Ms. Barbara Jakub, P.G.
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Grimit Auto Repair and Service, 1970 Seminary Boulevard, Oakland, California (Fuel Leak Case No. RO0000413)

Dear Ms. Jakub:

Stratus Environmental, Inc. (Stratus) has recently prepared a report entitled Phase 1 CAP Implementation Plan, on my behalf. The report was prepared in regards to Alameda County Fuel Leak Case No. RO0000413, for Grimit Auto Repair and Service, 1970 Seminary Boulevard, Oakland, California.

I have reviewed a copy of this report, sent to me by representatives of Stratus, and "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge."

If you have any questions, please contact me via electronic mail at peggy.h.garcia@sbcglobal.net, or my daughter Angel LaMarca at angelcpt@gmail.com.

Sincerely,

Peggy Garcia, Trustee

Ms. Peggy Garcia, Trustee, Grimit Family Trust

cc: Angel LaMarca

RECEIVED

By Alameda County Environmental Health at 2:34 pm, Aug 12, 2013

STRATUS ENVIRONMENTAL, INC.

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

August 6, 2013
Project No. 2090-1970-01

Ms. Barbara Jakub, P.G.
Alameda County Environmental Health Department
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(via GeoTracker & Alameda County FTP site)

Re: Phase 1 CAP Implementation Plan
Former Grimit Auto Repair and Service
1970 Seminary Avenue
Oakland, California
(Fuel Leak Case No. RO0000413)

Dear Ms. Jakub:

Stratus Environmental, Inc. (Stratus) has prepared this *Phase 1 CAP Implementation Plan*, on behalf of the Grimit Family Trust, for the Former Grimit Auto Repair and Service facility (the Site), located at 1970 Seminary Avenue, Oakland, California (see Figures 1 through 3). The site previously utilized underground storage tanks (USTs) for storage of gasoline and waste oil, and Alameda County Environmental Health Department (ACEHD) currently regulates an environmental case on the subject property related to releases of these contaminants to the subsurface. In order to remediate the property and more aggressively manage the site's environmental case to closure, Stratus proposed to initially perform dual phase extraction (DPE) at the site, and utilize this technology while contaminant mass extraction rates are high. After contaminant mass extraction rates decline, and DPE becomes less cost effective, Stratus has proposed to inject ozone into shallow groundwater as a supplemental remedial approach, as necessary, in order to manage the site's environmental case to closure. In a letter dated June 20, 2013, ACEHD approved, with comments, the proposed cleanup plan for the site. The June 2013 letter also requested that several documents be submitted for agency review, including a CAP Implementation Plan for the first phase of remediation using DPE. This document has been prepared to provide information requested by ACEHD in regards to use of DPE during the initial phase of site remediation.

PROJECT APPROACH

DPE involves the simultaneous extraction of soil vapors and groundwater from the subsurface. A DPE system will address removal of contaminants in the soil above and below the water table, as well as dissolved and free phase contaminants. Relatively high vacuums (20 to 23 inches of mercury ["Hg]) are applied to a stinger (1 to 1 ¼ inch diameter) placed in a network of extraction wells, using a liquid ring blower to extract soil vapors and groundwater. Once the soil vapor and groundwater are removed from the subsurface, they are separated in the air/water separator of the DPE system. The contaminant-laden vapors and groundwater are then channeled to separate treatment systems. The soil vapors are typically treated with thermal or catalytic oxidizers, and the groundwater is treated using granular activated carbon (GAC) vessels prior to discharge. At this site, use of a thermal oxidizer will be necessary in order to properly abate VOCs that may be extracted in soil vapor. In addition, above ground piping will be used to convey soil vapors and groundwater in order to minimize construction costs.

DPE technology will initially be utilized in order to remove contaminant mass from the subsurface in the dissolved and vapor phases (including free product). ACEHD has approved installation of six extraction wells to allow for extraction of groundwater and soil vapors; locations of these wells are included on Figure 2. A portable DPE system will be operated for a limited period of time (likely about 3 to 5 months), until influent concentrations of contaminants in the vapor phase have declined appreciably and free product has been abated. At that time, DPE equipment would be demobilized from the site. Subsequent groundwater monitoring would then be used to assess whether implementation of a second phase of remediation, specifically ozone injection (OI) would be necessary in order to manage the site's environmental case to closure.

Remediation Objectives and Cleanup Goals

In a document titled Feasibility Study/Corrective Action Plan (FS/CAP), dated August 8, 2012, Stratus submitted proposed cleanup goals for various contaminants of concern for soil vapor, soil, and groundwater. The cleanup goals listed were consistent with guidelines specified by ACEHD in a May 31, 2012 letter. In the June 20, 2013 letter, ACEHD indicated that revised cleanup goals for petroleum hydrocarbons were necessary, following adoption of the State Water Resources Control Board's 'Low Threat Closure Policy' (LTCP). Stratus has therefore amended the information from the FS/CAP, where appropriate, in the tables presented below:

<u>Amended Soil Cleanup Goals for Petroleum Hydrocarbons</u>

	Commercial/Industrial Land Use		**Utility Worker**
	0 – 5 feet bgs (mg/Kg)	**5 – 10 feet bgs (mg/Kg)**	**0 – 10 feet bgs (mg/Kg)**
Benzene	8.2	12	14
Ethylbenzene	89	134	314

Naphthalene*	45	45	219
Polynuclear Aromatic Hydrocarbons (PAH)*	0.68	--	4.5

* = Naphthalene and PAH analysis will be performed on shallow soil samples collected during installation of wells EX-1 and EX-3 to be used in DPE so that this data will be available for comparison with LTCP criteria (these two wells are located in relative close proximity to the former waste oil UST).

Soil Cleanup Goals for Other Contaminants of Concern

The table below presents soil cleanup goals for two additional contaminants of concern (TCE and PCE) based on criteria established in a document titled *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater* (San Francisco Bay – California Regional Water Quality Control Board, May 2008). Given the relatively shallow groundwater levels in the site vicinity, the cleanup goals (Environmental Screening Levels [ESLs]) stated below were presented only for a shallow soil scenario (less than 10 feet bgs) and were based on leaching potential above groundwater under an assumption of commercial land use.

Contaminant	**ESL-Based Soil Cleanup Level (mg/Kg)**	**Pathway Basis for Goal**
PCE	0.37	Groundwater Protection
TCE	0.46	Groundwater Protection

Amended Groundwater Cleanup Goals for Petroleum Hydrocarbons and Groundwater Cleanup Goals for Other Contaminants of Concern

Based on our understanding regarding the lateral extent of petroleum hydrocarbon impact to the subsurface, the petroleum hydrocarbon plume appears to be less than 250 feet in length. For groundwater plumes of this size, the LTCP specifies that the highest permissible benzene concentration is 3,000 μg/L, and the highest permissible MTBE concentration in 1,000 μg/L. Based on groundwater analytical data from the most recent well sampling event, performed during the first quarter 2013, the site already meets groundwater cleanup objectives for benzene and MTBE, as these contaminants were detected during the first quarter 2013 at maximum concentrations of 350 μg/L and 3.1 μg/L, respectively. However, free product remains at well MW-1.

The table below includes ESL-based groundwater cleanup goals for three additional contaminants of concern (VC, TCE, and PCE) based on criteria established in the RWQCB document *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater* (May 2008).

Contaminant	Groundwater Cleanup Level (µg/L)	Pathway Basis for Goal
Benzene	3,000**	LTCP Criteria
MTBE	1,000**	LTCP Criteria
PCE	5.0*	Drinking Water Toxicity
TCE	5.0*	Drinking Water Toxicity
VC	0.5*	Drinking Water Toxicity

* = ESL Based Cleanup Level

** = LTCP Based Cleanup Level (dependent upon plume dimensions)

Amended Soil Vapor Cleanup Goals for Petroleum Hydrocarbons and Soil Vapor Cleanup Goals for Other Contaminants of Concern

In the LTCP, petroleum hydrocarbon soil vapor cleanup goals are dependent upon whether the site meets the criteria of a 'Bioattenuation Zone'. The LTCP classifies sites as having a 'Bioattenuation Zone' if (a) there is more than 5-feet of soil between the soil vapor measurement and the building (ie above the water table), (b) dissolved benzene concentrations are less than 1,000 µg/L, (c) total petroleum hydrocarbons in soil (combined total petroleum hydrocarbons as gasoline and diesel [TPHG and TPHD, respectively]) are less than 100 parts per million (ppm) within the 5-foot zone, and (d) oxygen in shallow soil must be greater than 4-percent at the bottom of the 5-foot bioattenuation zone.

In December 2011, five soil gas samples were collected beneath the property, in close proximity to the foundation of the building. Soil gas well locations are included on Figure 2. The chemical analyses performed on the samples included testing for percent oxygen in shallow soil vapor. In these five samples, percent oxygen ranged from 18 to 20 percent. The soil vapor samples were collected at depths ranging from approximately 4.5 to 8.5 feet below ground surface (bgs), and thus there is greater than five feet between the building foundation and first encountered groundwater. As stated earlier, benzene levels in groundwater were recently detected at a maximum concentration of 350 µg/L in the site monitoring well network, and Stratus did not identify any soil samples collected above 5 feet bgs with combined TPHD and TPHG concentrations reported above 100 ppm. Given these conditions, the site meets the criteria for a Bioattenuation Zone, and thus amended cleanup goals are appropriate.

For residential and commercial properties, the LTCP identifies cleanup goals as 85,000 $\mu g/m^3$ and 280,000 $\mu g/m^3$, respectively, for benzene and 93,000 $\mu g/m^3$ and 310,000 $\mu g/m^3$, respectively, for naphthalene. Based on the findings of the December 2011 soil gas samples, the site currently meets residential and commercial cleanup objectives for benzene and naphthalene. Since the site is surrounded by a residential neighborhood, Stratus has listed residential cleanup goals for benzene and naphthalene in the table below.

Stratus has also included residential ESL based cleanup goals for other contaminants of concern in the table below, under a shallow soil based scenario (less than 5 feet bgs). Based on data from the December 2011 soil gas sampling, cleanup objectives for TCE, VC, and chlorobenzene have already been achieved. In December 2011, three soil gas samples were collected from above 5 feet bgs, and PCE concentrations in one of these three samples (detected at 660 micrograms per cubic meter [$\mu g/m^3$]) exceeded the residential ESL value established in *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater* (May 2008).

Contaminant	Soil Vapor Cleanup Level ($\mu g/m^3$)	Pathway Basis for Goal
Benzene	85,000**	LTCP
Naphthalene	93,000**	LTCP
PCE	410*	Vapor Intrusion
TCE	1,200*	Vapor Intrusion
VC	31*	Vapor Intrusion
Chlorobenzene	210,000*	Vapor Intrusion

* = ESL Based Cleanup Level

** = LTCP Based Cleanup Level (dependent presence of bioattenuation zone)

Soil Boring and Well Installation Activities

In order to implement remediation, Stratus proposes to install six 4-inch diameter extraction wells (EX-1 through EX-6) at the site. The following scope of work discusses tasks associated with installation of these remedial wells. In the June 2013 letter, ACEHD also requests information pertaining to the installation of two offsite groundwater monitoring wells (MW-10 and MW-11) that will be used to assist in evaluating remedial progress. Information regarding proposed wells MW-10 and MW-11 has been discussed in a report previously submitted to ACEHD *Work Plan for Additional Subsurface Assessment*, dated July 22, 2013, and is thus is not included in this document.

The proposed remedial well installation 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* (Regional Water Quality Control Board [RWQCB], April 2004).

Pre-Field Activities

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

- Obtain drilling permits from Alameda County Public Works Agency (ACPWA).
- Retain and schedule a licensed C-57 drilling contactor.
- Update 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 the onsite property tenant, ACEHD, and ACPWA of the proposed work schedule.

Field Activities

Soil Borings and Soil Sample Collection

A C-57 licensed drilling contractor will advance well borings EX-1 through EX-6 using a limited access hollow stem auger drill rig equipped with 8-inch and 10-inch diameter hollow stem augers. The approximate location of each proposed remediation well are shown on Figure 2. The initial portion of each soil boring will be advanced with hand tools, as conditions allow, to reduce the possibility of damaging underground utilities. Once borings EX-1 through EX-6 have been advanced to total depth, extraction wells will be completed within each borehole. A general description of field practices and procedures that will be utilized during drilling work are included in Appendix A.

At well borings EX-1 and EX-3, which are situated in closest proximity to the former waste oil UST, Stratus intends to collect two samples for chemical analysis; one sample from between approximately 3 and 5 feet bgs and another sample between approximately 5 and 10 feet bgs, for naphthalene and PAH's (discussed below). In the event that pea gravel is encountered above 10 feet bgs in well boring EX-1, only shallow soil samples collected from well boring EX-3 will be collected for PAH and naphthalene testing. In the other well borings, and below 10 feet bgs in EX-1 and EX-3, Stratus does not intend to collect any soil samples for lithologic comparison or analytical testing, given the extensive onsite soil assessment work previously conducted at the site.

The soil samples collected from borings EX-1 and EX-3 will be retained in stainless steel or brass sleeves, or acetate liners. The ends of each sample container will be lined with Teflon™ sheets, capped, and sealed. Each sample will then be labeled, placed in a resealable plastic bag, and stored in an ice-chilled cooler. Strict chain-of-custody procedures will be followed from the time the samples are collected until the time the samples are relinquished to the laboratory.

Soil from each sampled interval will also be placed and sealed in plastic bags to allow the accumulation of volatile organic compound (VOC) vapors within the airspace in the bags. A portable photoionization detector (PID) will be used to measure VOC concentrations from each sample in parts per million (ppm).

Extraction Well Construction

Wells EX-1 through EX-6 will be constructed through 10-inch diameter hollow stem augers. The wells will be constructed using 4-inch diameter schedule 40 PVC and 0.02-inch diameter slotted well screen, situated from approximately 13 to 33 feet bgs. A filter pack of #3 sand will be placed in the annular space around the well casing from the bottom of the well screen to approximately 2 feet above the top of the well screen. Approximately 3 feet of bentonite chips (shallow wells) will be placed on top of the filter pack to provide a transition seal for the well. Neat cement will be used to backfill the remaining annular space around the well casing. A watertight locking cap will be placed over the top of the well casing, and a traffic rated vault box will be installed around the top of the well.

Well Development

The newly installed monitoring wells will be allowed to stand a minimum of 72 hours before being developed. Well development will consist of surging with a bailer followed by groundwater pumping. Development will continue, to the extent practical, until the discharged water runs clear and pH and conductivity measurements stabilize. Water levels, water-quality parameters (pH, temperature, conductivity), and discharged quantities will be recorded for each well.

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.

Laboratory Analyses

The two soil samples collected from both borings EX-1 and EX-3 will be forwarded to a state certified analytical laboratory for chemical analysis under proper chain-of-custody. The samples will be analyzed for naphthalene using USEPA Method 8260 and for PAHs using USEPA Method 8270.

Report Preparation

A report will be submitted to document the installation of the groundwater monitoring and remediation wells. The report will include a description of activities performed during implementation of the work, a scaled site plan, well detail information, soil analytical results, and documentation of data uploading to the State of California's GeoTracker website.

Remedial Equipment and Operation and Maintenance

Permitting and Pre-Field Activities

Before initiating DPE, Stratus will obtain an appropriate permit from the Bay Area Air Quality Management District (BAAQMD) allowing for the discharge of abated soil vapors to the atmosphere. Stratus will also forward a permit application to the East Bay Municipal Utility District to request permission to discharge treated groundwater to the City of Oakland's sanitary sewer system. Stratus will also apply for a temporary power connection from Pacific Gas and Electric Company.

Prior to mobilizing to the site, Stratus will update the site-specific health and safety plan in order to address site specific issues pertaining to the installation, operation, and removal of the DPE remediation equipment. Stratus will also provide notification to the appropriate agencies and the property tenant regarding the work schedule.

DPE Event and Procedures

A typical DPE system will consist of a 20 to 25 horsepower liquid ring extraction pump, a knock out tank designed to separate fluids and vapors, and a thermal oxidizer designed to abate extracted soil vapors. Stratus will use a thermal oxidizer DPE system capable of processing a minimum of 250 cfm of air flow. A portable 500-gallon propane tank will be mobilized to the site, and this propane will be used to maintain combustion within the thermal oxidizer.

In July 9, 2013 electronic mail correspondence between ACEHD and Stratus, the agency requested that design drawings from the DPE system vendor be provided in the Phase 1 CAP Implementation Plan. Stratus intends to rent the DPE system and thus specific information regarding the DPE system cannot be provided at this time. Given this situation, Stratus proposes to provide DPE rental equipment information to ACEHD at a later date, once a rental vendor has been identified.

The property is surrounded by barbed wire fencing, which will provide security for the DPE equipment. In addition, temporary fencing will be placed around the equipment following set-up in order to provide additional security, particularly during business hours when the gate to the property is open.

Stratus proposes to use the drop-tube entrainment method of DPE. The drop-tube system is constructed by inserting a suction tube (pipe) into the sealed wellhead of each extraction well. Soil vapor and groundwater will then be transported through the drop-tube to an air-water separator (knock-out tank), from which the vapors will be routed to the thermal oxidizer for abatement and discharge to the atmosphere. Groundwater will be routed through above-ground flexible tubing (Spiralite 100, manufactured by Goodyear) through a minimum of two 500-gallon granular activated carbon (GAC) vessels connected in series. Following removal of the contaminants in the GAC vessels, treated groundwater will then be discharged to the local sanitary sewer system. A process flow diagram for the DPE system is provided as Figure 4. The approximate layout of the above ground flexible tubing, and the staging area for DPE equipment, proposed for the property is depicted on Figure 5. The actual layout of the equipment may need to be modified, however, in order to accommodate requests by the property tenant at the time that the equipment is mobilized to the site.

DPE will be facilitated by setting the drop tube approximately 3 to 4 feet below the static groundwater level in wells EX-1 through EX-6. Following insertion of the drop tube, the wellheads of EX-1 through EX-6 will be temporarily modified to allow for extraction of soil vapors and groundwater. Protective covers (modified manhole covers, portable speed bumps, etc.) will be placed around the wellheads and associated conveyance tubing in order to prevent damage and resulting spillage (primarily from vehicles).

Applied vacuum to the extraction wells will be adjusted in order to achieve a combined groundwater extraction rate of approximately 2 to 3 gallons per minute (gpm). Applied vacuum to the drop tube will be increased gradually during the first day of the event in order to identify an optimum vacuum for groundwater drawdown and soil vapor extraction, up to a maximum of 18 inches of mercury at the wellhead. Given the extraction dynamics, maintaining a constant vacuum or extraction rate may be difficult. Once an optimum vacuum has been identified, this vacuum will be held constant through the duration of the work. The optimum vacuum should be the most energy-efficient vacuum, beyond which excess vacuum would result in a diminishing rate of return (groundwater extraction and airflow rate). Groundwater flow, soil vapor flow rates, and applied vacuum will be periodically recorded on field data sheets. A PID will also be used to monitor the concentration of VOCs in the extracted soil vapors.

Monitoring wells MW-1 and MW-10 will be used as observation wells during the DPE event. The following parameters will be monitored during the test and recorded on field data sheets:

- Induced vacuum in observation wells,
- Groundwater elevation in observation wells,
- Wellhead vacuum,
- Vapor extraction rates, and
- Groundwater extraction rates.

Observation wellheads will be temporarily modified to monitor depth to water and induced vacuum. Dedicated magnahelic gauges will be placed on the wellheads to monitor induced vacuum during DPE. Changes in groundwater elevation will be monitored using a hand held water level indicator.

<u>Spill Prevention and Abatement (If Necessary)</u>

ACEHD has requested that information regarding potential spills from the groundwater transfer and treatment equipment be provided for agency review. As a part of Stratus' design for the installation of the remediation system, the following elements are adopted to prevent accidental discharge of extraction groundwater that is contaminated.

1. Install subgrade piping from the wells to the remediation system enclosure. Typically, 1 inch piping is installed to each well from the system enclosure to the well (home runs). All piping is sloped towards the wells to facilitate movement of water toward the well in the case of a leak. In case above ground piping is used, then extracted groundwater from the well will be transported to the remediation system enclosure from the well typically in a 1 or $1^1/_4$ – inch piping inside a 2-inch piping. The 2-inch pipe will act as secondary containment.

2. Inside the remediation system all piping will be routed inside of a fiberglass secondary containment that will provide containment of any extracted groundwater that might be accidently released prior to treatment.

3. The secondary containment and granular activated carbon vessels will have fail safe mechanisms such as high level switches and shut offs.

Stratus will post a 24-hour telephone number outside of the remediation compound so that the public can notify our firm in the event of a spill. Stratus will also request that the tenant of the property, who also lives directly across the street from the site, to inspect the equipment periodically for leaks. Stratus will instruct and train the property tenant regarding shutting off the remediation system in the event of a leak.

Air Sample Collection and Laboratory Analysis

During the remediation event, Stratus will collect influent air and groundwater samples approximately twice per month. Effluent air and groundwater samples will be collected once upon startup and once per month thereafter. The exact sampling schedule for effluent air sample collection may need to be modified, however, based on requirements of the BAAQMD.

Air samples will be collected in laboratory-supplied tedlar bags, placed in a protective container, and stored at ambient air temperature. Groundwater samples will be collected in laboratory-supplied, properly preserved glass vials (voas), and stored in an ice-chilled cooler until delivery to a state-certified analytical laboratory. The samples will be forwarded to a state-certified analytical laboratory for chemical analysis under proper chain-of-custody. The samples will be analyzed for volatile organic compounds using USEPA Method 8260 and for gasoline range organics (GRO) using USEPA Method 8015B/8260B (groundwater) or USEPA Method 8260 (air).

Performance Metrics and Duration of Remediation Event

Stratus will evaluate influent PID results and soil vapor and groundwater analytical results on an ongoing basis while the remediation event is being performed. In addition, Stratus will monitor well MW-1 for the presence of free product. As previously stated, Stratus has tentatively proposed a remediation event duration of approximately three to five months. The actual duration of the work may vary based on the ability of DPE to remove contaminant mass from the subsurface and eliminate free product from well MW-1. In the event that we believe that a change in the remediation event duration is appropriate, Stratus will contact the ACEHD to discuss these potential changes.

Reporting

ACEHD requested in the June 20, 2013 letter that monthly remediation progress reports be prepared and submitted. These reports will include:

- Tabulated field data such as flow rates, dissolved oxygen, groundwater measurements, and induced vacuums,
- Certified analytical results,
- Tabulated concentrations of petroleum hydrocarbons and VOCs in extracted soil vapors and groundwater,
- Estimated contaminant mass extraction rates,
- Estimated radius of influence around the extraction wells, and
- An ongoing evaluation as to the duration of the remediation event.

Cost Estimate to Complete Remediation

The costs estimated below to implement DPE remediation are very similar to the costs presented in the August 2012 FS/CAP for this task. However, Stratus has allocated additional funds associated with drilling and installing two offsite groundwater monitoring wells (MW-10 and MW-11), and also costs associated with preparing monthly remediation status reports requested by ACEHD in the June 20, 2013 letter.

Task	Estimated Cost	Comment
Design and Permitting	$6,000.00	Includes applications to EBMUD, PG&E, BAAQMD
Electrical Connection	$15,000.00	3 phase power, temporary power pole
Well Installation (6 remedial wells, two offsite monitoring wells) and Report	$30,000.00	Includes City of Oakland permits, drilling costs, waste disposal, and a report of findings
Monthly Remediation Status Reports	$4,000.00	Assumes 5 reports, at $800.00 per report
DPE Remediation (includes utilities, equipment rental, discharge fees, granular activated carbon delivery and disposal, and operation/maintenance visits)	$120,000.00	Operating costs estimated at approximately $20,000.00 to $25,000.00 per month
Total	**$175,000.00**	

Post-Remediation Monitoring and Sampling

ACEHD requested in the June 2013 letter that a proposed strategy for post remediation groundwater, soil, and soil vapor monitoring and confirmation sample collection be provided. Following remediation, Stratus proposes to sample the six soil vapor wells located onsite, similar to the December 2011 soil vapor sampling (at that time, one of the six wells could not be sampled). Soil vapor chemical analyses would be identical to the chemical analysis suite performed in December 2011. Following DPE remediation, one groundwater sampling event is proposed approximately 30 to 60 days after termination of DPE. Wells MW-1 through MW-11 would be sampled at that time. The site would then return to a semi-annual groundwater monitoring and sampling program, in accordance with State Water Resources Control Board Resolution 2009-0042. Stratus does not propose to perform confirmation soil borings or collect confirmation soil samples following the DPE event, unless the site can be considered for environmental case closure at that time. In the event that other site data indicates that the site's environmental case could be considered for closure if current soil analytical data were available, Stratus would then prepare and submit a work plan to perform confirmation soil borings.

REMEDIATION IMPLEMENTATION SCHEDULE

The following table presents a tentative schedule for implementing remedial activities and associated work. It should be noted that the ability to perform work activities in a timely manner will be strongly affected by project budgets allocated for the site by California's Underground Storage Tank Cleanup Fund (USTCF). In addition, select work activities requested by ACEHD and proposed in the July 2013 Work Plan, but not associated with remediation, are not included in the schedule presented below.

Milestone Date	Task/Activity Completed
July 2013	• Budget Change Order Request submitted to USTCF
August 2013	• 60-Day Public Comment Ends August 1, 2013 • Phase 1 CAP Implementation Plan submitted to ACEHD

If you have any questions or comments concerning this report, please contact Scott Bittinger at (530) 676-2062 or Gowri Kowtha at (530) 676-6001.

Sincerely,

STRATUS ENVIRONMENTAL, INC.

Scott G. Bittinger, P.G.
Project Manager

Gowri S. Kowtha, P.E.
Principal Engineer

Attachments:

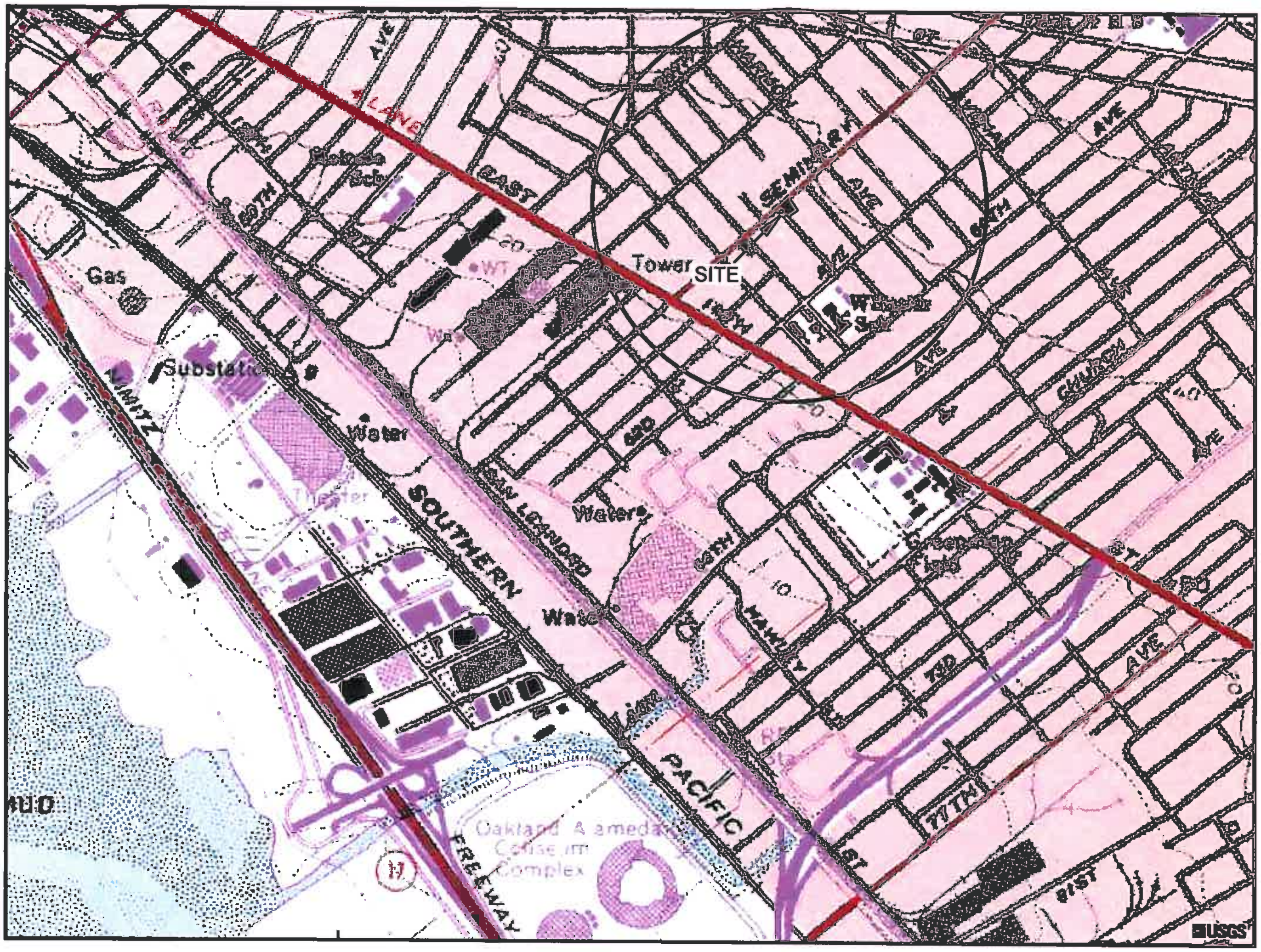
Figure 1	Site Location Map
Figure 2	Site Plan
Figure 3	Site Vicinity Map
Figure 4	Process Flow Diagram
Figure 5	Remediation System Layout
Appendix A	Field Practices and Procedures

cc: Ms. Angel LaMarca and Ms. Peggy Garcia, Trustee, Grimit Family Trust

October 2013	• Obtain ACEHD approval of Phase 1 CAP Implementation Plan and other documents submitted separately • Apply for permit to install MW-10 and MW-11 in City of Oakland right-of-way • Begin preparing drawings needed to apply for permits necessary to perform DPE • Apply for temporary power connection
April 2014	• Obtain City of Oakland and Alameda County Public Works Agency Permits • Drill wells EX-1 through EX-6, MW-10, and MW-11 during same driller mobilization
July-November 2014	• Perform DPE event; if Budget Change Order Approved for 2013/2014 fiscal year, remediation implementation date could be moved forward
January-February 2015	• Perform post-remediation groundwater monitoring event and soil gas sampling • Prepare report documenting results of sampling and evaluating site for possible implementation of ozone injection

LIMITATIONS

This document 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 document is solely for the use and information of our client unless otherwise noted.



GENERAL NOTES:
BASE MAP FROM U.S.G.S.
OAKLAND, CA.
7.5 MINUTE TOPOGRAPHIC
PHOTOREVISED 1996

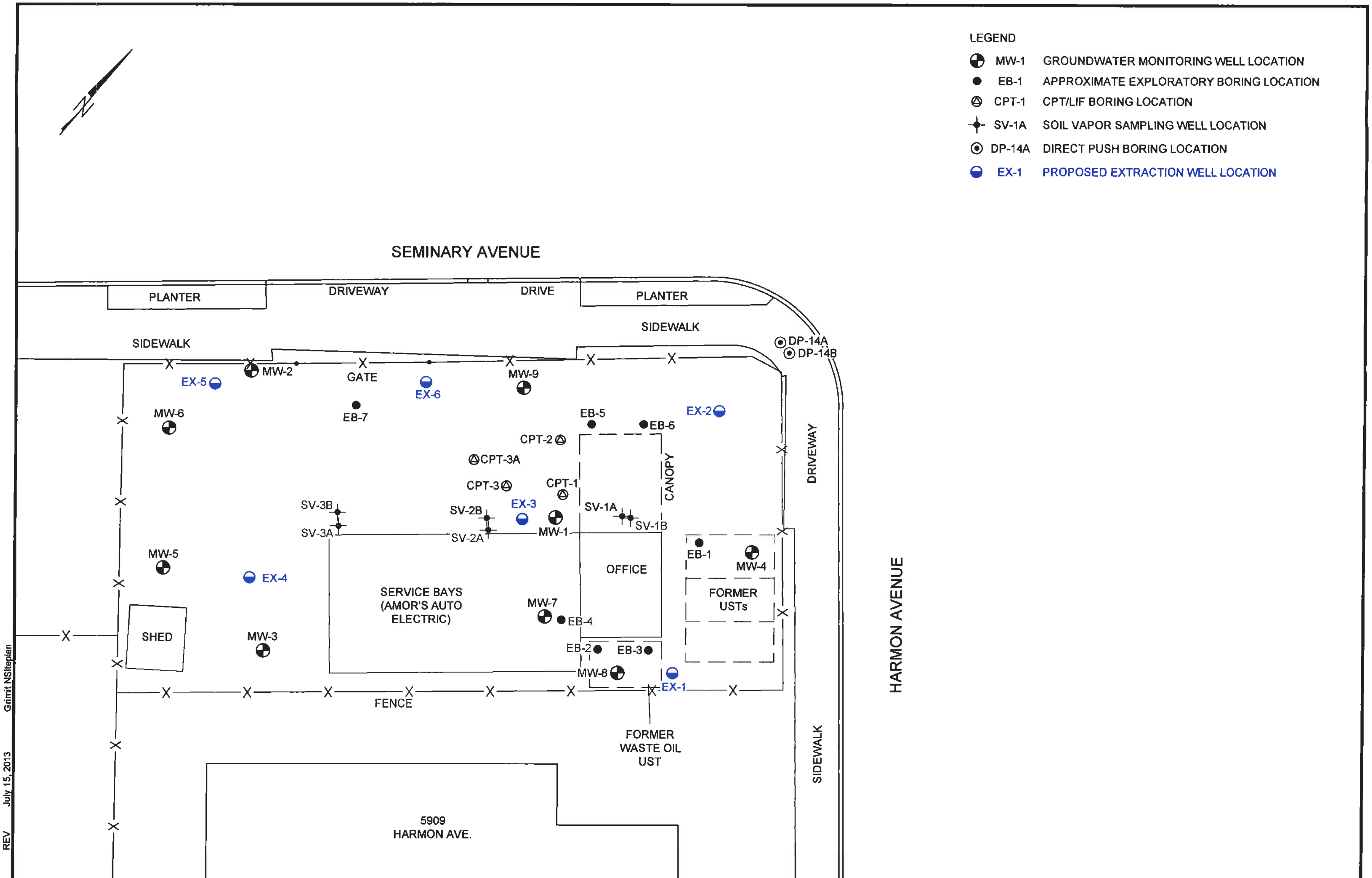
N

QUADRANGLE LOCATION

0 1800 FT

APPROXIMATE SCALE

STRATUS ENVIRONMENTAL, INC.	FORMER GRIMIT AUTO 1970 SEMINARY AVENUE OAKLAND, CALIFORNIA SITE LOCATION MAP	FIGURE 1 PROJECT NO. 2090-1970-01



Grimit NSiteplan July 15, 2013 REV JMP Grimit AutoICAP

STRATUS ENVIRONMENTAL, INC.

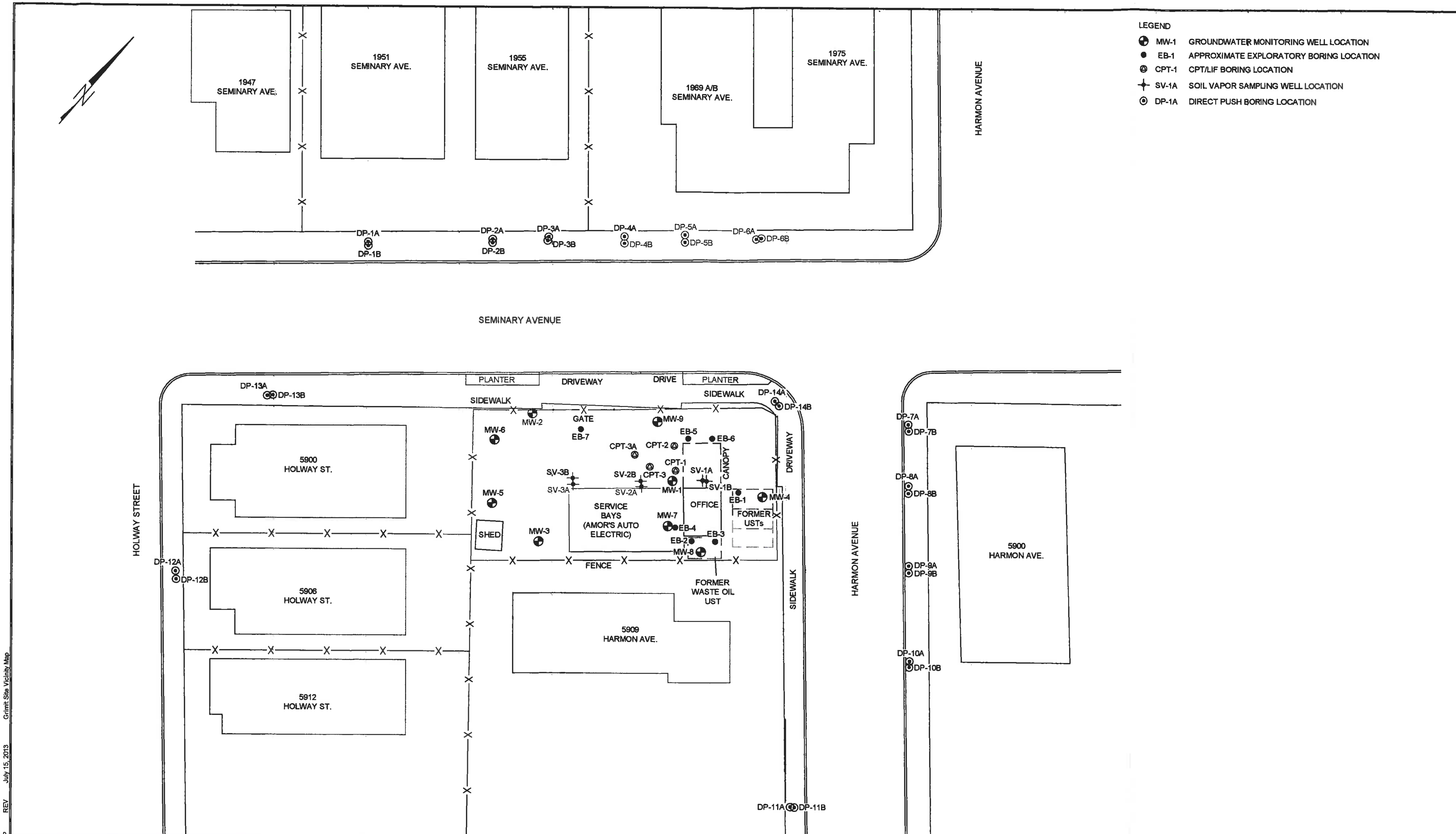
0 20 FT
SCALE

FORMER GRIMIT AUTO
1970 SEMINARY AVENUE
OAKLAND, CALIFORNIA

SITE PLAN

FIGURE
2

PROJECT NO.
2090-1970-1



STRATUS ENVIRONMENTAL, INC.

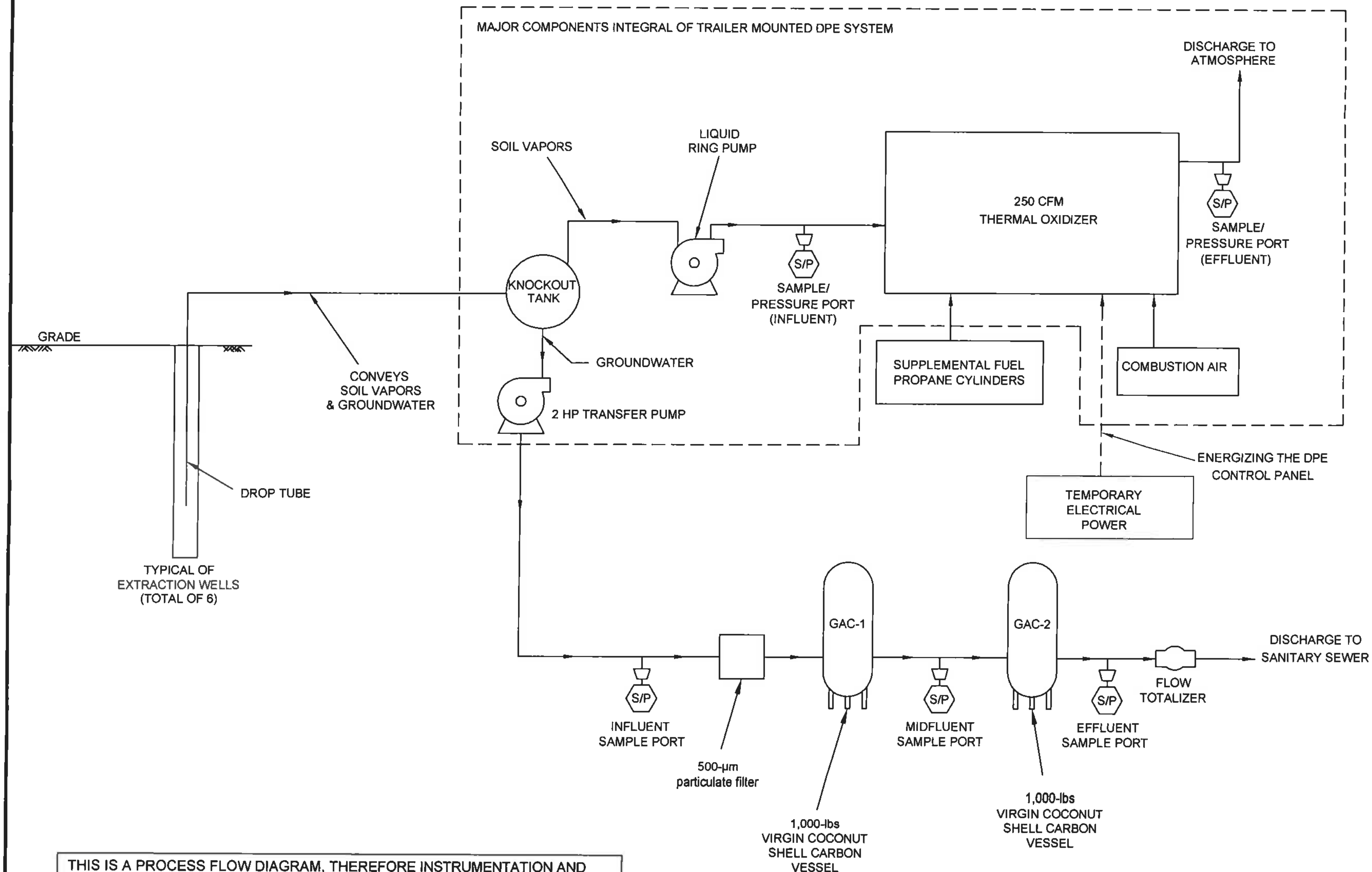
FORMER GRIMIT AUTO
1970 SEMINARY AVENUE
OAKLAND, CALIFORNIA

SITE VICINITY MAP

FIGURE 3

PROJECT NO. 2090-1970-1

Grimit Auto JMP REV July 15, 2013 Grimit Site Vicinity Map



THIS IS A PROCESS FLOW DIAGRAM, THEREFORE INSTRUMENTATION AND CONTROL EQUIPMENT DETAILS ARE NOT SHOWN.
INSTRUMENT FUNCTIONS AND INTERACTIONS ARE ALSO NOT SHOWN.
EQUIPMENT SIZES ARE NOT PROPORTIONAL AND ARE NOT INDICATIVE OF FINAL SIZES.

DUAL PHASE EXTRACTION SYSTEM
NOT TO SCALE

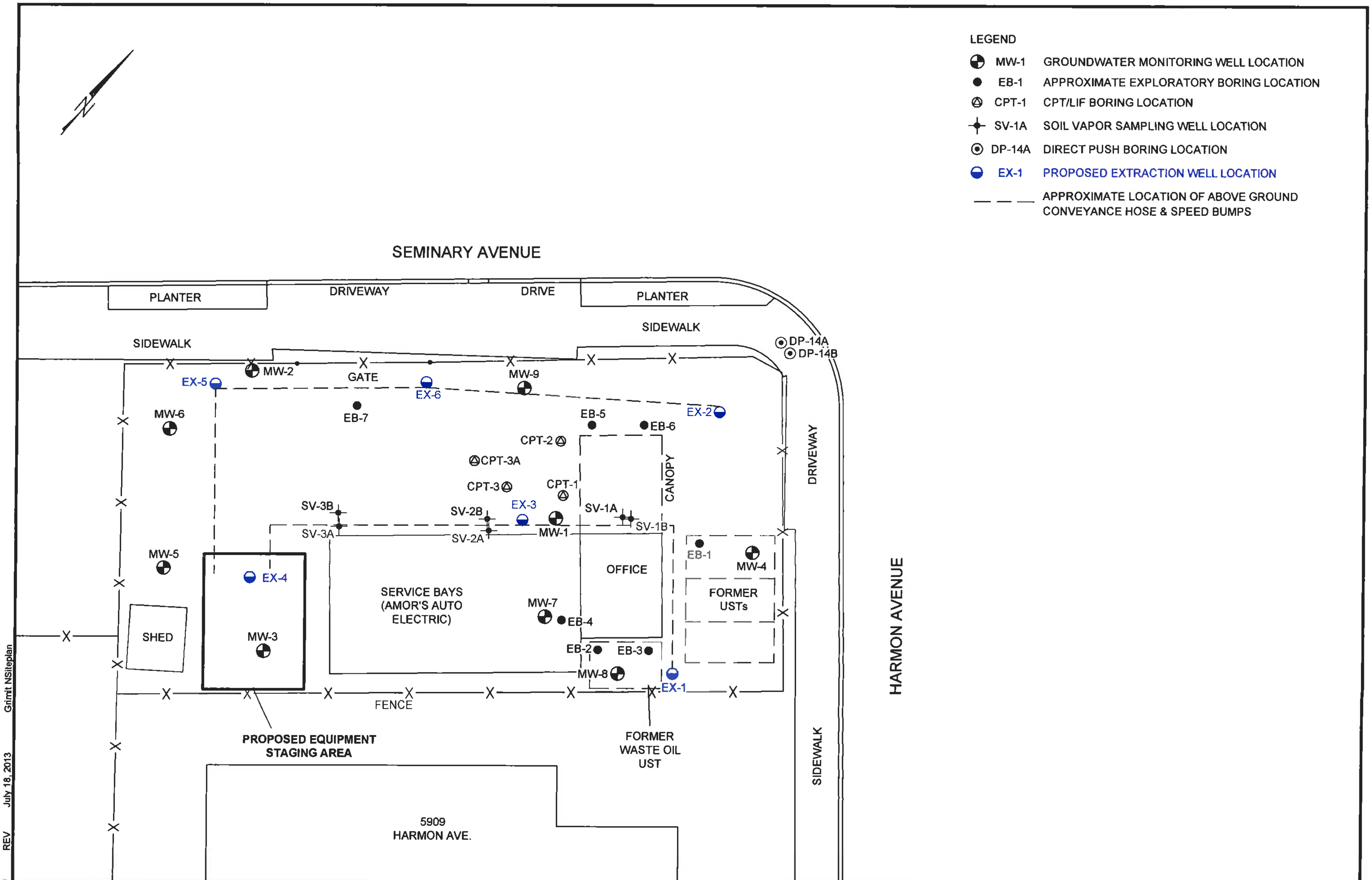
STRATUS ENVIRONMENTAL, INC.

FORMER GRIMIT AUTO
1970 SEMINARY AVENUE
OAKLAND, CALIFORNIA

PROCESS FLOW DIAGRAM

FIGURE 4

PROJECT NO. 2090-1970-01



Grimit AutoCAP JMP REV July 18, 2013 Grimit NSiteplan

STRATUS ENVIRONMENTAL, INC.

0 20 FT
SCALE

FORMER GRIMIT AUTO
1970 SEMINARY AVENUE
OAKLAND, CALIFORNIA

REMEDIATION SYSTEM LAYOUT

FIGURE
5

PROJECT NO.
2090-1970-1

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.