REPORT

REVIEW OF INVESTIGATION AND REMEDIATION RESULTS AND WORKPLAN FOR ADDITIONAL INVESTIGATION AT FORMER CELIS' ALLIANCE SERVICE STATION

4000 SAN PABLO AVENUE EMERYVILLE, CALIFORNIA

Prepared for
City of Emeryville Redevelopment Agency
1333 Park Avenue
Emeryville, CA 94608

April 2005

URS
URS Corporation
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26814847.02000

URS

April 22, 2005
Project #26814847

Mr. Barney Chan
Division of Environmental Protection
Department of Environmental Health
Alameda County Health Agency
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502

Reference: Alameda County Fuel Leak Case RO0000453

Subject: Review of Investigation and Remediation Results and Workplan for Additional Investigation at Former Celis' Alliance Service Station Site 4000 San Pablo Avenue, Emeryville, California

Dear Mr. Chan:

On behalf of the City of Emeryville Redevelopment Agency (the City), URS Corporation is pleased to submit its review comments on investigation and remediation results from sites surrounding the former Celis' Alliance Service Station, specifically the SNK Andante Redevelopment Area on the south and the proposed Oak Walk Redevelopment Area on the north of the Celis Site. A Workplan is also included for additional site characterization of the Celis Site, which was formerly located at 4000 San Pablo Avenue in the City of Emeryville. This report is prepared in response to your request in a letter to the City dated October 6, 2004.

Please feel free to call me at (510) 465-8982 or Mr. Ignacio Dayrit of the City at (510) 596-4356 for questions or comments.

Sincerely,
URS Corporation

Xinggang Tong, Ph.D., P.E.
Project Manager

Enclosures.

cc: Ignacio Dayrit, City of Emeryville

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This report presents a review of environmental investigation and remediation activities conducted since 1993 at the 40th Street Right-of-Way between San Pablo Avenue and Adeline Street, the SNK Andante Redevelopment Area and the Oak Walk Redevelopment Area in the City of Emeryville, California. Their locations are shown on Figure 1. The main purpose of this review is to identify potential sources that may have contributed to the regional petroleum hydrocarbon contamination. A workplan is also presented for further investigation of petroleum hydrocarbon contaminations resulted from the removed leaking underground fuel storage tanks (USTs) located at the former Celis' Alliance Service Station (Celis Site).

1.1 40TH STREET RIGHT-OF-WAY

Prior to 1995, 40th Street did not exist beyond the west of the Adeline Street. As reported by Levine-Fricke in its "Phase I Environmental Site Assessment, 40th Street Right-of-Way, Emeryville, California" (Levine-Fricke 1993), the Right-of-Way section between Adeline Street and San Pablo Avenue was occupied by a gas station (fronting San Pablo Avenue), a carpet warehouse, and railroad tracks. The gas station, owned by a succession of petroleum companies and independent owners, operated from approximately 1936 until the construction of the 40th Street extension in 1995. At the time of the road construction, the gas station had the name of Celis' Alliance Service Station. The carpet warehouse was once occupied by the San Francisco Bread Company.

1.1.1 Celis Alliance Service Station Site

The Levine-Fricke's Phase I assessment (Levine-Fricke 1993) reported the following six underground storage tanks (USTs) at the Celis Site:

- One 7,000-gallon diesel UST;
- One 6,000-gallon regular gasoline UST;
- One 4,000-gallon unleaded gasoline UST;
- One 2,000-gallon unleaded gasoline UST;
- One 3,500-gallon super unleaded gasoline UST;
- One 550-gallon waste oil UST.

The service station building, fuel dispenser island, USTs and associated piping were removed in May 1994 (Levine-Fricke 1994b). All six USTs were made of welded steel and single-walled. Holes were noted in the 2,000-gallon unleaded gasoline tank and the 550-gallon waste oil tank, but not in the other four tanks. Holes were also noted in a previously abandoned product piping that appeared to have been connected to the 6,000-gallon regular gasoline tank.

Through several phases of investigations, five groundwater monitoring wells were installed, LF-MW-1 through LF-MW-3 in August 1993, LF-MW-4 in January 1994, and WCEW-1 in March 1997 (Levine-Fricke 1993b & 1994a, Woodward-Clyde 1997). LF-MW-1 through -3 were installed on the Celis Site and were only sampled once in August 1993 before been destroyed in May 1994 in preparation for the UST removal. LF-MW-4 and WCEW-1 still exist as of this date. Free-phase petroleum product was once identified in LF-MW-1 and WCEW-1.

Soil and groundwater samples collected throughout the 40th Street Right-of-Way between Adeline Street and San Pablo Avenue indicated extensive petroleum hydrocarbon contaminations within the Celis site and at many areas outside the Celis site. Sampling locations are plotted on Figure 1. At the direction of the Alameda County Department of Environmental Health (ACDEH) and the Emeryville Redevelopment Agency (ERDA), Woodward-Clyde removed soil from surface to just above the shallow groundwater table (approximately 9.5 feet below surface) over the entire Celis site (Woodward-Clyde 1996) and Levine-Fricke removed affected soil from isolated areas outside the Celis site (Levine-Fricke 1997). Removed soils were transported to offsite waste management facilities and clean fill was imported to backfill the area. 40th Street Right-of-Way was constructed in 1995 following completion of the soil remediation.

Confirmation soil samples collected from sidewalls and the floor of the Celis site excavation pit indicated that significant petroleum hydrocarbon contaminations still remained on site and have migrated offsite in all four directions. Confirmation sampling results are included in Appendix A.

To remove floating product that had been observed on the water table, a recovery well (WCEW-1) was installed in March 1997 in the northwestern corner of the property after the road construction was completed. Groundwater extraction from the well started in June 1997 and stopped in December 1997 when the floating product was reduced to sheen only. The extracted liquid was transported to an offsite facility for treatment and disposal.

1.1.2 San Francisco Bread Company Site

The San Francisco Bread Company (SFBC) site once was a truck maintenance facility and had two USTs:

- One 10,000-gallon gasoline UST;
- One 10,000-gallon diesel UST.

As shown on Figure 1, approximately half of the two USTs is located under now the 40th Street Right-of-Way and the other half is within the Oak Walk Redevelopment Area. The USTs were removed in May 1989 when SFBC still owned the property. At the time they were removed, they were found to have leaked. Some limited amount of soil was excavated and disposed of offsite during the UST removal.

At the direction of ACDEH, a groundwater monitoring well (SMW-1) was installed a short distance down-gradient from the UST in September 1992. The well water was sampled quarterly from September 1992 through March 1994 and was found to contain TPH gas up to 5,800 ug/L and benzene up to 1,700 ug/L. The well was destroyed in late 1994 in preparation for the road construction. Soil affected by high levels of TPH gas, diesel and BTEX were excavated from a 20 x 20 x 10 f deep area in the 40th Street Right-of-Way to the south of and adjacent to the former USTs. There are no other documented remediation activities directly linked to the USTs.

1.2 SNK ANDANTE REDEVELOPMENT AREA

The SNK Andante Redevelopment Area (SNK site) is located next to and south of the 40th Street Right-of-Way (Figure 1). The redevelopment, which was completed by the end of 2004, established mixed use of commercial and multi-family units on the site. Prior to the

redevelopment, the southwestern corner of the property was occupied by the King Midas Club, the Key Club and the Key Hotel. The remainder of the site was used as parking area. Details of the site history were presented in a Phase I site assessment (The San Joaquin Company 2002).

The redevelopment activities began with the installation of exploratory borings, trenches and temporary wells to assess potential environmental concerns, conducted by The San Joaquin Company from February through June 2003. Locations of wells and borings are shown on Figure 2. Extensive petroleum hydrocarbon contaminations were identified on the northwestern portion of the site (The San Joaquin Company 2003). Investigation data is included in Appendix B. Under the ACDEH's supervision, soil was excavated from surface to between 8 to 13 feet below ground surface (BGS) in the petroleum hydrocarbon contaminated area (northwestern portion of the site). A total of 8,877 tons of contaminated soil was disposed of offsite. Clean, engineered fill was imported to backfill the area. Area of excavation is shown on Figure 2.

The most significant discovery during the soil excavation is the paleo streambed channel located within the shallow groundwater zone. It runs along a curved path that trends in a generally southwesterly direction as it passes through the SNK site from its northern boundary at 40th Street to its western boundary at San Pablo Avenue, as illustrated on Figure 1. The channel contains coarse sand and gravels. Groundwater samples collected within the channel were found to contain benzene up to 2,700 ug/L, TPH gas up to 510,000 ug/L, and diesel range TPH, but not-standard diesel, up to 20,000 ug/L. The streambed materials were removed and backfilled with clean, engineered filled. A clay plug were installed at both ends of the paleo streambed channel entering and existing the redevelopment area to prevent the channel serving as preferential pathways for further migration of offsite contaminants.

Three old-age USTs (two 1,500-gallon heating oil tanks and one 100-gallon gas tank) were found within the site, but outside the soil excavation area, during earthwork. Their locations are shown on Figure 1. They were removed under permit and oversight of ACDEH and the Emeryville Fire Department. Soil samples recovered from the bottom of the USTs indicated that they were not the source(s) of petroleum hydrocarbon contaminations on the site.

1.3 OAK WALK REDEVELOPMENT AREA

The Oak Walk Redevelopment Area (Oak Walk site) is located next to and north of the 40th Street Right-of-Way (Figure 1). The area is currently occupied by a mixture of single family houses, commercial buildings, and parking lots. The buildings (commercial and residential are mostly vacant and in poor conditions.

Since November 2003, The San Joaquin Company (SJC) has been conducting environmental investigations at the Oak Walk site, including the installation of eight exploratory trenches, eight soil borings, 14 temporary groundwater monitoring wells (MWT-series wells), and seven permanent groundwater monitoring wells (MW-series wells). Their locations are shown on Figure 1. Numerous soil and groundwater samples were collected and analyzed for petroleum hydrocarbons, volatile organic compounds (VOCs), polynuclear aromatics (PNAs), and heavy metals. Investigation results are included in Appendix C. Extensive petroleum hydrocarbon contamination was found beneath the site. The distribution and potential source(s) of the identified contaminants are discussed under Section 2.

Exploratory trench 3 excavated next to the SFBC USTs revealed the same type of coarse sand and gravels as the paleo streambed deposits discovered at the SNK site. The paleo streambed channel likely continued beneath the 40th Street Right-of-Way and passed through the southeastern portion of the Oak Walk site as depicted on Figure 1.

1.4 FORMER DUNNE PAINTS AND BOYSEN PAINT SITES

Two former paint manufacturing and distribution facilities (Dunne Paints and Boysen Paint Factory) are located upgradient and across the Adeline Street from the Oak Walk site. Their locations are illustrated on Figure 1. The two sites are currently under the ACDEH's supervision for investigation and remediation of paint-related petroleum hydrocarbons (paint thinner, Stoddard solvent, and mineral spirits etc.) and other chemicals. The impact of petroleum hydrocarbons originating from these two sources on the Oak Walk site, the 40th Street Right-of-Way, and the SNK site is discussed below.

The former Celis Alliance Service Station is a known source of petroleum hydrocarbon (TPH) contamination in the area. Even though the contaminated, unsaturated soil on the Celis site was excavated and disposed of offsite, confirmation samples collected on excavation side walls and the floor have shown that its TPH has migrated to the south impacting the SNK site and to the north impacting the Oak Walk site. However, the Celis site is not the only source of TPH in the area, other potential sources as discussed above are the SFBC site and the upgradient former Dunne Paints site (Dunne site) and the former Boysen Paint Factory site (Boysen site). This section presents a review of contributions from each of these potential sources.

The following information should facilitate the review:

- The Federal Clean Air Act Amendments (1990) required gasoline to be sold after 1991 to contain a certain level of fuel oxygenate (up to 2.7% oxygen by weight). Methyl tertiary butyl ether (MTBE) was the top choice as the fuel oxygenate blended in gasoline. The SFBC USTs were removed in 1989, and thus the petroleum hydrocarbons released from its USTs unlikely contained any significant amount of MTBE. Paint solvents (mineral spirits, Stoddard solvent, and paint thinner etc.) also do not contain MTBE. The Celis Alliance Service Station was in full service until the early 1994 and the gasoline it dispensed after 1991 likely contained MTBE. Therefore, MTBE represents a marker for contamination originating from the Celis site.
- MTBE is the most water soluble and mobile constituent in gasoline. Its extent of spread in groundwater represents the limit of petroleum hydrocarbon impact originating from the Celis site.
- Paint solvents typically do not contain benzene. When benzene is detected, it is likely associated with gasoline, either from the Celis site and/or the SFBC site.
- Floating product and dissolved petroleum hydrocarbons move with groundwater. Groundwater moves faster and freer in permeable media than in clayey materials. The identified paleo streambed channel contains highly permeable coarse sand and gravels and it thus serves as a preferential pathway for groundwater movement. Petroleum hydrocarbons can be transported much further through such a preferential pathway. Underground utility trenches are usually backfilled first with sand and/or pea gravels, and thus also serve as preferential pathways for contaminant movement.
- As the petroleum hydrocarbon moves with groundwater away from its source area, it partitions (absorbs) into soil at the new place. Its amount absorbed by the soil (measured as concentration in mg/kg) is highly dependent on the physical and chemical nature of the soil, such as organic content and particle sizes. It is known that sand and gravels with no organic materials absorb very little petroleum hydrocarbons, whereas clayey soil with high organic content absorbs large quantities of petroleum hydrocarbons. Therefore, the petroleum hydrocarbon concentration measured in soil in an investigation can vary widely depending on the type of soil collected at each sampling point, which makes it difficult to study the source based on the soil data. In contract, groundwater moves continuously and its petroleum hydrocarbon concentration is much less dependent on the type of soil at each sampling location, but more related to its movement. We will thus use groundwater data to study sources of petroleum hydrocarbons.
- Benzene is a known carcinogen and typically drives the remediation cost of UST sites.

Early work conducted by Levine-Fricke and Woodward-Clyde from 1993 through 1995 did not include the analysis of fuel oxygenates as their analyses were not required by regulatory agencies. There were also no efforts made to identify other groups of petroleum hydrocarbons, such as paint solvents. Whatever showed up in the gasoline range during the gas chromatographic (GC) analysis was reported as TPHg and whatever showed up in the diesel range was reported as TPHd. Therefore, the early reported TPHg and TPHd data, especially in the areas near Adeline Street by Levine-Fricke, may not represent true gasoline and diesel. Paint solvents could have been misidentified as gasoline and/or diesel.

When the extraction well WCEW-1 was installed in 1997 for the removal of floating product from Celis site, MTBE was analyzed and was reported in the range of 340 and 570 µg/L. Groundwater sampling conducted by SJC in May 2004 again confirmed the presence of MTBE (170 µg/L).

When the investigation and remediation were performed at the SNK site in 2003, no effort was made to identify petroleum hydrocarbon groups other than TPHg (gasoline) and TPHd (diesel). However, the laboratory did compare the GC pattern of each sample with standard gas or diesel GC pattern. When there was a match, it was reported as TPHg or TPHd without any qualifiers. When the sample GC pattern did not match the standard gas or diesel GC pattern, it was still reported as TPHg or TPHd, but with a qualifier stating that the detected hydrocarbon was in the range of, but did not match the standard gas or diesel. It could be either weathered gas/diesel or paint solvents.

When the investigation was conducted at Oak Walk site in 2004, it was apparent that the release of paint solvents from the upgradient paint sites could impact the Oak Walk site. The suite of analyses for samples collected from this site included mineral spirits, which is one of many groups of petroleum hydrocarbons used as paint solvents.

2.1 SHALLOW GROUNDWATER CONTOURS AND PERMEABLE AREAS

Figure 2 presents the interpreted shallow groundwater contours and flow directions based on groundwater elevations measured at Oak Walk site on November 8, 2004, at SNK site on April 21, 2003, and historical flow directions at the Celis site. The former Dunne Paints site and the former Boysen Paint Factory site are at upgradient locations. Two main features are discussed below.

There is a broad band of relatively permeable zone across the Oak Walk site in an east-west direction, as highlighted on Figure 2. It may continue across the Adeline Street to the former Dunne Paints site. This relatively permeable zone provides preferential path for the migration of the paint solvents. Details of paint solvents detections are discussed in Section 2.2.

The paleo streambed channel is another preferential path for contamination migration. The SFBC USTs, if not partially located within the channel, was right next to the channel. The streambed channel might continue northeastwards and could be connected with the permeable zone that exists across the Oak Walk site. This may explain the very high concentrations of benzene, TPHg, and diesel-range TPH (reported as non-standard diesel) detected in groundwater samples collected within the streambed channel. Details are discussed in the next section.

2.2 DISTRIBUTION OF PETROLEUM HYDROCARBONS

Groundwater concentrations of MTBE (M), benzene (B), gasoline (G), diesel (D), and mineral spirits (S) at individual sampling points are shown on Figure 3. Groundwater samples for the analysis were collected from the Oak Walk site on May 19, 2004 (MW-wells and MWT-1 through MWT-10) and on November 6, 2004 (MWT-11 through MWT-14) and from the SNK site on April 17, 2003. SJC-MW-8 was installed on the SNK site in August 2004 as a post-remediation monitoring well. The data shown on Figure 3 for this well was the sample collected on March 9, 2005. The data for LFMW-4 (located on 40th Street west of San Pablo Avenue) was the sample collected on June 2, 1998, which was the last time it was sampled. These are the available groundwater results for interpretation.

There are enough data points to allow approximate interpretation of 100 ppb MTBE, 50 ppb benzene, and ND (0.5 ppb) MTBE & benzene contours, all are plotted on Figure 3. The shape of the contours is of interests. Underground utilities may exist near the eastern-side pedestrian lane of the San Pablo Avenue that serve as a preferential pathway for the north-south directional migration along the San Pablo Avenue.

It appears that the MTBE and benzene originating from the Celis site moved more upgradient than downgradient. This can happen if there is a preferential path connecting the Celis site to the upgradient area and the groundwater gradient is relatively flat or periodical reversal. Prior to the 40th Street construction, there was a carpet warehouse located between the Celis site and the SFBC USTs. Some utilities in the warehouse may be connected underground to the utility lines under San Pablo Avenue, which may have served as preferential path for the eastward migration. The existence of such underground utility lines should be reviewed.

It is apparent that MTBE and benzene from the Celis site have impacted the area that required excavation at the SNK site. However, Petroleum hydrocarbons from Celis site may not be the only source of what was detected in the paleo channel on the SNK site. Very high benzene and gasoline concentrations, but no or little MTBE, were found in several water samples collected within the paleo channel (SJC-MW-T5A, ET2-G-W, and SJC-MW-2A). Since the gasoline stored in the SFBC's UST did not contain MTBE and since the UST were located either partially in or just outside the paleo channel, gasoline released from the SFBC's UST could migrate relatively easy within the channel to the SNK site. On the other hand, since the Celis site had been a fuel service station for decades, the gasoline found within the paleo channel could come from the pre-MTBE-containing gasoline released from the Celis site. It may not be possible to separate which part of the gasoline came from which source. Overall, because the paleo channel is a small portion of the total remediated area on the SNK site, the Celis site may have the majority responsibility for the investigation and remediation conducted on the SNK site.

Figure 3 also demonstrates that MTBE and benzene from the Celis site impacted only a narrow strip of the area on the Oak Walk site located next to the 40th Street Right-of-Way. The rest of the area on the Oak Walk site has been impacted by petroleum hydrocarbons that do not contain MTBE and benzene. The Celis site and the SFBC site are highly unlikely to be the source of the TPH that does not contain MTBE and benzene. If the reported mineral spirits, non-standard gasoline and non-standard diesel are grouped into and plotted as a single parameter – non-gas non-diesel TPH as shown on Figure 3, it points to upgradient source(s), possibly the former Dunne Paints site and/or the former Boysen Paint Factory site. It also indicates that the shallow groundwater beneath all buildings at the Oak Walk site, both commercial and residential

buildings, has been contaminated by the non-gas non-diesel petroleum hydrocarbons (possibly one or more of the many varieties of paint solvents) at the concentration above 1,000 ppb.

3.1 CONDUIT STUDY

The shape of the MTBE and benzene plumes shown on Figure 3 suggests the existence of preferential pathways along the San Pablo Avenue and the 40th Street. Under this task, underground utility lines will be identified for their depths, sizes, backfill materials if known, and their distances from the former Celis site. Utilities to be reviewed will include: storm drains, sewers, water mains, and gas and electrical lines. A map will be provided showing the locations and depths of those identified utilities. Wells within a quarter-mile radius of the former Celis site will also be identified.

As part of this study, available historic Sanborn maps, USGS maps, and aerial photos will be reviewed for identification of potential preferential pathways, such as natural steam beds and man-made conduits (trenches and building foundations).

3.2 ADDITIONAL PLUME CHARACTERIZATION

Investigations conducted at the SNK and the Oak Walk sites have generated adequate data for upgradient and cross-gradient characterization. Additional investigation is only needed in the downgradient area. Two new monitoring wells in the downgradient area are proposed: URS-MW-1 and URS-MW-2. Their locations are shown on Figure 3.

Specific details of the groundwater investigation program are outlined below:

- Pre-drilling details include: developing a site health and safety plan; obtaining well construction permit from Alameda County Public Works Agency; underground utility clearance (obtaining facility as build, contacting Underground Service Alert [USA], contracting to an independent utility locator to clear proposed locations and hand augering to 5 feet bgs prior to drilling).
- The well borings will be drilled with a hollow stem auger rig (8-inch diameter) from which continuous cores (using a 5 foot long core barrel) of the soil column will be obtained and logged by an onsite geologist.
- The soil cores will be screened with a PID to evaluate the presence or absence of TPH.
- Three soil samples from each boring (5', 10', and 15' bgs or as selected by the site geologist based on field observations) will be selected and submitted to an State of California certified environmental analytical laboratory under chain-of-custody protocol for analysis of BTEX, five fuel oxygenates, TPHg, TPHd and paint solvent related TPH.
- The well borings will extend at least 8 feet beyond first encountered groundwater. The goal is to have the screened interval of the well extend both above and below the water table (covering for seasonal water level fluctuations). It is expected that the well borings will have a total depth of 20 feet.
- The wells will be constructed and finished in typical fashion in accordance with local and state well regulations. The wells will be constructed with flush treaded 2-inch diameter Schedule 80 PVC casing and factory slotted screen. The screen slot size is expected to be 0.02-inch with a Lonestar 2/16 (or equivalent) sand pack. The sand pack will extend one foot above the top of the uppermost screen slots, followed by one foot of hydrated bentonite chips

followed by neat cement bentonite grout to land surface. The wells will be completed to grade with lockable wellheads in traffic rated bolted well boxes..

- After a minimum of 72 hours of completion the monitoring wells will be developed with surge blocks and bailers, followed by pumping until the well water clears and water quality parameters of pH, conductivity, temperature and turbidity stabilize.
- All wells will be surveyed with respect to northing and easting location, and elevation msl (land surface, flush mounted traffic box rim and top of PVC well casing [i.e., measuring point]).
- Initial well sampling will be done no earlier than 48-hours after completion of well development. At that time the wells will be sampled and submitted to a state certified analytical laboratory for the analysis of BTEX, five fuel oxygenates, TPHg, TPHd and paint solvent related TPH. The groundwater monitoring events will be preceded with a water level survey to establish depth to water, water surface elevation (flow direction and gradient), seasonal water level fluctuations and calculation of the wetted well casing volume that will need to be removed (typically 3 to 5 wetted casing volumes) prior to collecting a representative groundwater sample.
- Soil cuttings, decontamination, well development water and quarterly well purge water will be stored in a central on-site location in properly labeled DOT approved 55 gallon drums awaiting final disposal option selection.

A letter report will be prepared outlining investigation findings and recommendations for additional work as necessary. The text of the report will be supported with summary tables and figures along with hard copies of geotechnical and chemical analyses results.

The groundwater monitoring program will include semi-annual sampling and reporting for one year of the two newly installed wells (URS-MW-1 and URS-MW-2) and the two existing wells (LFMW-4 and WCEW-1). Prior to purging, static groundwater levels will be measured to the nearest 0.01 feet in each of the four wells. The volume of water in each well will be calculated, and a minimum of three casing volumes of water will be removed from each well. The purged water will be measured for pH, temperature, specific conductance, and dissolved oxygen, which will be recorded in field logs. The wells will be allowed to recover to within 80 percent of the initial static water level whenever possible prior to sampling. All purge and sampling equipment used at each well will be either dedicated (well specific) or new and disposable requiring no decontamination prior to use. Purge and decontamination water will be stored in 55-gallon DOT drums, which will be labeled and left on site, pending final disposal option selection.

Filled sample bottles will be labeled, packaged, and stored in an iced-cooler with a trip blank and will be delivered under chain-of-custody protocol to a state certified analytical laboratory for the analysis of BTEX, five fuel oxygenates, TPHg, TPHd and paint solvent related TPH.

A progress report will be prepared following each sampling event to present sampling results, groundwater contours, findings and recommendations.

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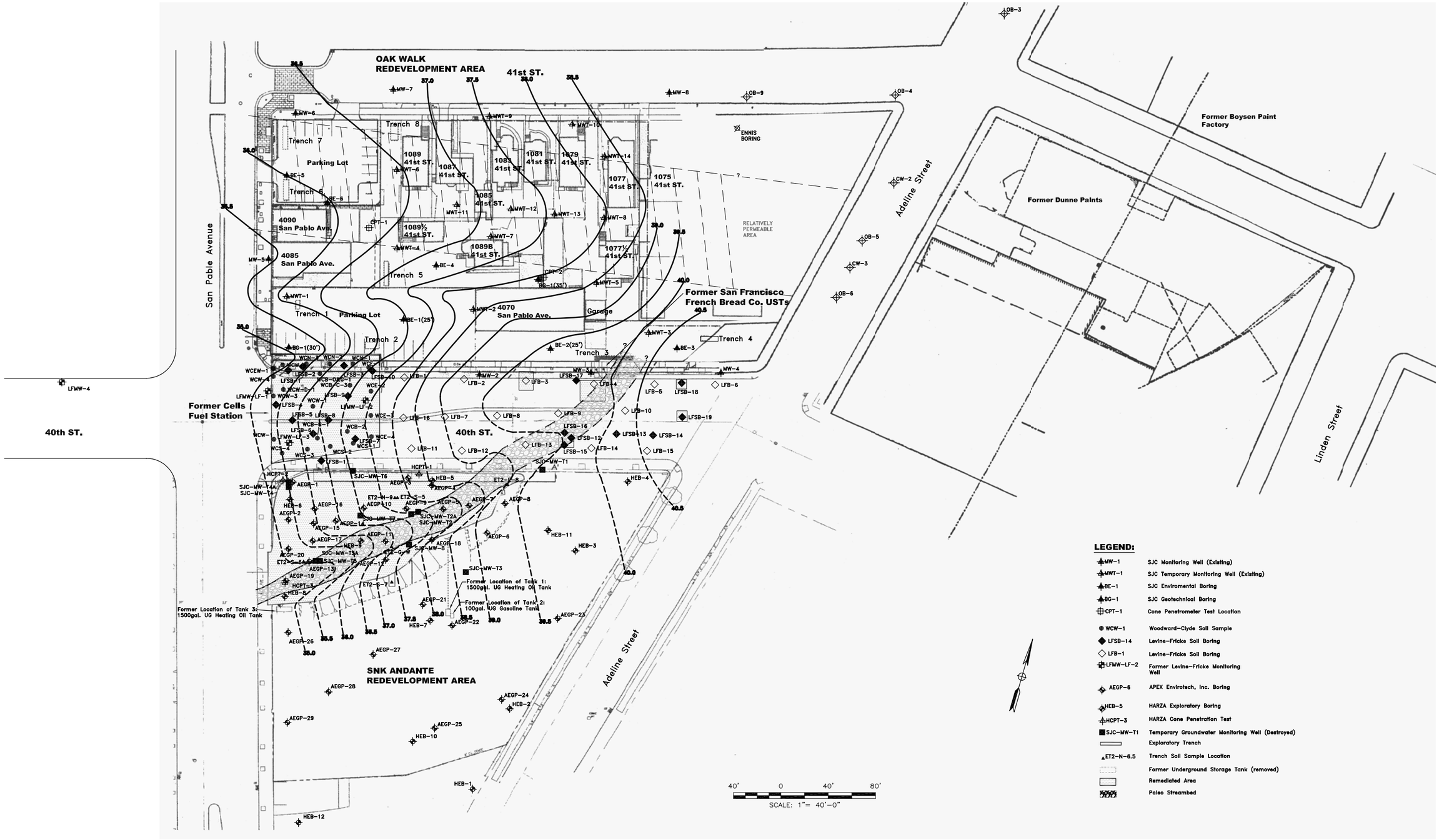
1 IN.= 1900 FT.

May 10, 2006 - 3:51pm
J:\CADSHARED\ANDANTE\Figure 1.dwg

1333 BROADWAY, SUITE 800 Oakland, Ca 94612 Tel: (510) 893-3600 Fax: (510) 874-3268	URS	26814847 City of Emeryville Redevelopment Agency 1333 Park Avenue Emeryville, CA 94608	SITE LOCATION MAP Former Celis Alliance Fuel Station Site 4000 SAN PABLO AVENUE EMERYVILLE, Ca	FIGURE 1



Base Map From The San Joaquin Company, Inc. (Dec 2004)

REV	DESCRIPTION OF REVISION	BY	DATE
1			

CLIENT
STREET ADDRESS
CITY, STATE

URS
1333 BROADWAY, SUITE 800
Oakland, CA 94612
Tel: (510) 893-3600
Fax: (510) 874-3268

DESIGNED	–
DRAWN	MS
CHECKED	–
PEER REVIEWED	–
PROJECT MANAGER	–
DATE	–

Groundwater Contours (11/08/04)
(As reported by The San Joaquin Company Inc.)

FORMER CELIS FUEL STATION SITE, SNK ANDANTE REDEVELOPMENT AREA AND OAK WALK REDEVELOPMENT AREA EMERYVILLE, CA.

REVISION	1
PROJECT	26814847
FIGURE	2

May 05, 2005 - 8:29am
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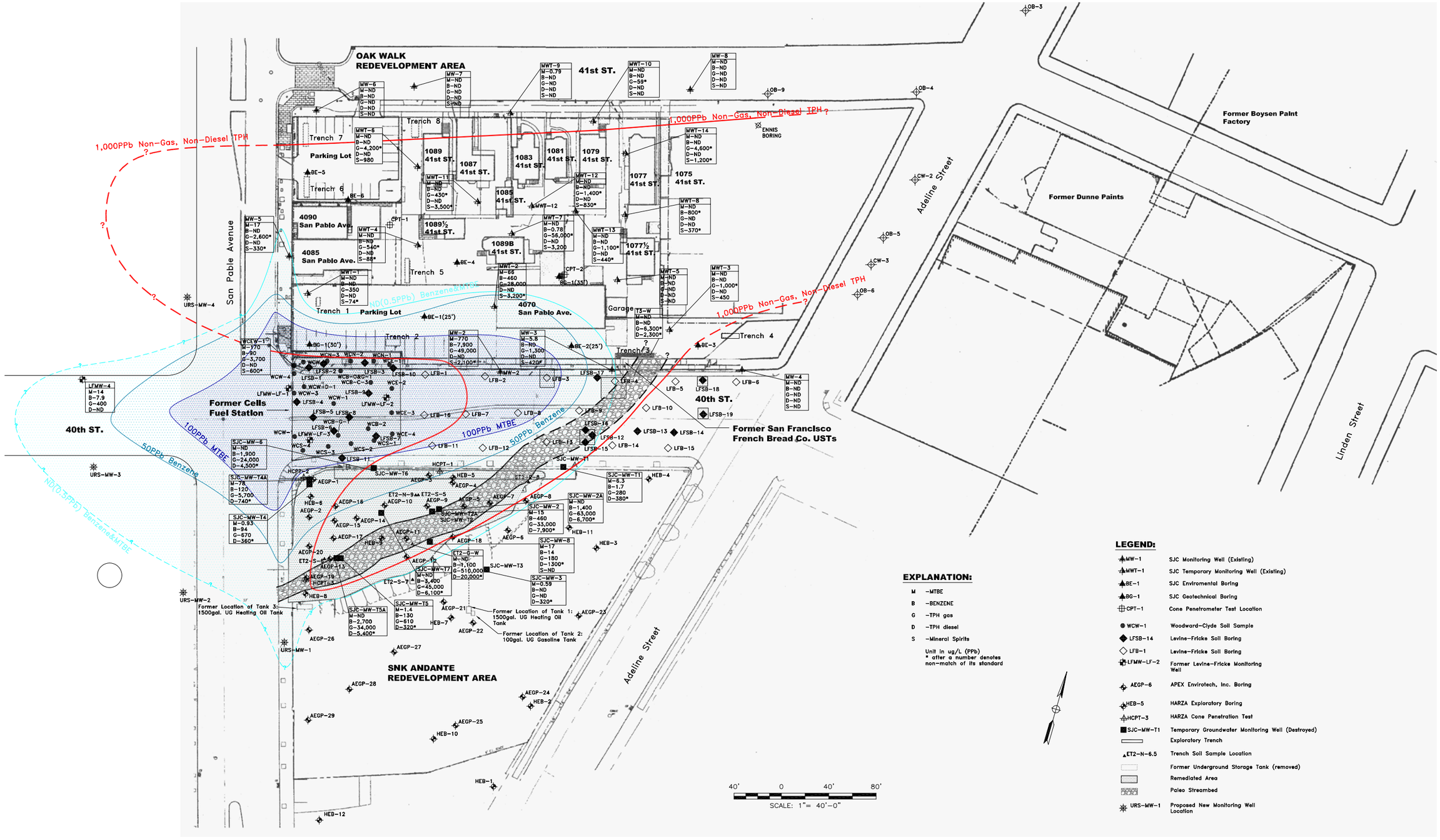

EXPLANATION:

- M –MTBE
- B –BENZENE
- G –TPH gas
- D –TPH diesel
- S –Mineral Spirits

Unit in ug/L (PPb)
* after a number denotes non-match of its standard

LEGEND:

- MW-1 — SJC Monitoring Well (Existing)
- MWT-1 — SJC Temporary Monitoring Well (Existing)
- BE-1 — SJC Enviromental Boring
- BG-1 — SJC Geotechnical Boring
- CPT-1 — Cone Penetrometer Test Location
- WCW-1 — Woodward-Clyde Soil Sample
- LFSB-14 — Levine-Fricke Soil Boring
- LFB-1 — Levine-Fricke Soil Boring
- LFMW-LF-2 — Former Levine-Fricke Monitoring Well
- AEGP-6 — APEX Envirotech, Inc. Boring
- HEB-5 — HARZA Exploratory Boring
- HCPT-3 — HARZA Cone Penetration Test
- SJC-MW-T1 — Temporary Groundwater Monitoring Well (Destroyed)
- Exploratory Trench
- ET2-N-6.5 — Trench Soil Sample Location
- Former Underground Storage Tank (removed)
- Remediated Area
- Paleo Streambed
- URS-MW-1 — Proposed New Monitoring Well Location

Base Map From The San Joaquin Company, Inc. (Dec 2004)

REV	DESCRIPTION OF REVISION	BY	DATE
1			

CLIENT
STREET ADDRESS
CITY, STATE

URS
1333 BROADWAY, SUITE 800
Oakland, CA 94612
Tel: (510) 893-3600
Fax: (510) 874-3268

DESIGNED	–
DRAWN	MS
CHECKED	–
PEER REVIEWED	
PROJECT MANAGER	–
DATE	–

Distribution of Petroleum Hydrocarbons in Shallow Groundwater on 4/16/03 at SNK Andante and on 5/19/04 & 11/3/04 at Oak Walk

FORMER CELIS FUEL STATION SITE, SNK ANDANTE REDEVELOPMENT AREA AND OAK WALK REDEVELOPMENT AREA EMERYVILLE, CA.

REVISION 1
PROJECT 26814847
FIGURE 3

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