RO261

cook

271 Las Juntas Way, Walnut Creek, CA 94597 Phone 925.937.1759 Cell 925.787.6869 cookenvironmental@att.net

June 12, 2006

Don Hwang
Alameda County Environmental Health
1311 Harbor Bay Pkwy, Ste 250
Alameda, California 94502-6577

Subject: Response to Technical Comments and Work Plan for Additional Site Investigation
Express Gas & Mart, 2951 High Street, Oakland
LOP Case No. 1038

Dear Mr. Hwang:

Enclosed is the *Response to Technical Comments and Work Plan for Additional Site Investigation* for the subject LUFT site. This report is submitted in response to your May 5, 2006 letter to Mr. Aziz Kandahari, the former owner and responsible party, requesting additional information to review case closure.

A *Quarterly Monitoring Report* will be submitted under separate cover documenting the most recent groundwater sampling event on May 24, 2006. One minor omission was made from the enclosed report. In technical comment #2 you requested the date the current tank system became operational. The current tank system became operation in October 2001.

We are prepared to implement the work plan to drill three soil borings downgradient of the existing UST as soon as you grant approval. Please call me at (925) 937-1759 if you have any questions in regard to this report.

Very truly yours,

Cook Environmental Services, Inc.

Tim Cook, P.E., CEG
Principal

cc: Aziz Kandahari, Express Gas & Mart
Mark Owens, UST Cleanup Fund
Cherie McCaulou, San Francisco Bay RWQCB
Jennifer Rice, Esq.

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RESPONSE TO TECHNICAL COMMENTS
AND
WORK PLAN FOR ADDITIONAL SITE INVESTIGATION

PROJECT SITE:
Express Gas & Mart
2951 High Street
Oakland, California 94619

PREPARED FOR:
Mr. Aziz Kandahari
Himalaya Trading Company
2951 High Street
Oakland, California 94619

SUBMITTED TO:
Alameda County Health Care Services
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

PREPARED BY:
Cook Environmental Services, Inc.
271 Las Juntas Way
Walnut Creek, California 94597

Project No. 1004

June 12, 2006

PROFESSIONAL CERTIFICATION

RESPONSE TO TECHNICAL COMMENTS
AND
WORK PLAN FOR ADDITIONAL SITE INVESTIGATION

Express Gas & Mart
2951 High Street
Oakland, California 94619

Cook Environmental Services, Inc.
Project No. 1004
June 12, 2006

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The conclusions presented in this document are professional opinions based solely upon the stated scope of work and the interpretation of available information as described herein. Such information may include third party data that either has not, or could not be independently verified. Cook Environmental Services, Inc. recognizes that the limited scope of services performed in execution of this investigation may not be appropriate to satisfy the needs or requirements of other potential users, including public agencies not directly involved. Any use or reuse of this document or the findings, conclusions, and recommendations presented herein is at the sole risk of said user.

Tim Cook, P.E., CEG
Principal

INTRODUCTION

This report responds to requests for information from the Alameda County Environmental Health (ACEH) regarding the Request for Case Closure on Fuel Leak Case RO0000261 for Express Gas & Mart located at 2951 High Street in Oakland, California (the "Site"). In a letter dated May 5, 2006 to Mr. Aziz Kandahari, the former owner and responsible party, the ACEH requested additional information to review case closure. Eleven technical comments were provided in this letter. We will attempt to respond to these comments in the order that they were presented.

ACEH TECHNICAL COMMENTS

1. *Analytical reports and results of soil sample by MW-1 collected September 27, 2001 not provided – During most recent groundwater monitoring event on October 4, 2005, 400 ug/l MTBE was detected in MW-1. The data requested may determine if the source of the MTBE is from this area. Please submit.*

Cook Environmental Services, Inc. (CES) conducted a thorough file review for the site at ACEH on May 18, 2006. Base on information found in remediation report by W.A. Craig, Inc., two four point composite soils samples (SP1-4 and SP 5-8) were collected from near well MW-1 on September 27, 2001. MtBE was detected at 73 ug/kg in SP 1-4 and 56 ug/kg in SP 5-8. These results indicate that MtBE was present in shallow soils (<12 ft). These soils were excavated and disposed of appropriately offsite. The lab reports for these two soil samples and a map showing the approximate locations of the samples is provided in **Appendix A**.

2. *Additional groundwater sampling – During the most recent groundwater monitoring event on October 4, 2005, 490 ug/l MTBE was detected in MW-10. Please propose groundwater sampling to determine if active tanks or dispensers are responsible for MTBE found in MW-10. Please indicate on the site map the proposed groundwater sampling locations and the active tanks and dispensers. Also, indicate when the current tank system became operational.*

Groundwater and soil samples will be collected from three temporary borings located downgradient of the new tank system. Borings will be advanced using a Geoprobe drilling rig. One soil sample will be collected from each boring at the groundwater interface (approximately 6 feet below surface). A groundwater sample will be collected from the first groundwater encountered. The sample will be collected in a temporary well constructed of ¾" diameter PVC. The water sample will be collected using a factory clean disposable bailer and placed into three laboratory clean 40 ml VOA vials preserved with concentrated hydrochloric acid. All samples will be collected under chain of custody control and transported to the lab at 4 degrees Celsius. The samples will be delivered to the lab within 8 hours of collection. The proposed location of the temporary borings is provided on **Figure 1** in **Appendix B**. Boring permits will be obtained

from the Alameda County Department of Public Works and a utility location survey will be conducted by USA Alert prior to commencement of field work.

3. *Historical hydraulic gradients – Please show using a rose diagram with magnitude and direction; include cumulative groundwater gradients in all future reports submitted for this site.*

While we agree there is some benefit in reviewing historical groundwater gradients, the rose diagram is not the most beneficial way to review these gradients. Rose diagrams will only give the triangulated direction of groundwater flow between three points. The flow direction at this site is more complex in that the gradient and the flow direction change across the site. The most beneficial way to review historical groundwater gradients is to review the hydraulic gradient map for historical groundwater sampling events. We have accumulated historical groundwater gradient maps from February 23, 1995 to October 4, 2005. These gradient maps are provided in **Appendix C**. While the early gradient maps incorrectly identified the groundwater flow direction as to the north, .later gradient maps using more wells correctly identified the flow direction as southwesterly, following the regional topography.

4. *Analytical results for groundwater samples incomplete – Omitted were MW-2 (STMW-2), MW-4 analyses for TPHD and TOG for MW-1 (STMW-1) and MW-3 (STMW-3). Please include these results in your table.*

Analytical results for all the above have been addend to the historical groundwater analytical results. This table is provided in **Appendix D**.

5. *Soil and groundwater contaminant concentration site maps – Please show soil and groundwater contaminant concentration sample locations data on site maps. Include dates of sample collection and for soil samples, depth at which sample was collected. In addition to items featured, include previously installed monitoring wells and dispensers.*

W.A. Craig, Inc. provided complete tables and figures covering all soil and groundwater samples collected during the removal of contaminated soil from the site from May to September 2001. A figure is included for each sampling date. Soil sample tables contain the sample date, sample depth, sample ID and sample results. The same sample IDs are shown on the accompanying figures. These tables and figures are provided in **Appendix E**. This same appendix also contains a map showing the location of previously installed monitoring wells (MW-2 and MW-4). The present day dispensers shown on the amp are in the same location as the former dispensers.

6. *Preferential Pathway Survey – We request that you perform a preferential pathway study that details the potential for migration pathways and potential conduits (wells, utilities,*

pipelines, etc.) for horizontal and vertical migration that may be present in the vicinity of the site.

a) Utility Survey- Please submit map(s) and cross-sections showing the location and depth of all utility lines and trenches (including sewers, storm drains, pipelines, trench backfill etc. within and near the site and plume area(s). Evaluate the probability of the contaminant plumes encountering preferential pathways and conduits that could spread the contamination.

CES contacted Underground Service Alert (USA) on May 19, 2006 and requested that all buried public utilities on and near the site be located. PG&E located gas and electrical lines, SBC/ATT located buried phone lines, and EBMUD located water mains. The City of Oakland did not respond to the USA call even after several calls, however, buried storm drain lines and sewer lines were located by CES using manhole covers, cleanout lid covers, storm drain catch basins. This preferential pathway survey was performed on ay 24, 2006. Buried utilities located during this survey are shown on the figure provided in **Appendix F.** The survey indicated there are many buried utilities, however, in order for buried utilities to provide a preferential pathway the following conditions must be met: 1) they must be located hydraulically downgradient of the contaminant plume(s); 2) the trench they are buried in must be at least as deep as the highest recorded groundwater elevation; and 3) the trenches must be backfilled with a material that is more permeable than the native soil. Based on the first criteria, we can eliminate all buried utilities in the vicinity of the site except the EBMUD water main, the PG&E gas main, the City of Oakland sewer and the City of Oakland storm drain all of which run beneath High Street. Based on the second criteria, the bottom of a utility trench must be at least as deep as the highest recorded groundwater in wells MW-8 and MW-10 (wells closest to High Street). The shallowest recorded groundwater depth in these wells was 4.40 feet below top of casing in well MW-8 on January 3, 2005 and on March 4, 2005.

The storm drain catch basin at the corner of Penniman and High Streets is within 23 feet of MW-8. The invert for this catch basin is 3.6 feet below grade. Thus the trench containing the storm drain is above the groundwater static level at all times. We can eliminate the storm drain trench as a potential pathway.

A call was made to PG&E to determine the depth of the trench containing the 4-inch diameter steel natural gas transmission line (4" STL). PG&E stated the exact depth of this trench is unknown since settling, regarding and repaving may have occurred since the line was placed. In general PG&E places 3 feet of cover over their gas lines. The gas lines are covered top and bottom with sand. If the line is buried with 3 feet of cover, the pipe is 4" diameter and is on top of an 8" thick sand bed, the base of the gas line trench is at approximately 4 feet below grade. Thus the bottom of this trench is 0.4 feet above the highest recorded groundwater level and we can eliminate the gas line as a preferential pathway.

A call was made to EBMUD to determine the depth of the trench containing the 8-inch diameter cast iron water main beneath High Street. EBMUD stated that this water main was installed in the 1950s and was typically covered with 36 inches (3 feet) of native soil. Bedding sand or pea

gravel was not used on cast iron pipes during this period. If the line is buried with 3 feet of cover, the pipe is 8" diameter and there is no bedding sand or gravel, the base of the water line trench is at approximately 3.7 feet below grade. Thus the bottom of this trench is 0.7 feet above the highest recorded groundwater level and we can eliminate the water main as a preferential pathway.

A call was made to the City of Oakland Public Works Department, Sewer Maintenance Division to determine the depth of the trench containing the sewer lines running down High Street. There are two sewer trunk lines running down High Street in the vicinity of the site; one runs down the east side, the other runs down the west side of High Street. Both sewer lines are approximately 6 to 8 feet deep. The sewer lines are more than 50 years old. At that time, native soils were used as bedding material. Based on this information the sewer lines are deeper than the highest recorded groundwater elevation. The sewer lines could provide a preferential pathway if they were backfilled with a higher permeability material such as pea gravel or sand. In fact, the sewer lines are backfilled with native soils which do not necessarily have a higher permeability than the surrounding soil. Based on the existing information, it is unlikely that the sewer lines provide a preferential pathway for the offsite migration of MtBE or other contaminants from the site.

7. *Well survey – Locate wells within a quarter mile radius of the site. Show the location of the wells and the site on a map and tabulate well construction details for each well. Please submit with the Work Plan requested below.*

This sensitive receptor survey includes a water well search and a field survey to locate recorded wells within ¼ mile of the Site that have been identified through California Department of Water Resources (DWR) well records. A thorough walking survey was also conducted to locate water wells and other potential receptors located within ¼ mile of the Site to search for wells which may exist but were not identified in DWR well records. Well locations are depicted on a 7.5' USGS Quad map with the ¼ mile radius clearly marked. CES conducted a review of recorded drillers' logs for the area at the DWR office in Sacramento on May 16, 2006. Wells logs for two sites within ¼ mile of the subject site were discovered. The first site is located at 3315 High Street and was a former Mobil Oil gas station. Three monitoring wells were installed to depths ranging from 30 to 35 feet. The purpose of these wells is to delineate the extent of hydrocarbon contamination from an onsite UST release. These wells are located hydraulically upgradient of the subject site. These wells are not sensitive receptors and can be eliminated from further analysis. The second site is located at 2627 Minna Street. This well is a domestic well drilled to a depth of 211 feet. The well casing is perforated from 115 to 155 feet and from 178 to 211 feet. The screened section of this well intercepts clay and gravel. A well test was performed but the results are not legible. A chemical analysis shows that water from the well contains 3.64 grams per gallon (961 mg/l) of chloride. The secondary maximum contaminant level (MCL) for chloride in drinking water is 250 mg/l. The site is located ¼ mile west (i.e., downgradient) of the subject site. A field survey for wells that are not recorded with the DWR was conducted on May 24, 2006. The survey involved walking the area within ¼ mile radius to visually locate any well heads, pumps, pump houses or other evidence of well water systems. No wells were located during this

reconnaissance, however, one are homeowner mentioned that she had a private hand dug well on her property that is not recorded with the county or the DWR. When questioned further, she would not divulge the address of her property. A tabulation of well construction detail, a map showing the locations wells within a ¼ radius of the subject site and driller's logs for these wells are provided in **Appendix G**.

8. *Groundwater monitoring well sampling – Reinstate at least for another quarter.*

All eight groundwater monitoring wells were sampled on May 24, 2006. The results of this sampling event are included in a separate report entitled *Quarterly Monitoring Report, Second Quarter 2006.*

9. *Inactive groundwater monitoring wells – Please determine if STMW-2 [MW-2] and MW-4 have been properly decommissioned.*

MW-2 and MW-4 were removed during excavation of contaminated soil from the site from May to September 2001. The bottom of the excavation was approximately 12 feet below grade. The well casings were broken off at this depth and the remainder of the well was filled with neat cement to seal this potential pathway. This engineer witnessed these well abandonments. A call to the Alameda County Department of Public Works (ACPW) revealed that a complete well abandonment permit has not been issued for these wells. At present, CES is providing ACPW with DWR well logs and other information needed to process decommissioning of these wells.

10. *Plume velocity –Please determine for the hydrocarbon dissolved phase groundwater plume.*

There is no aquifer test data available to determine the site specific hydraulic conductivity or transmissivity of the water-bearing unit. A range of values for gravelly clay soil is available in several text books (*Freeze & Cherry, 1979, Fetter, 1965, Driscoll, 1986).* An average hydraulic conductivity value was calculated using site specific data. MtBE is the constituent of concern at this site. MtBE is not easily adsorbed by the soil matrix thus no adsorption was assumed in the calculation of the plume velocity. The initial calculation of plume velocity assumes the plume velocity is controlled by the primary porosity of the soil matrix and is not based on secondary porosity through fractures, fissures, and other preferential pathways. Based on these assumptions the MtBE plume velocity is approximately 0.30 feet per year. However, field examination of soil cores and transects in the excavation indicate that the soil is partially lithified with significant secondary fractures and fissures. Due to this secondary porosity, we apply a multiplier of 60x to the hydraulic conductivity value obtained from the literature. This assumption results in a plume velocity of 18 feet per year. A check was performed using field calibration data from MtBE concentration in well MW-10. This well is located 128 feet downgradient from the nearest source area (the former dispensers in front of the market). If we assume that MtBE began leaking from the dispensers at the time MtBE was first widely used as

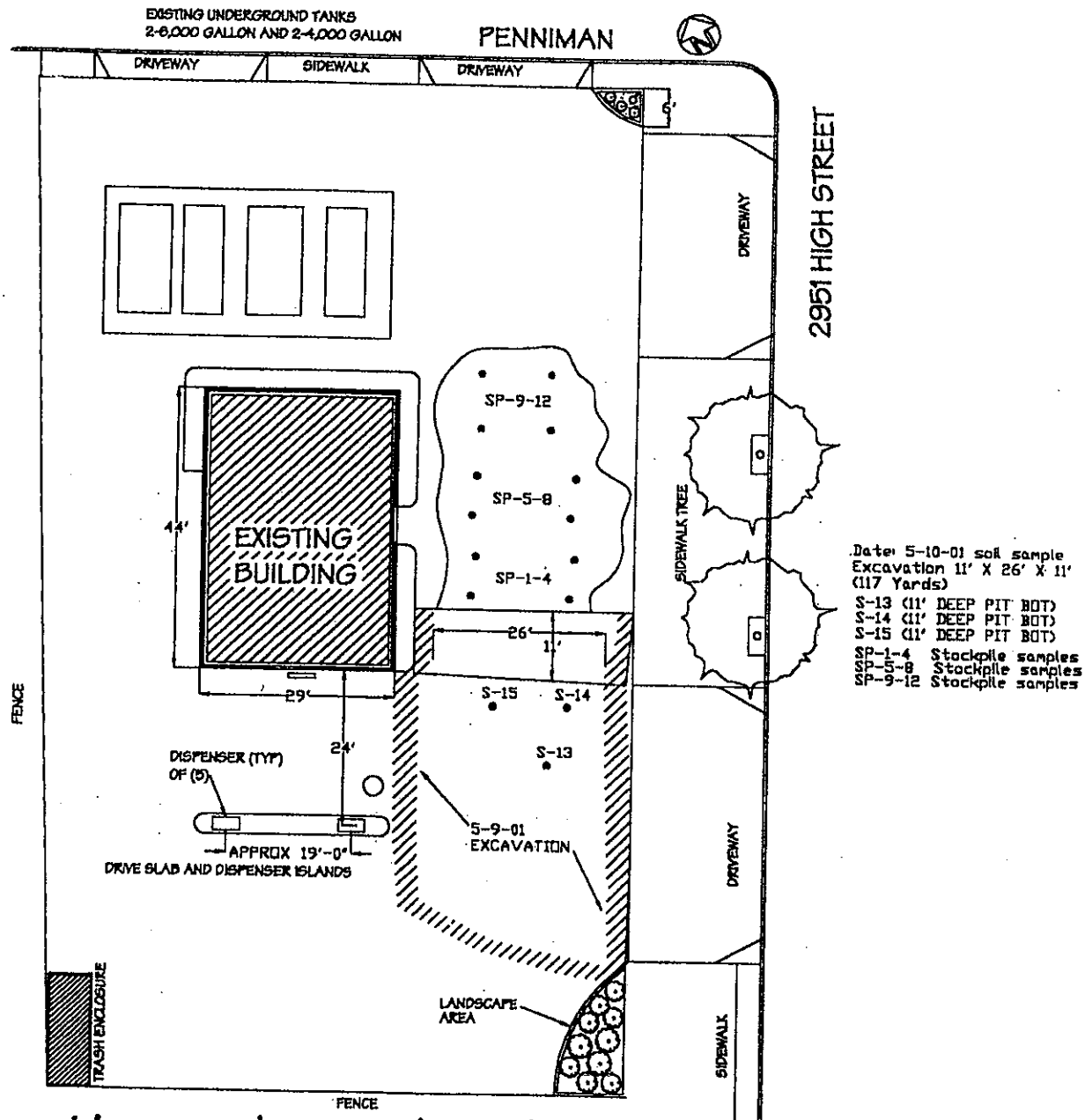
an octane booster (late 1970s) the resulting plume velocity is approximately 5 feet per year. Thus, we estimate the MtBE plume velocity is in the range of 5 to 18 feet per year. Plume velocity calculations are provided in **Appendix H**.

11. *Analytical results for soil samples – Tabulation of soil samples [sic] results required. Please submit.*

Please see **Appendix E**.

APPENDIX A

Laboratory Analytical Reports and Map for Composite Soil Samples near MW-1



Excavation and sampling Site Map

ENVIRONMENTAL CONSULTING AND CONTRACTING

W.A. CRAIG, INC.
6940 TREMONT ROAD
DIXON, CALIFORNIA 95620
PH# (707) 693-2929
LIC# 455752

Project Name and Address

EXPRESS GAS & MART
2951 HIGH STREET
OAKLAND, CA
JOB # 3936

FIGURE #

5-10-01

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

W. A. Craig, Inc. 6940 Tremont Road *Dixon, CA 95620-9603*	*Client Project ID: #3936; High Street*	Date Sampled: 09/27/01
		Date Received: 09/27/01
	Client Contact: Tim Cook	Date Extracted: 09/27/01
	Client P.O:	Date Analyzed: 09/27/01

Seven Oxygenated Volatile Organics By GC/MS

EPA method 8260 modified

Lab ID	79615	79616			Reporting Limit	
Client ID	SP-1-4	SP-5-8				
Matrix	*S*	*S*			*S*	*W*
Compound	Concentration*				ug/kg	ug/L
Di-isopropyl Ether (DIPE)	*ND<50*	*ND<50*			*5.0*	*1.0*
Ethyl tert-Butyl Ether (ETBE)	ND<50	ND<50			5.0	1.0
Methyl tert-Butyl Ether (MTBE)	73	56			5.0	1.0
tert-Amyl Methyl Ether (TAME)	ND<50	ND<50			5.0	1.0
tert-Butanol	ND<250	ND<250			25	5.0
Methanol	ND<25,000	ND<25,000			2500	500
Ethanol	ND<2500	ND<2500			250	50
Surrogate Recoveries (%)						
Dibromofluoromethane	95	89				
Comments:						

* water samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L
ND means not detected above the reporting limit; N/A means surrogate not applicable to this analysis
(h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~5 vol. % sediment; (j) sample diluted due to high organic content

DHS Certification No. 1644

Edward Hamilton, Lab Director

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W. A. Craig, Inc.	Client Project ID: #3936; High Street	Date Sampled: 09/27/01
6940 Tremont Road		Date Received: 09/27/01
Dixon, CA 95620-9603	Client Contact: Tim Cook	Date Extracted: 09/27/01
	Client P.O:	Date Analyzed: 09/27/01

Ethylene Dibromide (1,2-Dibromoethane) and 1,2-Dichloroethane (1,2-DCA)

EPA method 8260

Lab ID	Client ID	Matrix	EDB	1,2-DCA	% Recovery Surrogate
79615	SP-1-4	S	ND<50,j	ND<50	95
79616	SP-5-8	S	ND<50,j	ND<50	89
Reporting Limit unless otherwise stated, ND means not detected above the reporting limit		W	1.0 ug/L	1.0	
		S	5.0 ug/kg	5.0	

* water and vapor samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SPLP extracts in ug/L

h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) sample diluted due to high organic content.

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6940 Tremont Road		Date Received: 09/27/01
Dixon, CA 95620-9603	Client Contact: Tim Cook	Date Extracted: 09/27/01
	Client P.O:	Date Analyzed: 09/27-09/28/01

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)*	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes	% Recovery Surrogate
79615	SP-1-4	S	110,b,j	0.33	0.20	0.78	1.3	6.6	---[a]
79616	SP-5-8	S	78,b,j	0.44	0.28	0.84	1.4	6.7	---[a]
Reporting Limit unless otherwise stated; ND means *not detected above* the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all *TCLP* and *SPLP* extracts in ug/L

[a] cluttered chromatogram; sample peak coelutes with surrogate peak

"The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant, h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

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W. A. Craig, Inc.	Client Project ID: #3936; High Street	Date Sampled: 09/27/01
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Dixon, CA 95620-9603	Client Contact: Tim Cook	Date Extracted: 09/27/01
	Client P.O:	Date Analyzed: 09/27/01

Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel *

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d)#	% Recovery Surrogate
79615	SP-1-4	S	49,d,g	97
79616	SP-5-8	S	63,d,g	97
Reporting Limit unless otherwise stated; ND means not detected above *the reporting limit*		W	50 ug/L	
		S	*1.0 mg/kg*	

* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP / STLC / SPLP extracts in ug/L.

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has be diminished by dilution of original extract.

"The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for th interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; uged diesel? is significant); d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel (?); one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen is present; i) liqu sample that contains greater than ~5 vol. % sediment.

DHS Certification No. *1644*

Edward Hamilton, Lab Director

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W. A. Craig, Inc. 6940 Tremont Road Dixon, CA 95620-9603	Client Project ID: #3936; High Street	Date Sampled: 09/27/01
		Date Received: 09/27/01
	Client Contact: Tim Cook	Date Extracted: 09/27/01
	Client P.O:	Date Analyzed: 09/27/01

Lead*

EPA analytical methods 6010/200.7, 239.2*

Lab ID	Client ID	Matrix	Extraction °	Lead*	% Recovery *Surrogate*
79615	SP-1-4	S	TTLC	8.2	103
79616	SP-5-8	S	TTLC	9.4	103

Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	S	TTLC	3.0 mg/kg
	W	TTLC	0.005 mg/L
	...	*STLC,TCLP*	*0.2 mg/L*

* soil and sludge samples are reported in mg/kg, wipe samples in ug/wipe, and water samples and all STLC / SPLP / TCLP extracts in mg/L

*Lead is analysed using EPA method 6010 (ICP)for soils, sludges, STLC & TCLP extracts and method *239.2* (AA Furnace) for water samples

#...DISTLC extractions are performed using STLC methodology except that deionized water is substituted for citric acid buffer as the extraction fluid. DISTLC results are not applicable to STLC regulatory limits.

° EPA extraction methods 1311(TCLP), 3010/3020(water,TTLC), 3040(organic matrices,TTLC), 3050(solids,TTLC); STLC - CA Title 22

^ surrogate diluted out of range; N/A means surrogate not applicable to this analysis

& reporting limit raised due matrix interference

i) liquid sample that contains greater than ~2 vol. % sediment; this sediment is extracted with the liquid, in accordance with EP methodologies and can significantly effect reported metal concentrations.

DHS Certification No. 1644

Edward Hamilton, Lab Director

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CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☒ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAY

Report To: Tim Cook Bill To:
Company: WA Cons, Inc
6946 Tremont Rd
Dixon, CA 95620
Tele: ( )707-693-2929 Fax: ( )707 693 2922
Project #: 3936 Project Name: High Street
Project Location: Oakland
Sampler Signature: Tim Cook

SAMPLE ID	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX Water	MATRIX Soil	MATRIX Air	MATRIX Sludge	MATRIX Other	METHOD PRESERVED Ice	METHOD PRESERVED HCl	METHOD PRESERVED HNO_3	METHOD PRESERVED Other	BTEX & TPH as Gas (602/8020 + 8015)/ MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 (8260) 5 fuel oxys	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	RCI	pH	TSS	Specific Conductivity	Comments
SW-1		9/27		1			X								X								X									5day
SW-2															X								X									" "
SW-3															X								X									" "
PB-1															X								X									" "
SP-1															X	X							X					X				4pt composite 24hr TAT
SP-2															X	X							X					X				
SP-3															X	X							X					X				
SP-4															X	X							X					X				
SP-5															X	X							X					X				4pt composite 24hr TAT
SP-6															X	X							X					X				
SP-7															X	X							X					X				
SP-8		↓		↓			↓								X	X							X					X				

24hr TAT
24hr TAT

Relinquished By:	Date:	Time:	Received By:
Tim Cook	9/27	1555	Yen Cao 9/27/01
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

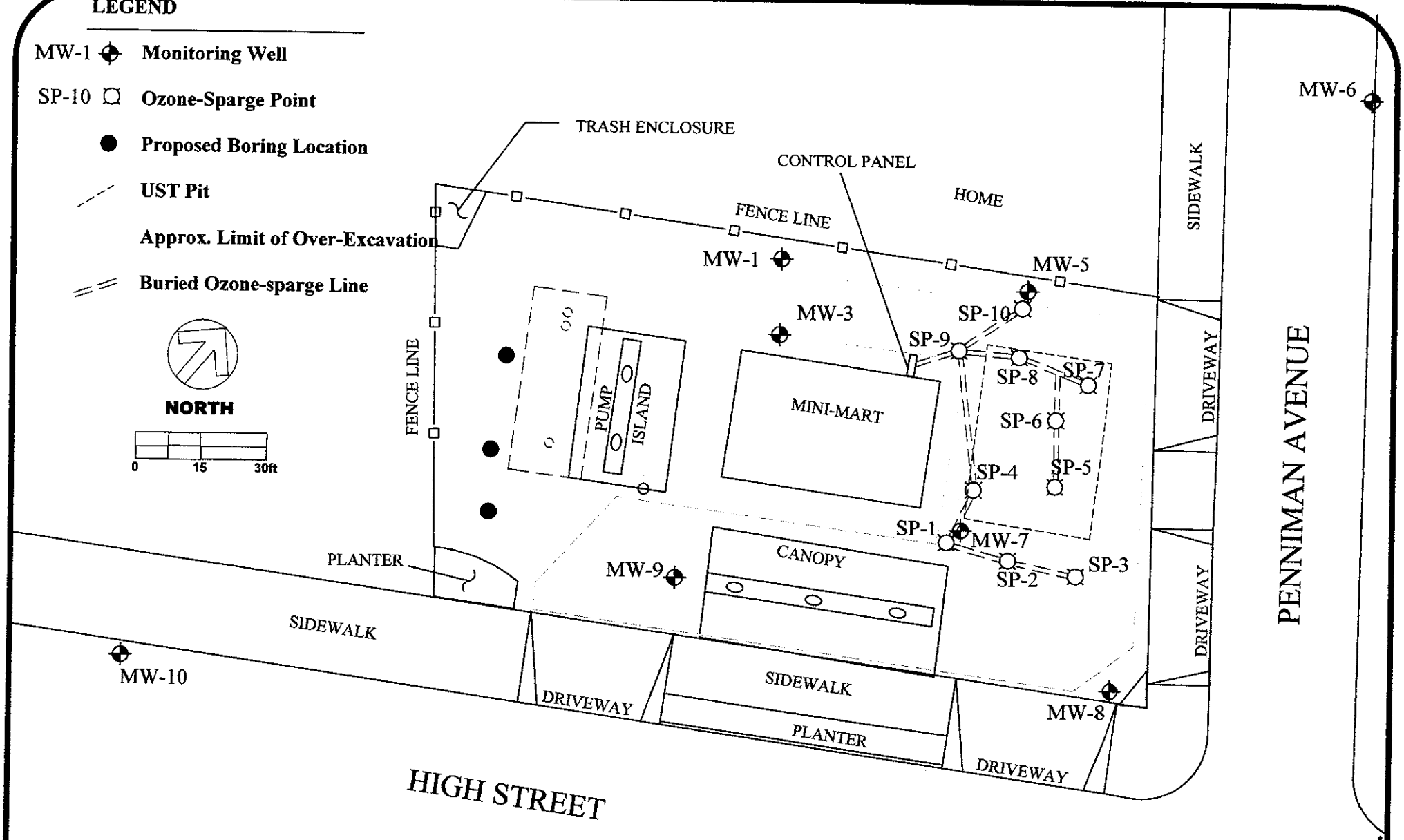
ICE/T ____ GOOD CONDITION ____ HEAD SPACE ABSENT ____
PRESERVATION APPROPRIATE CONTAINERS

VOAS	O&G	METALS	OTHER

79611
79612
79613
7961
79615
7961

APPENDIX B

Proposed Temporary Boring Locations



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cookenvironmental@att.net

Proposed Boring Locations

Express Gas & Mart
2951 High Street
Oakland, California

Project #: 1004	Figure: 1
Date: 6/06/06	
Scale: 1"=30'	

APPENDIX C

Historical Groundwater Gradient Maps

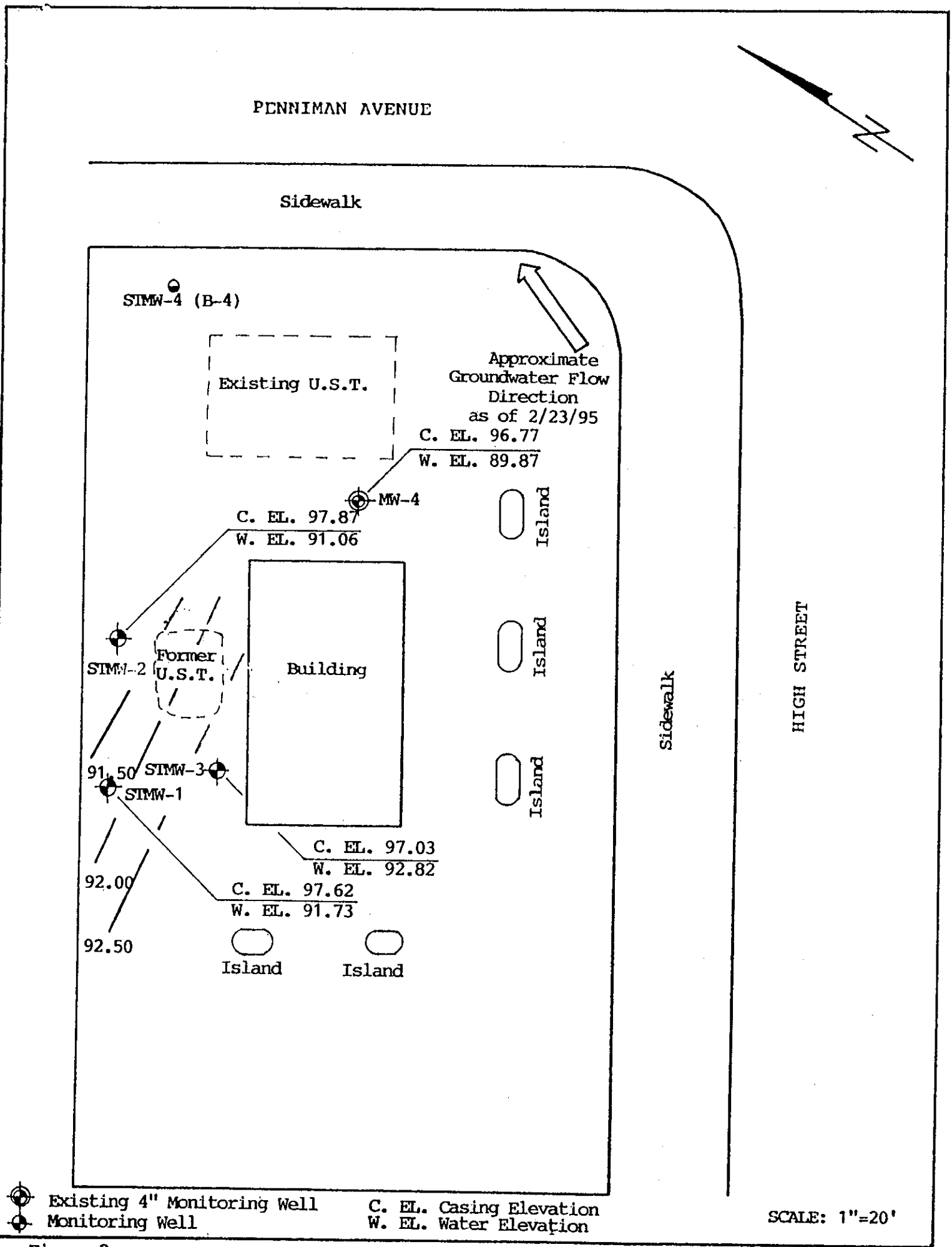
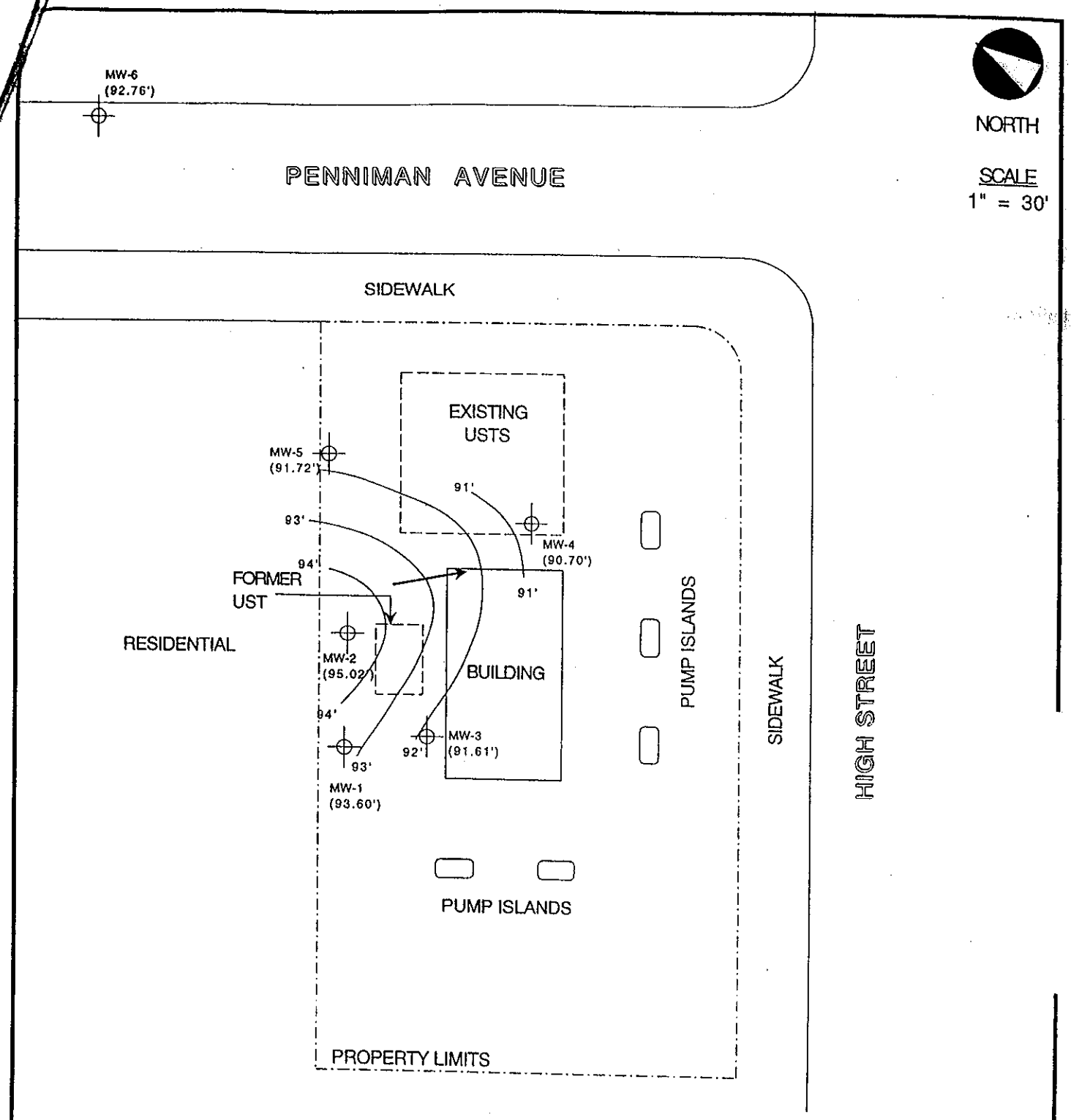


Figure 2

SOIL TECH ENGINEERING, INC.

M2



LEGEND

MW-6 (92.75') — Monitoring well with groundwater elevation

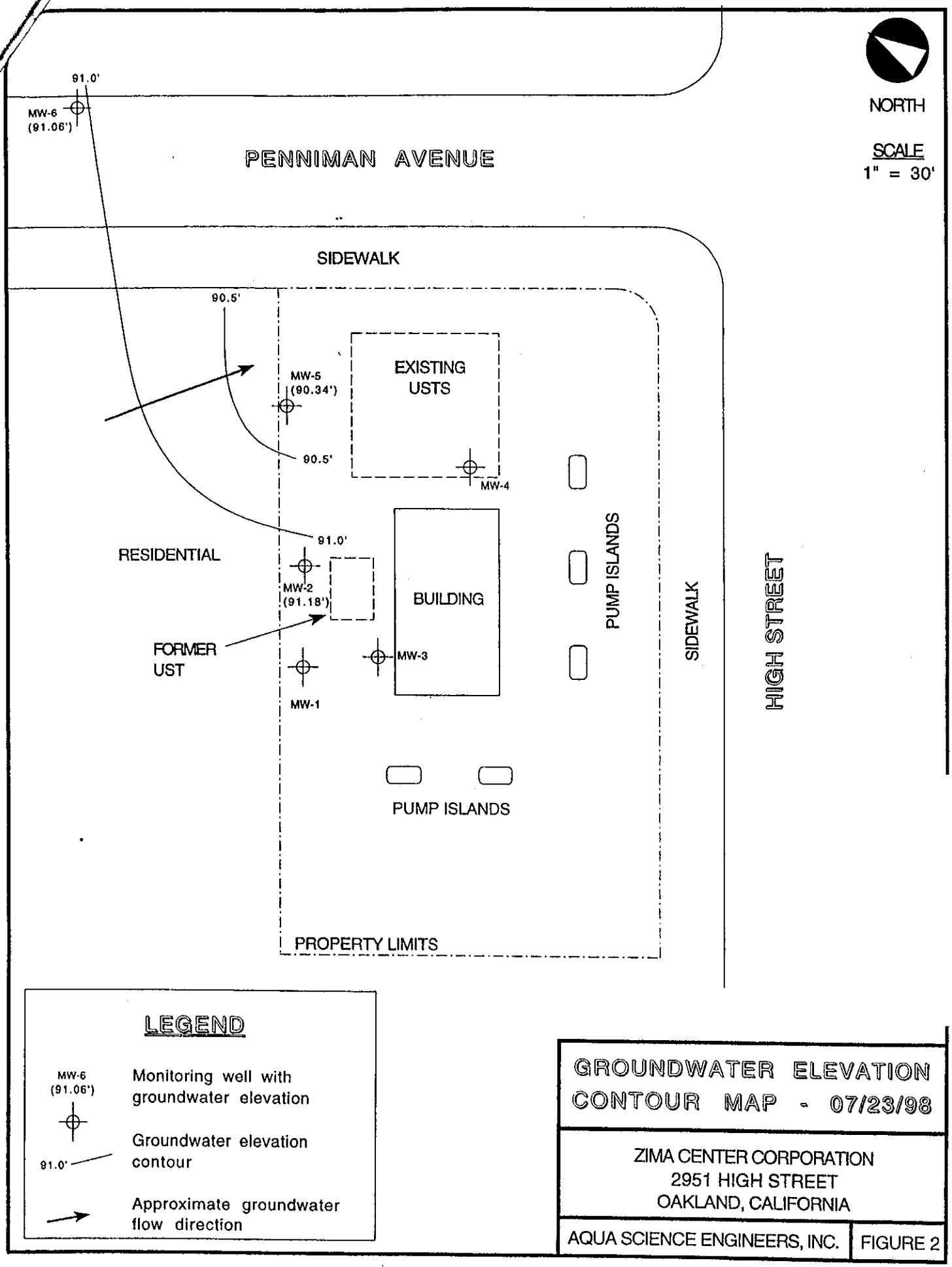
92' — Groundwater elevation contour

Approximate groundwater flow direction

GROUNDWATER ELEVATION CONTOUR MAP - 03/23/98

ZIMA CENTER CORPORATION
2951 HIGH STREET
OAKLAND, CALIFORNIA

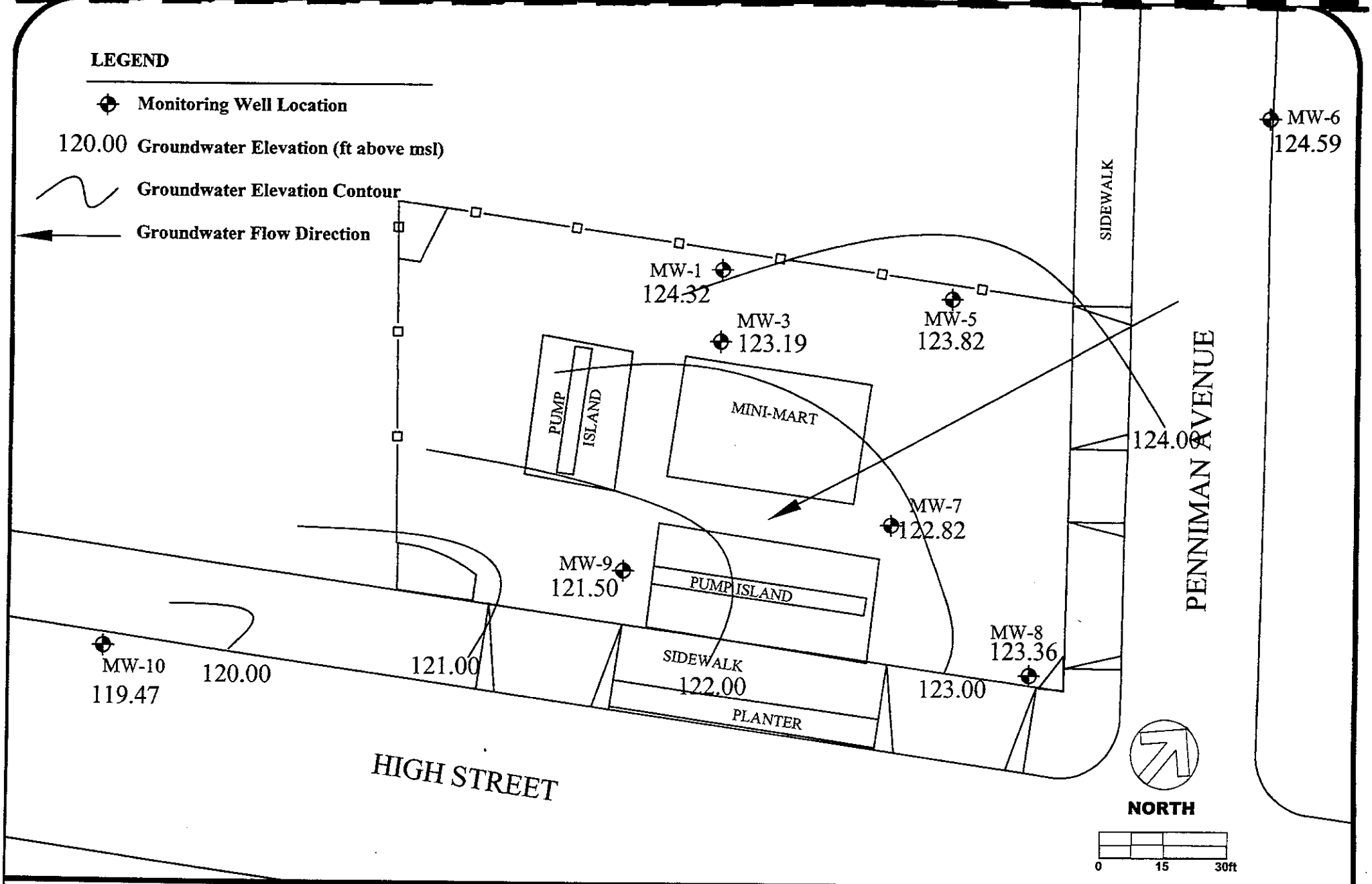
AQUA SCIENCE ENGINEERS, INC. | FIGURE 2



GROUNDWATER ELEVATION CONTOUR MAP - 07/23/98

ZIMA CENTER CORPORATION
2951 HIGH STREET
OAKLAND, CALIFORNIA

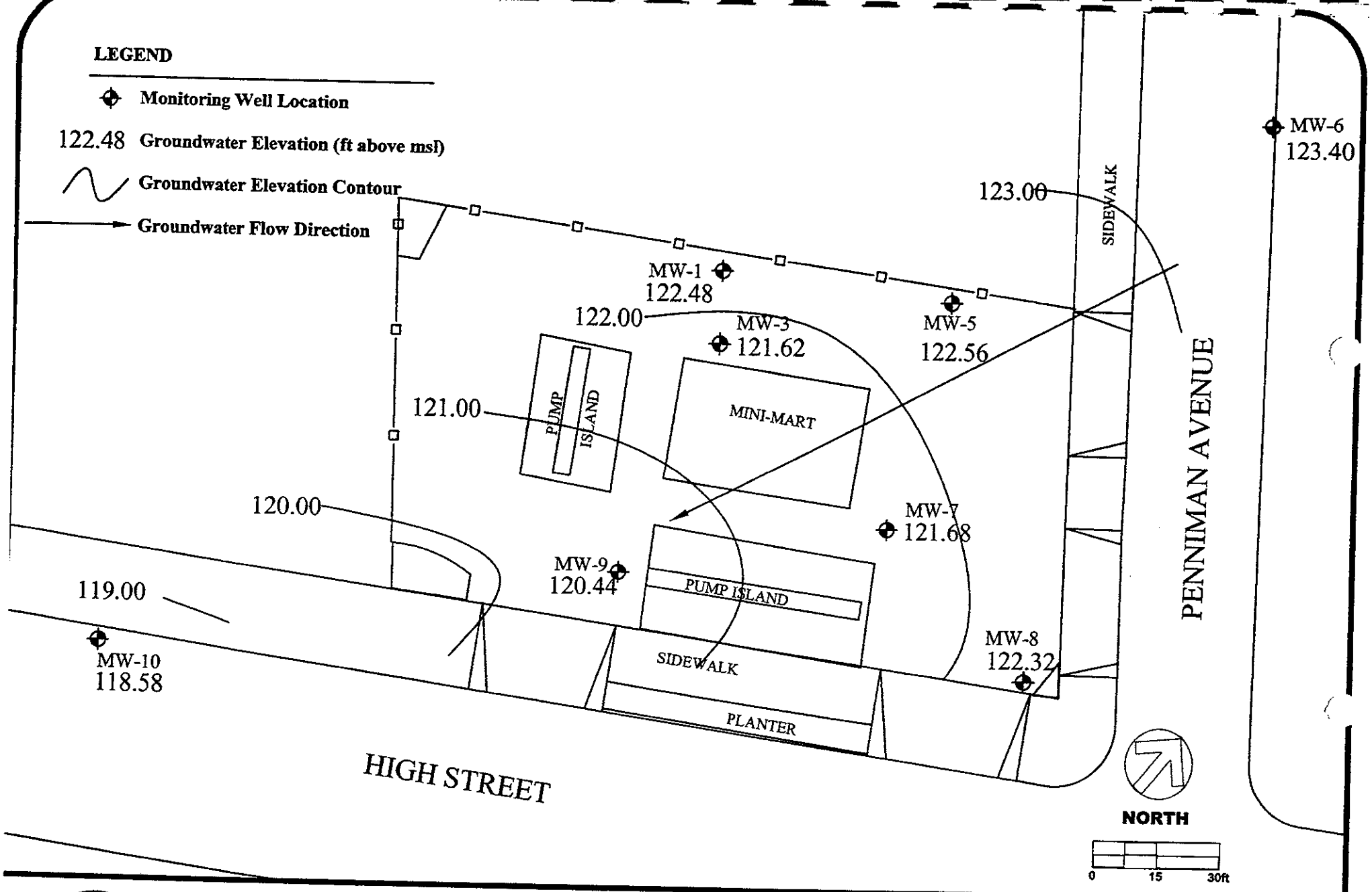
AQUA SCIENCE ENGINEERS, INC. | FIGURE 2



W.A. Craig, Inc.
6940 Tremont Road LIC# 455752
Dixon, California 95620-9603
PH# (707) 693-2929 Fax# (707) 693-2922

Groundwater Elevations
July 16, 2003
Express Gas & Mart
2951 High Street
Oakland, California

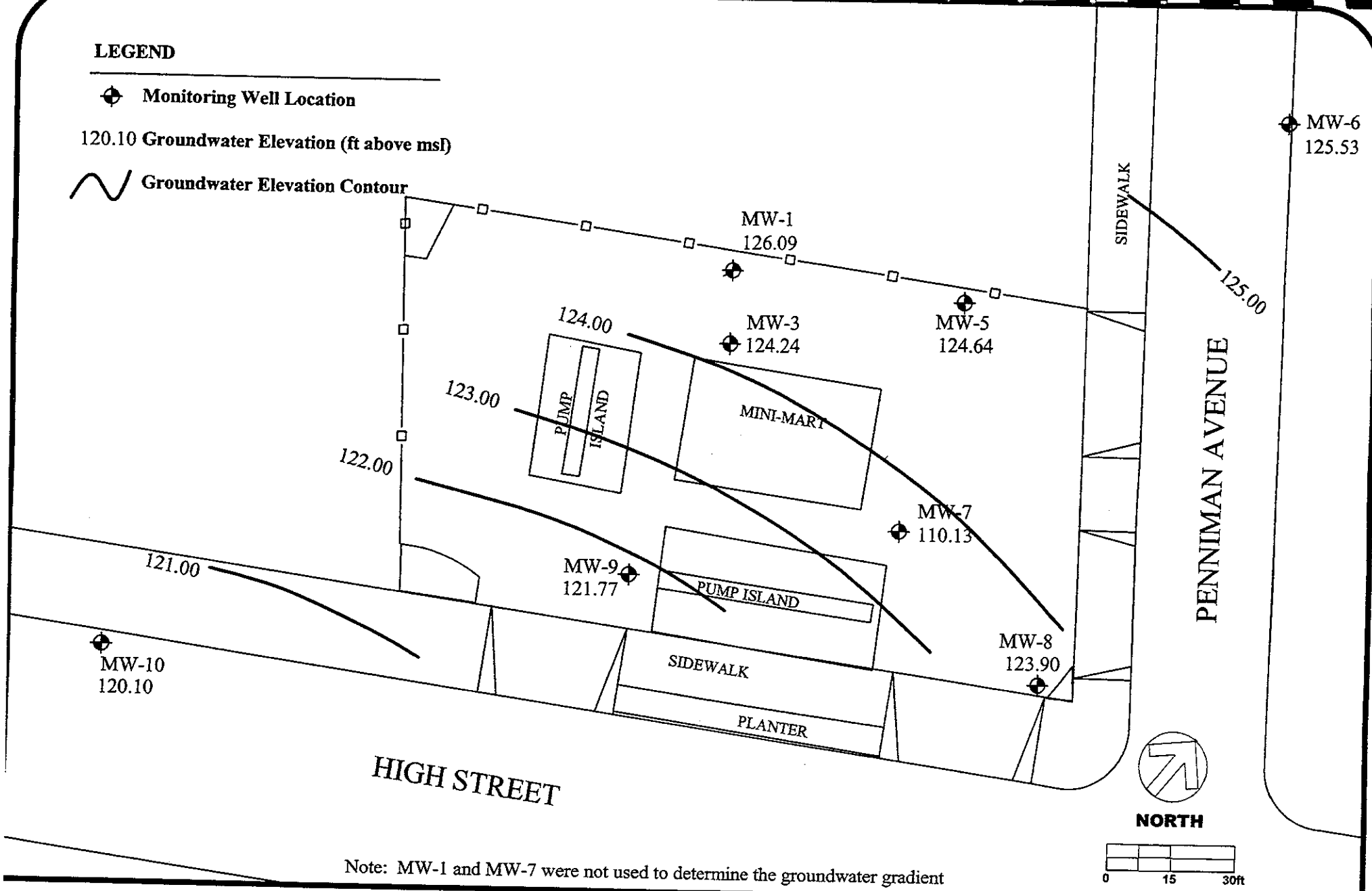
Project #: 3936	Figure: 3
Date: 7/16/03	
Scale: 1"=30'	



W.A. Craig, Inc.
6940 Tremont Road LIC# 455752
Dixon, California 95620-9603
PH# (707) 693-2929 Fax# (707) 693-2922

Groundwater Elevations
October 28, 2003
Express Gas & Mart
2951 High Street
Oakland, California

Project #: 3936	Figure: 3
Date: 11/7/03	
Scale: 1"=30'	



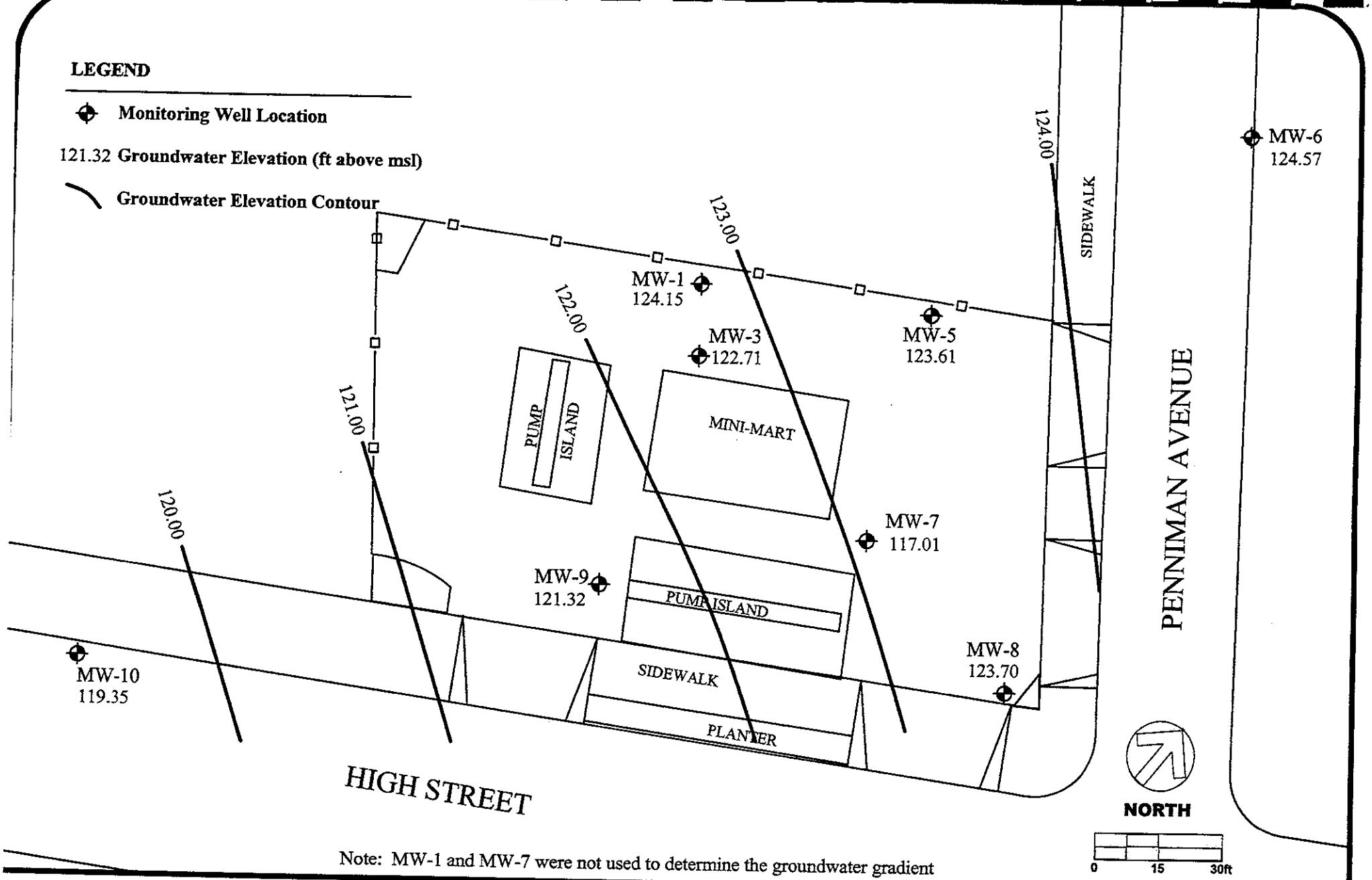
Note: MW-1 and MW-7 were not used to determine the groundwater gradient

W.A. Craig, Inc.
6940 Tremont Road LIC# 455752
Dixon, California 95620-9603
PH# (707) 693-2929 Fax# (707) 693-2922

Groundwater Elevations on April 29, 2004

Express Gas & Mart
2951 High Street
Oakland, California

Project #: 3936	Figure: 3
Date: 4/29/04	
Scale: 1"=30'	



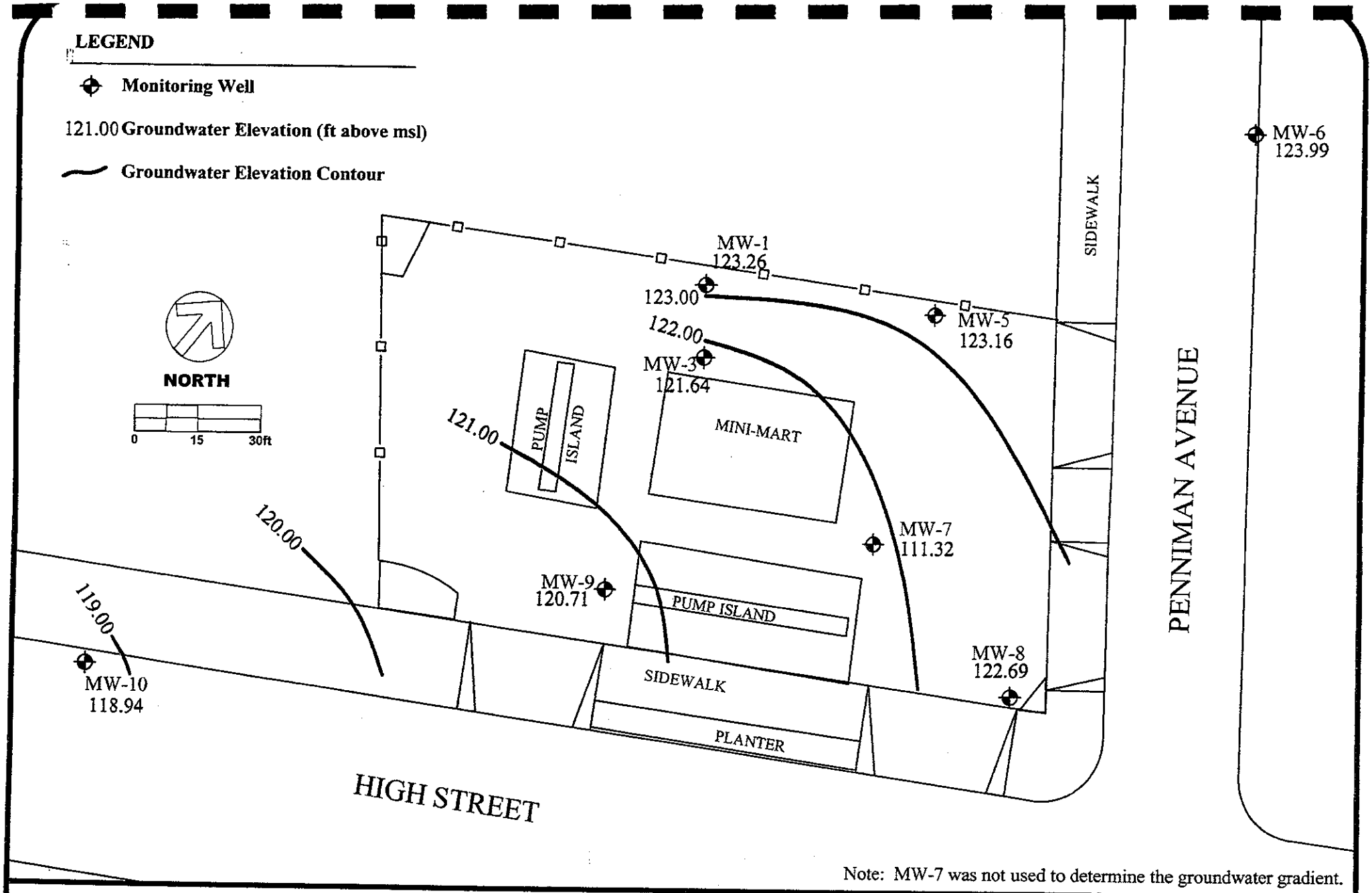
Note: MW-1 and MW-7 were not used to determine the groundwater gradient

W.A. Craig, Inc.
6940 Tremont Road LIC# 455752
Dixon, California 95620-9603
PH# (707) 693-2929 Fax# (707) 693-2922

Groundwater Elevations on July 8, 2004

Express Gas & Mart
2951 High Street
Oakland, California

Project #: 3936	Figure: 3
Date: 7/8/04	
Scale: 1"=30'	



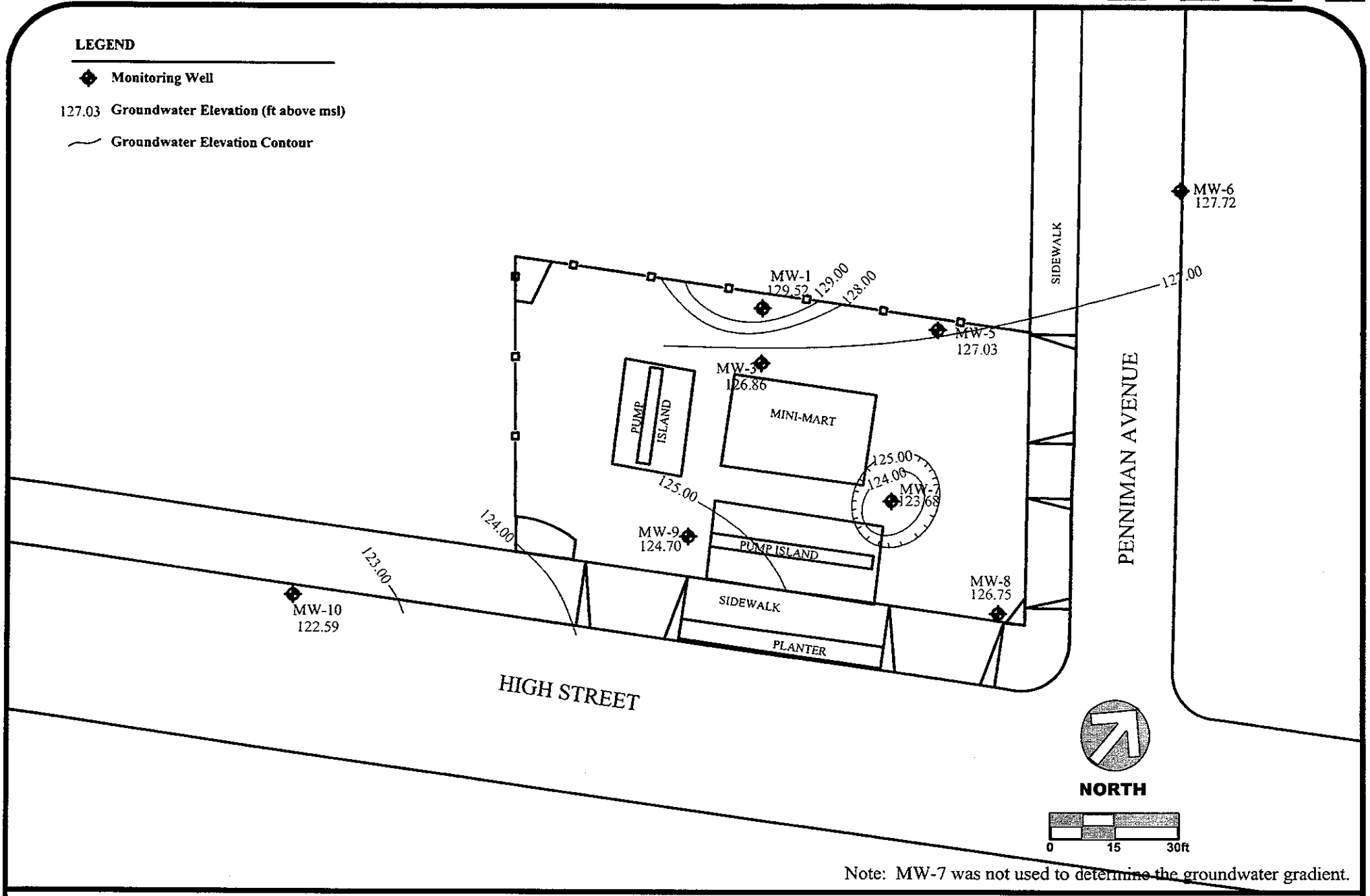
Note: MW-7 was not used to determine the groundwater gradient.

W.A. Craig, Inc.
6940 Tremont Road LIC# 455752
Dixon, California 95620-9603
PH# (707) 693-2929 Fax# (707) 693-2922

Groundwater Elevations on October 1, 2004

Express Gas & Mart
2951 High Street
Oakland, California

Project #: 3936	Figure: 3
Date: 10/1/04	
Scale: 1"=30'	



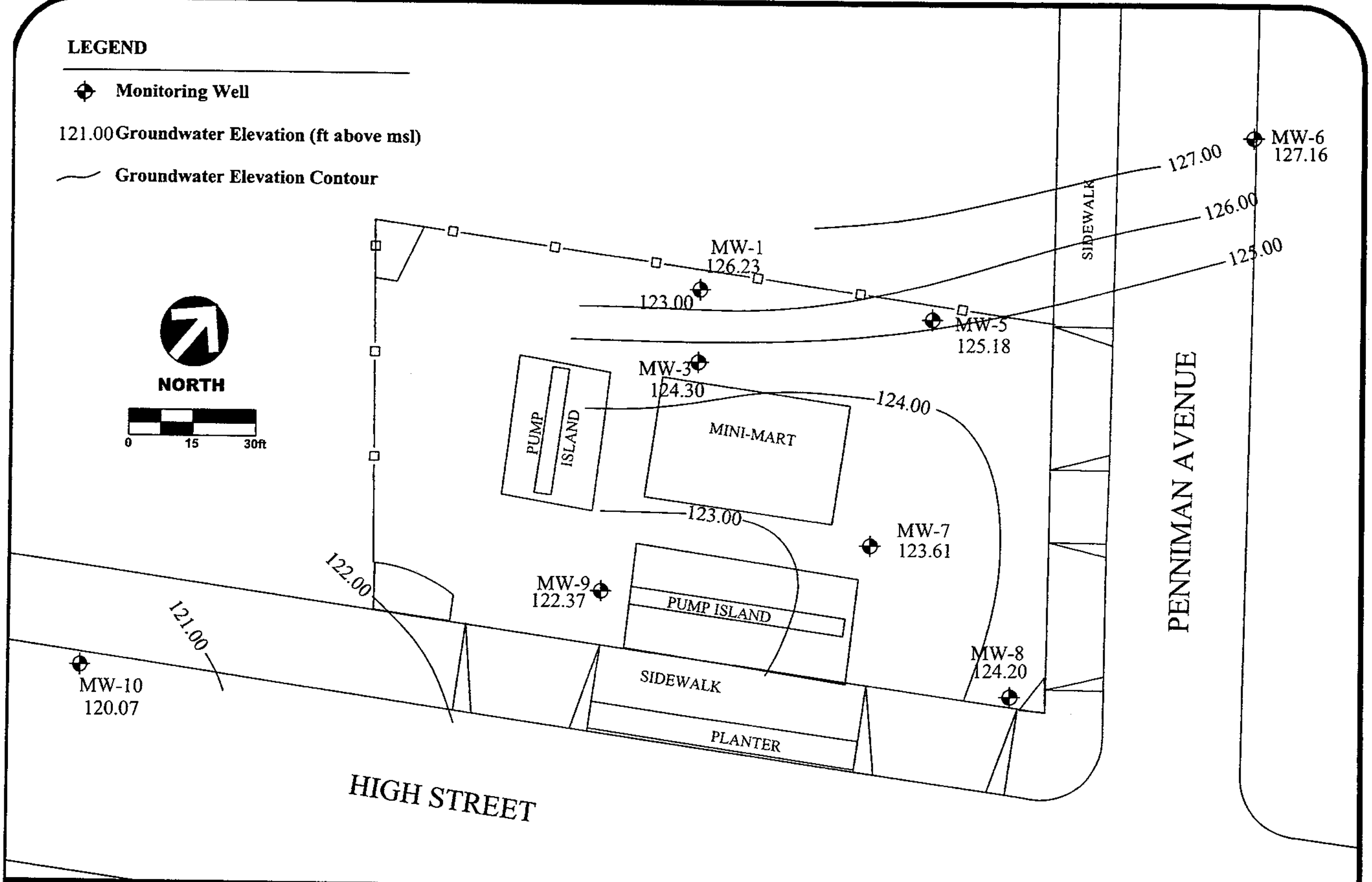
Note: MW-7 was not used to determine the groundwater gradient.

cook ENVIRONMENTAL SERVICES, INC.
271 Las Juntas Way, Walnut Creek, CA 94597
Phone: 925.937.1759 Cell: 925.787.6869
cookenvironmental@att.net

Groundwater Elevations on January 3, 2005

Express Gas & Mart
2951 High Street
Oakland, California

Project #: 1004	Figure: 3
Date: 2/10/05	
Scale: 1"=30'	

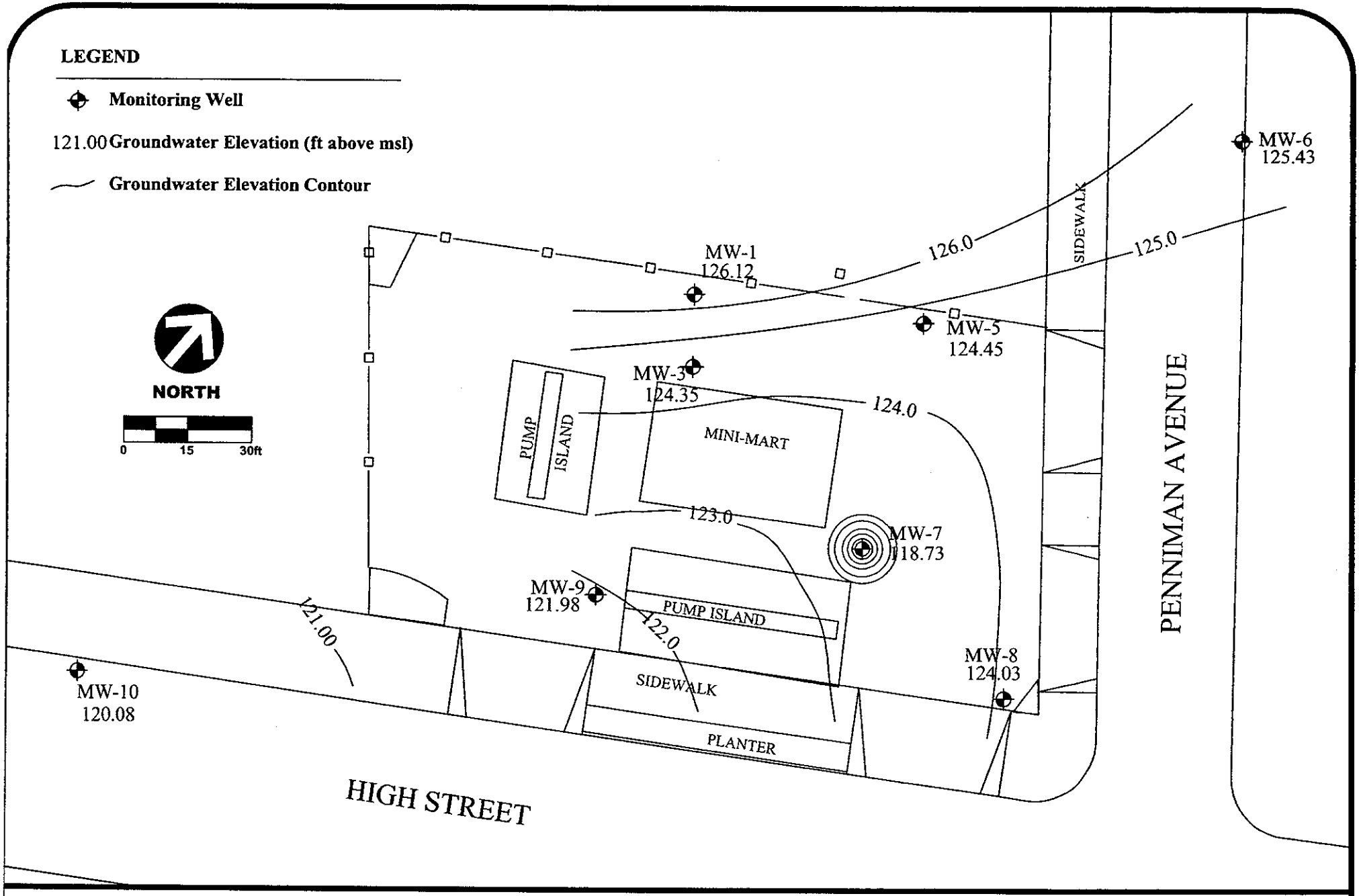


Cook Environmental Services, Inc.
271 Las Juntas Way, Walnut Creek, CA [illegible]
Phone [illegible] Cell [illegible]
[illegible]

Groundwater Elevations on April 5, 2005

Express Gas & Mart
2951 High Street
Oakland, California

Project #: 1004	Figure: 3
Date: 4/5/05	
Scale: 1"=30'	

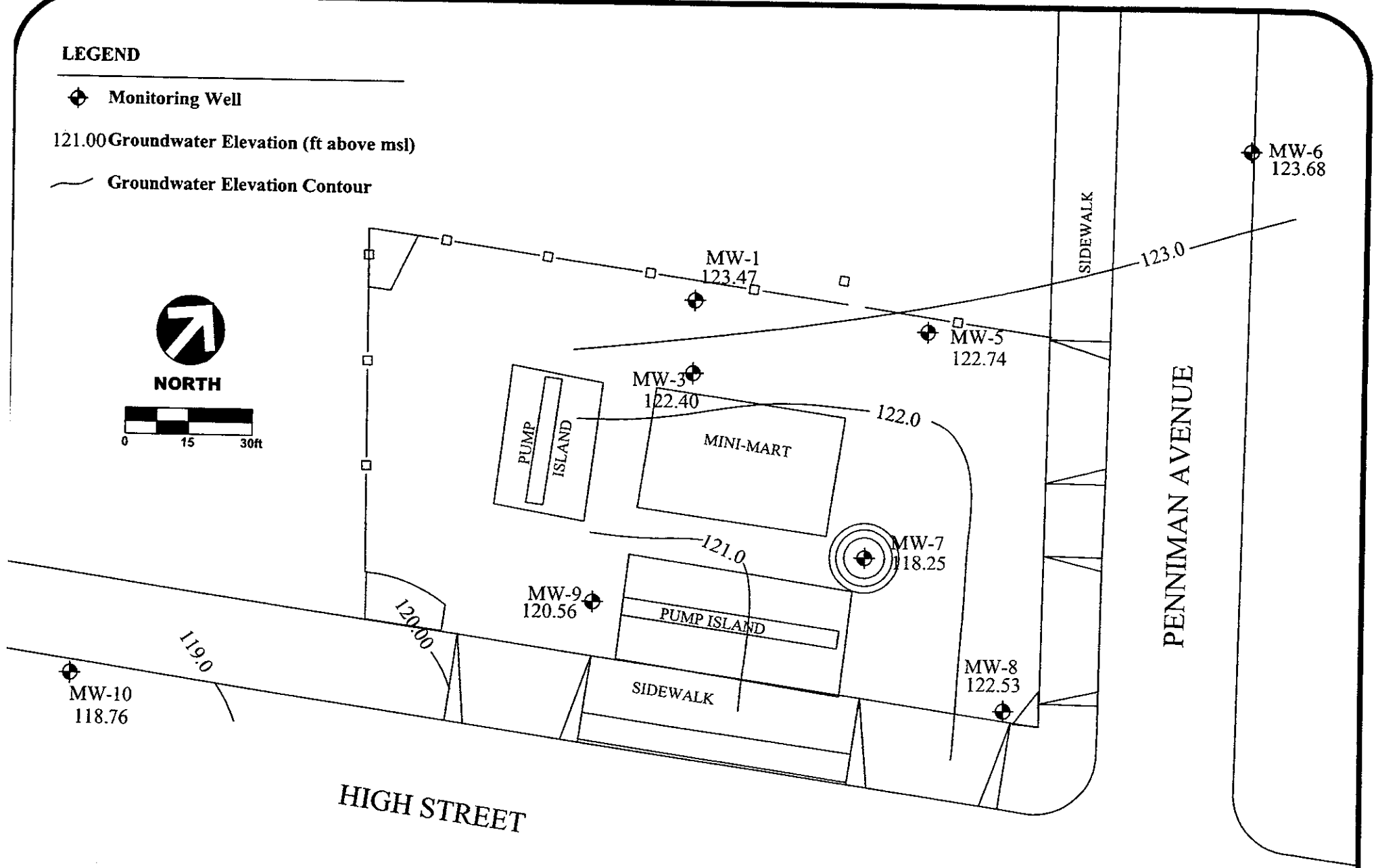


SOMA ENVIRONMENTAL SERVICES INC
2 1 Las Juntas Way, Walnut Creek, CA 94597
Phone: 925.627.1750 Cell: 998.797.8868

Groundwater Elevations on July 6, 2005

Express Gas & Mart
2951 High Street
Oakland, California

Project #: 1004	Figure: 3
Date: 7/22/05	
Scale: 1"=30'	



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Groundwater Elevations on October 4, 2005

Express Gas & Mart
2951 High Street
Oakland, California

Project #: 1004	Figure: 3
Date: 10/20/05	
Scale: 1"=30'	

APPENDIX D

Historical Groundwater Data

Table 3
Analytical Results for Groundwater Samples
2951 High Street
Oakland, California

Well ID	Date	TPH-g	benzene	toluene	ethyl-benzene	xylenes	MtBE	DIPE	EtBE	tAME	tBA	methanol	ethanol	EDB	DCA
MW-1	02/23/95	<50	<0.5	<0.5	<0.5	<0.5	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/26/95	<50	<0.5	<0.5	<0.5	<0.5	NT	NT	NT	NT	NT	NT	NT	NT	NT
	08/23/95	<50	<0.5	<0.5	<0.5	<0.5	NT	NT	NT	NT	NT	NT	NT	NT	NT
	04/04/03	<50	<0.5	<0.5	<0.5	<0.5	270	<5	<5	<5	<50	<5,000	<500	<5	<5
	07/16/03	<50	<0.5	<0.5	<0.5	<0.5	420	<10	<10	<10	<100	<10,000	<1,000	<10	<10
	10/28/03	<50	<0.5	<0.5	<0.5	<0.5	1,200	<50	<50	<50	<500	<50,000	<5,000	<50	<50
	01/13/04	58	0.85	<0.5	3.1	8.4	380	<0.5	<0.5	<0.5	<5.0	<50	<5	<0.5	<0.5
*	04/29/04	<50	<0.5	<0.5	<0.5	<0.5	260	<5	<5	<5	<50	<5,000	<500	<5	<5
	07/08/04	<50	<0.5	<0.5	<0.5	<1.0	341	<0.5	<1	<1	<10	NT	<100	<1.0	<0.5
	10/01/04	<50	<0.5	<0.5	<0.5	<0.5	1.7	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
	01/03/05	<50	<0.5	<0.5	<0.5	<0.5	33	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
	04/05/05	<50	<0.5	<0.5	<0.5	<0.5	44	<0.5	<0.5	<0.5	6.8	<500	<50	<0.5	<0.5
	07/06/05	<50	<0.5	<0.5	<0.5	<0.5	270	<5	<5	<5	<50	<5,000	<500	<5	<5
	10/04/05	<50	<0.5	<0.5	<0.5	<0.5	400	<5	<5	<5	<50	<5,000	<500	<5	<5
MW-2	02/23/95	3,300	10	13	8	28	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/26/95	4,600	**39**	18	21	39	NT	NT	NT	NT	NT	NT	NT	NT	NT
	08/23/95	<50	15	6	10	15	NT	NT	NT	NT	NT	NT	NT	NT	NT
	12/13/96	1,900	**110**	110	120	330	65	NT	NT	NT	NT	NT	NT	NT	NT
	03/27/97	3,900	**34**	20	86	140	200	NT	NT	NT	NT	NT	NT	NT	NT
	06/27/97	2,400	18	<5	6	8.8	2,000	NT	NT	NT	NT	NT	NT	NT	NT
	09/22/97	<5,000	8	20	33	100	3,900	NT	NT	NT	NT	NT	NT	NT	NT
	12/06/97	3,000	33	40	40	140	2,300	NT	NT	NT	NT	NT	NT	NT	NT
	03/23/98	220	3	3	5.8	13	18	NT	NT	NT	NT	NT	NT	NT	NT
	06/10/98	3,400	**120**	64	160	200	1,900	NT	NT	NT	NT	NT	NT	NT	NT
	07/23/98	6,000	**340**	54	280	390	3,300	NT	NT	NT	NT	NT	NT	NT	NT
	09/16/98	3,700	77	<25	80	69	5,500	NT	NT	NT	NT	NT	NT	NT	NT
	11/23/98	<10,000	<100	150	<100	180	**9,100**	NT	NT	NT	NT	NT	NT	NT	NT
	03/05/99	1,000	20	31	38	100	510	NT	NT	NT	NT	NT	NT	NT	NT
	06/17/99	<10,000	**110**	38	79	140	4,200	NT	NT	NT	NT	NT	NT	NT	NT
	09/15/99	20,000	<100	<100	<100	<100	**20,000**	NT	NT	NT	NT	NT	NT	NT	NT
	12/09/99	25,000	<130	<130	<130	<130	**28,000**	NT	NT	NT	NT	NT	NT	NT	NT
	03/06/00	<50	<0.5	<0.5	<0.5	<0.5	85	NT	NT	NT	NT	NT	NT	NT	NT
	06/07/00	<10,000	**74**	37	98	220	**9,200**	NT	NT	NT	NT	NT	NT	NT	NT
	09/18/00	9,400	<50	<50	<50	<50	**19,000**	NT	NT	NT	NT	NT	NT	NT	NT

Table 3
Analytical Results for Groundwater Samples
2951 High Street
Oakland, California

Well ID	Date	TPH-g	benzene	toluene	ethyl-benzene	xylenes	MtBE	DIPE	EtBE	tAME	tBA	methanol	ethanol	EDB	DCA
MW-3	02/23/95	<50	<0.5	<0.5	<0.5	<0.5	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/26/95	<50	<0.5	<0.5	<0.5	<0.5	NT	NT	NT	NT	NT	NT	NT	NT	NT
	08/23/95	<50	<0.5	<0.5	<0.5	<0.5	NT	NT	NT	NT	NT	NT	NT	NT	NT
	04/04/03	<50	<0.5	<0.5	<0.5	<0.5	1,600	<25	<25	<25	<250	<25,000	<2,500	<25	<25
	07/16/03	<50	<0.5	<0.5	<0.5	<0.5	1,200	<50	<50	<50	<500	<50,000	<5,000	<50	<50
	10/28/03	<50	<0.5	<0.5	<0.5	<0.5	1,400	<50	<50	<50	<500	<50,000	<5,000	<50	<50
	01/13/04	<200	<2	<2	<2	<2	790	<2	<2	<2	<20	<200	<20	<2	<2
*	04/29/04	<50	<0.5	<0.5	<0.5	<0.5	140	<5	<5	<5	<50	<5,000	<500	<5	<5
	07/08/04	<50	<0.5	<0.5	<0.5	<1.0	24.3	<0.5	<1	<1	<10	NT	<100	<1.0	<1.0
	10/01/04	<50	<0.5	<0.5	<0.5	<0.5	4.0	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
	01/03/05	<50	<0.5	<0.5	<0.5	<0.5	49	<1.0	<1.0	<1.0	<10	<1000	<100	<1.0	<1.0
	02/03/05	<50	<0.5	<0.5	<0.5	<0.5	4.9	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
	03/04/05	<50	<0.5	<0.5	<0.5	<0.5	32	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	1.5
	04/05/05	<50	<0.5	<0.5	<0.5	<0.5	12	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
	07/06/05	<50	<0.5	<0.5	<0.5	<0.5	44	<1.0	<1.0	<1.0	<10	<1000	<100	<1.0	<1.0
	10/04/05	<50	<0.5	<0.5	<0.5	<0.5	2.5	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
MW-4	02/03/95	2,500	**230**	64	99	110	5,700	NT	NT	NT	NT	NT	NT	NT	NT
	03/27/97	6,200	**300**	150	160	310	7,100	NT	NT	NT	NT	NT	NT	NT	NT
	09/18/00	10,000	**320**	<50	150	460	**13,000**	NT	NT	NT	NT	NT	NT	NT	NT

Table 3
Analytical Results for Groundwater Samples
2951 High Street
Oakland, California

Well ID	Date	TPH-g	benzene	toluene	ethyl-benzene	xylenes	MtBE	DIPE	EtBE	tAME	tBA	methanol	ethanol	EDB	DCA
MW-5	12/13/96	3,600	**180**	**350**	81	**510**	430	NT	NT	NT	NT	NT	NT	NT	NT
	03/27/97	120,000	**28,000**	**16,000**	**2,600**	**10,000**	**64,000**	NT	NT	NT	NT	NT	NT	NT	NT
**	06/27/97	6,300	**10,000**	**2,400**	**290**	**4,500**	**43,000**	NT	NT	NT	NT	NT	NT	NT	NT
	09/22/97	<50,000	7.9	3.3	0.6	3.3	**30,000**	NT	NT	NT	NT	NT	NT	NT	NT
	12/06/97	<5,000	33	12	<5	7.3	**33,000**	NT	NT	NT	NT	NT	NT	NT	NT
	03/23/98	29,000	**150**	160	130	320	**34,000**	NT	NT	NT	NT	NT	NT	NT	NT
	06/10/98	53,000	**7,000**	**2,400**	**540**	**3,400**	**67,000**	NT	NT	NT	NT	NT	NT	NT	NT
	07/23/98	36,000	**1,000**	**270**	<120	**740**	**51,000**	NT	NT	NT	NT	NT	NT	NT	NT
***	09/16/98	56,000	**3,400**	**1,300**	**430**	**1,800**	**84,000**	NT	NT	NT	NT	NT	NT	NT	NT
	11/23/98	63,000	**5,700**	**2,900**	**500**	**2,200**	**87,000**	NT	NT	NT	NT	NT	NT	NT	NT
	03/05/99	42,000	<250	<250	<250	<250	**38,000**	NT	NT	NT	NT	NT	NT	NT	NT
	06/17/99	37,000	**510**	85	5.6	89	**61,000**	NT	NT	NT	NT	NT	NT	NT	NT
	09/15/99	54,000	**8,500**	**1,800**	**420**	**2,400**	**55,000**	NT	NT	NT	NT	NT	NT	NT	NT
	12/09/99	34,000	**1,600**	230	130	**570**	**33,000**	NT	NT	NT	NT	NT	NT	NT	NT
	03/06/00	21,000	**7,800**	**870**	**440**	**2,100**	**30,000**	NT	NT	NT	NT	NT	NT	NT	NT
	06/07/00	<50,000	**11,000**	**890**	**570**	**3,000**	**68,000**	NT	NT	NT	NT	NT	NT	NT	NT
	09/18/00	40,000	**4,900**	<250	<250	**1,700**	**46,000**	NT	NT	NT	NT	NT	NT	NT	NT
	04/04/03	1,800	**560**	<5.0	<5.0	30	**19,000**	<330	<330	<330	<3,300	<330,000	<33,000	<330	<330
	07/16/03	2,800	**1,000**	<5	10	80	**16,000**	<200	<200	<200	<2,000	<200,000	<20,000	<200	<200
	10/28/03	740	**290**	<5.0	<5.0	7.2	**14,000**	<170	<170	<170	<1,700	<170,000	<17,000	<170	<170
	01/13/04	<500	**48**	<5	<5	<5	2,000	<5	<5	<5	<50	<500	<50	<5	<5
	04/14/04	6,600	**2,700**	<50	<50	260	**20,000**	<500	<500	<500	<5,000	<500,000	<50,000	<500	<500
*	04/29/04	<500	6.3	<5	<5	7.8	**11,000**	<250	<250	<250	<2,500	<250,000	<25,000	<250	<250
	05/13/04	<50	<0.5	<0.5	<0.5	<0.5	3,000	<50	<50	<50	<500	<50,000	<5,000	<50	<50
	05/26/04	<50	<0.5	<0.5	<0.5	<0.5	460	<10	<10	<10	<100	<10,000	<1,000	<10	<10
	06/10/04	<50	<0.5	<0.5	<0.5	<0.5	38	<0.5	<0.5	<0.5	<5.0	<50	<5.0	<0.5	<0.5
	07/08/04	<50	1.5	<0.5	<0.5	<1.0	9.6	<0.5	<1	<1	<10	NT	<100	<1.0	<0.5
	10/01/04	<50	<0.5	<0.5	<0.5	<0.5	1.7	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
	01/03/05	<50	<0.5	<0.5	<0.5	<0.5	2.2	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
	02/03/05	<50	<0.5	<0.5	<0.5	<0.5	4.2	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
	03/04/05	<50	<0.5	<0.5	<0.5	<0.5	1.8	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
	04/05/05	<50	<0.5	<0.5	<0.5	<0.5	14	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
	07/06/05	<50	<0.5	<0.5	<0.5	<0.5	6.2	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
	10/04/05	<50	<0.5	<0.5	<0.5	<0.5	4.4	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5

Table 3
Analytical Results for Groundwater Samples
2951 High Street
Oakland, California

Well ID	Date	TPH-g	benzene	toluene	ethyl-benzene	xylenes	MtBE	DIPE	EtBE	tAME	tBA	methanol	ethanol	EDB	DCA
MW-6	01/13/97	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	03/27/97	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	06/27/97	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	09/22/97	<50	<0.5	<0.5	<0.5	<0.5	24	NT	NT	NT	NT	NT	NT	NT	NT
	12/06/97	94	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	03/23/98	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	06/10/98	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	07/23/98	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	09/16/98	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	03/05/99	55	<0.5	0.92	0.5	1.3	<5	NT	NT	NT	NT	NT	NT	NT	NT
	06/17/99	<50	<0.5	<0.5	<0.5	<0.5	8.0	NT	NT	NT	NT	NT	NT	NT	NT
	09/15/99	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	12/09/99	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	03/06/00	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	06/07/00	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	04/04/03	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
	07/16/03	<50	<0.5	<0.5	<0.5	<0.5	0.54	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	<0.5
	10/28/03	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	<0.5
	01/13/04	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<50	<5	<0.5	<0.5
*	04/29/04	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	<0.5
	07/08/04	<50	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1	<1	<10	NT	<100	<1.0	<0.5
	10/01/04	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	<0.5
	01/03/05	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	<0.5
	04/05/05	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	<0.5
	07/06/05	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	<0.5
	10/04/05	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	<0.5

Table 3
Analytical Results for Groundwater Samples
2951 High Street
Oakland, California

Well ID	Date	TPH-g	benzene	toluene	ethyl-benzene	xylenes	MtBE	DIPE	EtBE	tAME	tBA	methanol	ethanol	EDB	DCA
MW-7	04/04/03	1,400	**54**	27	15	180	**26,000**	<500	<500	<500	<5,000	<500,000	<50,000	<500	<500
	07/16/03	18,000	**1,100**	**630**	**1,100**	**2,000**	**13,000**	<200	<200	<200	<2,000	<200,000	<20,000	<200	<200
	10/28/03	10,000	**750**	**370**	**750**	**1,000**	**17,000**	<500	<500	<500	<5,000	<500,000	<50,000	<500	<500
	01/13/04	7,200	**430**	150	**560**	**550**	**22,000**	<50	<50	<50	<500	<5000	<500	<50	<50
	04/14/04	8,900	**520**	**360**	**640**	**1,100**	**21,000**	<500	<500	<500	<5,000	<500,000	<50,000	<500	<500
*	04/29/04	<500	<5	<5	<5	12	**12,000**	<250	<250	<250	<2,500	<250,000	<25,000	<250	<250
	05/13/04	660	<5.0	28	25	120	**10,000**	<170	<170	<170	<1,700	<170,000	<17,000	<170	<170
	05/26/04	380	<2.5	15	15	79	7,600	<200	<200	<200	<2,000	<200,000	<20,000	<200	<200
	06/10/04	<1,000	<10	<10	<10	<10	4,900	<10	<10	<10	300	<10,000	<100	<10	<10
	07/08/04	67	<0.5	<0.5	1.3	10	1,040	<0.5	<1	<1	<10	NT	<100	<1.0	<0.5
	10/01/04	85	<0.5	<0.5	0.63	6.0	2,300	<50	<50	<50	<500	<50,000	<5,000	<50	<50
	01/03/05	<50	<0.5	<0.5	<0.5	<0.5	130	<2.5	<2.5	<2.5	<25	<2500	<250	<2.5	3.2
	02/03/05	<50	<0.5	<0.5	<0.5	<0.5	4.5	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	2.9
	03/04/05	<50	<0.5	<0.5	<0.5	<0.5	21	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	<0.5
	04/05/05	<50	<0.5	<0.5	<0.5	<0.5	6.7	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	3.2
	07/06/05	<50	<0.5	<0.5	<0.5	<0.5	18	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	2.0
	10/04/05	<50	<0.5	<0.5	<0.5	<0.5	18	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	1.1
MW-8	04/04/03	<50	<0.5	<0.5	<0.5	<0.5	230	<5	<5	<5	<50	<5,000	<500	<5	<5
	07/16/03	<50	<0.5	<0.5	<0.5	<0.5	340	<5	<5	<5	<50	<5,000	<500	<5	<5
	10/28/03	<50	<0.5	<0.5	<0.5	<0.5	250	<5.0	<5.0	<5.0	<50	<5,000	<500	<5	<5.0
	01/13/04	<50	<0.5	<0.5	<0.5	<0.5	140	<0.5	<0.5	<0.5	<5.0	<50	<5	<0.5	<0.5
	04/14/04	<50	<0.5	<0.5	<0.5	<0.5	260	<5	<5	<5	<50	<5,000	<500	<5	<5
*	04/29/04	<50	<0.5	<0.5	<0.5	<0.5	130	<5	<5	<5	<50	<5,000	<500	<5	<5
	05/13/04	<50	<0.5	<0.5	<0.5	<0.5	110	<2.5	<2.5	<2.5	<25	<2,500	<250	<2.5	<2.5
	05/26/04	<50	<0.5	<0.5	<0.5	<0.5	150	<2.5	<2.5	<2.5	<25	<2,500	<250	<2.5	<2.5
	06/10/04	<50	<0.5	<0.5	<0.5	<0.5	290	<0.5	<0.5	<0.5	<5.0	<50	<5.0	<0.5	<0.5
	07/08/04	<50	<0.5	<0.5	<0.5	<1.0	395	<0.5	<1	<1	<10	NT	<100	<1.0	<0.5
	10/01/04	<50	<0.5	<0.5	<0.5	<0.5	450	<10	<10	<10	<100	<10,000	<5.0	<0.5	<0.5
	01/03/05	<50	<0.5	<0.5	<0.5	<0.5	330	<5	<5	<5	<50	<5,000	<500	<5	<5
	02/03/05	<50	<0.5	<0.5	<0.5	<0.5	360	<5	<5	<5	53	<5,000	<500	<5	<5
	03/04/05	<50	<0.5	<0.5	<0.5	<0.5	180	<5	<5	<5	53	<5,000	<500	<5	<5
	04/05/05	<50	<0.5	<0.5	<0.5	<0.5	140	<2.5	<2.5	<2.5	29	<2500	<250	<2.5	<2.5
	07/06/05	<50	<0.5	<0.5	<0.5	<0.5	160	<2.5	<2.5	<2.5	29	<2500	<250	<2.5	<2.5
	10/04/05	<50	<0.5	<0.5	<0.5	<0.5	320	<5	<5	<5	<50	<5,000	<500	<5	<5

Table 3
Analytical Results for Groundwater Samples
2951 High Street
Oakland, California

Well ID	Date	TPH-g	benzene	toluene	ethyl-benzene	xylenes	MtBE	DIPE	EtBE	tAME	tBA	methanol	ethanol	EDB	DCA
MW-9	04/04/03	<50	<0.5	<0.5	<0.5	<0.5	85	<1.5	<1.5	<1.5	<12	<1,200	<120	<1.5	2
	07/16/03	<50	<0.5	<0.5	<0.5	<0.5	170	<2.5	<2.5	3	27	<2,500	<250	<2.5	<2.5
	10/28/03	<50	<0.5	<0.5	<0.5	<0.5	230	<5.0	<5.0	<5.0	57	<5,000	<500	<5.0	<5.0
	01/13/04	<50	<0.5	<0.5	<0.5	<0.5	55	<0.5	<0.5	0.72	5.8	<50	<5	<0.5	1
	04/14/04	<50	<0.5	<0.5	<0.5	<0.5	58	<1	<1	<1	<10	<1,000	<100	<1	<1
*	04/29/04	<50	<0.5	<0.5	<0.5	<0.5	4.7	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	0.63
	05/13/04	<50	<0.5	<0.5	<0.5	<0.5	5.9	<0.5	<0.5	<0.5	<5.0	<50	<5.0	<0.5	0.66
	05/26/04	<50	<0.5	<0.5	<0.5	<0.5	2.5	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	0.53
	06/10/04	<50	<0.5	<0.5	<0.5	<0.5	14	<0.5	<0.5	<0.5	<5.0	<50	<5.0	<0.5	0.60
	07/08/04	<50	<0.5	<0.5	<0.5	<1.0	7.3	<0.5	<1	<1	<10	NT	<100	<1.0	<0.5
	10/01/04	<50	<0.5	<0.5	<0.5	<0.5	2.1	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
	01/03/05	<50	<0.5	<0.5	<0.5	<0.5	4.0	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
	04/05/05	<50	<0.5	<0.5	<0.5	<0.5	48	<0.5	<0.5	0.75	13	<500	<50	<0.5	<0.5
	07/06/05	<50	<0.5	<0.5	<0.5	<0.5	18	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
	10/04/05	<50	<0.5	<0.5	<0.5	<0.5	19	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
MW-10	04/23/03	79	<0.5	<0.5	<0.5	<0.5	1,900	<25	<25	58	<250	<25,000	<2,500	<25	<25
	07/16/03	73	20	<0.5	<0.5	<0.5	1,100	<20	<20	39	<200	<20,000	<2,000	<20	<20
	10/28/03	76	<0.5	<0.5	<0.5	<0.5	1,900	<50	<50	<50	<500	<50,000	<5,000	<50	<50
	01/13/04	<500	<5	<5	<5	<5	2,300	<5	<5	72	<50	<500	<50	<5	<5
*	04/29/04	54	<0.5	<0.5	<0.5	<0.5	1,000	<17	<17	24	<170	<17,000	<1,700	<17	<17
	07/08/04	76	<0.5	<0.5	<0.5	<1.0	1,650	<0.5	<1	37	211	NT	<100	<1.0	<0.5
	10/01/04	67	<0.5	<0.5	<0.5	<0.5	1,500	<50	<50	<50	<500	<50,000	<5,000	<50	<50
	01/03/05	62	<0.5	<0.5	<0.5	<0.5	1,700	<25	<25	<25	<250	<25,000	<2,500	<25	<25
	04/05/05	<50	<0.5	<0.5	<0.5	<0.5	520	<17	<17	<17	230	<17,000	<1,700	<17	<17
	07/06/05	<50	<0.5	<0.5	<0.5	<0.5	420	<5	<5	12	<50	<5,000	<500	<5	<5
	10/04/05	<50	<0.5	<0.5	<0.5	<0.5	490	<10	<10	<10	<100	<10,000	<1,000	<10	<10
SSTL		NE	34	270	180	470	8,400	NE	NE	NE	NE	NE	NE	NE	NE

Notes:

SSTLs are site-specific target levels developed for the site by Aqua Science Engineers, Inc. in 1997. **Bold** concentrations exceed the SSTL.

Concentrations are micrograms per liter (ug/L). NE, SSTL not established for this compound. NT, analyte not tested.

Data prior to April 2003 are from *Groundwater Monitoring Report for September 2000 Sampling* by Aqua Science Engineers, Inc. dated 11/14/2000.

* First sampling event after the OS system was started up on April 14, 2004.

** Oxygen Release Compound (ORC) was injected into borings on the south side of MW-5 in late June 1997.

*** ORC socks were placed in MW-5 in August 1998 and removed in September 2000.

TPH-g total petroleum hydrocarbons as gasoline

MtBE methyl tert-butyl ether

DIPE di-isopropyl ether

EtBE ethyl tert-butyl ether

tAME tert-amyl methyl ether

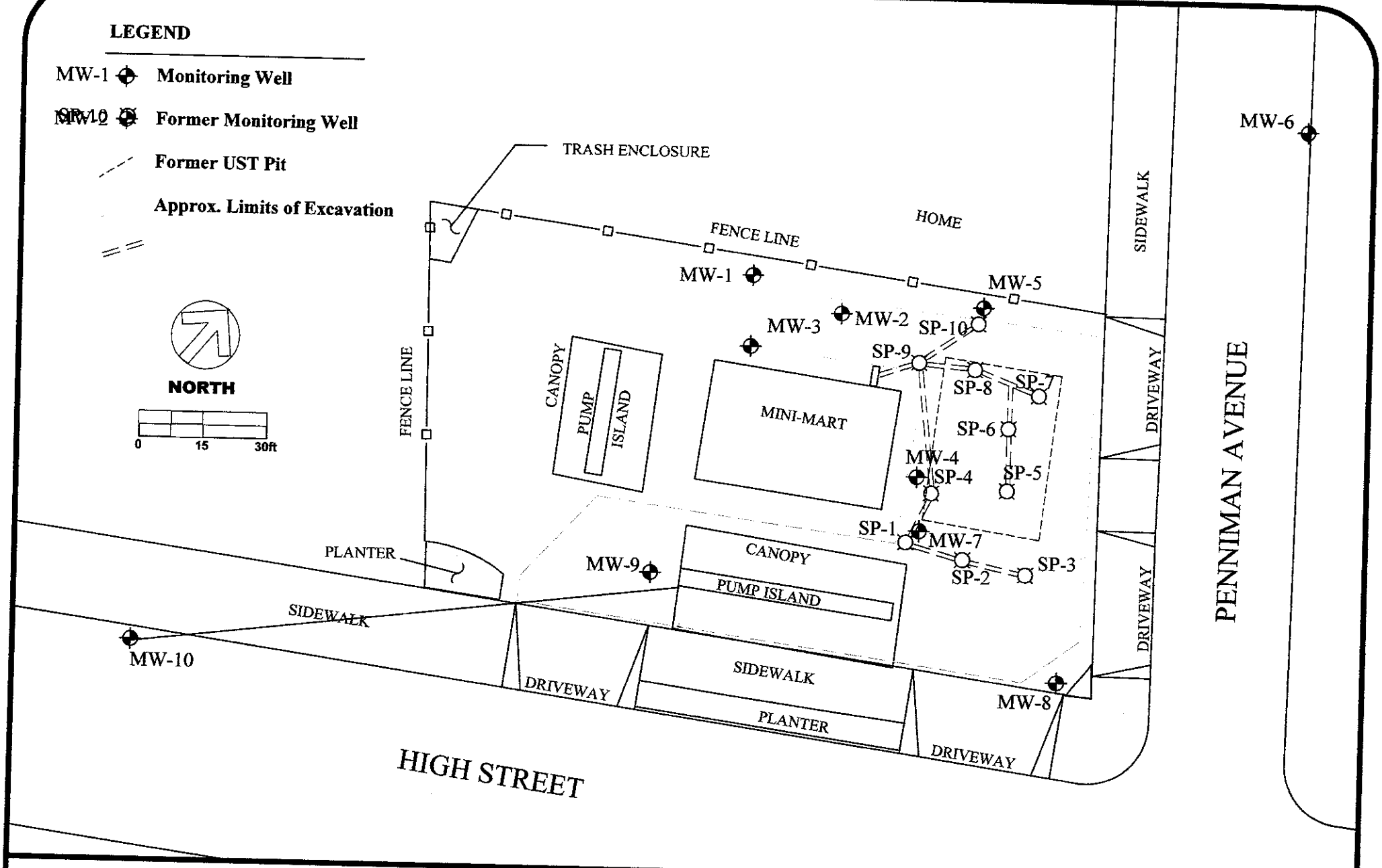
tBA tert-butyl alcohol

EDB ethylene dibromide (1,2-dibromoethane)

DCA 1,2-dichloroethane

APPENDIX E

Historical Groundwater and Soil Sample Tables and Figures



Cook Environmental Services, Inc.
271 Las Juntas Way
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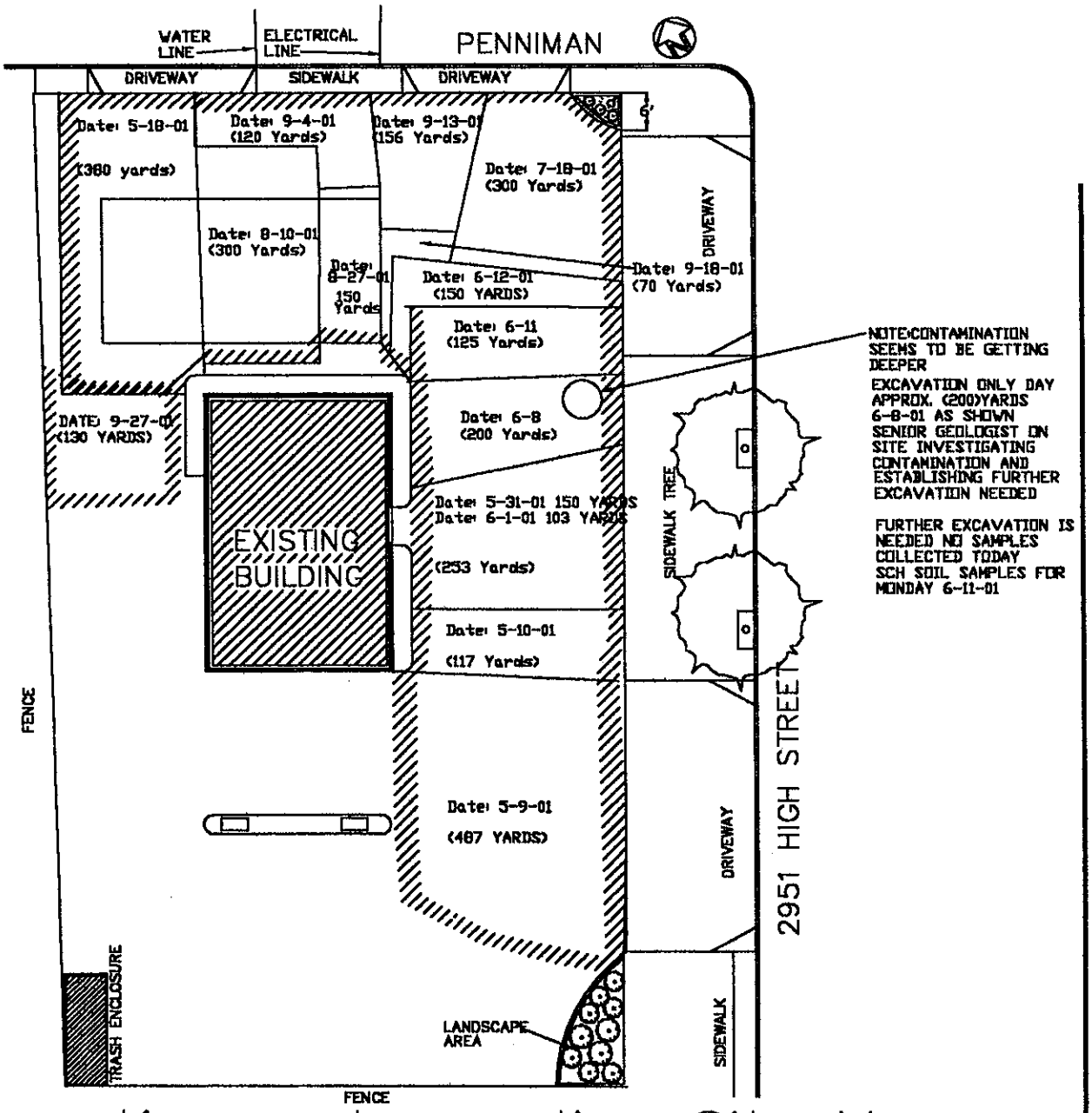
(925) 937-1759 work
(925) 937-6869 cell
cookenvironmental@att.net

Site Features

Express Gas & Mart
2951 High Street
Oakland, California

Project #: 1004	Figure: 2
Date: 6/1/06	
Scale: 1"=30'	



Excavation and sampling Site Map

ENVIRONMENTAL CONSULTING AND CONTRACTING

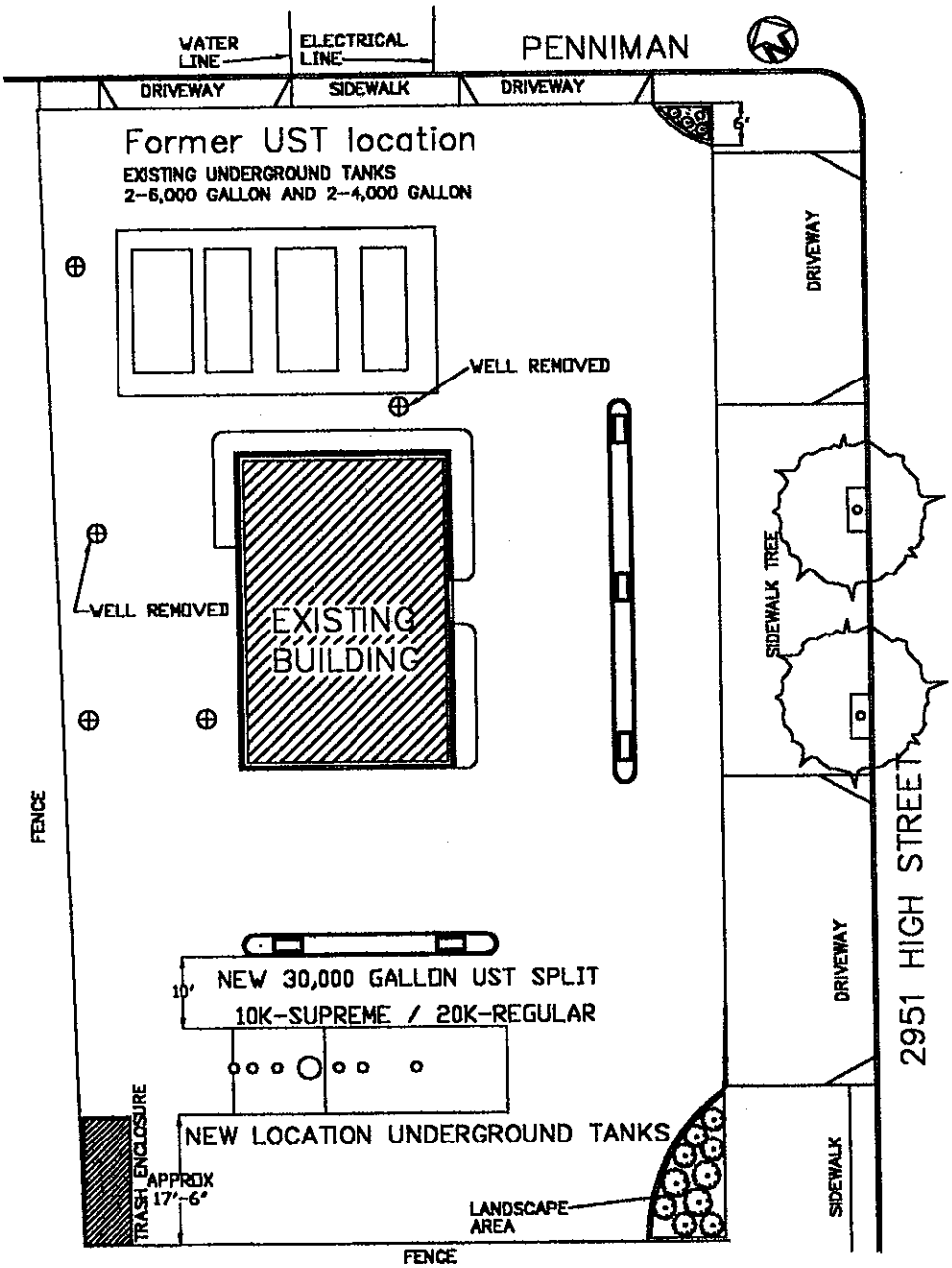
W.A. CRAIG, INC.

6940 TREMONT ROAD
DIXON, CALIFORNIA 95620
PH# (707) 693-2929
LIC# 455752

Project Name and Address

EXPRESS GAS & MART
2951 HIGH STREET
OAKLAND, CA
JOB # 3936

FIGURE # 3



Site Map

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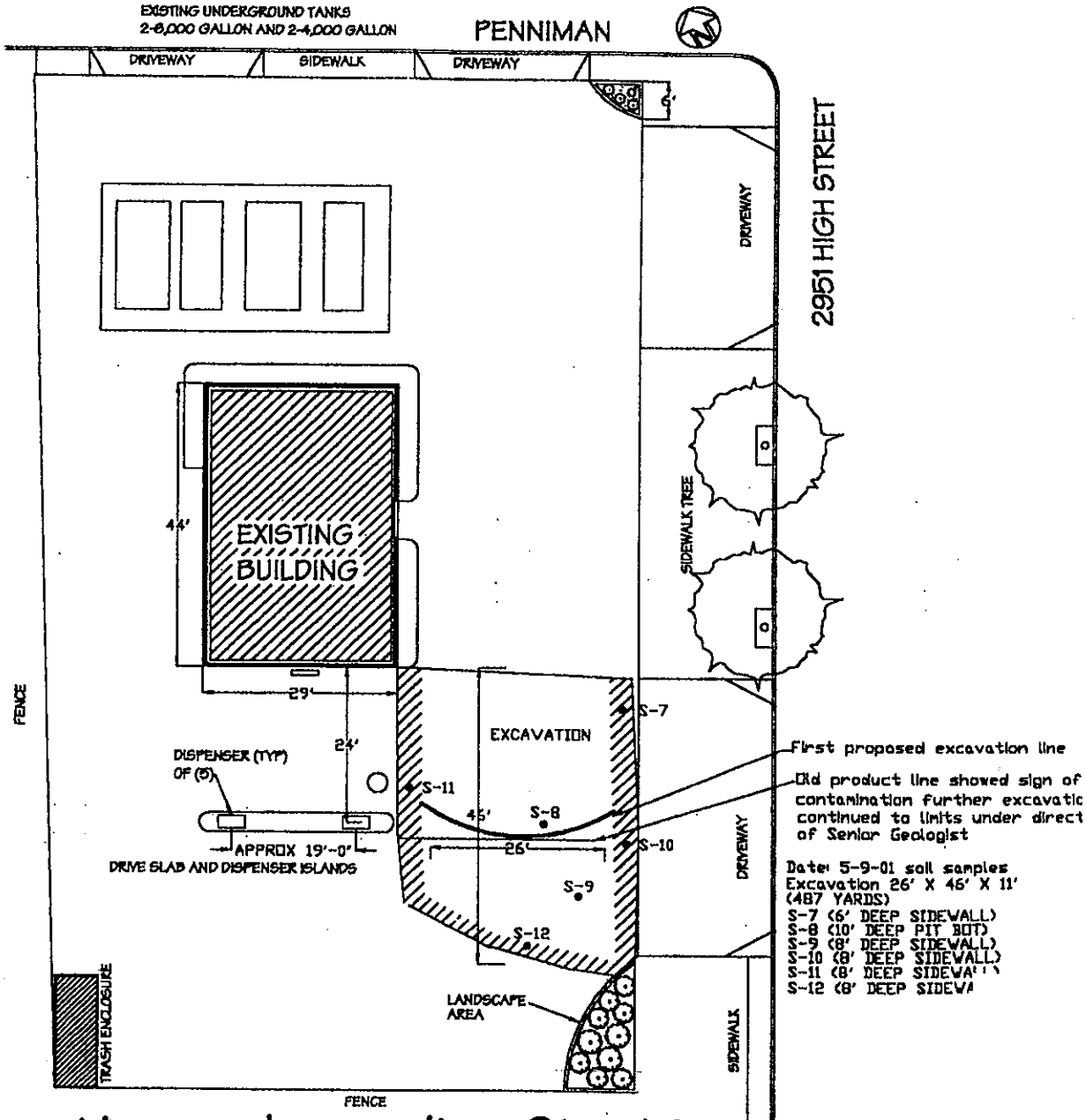
FIGURE # 2



Excavation and sampling Site Map

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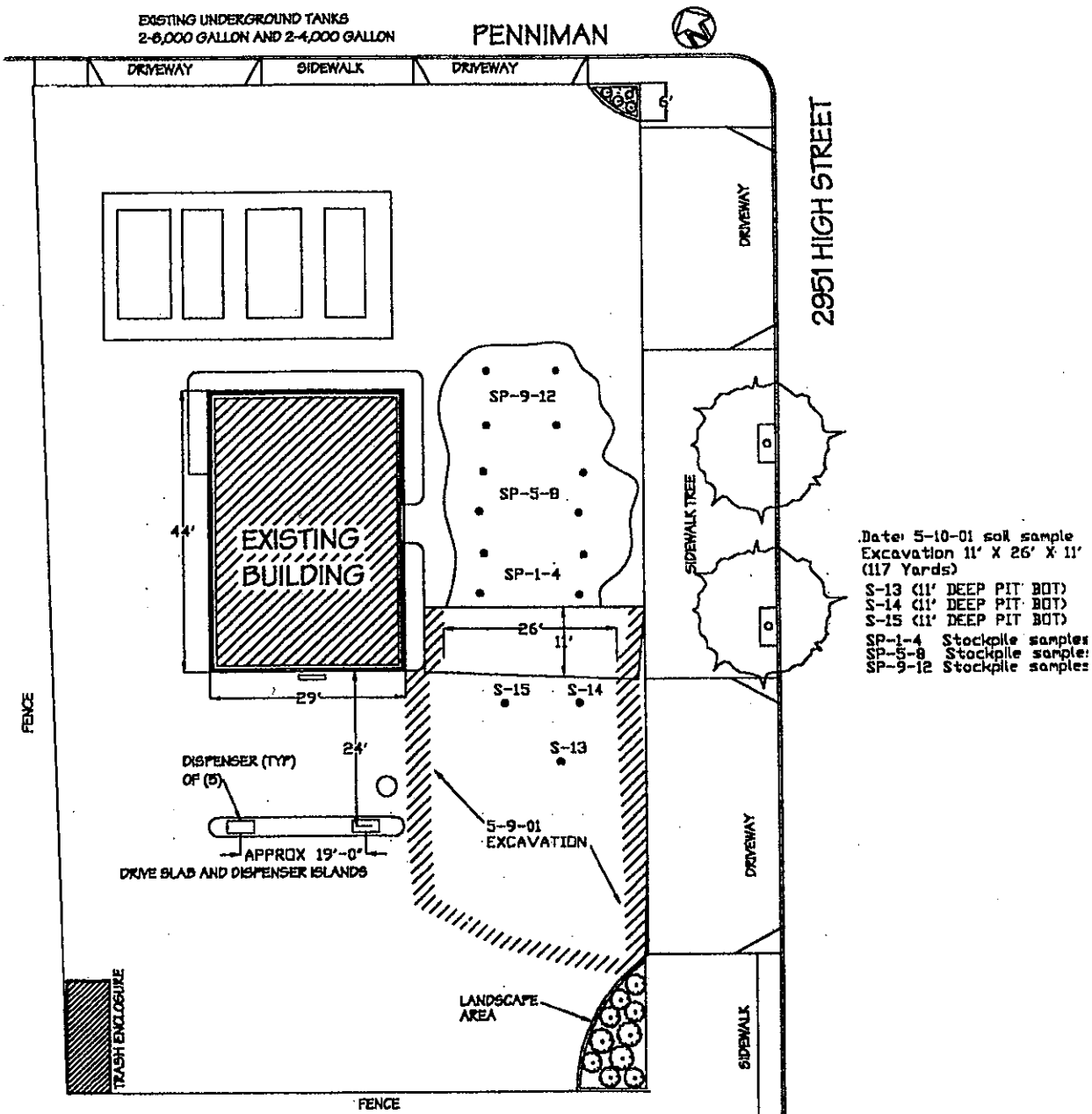
FIGURE #
5-9-01



Excavation and sampling Site Map

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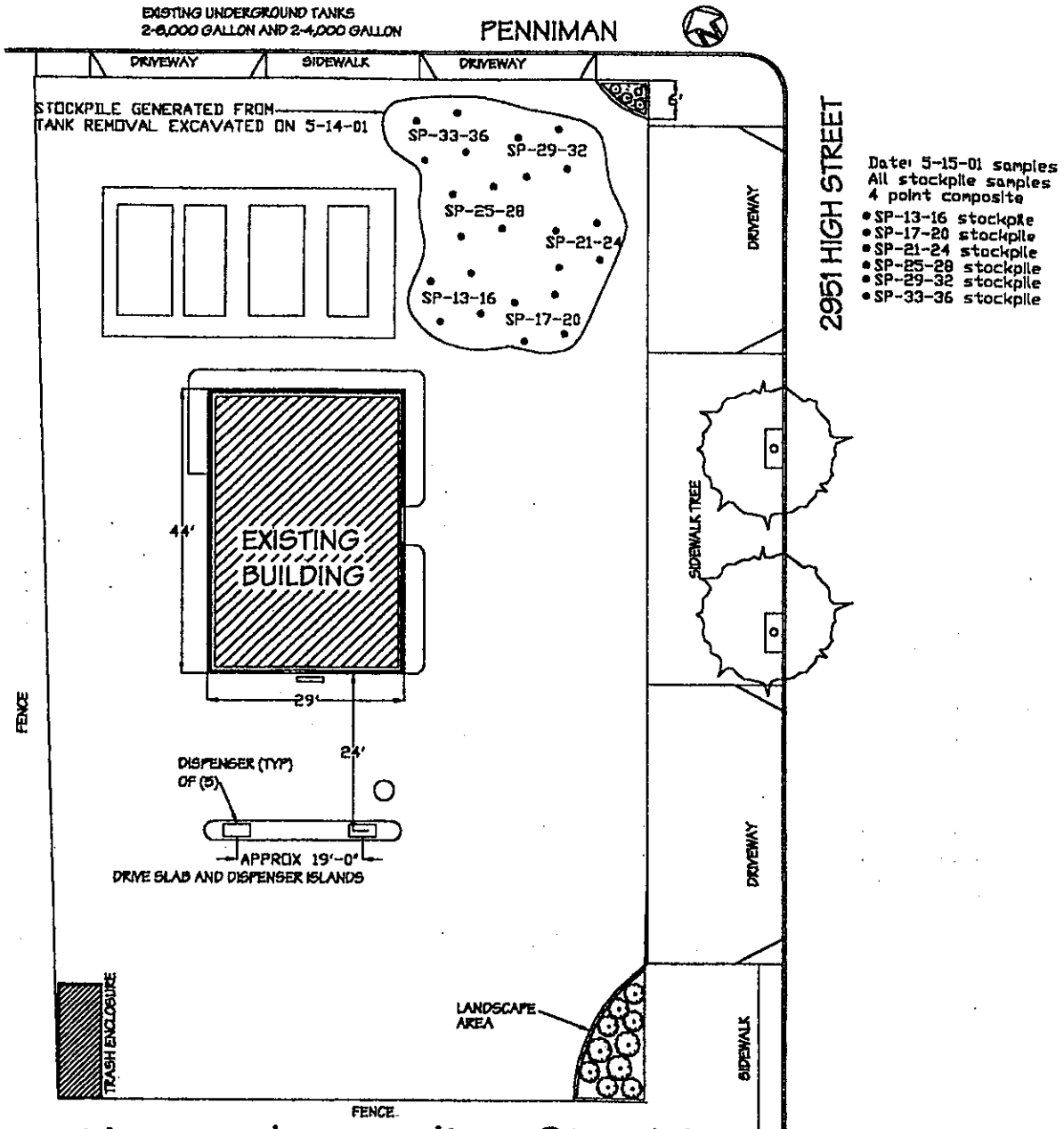
FIGURE #

5-10-01



Excavation and sampling Site Map

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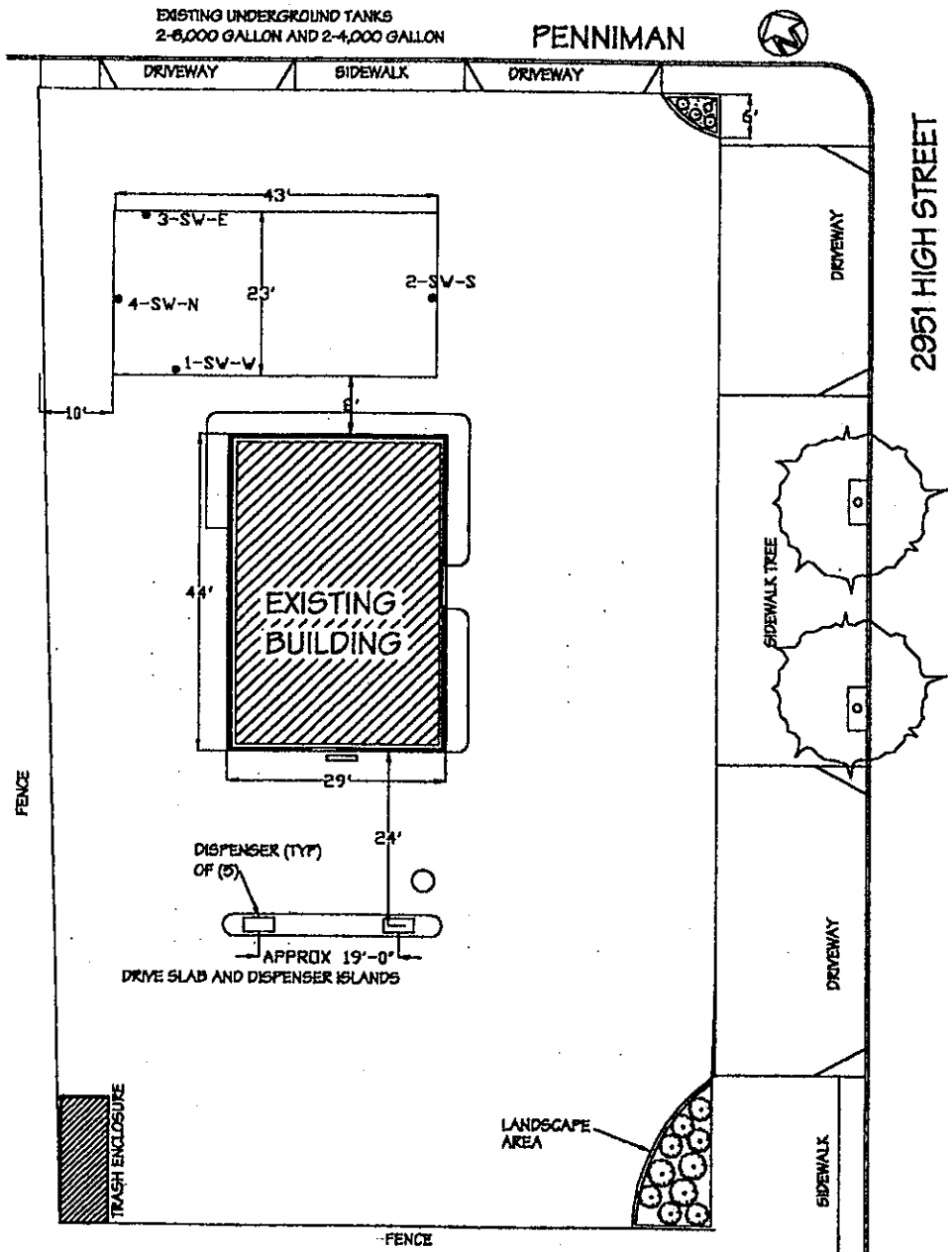
Project Name and Address

EXPRESS GAS & MART
2951 HIGH STREET
OAKLAND, CA
JOB # 3936

FIGURE #
5-15-01

DATE: 5-16-01 Collect samples
- 1-sw-w (8' deep sidewall)
- 2-sw-s (8' deep sidewall)
- 3-sw-e (9' deep sidewall)
- 4-sw-n (8' deep sidewall)



Excavation and sampling Site Map

ENVIRONMENTAL CONSULTING AND CONTRACTING

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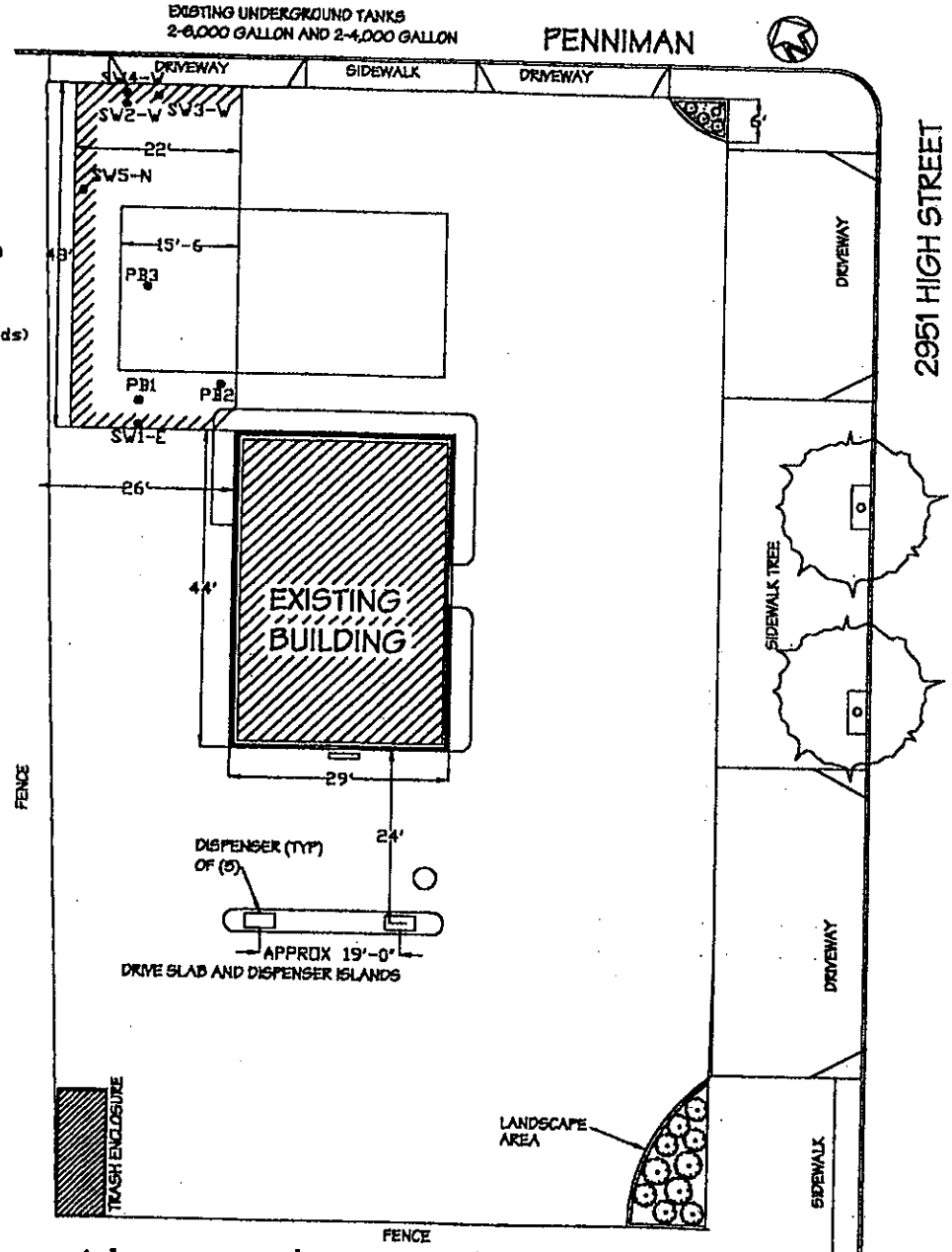
PH# (707) 693-2929
UC# 455752

Project Name and Address

EXPRESS GAS & MART
2951 HIGH STREET
OAKLAND, CA
JOB # 3936

FIGURE #
5-16-01



- SW1-E (8' deep side wall)
- SW2-W (11' deep side wall)
- SW3-W (8' deep side wall) note: liquid seep area
- SW4-W (7'-6 deep side wall)
- SW5-N (13' deep side wall)
- PB1 (14' deep pit bot)
- PB2 (14' deep pit bot)
- PB3 (15' deep pit bot)

Excavated approx (380 yards)
Stockpile 380 yards

Excavation and sampling Site Map

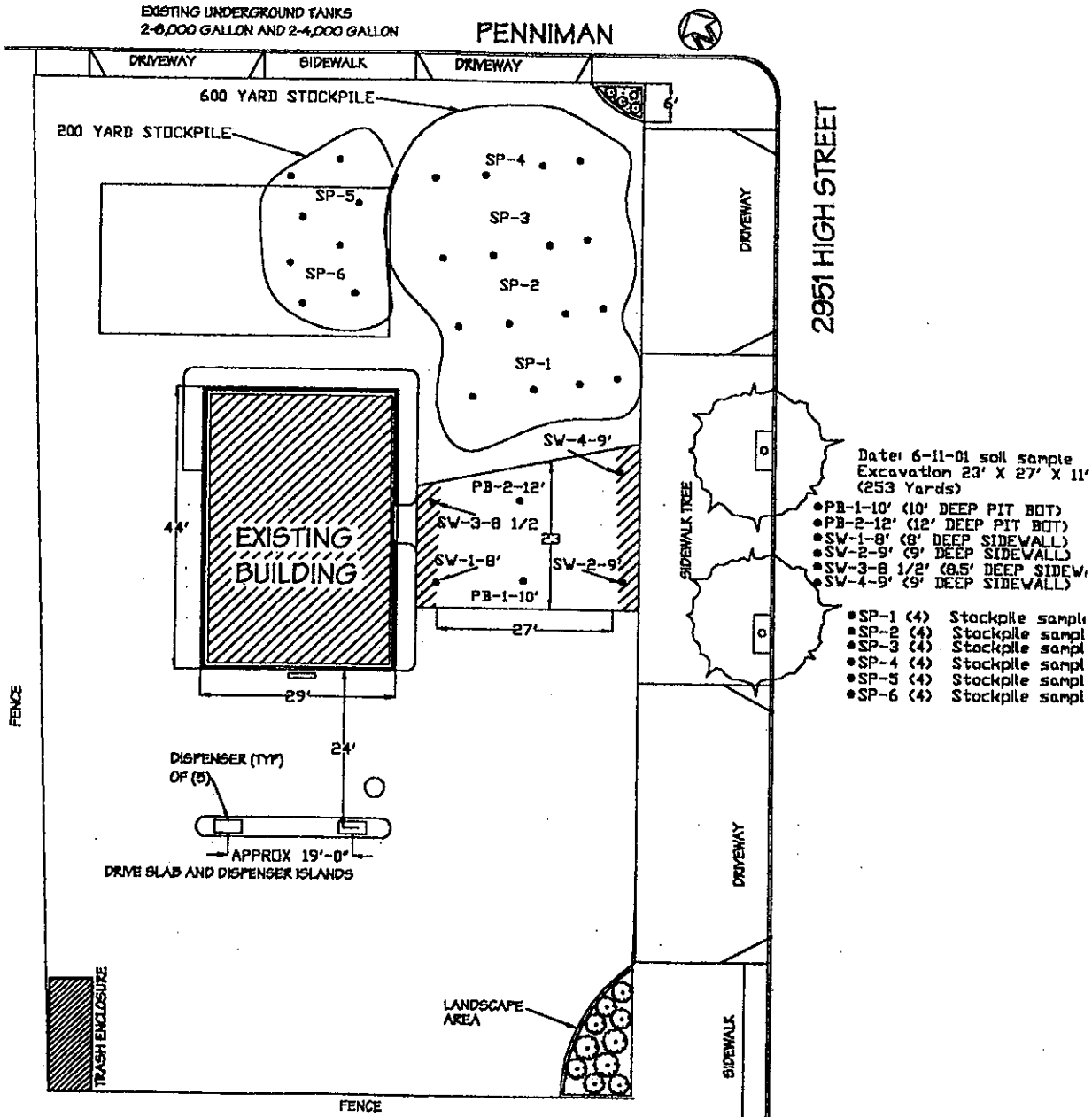
ENVIRONMENTAL CONSULTING AND CONTRACTING

W.A. CRAIG, INC.
6940 TREMONT ROAD
DIXON, CALIFORNIA 95620
PH# (707) 693-2929
UC# 455752

Project Name and Address

EXPRESS GAS & MART
2951 HIGH STREET
OAKLAND, CA
JOB # 3936

FIGURE #
5-18-01



Excavation and sampling Site Map

CONSULTING AND CONTRACTING

W.A. CRAIG, INC.

6340 TREMONT ROAD
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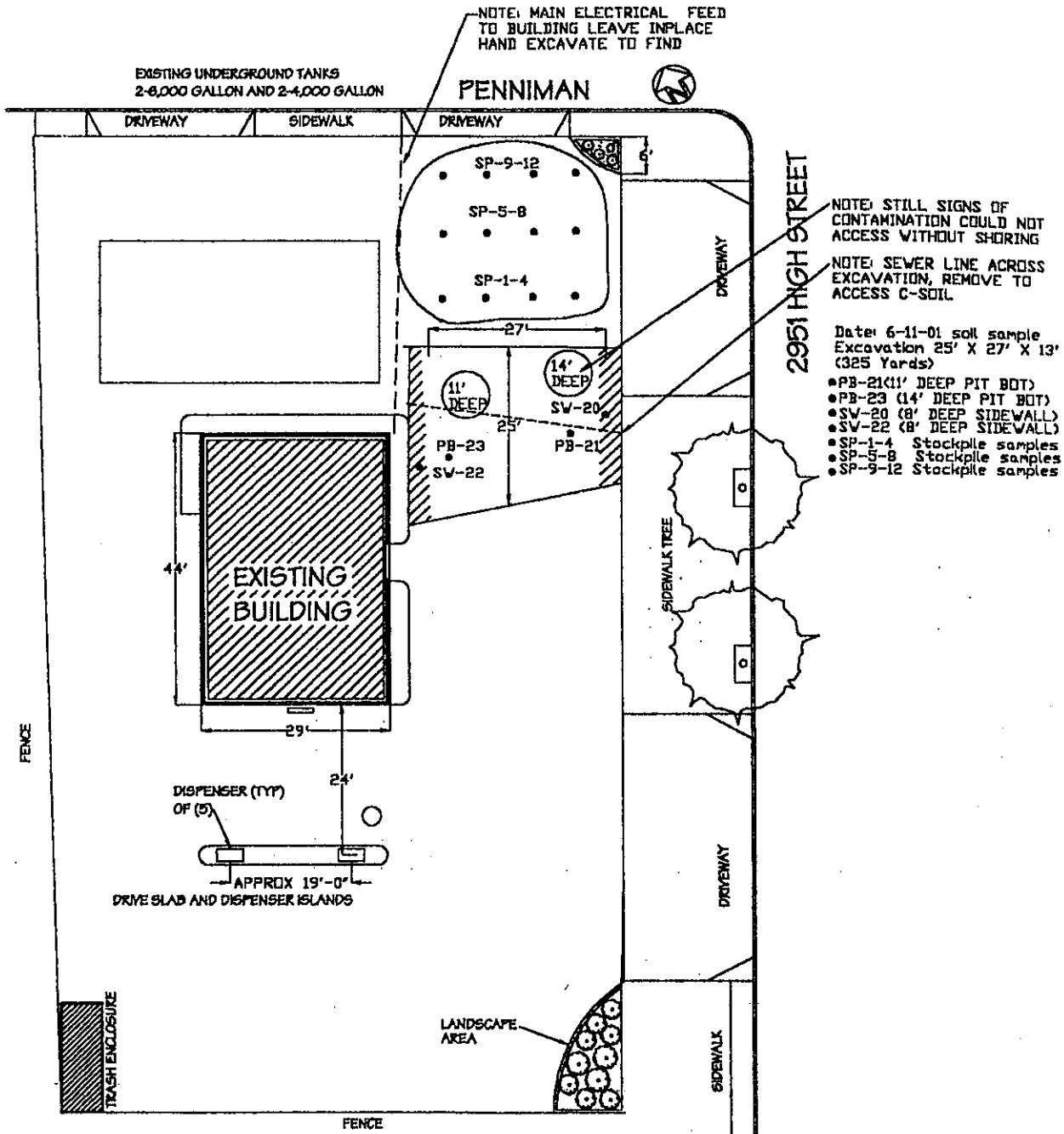
LIC# 455752

Project Name and Address

EXPRESS GAS & MART
2951 HIGH STREET
OAKLAND, CA
JOB # 3936

FIGURE #

5-31-01



Excavation and sampling Site Map

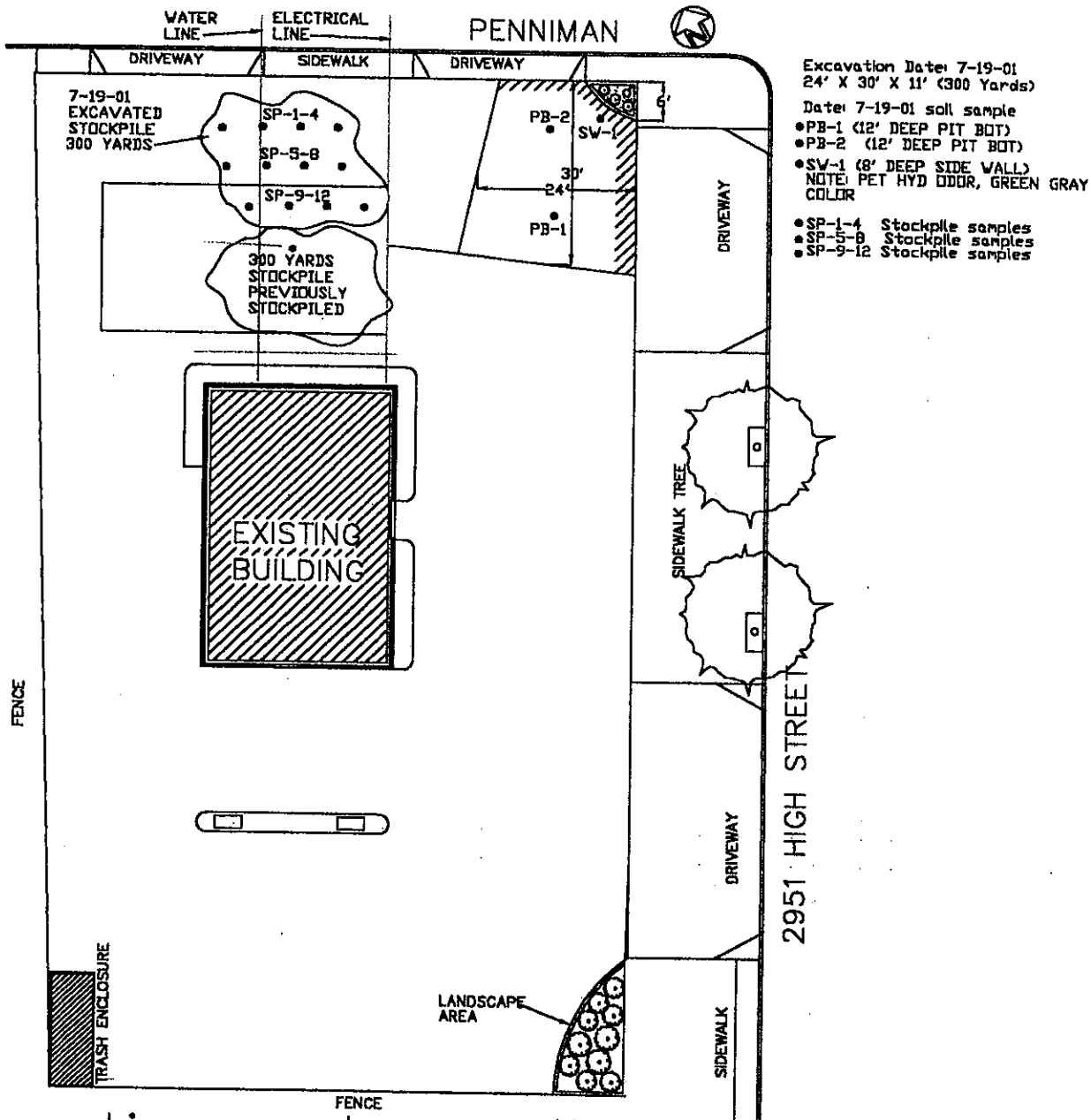
ENVIRONMENTAL CONSULTING AND CONTRACTING
W.A. CRAIG, INC.
6940 TREMONT ROAD
DIXON, CALIFORNIA 95620
PH# (707) 693-2929
LIC# 455752

Project Name and Address

EXPRESS GAS & MART
2951 HIGH STREET
OAKLAND, CA
JOB # 3936

FIGURE #

6-11-01



Excavation and sampling Site Map

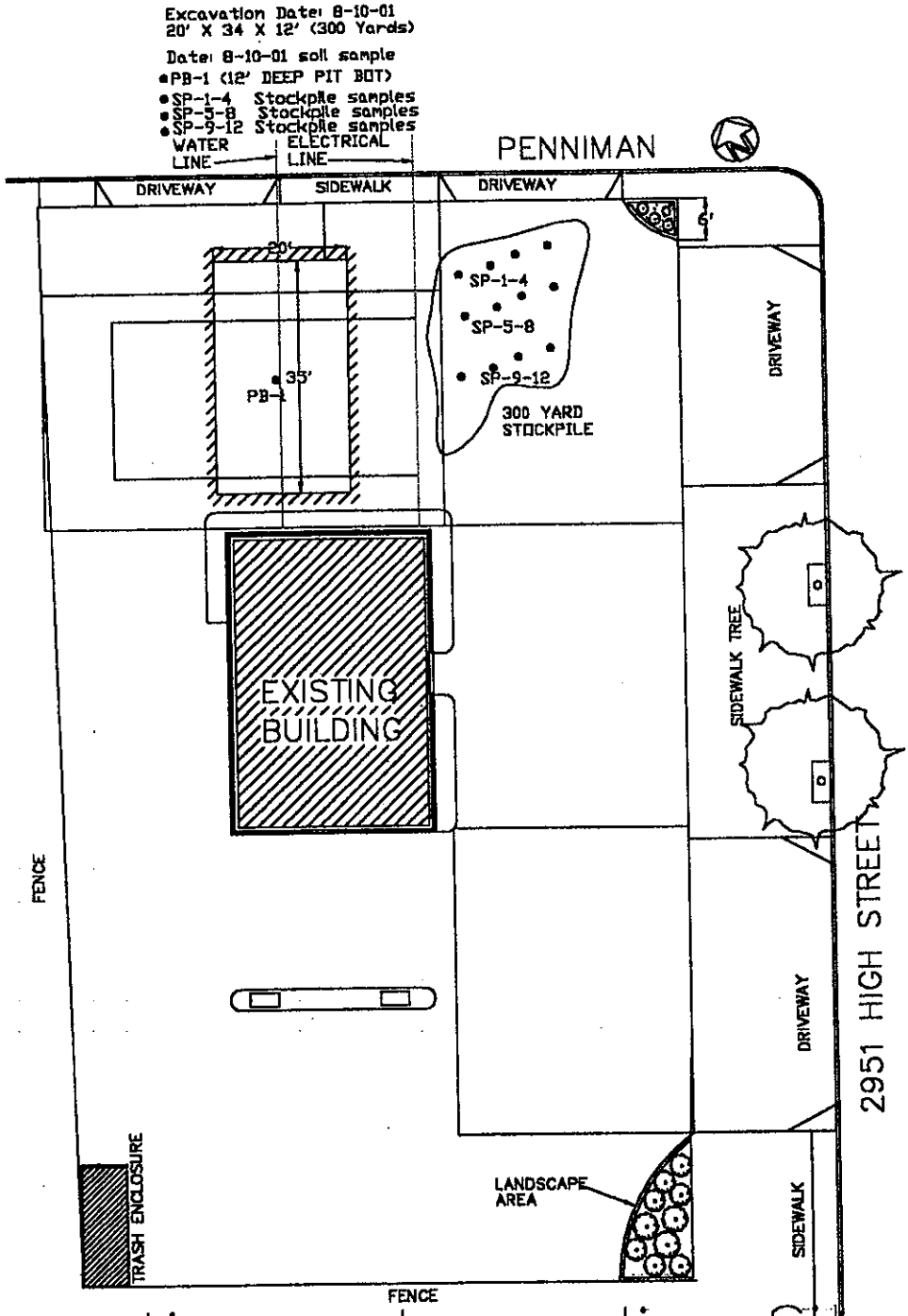
ENVIRONMENTAL CONSULTING AND CONTRACTING

W.A. CRAIG, INC.
6940 TREMONT ROAD
DIXON, CALIFORNIA 95620
PH# (707) 693-2929
LIC# 455752

Project Name and Address

EXPRESS GAS & MART
2951 HIGH STREET
OAKLAND, CA
JOB # 3936

FIGURE # 7-19-01



Excavation and sampling Site Map

CONSULTING AND CONTRACTING

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3440 TREMONT ROAD
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(707) 693-2929
455752

Project Name and Address

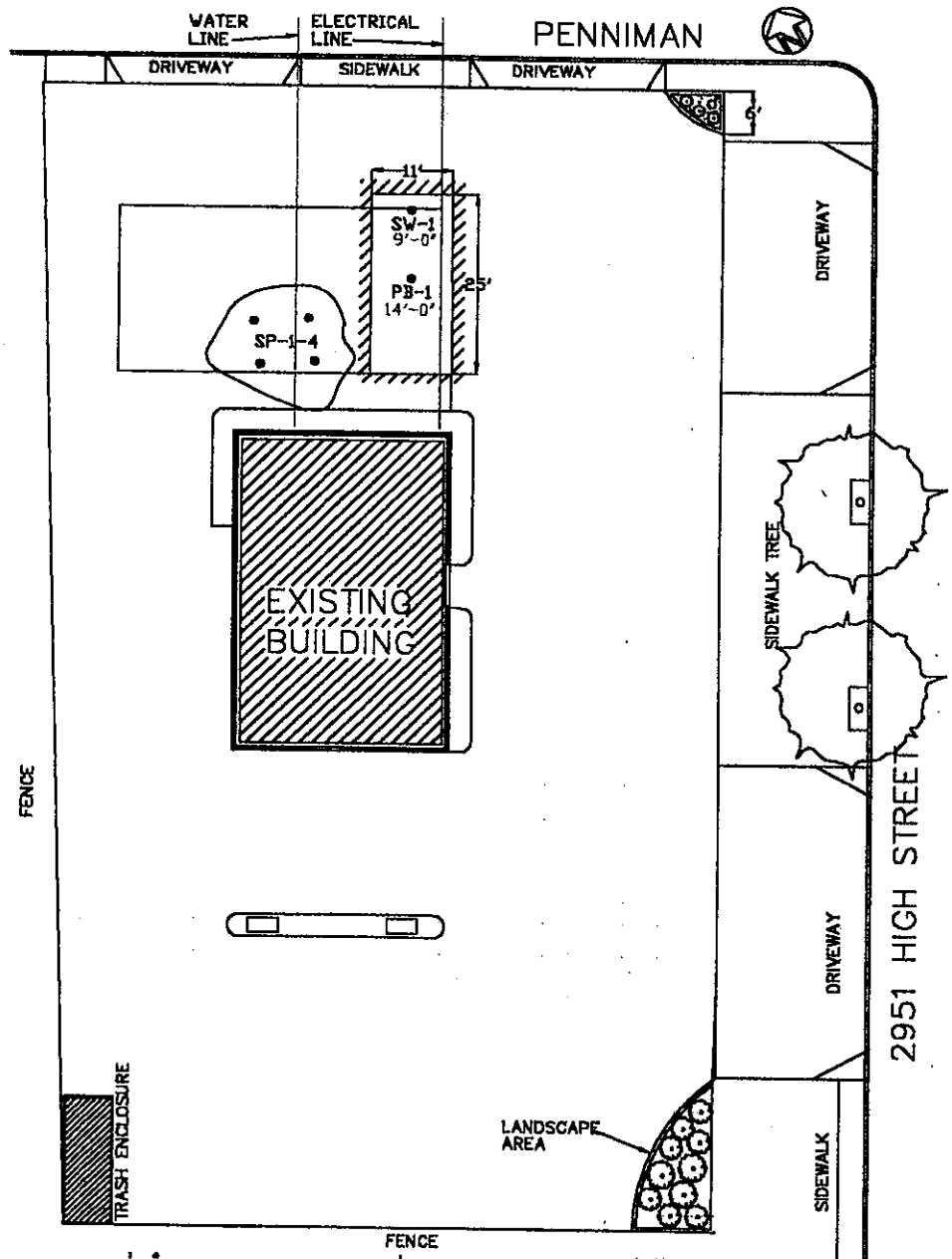
EXPRESS GAS & MART
2951 HIGH STREET
OAKLAND, CA
JOB # 3936

FIGURE #
8-10-01

Excavation Date: 8-27-01
11' X 25' X 14' (150 Yards)

Date: 8-28-01 soil sample

- PB-1 (14' DEEP PIT BOT) no odor or color
- SW-1 Side wall samples 9'-0" below grade strong pet hyd odor
- SP-1-4 (1) 4 POINT COMPOSITE STOCKPILE



Excavation and sampling Site Map

ENVIRONMENTAL CONSULTING AND CONTRACTING

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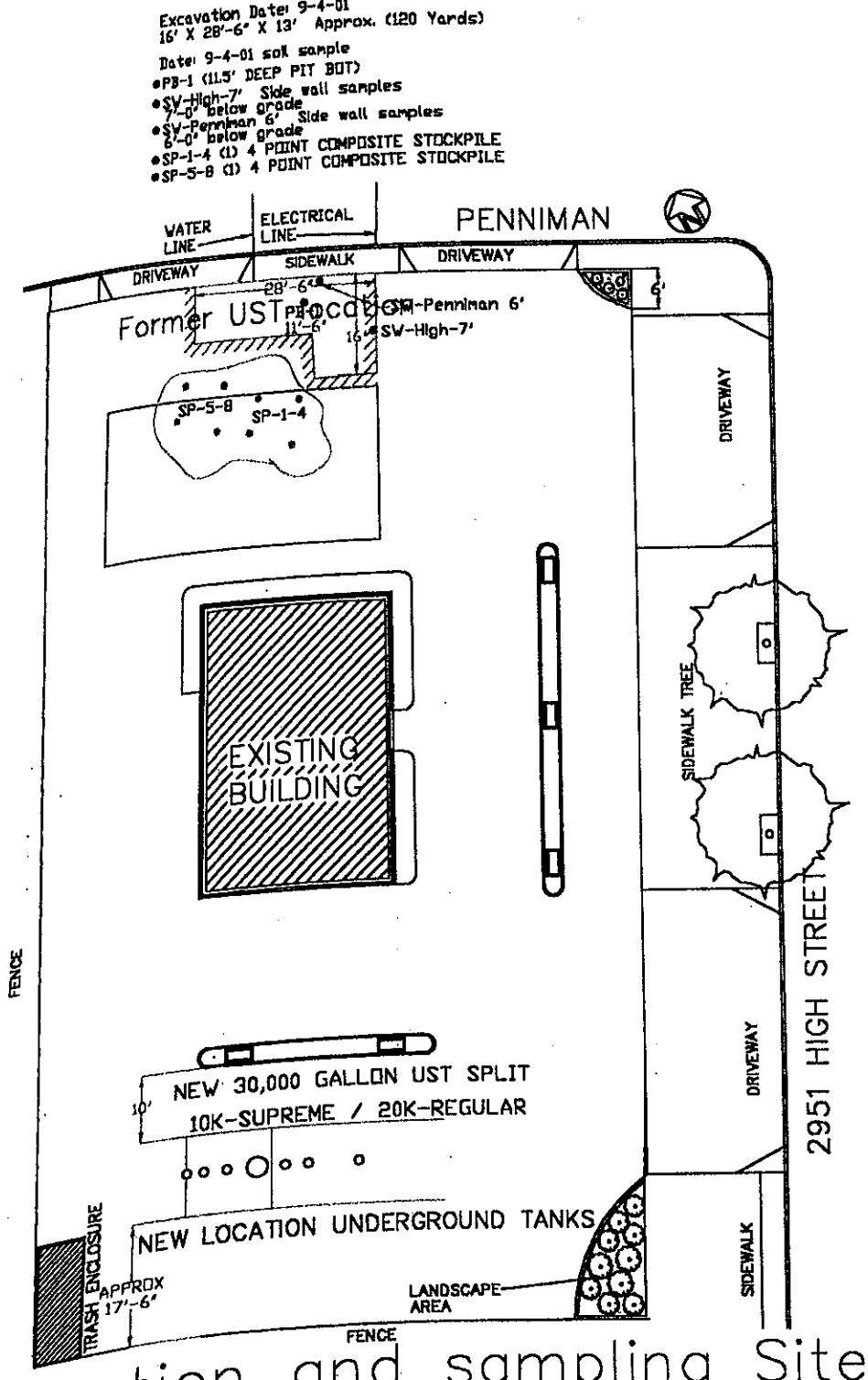
PH# (707) 693-2929
LIC# 455752

Project Name and Address

EXPRESS GAS & MART
2951 HIGH STREET
OAKLAND, CA
JOB # 3936

FIGURE #
8-28-01



Excavation and sampling Site Map

ENVIRONMENTAL CONSULTING AND CONTRACTING
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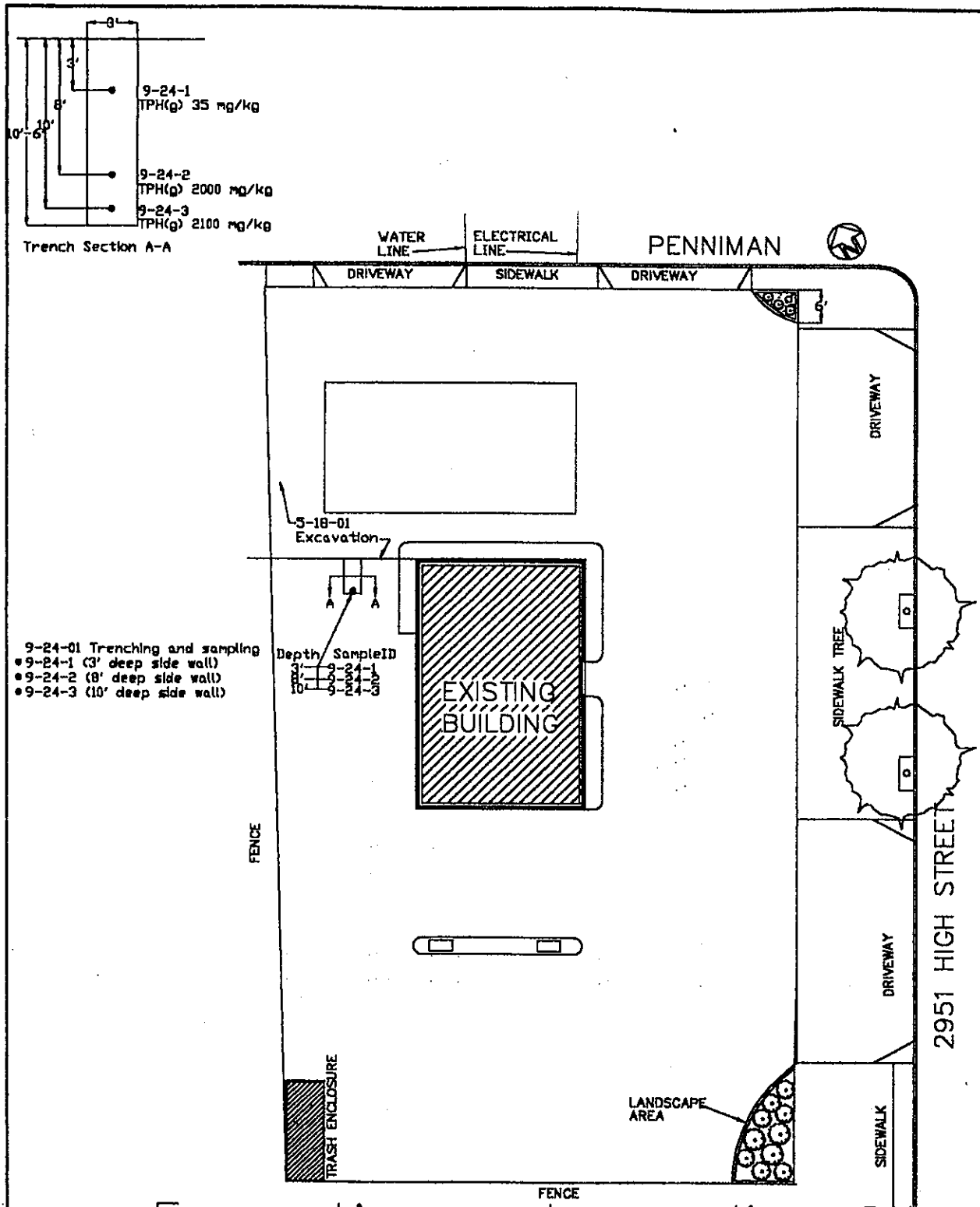
6940 TREMONT ROAD
DIXON, CALIFORNIA 95620
PH# (707) 693-2929
LIC# 455752

Project Name and Address

EXPRESS GAS & MART
2951 HIGH STREET
OAKLAND, CA
JOB # 3936

FIGURE #
9-4-01



Excavation and sampling Site Map

ENVIRONMENTAL CONSULTING AND CONTRACTING

W.A. CRAIG, INC.
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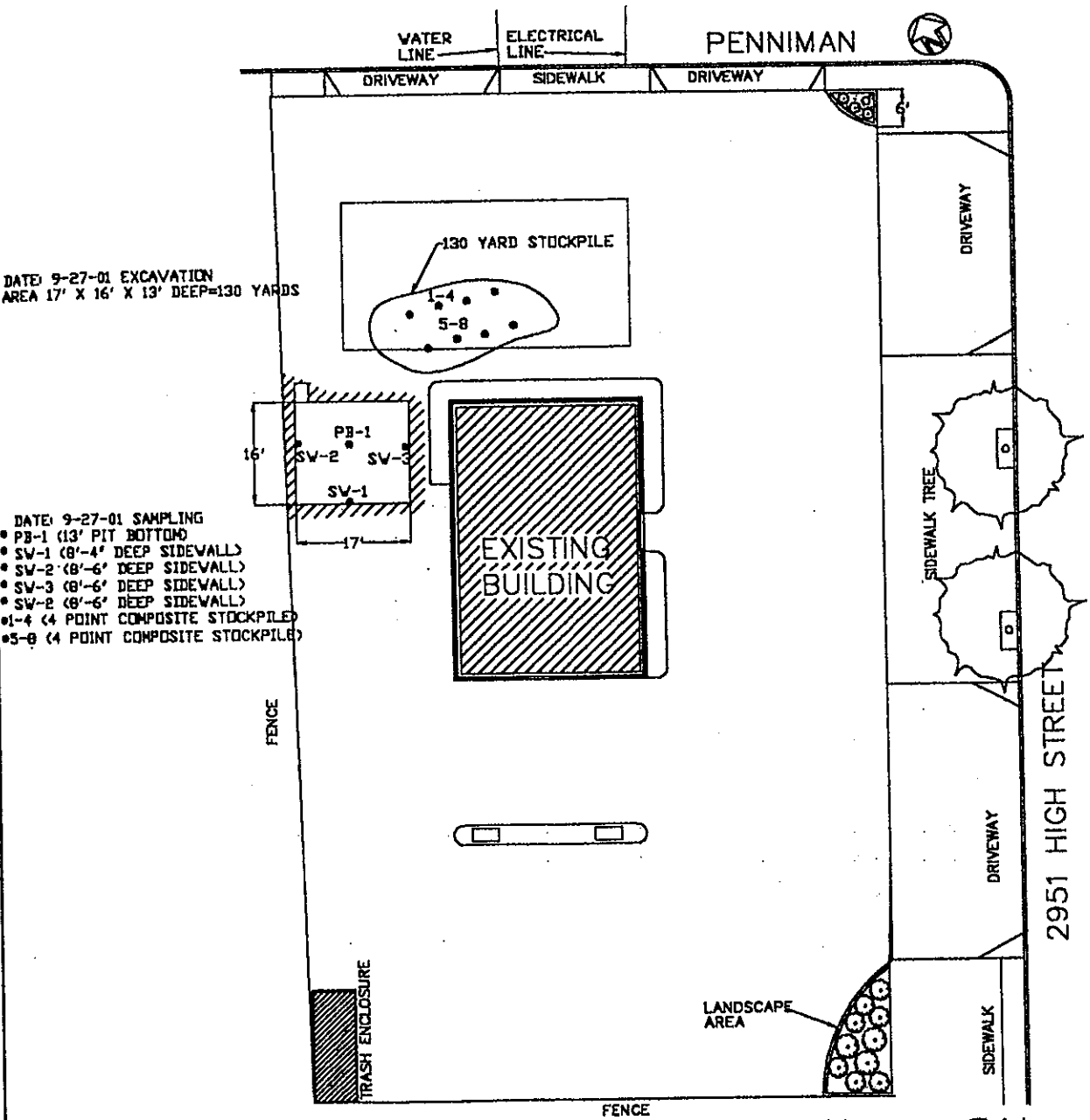
DIXON, CALIFORNIA 95620
PH# (707) 693-2929
LIC# 455752

Project Name and Address

EXPRESS GAS & MART
2951 HIGH STREET
OAKLAND, CA
JOB # 3936

FIGURE #
9-24-01



Excavation and sampling Site Map

ENVIRONMENTAL CONSULTING AND CONTRACTING

W.A. CRAIG, INC.
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DIXON, CALIFORNIA 95620
PH# (707) 693-2929
LIC# 455752

Project Name and Address

EXPRESS GAS & MART
2951 HIGH STREET
OAKLAND, CA
JOB # 3936

FIGURE #

9-27-0

TABLE 1
Boring Analytical Data
High Street Station
Oakland, CA

Sample ID	Date	Media	Depth (fbg)	TPH-g	MtBE	TAME	benzene	toluene	ethyl-benzene	xylenes
S-1	02/28/01	soil	3	**180**	4	0.17	0.14	**5.8**	**3.2**	**22**
S-2	02/28/01	soil	3	71	6.8	0.19	0.2	**2.8**	1.7	**6.2**
S-3	02/28/01	soil	3	**370**	2.9	0.13	0.26	**2.1**	**2.5**	**15**
S-4	02/28/01	soil	3	**180**	0.3	<0.01	0.12	0.95	1.3	**16**
S-5	02/28/01	soil	3	**3,600**	2.3	<1	**2.6**	**15**	**49**	**340**
S-6	02/28/01	soil	3	**730**	**85**	4.7	**4**	**49**	**8.6**	**62**
TB-1	04/26/01	soil	5	**320**	2.3	<0.050	0.57	1.3	**5.4**	**30**
TB-1	04/26/01	soil	10	39	2.4	0.042	0.045	0.2	0.71	**3.3**
TB-2	04/26/01	soil	5	34	0.38	0.024	0.031	0.19	0.5	1.5
TB-2	04/26/01	soil	10	2.8	3.1	0.071	0.025	0.012	0.14	0.11
TB-3	04/26/01	soil	5	**4,000**	4	<0.5	0.88	**21**	**82**	**410**
TB-3	04/26/01	soil	10	<1	4.3	0.054	<0.005	<0.005	<0.005	0.014
TB-4	04/26/01	soil	5	21	0.24	<0.005	<0.005	0.11	0.032	0.21
TB-4	04/26/01	soil	10	2.9	1.8	0.039	0.01	0.014	0.055	0.056
TB-6	04/26/01	soil	5	9.3	<0.005	<0.005	<0.005	0.052	0.02	<0.005
TB-6	04/26/01	soil	10	**840**	**12**	<0.35	**14**	**7.7**	**17**	**76**
TB-9	04/26/01	soil	5	<1	4	0.037	<0.005	<0.005	<0.005	<0.005
TB-9	04/26/01	soil	10	1.1	1.5	0.044	<0.005	<0.005	<0.005	<0.005
SSTL		soil		100	9.7	NE	2.6	1.6	1.9	2.8
TB-1	04/26/01	water	NA	78,000	**37,000**	1,500	**880**	**490**	**3,200**	**15,000**
TB-3	04/26/01	water	NA	44,000	**52,000**	<1,700	**390**	**53**	**2,600**	**8,900**
SSTL		water		NE	8,400	NE	200	270	180	470

Notes: Soil sample units are mg/kg
Groundwater sample units are ug/l
Results higher than SSTLs are in **bold**

TABLE 2
Remediation Soil Samples
High Street Station

Sample ID	Date	TPH-g	TPH-d	MtBE	benzene	toluene	ethyl-benzene	xylenes	lead	
S-7	05/09/01	ND	NT	3.8	ND	ND	ND	ND	NT	6'
S-8	05/09/01	ND	NT	1.3	0.011	ND	0.024	0.037	NT	10'
S-9	05/09/01	ND	NT	1	0.006	0.005	0.07	0.011	NT	8'
S-10	05/09/01	ND	NT	1	0.007	0.005	0.018	0.043	NT	8'
S-11	05/09/01	ND	NT	0.84	ND	ND	ND	ND	NT	8'
S-12	05/09/01	ND	NT	0.55	ND	ND	ND	ND	NT	8'
S-13	05/10/01	ND	NT	0.076	0.014	ND	ND	ND	NT	11'
S-14	05/10/01	ND	NT	2	ND	ND	ND	ND	NT	11'
S-15	05/10/01	ND	NT	ND	ND	ND	ND	ND	NT	11'
SP 1-4	05/10/01	790	NT	ND	2	20	12	73	16	
SP 5-8	05/10/01	860	NT	ND	4	22	15	69	36	
SP 9-12	05/10/01	170	NT	ND	ND	3.1	1.9	12	12	
SP 13-16	05/15/01	110	71	ND	ND	0.34	0.19	3.1	20	
SP 17-20	05/15/01	1100	200	ND	0.41	8	3.3	67	16	
SP 21-24	05/15/01	1100	260	ND	0.6	9.8	2	120	19	
SP 25-28	05/15/01	930	190	ND	3.7	28	10	100	16	
SP 29-32	05/15/01	760	220	ND	ND	3.2	1.4	45	20	
SP 33-36	05/15/01	57	16	ND	0.45	0.35	2	2	14	
1-SW-W	05/16/01	1700	NT	ND	10	28	34	170	7.6	
2-SW-S	05/16/01	460	NT	ND	2.4	20	7.7	44	10	
3-SW-E	05/16/01	170	NT	3.5	3.8	8.8	3.4	19	5.9	
4-SW-N	05/16/01	350	NT	ND	2.6	2.7	17	2.5	9.1	
PB-1	05/18/01	1.3	NT	0.93	0.3	ND	0.017	ND	NT	
PB-2	05/18/01	ND	NT	0.55	ND	ND	ND	ND	NT	
PB-3	05/18/01	2.5	NT	33	0.9	0.049	0.035	0.059	NT	
SW-1-E	05/18/01	17	NT	5.6	2	0.085	1.3	0.98	NT	
SW-2-W	05/18/01	590	NT	7.4	16	47	18	97	NT	
SW-3-W	05/18/01	700	NT	ND	4.3	9.9	14	59	NT	
SW-4-W	05/18/01	56	NT	ND	0.68	0.35	1.4	4.9	NT	
SW-5-N	05/18/01	74	NT	12	2.2	4.4	1.7	9.8	NT	
SP-1	05/31/01	100	11	ND	0.033	0.45	0.67	2.6	6.9	
SP-2	05/31/01	41	25	ND	0.029	0.21	0.25	1.5	7.8	
SP-3	05/31/01	120	13	ND	0.044	0.41	0.94	5.4	6.3	
SP-4	05/31/01	46	7.2	ND	0.029	0.18	0.3	1.3	5	
SP-5	05/31/01	35	9.2	ND	0.071	0.23	0.32	1.3	12	
SP-6	05/31/01	15	8.8	ND	0.12	0.1	0.35	1.2	6	
PB-1	05/31/01	2.7	NT	0.061	ND	0.021	0.008	0.009	NT	10'
PB-2	05/31/01	ND	NT	0.11	ND	ND	ND	ND	NT	12'

TABLE 2
Remediation Soil Samples
High Street Station

Sample ID	Date	TPH-g	TPH-d	MtBE	benzene	toluene	ethyl-benzene	xylenes	lead	
SW-1	05/31/01	74	NT	ND	0.65	0.43	1.2	3	NT	8'
SW-2	05/31/01	13	NT	0.5	0.032	0.19	0.081	0.11	NT	9'
SW-3	05/31/01	320	NT	ND	0.55	9.2	7.3	39	NT	8.5
SW-4	05/31/01	48	NT	1.5	0.54	0.22	1.7	6.5	NT	9'
SP 1-4	06/11/01	63	280	ND	0.033	0.42	0.091	0.47	7.5	
SP 5-8	06/11/01	2.3	10	ND	ND	0.008	0.01	0.035	ND	
SP 9-12	06/11/01	40	53	0.47	0.047	0.22	0.48	2.2	3.2	
PB-21	06/11/01	ND	NT	0.83	ND	ND	ND	ND	NT	
PB-22	06/11/01	ND	NT	ND	ND	ND	ND	ND	NT	14'
SW-20	06/11/01	190	NT	ND	0.59	ND	4.8	4.7	NT	8'
SW-22	06/11/01	4	NT	1.1	ND	0.044	0.013	0.13	NT	8'
PB-1	07/19/01	ND	NT	3.1	ND	ND	ND	ND	NT	12'
PB-2	07/19/01	ND	NT	1.6	0.14	ND	0.011	0.02	NT	12'
SW-1	07/19/01	360	NT	ND	0.66	1.6	4.5	26	NT	8'
SP 1-4	07/19/01	52	NT	ND	0.18	0.38	0.54	2.9	8.8	
SP 5-8	07/19/01	130	NT	ND	0.42	1.1	1.2	6.3	7.8	
SP 9-12	07/19/01	42	NT	ND	0.073	0.3	0.34	2	1.3	
PB-1	08/10/01	ND	ND	2.1	ND	ND	ND	ND	ND	
SP 1-4	08/10/01	49	32	ND	ND	0.21	0.17	1.2	ND	
SP 5-8	08/10/01	67	80	ND	ND	0.2	0.12	1	5.1	
SP 9-12	08/10/01	110	92	ND	0.13	1.9	1.2	8.9	4.7	
SP 1-4	08/28/01	100	170	0.2	0.18	0.85	0.64	5	18	
PB-1	08/28/01	ND	ND	4.8	ND	ND	ND	ND	NT	14'
SW-1	08/28/01	3100	410	ND	30	27	55	250	NT	9'
SW-H	09/04/01	170	NT	ND	ND	0.48	0.36	0.38	NT	7'
SW-P	09/04/01	2.1	NT	ND	0.045	0.005	ND	0.005	NT	6'
PB-M	09/04/01	ND	NT	1.4	ND	ND	ND	ND	NT	11.5'
SP 1-4	09/04/01	86	NT	7.8	4.5	0.14	0.45	1.5	11	
SP 5-8	09/04/01	240	NT	ND	0.37	0.74	4.7	15	11	
PB-12'	09/13/01	1.4	NT	6.1	0.006	0.012	ND	0.024	6.2	
SW-Penn	09/13/01	230	NT	<.30	0.1	0.055	0.38	0.75	7.7	
SP 1-4	09/13/01	290	80	<1.0	0.39	1.9	2.2	12	5.7	
SP 5-8	09/13/01	130	39	0.63	0.72	0.76	1.3	5.5	8.4	

TABLE 2

Remediation Soil Samples

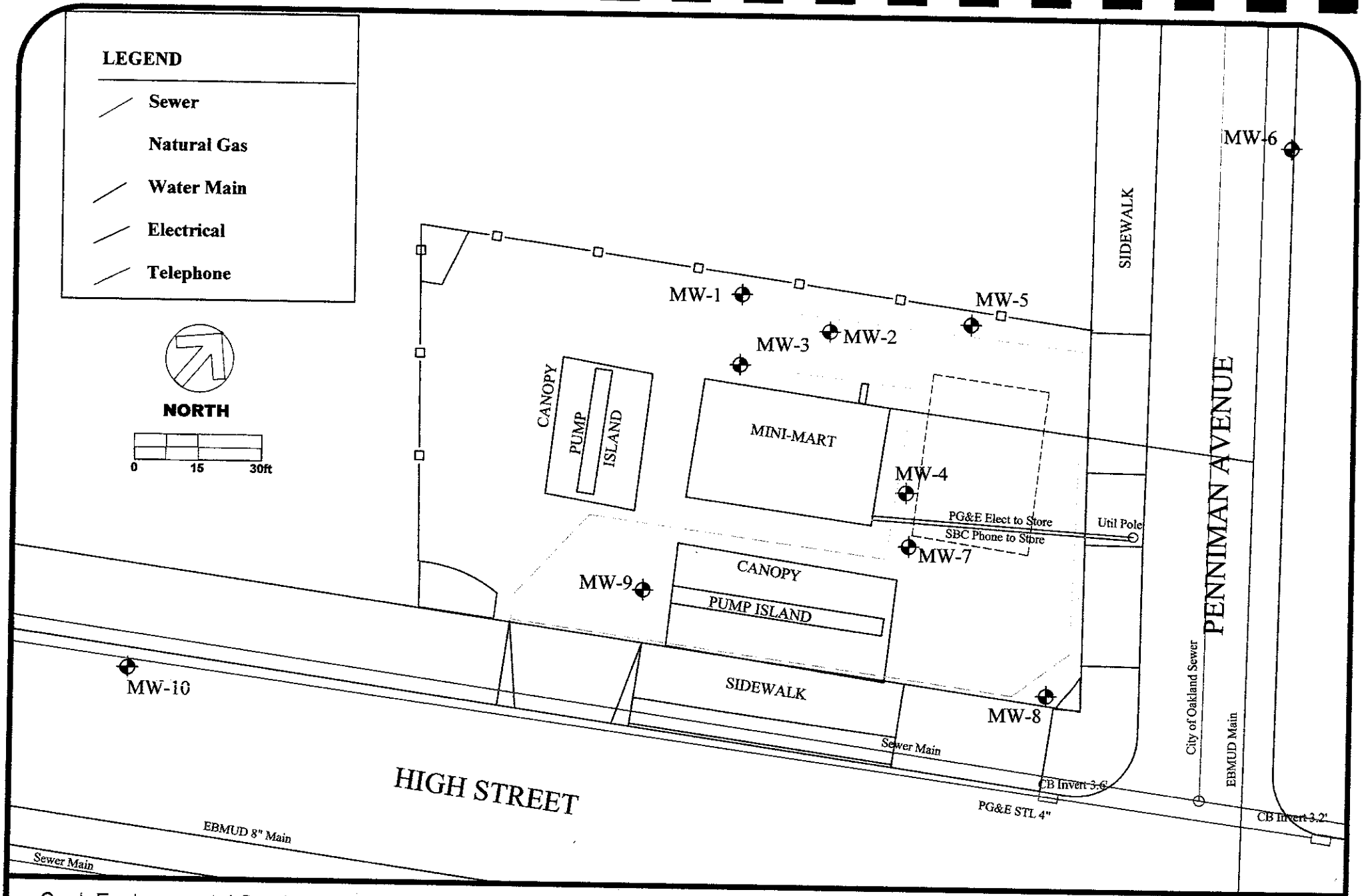
High Street Station

		TPHG	TPHD	MTBE	B				
PB 11 1/2'	09/18/01	ND	NT	9	ND	0.006	ND	0.015	11
SW 1-7'	09/18/01	2200	NT	<2.0	13	120	44	260	15
SW 2-6'	09/18/01	730	NT	<10	6.4	13	12	66	12
SW 3-8'	09/18/01	90	NT	<.20	0.12	ND	0.29	0.64	7.2
SP 1-4	09/18/01	100	36	<1.0	1.7	4.3	2	11	9.5
9-24-1	09/24/01	35	NT	ND	0.009	0.04	ND	0.013	NT
9-24-2	09/24/01	2000	NT	ND	10	14	35	210	NT
9-24-3	09/24/01	2100	NT	ND	12	14	33	180	NT
SP 1-4	09/27/01	110	49	0.33	0.2	0.78	1.3	6.6	8.2
SP 5-8	09/27/01	78	63	0.44	0.28	0.84	1.4	6.7	9.4

3'
8'
10'

APPENDIX F

Preferential Pathway Survey



Cook Environmental Services, Inc.
271 Las Juntas Way
Walnut Creek, CA 94597
(925) 937-1759 work
(925) 937-6869 cell
cookenvironmental@att.net

Potential Preferential Pathways

Express Gas & Mart
2951 High Street
Oakland, California

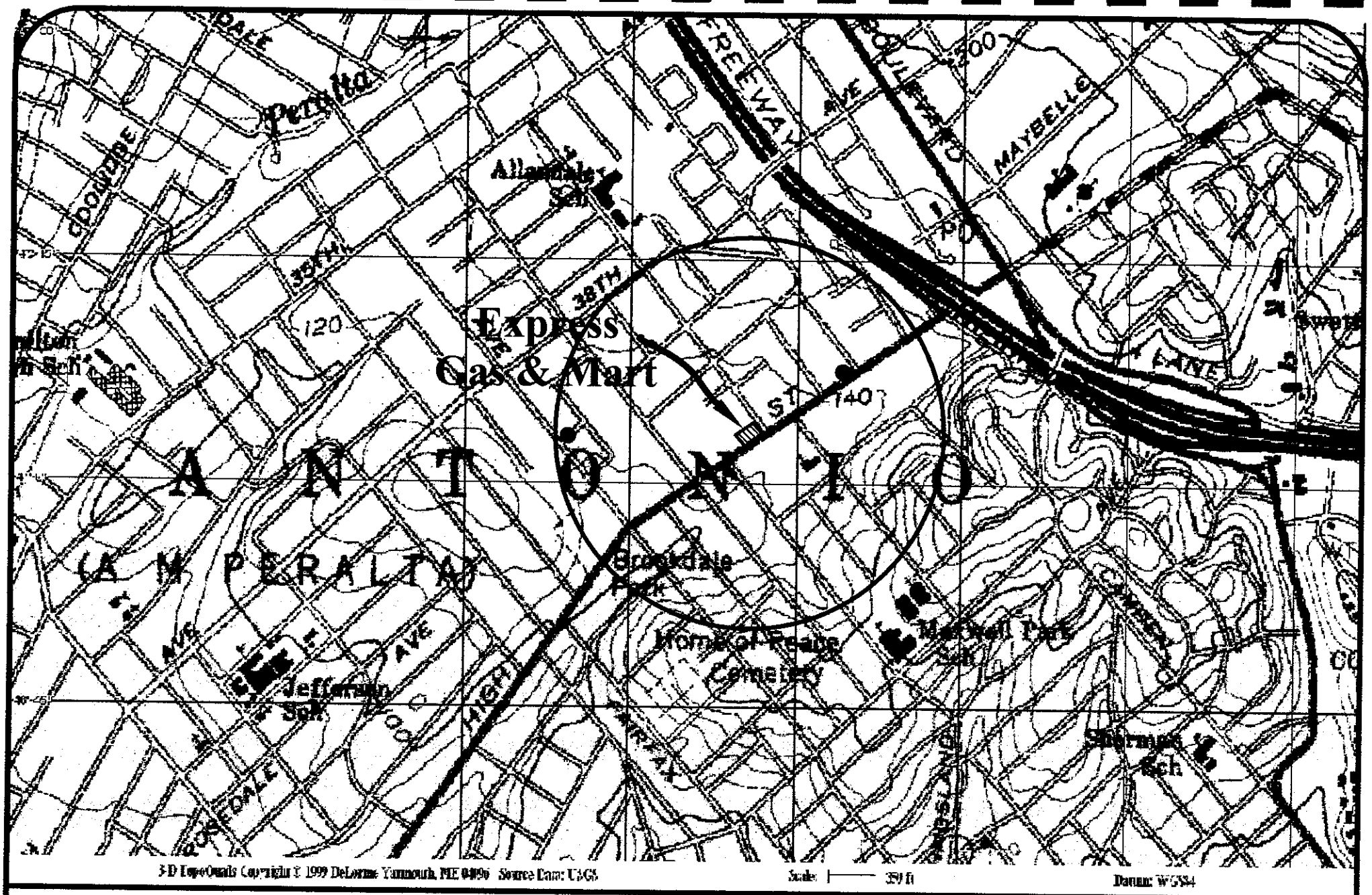
Project #: 1004	Figure: 2
Date: 6/06/06	
Scale: 1"=30'	

APPENDIX G

Sensitive Receptor Survey

Appendix F
Well Construction Details
Sensitive Receptor Survey
Oakland, California

Well ID	Site Address	Date Installed	Casing Diameter (inches)	Total Depth (fbg)	Screened Interval (fbg)	Water-Bearing Unit	Comments
Dr. Montgomery	2627 Minna St.	unknown	8 6	211	115-155 178-211	Clay and Gravel	domestic well
MW-1	3315 High Street	7/29/86	unknown	35	unknown	Clayey Gravel, Clayey Sand	monitoring well
MW-2	3315 High Street	7/30/86	unknown	30	unknown	Clayey Gravel	monitoring well
MW-3	3315 High Street	7/30/86	unknown	30	unknown	Clayey Gravel Silty Clay	monitoring well



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Sensitive Receptor Map

Express Gas & Mart
2951 High Street
Oakland, California

NORTH

Project #: 1004	Figure: 1
Date: 6/6/06	
Scale: as shown	

01-1294

Job #1752. Dr. Montgomery, 2627 Minna Stree

LOG OF WELL.

Top soil			2 feet
Yellow clay & gravel	2 to	15	"
Red clay & gravel	15 "	20	"
Rock hard	20 "	52	"
Yellow clay, broken rock	52 "	66	"
Red clay, broken rock	66 "	78	"
Hard Yellow sand	78 "	80	"
Hard sand, making a little water	80 "	84	"
Yellow & brown clay	84 "	104	"
Hard rock	104 "	112	"
Yellow clay with broken rock	112 "	122	"
Yellow clay with gravel	122 "	140	"
Yellow clay with broken rock	140 "	211	"

155 ft. 8" No. 14 R. H. Collar Casing with starter 14' and 1/2" x 4" Shoe, 40 ft. perforations.
66 feet of 6" No. 16 R. H. Collar Casing in sections, 33' perforated and one 6" No. 10 Reband.

Well Tests [illegible] G.P.M.

Water tests 3.64 gr. per U. S. Gal. Chlorine Salts.

PERMIT # 86210 INVY AD ✓ 01-177 A,B,C Plotted/updated

2S/3W 4K1-3

KAPREALIAN ENGINEERING, INC.

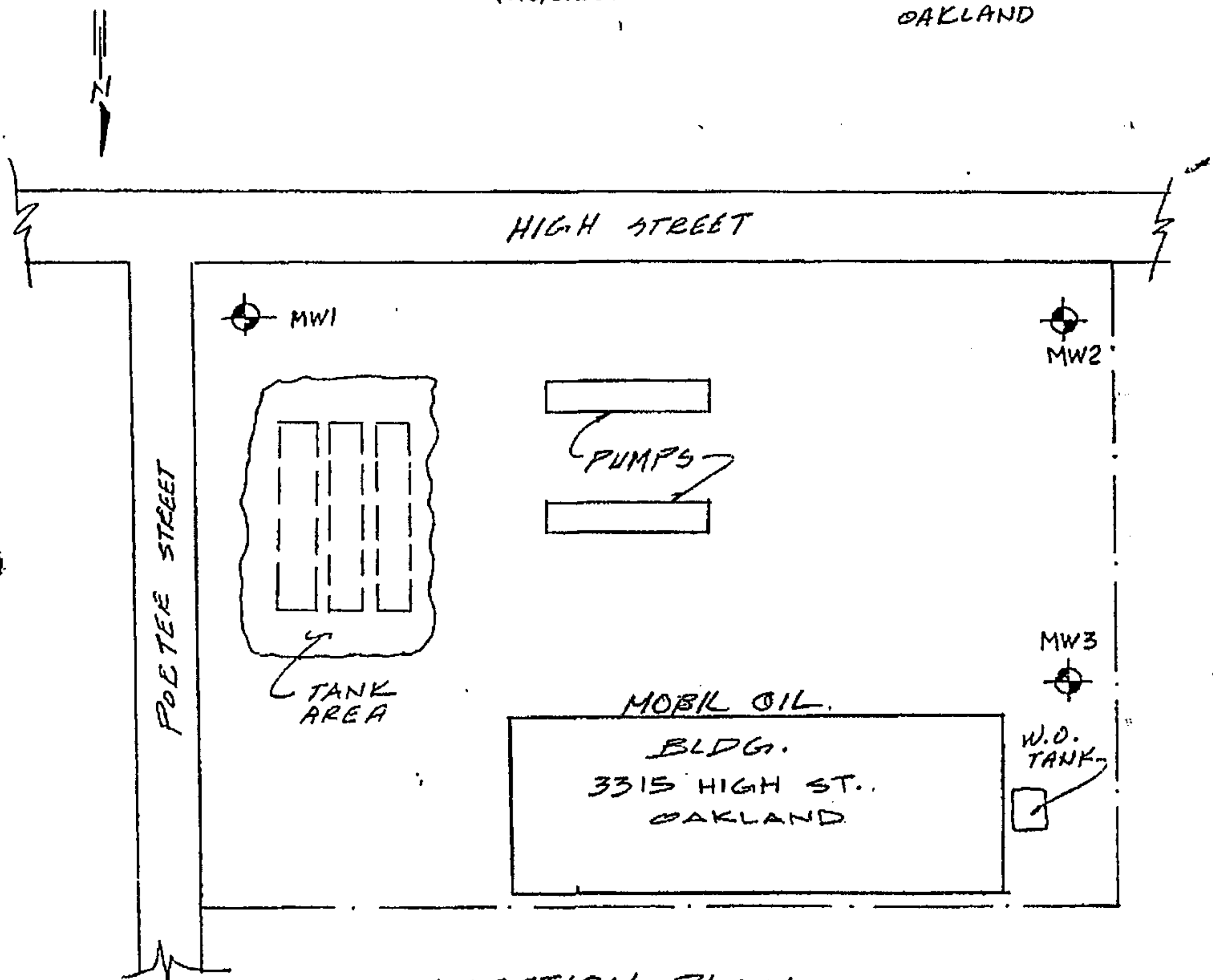
Consulting Engineers

535 Main Street

Martinez, Ca. 94553

(415) 372-5444

OAKLAND



LOCATION PLAN

N.T.S.

⌖ MW (MONITORING WELL)

DRILLER: EXPLORATION DRILLING SERVICES SAN VOSE

6210 INV. ✓ AD. ✓ 01-177 A 25/3W4K1

DRILL RIG Hollow Stem	SURFACE ELEVATION ------	LOGGED BY JCW
DEPTH TO GROUNDWATER As noted	BORING DIAMETER 8"	DATE DRILLED 7/29/86

DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE	DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
ASPHALT, BASE ROCK AND FILL									
SILTY CLAY with rock fragments; dry	tan	stiff	CL						
Cobbles; damp				5					
Grading to clayey gravel; damp	tan to brown		CL GC	10		0.°	▽		
GRAVELLY CLAY, with some fine sand; damp to moist No product odor	tan to light brown	stiff	CL						
Increasing clay at 17 feet, moist; no product odor				15					
				20					

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Telephone: (408) 286-7868

EXPLORATORY BORING LOG

MOBIL OIL CORPORATION
3315 HIGH STREET, OAKLAND

PROJECT NO.	DATE	BORING NO.
H182-21	8/86	MW-1

DRILLER: EXPLORATION DRILLING SERVICES, SAN JOSE

01-177A

#86210

25/3W4K1

DRILL RIG Hollow Stem	SURFACE ELEVATION ----	LOGGED BY JCW
DEPTH TO GROUNDWATER As Noted	BORING DIAMETER 8"	DATE DRILLED 7/29/86

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
GRAVELLY CLAY (CONTD)	light brown	stiff to very stiff	CL						
CLAYEY GRAVEL; wet, no product odor	light brown	dense	GC	25			▽		
CLAYEY SAND; grading to sandy clay	light brown	medium dense	SC	30					
TOTAL DEPTH = 35.0 feet				35					

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EXPLORATORY BORING LOG

MOBIL OIL CORPORATION
3315 HIGH STREET, OAKLAND

PROJECT NO.	DATE	BORING NO.
H182-21	8/86	MW-1

#86210 INV. ✓ AD. ✓ 01-177 B 2S/3W XK 2

DRILL RIG Hollow Stem	SURFACE ELEVATION ---	LOGGED BY JCW
DEPTH TO GROUNDWATER As Noted	BORING DIAMETER 8"	DATE DRILLED 7/30/86

DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE	DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
ASPHALT AND BASE ROCK									
SILTY CLAY with rock fragments; dry	tan	stiff	CL						
Large rock fragments				5					
Damp; no product odor	motld tan to gray to brown								
Decreasing rock fragments				10					
Slightly sandy No product odor			CL SC	15					
CLAYEY GRAVEL	light brown	dense	GC			K=0	▽		
				20					

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EXPLORATORY BORING LOG

MOBIL OIL CORPORATION
335 HIGH STREET, OAKLAND

PROJECT NO.	DATE	BORING NO.
H182-21.	8/86	MW-2

DRILLER: EXPLORATION DRILLING SERVICES, SAN JOSE

#86210

01-1778

2S/3W 4K2

DRILL RIG Hollow Stem	SURFACE ELEVATION ----	LOGGED BY JCW
DEPTH TO GROUNDWATER As Noted	BORING DIAMETER 8"	DATE DRILLED 7/30/86

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
CLAYEY GRAVEL (CONTD)	light brown to tan	dense	GC						
Large gravel		dense to very dense		25					
TOTAL DEPTH = 30.0 feet				30					

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EXPLORATORY BORING LOG

MOBIL OIL CORPORATION
3315 HIGH STREET, OAKLAND

PROJECT NO.	DATE	BORING NO.
H182-21	8/86	MW-2

#86210 INV. ✓ AD. ✓ 01-177 C

25/3W&K3

DRILL RIG Hollow Stem	SURFACE ELEVATION ----	LOGGED BY JCW
DEPTH TO GROUNDWATER As Noted	BORING DIAMETER 8"	DATE DRILLED 7/30/86

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
ASPHALT AND BASE ROCK									
SILTY CLAY with rock fragments; dry	tan to brown	stiff	CL						
Large rock fragments			CL-GC	5					
Decreasing rock fragments									
SILTY CLAY, damp No product odor	tan to gray	stiff	CL	10					
		very stiff		15					
Wet; no product odor				20			▽		

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EXPLORATORY BORING LOG

MOBIL OIL CORPORATION
336 HIGH STREET, OAKLAND

PROJECT NO.	DATE	BORING NO.
H182-21	8/86	MW-3

DRILLER: EXPLORATION DRILLING SERVICES, SAN JOSE

01-177C

#86210

2S/3W 7K3

DRILL RIG Hollow Stem	SURFACE ELEVATION -----	LOGGED BY JCW
DEPTH TO GROUNDWATER As Noted	BORING DIAMETER 8"	DATE DRILLED 7/30/86

DESCRIPTION AND CLASSIFICATION				DEPTH (FEET)	SAMPLER	UNCONFINED COMPRESSIVE STRENGTH (KSF)	WATER CONTENT (%)	DRY DENSITY (PCF)	PENETRATION RESISTANCE (BLOWS/FT.)
DESCRIPTION AND REMARKS	COLOR	CONSIST.	SOIL TYPE						
SILTY CLAY (CONTD)	tan to gray	very stiff	CL						
CLAYEY GRAVEL; wet	light brown		GC						
				25					
SILTY CLAY	light brown	very stiff to hard	CL						
CLAYEY GRAVEL	light brown	dense to very dense	GC						
				30					
TOTAL DEPTH = 30.0 feet									

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EXPLORATORY BORING LOG

MOBIL OIL CORPORATION
3315 HIGH STREET, OAKLAND

PROJECT NO.	DATE	BORING NO.
H182-21	8/86	MW-3

APPENDIX H

MtBE Plume Velocity Calculations

Calculate Mt BE plume velocity

Given Gravelly clay aquifer

Hydraulic gradient = dh/dl

historic hydraulic gradients

0.032	7/8/04
0.024	10/1/04
0.038	1/3/05
0.035	4/5/05
0.040	7/6/05
0.007	10/4/05
0.029	AVG VALUE

Hydraulic Conductivity

Gravelly clay 10^{-5} to 10^{-7} cm/sec (Freeze & Cherry, 1979)

Assume no adsorption of Mt BE to clay

$$V = K \, dh/dl$$

upper range $= (1 \times 10^{-5})(.029) = 2.9 \times 10^{-7}$ cm/sec

lower range $= (1 \times 10^{-7})(.029) \quad 2.9 \times 10^{-9}$ cm/sec

Assume worse case 2.9×10^{-7} cm/sec

$$= (2.9 \times 10^{-7} \text{ cm/sec})\left(\frac{60 \text{ sec}}{\text{min}}\right)\left(\frac{60 \text{ min}}{\text{hr}}\right)\left(\frac{24 \text{ hrs}}{\text{day}}\right)\left(\frac{365 \text{ day}}{\text{yr}}\right)\left(\frac{1 \text{ ft}}{30.48 \text{ cm}}\right) = 0.30 \text{ ft/yr}$$

However, based on inspection of soil in hand sample, soil is partially lithified with significant fracture planes. Secondary porosity through fractures is believed to be primary for plume movement. Apply a multiplier of $\pm 60X$ to estimated K in literature

$$K_E = 6 \times 10^{-4} \text{ cm/sec}$$

$$V_E = 6 \times 10^{-4} \text{ cm/sec} \times 0.029 = 1.74 \times 10^{-5} \text{ cm/sec}$$

$$1.74 \times 10^{-5} \text{ cm/sec} \quad \frac{\text{ft}}{30.48 \text{ cm}} \quad \frac{31{,}536{,}000 \text{ sec}}{\text{YR}}$$

18 ft/YR

Check This AGAINST distance of MW-10 TO Dispenser Pumps IN-front of GAS STATION (NEAREST SOURCE AREA). Assuming MtBE began leaking IN late 1970's when MtBE WAS first used widely AS OCTANE booster

Distance of MW-10 to front dispenser pumps 128 ft
Time of peak MtBE conc IN MW-10 1/13/04
Estimated t_0 for MtBE leak 1978
EST TRAVEL TIME 26 YEARS

$$\frac{128 \text{ ft}}{26 \text{ yrs}} = 4.9 \text{ ft/YR}$$

We estimate The plume velocity TO RANGE from 5 - 18 ft/YR.