EMERY SERVICE CENTER, INC.
1400 Powell Street
Emeryville, CA 94608
(510) 653-2251

February 2, 2016

Mr. Mark Detterman
Alameda County Department of Environmental Health
1131 Harbor Parkway, Suite 250
Alameda, CA 94502

SUBJECT: VAPOR INTRUSION INVESTIGATION WORK PLAN CERTIFICATION
County Case # RO 3182
Emeryville Chevron
1400 Powell Street
Emeryville, California

Dear Mr. Detterman:

You will find enclosed one copy of the following document prepared by P&D Environmental, Inc. for the subject site

- Vapor Intrusion Investigation Work Plan (VP1 Through VP4; IA1 Through IA3, and AA1) dated February 2, 2016 (document 0719.W1).

I declare under penalty of perjury that the contents and conclusions in the document are true and correct to the best of my knowledge.

Should you have any questions, please do not hesitate to contact me at (510) 653-2251.

Sincerely,

Emery Service Center, Inc.

Najmeddin Revan
President

Enclosure

0719.L1

P&D ENVIRONMENTAL, INC.

55 Santa Clara Avenue, Suite 240
Oakland, CA 94610
(510) 658-6916

February 2, 2016
Work Plan 0719.W1

Mr. Mark Detterman
Alameda County Department of Environmental Health
1131 Harbor Parkway, Suite 250
Alameda, CA 94502

SUBJECT: VAPOR INTRUSION INVESTIGATION WORK PLAN
(VP1 THROUGH VP4, IA1 THROUGH IA3, and AA1)
County Case # RO 3182
Emeryville Chevron
1400 Powell Street
Emeryville, CA

Dear Mr. Detterman:

P&D Environmental, Inc. (P&D) has prepared this proposal on behalf of Mr. Najmeddin Revan of Emery Service Center, Inc. (Emeryville Chevron) at 1400 Powell Street in Emeryville, California for vapor intrusion investigation. The work scope includes installation of four Vapor Pins, collection of indoor air samples with the Heating, Ventilation and Air Conditioning (HVAC) system off, waiting at least 36 hours and then collection of indoor air samples with the HVAC on, and collection of soil gas samples from the Vapor Pins immediately following collection of the indoor air samples with the HVAC on. Indoor air sample collection duration will be 24 hours for each indoor air sampling event. One ambient air sample will be collected during each indoor air sampling event.

This work is being performed in response to a request from the Alameda County Department of Environmental Health (ACDEH) based on development of a portion of the property for use of a burrito shop.

A Site Location Map is attached with this work plan as Figure 1, a Site Vicinity Aerial Photograph showing the locations of USTs at the site is attached as Figure 2, and a Site Aerial Photograph Detail showing the proposed Vapor Pin sub-slab soil gas sample collection and indoor and ambient air collection locations is attached as Figure 3. All work will be performed under the direct supervision of an appropriately licensed California professional.

BACKGROUND

The site is presently operated as a gasoline station. Fuel release county case number RO 67 was closed by the ACDEH on May 30, 2014. Section IV of the case closure required that a change to any land use other than a fueling station required notification to the ACDEH for

further evaluation based on potential vapor intrusion to indoor air considerations. In 2015 a burrito shop was constructed at the site with a portion of the burrito shop constructed over a former waste oil UST pit (see Figure 2). The ACDEH subsequently requested that the current property owner enter into a Voluntary Remedial Action Agreement for the ACDEH to evaluate potential vapor intrusion associated with the new burrito shop as ACDEH case number RO 3182.

The shallowest historical depth to water at the site in the vicinity of the new burrito shop has been identified as less than 5 feet below the ground surface .

SCOPE OF WORK

To evaluate potential vapor intrusion to indoor air associated with the new burrito shop, P&D proposes to perform the following scope of work.

1. Prepare a health and safety plan.
2. Perform a chemical inventory of the facility.
3. Oversee Vapor Pin installation.
4. Collection of indoor and ambient air samples with the HVAC on and off.
5. Collection of Vapor Pin sub-slab soil gas samples.
6. Arrange for analysis of each of the indoor and ambient air, soil gas, and Vapor Pin shroud air samples.
7. Prepare a report.

Each of these activities is discussed below.

The soil gas and air samples will be collected in accordance with procedures recommended in the December 2013 San Francisco Bay Regional Water Quality Control Board (SFRWQCB) User's Guide: Derivation and Application of Environmental Screening Levels, the October 2014 SFRWQCB Draft Interim Framework for Assessment of Vapor Intrusion at TCE-Contaminated Sites in the San Francisco Bay Region, and the following Department of Toxic Substances Control (DTSC) documents:

- July 2015 Advisory - Active Soil Gas Investigations,
- March 2013 – FAQ for the 2012 Advisory,
- April 2012 Advisory - Active Soil Gas Investigations,
- October 2011 – Vapor Intrusion Guidance,
- October 2011 – Vapor Intrusion Mitigation Advisory.

Based on the shallow depth to groundwater at the site, soil gas samples will be collected from beneath the new burrito shop building floor slab instead of from soil gas wells to prevent water being drawn into the soil gas wells. In addition, collection of soil gas samples immediately following indoor air sample collection with the HVAC on will allow development of a site-specific floor slab attenuation factor during conditions that are most likely to result in vapor intrusion.

Prepare a Health and Safety Plan

A health and safety plan will be prepared for the scope of work identified in this work plan. In addition, the Vapor Pin drilling locations will be marked with white paint and Underground Service Alert will be notified for underground utility location. Available drawings associated with construction of the new burrito shop will also be reviewed for documentation of the locations of underground utilities.

Chemical Inventory

An inventory of all chemicals will be performed for the new burrito shop prior to performing the air investigation. Any chemicals identified to potentially contain chemicals that might interfere with indoor air testing will be removed from the building at least 48 hours prior to indoor air sampling.

Vapor Pin Installation

Flush-mounted Vapor Pins designated as VP1 through VP4 will be installed through the building floor slab at the approximate locations shown in Figure 3 in accordance with Vapor Pin manufacturer recommendations by IMX, Inc. of Oakland, California, to evaluate the presence of petroleum soil vapor concentrations beneath the building floor slab

The boreholes for each Vapor Pin will extend to a depth of approximately 2 inches below the floor slab, and each drilling location will be evaluated to verify that the concrete slab has been fully penetrated. No soil will be removed from the ground at any of the drilling locations, and for this reason no boring logs will be prepared. Following soil gas sample collection the Vapor Pins will be left in place with flush-mounted covers pending review of the results by the ACDEH.

Following installation, the Vapor Pins will not be sampled for a minimum of two hours. Soil gas samples will not be collected if more than ½ inch of precipitation has occurred during the five days prior to the scheduled sampling date.

Indoor Air and Ambient Air Sample Collection

Indoor air samples will be collected at locations designated as IA1 through IA3 inside the building and one ambient air sample will be collected outside of the building on a roof during each air sampling event. The air samples will be collected during a 24-hour period using SIM-certified 6-liter Summa canisters equipped with SIM-certified 24-hour mass flow controllers, with one duplicate indoor air sample collected with a SIM-certified stainless steel tee during each sampling event. The ambient air sample will be collected beginning at a time before the indoor air samples are collected and ending after the indoor air samples have been collected. At all indoor air sample collection locations the inlet to the Summa canisters will be located between 4 and 6 feet above the ground surface.

After approximately 24 hours the valves to the Summa canisters will be closed with a minimum remaining vacuum of 2 inches of mercury, and the Summa canisters will be stored in a box and promptly shipped to the laboratory for extraction and analysis. Chain of custody procedures will be observed for all sample handling.

One indoor air sampling event will be performed beginning after the HVAC has been off for 36 hours. Following completion of the initial air sampling event the HVAC will be turned on. At least 36 hours after the completion of the initial air sampling event and the HVAC has been turned on, a second indoor air sampling event will be performed using methods described above. Measurements of Summa canister initial and final vacuums and sample collection beginning and ending times will be recorded on Air Sampling Data Sheets.

Vapor Pin Sample Collection

Immediately following completion of indoor air sample collection with the HVAC on, soil gas samples will be collected from the Vapor Pins. One duplicate soil gas sample will be collected. Each sample will be collected in a shroud for leak detection purposes, with analysis of the shroud tracer gas concentration for comparison with any tracer gas detected in the sample.

A soil gas sampling manifold with a 1-liter Summa canister as the sampling canister for each location (see Figure 4) will be assembled in a shroud consisting of a 35-gallon Rubbermaid bin that has been modified by cutting viewing ports into the sides of the shroud and covering the viewing ports with transparent polycarbonate sheets. A hole measuring approximately two inches square in the bottom of the shroud allows the shroud to cover the Vapor Pin while still allowing access to the Vapor Pin through the bottom of the bin. At the time that the sampling manifold is assembled, the vacuum for the sample canister will be verified with a vacuum gauge and recorded.

Prior to sampling the Vapor Pin, a 10 minute shut-in test of the sampling manifold will be performed by closing the valve located between the filter and the pressure gauge, opening the purge canister valve, and recording the manifold system vacuum (see Figure 4). No purge testing for purge volume determination will be performed. Following successful verification of the manifold shut-in test, a default of three purge volumes will be extracted prior to sample collection. The purge volume will be calculated based on the void space below the Vapor Pin plus the volume of the tube that extends through the Vapor Pin and the volume of the tubing that connects the Vapor Pin to the sample media. The purge time will be calculated using a nominal flow rate provided by the flow controller of 150 cubic centimeters per minute.

Following completion of the purging of three volumes, a lid will be placed onto the shroud and a tracer gas 1,1-Difluoroethane (DFA) will be sprayed into the shroud interior for one second through a tube connected to a hole in the side of the shroud. Gloves in the lid of the shroud will be used to open the sample canister valve. After verifying that low flow conditions are not present associated with the soil gas sample, an air sample will be collected from the shroud atmosphere to quantify the shroud tracer gas concentration

while the soil gas sample is being collected. The shroud atmosphere sample will be collected into a Tedlar bag that is placed into a vacuum chamber with the Tedlar bag inlet connected to a new piece of Teflon or polyethylene tubing that is inserted into the shroud atmosphere through a hole in the side of the shroud.

Once the vacuum for the sample canister valve has decreased to 5 inches of mercury, the gloves in the lid of the bin will be used to close the sample canister valve. The pressure gage on the inlet side of the flow controller (see Figure 4) will be monitored during sample collection to ensure that the vacuum applied to the soil gas well does not exceed 100 inches of water.

One duplicate soil gas sample will be collected into a Summa canister from one of the Vapor Pins using a stainless steel sampling tee for the Summa canisters using methods described above. Following soil gas sample collection, a PID will be connected to the Vapor Pin to obtain a preliminary field value for the sample collection location. The soil gas Summa canisters will be stored in a box and promptly shipped to the laboratory for extraction and analysis.

In addition to collection of Summa canister soil gas samples as described above, sorbent tube soil gas samples will be collected at each Vapor Pin as follows. Each manifold will be equipped with a tee located downstream from the flow controller. At the time that the manifold is assembled (prior to the shut-in test), a sorbent tube will be connected inside the shroud to the tee that is located downstream from the flow controller with a valve located between the sorbent tube and the tee. The downstream side of the sorbent tube will be connected with a polyethylene tube to a flow meter and a vacuum pump.

Following Summa canister sample collection, the Summa canister will be isolated from the manifold with a valve, and the valve between the manifold and the sorbent tube will be opened. The tracer gas 2-Propanol will then be placed into an open container in the shroud, a vacuum pump will be used to apply a vacuum to the sorbent tube, and a flow meter will be used to measure the soil gas flow rate at a nominal flow rate of 150 cubic centimeters per minute for collection of a 100 cubic centimeter sample. In addition to collection of one sorbent tube sample at each soil gas well location, one replicate sorbent tube sample will also be collected. Following collection of each sorbent tube soil gas sample the ends of the sorbent tube will be sealed. Before and after connection of the sorbent tube to the manifold the sorbent tube will be stored in a cooler with ice. During sorbent tube sample collection a Tedlar bag air sample of the shroud atmosphere will be collected using methods described above for characterization of shroud atmosphere tracer gas concentrations during soil gas sample collection.

Chain of custody procedures will be observed for all sample handling. Measurements of vacuums, purging and equilibration time intervals, and PID readings will be recorded on Soil Gas Sampling Data Sheets.

All Vapor Pin construction equipment will be cleaned with an Alconox solution wash followed by a clean water rinse prior to use at each location. New or cleaned Vapor Pins

with new silicone sleeves will be used at each sample collection location. Clean, unused vacuum gages and stainless steel sampling manifolds will be used at each sample collection location. The Vapor Pins will be left in the floor slab pending review of the sample results with the ACDEH.

Sample Analysis

All of the samples will be analyzed at Eurofins/ Air Toxics Limited of Folsom, California. The Summa canister air and soil gas samples will be analyzed for Volatile Organic Compounds (VOCs) using EPA Method TO-15, including naphthalene, benzene, toluene, ethylbenzene and xylenes. The Vapor Pin Summa canister soil gas samples will also be analyzed for the gases oxygen, methane, carbon dioxide, carbon monoxide, and nitrogen using Method ASTM D-1946. The Vapor Pin shroud air samples will be analyzed for the system leak test tracer gases DFA and 2-Propanol using EPA Method TO-15. In addition, the sorbent tube soil gas samples will be analyzed for TPH-Diesel and naphthalene using EPA Method TO-17.

All of the indoor and ambient air sample analyses will be performed with detection limits that are equal to or are less than SFRWQCB December 2013 Table E-3 ambient and indoor air commercial/industrial Environmental Screening Level (ESL) values (with the exception of naphthalene which will have a detection limit of 0.46 micrograms per cubic meter and which can be estimated to a concentration of approximately one half of the detection limit), and all of the soil gas analyses will be performed with detection limits that are equal to or are less than SFRWQCB December 2013 Table E-2 soil gas commercial/industrial ESL values.

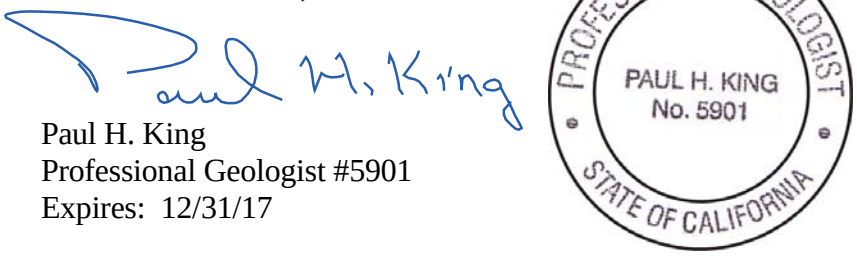
Report Preparation

Upon receipt of the laboratory analytical results, a report will be prepared. The report will document the results of the soil gas sample collection procedures and sample results. The report will include a map showing the sample collection locations, tables summarizing the sample results, recommendations based on the results, and the stamp of an appropriately registered professional. A copy of the report and associated laboratory information will be uploaded to the County ftp site and to GeoTracker.

Should you have any questions, please do not hesitate to contact us at (510) 658-6916.

Sincerely,

P&D Environmental, Inc.



Paul H. King
Professional Geologist #5901
Expires: 12/31/17

Attachments:

Figure 1 - Site Location Map
Figure 2 - Site Vicinity Aerial Photograph
Figure 3 - Site Aerial Photograph Detail Showing Proposed Sample Collection Locations
Figure 4 - Typical Soil Gas Sample Collection Manifold

PHK/sjc
0719.W1

FIGURES

Figure 1
Site Location Map
Emeryville Chevron
1400 Powell Street
Emeryville, California

Base Map From:
U.S. Geological Survey
Oakland West, California
7.5-Minute Quadrangle
Photorevised 1980

P&D Environmental, Inc.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610

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Approxinate Scale In Feet

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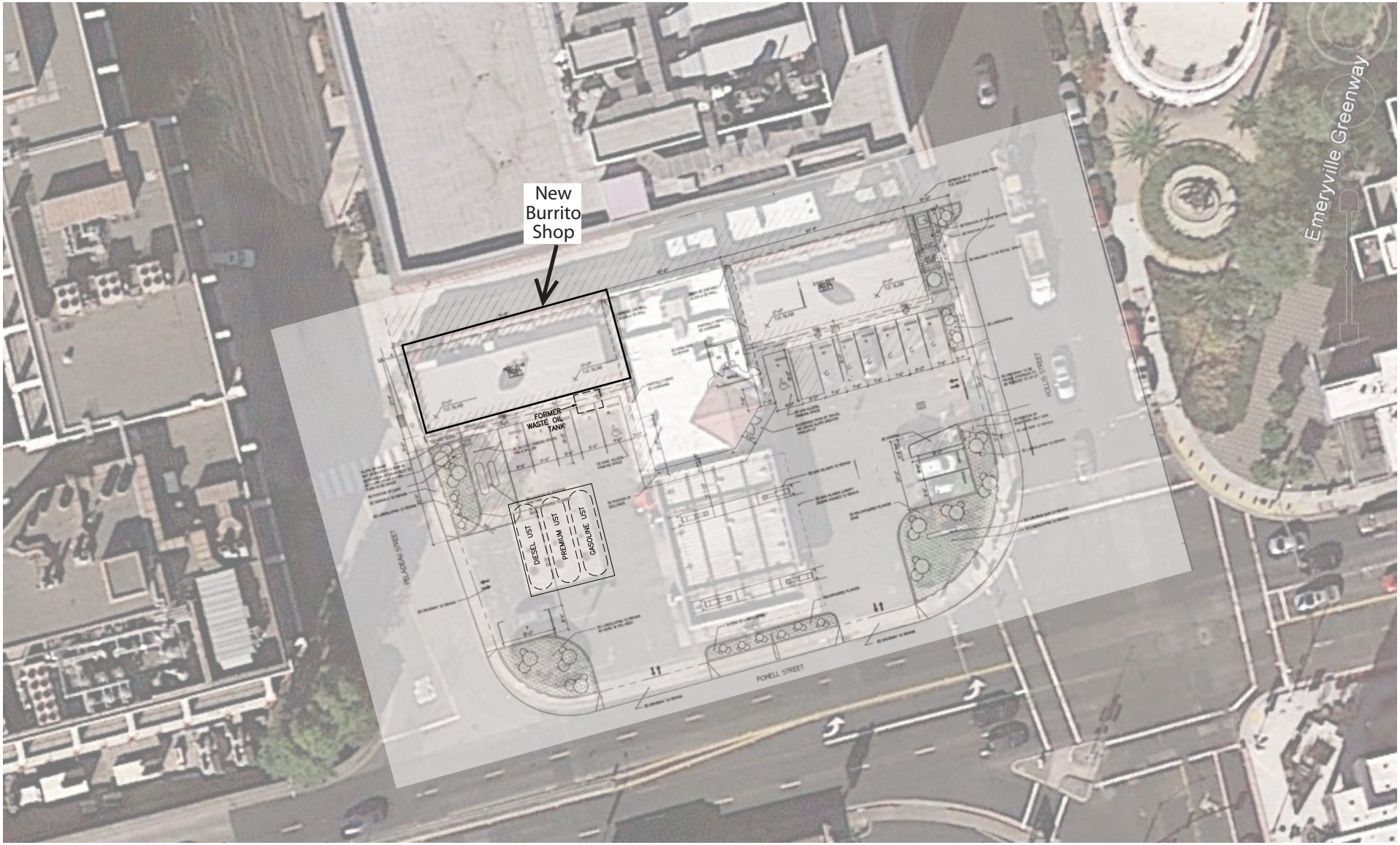

Figure 2
Site Vicinity Aerial Photograph
Emeryville Chevron
1400 Powell Street
Emeryville, California

Base Map from:
Delta Consultants, dated August 4, 2009,
Kava Massih Architects, Sheet No. A1.1, Proposed Site Plan/Elevation, undated, and Google Earth, Image Dated October 30, 2015

P&D Environmental, Inc.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610

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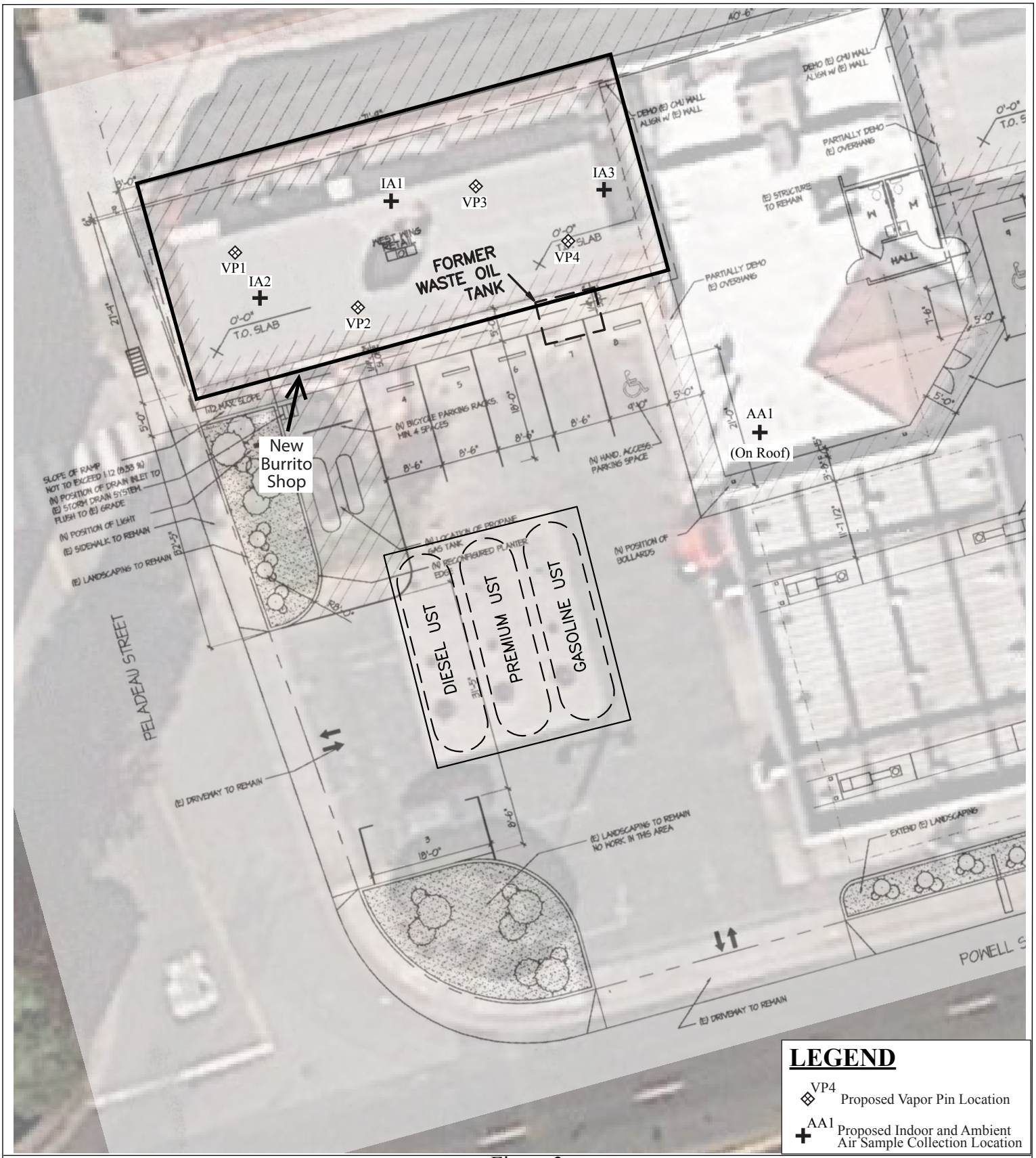

Figure 3
Site Aerial Photograph Detail Showing Proposed Sample Collection Locations
Emeryville Chevron
1400 Powell Street
Emeryville, California

Base Map from: Delta Consultants, dated August 4, 2009, Kava Massih Architects, Sheet No. A1.1, Proposed Site Plan/Elevation, undated, and Google Earth, Image Dated October 30, 2015	P&D Environmental, Inc. 55 Santa Clara Ave., Suite 240 Oakland, CA 94610	

Figure 4
Typical Soil Gas Sampling Manifold
Emeryville Chevron
1400 Powell Street
Emeryville, California