RO 409

ATC ASSOCIATES INC.

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Pleasanton, California 94588
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925.460.5300
Fax 925.463.2559

May 24, 2005

Mr. Donald Hwang
Alameda County Department of Public Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Re: Work Plan – Site Assessment Activity
ATC Job Number 75.75118.1112 75W02
76 Service Station No. 1156 / WNO 1112
4276 MacArthur Blvd.
Oakland, California

Dear Mr. Hwang:

ATC Associates Inc. (ATC) has prepared this Work Plan on behalf of ConocoPhillips Company for the above referenced property. The proposed scope of services presented herein includes the installation of 6 monitor wells (refer to Figure 2). Two monitor wells are proposed adjacent to onsite well MW-2 and offsite well MW-7. It is the opinion of ATC that the groundwater is under confining conditions based upon review of historic well and soil boring logs, and groundwater monitoring data. The subsurface elevations of the screened intervals of MW-2 and MW-7 suggest that groundwater, under confining conditions, has come in contact with the hydrocarbon (benzene and MtBE) impacted vadose zone soils which may have contributed to contamination of the water bearing unit. ATC recommends that two new wells be installed, in the vicinity of MW-2 and MW-7, with a shorter screen interval to determine if confining conditions exist. Additionally, four monitor wells are proposed in an effort to further define the dissolved benzene and MtBE plumes in the cross, up and down gradient directions of the site. Dissolved MtBE levels range, on average, from 100 ug/l to 600 ug/l in monitor wells currently serving as plume delineation points. Refer to Figure 2, for the location of these four wells.

SITE DESCRIPTION

The site is located at the northeast corner of MacArthur Boulevard and High Street in Oakland, California, as shown on the Vicinity Map (Figure 1). Two 12,000-gallon gasoline underground storage tanks (USTs) are present in the southwestern portion of the site and two dispenser islands are present on the site, one to the northwest and one to the east of the USTs. A station building is present in the northern portion of the site. There are currently seven groundwater monitoring wells (MW-1 through MW-7) and one tank backfill well (TP-1) located at and in the vicinity of the site. Pertinent site features are shown on the Site Map (Figure 2). Properties in the immediate vicinity of the site are utilized for commercial and residential purposes.

SITE BACKGROUND AND ACTIVITY

In 1997, Pacific Environmental Group Inc. (PEG) advanced 5 soil/gas probes in the vicinity of the USTs, dispenser islands, and product lines to depths ranging from 3 to 15 feet bgs. Elevated soil vapor concentrations of TPHg, benzene, and MTBE were detected up to 4,700, 70, and 140 micrograms per liter (µg/L), respectively. In 1998, Tosco Marketing Company (Tosco, now ConocoPhillips) removed one 280-gallon used-oil UST, and removed and replaced two 10,000-gallon gasoline USTs and associated piping and dispensers. The new USTs were installed in a separate excavation. TPH as diesel (TPHd), TPHg, benzene, and total recoverable petroleum hydrocarbons (TRPH) were detected in the soil sample from the used-oil UST cavity at a concentration of 78,000, 130, 0.55, and 8,400 milligrams per kilogram (mg/kg), respectively. Following the over-excavation of approximately 4.6 tons of soil from the used-oil UST cavity, concentrations of TPHd, TPHg, benzene, and TRPH were detected in soil samples collected from the used-oil UST cavity at concentrations up to 560, 81, 0.64, and 360 mg/kg, respectively. TPHg and benzene were detected in the soil samples from the gasoline UST cavity, dispenser islands, and product lines at concentrations up to 1,200 and 1.6 mg/kg, respectively. A groundwater sample collected from the gasoline UST cavity was reported to contain TPHg and MTBE at a concentration of 41,000 and 1,800 µg/L, respectively. Benzene was not detected in the groundwater sample at or above the laboratory detection limit.

In 1999, Environmental Resolutions Inc. (ERI) performed a soil and groundwater evaluation including the installation of four on-site groundwater monitoring wells (MW-1 through MW-4). Soil samples collected from the borings at a depth of 10.5 feet bgs were reported to contain TPHg, benzene, and MTBE at concentrations up to 6,800, 2.6, and 0.71 mg/kg, respectively. The soil sample from MW-1, near the former used-oil UST, was additionally analyzed for TPHd and TRPH, which were detected at concentrations of 140 and 73 mg/kg, respectively. A deep sample (20.5 feet bgs) collected from MW-4 did not contain TPHg, benzene, or MTBE at or above the laboratory detection limit.

In July 2001, ERI installed a UST cavity backfill well (TP-1) and initiated monthly purging of groundwater from the UST cavity. Bi-weekly groundwater purging was conducted at the site on wells TP-1 and MW-1 from July 2001 through December 2004. In addition, during June 2004, the biweekly purging events included monitor well MW-7. Approximately 1,600 gallons were removed from well MW-7 with a cumulative total of approximately 476,000 gallons removed from the site through December 2004.

In August 2001, ERI installed three offsite monitor wells (MW-5 though MW-7). TPHg and MtBE were not detected in the soil samples and benzene was only detected in one soil sample (MW-7) at a concentration of 0.18 mg/kg.

Quarterly groundwater monitoring and sampling commenced July 1999 and is currently ongoing.

January 2005 – ATC became the new lead consultant for the site.

SITE GEOLOGY AND HYDROGEOLOGY

The site is located at an elevation of approximately 180 feet above mean sea level (MSL) and is underlain by recent–age alluvial deposits. Sediments encountered during previous subsurface investigations conducted at the site consist of a mixture of clay, silt, sand, and gravel to the maximum depth explored, approximately 31.5 feet below ground surface (bgs). In general, clay and silt with varying amounts of sand and gravel (up to 40 percent) were encountered in the borings. In boring MW-3, a gravel lens was

encountered from approximately 22 to 25 feet bgs and another from approximately 26 to 28 feet bgs. In boring MW-6, silty sand was encountered from approximately 18 feet bgs to the terminus of the boring (approximately 25 feet bgs). The saturated zone has been encountered during drilling at depths ranging from 13 to 24 feet bgs beneath the site and consists primarily of sandy silt and clay with some gravel. A partially confined aquifer extends from approximately 13 to 24 feet bgs to at least 31.5 feet bgs. During quarterly groundwater monitoring and sampling events, groundwater has historically been present at depths ranging from 1.82 to 9.81 feet below the top of casing with a hydraulic gradient ranging from 0.02 to 0.1 ft/ft. The groundwater flow direction has historically been reported towards the west.

PROPOSED SCOPE OF WORK

The proposed scope of work includes the following activities:

- Conduct utility clearance and obtain drilling permits from the Alameda County Water District and Alameda County Public Works Agency;
- Secure access and drilling permits with the City of Oakland to drill in the public right of way adjacent to High Street and MacArthur,
- Install six (additional) monitor wells to approximately 25 feet bgs with the initial 5 feet of each boring completed with "air-knife" technology as shown on Figure 3;
- Collect soil and groundwater samples for laboratory analysis from each monitor well borehole location;
- Contract a licensed land surveyor to generate a site map and survey the new monitor wells;
- Upload monitor well x, y, z coordinates and analytical laboratory data into the State of California Geotracker System per requirements of AB 2886; and
- Prepare a report of findings.

Pre-Field Investigation Activities

ATC will conduct a utility survey prior to conducting the field investigation. Underground Services Alert (USA) will be notified at least 48 hours prior to installing the proposed monitor wells, and the services of a private utility locating company will be utilized to reduce the risk of damage to any utilities beneath the property. Additionally, prior to installing each monitor well the first 5-feet of each borehole will be cleared using an air knife or hydrovak rig.

ATC will prepare a site-specific Health and Safety Plan (HASP) in accordance Title 8, Section 5192 of the California Code of Regulations. The HASP plan will contain a list of emergency contacts, as well as a hospital route map to the nearest emergency facility.

Drilling permits will be obtained from the Alameda County Water District, Alameda County Public Works Agency, and the City of Oakland to drill in the public right of way adjacent to High Street and MacArthur prior to scheduling the field work.

Monitor Well Installation and Soil Sampling Procedures

The proposed monitor wells (refer to Figure 2) will be installed by a C-57 licensed contractor using a drill rig equipped with 8-inch diameter hollow-stem augers. Soil samples will be collected and logged continuously using a California-modified split-spoon sampler. Soil samples will be collected using 6-inch long by 2-inch diameter brass sample tubes. The middle sample tube from each interval will be sealed with Teflon tape and plastic end caps and placed in a chest cooled with ice for delivery to the

analytical laboratory for chemical analysis. The remaining soil collected from the sample tubes will be used for field screening and lithologic description purposes. Soil samples from each sample interval will be field screened for the presence of volatile organic compounds (VOCs) using a photo ionization detector (PID). It is anticipated that two soil samples per boring will be collected for laboratory analysis. The PID readings will be recorded on the soil boring log by the field geologist. All soil samples will be logged using the Unified Soil Classification System (USCS).

Each monitor well will be constructed using 2-inch diameter polyvinyl chloride (PVC) well casing and screen (0.020-slot). Each monitor well will be designed based upon field conditions observed while drilling. The well construction details will consist of well screen from approximately 15 to 25 feet bgs and well casing from 0 to 15 feet bgs. The exact intervals will be dependent upon observed aquifer and hydrocarbon impact conditions. The sand pack will consist of #2/12 Monterey sand, and each well will be sealed with hydrated bentonite chips and Portland cement. Each well will be set to grade and the well head covered with a traffic-rated vault box. Figure 3 depicts a typical monitor well construction diagram.

Monitor Well Development and Sampling Procedures

After a minimum of 48 hours has elapsed following the completion of each well, the wells will be developed using a surge block and centrifugal pump equipped with disposable polyethylene tubing. A minimum of 10 well casing volumes will be removed from each well during the development process.

After the wells have been developed and a minimum of 24 hours have elapsed, the monitoring wells will be sampled for laboratory analysis. Each well will be purged using a centrifugal pump equipped with 3/8-inch disposable polyethylene tubing. A minimum of three well casing volumes will be purged from each well prior to collecting groundwater samples for laboratory analysis. Water temperature, conductivity, pH, and dissolved oxygen will be monitored during the purging of each well to ensure that groundwater from the surrounding formation has entered the well casing prior to sample collection. These environmental parameter readings will be noted on field sampling data sheets, copies of which will be provided in the report of findings.

Groundwater samples from each well will be collected from the tubing once the environmental parameters have stabilized. New polyethylene tubing and bailers will be used to purge and sample each well. After groundwater samples have been collected, the sample containers (40 milliliter glass vials) will be placed in a chest cooled with ice and transported to a state-certified laboratory for chemical analysis.

Laboratory Analysis

All soil and groundwater samples will be submitted under chain of custody protocol to Severn Trent Laboratories, Inc., a California-certified laboratory located in Pleasanton, California. The soil and groundwater samples will be analyzed for TPHg using United States Environmental Protection Agency (US EPA) Method 8015 and BTEX, MtBE, DIPE, ETBA, TAME, and ethanol using EPA Method 8260B. Groundwater samples collected from each well will also be analyzed for total dissolved solids (TDS) using US EPA Method 160.1. In addition, for waste profiling purposes, one soil sample will be analyzed for total lead and TCLP lead using EPA Method 6010. Proper chain-of-custody procedures will be followed for sample shipment.

Site Survey and Electronic Deliverable Format (EDF) Upload

ATC will contract with a licensed land surveyor to generate an accurate site map, as well as provide top of casing elevation and horizontal coordinates for each monitoring well location. The information will be used to produce an accurate site map for the report, as well as to upload analytical data to the State's Geotracker System.

Waste Disposal

All soil cuttings, rinsate fluids and purge water generated during this investigation will be temporarily stored onsite in appropriately labeled 55-gallon Department of Transportation (DOT)-approved drums pending disposal arrangements. The fluids and solids will be transported offsite by a licensed waste hauler once an approved destination for the waste is found.

Report

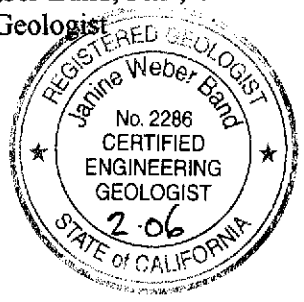
The findings of the field investigation will be presented in a Subsurface Investigation Report. The contents of the report will include a sample location map, copies of the analytical laboratory data sheets, soil boring/monitor well construction logs, a cross section, and conclusions and recommendations for additional investigation and/or monitoring, if appropriate.

If you have any questions regarding the contents of this work plan, please give me a call at (925) 225-7817. Mr. Thomas Kosel, the ConocoPhillips Site Manager, may also be contacted at (916) 558-7666 for additional questions.

Sincerely,
ATC ASSOCIATES INC.

David A. Evans
Senior Project Manager

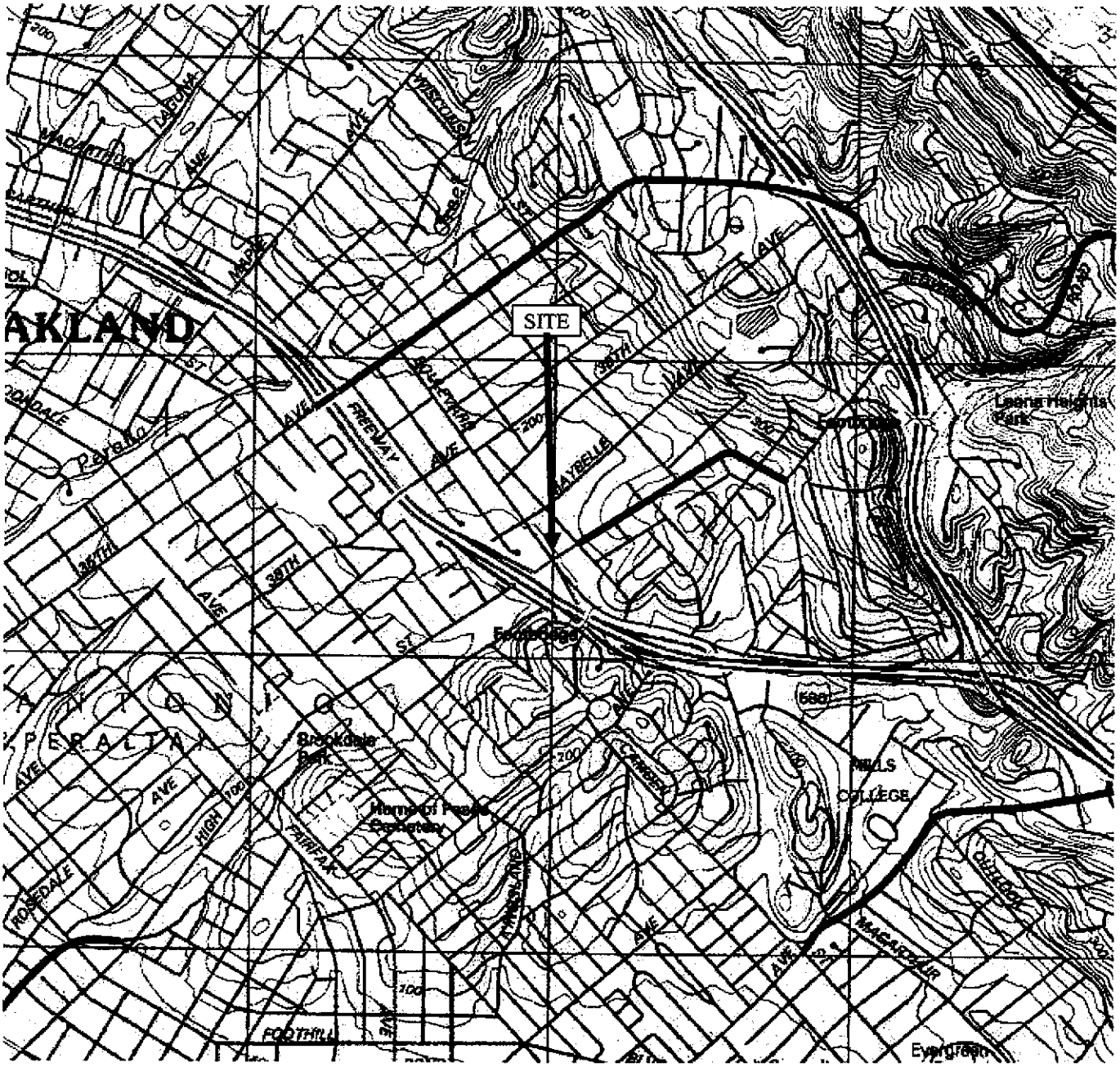
Janine Weber-Band, PhD, CEG #2286
Principal Geologist



Cc: Thomas Kosel – ConocoPhillips (electronic copy)

Attachments:

Figure 1 – Site Vicinity Map
Figure 2 – Site Map with Proposed Well Locations
Figure 3 – Well Construction Diagram



SOURCE: USGS OAKLAND WEST QUADRANGLE, CALIFORNIA (7.5 MINUTE SERIES) TOPOGRAPHIC MAP. OBTAINED FROM THE 2000 NATIONAL GEOGRAPHIC TOPO! SOFTWARE.

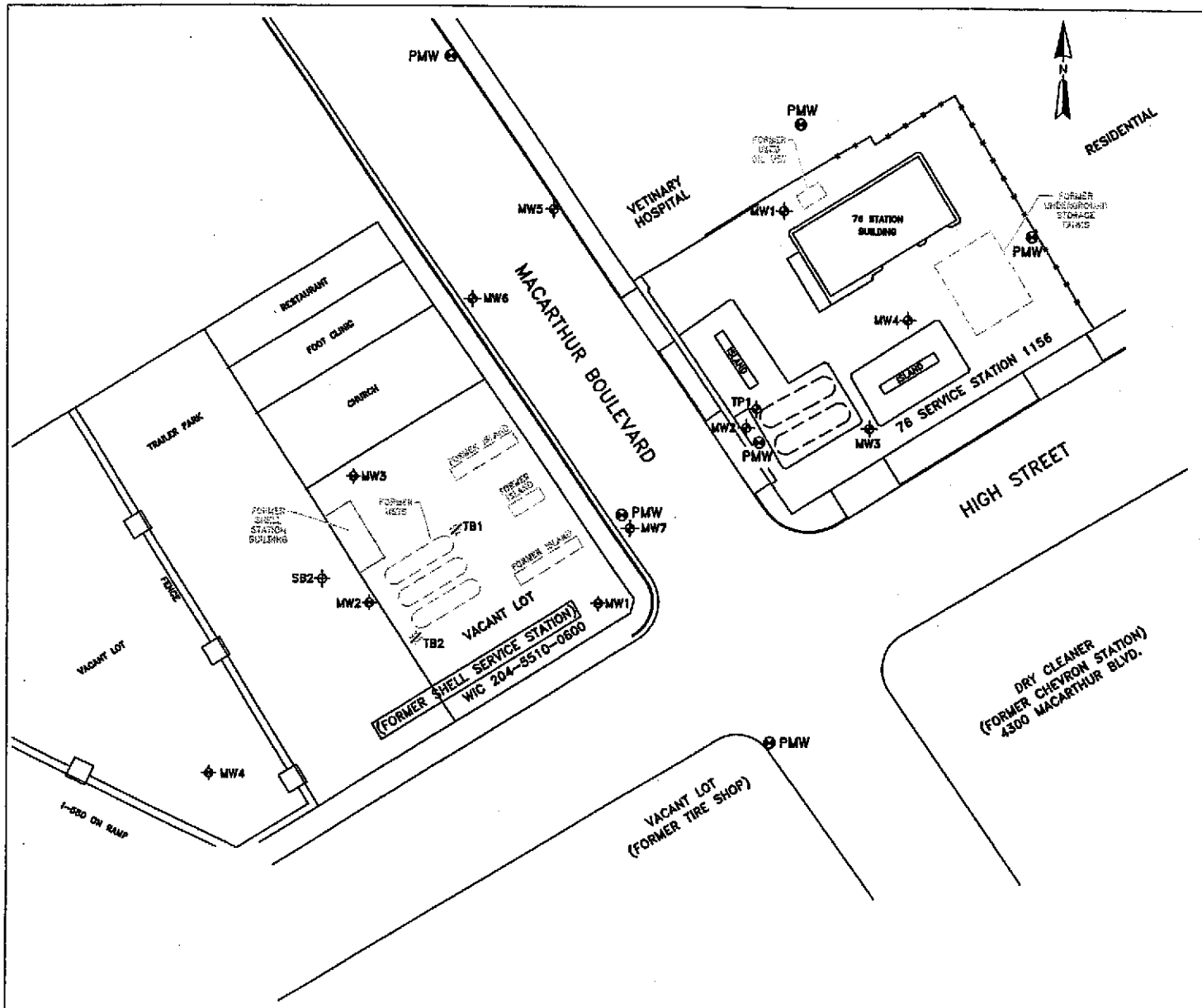
VATC ASSOCIATES INC.
6602 Owens Drive, Suite 100
Pleasanton, CA 94588
(925) 460-5300

PROJECT NO: 75.75118.1112		
DESIGNED BY: DE	SCALE:N/A	REVIEWED BY: DE
DRAWN BY: EC	DATE: 03/05	FILE: 1156 SITE VIC

FIGURE 1

SITE VICINITY MAP

76 STATION 1156
4276 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA



LEGEND

- MW1 — GROUNDWATER MONITOR
- MW2 — GROUNDWATER MONITORWELL (SHELL)
- TP1 — TANK PIT BACKFILL WELL
- TB2 — DESTROYED TANK BACKFILL WELL (SHELL)
- PMW — PROPOSED GROUNDWATER MONITOR WELL
- UNDERGROUND STORAGE TANK

Approximate Scale

40 0 40 feet

Subject to Surveyors verification

BASE MAP REFERENCE:
MODIFIED FROM SITE PLAN SUPPLIED BY MILLER BROOKS, ENVIRONMENTAL, INC.

VATC ASSOCIATES INC.
8602 Owens Drive, Suite 100
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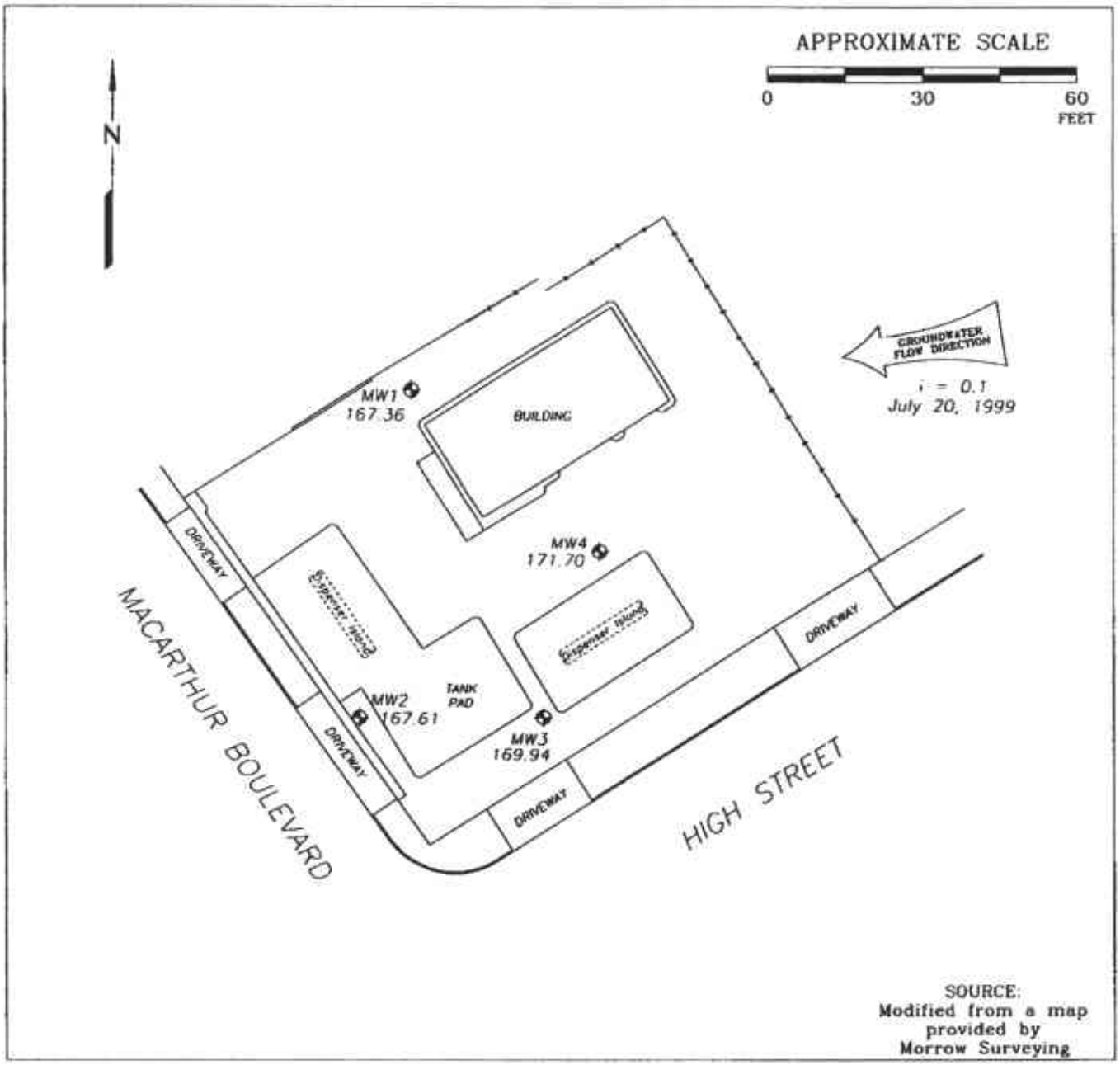
(925) 460-5300

SCALE	DRAWING DATE	ACAD FILE
AS SHOWN	04/22/05	1156-prop well

PROPOSED MONITOR WELL LOCATION MAP

CLIENT	PM
CONOCOPHILLIPS	DAE
LOCATION	**PE**
76 STATION 1156 4276 MACARTHUR BOULEVARD OAKLAND, CALIFORNIA	DA

DESIGNED	DRAWN BY	PROJECT NO.	FIGURE
	EC	75.75118.1112	2



FN 2235002A

EXPLANATION

MW4
◆ Groundwater Monitoring Well

171.70 Groundwater Elevation Relative to Mean Sea Level

i = Interpreted Groundwater Gradient

Analytical results for Toluene, Ethylbenzene, and Total Xylenes are presented in Table 2.

Groundwater Concentrations in ppb
Sampled July 20, 1999

	Total Purgeable Petroleum Hydrocarbons as Gasoline
	Benzene
	Methyl Tertiary Butyl Ether (MTBE)
	Total Extractable Petroleum Hydrocarbons as Diesel
ND	Not Detected At or Above the Laboratory Method Detection Limit
NA	Not Analyzed
*	MTBE confirmed using EPA Method 8260
**	Total Recoverable Petroleum Hydrocarbons, Halogenated Volatile Organic Compounds, and Semivolatile Organic Compounds Analytical Results are presented in Table 2
ppb	Parts Per Billion

ENVIRONMENTAL RESOLUTIONS, INC.

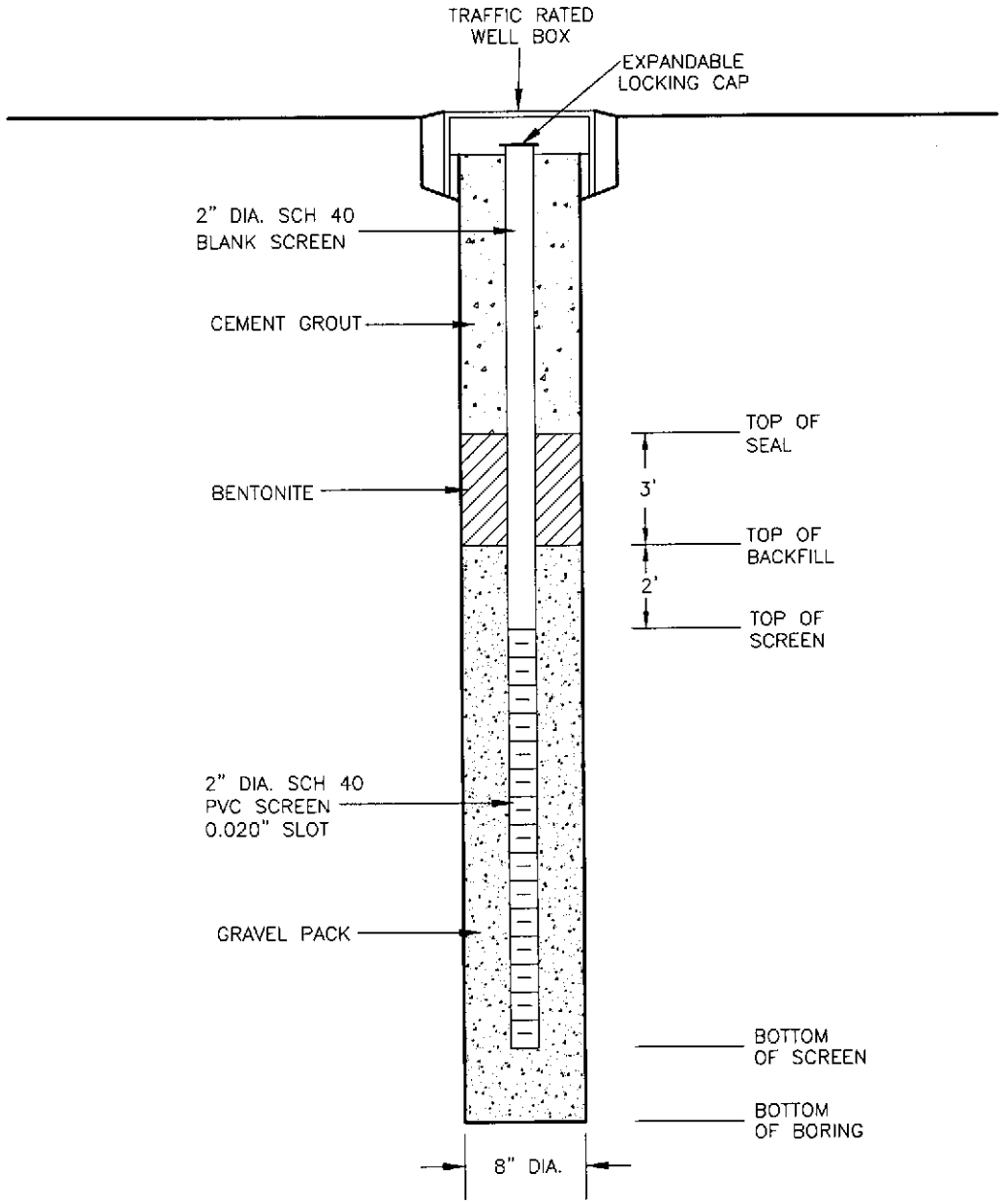
GENERALIZED SITE PLAN

TOSCO 76 SERVICE STATION 1156
4276 MacArthur Boulevard
Oakland, California

PROJECT NO. 2235

PLATE 2

September 9, 1999



NOTES:

1. NOT DRAWN TO SCALE
2. DEPTH MESUREMENTS AND INTERVALS ARE APPROXIMATE. ACTUAL WELL DESIGN WILL BE BASED ON EXPLORATORY BORING AND SITE CONDITIONS

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TYPICAL MONITOR WELL DIAGRAM

FIGURE 3

ENVIRONMENTAL RESOLUTIONS, INC.

Project No.: 2235 Boring: B1 /MW1 Plate: APPENDIX

Site: Tosco 76 Service Station 11. Date: 7/16/99

Drill Contractor: Woodward Drilling

Sample Method: Split Spoon Geologist: MARK S. DOCKUM

Drill Rig: B57 Bore Hole Diameter: 8" Signature:

Location: 10 Feet North of Northwestern Corner of Station Registration: R.G. 4412

Logged by: Dylan Crouse

DEPTH (ft)	BLOW COUNTS	PID/OVM (ppm)	SAMPLE	COLUMN	USCS	GEOLOGIC DESCRIPTION	WELL DESIGN
						2 1/2" asphalt	
					CH	Clay, grayish green, very moist, high plasticity	
					SP	Sand, fine-grained, grayish green, moist, no plasticity, black staining	
5	39	253			CH	Clay, grayish green, very moist, high plasticity	
10	27	87			ML	Silty sand, fine-grained sand, black, very moist, no plasticity, (65% silt, 35% sand)	
15	36	222			CL	Clay, with some sand, medium-grained, light olive brown, medium plasticity, wet	
20	37	22				sandy clay, strong brown, (40% sand, 60% clay)	
25	33	9				yellow orange, high plasticity, very moist	
						Total depth at 26.5 feet. Groundwater encountered at 23'7".	

Casing Diameter: 2" Slot Size: 010 , Sand Size: 2/12 , Grout: Portland III

FN: 2235001

ENVIRONMENTAL RESOLUTIONS, INC.

Project No.: 2235 Boring: B7/MW2 Plate: APPENDIX

Site: Tosco 76 Service Station 11 Date: 7/16/99

Drill Contractor: Woodward Drilling

Sample Method: Split Spoon Geologist: MARK S. DOCKUM

Drill Rig: B57 Bore Hole Diameter: 6" Signature: Mark S. Dockum

Location: 2 Feet EAst of Southernmost Driveway Registration: R.G. 4412

Along MacArthur Boulevard Logged by: Dylan Crouse

DEPTH (ft)	BLOW COUNTS	PID/OVM (ppm)	SAMPLE	COLUMN	USCS	GEOLOGIC DESCRIPTION	WELL DESIGN
						4" asphalt	
						Clay, dark greenish gray, mottled redish orange, some coarse-grained sand, slightly damp, high plasticity, (35% sand, 65% clay)	
5	11	20			CH		
10	18	0				15% fine gravels up to 0.5", 20% sand, medium-grained, damp	
						Silty clay, orange brown, mottled green gray, (35% silt, 65% clay), moist, medium plasticity	
15	21	130			CL		
20	29	20				gravelly clay, light yellowish brown, (40% fine gravel, 60% clay), medium plasticity, very moist, black staining	
		▼					
					ML	Sandy clay, trace of silt, yellowish brown, wet, medium plasticity, (35% sand, 15% silt, 50% clay)	
25	45	18					
						Total depth at 26.5 feet. Groundwater encountered at 23' 6".	

Casing Diameter: 2" Slot Size: 010 , Sand Size: 2/12 , Grout: Portland I/II

PN: 2235002

ENVIRONMENTAL RESOLUTIONS, INC.

Project No.: 2235 Boring: B2/MW3 Plate: APPENDIX

Site: Tosco 76 Service Station 11 Date: 7/16/99

Drill Contractor: Woodward Drilling

Sample Method: Split Spoon Geologist: MARK S. DOCKUM

Drill Rig: B57 Bore Hole Diameter: 8" Signature:

Location: Approximately 15' South West of Southern-most Dispenser Island Parallel to High Street Registration: R.G. 4412

Logged by: Dylan Crouse

DEPTH (ft.)	BLOW COUNTS	PID/OVM (PPM)	SAMPLE	COLUMN	USCS	GEOLOGIC DESCRIPTION	WELL DESIGN
						4 1/2" asphalt	
						Clay, dark yellowish brown, mottled, trace of medium-grained sand, slightly damp, high plasticity, (15% sand, 85% clay)	
5	18	235			CH	brown, mottled gray, dry	
10	33	265				staining, trace of coarse gravel and rootlets (15% gravel, 85% clay), slightly damp	
		▽					
						Sandy clay, greenish gray, mottled, orange, some medium-grained sand, slight plasticity, caliche present, (35% sand, 65% clay)	
15	25	81			CL		
						Clay, strong brown, slight mottling, trace of medium-grained sand, 20% sand, high plasticity, black staining, 80% clay	
20	36	9			CH		
						Gravel, yellowish brown, wet	
		▼			GW		
25	25	0			CH	Clay, trace of medium-grained sand, yellowish brown, very moist, high plasticity, (15% sand)	
					GW	Gravel, orange, slight plasticity, wet	
						Clay, yellowish brown, moist, high plasticity	
30	22	0			CH		
						Total depth at 31.5 feet. Groundwater encountered at 23.3 feet. Static groundwater at 12 feet.	

Casing Diameter: 2" Slot Size: 010 Sand Size: 2/12 Grout: Portland III

FN: 22358023

Project No.: 2235 Boring: B4 /MW4 Plate: APPENDIX

Site: Tosco 76 Service Station 1 Date: 7/16/99

Drill Contractor: Woodward Drilling

Sample Method: Split Spoon Geologist: MARK S. DOCKUM

Drill Rig: B57 Bore Hole Diameter: 8" Signature:

Location: 18 Feet North of Southernmost Dispenser Island Parallel High Street Registration: R.G. 4412

Logged by: Dylan Crouse

DEPTH (ft)	BLOW COUNTS	PID/OVM (ppm)	USCS	GEOLOGIC DESCRIPTION
				4 1/2" asphalt
				Clay, greenish gray, mottled, orange slightly damp, high plasticity
5	17	309		
10	22	253	CH	trace of medium-grained sand, slightly moist
15	19	4		moist
20	28	4		brownish yellow, black staining, 20% gravel, 20% medium-grained sand, moist
		▼		brown, mottled, olive yellow, moist, black staining
25	36	0		
				Total depth at 26.5 feet. Groundwater encountered at 23.6 feet.

WELL DESIGN

Casing Diameter: 2" Slot Size: 010 , Sand Size: 2/12 , Grout: Portland I/II

FN: 22350004

ENVIRONMENTAL RESOLUTIONS, INC.

Project No.: 2235 Boring: MW5 Plate: Attachment
Site: Tosco 76 Service Station 1156 Date: 8/29/01
Drill Contractor: Woodward Drilling Company, Inc.
Sample Method: Split Spoon Geologist: JOHN B. BOBBITT
Drill Rig: BK-81 Bore Hole Diameter: 8" Signature:
Location: Eastern side of MacArthur Boulevard approximately 40 feet north of site Registration: R.G. 4313
Logged by: Rob Saur

DEPTH (ft.)	BLOW COUNTS	PID/OVM (ppm)	SAMPLE	COLUMN	USCS	GEOLOGIC DESCRIPTION	WELL DESIGN
						6" Concrete	
5	23	8.3 ▽			CL	CLAY WITH SAND AND TRACE OF GRAVEL: greenish gray, moist, high plasticity, fine-grained sand, fine-grained poorly-sorted subangular gravel.	
10	27	7.7				SANDY CLAY: orange brown, moist, low plasticity, fine-grained sand.	
15	57	11.2			ML	SANDY SILT: orange brown, moist, low plasticity, fine-grained sand.	
20	30						
25	38	7.7				light brown, wet.	
						Boring Terminated at 25 feet. Boring converted to groundwater monitoring well. Groundwater encountered at 6 feet.	

Casing Diameter: 2" Slot Size: 0.020 Sand Size: #3 Grout: Portland Cement

ENVIRONMENTAL RESOLUTIONS, INC.

Project No.: 2235 Boring: MW6 Plate: Attachment
Site: Tosco 76 Service Station 1156 Date: 8/29/01
Drill Contractor: Woodward Drilling Company, Inc.
Sample Method: Split Spoon Geologist: JOHN B. BOBBITT
Drill Rig: BK-81 Bore Hole Diameter: 8" Signature: JB Bobbitt
Location: Western side of MacArthur Boulevard Registration: R.G. 4313
approx. 30 feet north of Shell station Logged by: Rob Saur

DEPTH (ft)	BLOW COUNTS	PID/OVM (ppm)	SAMPLE	COLUMN	USCS	GEOLOGIC DESCRIPTION	WELL DESIGN
						6" Concrete	
5	24	10.6	▽			CLAYEY SILT: greenish gray, very moist, medium plasticity.	
10	19	10.0			ML	light brown, trace of fine-grained sub-angular sand (approx. 5%).	
15	24	6.0				CLAYEY SILT WITH SAND: light brown, fine-grained sub-angular sand (approx. 15%).	
20	48	7.7			SM	SAND WITH SILT: orange brown, wet, medium-grained well-sorted well-rounded sand.	
25	50/5"		⊗			Boring terminated at 25 feet. Boring converted to groundwater monitoring well. Groundwater encountered at 5.5 feet.	

Casing Diameter: 2" Slot Size: 0.020 Sand Size: #3 Grout: Portland Cement

Project No.: 2235 Boring: MW7 Plate: Attachment

Site: Tosco 76 Service Station 1156 Date: 8/29/01

Drill Contractor: Woodward Drilling Company, Inc.

Sample Method: Split Spoon Geologist: JOHN B. BOBBITT

Drill Rig: BK-81 Bore Hole Diameter: 8" Signature: JB Bobbitt

Location: Western side of MacArthur Boulevard Registration: R.G. 4313

approx. 40 feet north of High Street Logged by: Rob Saur

DEPTH (ft)	BLOW COUNTS	PID/OVM (ppm)	SAMPLE	COLUMN	USCS	GEOLOGIC DESCRIPTION	WELL DESIGN
						6" Concrete	
5	50/5"	25				SANDY SILT: brown with bluish green mottling, moist, low plasticity, 40% fine-grained sand.	
10	36	236			ML		
15	35	8.9				light brown, wet.	
20	25	57					
25	50/5"	19.3				reddish brown, 30% medium-grained sand.	
						Boring terminated at 25 feet. Boring converted to groundwater monitoring well. Groundwater encountered at 15 feet.	

Casing Diameter: 2" Slot Size: 0.020 , Sand Size: #3 , Grout: Portland Cement