




**PERJURY STATEMENT
WORK PLAN FOR SOIL VAPOR QUALITY EVALUATION
ASHLAND YOUTH CENTER PROJECT
PROJECT NO. 10020**

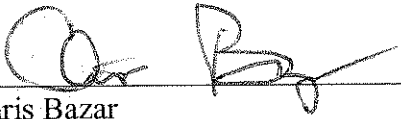
I declare, under penalty of perjury, that the information and/or recommendations contained in the attached "Work Plan for Soil Vapor Quality Evaluation" dated February 14, 2012, are true and correct to the best of my knowledge.



Aki K. Nakao
Director, General Services Agency

2/22/12

Date



Chris Bazar
Director, Community Development Agency

2/27/12

Date

RECEIVED

8:08 am, Mar 01, 2012

Alameda County
Environmental Health

Date: February 14, 2012
Proposal No.: 165-11-2

Prepared For: Mr. Jerry Wickham
ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY
DEPARTMENT OF ENVIRONMENTAL HEALTH
1131 Harbor Bay Parkway
Alameda, California 94502

Re: Work Plan for Soil Vapor Quality Evaluation
Ashland Youth Center
San Lorenzo, California

Dear Mr. Wickham:

On behalf of Alameda County General Services Agency (GSA), this work plan has been prepared for the evaluation of soil vapor quality at the Ashland Youth Center at 16335 East 14th Street in San Lorenzo, California (site).

The purpose of this work is to evaluate the potential for vapor intrusion associated with benzene detected in soil that remains in-place in the northwest corner of the site as described in the February 1, 2012 Soil Removal Completion Report. The new youth center currently is under construction. Alameda County GSA is installing a sub-slab membrane and depressurization system to control vapor intrusion into the building. Results of the soil vapor sampling and monitoring will be used to evaluate whether the depressurization system can be operated passively or whether it needs to be operated actively. Details of the membrane and depressurization system will be presented in the soil vapor sampling report discussed below.

Scope of Work

TASK A: SOIL VAPOR PROBE INSTALLATION AND INITIAL SAMPLING

Pre-Field Activities

Prior to performing the investigation, we will contact Underground Service Alert (USA) to notify them of the approximate drilling locations.

Soil Vapor Probe Installation

To evaluate soil vapor quality, three soil vapor sampling probes will be installed to a depth of approximately 5 feet below ground surface in the northwest corner of the Site (Figure 2). The locations will be selected outside the footprint of the proposed Ashland Youth Center building, with one vapor probe installed in the approximate location of former soil sample VS-5, where benzene was detected in soil above the residential/unrestricted use Environmental Screening Level (ESL) at a depth of approximately 8 feet (Cornerstone, 2012).

Protocols presented below follow the general requirements of the January 28, 2003 document entitled, "Advisory – Active Soil Gas Investigations", prepared by the Department of Toxic Substances and Control and the California Regional Water Quality Control Board, Los Angeles

Region. To evaluate soil vapor quality, three “temporary” wells (approximate depth of 5) will be installed in borings advanced using a stainless steel hand auger. The sampling locations will consist of a stainless steel expendable vapor tip and screen affixed to Teflon™ tubing. The vapor sampling locations will be constructed by first placing approximately 2 inches of coarse aquarium sand into the bottom of the borehole using a tremie pipe. The stainless steel tip and tubing will then lowered into the borehole via a tremie pipe. Additional sand is then placed in the borehole via tremie to create an approximately 1 foot sand pack interval around the vapor tip. Approximately 1 foot of granular bentonite (Benseal™) will be placed on top of the sand pack via the tremie pipe. Bentonite “gel” will be placed via tremie pipe on top of the dry granular bentonite to the surface. The Teflon™ tubing will be labeled with depth of placement and capped utilizing a vapor-tight Swagelok valve set in the “off” position. An above-grade well head box (stove pipe) will be installed at the ground surface of the three installed soil vapor locations to protect the wells from ongoing construction activities at the Site.

Vapor Sampling Procedure

At least 48 hours after completing well construction activities and a minimum of 48 hours after a significant rain event, vapor sampling will be performed. The three newly installed 5 foot deep vapor probes will be sampled. The tubing emanating from the vapor points will be affixed to a sample shut-off valve in the “off” position during the time needed to reach equilibrium (at least 48 hours). A 167 milliliters-per-minute flow regulator inclusive of particulate filter will be fitted to the shut-off valve and the other end to a “T” fitting. One end of the “T” will be connected to the sampling summa canister. The other end of the “T” will be affixed to a digital vacuum gauge and a 1-liter summa canister utilized for purging.

A minimum 10 minute vacuum tightness test will be performed on the manifold and connections by opening and closing the 1-liter purge canister valve and applying and monitoring a vacuum on the vacuum gauge. The sample shut-off valve on the downhole side of the sampling manifold will remain in the “off” position. When gauge vacuum is maintained for at least 10 minutes without any noticeable decrease (less than approximately 0.1 inches of mercury (Hg) for properly connected fittings), purging will begin. The downhole shut off valve will be opened and three purge volumes of vapor will be removed using the 1-liter summa for purging. The volume of vapor removed will be verified by the calculated pressure drop summa canister. The purge volume will be calculated based on the length and inner diameter of the sampling probe and the connected sampling tubing and equipment. Assuming the vapor probe has been properly sealed, the borehole sand pack vapor space will have equilibrated with the surrounding vapors following the 48 hour equilibration period. Thus, the sand pack vapor space will not be included in the purge volume calculation.

Isopropyl alcohol will be utilized as a leak detection compound during sampling by applying 5 drops to cotton gauze and placing the moistened gauze near the borehole. Sampling will begin by opening the summa canister valve. Immediately upon opening the sampling valve, a shroud will be placed over and enclose the atmosphere of the borehole and entire sampling train including all connections.

Sampling will continue until the vacuum gauge indicates approximately 5 inches of Hg remaining. A datalogging photoionization detector (PID) will be utilized during sampling to monitor the atmosphere inside the shroud through a bulk-head fitting. The logged data (at minimum thirty [30] second intervals) will be corrected to parts per million by volume isopropyl alcohol concentrations and utilized to evaluate the integrity of the sampling train.

To confirm the isopropyl alcohol atmosphere, one confirmation Tedlar bag sample will be collected from the shroud atmosphere through the sampling port of the PID. Alternatively, the confirmation samples may be collected using a summa connected to a flow controller within the shroud during sample collection. All field data, including equilibrium time, purge volume calculations and leak check measurements will be recorded and presented in the final report.

Laboratory Analyses – Soil Vapor

The three soil vapor samples will be analyzed for volatile organic compounds (VOCs) (EPA Test Method TO-15SIM). As a quality control measure, one trip blank provided by the laboratory also will be analyzed for VOCs. In addition, one air sample collected from the shroud atmosphere will be analyzed for isopropyl alcohol. We will request the laboratory analyze the samples on a standard one-week laboratory response time; however, laboratory response may vary due to backlog.

Report

The results of this investigation will be presented in a soil vapor quality evaluation report. The report will include a site map showing the sample locations and copies of the laboratory analytical reports.

TASK B: SOIL VAPOR MONITORING

Soil vapor samples will be collected periodically from the soil vapor probes, as required by ACDEH. Three additional soil vapor sampling events performed on a monthly basis are proposed.

Soil Vapor Sampling and Laboratory Analyses

The three soil vapor samples will be analyzed for volatile organic compounds (VOCs) (EPA Test Method TO-15SIM). As a quality control measure, one trip blank provided by the laboratory also will be analyzed for VOCs. In addition, one air sample collected from the shroud atmosphere will be analyzed for isopropyl alcohol. We will request the laboratory analyze the samples on a standard one-week laboratory response time; however, laboratory response may vary due to backlog.

Soil Vapor Monitoring Reports

The analytical results will be presented in soil vapor quality monitoring reports. The reports will include a site map showing the sample locations and copies of the laboratory analytical reports.

Schedule

The vapor probe installation will be scheduled within approximately 1 week of receiving approval of this work plan by the ACDEH. Vapor sampling will be performed a minimum of 48-hours after the probe installation. We will request a standard one week laboratory response. Preparation and submittal of the monitoring report will take approximately one to two weeks after receipt of the analytical results.

Closure

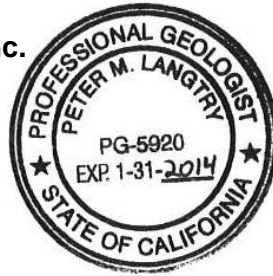
We look forward to your approval of this work plan. Should you have any questions regarding this work plan, please contact us at your convenience.

Sincerely,

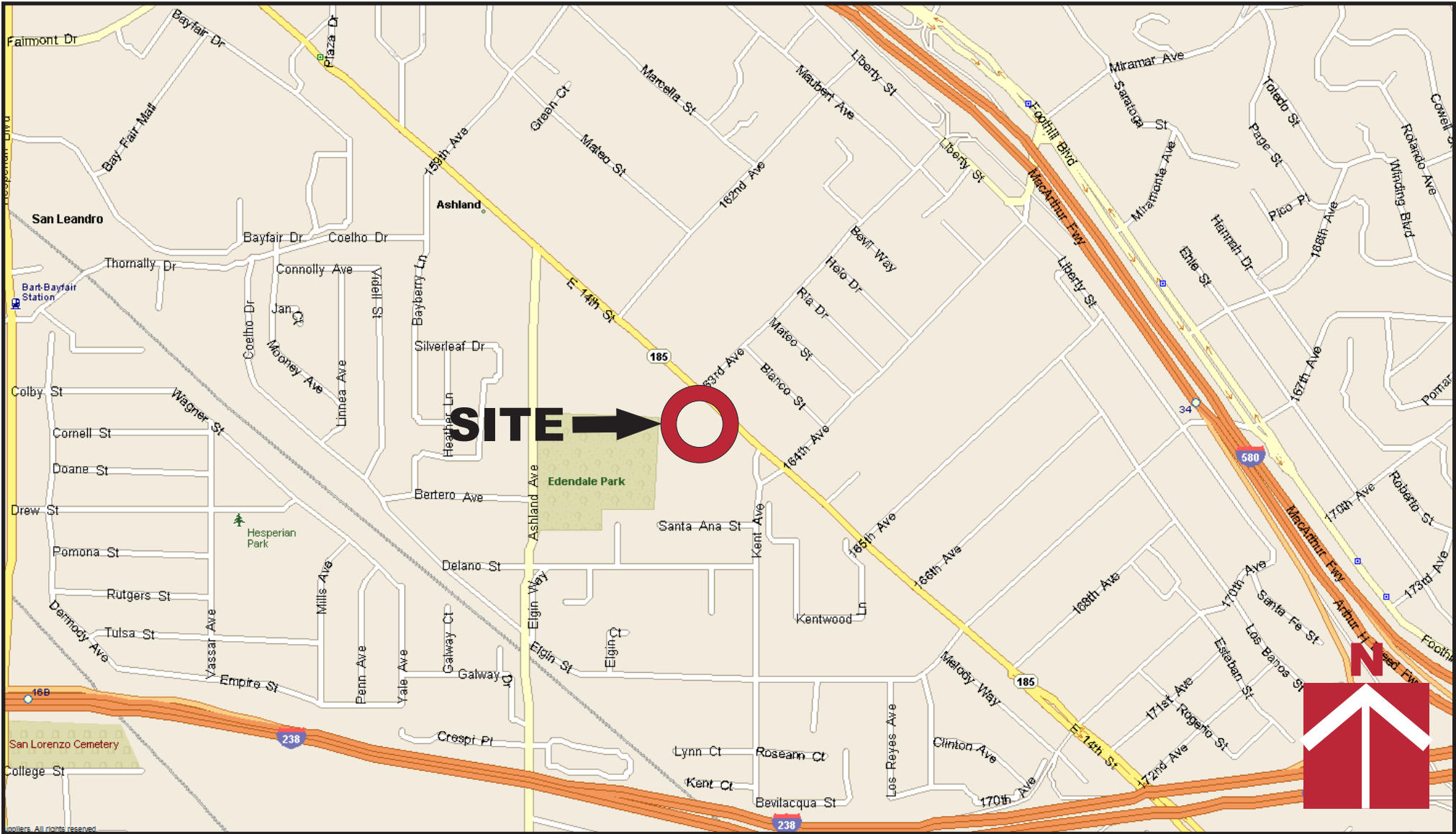
Cornerstone Earth Group, Inc.



Peter M. Langtry, P.G., C.E.G.
Principal Geologist




Copies: Addressee (via email)
 Alameda County General Services Agency
 Attn: Trip Miller (via email)
 Sandis
 Attn: Nathan Allen (via email)



SITE → ○



	Vicinity Map		Project Number	165-10-1
	Ashland Youth Center 16335 East 14th Street San Lorenzo, CA		Figure Number	Figure 1
	Date	September 2011	Drawn By	RRN

EAST 14TH STREET






EAST 14th STREET








Building Footprint

Approximate conceptual layout of GeoVent piping



LEGEND:

-  3' EXCAVATION & OFFHAUL TO CLASS I FACILITY
-  6' EXCAVATION & OFFHAUL TO CLASS II FACILITY
-  3' EXCAVATION & OFFHAUL TO CLASS I FACILITY
-  0'-3' EXCAVATION & OFFHAUL TO CLASS II FACILITY
-  3'-6' EXCAVATION & OFFHAUL TO CLASS I FACILITY

-  TP-1 TEST PIT (APPROXIMATE LOCATION)
-  Approximate location of soil vapor probe
-  Approximate boundary of vault excavation
-  Approximate location of soil sample
-  Approximate location of sidewall soil sample
-  Approximate location of underground vault
-  Area of additional excavation and off-haul to Class II facility, 6' to 8' depth

Project Number
165-11-1

Figure Number
Figure 2

Date
December 2011

Drawn By
RRN

Soil Removal Areas

Ashland Youth Center
16335 East 14th Street
San Lorenzo, CA

CORNERSTONE
EARTH GROUP

