

**APPENDIX C**

**BUILDING 670 SOIL SAMPLING**

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### **BUILDING 670 SOIL SAMPLING RESULTS FOR LEAD**

Caltrans identified one building within the Doyle Drive Replacement Project, Contract 3 area that may require removal or retrofitting during construction. This building is Presidio Building 670, located less than 100 feet southeast of the intersection of Crissy Field Avenue and Incinerator Road (Figure 2 in the main body of this report).

Four shallow soil samples were collected from the perimeter of Building 670 on 13 April 2009 to evaluate the presence of lead from lead paint. The objective of this additional environmental sampling was to evaluate if soil around the building would require special management if excavation is required during project construction.

The scope of work was developed in coordination with Presidio Trust and Caltrans, and work was completed in accordance with Presidio Trust's "Presidio-Wide Lead-Based Paint in Soil Investigation Workplan."<sup>1</sup> Presidio Trust informed BASELINE that soil sampling for lead paint had not previously been conducted around Building 670.

#### **FIELD INVESTIGATION**

A Dig Permit (Dig Permit No. 3) was obtained from the Presidio Trust for the borings, and is included in Appendix B. Each boring location was marked in white paint. A private utility locator, Otis Haskin ("OHJ"), cleared all boring locations. Underground Service Alert ("USA") was then contacted for utility clearance, and the Dig Permit was requested from Presidio Trust. Presidio Trust reviewed and checked the proposed borehole locations with their equipment, maps, and site knowledge before issuing the Dig Permit authorizing drilling to commence.

The four borings were located at approximately the mid-point of each side of the building. The building is approximately 27 feet long and 17 feet wide, and one boring location on each side of the building met the Presidio Trust criteria of one boring for each 25 lineal feet. Boring locations are shown on Figure 2 (in the main body of this report), and are identified as 670SS01, 670SS02, 670SS03, and 670SS04, in accordance with Presidio Trust sample labeling protocols.

Borings were planned to be located directly beneath the roof dripline. However, a four-foot wide concrete footing or pad surrounded the building and was encountered just below the surficial soil. Therefore, the borings were drilled at the outside edge of the concrete at a distance of approximately four feet from the building sidewall and 3.5 feet from the roof dripline to a depth of 2.5 feet below ground surface ("bgs"). Three discrete soil samples were collected from each boring at depths of 0-0.25 foot bgs, 0.5-1.0 foot bgs, and 2.0-2.5 feet bgs.

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<sup>1</sup> Presidio Trust, 2008, Presidio-Wide Lead-Based Paint in Soil Investigation Work Plan, October.

Surface soil samples were also planned for collection on each side of the building at a distance of approximately 5 feet from the roof dripline. Due to the presence of the concrete pad and relocation of the primary borings, these additional surface samples were not collected.

Borings were drilled using a hand auger, and samples were collected using a slide hammer. Soil samples were collected directly into clean six--inch long stainless steel liners, capped with Teflon and plastic end caps, labeled, and immediately stored in ice-cooled chests. The samples were picked up in the field by Curtis & Thomkins, Ltd. of Berkeley, California, a state-certified laboratory, and were handled under chain-of-custody procedures. Additional general field procedures are described in Section 3.2 in the main body of this report.

Boring logs for the four borings are attached in Appendix D. Survey coordinates are provided in both project datums (NAD 83 and NAVD 88) and Presidio Trust datums (NAD27 and Presidio Low Low Water) on Table 1 in the main body of this report.

## **SOIL SAMPLE ANALYSES AND RESULTS**

All discrete soil samples were analyzed for total lead by EPA Method 6010B (dry weight). If total lead results were greater than 10 times the Soluble Threshold Limit Concentration (“STLC”), the sample was also analyzed by the Waste Extraction Test (“WET”). If total lead results were greater than 20 times the Toxicity Characteristic Leaching Procedure (“TCLP”) threshold, the sample was analyzed for leachable lead concentration by TCLP. Analytical results are presented on the attached Table C-1, and the laboratory reports are included in Appendix H.

Total lead concentrations in the 12 soil samples ranged from 1.9 to 1,100 milligrams per kilogram (“mg/kg”). The highest concentration of lead (1,100 mg/kg) was from boring 670SS04, located on the southwest side of the building, at a depth of 0.25 feet bgs. Samples from all four borings showed a decreasing trend in total lead concentration with an increase in depth.

Soluble lead analyses, using the WET, were performed on six samples and the concentrations ranged from 1.7 to 16 milligrams per liter (“mg/l”). Leachable lead analyses, using the TCLP, were performed on six samples and the concentrations ranged from 0.021 to 0.086 mg/l.

Analytical results were screened against California and Federal hazardous waste criteria, San Francisco Bay Regional Water Quality Control Board (“Water Board”) environmental screening levels (“ESLs”), and Presidio Trust screening levels for lead for Building 670. These criteria are shown and referenced on Table C-1.

Total and/or soluble lead concentrations were above California hazardous waste criteria in all samples collected at a depth of 0.25 feet bgs; one sample [670SS02(0.75)], from a depth of 0.75 feet bgs, located on the northeast side of the building (Table C-1) also had concentrations above the soluble lead criteria using WET. None of the samples had

leachable lead concentrations above the federal TCLP criteria for federal hazardous waste.

Total lead concentrations in four samples were above the residential ESL. One sample, 670SS04 (0.25 feet), was above the commercial/industrial and construction worker ESLs and Presidio Trust screening level for Building 670.

Based on these samples results, soil from the ground surface to a depth of 0.75 feet bgs on the northwest, southwest, and southeast sides of the building and soil from the ground surface to a depth of 2.25 feet bgs on the northeast side of the building should be managed as California hazardous waste, once excavated. The remaining soil meets residential, commercial/industrial land use ESLs, construction worker ESLs, and Presidio Trust screening levels for lead for the area around this building.

**TABLE C-1: Building 670 Soil Sample Analytical Results  
Contract 3 of Doyle Drive Replacement Project**

Composite Area	Boring ID	Sample ID	Sample Depth (feet bgs)	Sample Date	Lead Units	Lead, TCLP	Lead, WET
					mg/kg	mg/l	mg/l
670	670SS01	670SS01(0.25)	0.25	4/13/2009	<b>130</b>	<b>0.072</b>	<b>5.2</b>
670	670SS01	670SS01(0.75)	0.75	4/13/2009	<b>8.6</b>	--	--
670	670SS01	670SS01(2.25)	2.25	4/13/2009	<b>3.8</b>	--	--
670	670SS02	670SS02(0.25)	0.25	4/13/2009	<b>200</b>	<b>0.081</b>	<b>7.1</b>
670	670SS02	670SS02(0.75)	0.75	4/13/2009	<b>160</b>	<b>0.021</b>	<b>8.2</b>
670	670SS02	670SS02(2.25)	2.25	4/13/2009	<b>80</b>	--	<b>1.7</b>
670	670SS03	670SS03(0.25)	0.25	4/13/2009	<b>380</b>	<b>0.061</b>	<b>11</b>
670	670SS03	670SS03(0.75)	0.75	4/13/2009	<b>64</b>	--	<b>1.7</b>
670	670SS03	670SS03(2.25)	2.25	4/13/2009	<b>3.9</b>	--	--
670	670SS04	670SS04(0.25)	0.25	4/13/2009	<b>1,100</b>	<b>0.086</b>	<b>16</b>
670	670SS04	670SS04(0.75)	0.75	4/13/2009	<b>280</b>	<b>0.03</b>	<b>3.6</b>
670	670SS04	670SS04(2.25)	2.25	4/13/2009	<b>1.9</b>	--	--
California Hazardous Waste Criteria (mg/kg) <sup>1</sup>					1,000	NA	NA
California Hazardous Waste Criteria (mg/l) <sup>1</sup>					NA	5	5
RCRA Hazardous Waste Criteria (mg/l) <sup>2</sup>					NA	5	5
ESL for Residential Land Use (mg/kg) <sup>3</sup>					200	NA	NA
ESL for Commerical/Industrial Land Use (mg/kg) <sup>4</sup>					750	NA	NA
ESL for Construction/Trench Worker Exposure Scenario (mg/kg) <sup>5</sup>					750	NA	NA
Presidio Trust Lead Screening Level for Building 670 (mg/kg) <sup>6</sup>					400	NA	NA

Notes:

Sampling locations are shown on Figure 2 in the main body of this report.

Laboratory reports are included in Appendix H.

Total lead results are reported on a dry-weight basis in accordance with the Presidio Trust Quality Assurance Project Plan (QAPP).

Values shown in **bold** indicate compound was quantified above the laboratory reporting limit.

 Shaded cells indicate concentrations were greater than or equal to hazardous waste criteria or Environmental Screening Levels ("ESLs") or Presidio Trust Screening Levels.

Total lead analyzed by EPA Methods 6010B.

Soluble lead analyzed by Waste Extraction Test ("WET") and Toxicity Characteristic Leaching Procedure ("TCLP") methods.

bgs = below ground surface.

mg/kg = milligram per kilogram.

mg/l = milligram per liter.

-- = Not analyzed.

NA = Not available.

<sup>1</sup> California Code of Regulations, Title 22, Section 66261.24.

<sup>2</sup> Code of Federal Regulations, Title 40, Chapter 1, Section 261.24.

<sup>3</sup> California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Residential Land Use.

<sup>4</sup> California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table A, Environmental Screening Levels, Shallow Soils (≤ 3 meters bgs), Groundwater is a Current or Potential Source of Drinking Water, Commercial/Industrial Land Use Only.

<sup>5</sup> California Regional Water Quality Control Board, San Francisco Bay Region, 2008, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final, May, Table K-3, Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario.

<sup>6</sup> Presidio Trust, 2008, Presidio-Wide Lead Based Paint in Soil Investigation Work Plan, October, Table 1, Presidio Buildings and Structures by Planning District.