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October 19, 2004

Mr. Paul Miller
King County Department of Transportation
Transit Division, South Base
11911 East Marginal Way S, Building B
Tukwila, Washington 98168-2597

Subject: Environmental Sampling During Construction
Redondo Heights Park-and-Ride
27454 Pacific Highway S
Federal Way, Washington 98003

Dear Mr. Miller:

This letter summarizes Camp Dresser & McKee Inc.'s (CDM's) observations and analytical testing during construction of the Redondo Heights Park-and-Ride facility (site), located at 27454 Pacific Highway S in Federal Way, Washington. A vicinity map is shown in **Figure 1**. CDM's services were performed for the King County Transit Division under Work Order No. 17, Contract No. E23008E.

The new park-and-ride facility includes 700 parking stalls and several small shelters and other structures on a relatively level property. New surface water control features include an oil water separator connected to an underground vault. Pertinent site features are shown on **Figure 2**.

The site originally contained three buildings and associated parking and driveway areas. The buildings were used as office and warehouse space. Development of the new park-and-ride facility began during fall 2003 with demolition and removal of the buildings. Site excavation and grading then commenced.

Soil Sampling

At King County's request, CDM representatives visited the site three times between late October and late November 2003 to investigate potentially contaminated soil discovered during construction. The first visit was on October 28, 2003 in response to a report from the contractor of potentially contaminated soil beneath a building floor slab in the south-central portion of the site. We understood that steam cleaning activities formerly took place in the

building at this location. Soil observed at the location was stained gray and had a noticeable hydrocarbon odor.

One soil sample (designated SS1@2-1/2') was collected 2.5 feet below ground surface (bgs) from a test pit at this location. An organic vapor meter equipped with a photoionization detector (OVM-PID) was used to screen the soil sample. The OVM-PID recorded 180 parts per million (ppm) of volatile organic compounds (VOCs) in the headspace of a bagged portion of the sample. The soil sample was submitted to OnSite Environmental of Redmond, Washington for analysis of total petroleum hydrocarbon (TPH) identification using Northwest Method NWTPH-HCID and VOCs by EPA Method 8260B. Diesel- and oil-range TPH were detected in the HCID analysis, so the sample was further tested by Northwest Method NWTPH-Dx. The analytical laboratory results are summarized in **Table 1** and laboratory reports are attached to this letter.

Diesel-range TPH were present in SS1 at a concentration of 8,100 milligrams per kilogram (mg/kg), which is greater than the Model Toxic Control Act (MTCA) Method A cleanup level of 2,000 mg/kg. Oil-range TPH were also detected at a concentration of 1,000 mg/kg, which is below the Method A cleanup level of 2,000 mg/kg for oil. VOCs were also detected, but above Method A cleanup levels; specifically methylene chloride at 1.1 mg/kg, which is greater than its 0.02 mg/kg cleanup level, and naphthalene at 6.9 mg/kg, which is also greater than its 5 mg/kg cleanup level. Several other Freon and benzene-based compounds were detected at lower concentrations (below 10 mg/kg). Other compounds may have also have been present, but detection limits were elevated due to high petroleum hydrocarbon concentrations.

The second visit occurred on November 14, 2003 in a response to the discovery of potentially contaminated soil during excavations for the stormwater vault. The area of suspect contamination was at the southeast corner of the vault, where there appeared to be an old dump with abundant wood and metal debris mixed with soil. One soil sample, SS-2, was collected from a 4-foot-deep test pit located 16 feet south of the southeast corner of the vault excavation. The soil in this area had a noticeable hydrocarbon-like odor, and field screening of soil sample headspace with OVM-PID detected VOCs in excess of 2,500 ppm.

Sample SS-2 was analyzed for TPH identification (NWTPH-HCID); VOCs by EPA Method 8260B, for diesel- and oil-range TPH by NWTPH-Dx, and for gasoline-range TPH; and benzene, toluene, ethylbenzene and xylenes (BTEX) by method NWTPH-Gx/BTEX. The analytical laboratory results are summarized in **Table 1**. Oil-range TPH was detected at 3,400 ppm, which exceeds the Method A cleanup level of 2,000 ppm. Sample results also

included detections of benzene, toluene, and other VOCs below their respective Method A cleanup levels.

A sample of soil, Stockpile #1, was also collected on November 14, 2003 from an estimated 100-cubic-yard stockpile of visually-impacted soil removed from the southeast corner of the stormwater vault excavation. Field screening with an OVM-PID detected VOCs in the stockpile above the range of the OVM-PID. The soil also had a noticeable hydrocarbon-like odor. The sample was analyzed for TPH identification (NWTPH-HCID), VOCs by EPA Method 8260B, for diesel- and oil-range TPH by NWTPH-Dx, for gasoline-range TPH and BTEX by method NWTPH-Gx/BTEX, polychlorinated biphenyls (PCBs) by EPA method 8082, priority pollutant metals by EPA Methods 6010B and 7471A, and lead by toxicity characteristic leaching procedure (TCLP). The analytical laboratory results are summarized in **Table 1**. Oil-range TPH, cadmium, and lead were detected at concentrations exceeding their Method A cleanup levels. Diesel- and oil-range TPH, benzene, ethylbenzene, toluene, several VOCs, and metals were detected in the sample. No PCBs were detected.

An additional 4,700 yards (for a total estimated quantity of 4,800 cubic yards) of potentially contaminated soil were later removed from the stormwater vault excavation area and stockpiled separately from other "clean" soils. The analytical results from the Stockpile #1 sample were used to characterize the entire 4,800 cubic yards for disposal purposes. The TCLP lead results showed the soil was not a hazardous waste in Washington State and thus suitable for disposal as a solid waste. The soil was ultimately disposed of through Waste Management of Seattle, Washington.

The third visit occurred on November 20, 2003. The stormwater vault excavation had been completed to an approximately 16-foot depth by that time. The oil/water separator excavation was also complete. No groundwater was observed in either excavation at the time of our visit.

Four soil samples were collected at various depths in the southeast corner of stormwater vault excavation to verify conditions at the excavation limit. Samples SS-3, SS-4, SS-5, and SS-6 were collected at 11, 10, 14, and 16 feet bgs, respectively. Field screening using the OVM-PID detected VOCs ranging from 1 to 300 ppm at the sample locations. The soil also had a noticeable hydrocarbon-like odor at three of the four locations. The samples were all analyzed for gasoline-range TPH and BTEX by NWTPH-Gx/BTEX, for diesel- and oil-range TPH by NWTPH-Dx, and for VOCs by EPA Method 8260B. No gasoline- or diesel-range TPH or VOCs were detected in any of the samples except acetone (likely a laboratory contaminant)

and 2-butanone. Oil-range TPH was detected only in SS-6 at 79 ppm, which is below the respective Method A cleanup level of 2,000 ppm.

Summary and Conclusions

Two areas containing petroleum-impacted soil were identified during construction of the Redondo Heights Park-and-Ride. The first area was below a former building in the south central area of the site. We understand no further excavation took place in this area and that it was covered with new fill and paved. The second area was in the southeast corner of the stormwater vault where petroleum-impacted soil and wood/metal debris were encountered. An estimated 4,800 cubic yards (6,797 tons) of impacted soil were removed from this area and disposed of offsite. Although it appears that most of impacted soil was removed, results from the sidewall sampling indicate a potential for additional impacted material to be present outside the excavation limits; however, the entire site is capped with asphalt. The asphalt cap will prevent exposure to any potentially impacted soil.

Very truly yours,

Lance Peterson, P.G.
Senior Hydrogeologist

Attachments

cc: Mr. Gary Kriedt, King County Transit Division

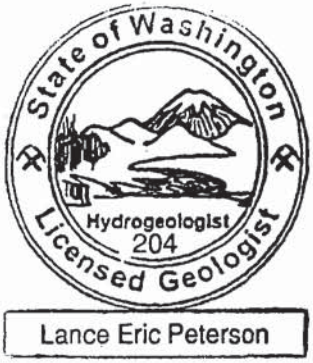

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Table 1
Summary of Soil Analytical Results

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Summary of Soil Analytical Results
King County/Redondo Heights Park-and-Ride
Federal Way, Washington

Compound	MTCA Method A Cleanup Level [a]	Sample I.D., Sample Date, Sample Depth (ft bgs) SS1@2-1/2' 10/28/03 2.5'	SS-2 11/14/03 4'	Stockpile #1 11/14/03	SS4@10' 11/20/03 10'	SS3@11' 11/20/03 11'	SS5@14' 11/20/03 14'	SS6@16' 11/20/03 16'
Total Petroleum Hydrocarbon Identification (HCID) (mg/kg)								
Gasoline		ND	ND	D	--	--	--	--
Diesel		D	ND	D	--	--	--	--
Lube Oil		D	D	D	--	--	--	--
Total Petroleum Hydrocarbons (mg/kg)								
NWTPH-Gx - Gasoline	100		39 Z	560 Z	<5.8	<5.7	<28	<5.6
NWTPH-Dx - Diesel	2,000	8,100	<28	1,300	<29	<28	<28	<28
NWTPH-Dx - Lube Oil	2,000	1,000	3,400	7,300	<58	<57	<56	79
BTEX (mg/kg)								
Benzene	0.03	--	0.026	<0.023	--	--	--	--
Toluene	7	--	0.092	<0.11	--	--	--	--
Ethylbenzene	6	--	<0.056	0.56	--	--	--	--
m,p-Xylene	9	--	0.16	1.2	--	--	--	--
o-Xylene	9	--	0.11	1.6	--	--	--	--
PCBs (mg/kg)								
Aroclor 1016		--	--	<0.057	--	--	--	--
Aroclor 1221		--	--	<0.057	--	--	--	--
Aroclor 1232		--	--	<0.057	--	--	--	--
Aroclor 1242		--	--	<0.057	--	--	--	--
Aroclor 1248		--	--	<0.057	--	--	--	--
Aroclor 1254		--	--	<0.057	--	--	--	--
Aroclor 1260		--	--	<0.057	--	--	--	--
TCLP Lead (mg/L)								
Lead	5 [b]	--	--	0.47	--	--	--	--
Priority Pollutant Metals (mg/kg)								
Antimony		--	--	<5.7	--	--	--	--
Arsenic	20	--	--	16	--	--	--	--
Beryllium		--	--	<0.57	--	--	--	--
Cadmium	2	--	--	2.7	--	--	--	--
Chromium		--	--	45	--	--	--	--
Copper	2,960 [c]	--	--	110	--	--	--	--
Lead	250	--	--	400	--	--	--	--
Mercury	2	--	--	<0.29	--	--	--	--
Nickel		--	--	17	--	--	--	--
Selenium		--	--	<11	--	--	--	--
Silver	400 [c]	--	--	2.2	--	--	--	--
Thallium		--	--	<5.7	--	--	--	--
Zinc	24,000 [c]	--	--	400	--	--	--	--
Volatile Organic Compounds (mg/kg)								
Dichlorodifluoromethane	16,000 [c]	2.4	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Chloromethane		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Vinyl Chloride		<0.11	<0.0056	0.010	<0.0012	<0.0011	<0.0011	<0.0011
Bromomethane		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Chloroethane		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Trichlorofluoromethane	24,000 [c]	0.56	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011

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		SS1@2-1/2' 10/28/03 2.5'	SS-2 11/14/03 4'	Stockpile #1 11/14/03	SS4@10' 11/20/03 10'	SS3@11' 11/20/03 11'	SS5@14' 11/20/03 14'	SS6@16' 11/20/03 16'
1,1-Dichloroethene		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Acetone	8,000 [c]	<0.57	**0.29** B	**0.11**	**0.081**	**0.046**	**0.023**	<0.0056
Iodomethane		<0.57	<0.028	<0.029	<0.0058	<0.0057	<0.0056	<0.0056
Carbon Disulfide		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Methylene Chloride	0.02	**1.1**	<0.028	<0.029	<0.0058	<0.0057	<0.0056	<0.0056
trans-1,2-Dichloroethene		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Methyl t-Butyl Ether		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
1,1-Dichloroethane		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Vinyl Acetate		<0.57	<0.028	<0.029	<0.0058	<0.0057	<0.0056	<0.0056
2,2-Dichloropropane		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
cis-1,2-Dichloroethene		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
2-Butanone		<0.57	**0.043**	<0.029	**0.0058**	<0.0057	<0.0056	<0.0056
Bromochloromethane		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Chloroform		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
1,1,1-Trichloroethane		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Carbon Tetrachloride		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
1,1-Dichloropropene		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Benzene		<0.11	**0.0070**	**0.011**	<0.0012	<0.0011	<0.0011	<0.0011
1,2-Dichloroethane		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Trichloroethene		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
1,2-Dichloropropane		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Dibromomethane		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Bromodichloromethane		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
2-Chloroethyl Vinyl Ether		<0.57	<0.028	<0.029	<0.0058	<0.0057	<0.0056	<0.0056
cis-1,3-Dichloropropene		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Methyl Isobutyl Ketone		<0.57	<0.028	<0.029	<0.0058	<0.0057	<0.0056	<0.0056
Toluene	7	<0.11	**0.015**	**0.044**	<0.0012	<0.0011	<0.0011	<0.0011
trans-1,3-Dichloropropene		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
1,1,2-Trichloroethane		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Tetrachloroethene		<0.22	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
1,3-Dichloropropane		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
2-Hexanone		<0.57	<0.028	<0.029	<0.0058	<0.0057	<0.0056	<0.0056
Dibromochloromethane		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
1,2-Dibromoethane		<0.11	<0.0056	<0.0057	<0.0058	<0.0057	<0.0056	<0.0056
Chlorobenzene		<0.11	<0.0056	**0.085**	<0.0012	<0.0011	<0.0011	<0.0011
1,1,1,2-Tetrachloroethane		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Ethylbenzene		**0.43**	<0.0056	**0.062**	<0.0012	<0.0011	<0.0011	<0.0011
m,p-Xylene	9	**2.6**	**0.029**	**0.29**	<0.0023	<0.0023	<0.0022	<0.0022
o-Xylene	9	**1.6**	**0.028**	**0.33**	<0.0012	<0.0011	<0.0011	<0.0011
Styrene		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Bromoform		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
Isopropylbenzene		**0.57**	**0.0090**	**0.10**	<0.0012	<0.0011	<0.0011	<0.0011
Bromobenzene		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
1,1,2,2-Tetrachloroethane		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
1,2,3-Trichloropropane		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
n-Propylbenzene		**2.0**	**0.0080**	**0.43**	<0.0012	<0.0011	<0.0011	<0.0011
2-Chlorotoluene		<0.11	<0.0056	<0.057	<0.0012	<0.0011	<0.0011	<0.0011
4-Chlorotoluene		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011
1,3,5-Trimethylbenzene		**6.1**	**0.082**	**1.1**	<0.0012	<0.0011	<0.0011	<0.0011
tert-Butylbenzene		<0.11	<0.0056	**0.050**	<0.0012	<0.0011	<0.0011	<0.0011
1,2,4-Trimethylbenzene		**16**	**0.077**	**2.8**	<0.0012	<0.0011	**0.0025**	<0.0011
sec-Butylbenzene		**1.7**	**0.0083**	**0.42**	<0.0012	<0.0011	<0.0011	<0.0011

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1,3-Dichlorobenzene		<0.11	<0.0056	**0.0068**	<0.0012	<0.0011	<0.0011	<0.0011
p-Isopropyltoluene		**2.1**	**0.019**	**0.63**	<0.0012	<0.0011	<0.0011	<0.0011
1,4-Dichlorobenzene	41.7 [c]	<0.11	<0.0056	**0.030**	<0.0012	<0.0011	<0.0011	<0.0011
1,2-Dichlorobenzene	7200 [c]	<0.11	<0.0056	**0.049**	<0.0012	<0.0011	<0.0011	<0.0011
n-Butylbenzene		**5.6**	<0.0056	**0.56**	<0.0012	<0.0011	<0.0011	<0.0011
1,2-Dibromo-3-chloropropane		<0.57	<0.028	<0.029	<0.0058	<0.0057	<0.0056	<0.0056
1,2,4-Trimethylbenzene		<0.11	<0.0056	**0.025**	<0.0012	<0.0011	<0.0011	<0.0011
Hexachlorobutadiene		<0.57	<0.028	<0.029	<0.0058	<0.0057	<0.0056	<0.0056
Naphthalene	5	**6.9**	<0.0056	**0.33**	<0.0012	<0.0011	<0.0011	<0.0011
1,2,3-Trichlorobenzene		<0.11	<0.0056	<0.0057	<0.0012	<0.0011	<0.0011	<0.0011

Notes:
a) Washington Administrative Code Chapter 173-340, Model Toxics Control Act Cleanup Regulation, Method A suggested soil cleanup level for unrestricted land uses; promulgated August 15, 2001.
b) From Dangerous Waste Regulations, Chapter 173-303-090 WAC.
c) Model Toxics Control Act, Standard Method B values for soil (unrestricted land use) - the lower of direct contact carcinogen or non-carcinoger
D - analyte detected by HCID method.
ND - analyte not detected by HCID method.
mg/kg - milligrams per kilogram.
mg/L - milligrams per liter.
Z - Chromatogram is similar to Mineral Spirits and Diesel-Range Organics.
-- not analyzed.
< - analyte not detected at or greater than the listed concentration.

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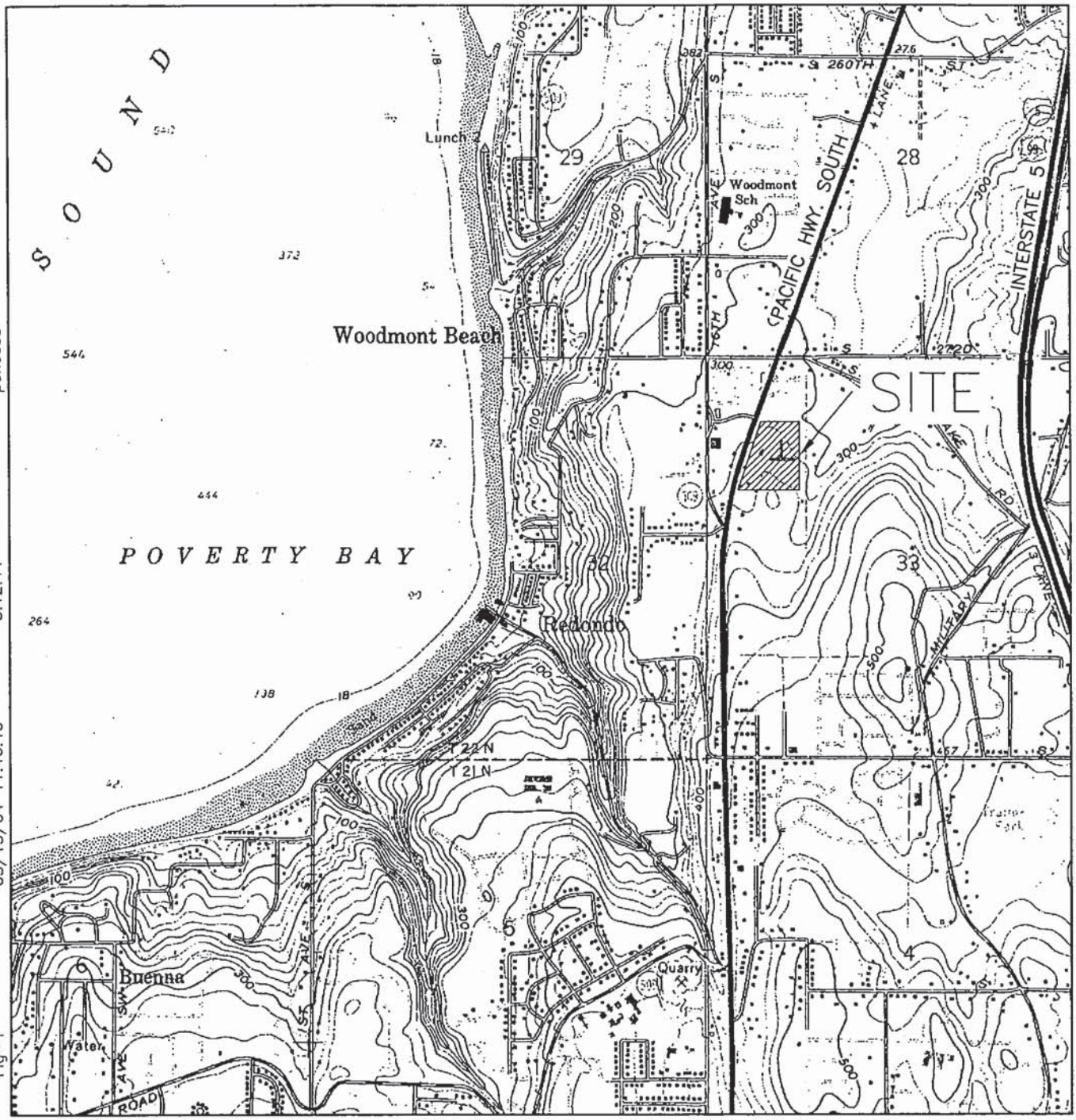
Figures



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USGS – POVERTY BAY, WASHINGTON QUADRANGLE 1961

KING COUNTY
REDONDO HEIGHTS PARK-AND-RIDE
FEDERAL WAY, WASHINGTON

Figure No. 1
Vicinity Map

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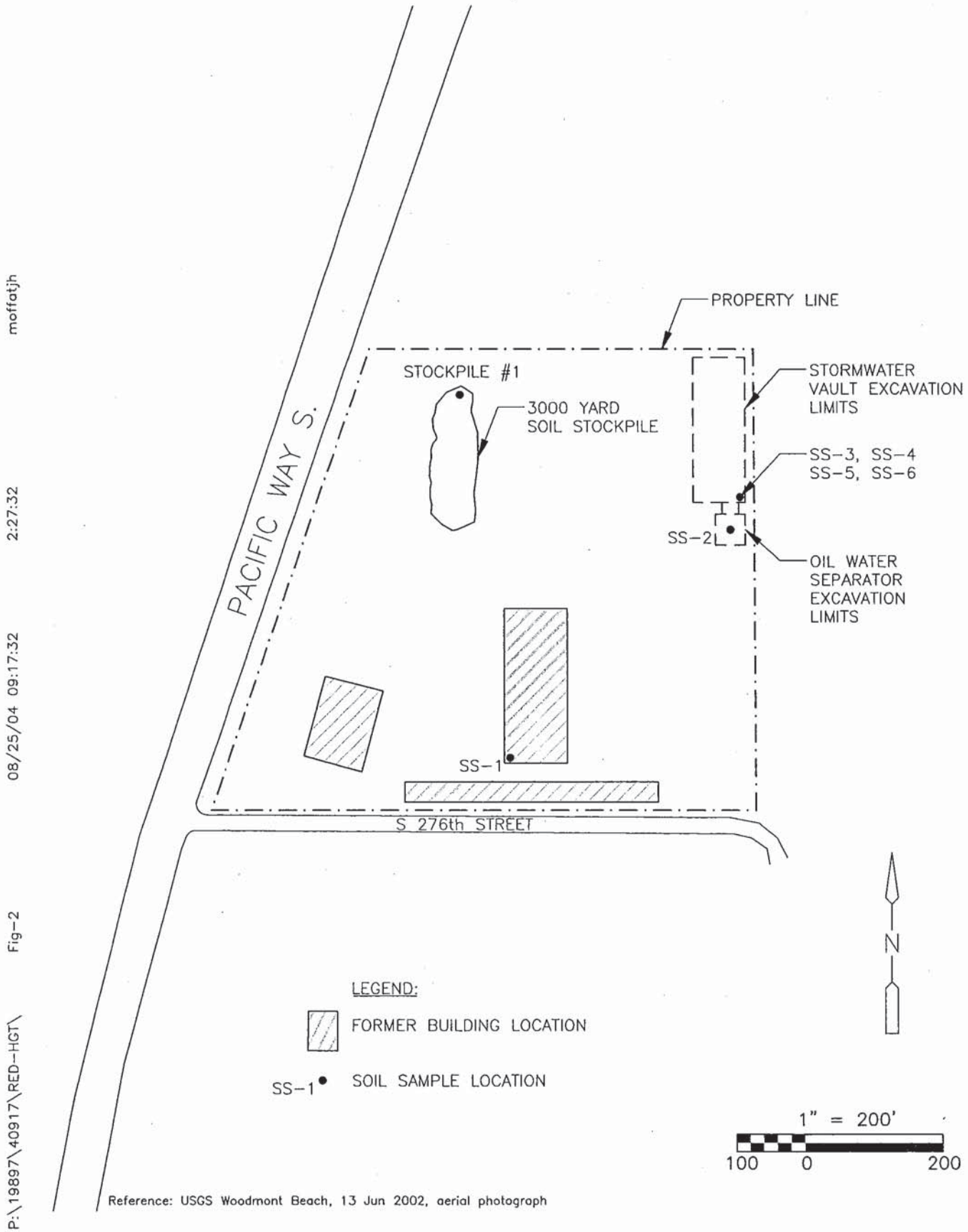

KING COUNTY REDONDO HEIGHTS
PARK-AND-RIDE FEDERAL WAY,
WASHINGTON

Figure No. 2
Site Plan

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Attachment 1
Analytical Laboratory Reports