REPORT
SOIL AND GROUNDWATER INVESTIGATION
FORMER CASTRO VALLEY UNIFIED SCHOOL DISTRICT CORPORATION YARD
21000 WILBEAM AVENUE
CASTRO VALLEY, CALIFORNIA

Job No. 03715-051-043
August 23, 1993

DAMES & MOORE

b:BART/GES3.021

DAMES & MOORE

221 MAIN STREET, SUITE 600, SAN FRANCISCO, CALIFORNIA 94105-1917
(415) 896-5858 FAX: (415) 882-9261

August 23, 1993
Job No. 03715-051-043

Alameda County Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, CA 94621

Attention: Mr. Scott Seery
Senior Hazardous Materials Specialist

Dear Mr. Seery:

Report
Subsurface Investigation for Unauthorized Release
Former School District Corporation Yard
21000 Wilbeam Avenue
Castro Valley Station

Dames & Moore is pleased to present this report for the subsurface investigation conducted to further address the unauthorized release of fuel hydrocarbon products from underground storage tanks that were removed from the former Castro Valley Unified School District Corporation Yard located at 21000 Wilbeam Avenue in Castro Valley, California.

If you have any questions or comments regarding this report please do not hesitate to contact us.

Very truly yours,

DAMES & MOORE

Dana Brock, P.E., C.E.G.
Senior Geologist

Erik Skov
Project Geologist

b:BART/GES3.021

REPORT
SOIL AND GROUNDWATER INVESTIGATION
FORMER CASTRO VALLEY UNIFIED SCHOOL
DISTRICT CORPORATION YARD
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DISTRICT CORPORATION YARD
21000 WILBEAM AVENUE
CASTRO VALLEY, CALIFORNIA

1.0 INTRODUCTION

This Report presents the results of the soil and groundwater investigation conducted to evaluate the extent of any petroleum hydrocarbon contamination associated with the unauthorized release of fuel hydrocarbons from underground storage tank(s) (USTs) located at the former Castro Valley Unified School District (CVUSD) Corporation Yard (the site) at 21,000 Wilbeam Avenue in Castro Valley, California (Figure 1). The site will be used for part of the parking lot at the proposed Castro Valley BART station. The scope of work conducted for this investigation was done in accordance with our Work Plan dated January 5, 1993.

1.1 SITE HISTORY

The site is owned by the Bay Area Rapid Transit District (BART) and was leased to the CVUSD for the past 30+ years. The former corporation yard occupies approximately 60,000 square feet and is accessed from Wilbeam Avenue. It was used as the school district's maintenance/service yard. The school district utilized the site for several different purposes including: district vehicle service, maintenance and storage, landscape equipment service, maintenance, and storage, storage of school supplies and food, and workshops to support maintenance activities at other school district locations (Figure 2). In order to support the service and maintenance activities for district vehicles and landscape equipment, the school district operated two small (approximately 2,000 gallon) USTs at the site.

A Preliminary Site Assessment (PSA) was conducted for the Dublin/ Pleasanton BART extension during December 1990 (PHASE A) and April 1991 (PHASE 2A). The PSA identified two small USTs reported to contain gasoline and diesel fuel and a fuel dispensing island. According to the CVUSD maintenance supervisor, the two USTs were installed around 1957 and used for the storage of gasoline and diesel fuel for school district vehicles and equipment. Fuel was dispensed through two product dispensers located in the center of a concrete slab overlying the USTs.

Prior to removal of these tanks in 1992 (described in Section 1.2) a preliminary environmental investigation was conducted at the site. Part of this investigation included drilling three soil borings in the vicinity of the tanks to evaluate subsurface conditions prior to excavation and removal of the tanks. Both soil and grab groundwater samples were collected from the borings and analyzed. The results of the environmental investigation are presented in our report entitled "Underground Storage Tank Removal, Asbestos Removal and Environmental Investigation, Former School District Corporation Yard, Castro Valley Station" dated August 26, 1992 (Dames & Moore). A copy of this report was submitted to the Alameda County Department of Environmental Health, Hazardous Materials Division (ACDEHHMD).

1.2 TANK REMOVAL

During June 1992, the exact locations of the USTs were determined and they were prepared for removal and disposal. During excavation of the soil overlying the tanks, an abandoned product line was discovered near the former regular gasoline dispenser. At the request of Mr. Scott Seery of the ACDEHHMD, the line was excavated. The line terminated near a small patched area in a part of the concrete slab that had not been removed in order to take out the tanks. Upon excavation of the concrete and soil under the patched area another pipe was discovered. The new pipe was oriented vertically and upon closer examination was determined to be the fill pipe for a third tank. The presence of the third tank was not previously documented. The concrete and soil overlying the third, previously unknown tank, was excavated to confirm the presence of the tank. The tank was then prepared for removal subsequent to approval from BART and modification of the closure permit by the ACDEHHMD. The details of the tank removals are presented in the "Tank Closure Report, Underground Storage Tank Removal, Former School District Corporation Yard, Castro Valley Station."

The two tanks known to be on site were removed on June 25, 1992. The tank containing regular gasoline was of single wall steel construction and measured 8.75 feet long by 6.0 feet in diameter, corresponding to a volume of approximately 1,850 gallons. Upon removal from the excavation, the tank was inspected and found to have a large hole (greater than one-half inch diameter) in the end of the tank near the top of the rim.

The diesel tank was constructed of thick gauge single wall steel and measured 12.0 feet long by 6.0 feet in diameter, corresponding to a volume of approximately 2,500 gallons. Upon removal it was found to be slightly corroded and pitted in some areas. No holes were observed.

The third, previously undocumented tank, was removed on June 26, 1992. It was of single wall steel construction and measured 12.0 feet long by 4.0 feet in diameter corresponding to a volume of approximately 1,150 gallons. Upon removal it was inspected and found to have numerous holes in the bottom, top, and ends.

Prior to removal of the tanks from the excavations, all residual product remaining in the tanks was pumped out. Approximately 13.0 inches of product were pumped from the diesel tank and 19.0 inches of residual product were pumped out of the gasoline tank. Upon removal of the overlying soil from the third tank it was observed that the tank was filled with water and contained no residual product. The water in the third tank was pumped out prior to tank removal. All fluids pumped from the tanks and generated during rinsing of the tanks were collected and disposed of by Erickson, Inc. of Richmond, California at Refinery Services Company in Patterson, California.

After the tanks were removed from the excavations and their conditions documented, confirmatory soil samples were collected from the side walls of the excavations in areas approved by the ACDEHHMD inspector. Confirmatory samples were collected, using the bucket of the excavator, from just above the standing water line in the excavations. Groundwater was encountered in the bottoms of the excavations, at approximately 10.0 feet bgs and rose to approximately 5.5 to 6.0 feet bgs when allowed to equilibrate in the open excavations. In addition confirmatory samples were also collected from beneath the two product dispensers and along the vent tube line for the regular gas tank.

Soil samples were collected by manually driving clean 3-inch diameter stainless steel sample rings into the freshly excavated soil at the tooth end of the excavator bucket. Samples were not collected from the floor of the excavation, as originally proposed, because of the presence of groundwater in the base of the excavations. The groundwater in the excavation was not required to be sampled, as would normally be required, because groundwater samples were previously collected and analyzed, as described in Section 1.1.

The soil samples were analyzed for Total Petroleum Hydrocarbons (TPH) as gasoline, TPH as diesel, benzene, toluene, ethylbenzene, and xylenes (BTEX), and total lead by EPA Methods 8015M as gasoline, 8015M as diesel, 8020, and 6010 respectively.

Based on the results of the confirmatory sampling from the third tank excavation and beneath the fuel dispensers, additional excavation was needed in these areas to reduce concentrations of fuel hydrocarbons in soil to acceptable levels in order to obtain approval from the ACDEHHMD

to backfill the excavations. Approximately 100 cubic yards of additional soil were removed from these areas. After over-excavation was complete there were no detectable levels of TPH as gasoline or TPH as diesel in the confirmatory samples from the three excavations.

Approximately 250 cubic yards of soil were generated during excavation and removal of the tanks. After proper waste characterization analyses were conducted, the soil was disposed of at the Browning Ferris Industries Class III landfill in Livermore, California.

Prior to backfilling of the excavations, approximately 15,000 gallons of groundwater encountered during removal of the tanks was pumped from the excavations into a holding tank. After appropriate analytical testing was conducted, the Ora Loma Sanitary District approved the request for discharge of the water to their sewer system.

At the time the tanks were removed there were no data available regarding prior tank testing or results of any testing. In addition there was no documentation indicating that any product was ever lost from the tanks, and, therefore, the volume of product discharged is unknown. After the tanks were removed from the excavations and it became apparent that release of fuel hydrocarbons had occurred, an Unauthorized Release Report was filed with the ACDEHHMD.

2.0 SITE DESCRIPTION

2.1 PHYSICAL CHARACTERISTICS

The project site is a relatively flat area that was formerly the Castro Valley School District Corporation Yard. In preparing the site for the proposed parking lot construction, all structures located on the site including all concrete and asphalt surfaces were demolished and removed, and it is currently an empty lot. Prior to demolition, the site contained six buildings, a pump island, and three underground storage tanks (Figure 2).

2.2 HYDROGEOLOGIC SETTING

2.2.1 Physiography

The site is located along Dublin Canyon in Castro Valley. Castro Valley is an intermountain alluvial basin within the East Bay Hills. Dublin Canyon trends east-west across the East Bay Hills. The valley floor has an average elevation of 175 feet above mean sea level (msl), while Dublin Canyon reaches to 740 feet above msl.

2.2.2 Regional Geology

The site is located in the Sunol structural block (Hall, 1958), which is an uplifted fault block. The Sunol block is separated from the Bay block to the west by the Hayward fault zone and from the Livermore block to the east by the Calaveras fault zone. Significant active (surface displacement within the last 11,000 years) faults in the vicinity of the site are the Calaveras (8.1 miles east), Hayward (1.5 miles west), San Andreas (18.4 miles southwest), and Pleasanton (10.1 miles southeast) faults. Northwest trending inactive faults and folds are common within the Sunol block. The closest fault to the site is the inactive Chabot fault, which is buried beneath Castro Valley alluvial deposits.

Castro Valley is underlain by fill, alluvium and bedrock. The fill is thickest close to Interstate 580 (up to 20 feet thick) and consists of variable proportions of clay, silt, sand, gravel, and cobbles with occasional boulders. Alluvium in the site vicinity is believed to be up to 80 feet thick consisting of discontinuous lenses of clayey, medium dense sand, silt, and gravel. Bedrock beneath the alluvium consists of the Cretaceous Niles Canyon Formation, which is a sandy shale, siltstone, and interbedded sandstone and claystone.

2.2.3 Site Stratigraphy

The stratigraphy of the soils underlying the site are known from observations made in soil borings previously drilled at the site and from the walls of the tank excavations. The upper 1.0 to 2.5 feet of soil consists of brownish yellow sand fill with occasional silt and gravel. The interval from approximately 2.5 to 8.0 feet bgs consists of a dark grey to olive grey clay grading with sands and gravels. The lithology from 8.0 to 9.5 feet bgs consists of brown to yellowish brown silty sand/sandy clay.

2.2.4 Hydrogeology

Previous investigations performed at the site during June 1992 included soil borings drilled to depths below the water table. First encountered groundwater was found within the unconsolidated alluvial deposits at depths ranging from 10.0 to 12.0 bgs. When allowed to equilibrate in the open boreholes the water level rose within 5.0 feet of the ground surface indicating locally confined groundwater conditions.

3.0 OBJECTIVE AND SCOPE OF SERVICES

The objective of this investigation was to evaluate the extent of hydrocarbon contamination in soil and groundwater at the site from the USTs. In order to obtain the objective, the following scope of services was performed:

- Drill three soil borings and complete as groundwater monitoring wells;
- Submit two soil samples from each boring for chemical analysis;
- Collect and analyze groundwater samples from the three monitoring wells;
- Collect water level measurements from the wells; and
- Prepare this report detailing the results of the investigation.

4.0 FIELD INVESTIGATION

Dames & Moore conducted the well installation and sampling at the site on February 18 through 25, 1993. The scope of work included the installation and sampling of three monitoring wells. The procedures for well installation and sampling are described below.

4.1 DRILLING AND SOIL SAMPLING

Drilling and sampling activities were conducted by Great Sierra Exploration of Union City, California. The location of the three monitoring wells, MW-1, MW-2, and MW-3 is shown on Figure 3.

Monitoring well borings were advanced using a truck-mounted CME-75 drill rig equipped with 8-inch diameter hollow-stem augers. The total depth of each boring was 15.5 feet. Soil samples were collected at five-foot intervals using a split spoon sampler, lined with 2.5-inch diameter, 3-inch long stainless steel rings. Soil samples were described and classified according to the Unified Soil Classification System and screened for the presence of petroleum hydrocarbons using and organic vapor meter (OVM). Boring logs for each well are presented in Appendix A of this report.

Following retrieval from the sampler, soil rings were sealed with teflon liners and plastic end caps, and labeled with the following information: job number, client name, boring number, date, sample number, depth, and sampler's initials. Based on results of the OVM screening and visual observations of the samples, two soil samples from above the water table in each boring were submitted for chemical analyses. Soil samples for submittal to the laboratory for chemical analysis were sealed in plastic sample bags and placed in a cooler with ice for preservation. A courier from CKY incorporated Environmental Services (CKY), of Pleasanton, California, picked up the samples from the site. Selected soil samples were analyzed for TPH as gasoline, TPH as diesel, BTEX, and total lead by EPA Methods 8015M as gasoline, 8015M as diesel, 8020 and 6010, respectively. Sample chain-of-custody (COC) documentation was maintained from the time of collection and accompanied the samples to the laboratory. A copy of the COC is included in Appendix B.

Between sampling intervals, the sampler was cleaned using a dilute solution of Alconox and double rinsed with deionized water. Between each boring location, all down-hole drilling and sampling equipment was steam cleaned. All soil and wastewater generated during drilling and decontamination was collected in 55-gallon DOT approved drums.

4.2 MONITORING WELL INSTALLATION AND DEVELOPMENT

Monitoring wells were constructed of 2-inch diameter schedule 40 PVC. A 0.010-inch machine slotted screen was used for each well. The filter pack consisted of Lonestar 2/16, kiln-dried, graded sand extending from the bottom of each boring to a depth of one-foot above the top of the screened interval. A one-foot bentonite seal was placed in the annulus above the filter pack. The remainder of the annular space was sealed with a bentonite-grout mixture. The well was completed slightly above ground surface with a locking cap and traffic-rated Christy Box embedded in concrete. Well completion details for each of the three monitoring wells are included on the boring logs in Appendix A.

Following completion of the well installations, the well casing was surveyed with reference to an established benchmark and the elevation of the top of the casing was recorded to the nearest 0.01 foot. Top of casing elevations for each of the three wells are included on the boring logs.

After completion, the wells were allowed to stand for five days prior to development. The wells were developed on February 23, 1993, by Great Sierra Exploration. Development consisted of a combination of surging and bailing. Physical parameters of pH, conductivity and temperature

were monitored and recorded during development. A minimum of ten casing volumes of water was removed from each well during development.

4.3 GROUNDWATER SAMPLING

After development was complete, the wells were allowed to sit for 48 hours prior to purging and sampling. Groundwater samples were collected from each well on February 25, 1993. Prior to measuring the water levels in each well, the locking caps were removed and the wells were allowed to stabilize for 10 to 15 minutes prior to reading the water levels. Water levels were measured using an electronic water level indicator. Wells were purged by bailing until a minimum of four casing volumes were removed from each well and the physical parameters of pH, conductivity and temperature had stabilized. Once purging was completed, the water level was allowed to recover to 80% of its original static level prior to sampling.

Groundwater samples were collected using disposable polyethylene bailers with bottom discharging devices. Samples were transferred directly to laboratory supplied containers and labeled with the following information: job number, client name, location, date, time, and sampler's initials. Samples were then sealed in plastic bags and placed in a cooler with ice for preservation. The samples were delivered to CKY and were analyzed for TPH as gasoline, TPH as diesel, BTEX, and total lead by EPA Methods 8015M as gasoline, 8015M as diesel, 8020 and 6010, respectively. One trip blank accompanied the groundwater samples to the laboratory, and was analyzed for TPH as gasoline and BTEX. Chain-of-Custody documentation was maintained and accompanied the samples to the laboratory.

4.4 WATER LEVEL MONITORING

Depth to groundwater was measured in the three monitoring wells on February 25, March 25, April 22, and May 10, 1993. These measurements were used in conjunction with well casing elevations to calculate the groundwater elevation in the monitoring wells. Table 1 summarizes these measurements and the corresponding groundwater elevations.

5.0 INVESTIGATION RESULTS

5.1 SOIL ANALYTICAL RESULTS

Table 2 summarizes the analytical results for the soil samples collected from the monitoring well borings. As shown in Table 2, TPH as gasoline, TPH as diesel, and BTEX were not detected

in any of the six soil samples. Total lead was detected in the 4-foot sample from MW-1 and the 5-foot samples from MW-2 and MW-3, at 5.8, 7.0, and 7.2 mg/kg, respectively. Total lead was detected in the 10-foot samples from MW-1 and MW-2 at 6.9 and 8.8 mg/kg. Copies of the analytical reports and chain-of-custody documentation for the soil samples are included in Appendix B.

5.2 GROUNDWATER ANALYTICAL RESULTS

Table 3 summarizes the analytical results for the groundwater samples collected from the monitoring wells. As shown in Table 3, TPH as gasoline, TPH as diesel, and BTEX were not detected in any of the groundwater samples. Total lead was detected in MW-1, MW-2, and MW-3, at 94, 76, and 37 μg/l, respectively. TPH as gasoline and BTEX were not detected in the trip blank. Copies of the analytical reports and chain-of-custody documents for the groundwater samples are included in Appendix B.

5.3 GROUNDWATER GRADIENT AND FLOW DIRECTION

As shown in Table 1, the groundwater elevations have fluctuated over the four month period that water levels were monitored. Groundwater elevation contour maps were generated using the monthly groundwater elevation data. These maps are presented on Figures 4 through 7. As shown on Figure 4, the groundwater flow direction during February was slightly south of west at an average gradient of approximately 0.025. During March the groundwater flow direction was south at an average gradient of approximately 0.011 (Figure 5). Groundwater flow direction during April (Figure 6) was to the southwest at an average gradient of approximately 0.020. Groundwater flow direction during May (Figure 7) was slightly southwest at an average gradient of approximately 0.010.

6.0 DISCUSSION OF RESULTS

Soil and groundwater samples submitted for chemical analysis were below the laboratory reporting limit for TPH as gasoline, TPH as diesel, and BTEX. Lead detected in the soil was in the range of expected background levels in the western United States (18 ppm).[1] Lead concentrations in the groundwater samples were below the EPA established maximum

[1]Connor, J.J., and Schacklette, H.T., 1975. Background Geochemistry of Some Rocks, Soils, Plants, and Vegetables in the Coterminous United States. USGS Professional Paper 574-F.

contaminant level for drinking water sources in MW-2 and MW-3; and above the level in MW-1.

Groundwater elevations, gradients, and flow directions have varied greatly over the four months that the levels were monitored. This is likely due to recharge to the groundwater table from heavy rains that persisted through March of 1993. The groundwater flow direction has shifted up to 90 degrees over the monitored period. Gradient was also inconsistent over the same period.

7.0 CONCLUSIONS

Based on the results of soil and groundwater sampling and work conducted during tank removal activities, overexcavation of approximately 100 yd^3 of contaminated soil and dewatering of tank excavation pits prior to backfilling, it does not appear the groundwater in the immediate vicinity of the former tank locations has been effected by the release from the tank at the site. Although lead concentrations in MW-1 are slightly above the MCL, the lack of petroleum hydrocarbon detections from the same water samples suggest that the lead is at background levels with respect to the UST.

8.0 RECOMMENDATIONS

Based on the conclusion that the UST and soil removal activities have removed the threat to groundwater at the site and that groundwater does not appear to have been affected by the UST, Dames & Moore recommends closure of the site and abandonment of the monitoring wells. We suggest that a final groundwater sample from each well be collected and analyzed for the above-described analytes prior to closure.

TABLE 1
GROUNDWATER LEVEL MEASUREMENTS

Well No.	Date Collected	Depth to Water (feet)	TOC[1] Elevation	Groundwater Surface Elevation
MW-1	2/25/93	2.44	164.68	162.24
	3/25/93	2.41		162.27
	4/22/93	2.99		161.69
	5/10/93	3.47		161.21
MW-2	2/25/93	2.47	164.64	162.17
	3/25/93	2.86		161.78
	4/22/93	3.52		161.12
	5/10/93	3.50		161.14
MW-3	2/25/93	2.54	165.58	163.04
	3/25/93	3.73		161.85
	4/22/93	3.93		161.65
	5/10/93	4.10		161.48

Notes: [1] TOC = Top of casing. Elevation referenced to Mean Sea Level.

TABLE 2
SOIL ANALYTICAL RESULTS[1]
MONITORING WELL INSTALLATION
FORMER SCHOOL DISTRICT CORPORATION YARD
CASTRO VALLEY CALIFORNIA

Monitoring Well No.	Sample No.	Depth (feet)	Analytes						
			TPH as Gasoline	TPH as Diesel	B[2]	T[2]	E[2]	X[2]	Total Lead
MW-1	1A	4.0	ND[3]	ND	ND	ND	ND	ND	5.8
MW-1	2A	10.0	ND	ND	ND	ND	ND	ND	6.9
MW-2	1A	5.0	ND	ND	ND	ND	ND	ND	7.0
MW-2	2A	10.0	ND	ND	ND	ND	ND	ND	8.8
MW-3	1A	5.0	ND	ND	ND	ND	ND	ND	7.2
MW-3	2A	10.0	ND	ND	ND	ND	ND	ND	ND
Detection Limits			5.0	5.0	0.005	0.005	0.005	0.005	5.0

Notes: (1) All analyses performed by CKY Environmental Services of Pleasanton, California. All results reported in mg/kg (ppm) unless otherwise stated. See Appendix B for copies of Laboratory Reports.

(2) BTEX = Benzene, Toluene, Ethylbenzene and Xylenes

(3) ND = Not Detected

TABLE 3
GROUNDWATER ANALYTICAL RESULTS[1]
FORMER SCHOOL DISTRICT CORPORATION YARD
CASTRO VALLEY CALIFORNIA

Monitoring Well No.	Analytes						
	TPH as Gasoline	TPH as Diesel	B[2]	T[2]	E[2]	X[2]	Total Lead
MW-1	ND[3]	ND	ND	ND	ND	ND	94[5]
MW-2	ND	ND	ND	ND	ND	ND	76[5]
MW-3	ND	ND	ND	ND	ND	ND	37[5]
Trip Blank	ND	NA[4]	ND	ND	ND	ND	NA
Detection Limit	1.0	1.0	1.0[5]	1.0[5]	1.0[5]	1.0[5]	10.0[5]

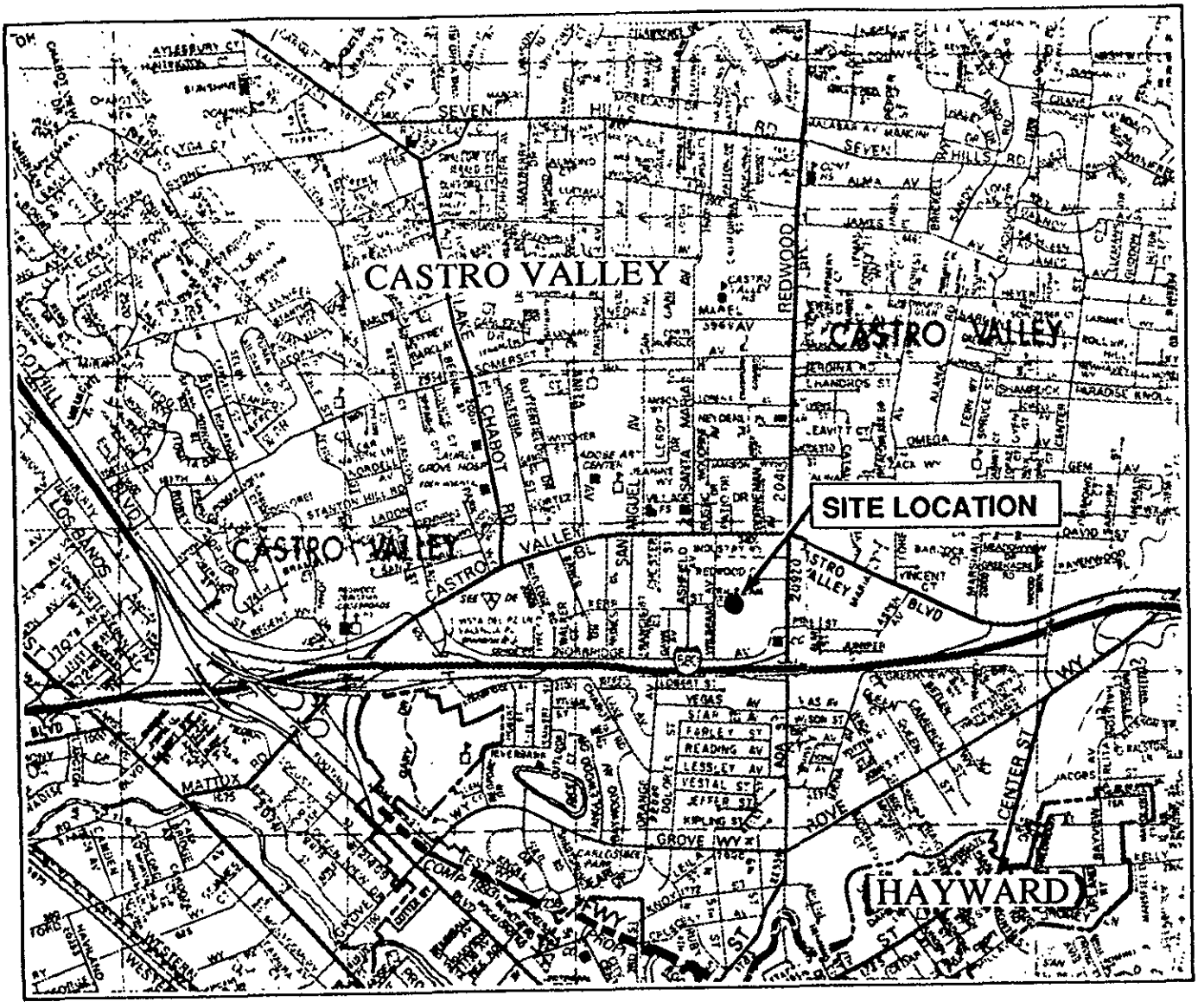
Notes: [1] All analyses performed by CKY Environmental Services of Pleasanton, California. All results reported in mg/l unless otherwise stated. See Appendix B for copies of Laboratory Reports.

[2] BTEX = Benzene, Toluene, Ethylbenzene and Xylenes

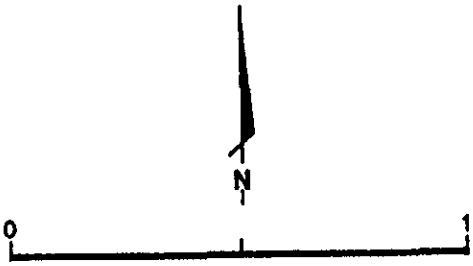
[3] ND = Not Detected

[4] NA = Not Analyzed

[5] Analytical Results and Detection Limit in μg/L (ppb)



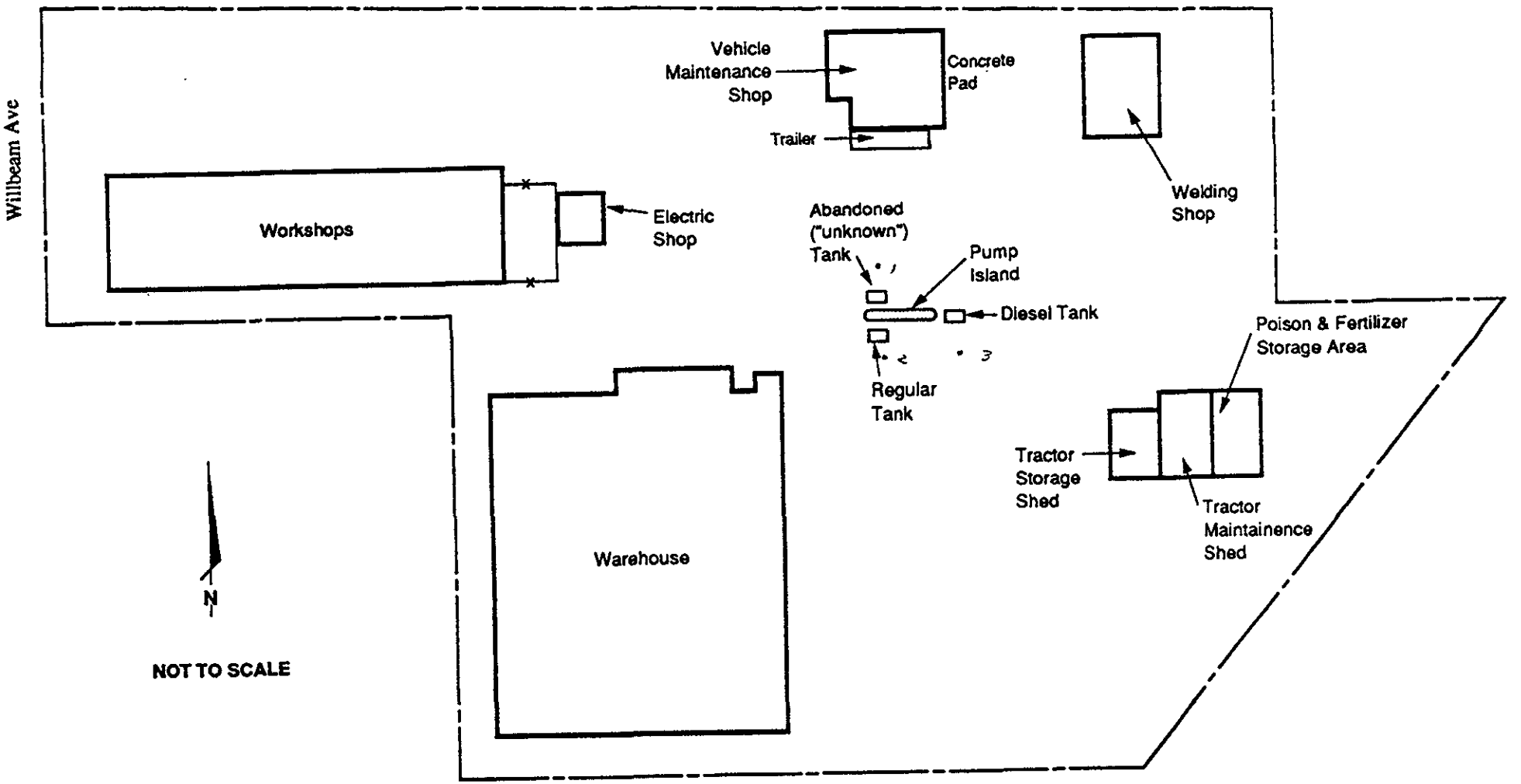
NOTE:
"Reproduced with permission granted by THOMAS BROS. MAPS. This map is copyrighted by THOMAS BROS. MAPS. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission."



LOCATION MAP

BART
August 1993 — Castro Valley District Corporation Yard
03715-051-043 — Castro Valley, California

DAMES & MOORE — FIGURE 1



SITE MAP SHOWING FORMER BUILDING AND TANK LOCATIONS

BART
Castro Valley Unified SchoolDistrict
Corporation Yard
Castro Valley, California

August 1993
03715-051-043

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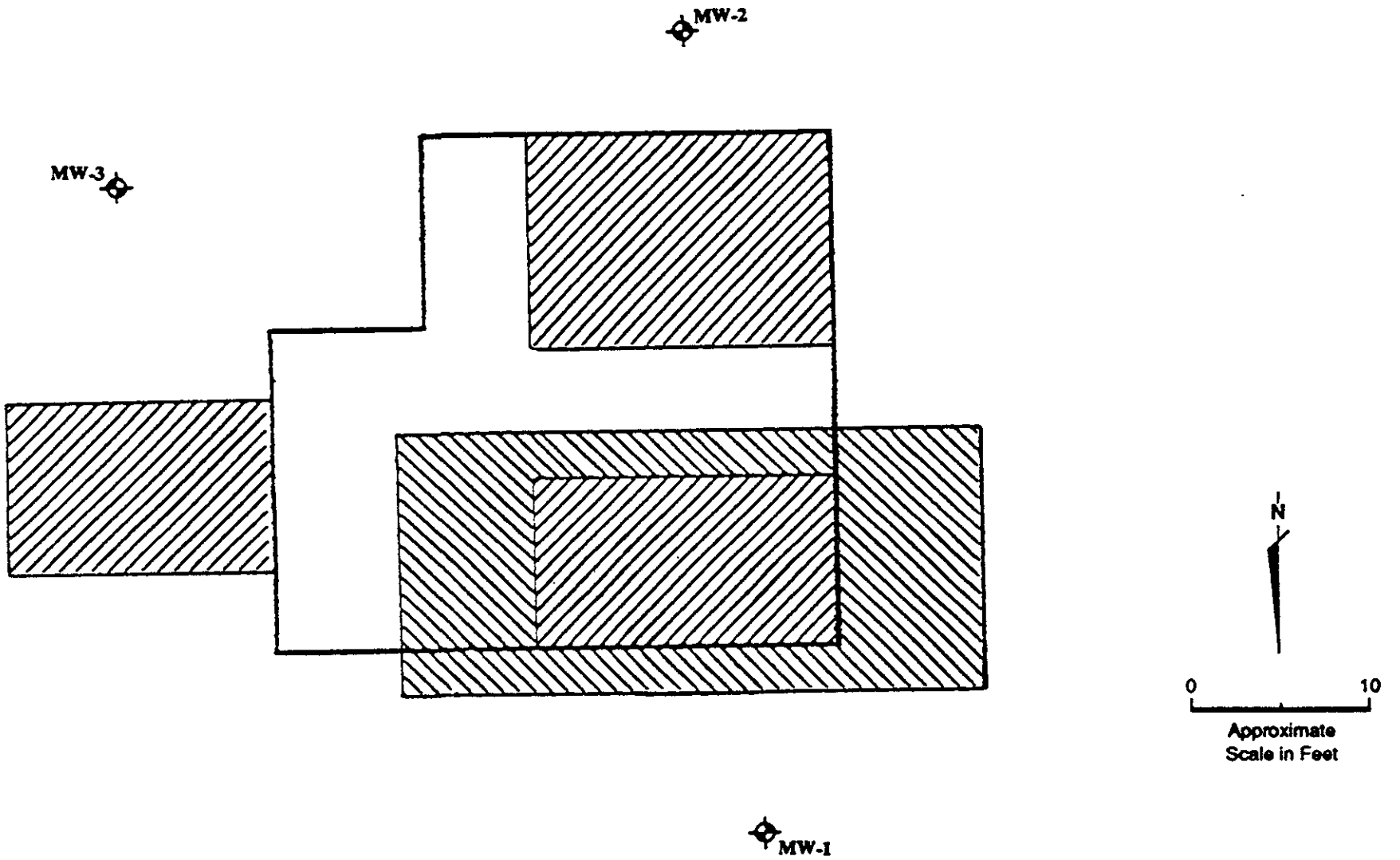
FIGURE 2



KEY

Area Excavated To Remove Tanks

Area Overexcavated to Remove Contaminated Soil

MW-2 Monitoring Well Location

BART
Castro Valley Unified SchoolDistrict
Corporation Yard
Castro Valley, California

August 1993
03715-051-043

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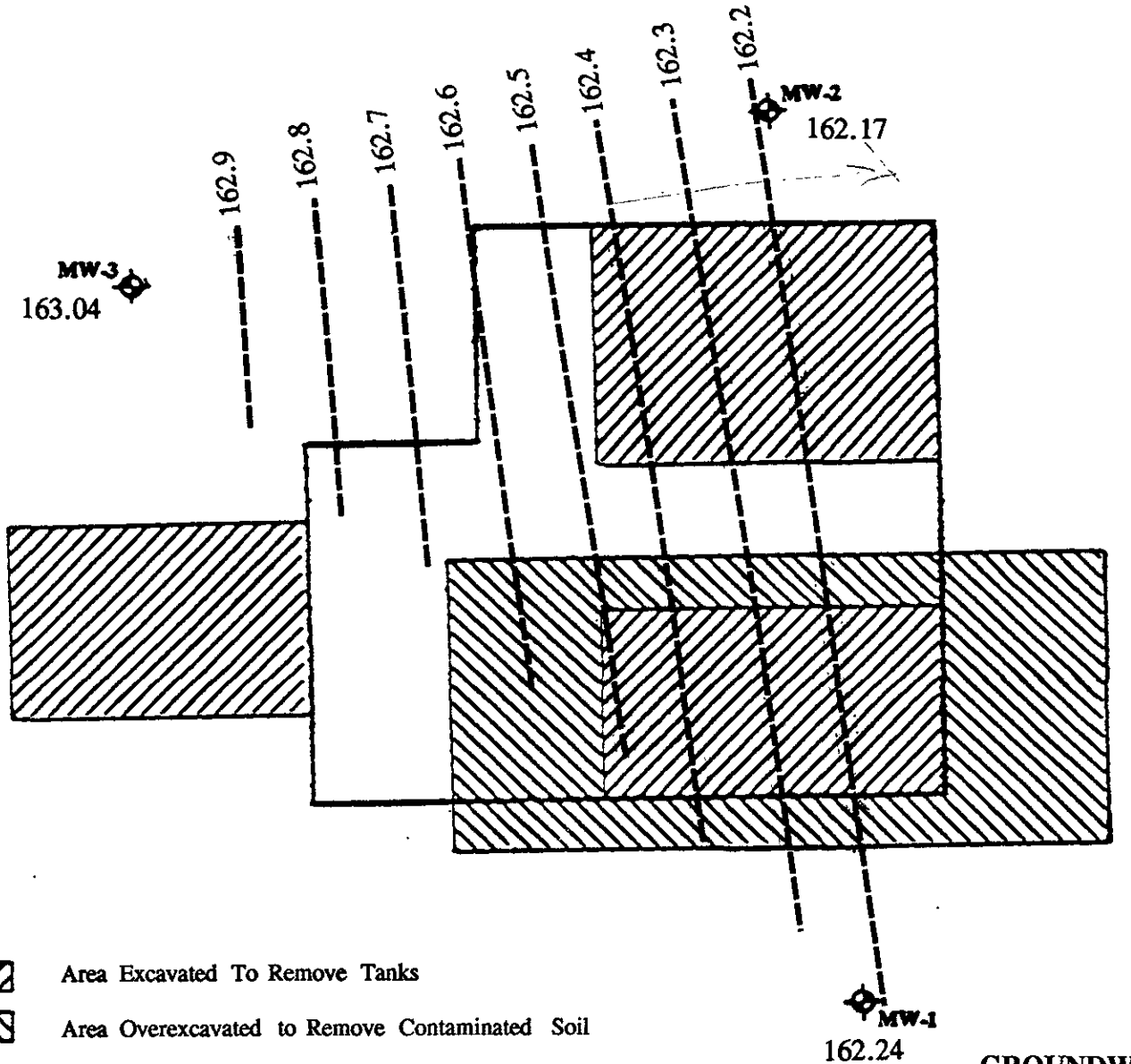
FIGURE 3



KEY

- Area Excavated To Remove Tanks
- Area Overexcavated to Remove Contaminated Soil
- MW-2 Monitoring Well Location
- Groundwater Contours

GROUNDWATER ELEVATION CONTOUR MAP FEBRUARY 25, 1993

August 1993
03715-051-043

BART
Castro Valley Unified School District
Corporation Yard
Castro Valley, California

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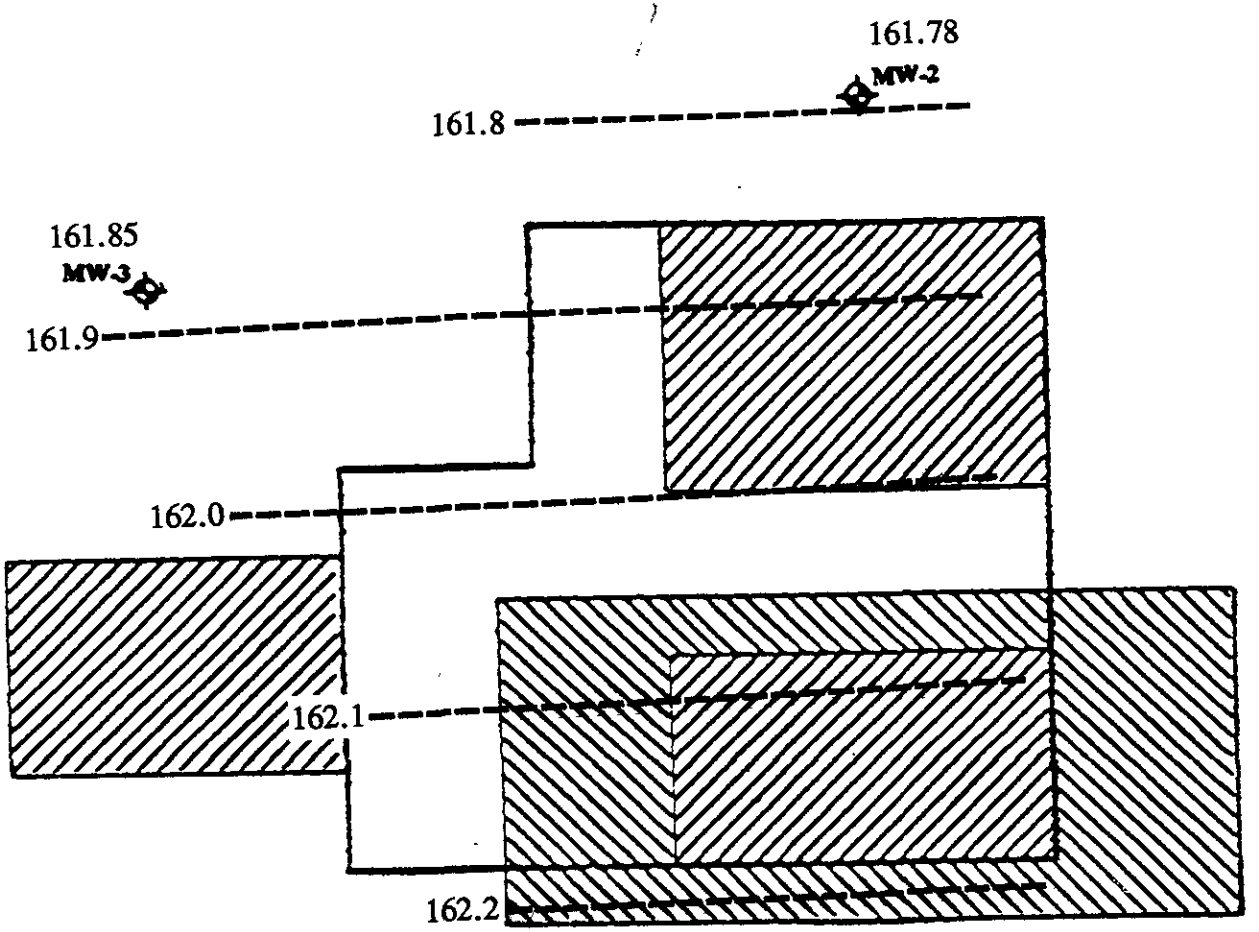
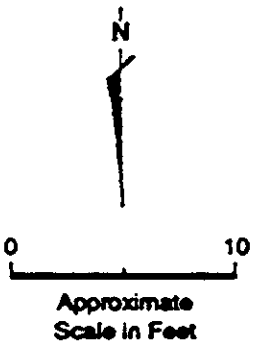
FIGURE 4





KEY

- Area Excavated To Remove Tanks
- Area Overexcavated to Remove Contaminated Soil
- MW-2 Monitoring Well Location
- Groundwater Contours

MW-1
162.27

GROUNDWATER ELEVATION CONTOUR MAP MARCH 25,1993

BART
Castro Valley Unified School District
Corporation Yard
Castro Valley, California

August 1993
03715-051-043

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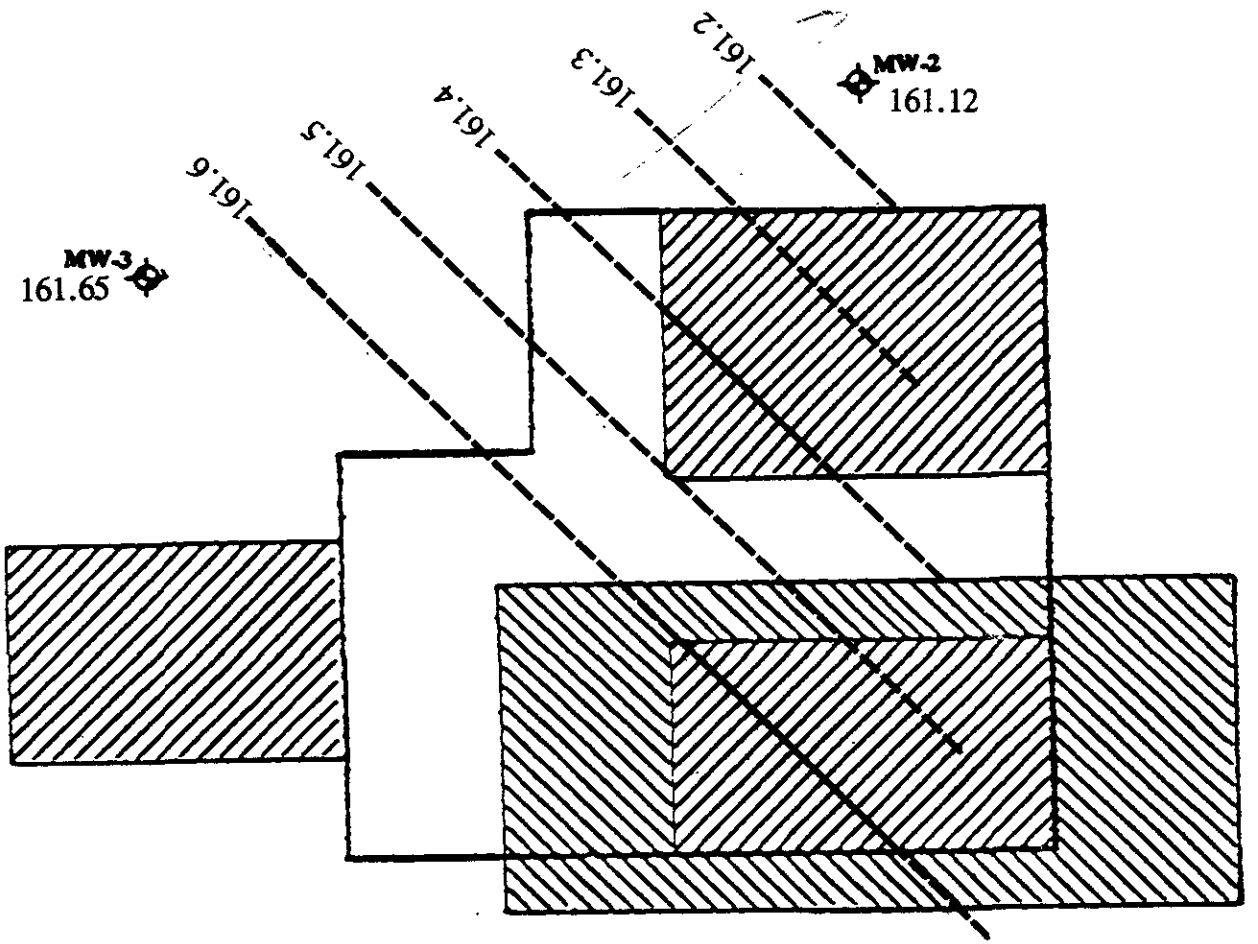
FIGURE 5



N

0 10

Approximate Scale in Feet

KEY

- Area Excavated To Remove Tanks
- Area Overexcavated to Remove Contaminated Soil
- MW-2 Monitoring Well Location
- Groundwater Contours

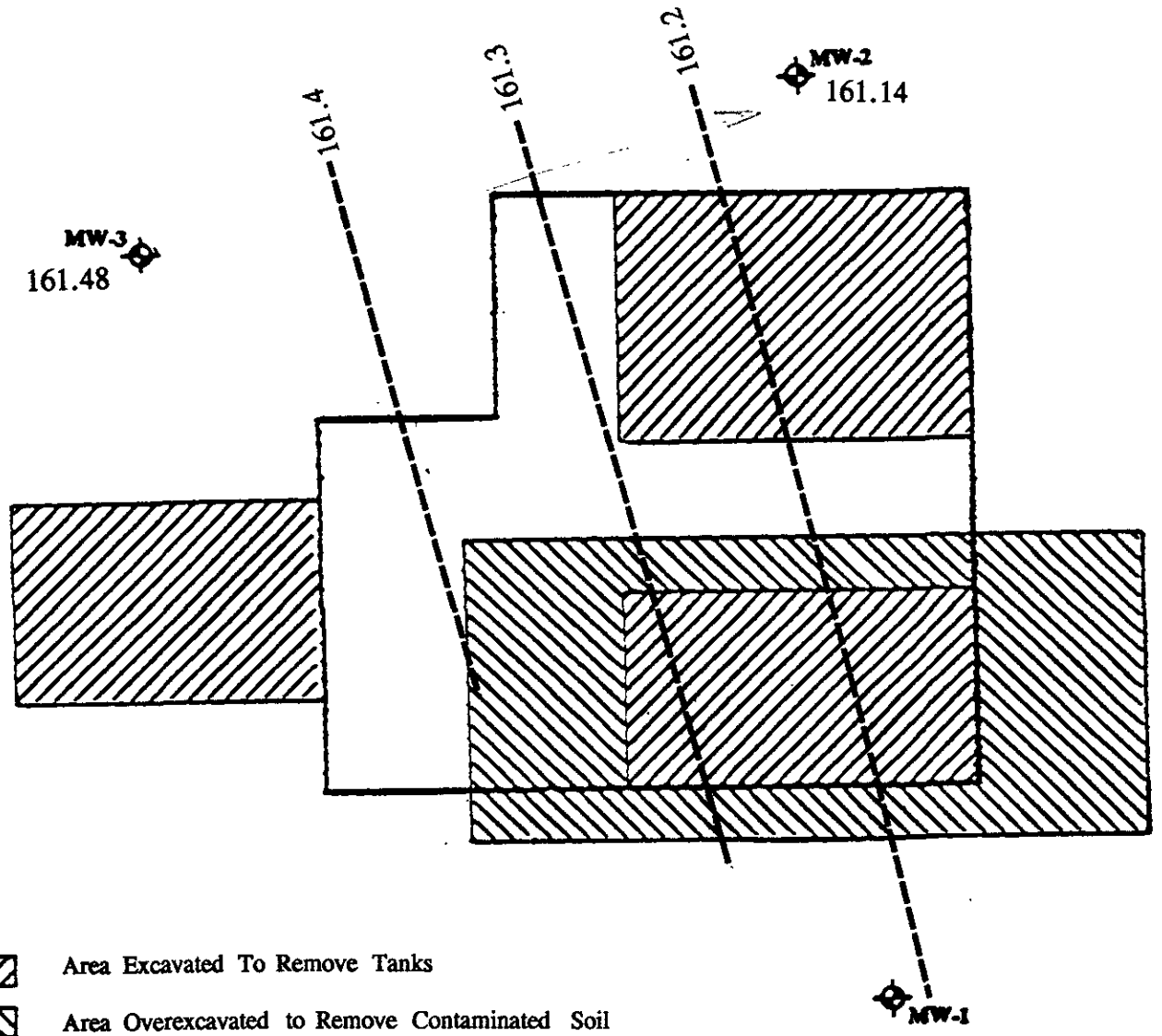
GROUNDWATER ELEVATION CONTOUR MAP APRIL 22,1993

BART
Castro Valley Unified School District
Corporation Yard
Castro Valley, California

August 1993
03715-051-043

DAMES & MOORE

FIGURE 6



N

0 10

Approximate Scale in Feet

KEY

- Area Excavated To Remove Tanks
- Area Overexcavated to Remove Contaminated Soil
- MW-2 Monitoring Well Location
- Groundwater Contours

GROUNDWATER ELEVATION CONTOUR MAP MAY 10,1993

BART
Castro Valley Unified SchoolDistrict
Corporation Yard
Castro Valley, California

August 1993
03715-051-043

DAMES & MOORE

FIGURE 7

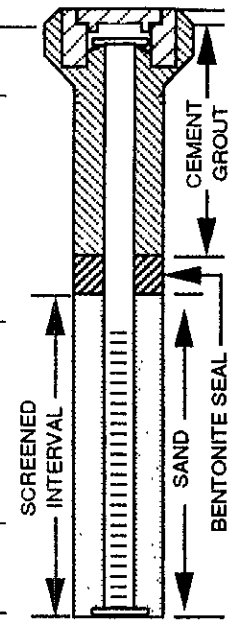
APPENDIX A

BORING LOGS AND WELL COMPLETION DETAILS

MW-1

Casing Elevation: 164.68 Feet

Depth in Feet	Sampler Type	Inches Sampled / Inches Recovered	Sample Number / Sample Depth	Blows Per Foot	Symbols	Description
0					SM	BROWN GRAVELLY SILTY SAND with clay (wet) (loose) [FILL]
					CL	GREY SILTY CLAY (moist) (hard)
5	SS	18/18	1/4.0	34		
					SC	GRAY CLAYEY SAND with silt, brownish yellow mottling. Fine to coarse subrounded to subang sand (moist) (very dense)
10	SS	18/18	2/10.0	70		
					CL	DARK BROWN CLAY with dark gray mottling (moist) (hard)
15	SS	18/18	3/14.0	57		
20						
25						
30						
35						



Boring completed to a depth of 15.5 feet

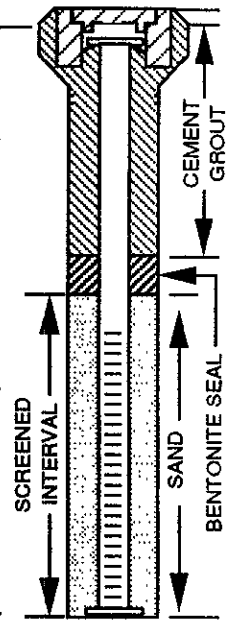
NOTES

1. Boring completed at a depth of 15.5 feet on 2/18/93.
2. Boring log indicates interpreted subsurface conditions only at the location and the time the boring was drilled.
3. For an explanation of terms used see the Soil Classification Chart and Key to Sampling, Plate A.4.

MW-2

Casing Elevation: 164.64 Feet

Depth in Feet	Sampler Type	Inches Sampled / Inches Recovered	Sample Number / Sample Depth	Blows Per Foot	Symbols	Description
0					SM	BROWN GRAVELLY SILTY SAND with clay (wet) (loose) [FILL]
					CL	DARK GRAY CLAY, trace silt (moist) (very stiff)
5	SS	18/18	1/5.0	21		
						Grades to olive gray silty clay @ 9.0 ft.
10	SS	18/18	2/10.0	40	SC	OLIVE GREY SILTY CLAYEY SAND, fine grained, brownish yellow mottling (moist) (dense)
						Coarsening sand @ 13.0 ft.
15	SS	18/1	3/14.0	63	CL	OLIVE GRAY CLAY with dark gray mottling, trace silt (moist) (hard)
20						
25						
30						
35						



Boring completed to a depth of 15.5 feet

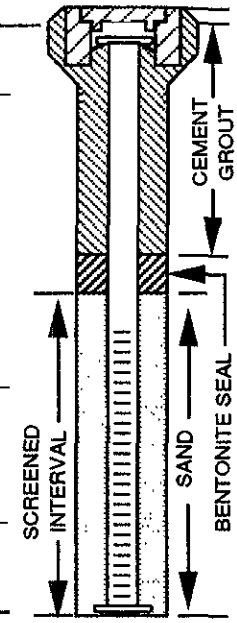
NOTES

1. Boring completed at a depth of 15.5 feet on 2/18/93.
2. Boring log indicates interpreted subsurface conditions only at the location and the time the boring was drilled.
3. For an explanation of terms used see the Soil Classification Chart and Key to Sampling, Plate A-4.

MW-3

Casing Elevation: 165.58 Feet

Depth in Feet	Sampler Type	Inches Sampled / Inches Recovered	Sample Number / Sample Depth	Blows Per Foot	Symbols	Description
0					SM	BROWN GRAVELLY SILTY SAND with clay, (wet) (loose) [FILL]
					CL	DARK GRAY CLAY (moist) (hard)
5	SS	18/18	1/5.0	67		
10	SS	18/18	2/10.0	50	SM	OLIVE GRAY SILTY SAND with clay, fine to ve → *grained. Some brownish yellow mottling (very* dense)
15	SS	18/18	3/14.0	68	CL	OLIVE GRAY CLAY with dark gray mottling (moist) (hard)
20						
25						
30						
35						



Boring completed to a depth of 15.5 feet

NOTES

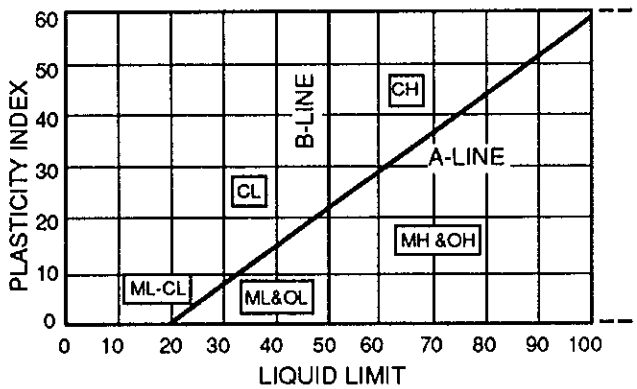
1. Boring completed at a depth of 15.5 feet on 2/18/93.
2. Boring log indicates interpreted subsurface conditions only at the location and the time the boring was drilled.
3. For an explanation of terms used see the Soil Classification Chart and Key to Sampling, Plate A-4.

3715-061-043/11-93

UNIFIED SOIL CLASSIFICATION CHART

SYMBOL	LETTER	DESCRIPTION	MAJOR DIVISIONS			
	GW	WELL-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	CLEAN GRAVELS (LITTLE OR NO FINES)	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO.4 SIEVE SIZE	(FOR VISUAL CLASSIFICATION, THE 1/4" SIZE MAY BE USED AS EQUIVALENT TO THE NO.4 SIEVE SIZE	COARSE-GRAINED SOILS MORE THAN HALF OF MATERIAL IS LARGER THAN NO 200 SIEVE SIZE
	GP	POORLY-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LITTLE OR NO FINES				
	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)			
	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES				
	SW	WELL-GRADED SAND OR GRAVELLY SANDS, LITTLE OR NO FINES	CLEAN SANDS (LITTLE OR NO FINES)	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO.4 SIEVE SIZE		
	SP	POORLY-GRADED SANDS OR GRAVELLY SANDS, LITTLE OR NO FINES				
	SM	SILTY SANDS, SAND-SILT MIXTURES	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)			
	SC	CLAYEY SANDS, SAND-CLAY MIXTURES				
	ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR. SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	SILTS & CLAYS LIQUID LIMIT LESS THAN 50			FINE-GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN NO.200 SIEVE SIZE THE NO.200 U.S. STANDARD SIEVE IS ABOUT THE SMALLEST PARTICLE VISIBLE TO THE NAKED EYE
	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS				
	OL	ORGANIC SILTS AND ORGANIC SILT-CLAYS OF LOW PLASTICITY				
	MH	ORGANIC SILTS AND ORGANIC SILT-CLAYS OF LOW PLASTICITY	SILTS & CLAYS LIQUID LIMIT GREATER THAN 50			
	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS				
	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS				
	PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	HIGHLY ORGANIC SOILS			

PLASTICITY CHART



KEY TO SAMPLES

- INDICATES UNDISTURBED SAMPLES
- INDICATES DISTURBED SAMPLE
- INDICATES NO RECOVERY IN SAMPLE
- INDICATES DEPTH OF STANDARD PENETRATION TEST

TYPES OF SOIL SAMPLERS

U - DAMES & MOORE TYPE "U" SAMPLER
P - PISTONSAMPLER
CA - CALIFORNIA SAMPLER

SOIL CLASSIFICATION CHART AND KEY TO SAMPLING

Dames & Moore

3715-061-043/11-93

APPENDIX B

LABORATORY REPORTS AND CHAIN-OF-CUSTODY RECORDS

C K Y incorporated
Environmental Services

Date: 03/02/93
N9302-22

Dames & Moore
221 Main Street, Suite 600
San Francisco, CA 94105-1917

Attn: Mr. Erik Skov

Subject: Laboratory Report
Project: BART, Castro Valley

Enclosed is the laboratory report for samples received on 02/18/93. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported includes:

Method	No. of Analysis
EPA 8020	6 Soil
M8015 (Gas/Diesel)	6 Soil
Total Lead	6 Soil

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely,

Danny Hoang
Laboratory Director

3942 Valley Avenue, Suite F, Pleasanton, CA 94566 • Telephone 510-846-3188 • Fax: 510-846-1236

EPA METHOD - 8020
BTEX

CLIENT:	Dames & Moore	**DATE REC'D:**	02/18/93
PROJECT:	BART	**DATE ANALYZED:**	02/18/93
CONTROL NO:	N9302-22	**MATRIX TYPE:**	Soil

		RESULTS (ug/kg)				% SURRO
SAMPLE ID:	CONTROL NO:	Benz	Tol	Et Benz	Xyls	RECOVERY
Blank	N9302-22	ND	ND	ND	ND	70
M2-1/1A/4	N9302-22-1	ND	ND	ND	ND	90
MW-1/2A/10	N9302-22-3	ND	ND	ND	ND	96
MW-2/1A/5	N9302-22-7	ND	ND	ND	ND	67
MW-2/2A/10	N9302-22-9	ND	ND	ND	ND	77
MW-3/1A/5	N9302-22-13	ND	ND	ND	ND	91
MW-3/2A/10	N9302-22-15	ND	ND	ND	ND	82
DETECTION LIMIT		5	5	5	5	

EPA METHOD 5030/Mod. 8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE & TRAP

CLIENT:	Dames & Moore	**DATE REC'D:**	02/18/93
PROJECT:	BART	**DATE ANALYZED:**	02/18/93
CONTROL NO:	N9302-22	**MATRIX:**	Soil

SAMPLE ID:	CONTROL NO:	RESULTS (mg/kg)	DET. LIMIT (mg/kg)	% SURRO RECOVERY
Blank	N9302-22	ND	5.0	70
MW-1/1A/4	N9302-22-1	ND	1.0	90
MW-1/2A/10	N9302-22-3	ND	5.0	96
MW-2/1A/5	N9302-22-7	ND	5.0	67
MW-2/2A/10	N9302-22-9	ND	5.0	77
MW-3/1A/5	N9302-22-13	ND	5.0	91
MW-3/2A/10	N9302-22-15	ND	5.0	82

EPA METHOD Mod. 8015
TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

CLIENT:	Dames & Moore	**DATE REC'D:**	02/18/93
PROJECT:	BART	**DATE EXTRACTED:**	02/18/93
CONTROL NO:	N9302-22	**DATE ANALYZED:**	02/18/93
MATRIX:	Soil		

SAMPLE ID:	CONTROL NO:	RESULTS (mg/kg)	H-C RANGE	%SURROGATE 1-4DCB	%SURROGATE C26
Blank	N9302-22	ND	N.A.	81	75
MW-1/1A/4	N9302-22-1	ND	N.A.	76	69
MW-1/2A/10	N9302-22-3	ND	N.A.	76	70
MW-2/1A/5	N9302-22-7	ND	N.A.	79	76
MW-2/2A/10	N9302-22-9	ND	N.A.	84	79
MW-3/1A/5	N9302-22-13	ND	N.A.	88	85
MW-3/2A/10	N9302-22-15	ND	N.A.	77	73

DETECTION LIMIT: 5.0 mg/kg

EPA 3050/6010
TOTAL LEAD BY ICP

CLIENT:	Dames & Moore	**DATE REC'D:**	02/18/93
PROJECT:	BART	**DATE EXTC'D:**	02/19/93
CONTROL NO:	N9302-22	**DATE ANALYZED:**	02/22/93
MATRIX:	Soil		

SAMPLE ID:	CONTROL NO:	RESULTS (mg/kg)	DETECTION LIMIT (mg/kg)
Blank	N9302-22	ND	5.0
MW-1/1A/4	N9302-22-1	5.8	5.0
MW-1/2A/10	N9302-22-3	6.9	5.0
MW-2/1A/5	N9302-22-7	7.0	5.0
MW-2/2A/10	N9302-22-9	8.8	5.0
MW-3/1A/5	N9302-22-13	7.2	5.0
MW-3/2A/10	N9302-22-15	ND	5.0

QUALITY CONTROL DATA

CLIENT: Dames & Moore **DATE EXTC'D:** 02/18/93
PROJECT: BART **DATE ANALYZED:** 02/18/93
CONTROL NO: N9302-22

METHOD EPA 8020
MATRIX: Soil

SAMPLE ID: N9302-22-3

COMPOUND	SAMPLE RESULTS (ug/kg)	AMOUNT SPIKED (ug/kg)	% REC.	DUP. % REC.	RPD
Benzene	ND	20	85	85	0
Toluene	ND	20	70	65	7
Ethyl Benzene	ND	20	95	95	0
Xylene	ND	40	93	90	3

QUALITY CONTROL DATA

CLIENT: Dames & Moore **DATE EXTRACTED:** 02/18/93
PROJECT: BART **DATE ANALYZED:** 02/18/93
CONTROL NO: N9302-22

METHOD EPA M8015G
MATRIX: Soil

SAMPLE ID: N9302-22-3

COMPOUND	SAMPLE RESULTS (mg/kg)	AMOUNT SPIKED (mg/kg)	% REC.	DUP. % REC.	RPD
Gas	ND	2	70	80	13

QUALITY CONTROL DATA

CLIENT: Dames & Moore **DATE EXTRACTED:** 02/18/93
PROJECT: BART **DATE ANALYZED:** 02/18/93
CONTROL NO: N9302-22

METHOD EPA M8015D
MATRIX: Soil

SAMPLE ID: N9302-22-7

COMPOUND	SAMPLE RESULTS (mg/kg)	AMOUNT SPIKED (mg/kg)	% REC.	DUP. % REC.	RPD
Diesel	ND	100	86	90	5

QUALITY CONTROL DATA

CLIENT: Dames & Moore **DATE EXTRACTED:** 02/19/93
PROJECT: BART **DATE ANALYZED:** 02/22/93
CONTROL NO: N9302-22

METHOD EPA 3050/6010
MATRIX: Soil

SAMPLE ID: N9302-22-6

COMPOUND	SAMPLE RESULTS (mg/kg)	AMOUNT SPIKED (mg/kg)	% REC.
Lead	ND	100	128

R2

CHAIN OF CUSTODY RECORD
REQUEST FOR ANALYSIS

CLIENT NAME: Dames & Moore
ADDRESS: 221 Main St., Suite 600
San Francisco, CA 94105-1917
PHONE NO. 415-896-5858 FAX NO. 415-882-9261
PROJECT NAME: BART, Castro Valley
SEND REPORT TO: Erik Skov

DATE: 2-18-93
PAGE 1 OF 2

N9302-22

C K Y incorporated
Environmental Services
3942 Valley Avenue, Suite F
Pleasanton, CA 94566
Tel: 510-846-3188
Fax: 510-846-1236

SAMPLER NAME/SIGNATURE
Michael Grey

TURN AROUND TIME
NORMAL ☒
RUSH ☐

	SAMPLE NUMBER	SAMPLING DATE/TIME		PRESERVATIVE	CONTAINER SIZE/TYPE	SAMPLE DESCRIPTION WATER	SOIL	OTHER	418.1	M8015	8010/601	8020/602	8080/608	8240/624	8270/625	CAM Metals	TPHG	TPHD	BTEX	TPH/Fuel				Hold Sample
1	MW-1/1A/4'	2-18-93	0850		2½"x3" SS		X										X	X	X	X				
2	MW-1/1B/4'3"		"				X																	X
3	MW-1/2A/10'		0857				X										X	X	X	X				
4	MW-1/2B/10'3"		"				X																	X
5	MW-1/3A/14'		0910				X																	X
6	MW-1/3B/14'3"		"				X																	X
7	MW-2/1A/5'		0955				X										X	X	X	X				
8	MW-2/1B/5'3"		"				X																	X
9	MW-2/2A/10'		1005				X										X	X	X	X				
10	MW-2/2B/10'3"		"				X																	X
11	MW-2/3A/14'		1010				X																	X
12	MW-2/3B/14'3"		"				X																	X
13	MW-3/1A/5'		1040				X										X	X	X	X				
14	MW-3/1B/5'3"	↓	"		↓		X																	X

COMMENTS: Analyze 1A, 2A samples from each boring (MW). Hold 1B, 2B, 3A, 3B samples
Reference job # 03715-051-043 on report & invoice

Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:	Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:
Michael Grey	2/18/93		2/18/93				
Company: Dames & Moore	Time: 12:45	Company: CKY	Time: 12:41	Company:	Time:	Company:	Time:

Storage/Disposal of Samples: Sample will be stored at CKY for 30 days at no charge and at $10/sample/month thereafter. Disposal of sample by the Laboratory will be charged at $10/sample.

CHAIN OF CUSTODY RECORD
REQUEST FOR ANALYSIS

DATE: 2-18-93
PAGE 2 OF 2

CKY incorporated
Environmental Services
3942 Valley Avenue, Suite F
Pleasanton, CA 94566
Tel: 510-846-3188
Fax: 510-846-1236

CLIENT
NAME: Dames & Moore
ADDRESS: 221 Main St, Suite 600
San Francisco, CA 94105-1917
PHONE NO. 415-896-5858 FAX NO. 415-882-9261
PROJECT NAME: BART, Castro Valley
SEND REPORT TO: Erik Skov

SAMPLER NAME/SIGNATURE
Michael Gray

TURN AROUND TIME
NORMAL ☑
RUSH ☐

	SAMPLE NUMBER	SAMPLING DATE/TIME		PRESERVATIVE	CONTAINER SIZE/TYPE	SAMPLE DESCRIPTION WATER	SOIL	OTHER	418.1	M8015	8010/601	8020/602	8080/608	8240/624	8270/625	CAM Metals	TPHG	TPHD	BTEX	Total Pet'l					Hold Sample
15	MW-3/2A/10'	2/18/93	1045		2½"x3" SS		X										X	X	X	X					
16	MW-3/2B/10'3"	↓	1045		↓		X																		X
17	MW-3/3A/14'		1055				X																		X
18	MW-3/3B/14'3"	↓	1055		↓		X																		X

COMMENTS: Analyze 1A and 2A samples from each boring (MW). Hold 1B, 2B, 3A, 3B samples.
Reference Job # 03715-057-043 on report & invoice

Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:	Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:
	2/18/93		2/18/93				
Company: Dames & Moore	Time: 12:45	Company: CKY	Time: 12:45	Company:	Time:	Company:	Time:

Storage/Disposal of Samples: Sample will be stored at CKY for 30 days at no charge and at $10/sample/month thereafter. Disposal of sample by the Laboratory will be charged at $10/sample.

C K Y incorporated
Environmental Services

Date: 03/03/93
N9302-31

Dames & Moore
221 Main Street, Suite 600
San Francisco, CA 94105-1917

Attn: Mr. Erik Skov

Subject: Laboratory Report
Project: BART, Castro Valley

Enclosed is the laboratory report for samples received on 02/25/93. The samples were received in coolers with ice and intact; the chain-of-custody forms were properly filled out. The data reported includes:

Method	No. of Analysis
M8015 (Gas)	4 Water
M8015 (Diesel)	3 Water
EPA 8020	4 Water
Total Lead	3 Water

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely,

Danny Hoang
Laboratory Director

3942 Valley Avenue, Suite F, Pleasanton, CA 94566 • Telephone 510-846-3188 • Fax: 510-846-1236

EPA METHOD Mod. 8015
TOTAL EXTRACTABLE PETROLEUM HYDROCARBONS

CLIENT:	Dames & Moore	**DATE REC'D:**	02/25/93
PROJECT:	BART	**DATE EXTRACTED:**	02/26/93
CONTROL NO:	N9302-31	**DATE ANALYZED:**	02/26/93
MATRIX:	Water		

SAMPLE ID:	CONTROL NO:	RESULTS (mg/L)	H-C RANGE	%SURROGATE 1-4DCB	%SURROGATE C26
Blank	N9302-31	ND	N.A.	85	73
MW2	N9302-31-1	ND	N.A.	78	69
MW3	N9302-31-2	ND	N.A.	78	81
MW1	N9302-31-3	ND	N.A.	72	97

DETECTION LIMIT: 1.0 mg/kg

EPA METHOD 5030/Mod. 8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE & TRAP

CLIENT:	Dames & Moore	**DATE REC'D:**	02/25/93
PROJECT:	BART	**DATE ANALYZED:**	02/26/93
CONTROL NO:	N9302-31	**MATRIX:**	Water

SAMPLE ID:	CONTROL NO:	RESULTS (mg/L)	DET. LIMIT (mg/L)	% SURRO RECOVERY
Blank	N9302-31	ND	1.0	112
MW2	N9302-31-1	ND	1.0	125
MW3	N9302-31-2	ND	1.0	68
MW1	N9302-31-3	ND	1.0	100
T.B.	N9302-31-4	ND	1.0	105

EPA METHOD - 8020
BTEX

CLIENT:	Dames & Moore	**DATE REC'D:**	02/25/93
PROJECT:	BART	**DATE ANALYZED:**	02/26/93
CONTROL NO:	N9302-31	**MATRIX TYPE:**	Water

		RESULTS (ug/L)				**% SURRO**
SAMPLE ID:	CONTROL NO:	Benz	Tol	Et Benz	Xyls	RECOVERY
Blank	N9302-31	ND	ND	ND	ND	120
MW2	N9302-31-1	ND	ND	ND	ND	71
MW3	N9302-31-2	ND	ND	ND	ND	80
MW1	N9302-31-3	ND	ND	ND	ND	105
T.B.	N9302-31-4	ND	ND	ND	ND	94
DETECTION LIMIT		1	1	1	1	

EPA 3020/7421
TOTAL LEAD BY ICP

CLIENT:	Dames & Moore	**DATE REC'D:**	02/25/93
PROJECT:	BART	**DATE EXTC'D:**	02/27/93
CONTROL NO:	N9302-31	**DATE ANALYZED:**	03/01/93
MATRIX:	Water		

SAMPLE ID:	CONTROL NO:	RESULTS (mg/L)	DETECTION LIMIT (mg/L)
Blank	N9302-31	ND	10
MW2	N9302-31-1	37	10
MW3	N9302-31-2	76	10
MW1	N9302-31-3	94	10

QUALITY CONTROL DATA

CLIENT: Dames & Moore
PROJECT: BART **DATE EXTRACTED:** 02/26/93
CONTROL NO: N9302-31 **DATE ANALYZED:** 02/26/93

METHOD EPA M8015D
MATRIX: Water

SAMPLE ID: N9302-31-1

COMPOUND	SAMPLE RESULTS (mg/L)	AMOUNT SPIKED (mg/L)	% REC.	DUP. % REC.	RPD
Diesel	ND	100	69	68	1

QUALITY CONTROL DATA

CLIENT: Dames & Moore
PROJECT: BART **DATE EXTRACTED:** N/A
CONTROL NO: N9302-31 **DATE ANALYZED:** 02/26/93

METHOD EPA M8015G
MATRIX: Water

SAMPLE ID: N9302-31-1

COMPOUND	SAMPLE RESULTS (mg/L)	AMOUNT SPIKED (mg/L)	% REC.	DUP. % REC.	RPD
Gas	ND	2	90	100	11

QUALITY CONTROL DATA

CLIENT: Dames & Moore
PROJECT: BART
CONTROL NO: N9302-31
DATE EXTC'D: N/A
DATE ANALYZED: 02/26/93

METHOD EPA 8020
MATRIX: Water

SAMPLE ID: N9302-31-1

COMPOUND	SAMPLE RESULTS (ug/L)	AMOUNT SPIKED (ug/L)	% REC.	DUP. % REC.	RPD
Benzene	ND	20	105	85	21
Toluene	ND	20	110	100	10
Ethyl Benzene	ND	20	110	105	5
Xylene	ND	40	110	95	15

QUALITY CONTROL DATA

CLIENT: Dames & Moore
PROJECT: BART **DATE EXTRACTED:** 02/27/93
CONTROL NO: N9302-31 **DATE ANALYZED:** 03/01/93

METHOD EPA 3020/7421
MATRIX: Water

SAMPLE ID: N9302-31-1

COMPOUND	SAMPLE RESULTS (mg/L)	AMOUNT SPIKED (mg/L)	% REC.
Lead	37	25	144

CHAIN OF CUSTODY RECORD
REQUEST FOR ANALYSIS

CLIENT NAME: DAMES & MOORE
ADDRESS: 221 MAIN ST. S.F. CA 94105
PHONE NO: [illegible] FAX NO:
PROJECT NAME: BART CASTRO VALLEY
SEND REPORT TO: DAVE SOO
SAMPLER NAME/SIGNATURE: [illegible]

DATE: 2/25/93
PAGE 1 OF 1

CKY Incorporated
Environmental Services
3942 Valley Avenue, Suite F
Pleasanton, CA 94566
Tel: 510-846-3188
Fax: 510-846-1236

#4302-34

TURN AROUND TIME: NORMAL X RUSH

	SAMPLE NUMBER	SAMPLING DATE/TIME	PRESERVATIVE	CONTAINER SIZE/TYPE	SAMPLE DESCRIPTION: WATER	SOIL	OTHER	418.1	MBTEX (EPA 602)	8010/601	8020/602	8080/608	8240/624	8270/625	CAM Metals	TPH gas / BTEX	TPH diesel EPA 8010
01	MW2	2/25 13:25	HCl	VOA'S	GRAB											X	
	MW2			1L AMBER					X								
	MW2			1L PLASTIC													X
	MW3	14:10	HCl	VOA'S												X	
02	MW3			1L AMBER					X								
	MW3			1L PLASTIC													X
	MW1	15:00	HCl	VOA'S												X	
03	MW1			1L AMBER					X								
	MW1			1L PLASTIC													X
04	T.B.	13:00	HCl	VOA'S												X	

COMMENTS: 3715051-043

Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:	Relinquished by: (Signature)	Date:	Received by: (Signature)	Date:
	2/25/93		2/25/93				
Company: DAMES & MOORE	Time:	Company: CKY	Time: 5:30 PM	Company	Time:	Company.	Time:

Storage/Disposal of Samples: Sample will be stored at CKY for 30 days at no charge and at $10/sample/month thereafter. Disposal of sample by the Laboratory will be charged at $10/sample