CAMBRIA

March 5, 1999

Ms. Susan L. Hugo
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Re: **Request for Change of Regulatory Status**
5813 Shellmound Street and 5800 Christie Avenue
Emeryville, California
Cambria Project # 022-0199.013

Dear Ms. Hugo:

Cambria Environmental Technology, Inc. (Cambria) is submitting this joint request for a finding of No Further Action (NFA) for the sites referenced above on behalf of Mr. F. P. Lathrop, the former owner of 5813 Shellmound Street and of the Croley and Herring Investment Company (Croley Herring), the current owner of 5800 Christie Avenue, Emeryville, CA (subsequently referred to as the "subject sites"). The project background for each property and our recommendations and rationale for requesting a change in site status are summarized below.

Project Background

5813 Shellmound Street

Site History and Use: This property was purchased by Mr. F.P. Lathrop from the Fiberboard Corporation (also known as the "Parafine Paint Company" and as "Pabco") in the late 1960s. In 1971, Mr. Lathrop erected a single story commercial building on the eastern portion of the property and a concrete parking surface over the western portion. The property was leased from May 1, 1972 to April 30, 1987 by the F.P. Lathrop Construction Company for use as a construction yard and associated storage and office facilities. The site is currently used as a stereo installation facility by the Good Guys retail chain and as a retail storage and sales site by Sherwin Williams Paint Company.

Site Investigations: The first environmental investigation conducted on the Lathrop property occurred in October 1989 during the removal of a gasoline UST that had been used to fuel F.P. Lathrop Construction Company construction vehicles. Although the results of the investigation suggested no leakage from the tank, in the course of the assessment Cambria encountered the presence of non-gasoline-range hydrocarbons including heavy-range petroleum hydrocarbons, volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs) adjacent to the

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former UST location. Consequently, between September 1994 and February 1997, Cambria drilled 34 soil borings and converted four of these to monitoring wells C-1, C-2, C-3 and C-4. Results of this work indicated the limited presence of VOCs, benzene and toluene along the western property line and elevated concentrations of oil-range hydrocarbons and PAHs in the center and southwestern portions of the site. No significant metals concentrations were detected. Detailed results of this investigation are summarized in Cambria reports prepared for Crosby Heafey in March 1995 and in May 21 1997. Historical analytic data for soil and ground water samples collected from 5813 Shellmound are presented in Attachment A and are summarized as follows:

- TPH as creosote (TPHcr) was detected in both on site and off site ground water samples. The highest historical concentration in a well sample was 25,000 parts per billion (ppb) THPcr in samples from C-3 and C-4 between March and July 1997.

- TPH as gasoline (TPHg) and benzene are present in highest concentrations in well C-3, located in the southwest portion of the site, which has contained maximums of 21,000 ppb and 1,900 ppb respectively.

- VOCs have not been detected in ground water samples from any of the four monitoring wells, except for vinyl chloride and cis-1,2 dichloroethene (cis-1,2 DCE) in well C-2.

- A variety of PAHs have been detected in site well C-3 and in off site well C-4.

5800 Christie Avenue

Site History and Use: Croley Herring purchased the 5800 Christie Avenue facility in 1980. The subject facility is currently leased to the Good Guys Store, an electronic merchandise retailer. The previous property owner was also Fiberboard Corporation (Parafine Paint Company/Pabco).

1989

Site Investigation and Remediation: Prior to leasing the property to the Good Guys in 1898, soil contamination was identified at the subject facility. The contaminated soil was removed with the exception of that which was underlying the building because of structural concerns. The removed soil was remediated on-site and properly disposed of with the approval of Alameda County Health Care Services (ACHCS) in July 1989.

A vapor extraction system (VES) was installed immediately adjacent to the northeastern side of the building to mitigate the residual volatile hydrocarbons contained in the soil. The residual VOCs were remediated from an average concentration of about 660 ppm to an average of 0.82 ppm in soil. A soil closure plan was submitted to ACHCS in November 1991 and approval of closure was received on in January 1992 after submittal of confirming soil sampling results. The soil vapor extraction system was decommissioned and the Bay Area Air Quality Management District was

notified in December 1991. The final VES closure report was completed on August 29, 1992. An indoor vapor monitoring system was installed by the Good Guys electronic store in 1989 through March, 1993, with no methane detected for the monitoring period. The vapor monitoring system was disconnected in March, 1993 with the concurrence of the ACHCS.

An electrokinetic enhanced in-situ biotreatment of the VOCs in groundwater was performed from 1992 to 1994. The chlorinated solvents in groundwater were treated to below detection limits. The groundwater closure letter for the chlorinated solvents was issued by Susan Hugo of ACHCS and Stephen Morse of Bay Area RWQCB in August and November 1996 respectively.

As part of the site activities, a groundwater monitoring program was implemented in 1989. Twenty six episodes of groundwater monitoring have been conducted at the Croley Herring property since November 1989. The most recent event occurred on October 19, 1998. According to the October 1998 report submitted by ETS, the consultant retained by Croley/Herring, the July and October 1998 monitoring results are all within the natural fluctuation range. Selected historical analytical results for the Croley Herring property are presented in Cambria's data tables included in Attachment A and the most recent ground water monitoring report prepared by ETS, the consultant for the Croley Herring site, is presented in Attachment B.

Hydrogeology

Subject Sites Lithology: The results of numerous investigations of the subject and adjacent sites indicate that the immediate site vicinity is underlain by low estimated permeability silts and clays with interbedded discontinuous lenses of moderate estimated permeability silty sands and sandy silts to the deepest depths explored of about 15 ft.

Ground Water Depth: The depth to ground water has historically ranged at the subject sites from approximately 3.0 to 6.5 ft below ground surface.

Ground Water Flow Direction and Gradient: Ground water has consistently flowed towards the south - southwest with a gradient of approximately 0.03 ft/ft (Figure 1).

Contaminants of Concern (COCs)

A number of contaminants have been detected in soil and ground water beneath site. The nature and likely source of each Contaminant of Concern (COC) historically detected at both sites is summarized below.

Compound	Likely Source	Comment
Petroleum Hydrocarbons** TPH as gasoline Benzene Toluene Ethylbenzene Xylenes	Surface release probably related to use of site by Fiberboard Corporation/Pabco prior to 1967.	Source identification is assumed based on lack of verified recent releases and on contaminant distribution and chemistry.
Heavy Hydrocarbons TPH as diesel TPH as heavy oil TPH as creosote	Surface release of raw material for production of roofing materials or other petroleum-based product manufactured by Fiberboard/Pabco	Compound characterized as TPH as diesel is likely a chromatographic overlap with other heavy hydrocarbons.
Polynuclear Aromatic Hydrocarbons (PAH)** Napthalene, Phenanthrene and Pyrene predominate	Surface release of raw material used in roofing materials or other petroleum-based product manufactured by Fiberboard Corporation prior to about 1970 1967	Total PAH mass is chraracterized as TPH as Creosote (TPHcr); Naphthalene is deemed most representative of detected PAHs
Halogenated Volatile Organic Compounds (VOC) ** Trichloroethylene (TCE), Tetrachlorothylene (PCE), 1, 2, Dichloroethylene (DCE), Vinyl Chloride predominate	Surface release from tenant operations at 5800 Christie Avenue into alley between sites.	VOCs remediated to acceptable levels.

** Please refer to individual reports for full listing of all compounds detected.

CASE CLOSURE CRITERIA

We reviewed site information in a format consistent with American Society of Testing and Materials (ASTM) Standard E 1943-98: Standard Guide for Remediation of Ground Water by Natural Attenuation at Petroleum Release Sites (August, 1998). Accordingly, our evaluation addresses the following site characteristics:

- Site Characterization
- Risk Assessment
- Primary Evidence of Natural Attenuation
- Secondary Evidence of Natural Attenuation

Site Characterization

The extent of contaminants in soil and ground water has been well defined by chemical analysis of samples from the numerous soil borings drilled and monitoring wells installed across and adjacent to the site. Historical soil and ground water analytical data is presented in Attachment A and benzene, TPHg, TPHmo and naphthalene concentrations in site wells during the most recent sampling episode are presented in Figure 1.

As shown in Figure 1, Lathrop downgradient well C-4 contained 280 ppb benzene and 3,500 ppb naphthalene, and Croley downgradient well MW-4 contained 808 ppb benzene and 11,000 ppb naphthalene during the October 1998 sampling event. Although COCs are present in these wells, installation of additional borings or wells further downgradient is not possible due to the presence of the Powell Street overpass immediately adjacent to the southern property line.

We can, however, estimate the horizontal extent of COCs in ground water in the downgradient direction by using the results of a May 1993 site assessment conducted at the Sheraton Hotel (formerly Days Inn) across Powell Street and by projecting concentration attenuation using the data from the existing wells. As indicated in Figure 1, no benzene was detected in a grab ground water sample collected from a boring drilled near the northern edge of the Sheraton property (boring SB2-28, figure 1), suggesting that aromatic hydrocarbons do not extend a significant distance downgradient of Lathrop well C-4 and Croley Herring well MW-4. This estimate is supported by calculating the rate of benzene attenuation between Lathrop wells C-3 and C-4, as discussed on page 9 below.

Ground water quality in the cross- and up-gradient directions is adequately defined by analytical results for the remaining site wells, and the vertical extent of COCs in soil and ground water is defined by the existing analytical results for soil samples collected on both sites from soil borings and from excavation sidewalls. We do not believe that installation of "B zone" ground water is warranted because of the shallow ground water conditions and because of the presence of a thick, horizontally continuous clay horizon underlying this portion of the East Bay Plain.

Risk Assessment

Offsite Ground Water and Onsite Building Occupant Receptors

Both properties are currently used as leased commercial space and are occupied by retail businesses. The buildings occupying the properties are standard slab-on-grade concrete and/or cinder block structures, and the areas outside of the building footprints are covered with asphalt paving and

concrete sidewalks. Small landscaped sections on the Croley Herring property are the only areas not covered with asphalt/concrete. In March, Cambria conducted a Human Health Risk Assessment of the Lathrop site according to the format set forth by ASTM Standard E 1739-95 (Revised December 1996): Standard Guide for Risk-Based Corrective Action (RBCA) Applied at Petroleum Release Sites.

The results of our RBCA analysis show that the site-specific concentrations for all COCs and specifically for benzene are below their respective Site Specific Threshold Levels (SSTLs), indicating that there is no significant health risk to on-site occupants from the COCs detected beneath the Lathrop site. Specifically, our risk analysis indicates that benzene concentrations detected in ground water over the last four sampling events have been less than the ground water volatilization to indoor air SSTL of 1.7 mg/l. Similarly, the mean napthalene ground water concentration for the same period is less than the ASTM Tier 1 risk-based screening level (RBSL) of 12.3 mg/l for the same exposure pathway.

We believe that the RBCA analysis we performed is extremely conservative and provides a significant safety margin for current and future site and building occupants. The elements of our analysis that are most conservative are described below:

- We assumed that a commercial structure occupied the entire footprint of the Lathrop property; since much of the Lathrop site is actually used as a parking lot, this assumption is very conservative.

- Although no ground water receptors were identified anywhere near the sites, we assumed that a drinking water well was located within 60 ft downgradient. The analysis indicated no significant risk even with the inclusion of this hypothetical well.

- The RBCA process as described in ASTM Standard E 1739-95 is inherently conservative.

Although a site specific risk analysis was not performed for the Croley Herring site, the results of the analysis performed at the Lathrop property are also valid Croley Herring site because:

- The assumption that a commercial building sits directly over the benzene source area is conservative since, in actuality, the Croley Herring building is located about 8 ft away from the apparent source (the Lathrop building is about 50 ft away).

- The building and subsurface conditions are nearly identical (AND valid for both sites since both sites were constructed at about the same time, using similar foundation (slab on-grade) and structural (concrete block) construction techniques. Furthermore the two sites are currently used for similar purposes (commercial retailing), and are likely to remain so.

Surface Water Receptors

We have refined our RBCA evaluation to further assess the potential impact posed by site COCs on surface water receptors. For this effort, Cambria observed the surrounding area and obtained and reviewed topographic and street maps of the site area to identify surface water bodies in the vicinity of the site. We also reviewed City of Emeryville utility maps to identify possible conduits for transport of COCs to the identified surface water bodies. This work indicates that the closest surface water body is San Francisco Bay, which lies approximately 1,000 feet west-southwest of the site.

City utility maps indicate that sanitary sewer and storm drain lines run beneath the Powell Street overpass parallel to the southern property line. Although the precise location of the lines is unknown, as are the composition and backfill of the piping, we can estimate the mass transport of COCs within the utility corridors using conservative assumptions about the utility construction and location. For this assessment, we have used a protocol recently established by the RWQCB for a similar situation at the San Francisco International Airport (staff comments dated July 16, 1998 signed by Mr. Steven Morse, Chief of the Toxics Cleanup Division, addressed to the SFIA Consolidated Tenant Group).

This simplified procedure assumes that utility backfills are more permeable than the native soils surrounding the utilities and that the higher-permeability backfill intercepts and then redirects contaminant-laden groundwater downgradient to a surface water discharge point. The calculations assume that the entire width of the plume is intercepted by the utility, that no further ground water inflow or outflow occurs between the downgradient edge of the plume and the discharge point, and that the contaminant mass entering the utility corridor is diluted by inflow of clean water from upgradient portions of the utility. The protocol developed for SFIA assumes that the dilution attention factor (DAF) is directly proportional to the distance between the downgradient edge of the plume and the discharge point, in increments of the plume width. In other words, if the plume is 100-ft wide across the intercepting trench and the distance to the discharge point is 1,000 ft, the DAF is equal to 10.

For the Croley/Lathrop benzene plume, the average plume concentration along the North side of the Powell Street corridor (the closest point that a utility might be located) is about 100 ppb, and the

plume width at this point is conservatively estimated at 40 ft. Using this plume characteristic and using a distance of 1,000 ft between the downgradient edge of the plume and the Bay, the DAF prior to discharge at the Bay is 25, producing a final discharge concentration of 4 ppb benzene. This is well below the SFIA Order No. 95-136 saltwater ecological protection zone Tier 1 standard of 71 ppb benzene.

Similarly, we estimate the average concentration of dissolved napthalene in the area of the trench is probably less than 1,000 ppb. Based on the DAF of 25, we calculate a discharge concentration of 50 ppb. The corresponding SFIA Order No. 95-136 saltwater ecological protection zone Tier 1 standard for napthalene is 100 ppb. Therefore, these calculations indicate that potential transport of contaminated ground water through utility backfill would not pose a significant impact to the Bay.

Primary Evidence of Natural Attenuation

ASTM Standard E 1943-98 establishes that observed stabilization or reduction in plume length or concentration is the primary indicator that natural attenuation is occurring. Based on a minimum of seven episodes of ground water sampling on the Lathrop property and 24 episodes on the Croley Herring site, it appears that the concentrations of all contaminants of concern are either below method detection limits or are stable or declining. Graphs of benzene concentration versus time for Lathrop wells C-3 and C-4 and for Croley well MW-4 are shown in Figures A and B below, respectively. As indicated, benzene in C-3, C-4 and MW-4 show declining trend, and concentrations correlate well to ground water elevation. This correlation is especially pronounced in C-3. In addition, the R^2 values (statistical approximation of the accuracy of the data sets) for the trendlines for the three well data sets indicates that the existing data set adequately represents ground water quality.

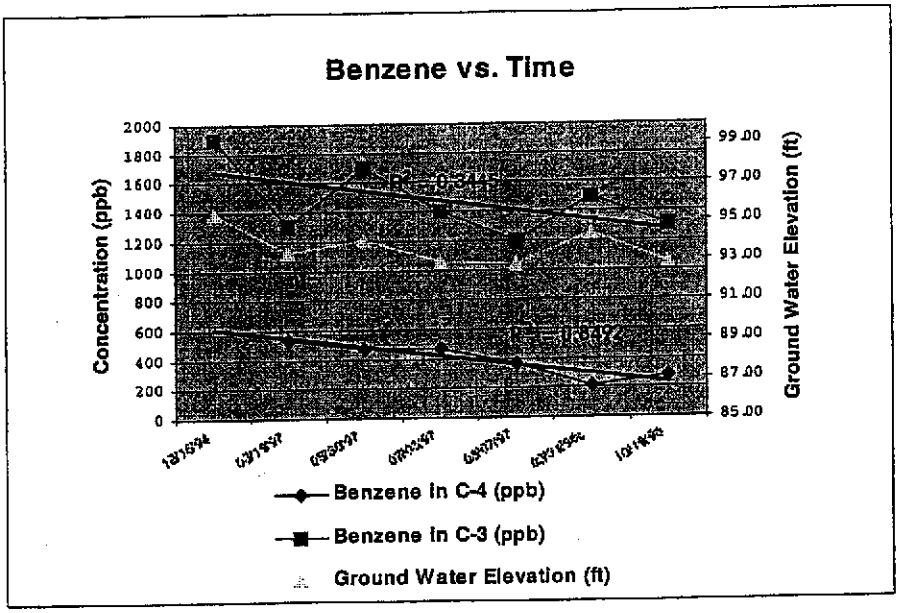

Figure A

Secondary Evidence of Natural Attenuation

ASTM Standard E 1943-98 identifies several techniques that can be used to evaluate whether natural attenuation is occuring, including estimation of attenuation rates based the contaminant concentration distribution between the source area and a downgradient point. We have used this approach to calculate a benzene attenuation rate at the subject site. Consistent with the ASTM guidance, our approach was based on several key assumptions including:

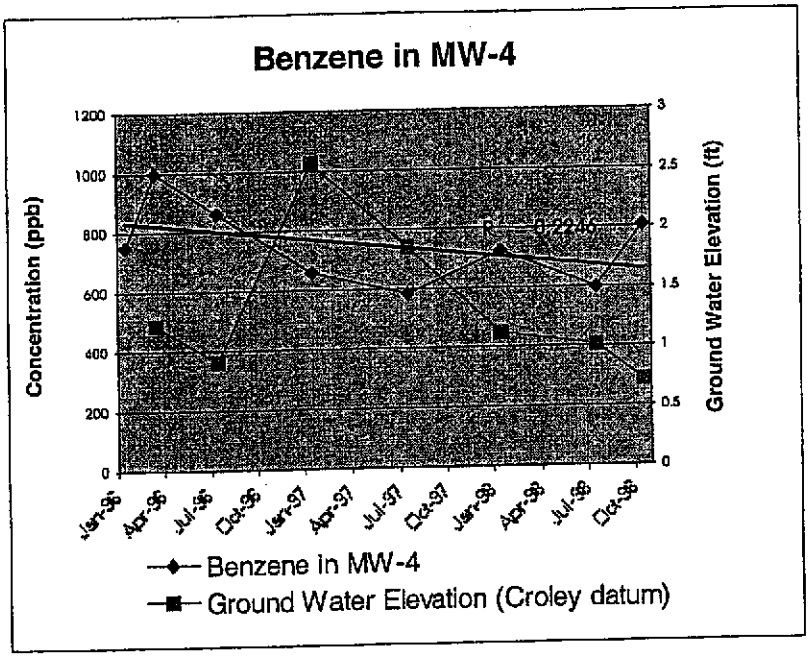

Figure B

- The benzene plume is stable,
- Benzene concentrations decrease rapidly over a relatively short distance (as shown in Figure C), and
- The risk associated with benzene in ground water is minimal to nonexistent.

Historical benzene concentrations for wells C-3 and C-4, and the statistical representations of this data that are used to develop attenuation rates are presented in Table A below. Using the process outlined in ASTM Standard E-1943-98, we calculated an attenuation rate for the benzene plume (wells C-3 and C-4 lie along the approximate centerline

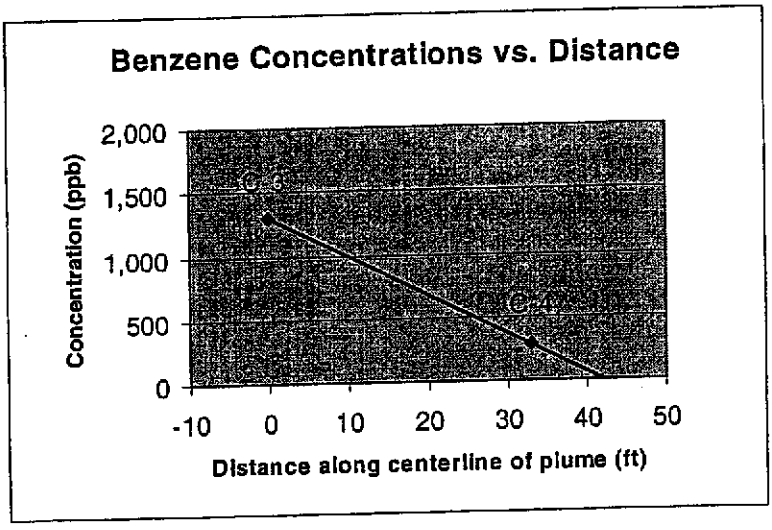

Figure C

of the benzene plume). Because only two well define the centerline of the plume, we calculated attenuation factors for the seven sampling episodes and then evaluated the statistical reliability of the data set. Results of this effort suggest that the mean attenuation factor (k/v) is about 0.05 ft^{-1} and that the variability of the data set used for the calculation is within acceptable limits. These results further support the conclusion that the benzene plume at this site is stable and will continue to degrade with time.

Table A - Benzene Concentrations along Centerline of Plume

	Benzene Concentration (ppb)		
Date Sampled	Well C-3	Well C-4	k/v (ft^{-1})
12/16/94	1,900	-	-
03/19/97	1,300	540	0.03
05/30/97	1,700	470	0.04
07/03/97	1,400	470	0.03
08/07/97	1,200	360	0.04
03/31/98	1,500	210	0.06
10/19/98	1,300	280	0.05
		Mean	0.04
		Std. Deviation	0.01

REQUEST FOR NO FURTHER ACTION

Cambria's assessment of the subject properties indicates that the COCs detected in soil and ground water do not pose a significant threat to the health of persons currently occupying the site or potentially occupying the site in the future. This conclusion is supported by the results of a comprehensive health risk assessment and on our evaluation of the site conditions using recently adopted ASTM Standard E 1943-98: Standard Guide for Remediation of Ground Water by Natural Attenuation at Petroleum Release Sites.

Based on the results of this evaluation, Cambria recommends that the subject sites be granted a finding of No Further Action (NFA). The primary site characteristics that support this conclusion include:

- ***Stabilized Plume:*** As shown in Figures A and B above, it is apparent that hydrocarbon concentrations in ground water at this site have stabilized or declined in Lathrop wells C-3 and C-4 and in Croley Herring well MW-4 regardless of seasonal water level trends. Concentrations in perimeter wells Lathrop wells C-1, C-2 and in Croley Herring wells MW-2 and MW-3 have remained at low to non-detectable concentrations since quarterly monitoring began. This indicates that the hydrocarbon plume is stable and limited in extent.

- ***Natural Biodegradation:*** Since the hydrocarbon and PAH plumes in ground water have remained stable through a minimum of seven years of quarterly monitoring, natural attenuation through biodegradation is occurring. Therefore, no engineered remediation is required to reduce dissolved hydrocarbon or PAH concentrations further; biological processes will continue to degrade the COCs remaining in soil and ground water.

- ***Regional Ground Water Usage:*** Because the subject sites are near the Bay (suggesting that Total Dissolved Solids (TDS) concentrations are probably high in ground water at and near the sites) and because much of the land in Emeryville was formerly used for industrial purposes, shallow ground water in this portion of the City of Emeryville is unlikely to ever be used for drinking water supply. Consequently, the potential for future ingestion of ground water originating beneath the subject sites is essentially non-existent.

- ***Management Strategy:*** Natural biodegradation is the preferred remedial alternative unless there is a compelling reason to do otherwise. Based on the anticipated continued future site uses for commercial purposes, no compelling reason exists to continue ground water monitoring or to implement additional site characterization or remedial actions. To ensure that possible future site activities (such as possible redevelopment of the sites) do not create a human or ecological risk, we recommend that restrictive notices be placed with the City of Emeryville Building Department. These notices should identify each of the sites as being locations of hazardous materials releases and should stipulate that any future site activity that involves the substantial disturbance of subsurface materials or a change in site use will require the approval of the pertinent regulatory body.

CLOSING

We appreciate this opportunity to work with you on this project. Please call If you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.

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STATE OF CALIFORNIA

Joseph P. Theisen, CEG
Principal Hydrogeologist

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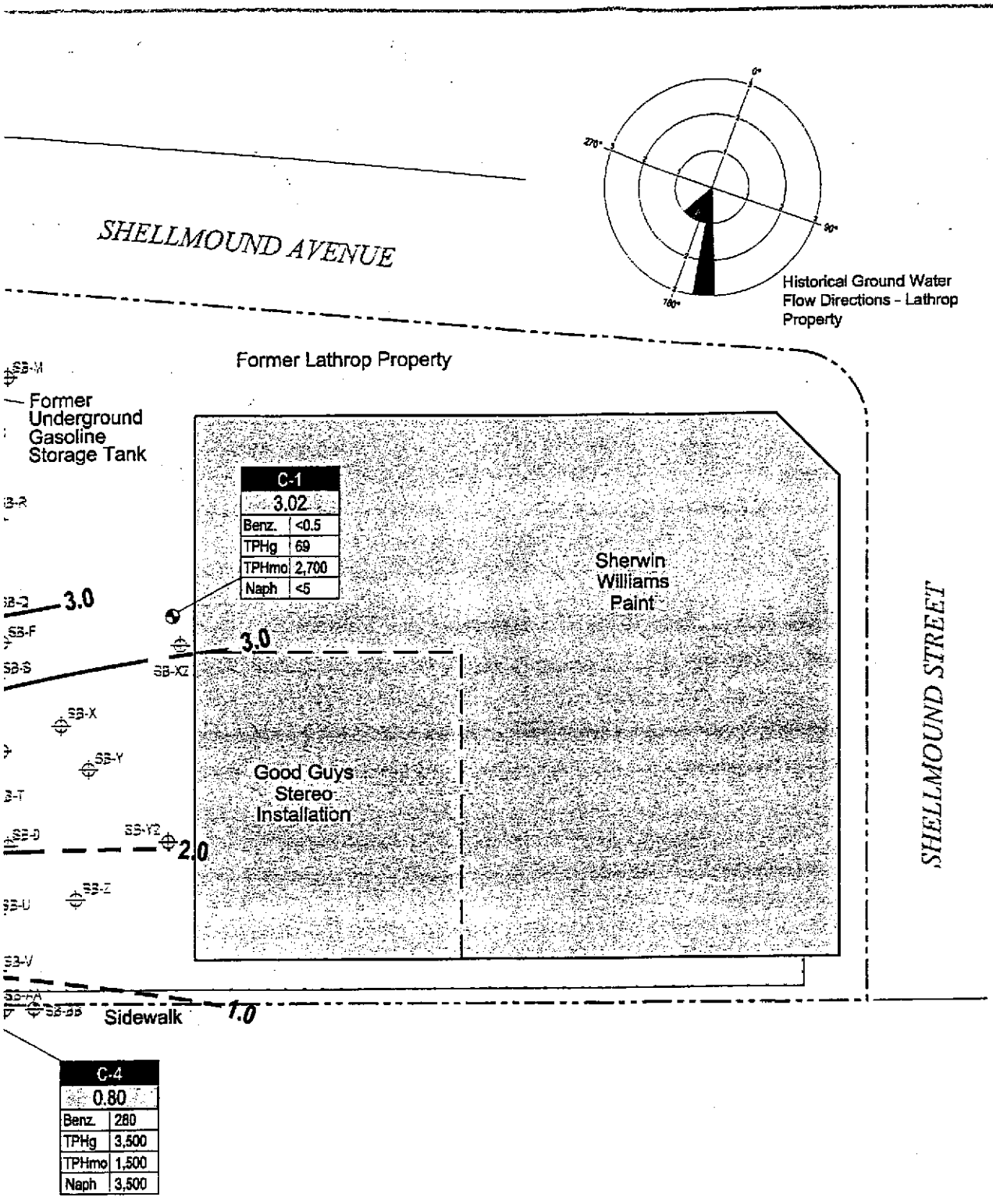
Attachments: A - Historical Analytic Data for former Lathrop site and Selected Historical Data from Croley Herring site
B - November 1998 Ground Water Monitoring Report - Croley Herring site

cc: J. Wilson; Crosby Heafey Roach and May, Oakland, CA
R. Herring; Croley and Herring Investment Company, Walnut Creek, CA
WALNUT.



FIGURE

1

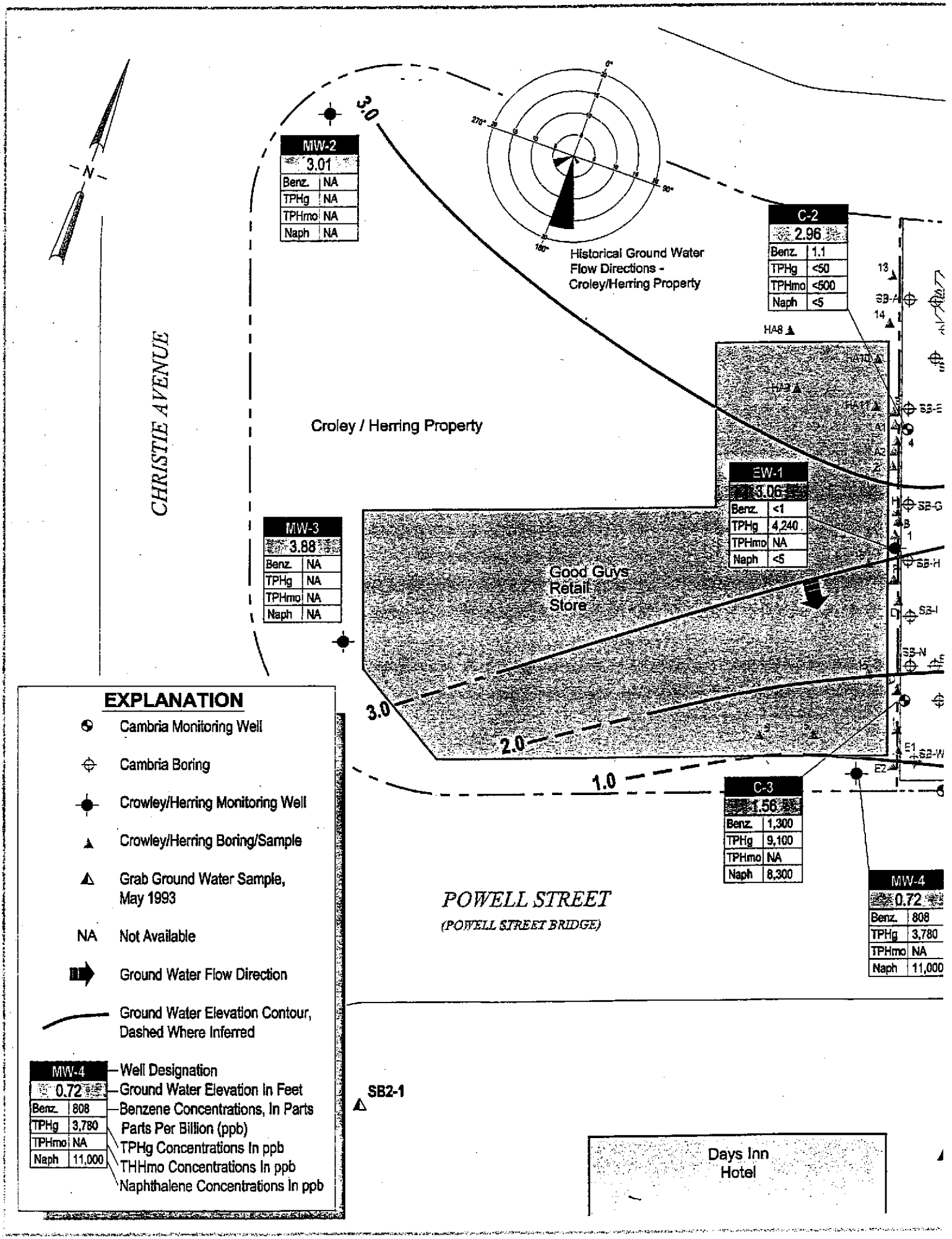
Concentrations in Ground Water and Historical Ground Water Flow Map

CAMBRIA

Croley/Herring & Lathrop Properties

5813 - 5815 Shellmound Avenue

Emeryville, California



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