

Ms. Eva Chu  
**Alameda County Health Care Services Agency**  
**Department of Environmental Health**  
1131 Harbor Bay Parkway, 2<sup>nd</sup> floor  
Alameda, California 94502

December 3, 2002  
1705-1C

**RE: Revised Work Plan for Ground Water Monitoring**  
**1300 Powell Street**  
**Emeryville, California**

Dear Ms. Chu:

On behalf of Pulte Home Corporation, we present this revised work plan for ground water quality evaluation at 1300 Powell Street in Emeryville (site). Based on historical ground water data and discussions with the Alameda County Department of Environmental Health (ACDEH), ground water sampling is required on-site. We understand that Cambria Environmental Technology, Inc. will submit a separate work plan to install and sample seven monitoring wells on the 1350 Powell Street property. We propose the following scope of work to evaluate ground water quality beneath the Site.

#### **Pre-Field Activities**

Prior to beginning work, we will contact Underground Service Alert (USA) to attempt to locate public underground utilities in the area of our exploratory borings. A drilling permit application also will be submitted to the County of Alameda Public Works Agency for their approval.

#### **Subsurface Exploration**

To evaluate ground water quality on the 1300 Powell Street property, our field engineer or scientist will direct a subsurface exploratory program, supervise, log, and sample four exploratory borings to a depth of approximately 25 feet. The borings will be converted into ground water monitoring wells, as discussed below. Ground water is anticipated to be at a depth of approximately 15 to 20 feet. The proposed locations of the monitoring wells are shown on the attached site plan.

The subsurface investigation will be performed using a limited access rig equipped with Direct Push Technology equipment. The soils will be logged using the Unified Soil Classification System (ASTM D-2487).

### **Monitoring Well Installation**

To evaluate ground water quality and flow direction, the borings will be converted into ¾-inch-diameter "permanent" monitoring wells, constructed in general accordance with regulatory guidelines. The Schedule 40 PVC casing in the lower portion of the wells will have 0.02-inch factory-machined slots. The wells will be screened from approximately 15 to 25 feet below the ground surface based on field conditions including the depth ground water is encountered. After the casing is installed, a filter pack composed of Number 3 sand will be placed in the annular space to approximately 1 to 2 feet above the slotted casing. The remaining annular seal will consist of an approximately 1-foot-thick seal of bentonite pellets or chips, followed by an 11-sack Portland cement and sand slurry to the surface. The wells will be completed with flush-mounted wellhead boxes. In addition, the PVC well casings will be fitted with watertight, locking well caps at the surface.

### **Monitoring Well Development and Sampling**

After well installation, the static water level will be measured to the nearest 0.01 foot using an electronic depth sounder. The wells then will be developed using a Teflon bailer or submersible pump to purge a minimum of four well casing volumes of water. After purging each well volume, pH, temperature, and conductivity measurements will be recorded. In general, these measurements stabilize (consecutive readings within 10 percent) after three to four well volumes. If, after the fourth well volume, the pH and conductivity have not stabilized, additional well volumes will be removed until these measurements do stabilize. If the yield is low and the well pumped dry, the well will be allowed to recharge to the 80 percent level before sampling.

Ground Water Sampling. Ground water will then be sampled from the monitoring wells in general accordance with EPA guidelines.

Laboratory Analysis. Ground water samples collected from the monitoring wells will be analyzed at a state-certified laboratory for total petroleum hydrocarbons in the gasoline (TPHg), diesel (TPHd), and motor oil (TPHmo) range, benzene, toluene, ethylbenzene, and xylenes (BTEX) (EPA Test Method 8015M/8020). All laboratory analyses will be performed on a standard one-week laboratory response.

**Gradient Evaluation**

To evaluate ground water flow direction and gradient at the site, we will survey the relative top of casing elevations of the wells. The lateral location of the monitoring wells will be approximately measured using a metered wheel, and the elevations will be surveyed using a Leitz level and an engineer's graduated rod. All elevations will be measured to the nearest hundredth of a foot.

**Sampling Equipment Decontamination**

All sampling equipment will be thoroughly cleaned with an aqueous solution of tri-sodium phosphate and distilled water or steam cleaned. The cleaning procedure will be repeated between each sampling location.

**Soil Cuttings, Steam Cleaning Rinsate, and Purged Ground Water**

Soil cuttings, steam cleaning rinsate, and purged ground water will be stored on-site in EPA approved drums. After receipt of the analytical results, appropriate disposal alternatives for the drums will be evaluated.

**Report**

The results of the ground water quality evaluation will be added to the remedial action completion report for the Site.

**Schedule**

Fieldwork is tentatively scheduled for December 4, 2002. After receipt of the laboratory results, review of the data and completion of our report will take approximately two additional weeks. We will strive to keep you informed of significant project developments and to be available to answer your inquiries.

Very truly yours,

**Lowney Associates**

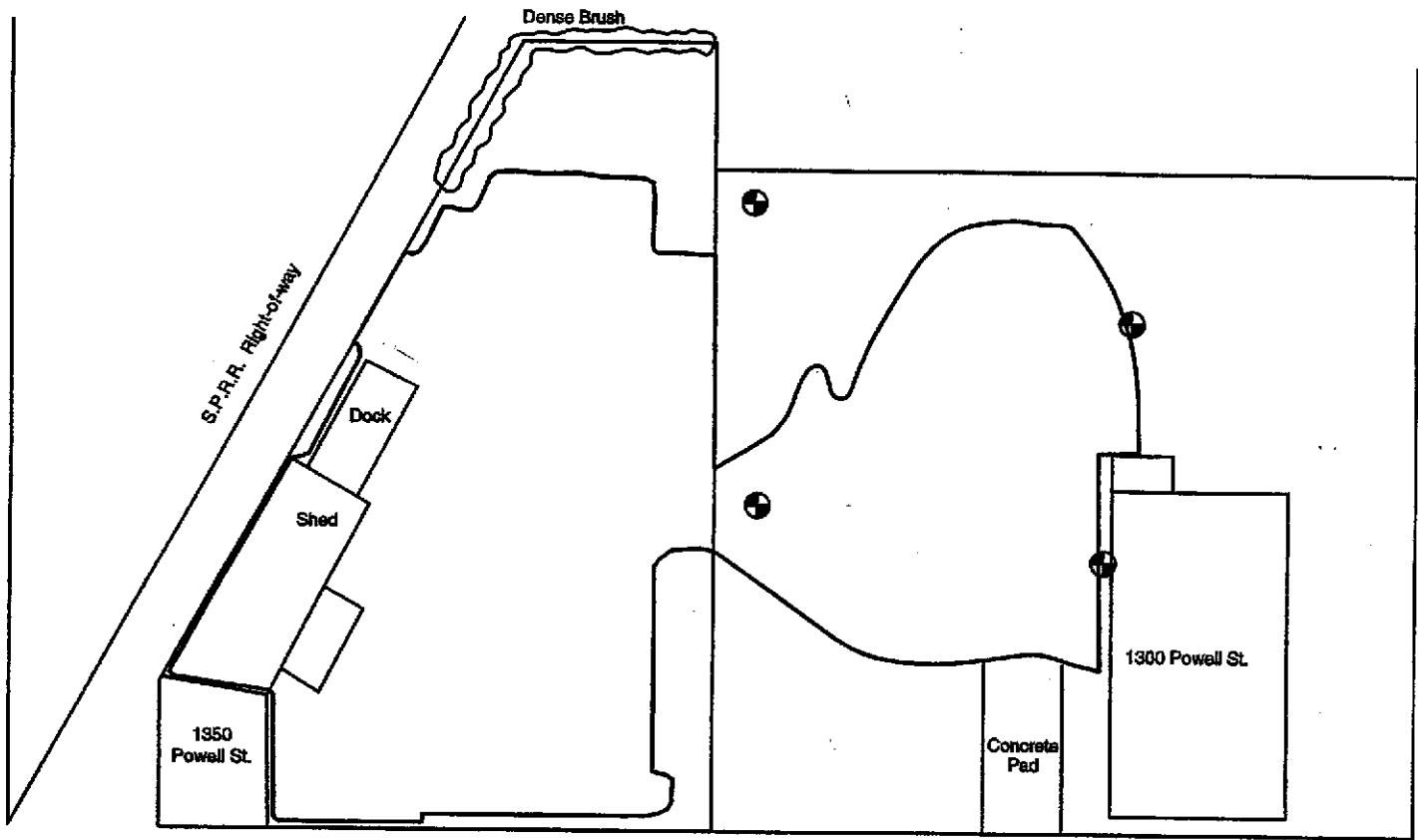
Mark J. Arniola, R.G., R.E.A.  
Senior Project Geologist

PML:MJA

Copies: Addressee (1)  
Pulte Home Corporation (1)  
    Attn: Mr. Mike Kim  
Cambria Environmental Technology, Inc. (2)  
    Attn: Mr. Bob Clark-Riddell  
    Attn: Mr. Robert Schultz

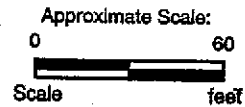
Attachments: Figure 1. Site Plan

OK, 1424-9C GW Sampling WP 120202.DOC  
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**LEGEND**

- - Approximate extent of remedial excavation
- ⊕ - Approximate location of proposed ground water sample



<b>PROPOSED GROUND WATER          SAMPLE LOCATIONS</b> 1300 POWELL STREET Emeryville, California	
<b>LOWNEY ASSOCIATES</b> Environmental/Geotechnical/Engineering Services	<b>FIGURE</b> 1424-9C

Base by Lush Geotechnics, dated 4/90.