May 12, 2010

Mr. Paresh Khatri
Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Subject: Vapor Well Installation and Monitoring Workplan
Crow Canyon Dry Cleaners
7272 San Ramon Road, Dublin, California
(RO # 0002863)

Dear Mr. Khatri,

Per the request of the Alameda County Health Care Service Agency (ACHCSA), Endpoint Consulting, Inc. (Endpoint) has prepared this letter workplan outlining the procedures for installation of additional vapor monitoring wells and sampling of select existing and newly installed vapor monitoring wells at the above-referenced site (see Figure 1). The well installation and semi-annual monitoring activities required by the ACHCSA (2010)[1] are intended to further establish post-remediation conditions following completion of interim remediation actions (IRA) involving soil vapor extraction (SVE) conducted by Endpoint from June 2009 to November 2009 (Endpoint, 2010)[2].

In accordance with ACHCSA (2010), specific procedures outlined herein include those associated with:

- advancement of additional sampling locations for post-remediation monitoring to evaluate the effectiveness of the previously-referenced SVE operations;
- vapor monitoring at select existing and newly proposed monitoring locations at the site;
- development of site-specific screening levels for assessing vapor monitoring results; and
- public participation.

Procedures associated with each of the above requirements outlined by ACHCSA (2010) are summarized in the following sections.

ADDITINOAL VAPOR MONITORING WELL INSTALLATION

In support of further characterizing the effects of SVE operations, the ACHCSA has requested

[1] ACHCSA (2010). Soil Vapor Sampling Work Plan Request for Spills, Leaks, Investigation, and Cleanup (SLIC) Case No. RO0002863, 7272 San Ramon Blvd., Dublin, CA

[2]Endpoint (2010). Interim Remedial Action Report, 7272 San Ramon Blvd., Dublin, CA, January 26th.

additional sampling locations for monitoring vapor quality adjacent to the site. Figure 2 depicts the locations of existing vapor monitoring and extraction wells at the site, including five of which (VM-4S, VE-1S/D, VE-2S, and VE-3S) are proposed for semi-annual monitoring as discussed in Endpoint (2010) and later herein within the Vapor Monitoring Plan and Sampling Procedures Section of this workplan,

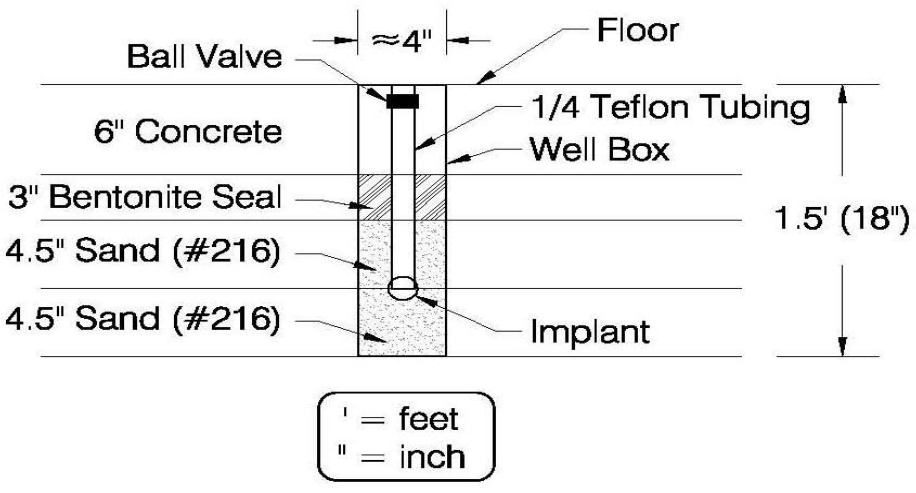
Supplementing these existing wells, three additional sub-slab vapor monitoring wells, to be labeled as VM-2SS and VM-5SS, and VM-6SS, are proposed for locations inside the Montessori School located east of the subject site (see Figure 2). The three newly proposed wells correspond to the locations of historical sub-slab sample locations SB-13, SB-16, and SB-17 along the southeast-northwest running sewer line running through the Montessori School. As discussed later herein, the eight-well monitoring network is considered adequate to allow for delineation of PCE in soil vapor and sub-slab vapor at and in the vicinity of the site. The procedures for vapor monitoring well installation are summarized below.

Vapor Well Installation

Prior to initiation of drilling activities, a drilling permit will be obtained from the Zone 7 Water Agency. Also, a Health and Safety Plan (HSP) will be prepared, the boring locations were marked, and Underground Service Alert (USA) will be notified. Private utility clearance will also conducted to ensure clearance of potential utilities at proposed well locations.

In order to position the vapor well within the utility corridor, a utility map with backfill/trenching information will be obtained from City of Dublin Public Works Department before marking vapor well locations.

Bore holes for installation of sub-slab vapor monitoring wells will be hand augered to a depth of 1.5 feet bgs. The soil-vapor implants, attached to Teflon tubing, will be lowered into the bore holes so they rest at the middle of the depth. Dry course sand (#216) will be poured into the holes, covering the soil-vapor implants. Bentonite crumble will be poured into the borings and moistened with distilled water, creating a seal to prevent ambient air from biasing the sub-slab vapor samples. Cement grout will be used to seal the well box. Tubing will be cut at the surface and connected to the vapor tight ball valve which will be kept in a closed position. The other end of the ball valve will be capped before closing the well lid. The vapor well construction diagram is presented below:



VAPOR MONITORING PLAN AND SAMPLING PROCEDURES

As requested by the ACHCSA (2010), two semi-annual rounds of post-remediation monitoring is proposed at the site, supplementing the single post-remediation event previously performed by Endpoint (2010). The proposed vapor monitoring events are planned for June/July 2010 and November/December 2010, pending approval date of this workplan. Together with the one round of post-remediation sampling already conducted in November 2009, the proposed monitoring will allow for evaluation of seasonal effects on soil vapor concentrations throughout various climatic seasons and over a one-year period following termination of SVE operations.

The proposed vapor sampling includes collection of photoionization detector (PID) readings in all existing monitoring and vapor extraction wells at the site during each of the two sampling events. In addition, collection of vapor samples is proposed from 8 wells during each event as shown on Figure 2. These include wells VM-4S, VE-1S/D, VE-2S, VE-3S, VM-2SS, VM-5SS, and VM6-SS (see Figure 2). The rational for well selections is summarized below:

- VM-4S: this well is located nearest to the Montessori School, contained the highest PCE concentration in the baseline sampling, and showed a marked reduction to below Residential ESLs in the O&M and post-remediation sampling event. It is also located adjacent to the existing sewer line backfill and can be highly useful in assessing the potential for preferential migration of PCE over time.

- VE-1S/D: this well pair (shallow and deep) is located within the residual source area and contained the highest PCE concentrations after completion of the IRA activities.

- VE-2S: this well is in the vicinity of the former dry cleaning machine and the residual source area.

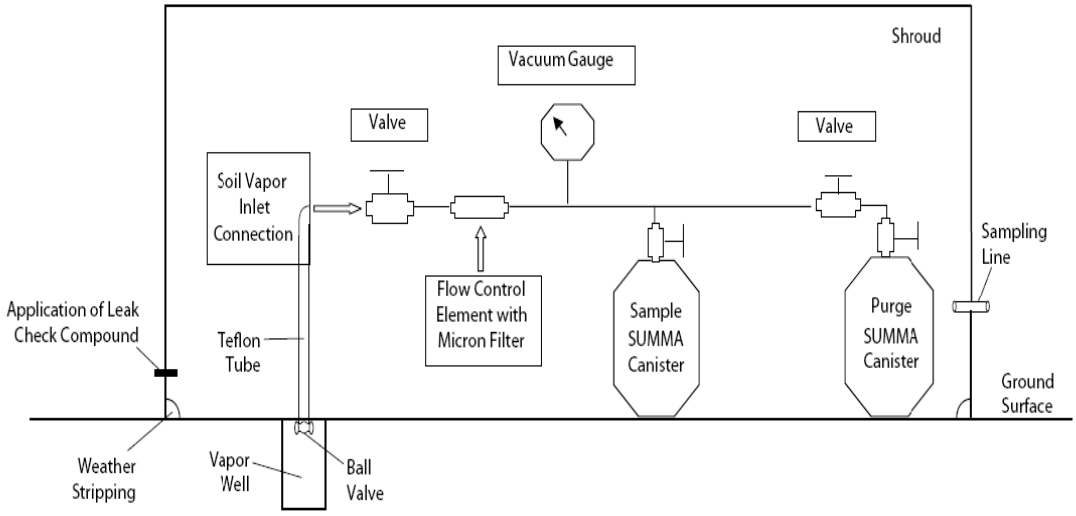
- VE-3S: this well is located in between wells VM-4S and VE-1S/D to monitor the PCE concentration in the vicinity of the preschool.

- VM-2SS/VM-5SS/VM6SS: these sub-slab wells are proposed at the location of former sub-slab borings along the southeast-northwest running sewer line reportedly present beneath the Montessori School building. Sampling at these locations will help in the evaluation of the effectiveness of SVE operations on minimizing concentrations beneath the Montessori School, including assessing the significance, if any, of potential preferential migration

Vapor Sampling Procedures

Vapor samples will be collected in accordance with the vapor sampling documents available at the DTSC website at the time of writing (i.e., DTSC Guidance 2005, Forum 2008, Comments, Draft DTSC Guidance 2010). Vapor samples will be collected using 1-liter (L) Summa canisters attached directly to the sampling manifold of the vapor implants to be installed. The reasons for selecting 1-L canisters are 1) the sampling points are shallow (less than 5 feet bgs); 2) they are more convenient to ship and transport than 6-L ones; 3) the sampling time is cut by a factor of 6; and 4) the 1-L system is easier to fit under a shroud.

Endpoint has confirmed with the lab that all of the reporting limits required using the 1-L can be achieved. A schematic diagram showing the vapor sample collection set-up is presented below.



In accordance with the DTSC advisory, purging and sampling rates will be limited to 50 milliliters (mls) per minute for sub-slab samples and 100 to 200 mls per minute for soil vapor samples. A maximum vacuum of 100 inches of water column (or 8 inches of mercury) will be used to limit stripping and prevent ambient air from diluting the vapor samples.

Shut-in Test: Prior to soil-vapor/ sub-slab purging or sampling, a shut-in test will be conducted to check for leaks in the sample train. The shut-in test will consist of assembling the above-ground apparatus (valves, lines, and fittings downstream of the top of the probe), and evacuating the lines to a measured vacuum of about 100 inches of water (or 8 inches of mercury), then shutting the vacuum in with closed valves on opposite ends of the sample train. The vacuum gauge will then be observed for at least 1 min, and if there is any observable loss of vacuum, the fittings will be adjusted as needed until the vacuum in the above-ground portion of the sample train does not noticeably dissipate.

Leak Testing: Helium tracer testing will be conducted to confirm absence of ambient air intrusion into the sample train at each soil vapor and sub-slab sampling location. A clear plastic container (shroud) will be inverted over the probe and the sample train and filled with about 10% to 30% helium by volume. Soil vapor/sub-slab samples will be collected in a Tedlar bag and will be screened using a portable helium meter (MDG2002 or equivalent) to confirm absence of helium in the collected samples. Select duplicate soil vapor/sub-slab samples will be sent to the laboratory and analyzed for leak check compound concentration to

verify the accuracy of the field screening. Specifically, for the first round of soil vapor sampling, a duplicate sample in a Tedlar bag will be collected from vapor extraction well VE-1S and submitted to the laboratory for helium analysis. Importantly, leak testing will be conducted during the purge volume testing noted below and also during the collection of the soil vapor/sub-slab samples to be collected following the purge testing. A brief outline of a purge volume test to be conducted prior to soil vapor sampling to determine the purge volume to be used at each sample location is presented below.

Purge Volume Test: To ensure stagnant or ambient air is removed from the sampling system and to assure samples collected are representative of subsurface conditions, a purge volume versus contaminant concentration test should be conducted as the first soil gas sampling activity at the selected purge test point. The purge volume test is conducted by collecting and analyzing a sample for target compounds after the removal of appropriate purge volumes. Two purge volume tests will be conducted, one for soil vapor samples and one for sub-slab samples.

Purge Test Locations: Based on its proximity to the location, SB-2, where the highest PCE concentration was reported in the first-round of post-remediation sampling (see Endpoint, 2010), purge testing will be conducted at the soil vapor extraction well VE-1S. The purge test location has been therefore been selected in an area where soil vapor concentrations are expected to be greatest.

Purge Volume: The purge volume or "dead space volume" can be estimated is based on the internal volume of tubing used, and annular space around the probe tip. Step purge tests of one (1), three (3), and seven (7) purge volumes will be conducted as a means to determine the purge volume to be applied at all sampling points. The testing will be conducted using a Tedlar bag in the field and the collected sample will be measured for total VOCs using a photo ionization detector (PID).

The appropriate purge volume will be selected based on the highest concentration for the VOCs detected during the step purge tests. If VOCs are not detected in any of the step purge tests, a default of three (3) purge volumes will be extracted prior to sampling at each soil vapor sample location.

The purge test data (e.g., calculated purge volume, rate and duration of each purge step) will be included in the initial *Semi-Annual Vapor Monitoring Report* to support the purge volume selection. Soil vapor and sub-slab samples will be collected following purging of the probe at the selected purge volume using a 1-liter summa canister. As noted above, sampling rates will be limited to 50 mL/minute flow rate for sub-slab samples and 100 to 200 mL/minute flow rate for soil vapor samples and 100 inches of water column vacuum (or 8 inches of mercury).

Field conditions, such as wet soil conditions, fine grained sediments, or barometric pressure changes may affect the ability and/or the quality of the collected soil vapor samples; hence, the following guidelines will be followed:

Wet Conditions: If no-flow or low-flow conditions are caused by wet soils, the soil vapor or sub-slab sampling will cease and commenced after the soils have sufficiently dried to allow sampling at the flow rates and vacuum noted above. In addition, no soil vapor sampling will be conducted during or within 48-hours after a significant rain event (e.g., 1/2 inch or greater) or onsite watering event.

Low Permeable Soils Sampling: Under conditions where low permeable soils surround the soil vapor or sub-slab sampling probe thereby limiting the flow rate of soil vapor that can be drawn from the surrounding soils into the soil vapor probe, soil vapor will be withdrawn from the probe until such time that steady flow cannot be obtained by applying a vacuum of up to 100 inches water column, The sampling will then be discontinued to allow the vacuum to dissipate as soil vapor slowly enters the sandpack and well tubing from the surrounding soils. Sampling will then continue until an adequate volume of sample has been collected in the 1-liter canister.

Barometric Pressure Changes: To the extent practicable, soil vapor and sub-slab sampling will be conducted when the changes in barometric pressure are not significant during the course of the sampling. To this end, records of barometric pressures will be obtained from local sources during the duration of the soil vapor sampling and will be provided in the monitoring reports. If changes in barometric pressure are such that its effect on data quality is measurable, such observations will be summarized in the monitoring reports.

Following soil vapor sample collection, the samples will be transported to a California State Certified Laboratory for analysis. Soil vapor samples will be analyzed for VOCs 8010 list by EPA Method TO-15.

SCREENING OF VAPOR SAMPLE RESULTS

Endpoint (2010) proposed use of both residential (for screening of concentrations beneath the Montessori School) and commercial/industrial screening levels (for screening of concentrations beneath the dry cleaner facility) corresponding to the environmental screening levels (ESLs) adopted by the RWQCB (2008). The ACHCSA has since requested that a single screening level be used to evaluate the significance, if any, of the detected VOC concentrations in soil vapor at the site. In response to this request, Endpoint proposes to screening levels corresponding to a school exposure scenario to be conservatively applied to data from beneath the Montessori School and those from beneath the dry cleaner facility. Specifically, Endpoint proposes to adjust the exposure parameters used by the RWQCB to develop the residential ESLs as follows:

- Reduce adult exposure duration and frequency to 25 years and 250 days per year, respectively; these values correspond to commercial exposure parameters adopted by the RWQCB (2008) and remain a highly conservative representation of the actual time spent at the school and at the dry cleaners; and

- Adjust the child exposure duration and frequency to 3 years and 250 days per year, respectively. Since the subject Montessori School is a pre-school catering to kids ranging in

age from 3 to 6 years old, the 3-year exposure duration is consistent with the maximum amount of time that kids may be enrolled at the subject school.

In addition to the above revisions to the exposure parameters, Endpoint proposes to use site-specific values for soil porosity and moisture content. To this end, three soil samples (one from each of the proposed sub-slab wells) will be collected and sent to the laboratory for estimation of porosity and moisture content. These values will be used to represent site-specific estimates of porosity and moisture content into the ESL calculations.

With the exception of the above, all other highly conservative exposure parameters used by RWQCB (2008) in developing the ESLs will be remain unchanged. The revised ESLs reflecting school exposure will be documented in the initial Semi-Annual Vapor Monitoring Report.

PUBLIC PARTICIPATION

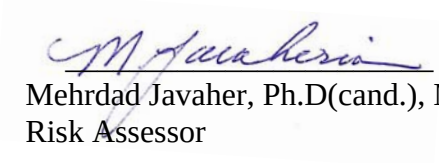
Per the request of the ACHCSA (2010), the existing Fact Sheet for the site will be updated and redistributed to the previously identified recipient list following completion of the two semi-annual vapor monitoring events.

CLOSING

Following concurrence from the ACHCSA, the proposed well installation and monitoring activities will be implemented, with the first sample targeted to occur in June or July 2010. As always, we appreciate your assistance with this project. If you have any questions, please contact Jing Heisler at 415-342-3713 or at jing@endpoint-inc.com or Mehrdad Javaher at 415-706-8935, or at mehrdad@endpoint-inc.com.

Sincerely,
Endpoint Consulting, Inc.

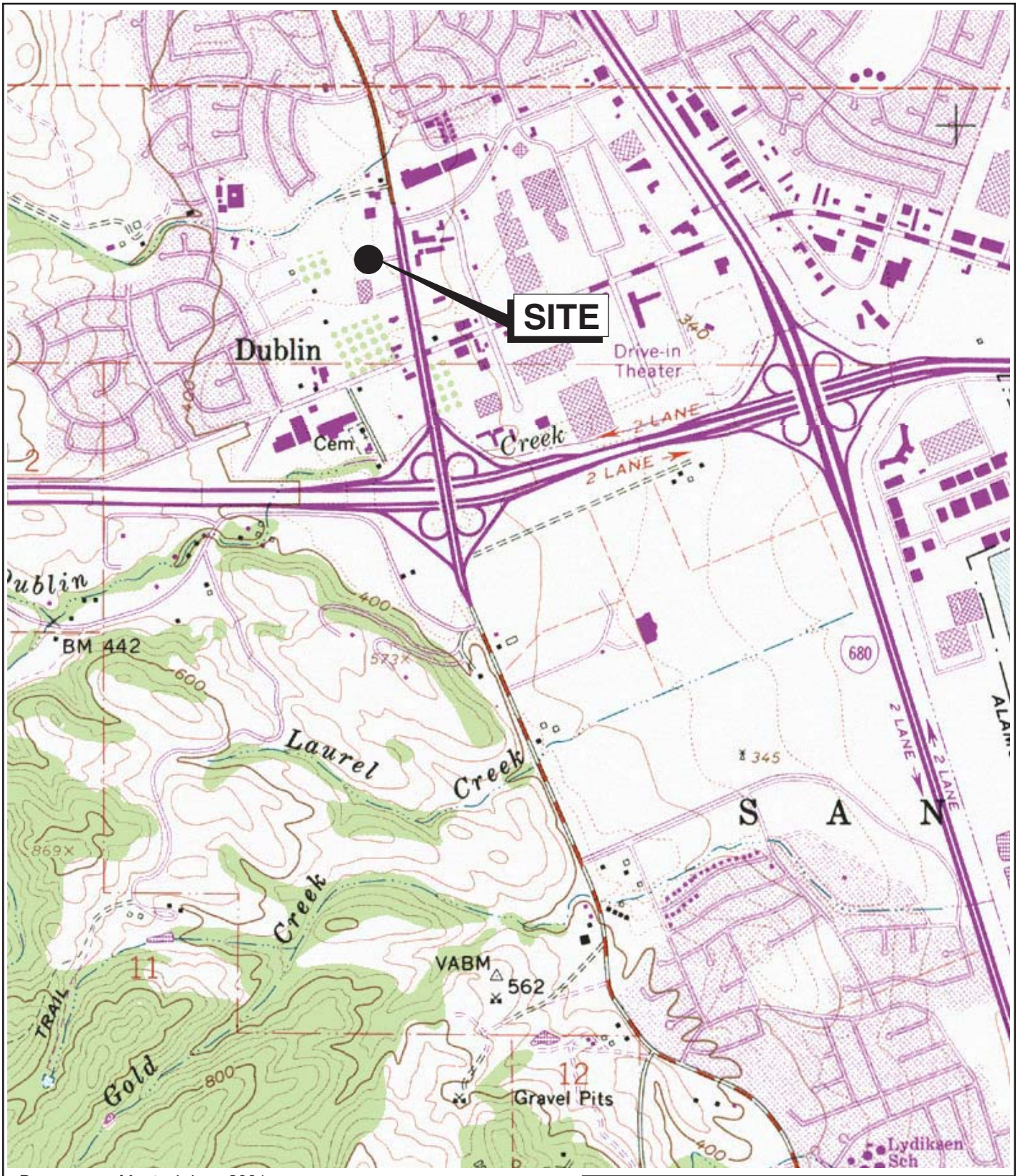
Jing Heisler, PG, CHG
Senior Geologist



Mehrdad Javaher, Ph.D(cand.), MPH
Risk Assessor

Attachments:

Figure 1 – Site Vicinity Map
Figure 2 – Proposed Vapor Monitoring Locations



Base map: Maptech Inc., 2001

N

0 1/4 1/2

Scale (Miles)

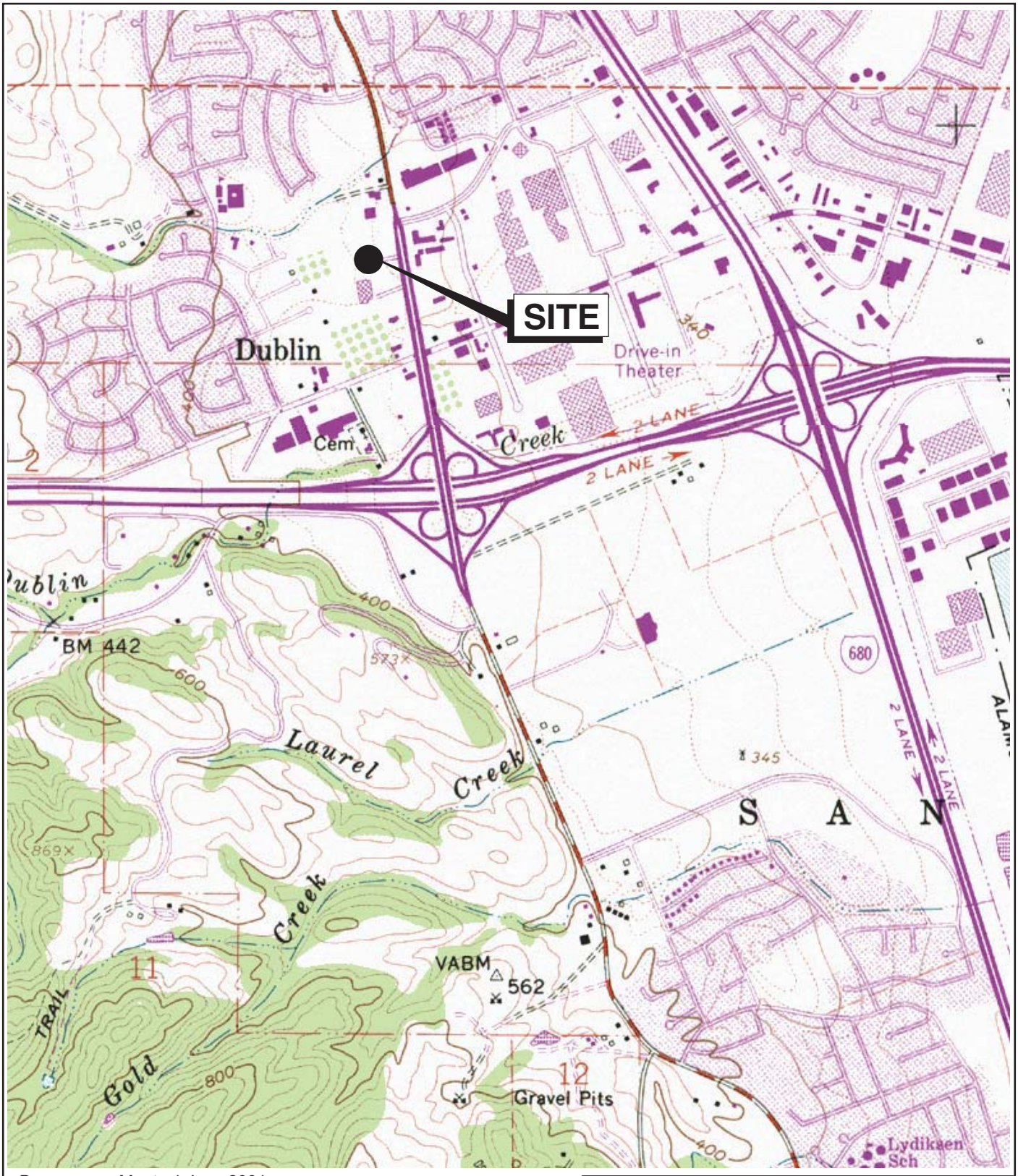
SITE LOCATION MAP

CROW CANYON DRY CLEANERS
7272 SAN RAMON ROAD
DUBLIN, CALIFORNIA

Endpoint.
Strategy. Science. Sustainability.

Date: 2/10/2009

Figure: 1



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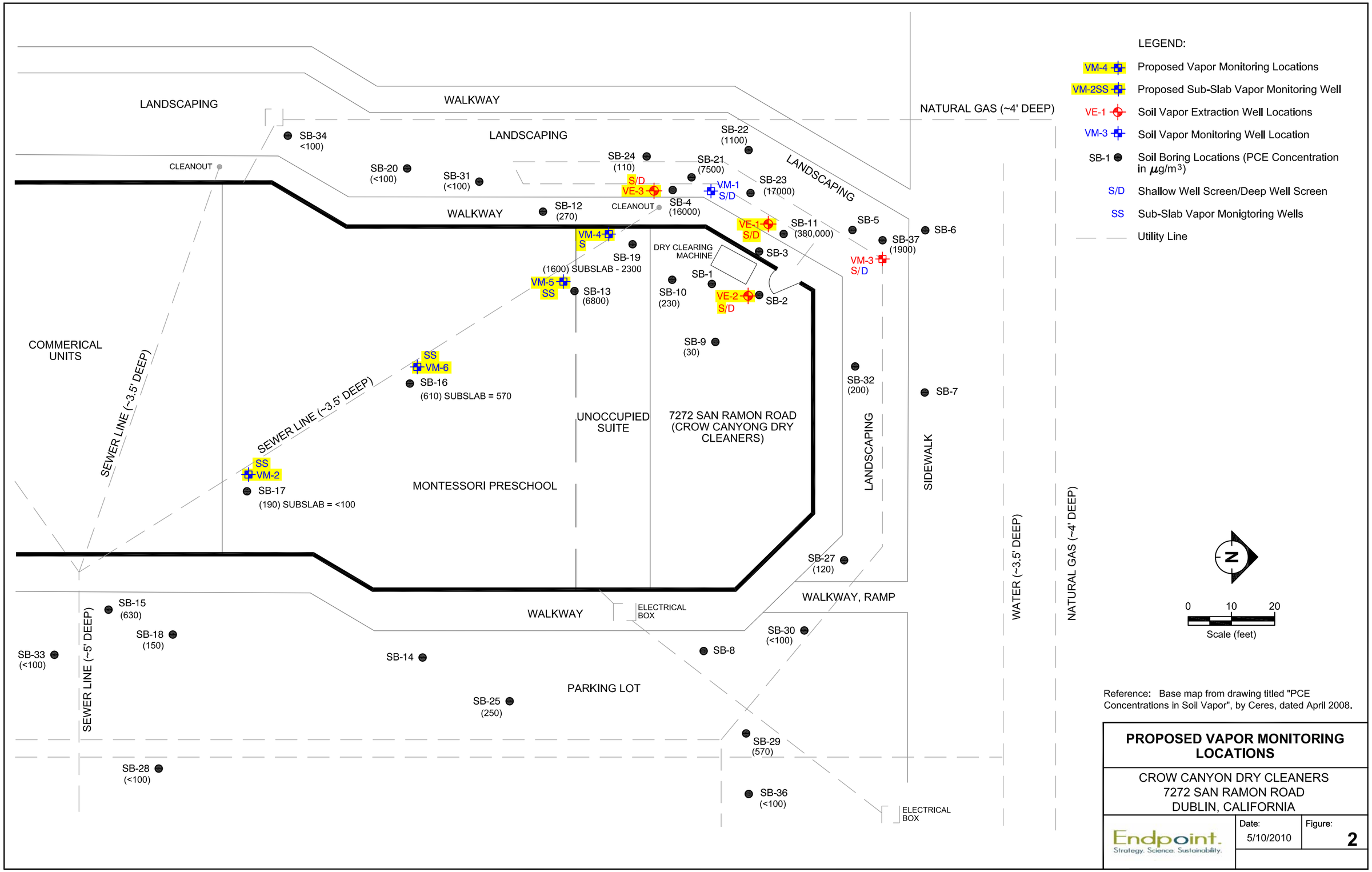

Reference: Base map from drawing titled "PCE Concentrations in Soil Vapor", by Ceres, dated April 2008.

PROPOSED VAPOR MONITORING LOCATIONS

CROW CANYON DRY CLEANERS
7272 SAN RAMON ROAD
DUBLIN, CALIFORNIA

Endpoint. Strategy. Science. Sustainability.

Date: 5/10/2010

Figure: 2