the bottom of the casing. The slip cap can be secured with stainless steel screws or friction; no solvents or cements are used. Centering devices may be fastened to the casing to ensure even distribution of filter material and grout within the borehole annulus. The well casing is thoroughly washed and/or steam cleaned, or may be purchased as pre-cleaned, prior to completion.

A filter pack of graded sand will be placed in the annular space between the PVC casing and the borehole wall. Sand will be added to the borehole through the hollow stem of the augers to provide a uniform filter pack around the casing and to stabilize the borehole. The sand pack will be placed to a maximum of 2 feet above the screens, followed by a minimum 1-foot seal consisting of bentonite pellets.

Cement grout containing 5 percent bentonite or concrete will be placed above the bentonite seal to the ground surface. A concrete traffic-rated vault box will be installed over the monitoring well(s). A watertight locking cap will be installed over the top of the

well casing. Reference elevations for each monitoring well will be surveyed when more than two wells will be located on site. Monitoring well elevations will be surveyed by a California licensed surveyor to the nearest 0.01-foot relative to mean sea level (MSL). Horizontal coordinates of the wells will be measured at the same time.

Exploratory boring logs and well construction details will be prepared for the final written report.