



PACIFIC
ENVIRONMENTAL
GROUP, INC.

ENVIRONMENTAL

95 JUN 30 AM 10: 56

- ① can overexcavate to ND benzene.
TPH-G can be ≤ 100 ppm
- ② Do not destroy well MW-5, in 7/25/94, detected 400 ppb TPHg, 1.3 ppb benzene. Also keep to get GW flow direction, using wells 5, 8, 9.

June 29, 1995
Project 286-001.3C

Ms. Eva Chu
Alameda County Health Care Services
1131 Harbor Bay Parkway
Alameda, California 94502-6577

Re: Remedial Work Plan
Estate of John B. Henry Property
1726 Park Street
Alameda, California

Dear Ms. Chu:

Pacific Environmental Group, Inc. (PACIFIC) has prepared this remedial work plan (Plan) on behalf of our client, the John B. Henry Estate, for the site referenced above. This Plan is submitted to Alameda County Health Care Services (ACHCS) in accordance with the request contained in a letter dated May 5, 1995. The Plan follows the procedures outlined in the *Corrective Action Plan* prepared by PACIFIC dated April 11, 1995. The remedial measures presented within this Plan include excavation of impacted soil and product piping, construction dewatering, well abandonment, and well installation. The Contractor who will implement this Plan is responsible for providing all equipment, permits, notifications, and for taking all applicable samples during the execution of the Plan. The Contractor will pay for all fees and permits required to complete work.

BACKGROUND

Site Description

The site, a former gasoline service station operated from the 1920s until the 1970s, is located at 1726 Park Street, Alameda, California (Figure 1). The service station facilities included an enclosed service repair bay, three hydraulic lifts, and underground fuel storage tank complex, one product dispenser island, and one underground waste oil storage tank. The site perimeter is surrounded with a fence. The underground storage tanks, located in the eastern portion of the property, were removed from the site in the early 1970's, according to available records. However, the position and number of tanks removed from the site is unknown.

When the service station closed in the early 1970s, the site was operated as an auto repair shop until 1993. Since then the site has been vacant. The aboveground structures on site currently include the service station building, service repair bay, and the product island with canopy. The subsurface hydraulic lift facility remains on site at this time. Due to an undisturbed slab of concrete in the vicinity of the former product island, it is assumed that at least part of the underground product piping remains intact.

Project History

In August 1991, a site investigation was begun by TMC Environmental, Inc., when seven soil borings were drilled. In December 1991, a 500-gallon waste oil tank located in the southwest portion of the site was removed. Two soil samples collected from the base of the waste oil tank excavation were non-detect for petroleum hydrocarbons. In 1992, eleven additional soil borings were drilled and two groundwater monitoring wells were installed.

During the initial investigation, selected soil and groundwater samples were analyzed for total petroleum hydrocarbons calculated as gasoline (TPH-g); benzene, toluene, ethylbenzene, xylenes (BTEX compounds); TPH calculated as diesel (TPH-d); total oil and grease (TOG); halogenated volatile organic compounds (HVOCs); and volatile organic compounds (VOCs).

Concentrations of TPH-g in soil ranged from non-detectable to 1,300 parts per million (ppm). The maximum concentration of TPH-g in soil was detected in a sample collected at the depth of approximately 5.5 feet below ground surface (bgs) in the vicinity of the former underground fuel storage tank complex. Concentrations of TPH-d in soil ranged from non-detectable to 2,000 ppm. TOG in soil ranged from non-detectable to 1,800 ppm. The maximum concentration of TOG was detected in a sample collected at the depth of approximately 0.5 foot bgs in the area of the former waste oil tank. Concentrations of TPH-d and TOG were found at 2,000 and 1,500 ppm, respectively, in a sample collected at the depth of approximately 7.5 feet bgs near the hydraulic hoist located west of the former waste oil tank. HVOCs in soil were non-detectable in all samples analyzed. VOCs (49 ppm acetone and 11 ppm 2-butanone) were detected in soils at the depth of 6.5 feet bgs near the northeast boundary of the site.

*Any BTEX?
Yes upto 8.1 ppm
at 8'*

REMEDIAL APPROACH

Remedial Objectives

The objectives of Plan are to remove vadose-zone soils impacted by TPH-g at the former tank pit to a point of no further detectable gasoline hydrocarbon impact. Remedial activities will extend to the following limits:

- laterally to soil concentrations of less than 10 ppm for TPH-g

*upto 100 ppm TPH-G at 10'
no Benzene*

- vertically to soil concentrations of less than 10 ppm for TPH-g or to a point where a 3/4:1 slope exists from the sidewalk to the invert of excavation

Excavation Procedures

The approximate area of excavation for the site is depicted on Figure 2. It is anticipated that the excavation will occur to a depth of approximately 12 feet bgs (groundwater occurs at approximately 6 feet bgs). Construction dewatering will occur during the excavation and backfill procedures. Final limits of excavation will be reached at either: (1) the site property line or (2) when confirmation samples indicate TPH-g concentration in the sidewalls and invert is less than 10 ppm.

Stockpile Management

Prior to excavating impacted soil, clean (unimpacted) overburden soils will be removed to a depth of approximately 2 to 3 feet and stockpiled separately. Scarified asphaltic cement and concrete shall be disposed off site. The Contractor shall segregate the clean overburden from impacted soils. Once the overburden soils have been removed, the impacted soils will be excavated and stockpiled separately on a 6-millimeter layer of visqueen and covered. The Contractor shall be responsible for all field soil sampling and analyses.

The stockpile of impacted soils will be analyzed for TPH-g and BTEX compounds by collecting four discrete samples for every 100 cubic yards composited into one sample for analysis. The Contractor shall select a State Certified laboratory acceptable to the Estate for all analyses. These samples shall be analyzed for TPH-g/BTEX and total lead. Discrete samples of the unimpacted stockpile (one sample per 20 cubic yards) will be collected and analyzed to confirm non-detectable concentrations of TPH-g. The Contractor shall maintain either a photo- or flame-ionization detector or an Immunoassay Kit for analyzing field soil samples to guide excavation activities.

Confirmation Sampling

Confirmation soil samples shall be obtained in the sidewalls and the invert of the excavation. Soil samples shall be collected at every 20 lineal feet along the sidewalls approximately 2 feet above the invert in accordance with LUFT manual guidelines. Invert samples shall be collected for every 400 square feet in the invert. ACHCS shall be notified 48 hours prior to collecting any excavation confirmation samples.

If laboratory analysis of confirmation samples indicates that ^{Benzene} TPH-g levels are above *detection limit* 10 ppm, the Contractor shall return to the site and overexcavate in the area where analysis indicates TPH-g concentrations are still elevated and then obtain another confirmation soil sample. Once sample(s) indicate concentrations less than 10 ppm TPH-g, the excavation activities are complete.

Soil Disposal

After obtaining analytical results for the impacted soil piles, the Contractor shall confirm with the Estate which of two landfills the soils will be transported to by the Contractor for disposal. The two landfills are BFI Vasco Road in Livermore and Forward, Inc. in Stockton, California. Contractor shall be responsible for obtaining soil samples at the beginning of the project for profiling purposes, and submitting the required analytical results to these two landfills for approval of soil disposal.

Backfilling Procedures

Prior to backfilling with clean imported soils, a small portion (6 feet by 6 feet) of the excavation will have a grid of perforated PVC piping installed in the invert to allow possible future groundwater remediation (hydrogen peroxide injection). The grid will consist of a horizontal length of 4-inch diameter perforated piping, with a single riser pipe (Figure 3). A layer of drain rock approximately 2 feet thick (drain rock will be approximately 1.5 inches in diameter) will be placed surrounding the perforated pipe (Figure 3). After piping and drain rock is installed, the excavation will be backfilled to within eight inches of original grade surface with clean import.

A 1-foot layer of 1.5-inch drain rock will be placed in the invert of the excavation first. Then imported soils will be placed and compacted above the drain rock layer followed by clean overburden from the original excavation. Soil will be compacted to a minimum of 95 percent relative compaction until reaching the subgrade. Clean import material shall meet the following gradation:

Sieve Sizes	Percent Passing
3"	100%
#4	100 to 30%
#30	50 to 5%
#200	<15%

The surface of the excavation shall be restored by sawcutting perimeter asphalt surface and placing 6 inches of Class II aggregate base, compacted, and 2 inches of asphaltic cement in accordance with Caltrans Standard Specifications, Section 39 (Figure 3). Asphalt surface shall be sloped at 1 percent to promote drainage toward existing on-site drainage courses structures.

Construction Dewatering Groundwater

The groundwater pumped from the pit during excavation and backfill will be treated with carbon filtration prior to discharge. Groundwater will be sampled for TPH-g and BTEX compounds in accordance with discharge permit conditions. A completed permit

application will be submitted to East Bay Municipal Utilities District (EBMUD) for the discharge of groundwater by the Engineer prior to construction activities. All permit fees must be paid by the Contractor.

Contractor shall supply all pumps, piping, and nominal 50-gallon per minute bag filter with oleophilic filter and two each, 200-pound carbon vessels for treatment prior to discharge.

Canopy and Product Piping

Contractor shall leave the existing canopy in place while removing existing product lines, if feasible. If Contractor determines that to perform the excavation of the product piping the canopy must be removed, the Estate will be notified prior to the demolition.

Contractor must receive owner's consent prior to the removal of the canopy. Product piping shall be excavated and the resulting trench shall have confirmation samples taken every 20 lineal feet along the invert. Once confirmation samples indicate less than 10 ppm TPH-g in soils, the trench may be backfilled with clean import in accordance with pit requirements.

Sample Collection and Transportation

Soil samples collected from the excavation, soil piles, or during the monitoring well installation will be analyzed for the presence of TPH-g and BTEX compounds by modified EPA Method 8015/8020. Undisturbed samples shall be placed in brass rings with end caps and transported on ice under chain-of-custody documentation to a State Certified laboratory chosen by the Contractor and approved by the Estate.

MONITORING WELLS

Well Installation

One new monitoring well (MW-9) will be drilled and installed off site during this Plan. The location of proposed Well MW-9 is shown on Figure 2. The monitoring well will be a 2-inch diameter Schedule 40 PVC casing with 0.020-inch factory-slotted screen. Screen will be placed from approximately 1 foot above the bottom of the boring to 4 feet bgs. The annular space will be packed with graded 2 x 12 sand across the entire screen interval. Following well installation, the well will be sealed with approximately 2 feet of bentonite above the sand pack, and Portland cement with bentonite seal to the ground surface. A locking watertight cap and traffic-rated protective vault box with a secure lid will be installed at the top of the well. The well shall be constructed in accordance with the attached well construction detail (Figure 4).

Well Development

Well development will consist of purging a minimum of ten casing volumes of ground-water. Initially, the well casing will be purged of sediment. After the removal of sediment, the well screen will be surged at 2-foot intervals along the full screen length with a vented surge block. The sequence of surging and purging will be repeated three times during the ten casing evacuations. During the purging, the well will be monitored for temperature, pH, and electrical conductivity (EC). The well will be considered "developed" when the temperature, pH, and EC parameters have stabilized. Purge water shall be disposed under permit to the sanitary sewer.

Well Abandonment

Monitoring Wells MW-1, MW-6, and MW-7 will be abandoned in order to excavate the impacted soil. In addition, monitoring wells MW-2, MW-3, and MW-4 will be abandoned during the excavation procedures. Monitoring well MW-5 will also be abandoned if the next monitoring event indicates non-detectable levels for TPH-g and BTEX. The next monitoring event will be planned as soon as possible in order to obtain the sanitary sewer discharge permit from EBMUD. The wells will be destroyed in accordance with Alameda County Flood Control well destruction guidelines. In general, the destruction procedures will consist of first drilling out the Portland cement, bentonite, and sand annulus around the well, and then removing the well casing from the open bore hole. The open bore hole will be grout sealed to within 6 feet of ground surface.

No! Keep for now for GW elevation, using 5, 8, and 9 and cont to sample Kelly

REPORTING

Upon completion of the soil excavation, soil treatment, well abandonment, and well installation, a summary remediation report will be prepared. The report will detail the extent of the excavation, quantities of soil excavated and backfilled, and will summarize all analytical data.

If you have any questions or comments regarding this Plan, please call.

Sincerely,

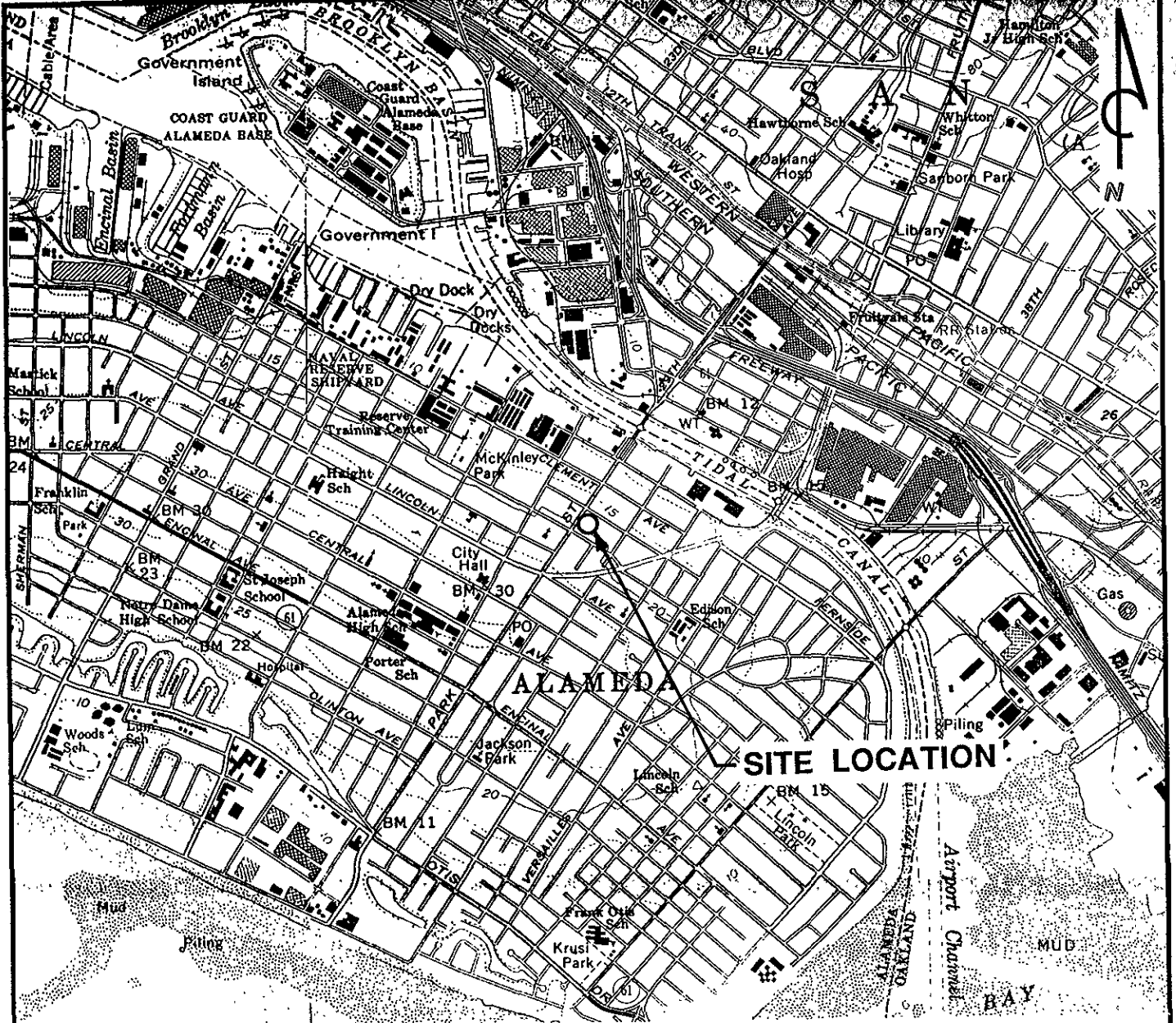
Pacific Environmental Group, Inc.

Lance Geselbracht (for L.G.)
M.S.

Lance D. Geselbracht, P.E.
Senior Engineer
RCE 34688

Attachments: Figure 1 - Site Location Map
Figure 2 - Site Map
Figure 3 - Cross-Section A-A'/Piping Grid
Figure 4 - Well Construction Detail

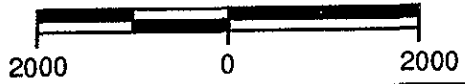
cc Mr. Michael Brown (Mendelson and Brown)
Mr. Marvin Katz (Texaco)



QUADRANGLE LOCATION

REFERENCES:
 USGS 7.5 MIN. TOPOGRAPHIC MAP
 TITLED: OAKLAND WEST, CALIFORNIA
 DATED: 1959 REVISED: 1980
 TITLED: OAKLAND EAST, CALIFORNIA
 DATED: 1959 REVISED: 1980

SCALE IN FEET



PACIFIC ENVIRONMENTAL GROUP, INC.

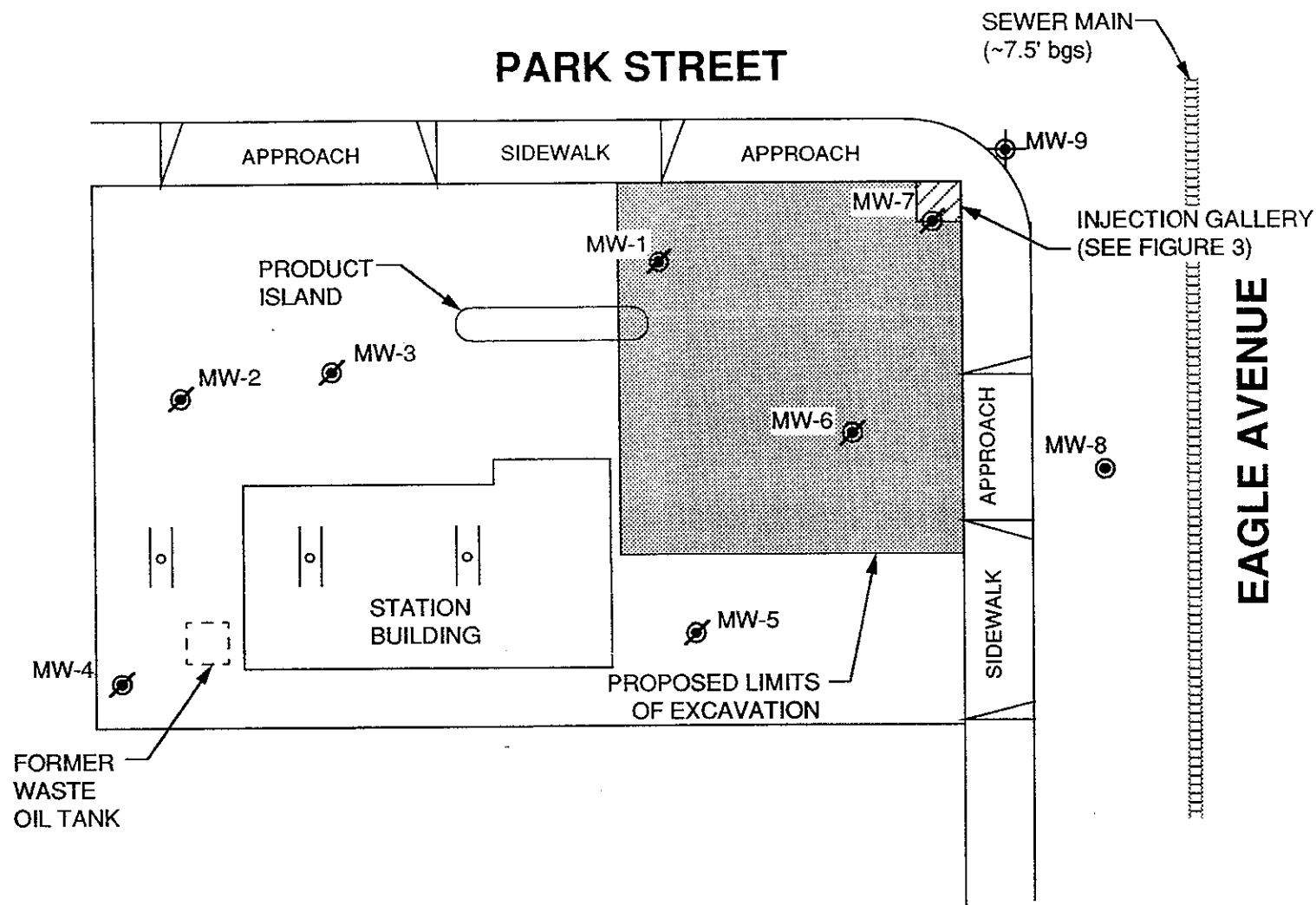
ESTATE OF JOHN B. HENRY
 1726 Park Street at Eagle Avenue
 Alameda, California

SITE LOCATION MAP

FIGURE:
1
 PROJECT:
 286-001.3C



PARK STREET

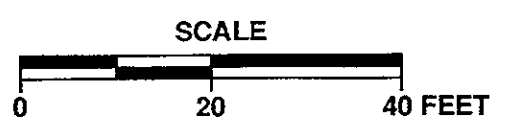


LEGEND

- MW-1 ● GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- MW-7 ⊗ WELL PROPOSED FOR ABANDONMENT
- MW-9 ⊕ MONITORING WELL TO BE INSTALLED



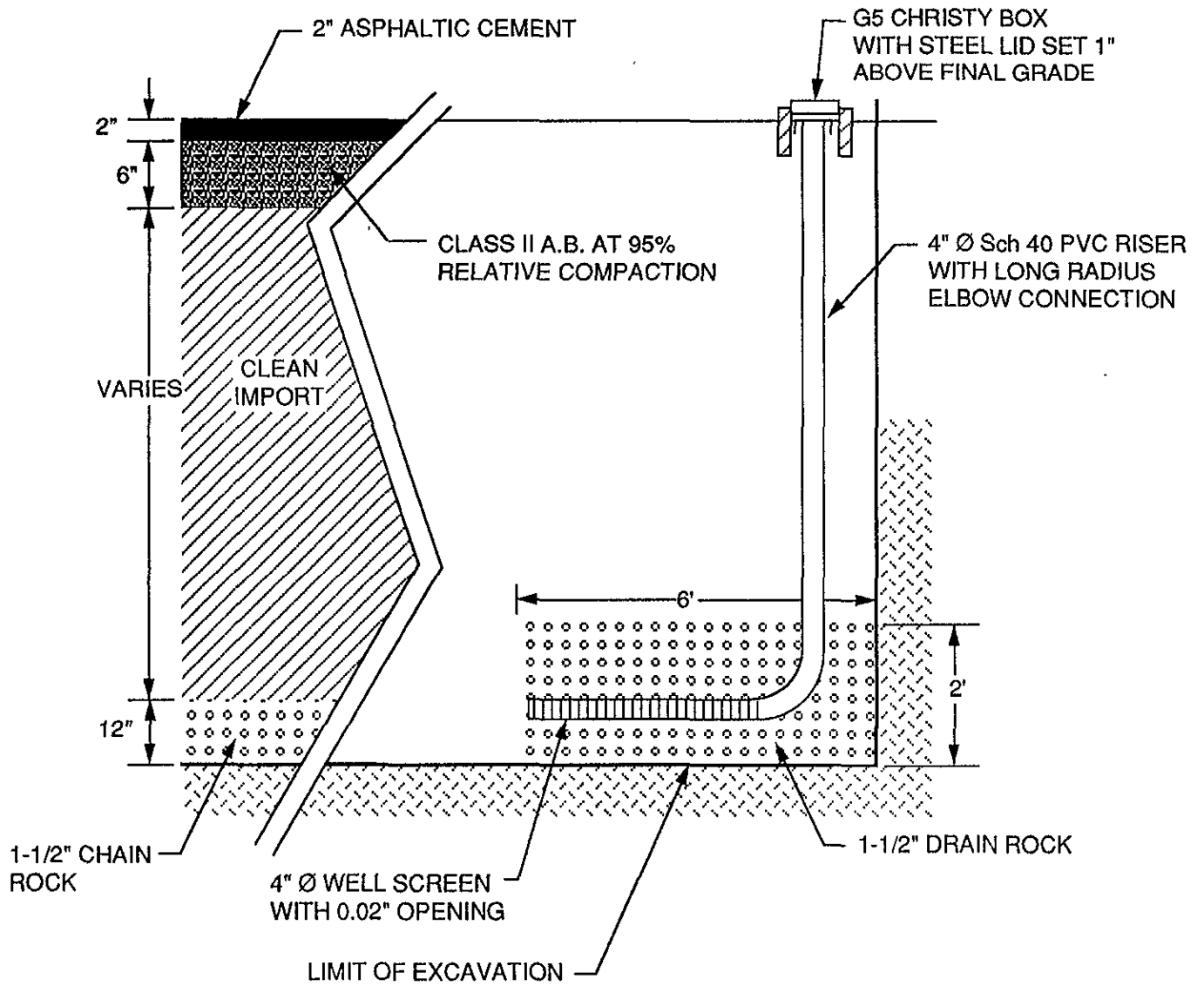
PACIFIC ENVIRONMENTAL GROUP, INC.



ESTATE OF JOHN B. HENRY
1726 Park Street at Eagle Avenue
Alameda, California

SITE PLAN

FIGURE:
2
PROJECT:
286-001.3C



NOT TO SCALE



PACIFIC ENVIRONMENTAL GROUP, INC.

ESTATE OF JOHN B. HENRY
1726 Park Street at Eagle Avenue
Alameda, California

BACKFILL AND INJECTION GALLERY DETAIL

FIGURE:
3
PROJECT:
286-001.3C

<p>LOCATION MAP</p>	<p>PACIFIC ENVIRONMENTAL GROUP, INC.</p> <p>PROJECT NO. 286-001.1A LOGGED BY: RH DRILLER: TURNER DRILLING METHOD: HSA SAMPLING METHOD: Continuous Core CASING TYPE: Sch 40 PVC SLOT SIZE: 0.020" GRAVEL PACK: 2X12 SAND</p>	<p>WELL NO. MW-8 PAGE 1 OF 1</p> <p>CLIENT: Estate of JOHN B HENRY DATE DRILLED: 2-9-94 LOCATION: 1726 Park Street HOLE DIAMETER: 8" HOLE DEPTH: 20' WELL DIAMETER: 2" WELL DEPTH: 19' CASING STICKUP: NA</p>
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WELL COMPLETION	MOISTURE CONTENT	FID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
<p>GROUT</p> <p>BENTONITE</p> <p>SAND</p>	Dp			1			SP	<p>ASPHALT 3"; GRAVEL 6"</p> <p>SAND: dark brown; fine sand; no product odor.</p> <p>@1.5': as above; yellowish brown; no product odor.</p> <p>@4.5': as above; yellowish brown mottled with dark greenish gray; 0-5% clay; moderate product odor (old).</p> <p>@5': dark greenish gray; strong product odor.</p> <p>@6.5': as above; mild sulfurous odor; strong product odor.</p> <p>@7': as above; faint product odor.</p> <p>@8.5-9': color grades to yellowish brown; very faint product odor.</p> <p>@9': as above; yellowish brown; no product odor.</p> <p>@10': as above; no product odor.</p> <p>@14-15': as above; partially consolidated; no product odor.</p> <p>@15': as above; no product odor.</p> <p>@17': grayish green; fine sand; no product odor.</p> <p>@18.5': as above; decomposing organic matter odor; no product odor.</p> <p>@20': as above.</p> <p style="text-align: center;">BOTTOM OF BORING AT 20'</p>
				2				
				3				
				4				
	Mst	519		5				
	Wet Sat	10		6				
				7				
				8				
				9				
	Sat	1		10				
				11				
				12				
				13				
				14				
	Sat	0		15				
				16				
	Sat			17				
				18				
				19				
				20				
				21				
				22				

FIGURE 4