URS

REPORT
FIVE YEAR REVIEW
DREW MIDDLE AND SOUTH PROPERTY
CITY OF RICHMOND PARKWAY PROJECT
RICHMOND, CALIFORNIA

Job No. 28068082
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1.0 INTRODUCTION

The City of Richmond tasked URS Corporation (URS) to conduct a five-year review of the Middle and South Drew Properties Sector 2, City of Richmond Parkway. Due to changes in project personnel over the period of the project and the ongoing environmental requirements, the five-year review scheduled for 2008 was not conducted. In discussions with the City of Richmond (City) the Department of Toxic Substances Control (DTSC) indicated that remedy evaluations would be needed in order to determine if groundwater performance monitoring associated site remedial activities needs to continue as part of the operations and maintenance being conducted at the site. The City agreed to conduct an additional cap inspection in 2011 and prepare this five-year review to document activities that have taken place since the previous remedy review in 2003.

This statutory five-year review was conducted pursuant to the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Comprehensive Five-Year Review Guidance (Office of Solid Waste and Emergency Response (OSWER) Directive 9355.7.03B-P and Recommended Evaluation of Institutional Controls: Supplement to the Comprehensive Five-Year Review Guidance OWSER Directive 9355.7-18).

The purpose of the five-year review is to evaluate whether the Middle and South Drew Properties Remedy is achieving the objectives of the remedy specified in the Engineering Evaluation/Cost Analysis (EE/CA) (Dames & Moore (D&M, 1994) and the Operations and Maintenance Plan (O&M Plan) (D&M, 1995). The documents specified that containment by capping the site with asphalt would be the remedy. The following actions are currently conducted at the site:

- Groundwater sampling from six on-site wells occurs every other year; and
- Condition of the asphalt cap and surrounding fence is observed during monitoring activities.

1.1 Middle and South Drew Properties Setting and Background

The Middle and South Drew properties formerly encompassed approximately 5 acres of land adjacent to Castro Street between Hensley Street and the Richmond Parkway in North Richmond, California. A portion of the land, approximately 3.5 acres, was acquired for the construction of the Richmond Parkway and the Hensley Street realignment in 1993. The portions of the land that were acquired are identified as Contra Costa County Assessor Parcel Numbers (APN) 561-321-001 and APN 561-130-001. The surrounding land use includes both light industrial and residential. Additionally, the Chevron Richmond Refinery, a heavy industrial refining operation, is located directly across the Richmond Parkway to the west of the site.

Historical records and aerial photographs indicate that the property had not been developed prior to the realignment and fill material was deposited on the property from adjacent industrial facilities before 1939. The Initial Site Assessment (ISA) (Bendix, 1992) indicated that in 1987 a leak from the Southern Pacific pipeline affected the parcel. The pipeline is located directly adjacent to the South Drew property in an upgradient direction from the site. Approximately 400 cubic yards (cy) of gasoline contaminated soil was removed from the area; however, due to excavation constraints, a 2-foot-wide strip of contaminated soil, adjacent to a PG&E hot line, was left in place. The Middle Drew property was reported to have been affected by hazardous materials/waste transported onto the site from nearby industrial activities, in particular, the American Standard facility. Metal silicates (lead, zinc, chromium, copper, selenium, and titanium), cast iron wastes, scrap enamels, and waste casting sand which may contain heavy metals were reportedly used and produced at the American Standard facility.

Based on an Initial Site Assessments (ISAs) conducted in 1992 by Bendix Environmental Research Inc. (BERI), the Middle and South Drew Properties appeared to have sufficient potential for environmental contamination to require a Preliminary Site Investigation (PSI) be conducted. In 1993, field sampling was conducted as part of the PSI, which included the installation of six monitoring wells and the collection of six soil samples from the monitoring well boreholes. Additionally, 10 surface soil samples were collected.

Results of this investigation indicated elevated concentrations of metals were present in all but one surface soil sample. Elevated concentrations of lead (up to 2,590 mg/kg) and zinc (2,815 mg/kg) were present in the deeper soil samples (collected from 4 to 5 feet below ground surface [bgs]). Copies of the investigation soil analytical summary tables are presented in Appendix A. Groundwater samples collected from six monitoring wells installed at the property indicated two metals, aluminum and arsenic, were present at concentrations above their respective maximum contaminant levels (MCLs). Both detections above the MCL were in monitoring well DMMW-1. Aluminum was detected at a concentration of 1.30 mg/l and arsenic was detected at a concentration of 0.15 mg/l.

In 1994, an Engineering Evaluation/Cost Analysis (EE/CA) was submitted to the Department of Toxic Substances Control (DTSC). The DTSC, formerly the Toxic Substances Division of the Department of Health Services (DHS), became a state agency in 1991. The EE/CA indicated the primary constituent of concern was lead in soil, and no significant impairment of the groundwater existed. The EE/CA indicated the preferred alternative to remediate the site was excavation, stockpiling, grading and capping. The DTSC approved the EE/CA in May 1994. Remedial activities began in October 1994 and were completed in spring 1995. DTSC conducted oversight of the cleanup activities without an existing agreement or order. After remedial actions were completed, a Removal Action Completion Report (RACR) was completed and submitted to the DTSC. The DTSC approved the RACR in June 1996.

In 1995, the O&M Plan was submitted to the DTSC. The O&M Plan outlined monitoring activities to be performed to evaluate the effectiveness of the selected remedy. The

DTSC approved the O&M Plan in 1995 and the City entered into an Operation and Maintenance Agreement in December 1995. O&M activities and groundwater monitoring began in January 1997. The monitoring schedule consisted of semi-annual for the first 2 years, and annual sampling for 13 years after. The DTSC approved a switch to sampling every other year beginning in April 2003. Also in 1995 a Covenant to Restrict Use of Property (Deed Restriction) was recorded with the Contra Costa County Recorder. The site was certified by DTSC in April of 1996.

2.0 SITE CHRONOLGY

1988 – Remedial Action Plan (RAP) conducted
1992 – Initial Site Assessment conducted
1993 – Preliminary Site Investigation conducted
1993 – Engineering Evaluation/Cost Analysis conducted
1994 – Excavate, stockpile, grade and cap the contaminated soil
1995 – Deed Restriction recorded with the Contra Costa County Recorder
1996 – Semi-annual sampling of six on-site monitoring wells begins
1999 -The groundwater monitoring analyte list changes to monitor only for arsenic, cadmium, chromium, copper, lead, nickel, and zinc
2002 – The DTSC approves a switch from annual monitoring to biennially
2003 – Annual sampling of six on-site monitoring wells begins
2003 – Five-year review submitted to DTSC.
2005 – Construction of a portion of the Bay Trail through the property
2007 – Biennial sampling of five onsite monitoring wells and cap inspection
2010 – Biennial sampling of five onsite monitoring wells and cap inspection
2011 – Cap inspection

3.0 REMEDIAL ACTIONS

3.1 Remedy Selection

Based on information collected during the ISA, and the PSI, an EE/CA was conducted which outlined six alternatives for remedial actions. It was determined that the final remedy would be to excavate, stockpile, grade and cap the contaminated soil. Soil with concentrations of lead greater than 5,000 mg/kg would be placed and encapsulated beneath the roadway. Soil with concentrations of lead at or below 5,000 mg/kg would be capped with an asphalt cover outside the roadway.

3.2 Remedy Implementation

Remedial activities began in the fall of 1994 and were completed in December of 1995. Remediation was conducted in accordance with the preferred remedial alternative identified in the EE/CA (D&M, 1994). Remedial activities consisted of excavating soil with concentrations greater than 5,000 mg/kg of lead from areas outside of the roadway and placing the material below the roadway and capping with an asphalt surface

(roadway). Concentrations of soil with less than 5,000 mg/kg of lead were placed outside of the roadway alignment at the site and capped beneath an asphalt surface (cap). After excavations were completed, soil confirmation samples were collected from the area outside the roadway to document concentrations of lead were below 5,000 mg/kg prior to placing the asphalt cap. An area of approximately 25,000 square feet outside of the roadway was covered by an asphalt cap and fenced.

A total of approximately 8,263 cubic yards of soil was capped beneath the roadway and approximately 6,524 cubic yards of soil were capped outside the roadway. Cap thickness including aggregate base (2.30 feet thick) and Type A asphaltic concrete (0.6 feet thick) is up to 2.9 feet thick. A fence was constructed around the asphalt cap to further ensure the area was not accessible.

3.3 Operation and Maintenance

The Operations and Maintenance Agreement entered into with the DTSC requires that the following conditions be met:

- Routine groundwater monitoring for a period of 15 years
- Maintenance of a perimeter chain-link fence limiting access to the capped area of the site. Warning signs must be posted and maintained on the fence
- Cap inspections to observe integrity of cap and perimeter fence after each groundwater monitoring event
- Generation of surface crack maps for the capped area after each groundwater monitoring and cap inspection event. The magnitude of cracking of the cap is assessed by assigning one of the following index numbers to the observed cracks:

Index Number	Explanation
1	Hairline cracks
2	Hairline to ¼-inch wide cracks
3	¼ to ½-inch wide cracks
4	Greater than ½-inch crack

- Groundwater and cap inspection report submitted to DTSC after each monitoring event
- Advanced notification (60 days) to DTSC for any activities that may affect the integrity of the cap

3.4 Covenant to Restrict Use of Property

The deed restriction was generated by the City and the DTSC and was recorded in April 1995. Due to the presence of metals (arsenic, lead, and zinc) in subsurface soils, the following site restrictions were developed:

- Land is restricted for use as a roadway

- Any other use must be approved by the DTSC
- No drilling for drinking water, oil, or gas
- No raising food crops or cattle
- No activities which disturb the soil can be conducted without a Soil Management and Health and Safety Plan that has been approved by DTSC
- Signs in both Spanish and English must be posted stating that no grading, excavating, or construction can occur without written DTSC permission
- Any contaminated soil that is brought to the surface must be managed in accordance with applicable state and federal law
- The use of the property must preserve the integrity of the cap and monitoring wells
- Owner shall maintain all capped areas, fences, gates and warning signs
- Any alteration to the cap must be approved by the DTSC
- DTSC must be notified of any cap disturbance and repair, within 10 working days of both discovery and completion of repairs

3.5 Construction of the Bay Trail

In 2005 construction of a portion of the Bay Trail was completed across the Drew property from Hensley Street to North Castro Street. Construction activities included removal of a portion of the engineered cap and underlying soil for the construction of a pedestrian and bicycle path. Excavation of the original cap and underlying soil was conducted in August, 2005. Approximately 216 cubic yards of soil were excavated and stockpiled on plastic on the Drew Middle and South Property near the intersection of Castro Street and Hensley Street.

In September 2005 DTSC visited the construction site and noted violations associated with the storage of the stockpiled soil (lack of cover and surface runoff control) and exposed soil in the excavation that was not covered. The DTSC sent a letter to the City of Richmond outlining the violations and requesting the preparation and implementation of a Soil Management Plan. Measures were implemented to cover and contain the stockpiled soil. Additionally, the exposed soil in the excavation was covered with 6-mil plastic sheeting, overlapping at the seams, and covered with four inches of base rock. The base rock and excavation area was then covered with an additional layer of 6-mil plastic sheeting. The excavated cap was restored with either 4-inches of asphalt pavement or cast-in-place concrete. The area of the cap modified for the construction of the Bay Trail is shown on Figure 2.

Construction activities generated approximately 216 cubic yards of soil from beneath the cap. The excavated soil was sampled and analyzed for soil disposal profiling. Based on the results of the soil disposal profiling, the soil was classified as a California Hazardous Waste. In October, 2005 Denbeste Transportation Inc. of Windsor, California transported the soil to Chemical Waste Management's Kettleman Hills disposal facility located in Kettleman City, California.

4.0 FIVE-YEAR REVIEW PROCESS

This five-year review has been conducted in general accordance with EPA's Comprehensive Five-Year Review Guidance, dated June 2001 and the Recommended Evaluation of Institutional Controls: Supplement to the Comprehensive Five-Year Review Guidance, dated September 2011. A site inspection to observe the condition of the cap and associated O&M requirements was conducted in December 2011, and a review of applicable data, mainly groundwater monitoring data, and documentation covering the period of the review was evaluated. The findings of the review are described below.

5.0 TECHNICAL ASSESSMENT

5.1 Applicable or Relevant and Appropriate Requirements

The remedial actions implemented at the former Middle and South Drew site were not based on a regulatory action for site cleanup based on discovery. A portion of the Middle and South Drew Property was acquired by the City for the right-of-way construction of the Richmond Parkway. No cleanup standards were established for lead or other metals in soil. The remedial alternative selected for the property consisted of excavation of contaminated soil exceeding specified threshold levels and capping beneath the roadway and adjacent to the roadway.

Because the remedy consisted of encapsulation of contaminated soil, Applicable or Relevant and Appropriate Requirements (ARARs) with respect to cleanup were not evaluated. In conducting the Five Year Review for the Middle and South Drew properties, URS has compared concentrations of the primary contaminant of concern (lead), as identified in the EE/CA, to screening values that would represent ARARs for site cleanup at similar sites with impacts from lead in soil. For this comparison, the California Human Health Screening Level (CHHSL) has been used for comparison with lead concentrations in soil. As indicated in Section 3.0 above, a total of approximately 8,263 cubic yards of soil with lead concentrations greater than 5,000 mg/kg were capped beneath the roadway and approximately 6,524 cubic yards of soil with lead concentrations less than 5,000 mg/kg were capped outside and adjacent to the roadway. These locations are shown on Figure 2. The CHHSL for lead under a residential land use scenario is 80 mg/kg and under an industrial land use scenario the CHHSL for lead is 320 mg/kg. The concentration of lead beneath the capped areas exceeds both the residential land use and industrial land use CHHSL. However, the current land use for the property as a roadway and associated right-of-way precludes sensitive land use such as residential. Additionally, the roadway and associated right-of-way property where lead in soil exceeds the CHHSL is capped with asphalt, thus precluding exposure to the lead contaminated soil.

For the evaluation of metals concentrations in groundwater, the analytical results have been compared with California Maximum Contaminant Levels (MCLs). The California MCLs are enforceable groundwater quality criteria for groundwater that is used as a potable source. The groundwater analytical results generated during groundwater

monitoring associated with O&M activities are summarized in Table 1. The results presented in Table 1 indicate that concentrations of lead, the primary contaminant of concern, have been below the MCL for lead (0.015 mg/l) in all of the Drew Middle and South groundwater monitoring wells since 2002. Prior to this, lead had only been detected above the MCL in monitoring well DMMW-1D twice and in monitoring wells DMMW-3D and DMMW-5D once. Arsenic has been detected in five of the groundwater monitoring wells above the MCL. During the last sampling event in 2010, arsenic was detected above the MCL in monitoring wells DMMW-1D and DMMW-3D. Other metals (antimony, cadmium, chromium, and nickel) have previously been detected above the MCL during groundwater monitoring. However, detections of these metals above their respective MCLs are limited and none of these metals have been detected above the MCL since 2002.

Although the groundwater at the property is not used for drinking water purposes, the San Francisco Regional Water Quality Control Board (RWQCB) Basin Plan does designate groundwater beneath the Middle and South Drew Property as a potential source of drinking water. However, because the groundwater beneath the property and in the down gradient direction is not currently used for drinking water purposes, there is little potential for exposure to groundwater from domestic use. However, if groundwater at the Middle and South Drew Properties were to be used for a domestic supply in the future, it would have to be remediated to meet MCL standards.

5.2 Site Inspection and Technical Assessment

During the December 2011 cap inspection, the cap and fence were evaluated for integrity. During the reconnaissance, the asphalt portion of the cap adjacent to the roadway was determined to be intact with no significant cracks visible. However, along the perimeter of where the asphalt cap adjoins the concrete sidewalk, near the intersection of Castro Street and Hensley Street, there is vegetation growing from within the seam where the two meet. Vegetation was noted growing in the area along the eastern side of where the Bay Trail cap modification joins the original cap. Additionally, vegetation growth was noted in the shallow drainage swale on the portion of the site located on the west side of Castro Street. It appears that soil accumulates during storm water runoff in the shallow swale and provides the substrate for the growth of vegetation.

The cap drainage system for the Middle and South Drew Property is effective in draining the storm water away from the cap areas. The roadway is properly sloped to divert water to the side of the road where it is intercepted by storm drain intakes. Similarly the asphalt capped areas adjacent to the roadways are engineered to drain water away from the cap area. No observations of areas where standing water persists on the capped areas were made during the 2010 O&M inspection. As indicated above, the presence of vegetation in areas where the cap adjoins sidewalks and the newer section of the Bay Trail cap area indicate the potential for some water to infiltrate the cap. However, this is not considered a significant breach of the cap integrity.

A section of the chain-link perimeter fence that separates the site from the Southern Pacific Railroad tracks along the north eastern side of the site had been removed (it appears the fence has been stolen). Additionally, a section of the fencing on the portion of the site on the western side of Castro Street was damaged allowing access to this part of the site. It should be noted that since the extension of the Bay Trail was completed through the site, this portion of the site can be accessed by the public. The signs required to be posted by DTSC were present along the perimeter fencing at the site.

The institution controls (deed restrictions) limit the use of the land for a roadway. Currently the land is used as a roadway and adjacent right-of-way property. There have been no activities associated with drilling at the property for drinking water, oil, or gas. Additionally, no food crops or cattle are being raised at the property. A portion of the property is now part of the Bay Trail. However, this is only accessible for pedestrian and bicycle traffic and is not considered an issue with respect to preserving the integrity of the capped area and monitoring wells. The owner maintains the capped areas, warning signs, gates, and fences. However, the fence is often compromised by traffic accidents that take down a portion of perimeter fencing or by vandalism and theft of portions of the fence. The City repairs the damaged fence when it has been identified. These institutional controls have been effective to date in maintaining the integrity and security of the capped area. No work that will cause disturbance of the cap is allowed unless approved by the DTSC and conducted in accordance with a DTSC approved Soil Management Plan and Health and Safety Plan.

Although there is soil present beneath the capped areas of the property that exceed both the residential and industrial CHHSL for lead, the cap is effective in mitigating exposure to the underlying soil. Additionally, institutional controls require a DTSC approved Soil Management Plan and Health and Safety Plan for any activities that will disturb contaminated soil beneath the cap.

The results of the December 2010 groundwater monitoring indicated the presence of four metals (arsenic, copper, nickel, and zinc) above the laboratory level of reporting of the seven metals analyzed (arsenic, cadmium, chromium, copper, lead, nickel, and zinc). Arsenic was detected in DMMW-1D; nickel and zinc were detected in DMMW-2D; arsenic, copper, and nickel were detected in DMMW-3D; and nickel was detected in DMMW-4D and DMMW-5D. No metals were detected above the laboratory level of reporting in DMMW-6D.

Arsenic was the only metal detected above its California Maximum Contaminant Level (MCL) of 0.01 mg/l (parts per million) during the 2011 biennial groundwater sampling. Arsenic was detected in DMMW-1D at a concentration of 0.7 mg/l. This concentration falls within the historical range of arsenic concentrations detected in this well. Arsenic in DMMW-1D has exceeded the MCL since routine monitoring began in 1996. Arsenic was detected in DMMW-3D at a concentration of 0.013 mg/l. Arsenic has been detected six times since routine monitoring began in 1996. With the exception of the November 2007 sampling event, all detections of arsenic in DMMW-3D have exceeded the MCL of 0.01 mg/l. Concentrations of arsenic in both DMMW-1D and DMMW-3D appear to be stable

within the historical range of arsenic previously detected in these wells (i.e. there appears to be is no noticeable increasing trend).

Lead was identified in site investigations as the main contaminant of concern and was the main focus of remedial actions implemented at the site. From December 2002 to present, lead has not been detected above the laboratory level of reporting in any of the monitoring wells onsite. The results of the metals analyses from site monitoring are summarized in Table 1.

Based on the groundwater analytical data generated since 1993, when groundwater monitoring began at the property, there is no indication that contaminants in the soil beneath the capped areas of the property are leaching to groundwater and causing a significant increase in the detectable concentrations of dissolved metals in groundwater. The integrity of the cap has been maintained and storm water drainage is diverted away from the capped surface so as to not allow water to pool and rest on the capped surface. There are no areas of the property where contaminated soil is present that is not currently covered by a hard cap surface.

Groundwater flow direction at the site is typically to the southwest. Appendix B contains several groundwater elevation contour maps from previous groundwater monitoring reports over the period of monitoring. The groundwater flow is towards Castro Street. Beyond Castro Street to the west/southwest is the Chevron refinery. The refinery was built at the turn of the century. Within the refinery property, groundwater and soil contaminated sites are being remediated. Remediation of the refinery sites are regulated by the Regional Water quality Control Board, San Francisco Bay Region (RWQCB, 1999). However, restoration of groundwater beneath the entire refinery site is not a requirement due to the infeasibility of remediating significant pollution related to 100 years of operational history and the absence of any historical, existing or planned municipal beneficial use (RWQCB, 1999).

The American Standard Property is another site where soil contaminated with metals has been encapsulated on site beneath a soil and asphalt capped area. The American Standard site is located in an upgradient direction (northeast) from the Drew Middle and South Property. Elevated concentrations of metals were detected in three wells at the American Standard site during the first several years of monitoring. However, there have been no detections of dissolved metals greater than the MCL since the June 2000 sampling event. Based on this data it does not appear that dissolved metals in groundwater beneath the American Standard site are a continuing source that would have a significant effect on groundwater quality beneath the Middle and South Drew Property.

Photos of the Middle and South Drew Property taken during the O&M inspection are presented in Appendix C.

The five-year review aids in the determination of whether the remedy at the site is protective of human health and the environment. The technical assessment of the remedy should examine the following three questions:

- **Question A** – Is the remedy functioning as intended by the decision documents?

- **Question B** – Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy still valid?
- **Question C**: Has any other information come to light that could call into question the protectiveness of the remedy?

In December 2010 the cap and fence were evaluated for integrity. During the reconnaissance the asphalt cap was determined to be intact with no cracks visible. As indicated above, some growth of vegetation was noted in some areas of the cap.

The perimeter fence was missing along the northeast portion of the site adjacent to the Southern Pacific railroad tracks. Additionally, the fence had been damaged on the northern end of the portion of the site on the western side of Castro Street. Signs indicating the site contains hazardous wastes were posted.

Groundwater is currently monitored on a biennial basis at the site. During the 2010 groundwater monitoring event, arsenic, copper, nickel, and zinc were detected above the laboratory level of reporting. Only arsenic was detected above the MCL in monitoring wells DMMW-1D and DMMW-3D. From December 2002 to present, lead has not been detected above the laboratory level of reporting in any of the monitoring wells onsite.

Therefore, the answers to the questions are as follows:

Question A: Is the remedy functioning as intended by the decision documents?

The cap continues to prevent exposure to the soil, and therefore is operating in its intended use. Lead was the main contaminant of concern and the focus of the remedial actions implemented at the site. Since December 2002, lead has not been detected above the laboratory reporting limit at the site. This data suggests that there is no evidence to indicate that lead is leaching from the soil above into the groundwater beneath the property. This also would indicate that the cap is acting to mitigate surface water infiltration and leaching of lead into the groundwater.

Because the fence is missing or is damaged in certain areas, it is no longer preventing access to the cap. However, since the construction of the Bay Trail across the eastern portion of the Drew property, the public has access to this portion of the site. However, the missing fence in the northeastern part of the site allows direct access to the Southern Pacific right-of-way adjacent to the site.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and RAOs used at the time of the remedy still valid?

Based on this five-year review, all of the assumptions used at the time of the implementation of the remedy are still valid. However, soil cleanup levels were not established as contaminated soil was encapsulated onsite beneath a hard cap. Based on comparison of known concentrations of lead in soil beneath the capped areas to the current CHHSL for lead, the soil beneath the capped areas would pose a potential health

risk concern if exposure were to occur. However, as indicated previously, the cap is effective in mitigating exposure to the contaminated soil.

Groundwater beneath the property contains concentrations of arsenic that exceed the MCL for arsenic. There are currently institutional controls (deed restrictions) that prohibit drilling for drinking water at the property. If water at the property were to be used for drinking water purposes, it would have to be remediated prior to use in order to mitigate the risk associated with dissolved arsenic present in the groundwater.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No additional information has come to light that could call into question the protectiveness of the remedy.

6.0 PROTECTIVENESS STATEMENT

Based on the information presented in this Five Year Review for the Middle and South Drew Property, the remedy remains protective of human health and the environment and should remain protective as long as cap integrity is maintained and institutional controls, including deed restrictions, continue to be administered.

7.0 RECOMMENDATIONS AND FOLLOW–UP ACTIONS

The missing and damaged portion of the fence needs to be repaired in order for the remedy to continue to be effective in keeping trespassers off of the cap and to mitigate direct access to the Southern Pacific right-of-way located along the eastern portion of the site. The cap and fence should continue to be evaluated during future cap inspection events. As required by the agreement with the DTSC, signs indicating the site contains hazardous substances and that no grading, excavation or construction activities can occur without permission from the DTSC have been posted on the perimeter fence. Inspection to ensure the signs are still in place should be conducted at the same time as future cap inspections.

Five Year Reviews for the Drew Middle and South Property will continue to be required. Based on the lack of lead detections in groundwater at the site since December 2002 and the groundwater flow direction towards the Chevron Refinery, where there is no planned existing or future beneficial use of groundwater, as well as the presence of deed restrictions for the Drew Middle and South Property, the DTSC has agreed to reduce the frequency of the groundwater monitoring to coincide with the Five Year Reviews as opposed to discontinuing the groundwater monitoring. The next groundwater monitoring event and Five Year Review will be conducted in 2017.

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TABLES

TABLE 1
SUMMARY OF METALS IN GROUNDWATER
DREW MIDDLE AND SOUTH PROPERTIES
CITY OF RICHMOND PARKWAY
RICHMOND, CALIFORNIA

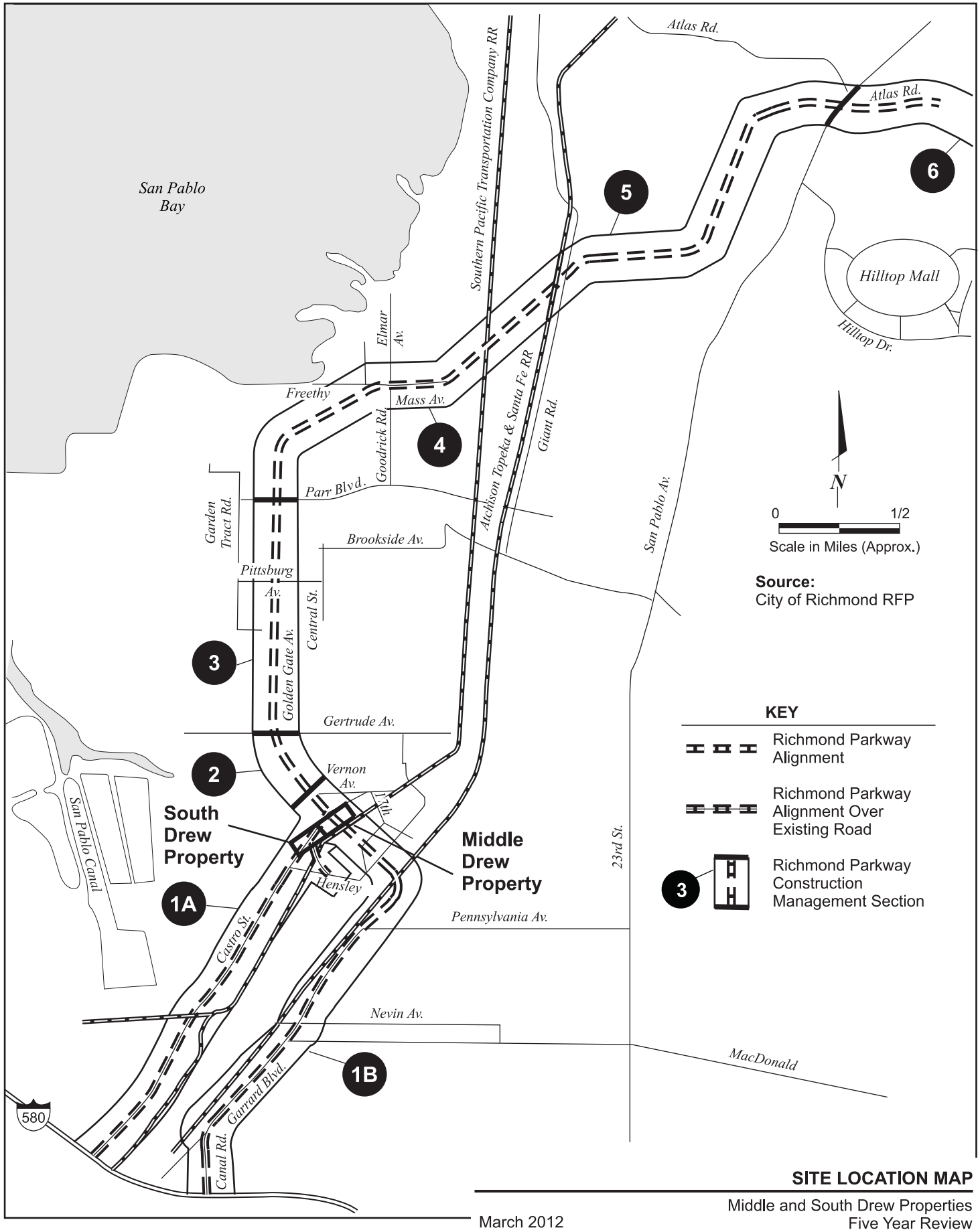
Well ID	Date	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
		← Reported in mg/L →																
Cal MCLs mg/l		**0.006**	**0.01**	**1.00**	**0.004**	**0.005**	**0.05**	**NV**	**1.3(a)**	**0.015(a)**	**0.002**	**NV**	**0.1**	**0.05**	**NV**	**0.002**	**NV**	**NV**
DMMW-1D	May-93	**0.15**	<0.02	**0.22**	<0.005	<0.005	**0.01**	**0.006**	**0.04**	<0.02	<0.0015	**0.06**	<0.015	<0.035	<0.002	<0.05	**0.01**	**0.15**
	Jan-96	<0.1	**0.4**	**0.19**	<0.001	<0.001	**0.016**	<0.04	<0.02	**0.029**	<0.0002	**0.16**	<0.04	<0.004	<0.01	<0.07	<0.04	**0.032**
	Jan-97	<0.1	**0.82**	**0.19**	<0.005	**0.02**	<0.01	<0.01	<0.02	<0.05	<0.001	**0.11**	<0.02	<0.1	<0.02	<0.2	<0.03	<0.02
	Jun-97	<0.1	**0.66**	**0.13**	<0.005	**0.013**	<0.01	<0.01	<0.02	<0.05	<0.001	**0.08**	<0.02	<0.1	<0.02	<0.2	<0.03	<0.02
	Jan-98	<0.01	**0.63**	**0.19**	<0.005	<0.029	**0.17**	<0.005	**0.012**	<0.005	<0.0005	**0.072**	**0.053**	<0.015	<0.005	<0.01	<0.01	**0.011**
	Nov-99	NA	**0.265**	NA	NA	<0.001	<0.01	NA	**0.0594**	**0.0167**	NA	NA	<0.01	NA	NA	NA	NA	**0.142**
	Jun-00	NA	**0.753**	NA	NA	<0.001	<0.01	NA	**0.0149**	<0.003	NA	NA	<0.01	NA	NA	NA	NA	**0.099**
	Jul-01	NA	**0.31**	NA	NA	<0.002	<0.005	NA	<0.005	<0.005	NA	NA	<0.005	NA	NA	NA	NA	<0.01
	Dec-02	NA	**0.59**	NA	NA	<0.005	<0.01	NA	<0.01	<0.003	NA	NA	<0.02	NA	NA	NA	NA	<0.02
	Apr-03	NA	**0.69**	NA	NA	<0.005	<0.01	NA	<0.01	<0.003	NA	NA	<0.02	NA	NA	NA	NA	<0.02
	Nov-07	NA	**0.78**	NA	NA	<0.005	<0.005	NA	<0.005	<0.0034	NA	NA	<0.005	NA	NA	NA	NA	<0.02
	Jan-11	NA	**0.7**	NA	NA	<0.002	<0.01	NA	<0.02	<0.005	NA	NA	<0.01	NA	NA	NA	NA	<0.02
DMMW-2D	May-93	<0.035	<0.02	**0.07**	<0.005	<0.005	**0.01**	**0.008**	**0.04**	<0.02	<0.0015	**0.06**	<0.0015	<0.035	<0.002	<0.05	**0.02**	**1.1**
	Jan-96	<0.1	**0.027**	**0.056**	<0.001	<0.001	**0.091**	<0.04	<0.02	<0.002	<0.0002	**0.044**	**0.05**	<0.004	<0.01	<0.07	<0.04	**0.11**
	Jan-97	<0.1	<0.1	**0.08**	<0.005	<0.005	<0.01	<0.01	<0.02	<0.05	<0.001	**0.03**	<0.02	<0.1	<0.02	<0.2	<0.03	**0.06**
	Jun-97	<0.1	<0.1	**0.09**	<0.005	<0.005	<0.01	<0.01	<0.02	<0.05	<0.001	**0.04**	<0.02	<0.1	<0.02	<0.2	<0.03	<0.07
	Jan-98	<0.01	<0.005	**0.051**	<0.005	<0.005	**0.19**	<0.005	**0.031**	<0.005	<0.0005	**0.013**	**0.054**	<0.015	**0.0078**	<0.01	<0.01	**0.23**
	Nov-99	NA	<0.01	NA	NA	<0.001	<0.01	NA	**0.0268**	**0.0103**	NA	NA	<0.01	NA	NA	NA	NA	**0.164**
	Jun-00	NA	<0.01	NA	NA	<0.001	<0.01	NA	**0.0306**	<0.003	NA	NA	<0.01	NA	NA	NA	NA	**0.0824**
	Jul-01	NA	<0.005	NA	NA	<0.002	<0.005	NA	<0.005	<0.005	NA	NA	**0.0068**	NA	NA	NA	NA	**0.024**
	Dec-02	NA	<0.005	NA	NA	<0.005	<0.01	NA	<0.01	<0.003	NA	NA	<0.02	NA	NA	NA	NA	**0.043**
	Apr-03	NA	<0.005	NA	NA	<0.005	<0.01	NA	<0.01	<0.003	NA	NA	<0.02	NA	NA	NA	NA	**0.024**
	Nov-07	NA	<0.005	NA	NA	<0.005	<0.005	NA	<0.005	<0.0034	NA	NA	**0.0064**	NA	NA	NA	NA	<0.02
	Jan-01	NA	<0.01	NA	NA	<0.002	<0.01	NA	<0.02	<0.005	NA	NA	<0.01	NA	NA	NA	NA	**0.028**
DMMW-3D	May-93	<0.035	<0.02	**0.04**	<0.005	<0.005	**0.005**	<0.005	**0.01**	<0.02	<0.0015	**0.06**	<0.015	<0.035	<0.002	<0.05	**0.02**	**0.15**
	Jan-96	<0.1	**0.022**	**0.016**	<0.001	<0.001	<0.01	<0.04	<0.02	<0.002	<0.0002	**0.056**	<0.04	<0.004	<0.01	<0.07	<0.04	**0.035**
	Jan-97	<0.1	<0.1	<0.015	<0.005	<0.005	<0.01	<0.01	<0.02	<0.05	<0.001	**0.05**	**0.02**	<0.1	<0.02	<0.2	<0.03	<0.02
	Jun-97	<0.1	<0.1	<0.015	<0.005	<0.005	<0.01	<0.01	<0.02	<0.05	<0.001	**0.06**	<0.02	<0.1	<0.02	<0.2	<0.03	<0.02
	Jan-98	<0.01	<0.01	**0.0094**	<0.005	<0.005	**0.1**	**0.0079**	**0.016**	**0.034**	<0.0005	**0.076**	**0.045**	**0.013**	<0.005	<0.01	**0.015**	**0.0078**
	Nov-99	NA	<0.01	NA	NA	<0.001	<0.01	NA	**0.031**	**0.0128**	NA	NA	<0.01	NA	NA	NA	NA	**0.164**
	Jun-00	NA	**0.0203**	NA	NA	<0.001	<0.01	NA	**0.0165**	<0.003	NA	NA	**0.0121**	NA	NA	NA	NA	**0.0824**
	Jul-01	NA	<0.005	NA	NA	<0.002	<0.005	NA	<0.005	<0.005	NA	NA	**0.0079**	NA	NA	NA	NA	<0.01
	Dec-02	NA	**0.012**	NA	NA	<0.005	<0.01	NA	<0.01	<0.003	NA	NA	<0.02	NA	NA	NA	NA	<0.02
	Apr-03	NA	**0.011**	NA	NA	<0.005	<0.01	NA	<0.01	<0.003	NA	NA	<0.02	NA	NA	NA	NA	<0.02
	Nov-07	NA	**0.0082**	NA	NA	<0.005	<0.005	NA	**0.006**	<0.0034	NA	NA	**0.0097**	NA	NA	NA	NA	<0.02
	Jan-11	NA	**0.013**	NA	NA	<0.002	<0.01	NA	<0.02	<0.005	NA	NA	**0.014**	NA	NA	NA	NA	<0.02
DMMW-4D	May-93	<0.035	<0.02	**0.08**	<0.005	<0.005	**0.007**	<0.005	**0.03**	<0.02	<0.0015	**0.02**	<0.015	<0.035	<0.002	<0.05	**0.01**	**0.15**
	Jan-96	<0.1	**0.011**	**0.19**	<0.001	<0.001	<0.01	<0.04	<0.02	<0.002	<0.0002	**0.011**	<0.04	<0.004	<0.01	<0.07	<0.04	**0.024**
	Jan-97	<0.1	<0.1	**0.21**	<0.005	<0.005	<0.01	<0.01	<0.02	<0.05	<0.001	<0.02	<0.02	<0.1	<0.02	<0.2	<0.03	<0.02
	Jun-97	<0.1	<0.1	**0.25**	<0.005	<0.005	<0.01	<0.01	<0.02	<0.05	<0.001	<0.02	<0.02	<0.1	<0.02	<0.2	<0.03	<0.02
	Jan-98	<0.01	<0.01	**0.38**	<0.005	<0.005	**0.19**	**0.0084**	**0.012**	<0.05	<0.0005	**0.01**	**0.075**	<0.015	<0.005	<0.01	**0.025**	**0.017**
	Nov-99	NA	<0.01	NA	NA	<0.001	<0.01	NA	**0.0232**	**0.0136**	NA	NA	<0.01	NA	NA	NA	NA	**0.0936**
	Jun-00	NA	<0.01	NA	NA	<0.001	<0.01	NA	**0.0222**	<0.003	NA	NA	<0.01	NA	NA	NA	NA	**0.13**
	Jul-01	NA	<0.005	NA	NA	<0.002	<0.005	NA	<0.005	<0.005	NA	NA	**0.0072**	NA	NA	NA	NA	<0.01
	Dec-02	NA	<0.005	NA	NA	<0.005	<0.01	NA	<0.01	<0.003	NA	NA	<0.02	NA	NA	NA	NA	<0.02
	Apr-03	NA	<0.005	NA	NA	<0.005	<0.01	NA	<0.01	<0.003	NA	NA	<0.02	NA	NA	NA	NA	<0.02
	Nov-07	NA	<0.005	NA	NA	<0.005	<0.005	NA	<0.005	<0.0034	NA	NA	**0.0066**	NA	NA	NA	NA	<0.02
	Jan-11	NA	<0.01	NA	NA	<0.002	<0.01	NA	<0.02	<0.005	NA	NA	<0.01	NA	NA	NA	NA	<0.02
DMMW-5D	May-93	<0.035	<0.02	**0.06**	<0.005	<0.005	**0.006**	<0.005	**0.02**	<0.02	<0.0015	**0.02**	<0.015	<0.035	<0.002	<0.05	**0.01**	**0.15**
	Jan-96	<0.1	**0.009**	**0.042**	<0.001	<0.001	<0.01	<0.04	<0.02	<0.002	<0.0002	**0.017**	<0.04	<0.004	<0.01	<0.07	<0.04	**0.036**
	Jan-97	<0.1	<0.1	**0.04**	<0.005	<0.005	<0.01	<0.01	<0.02	<0.05	<0.001	<0.02	**1.9**	<0.1	<0.02	<0.2	<0.03	<0.02
	Jun-97	<0.1	<0.1	**0.04**	<0.005	<0.005	<0.01	<0.01	<0.02	<0.05	<0.001	<0.02	**0.02**	<0.1	<0.02	<0.2	<0.03	<0.02
	Jan-98	<0.01	<0.01	**0.065**	<0.005	<0.005	**0.1**	<0.005	**0.011**	<0.05	<0.0005	**0.012**	**0.062**	**0.013**	<0.005	<0.01	**0.018**	**0.13**
	Nov-99	NA	**0.0123**	NA	NA	<0.001	<0.01	NA	**0.0345**	**0.0126**	NA	NA	**0.0119**	NA	NA	NA	NA	**0.183**
	Jun-00	NA	<0.01	NA	NA	<0.001	<0.01	NA	**0.0152**	<0.003	NA	NA	**0.0251**	NA	NA	NA	NA	**0.107**
	Jul-01	NA	<0.005	NA	NA	**0.042**	**0.044**	NA	**0.049**	**0.043**	NA	NA	**0.064**	NA	NA	NA	NA	**0.052**
	Dec-02	NA	<0.005	NA	NA	<0.005	<0.01	NA	<0.01	<0.003	NA	NA	<0.02	NA	NA	NA	NA	<0.02
	Apr-03	NA	<0.005	NA	NA	<0.005	<0.01	NA	<0.01	<0.003	NA	NA	<0.02	NA	NA	NA	NA	<0.02
	Nov-07	NA	<0.005	NA	NA	<0.005	<0.005	NA	<0.005	<0.0034	NA	NA	**0.011**	NA	NA	NA	NA	<0.02
	Jan-11	NA	<0.01	NA	NA	<0.002	<0.01	NA	<0.02	<0.005	NA	NA	<0.01	NA	NA	NA	NA	<0.02
DMMW-6D	May-93	<0.035	<0.02	**0.04**	<0.005	<0.005	**0.007**	<0.005	**0.01**	<0.02	<0.0015	**0.009**	<0.015	<0.035	<0.002	<0.05	**0.009**	**0.15**
	Jan-96	<0.1	**0.007**	**0.024**	<0.001	<0.001	**0.029**	<0.04	<0.02	<0.002	<0.0002	**0.012**	<0.04	<0.004	<0.01	<0.07	<0.04	**0.028**
	Jan-97	<0.1	<0.1	**0.03**	<0.005	<0.005	<0.01	<0.01	<0.02	<0.05	<0.001	<0.02	<0.02	<0.1	<0.02	<0.2	<0.03	<0.02
	Jun-97	<0.1	<0.1	**0.03**	<0.005	<0.005	<0.01	<0.01	<0.02	<0.05	<0.001	<0.02	<0.02	<0.1	<0.02	<0.2	<0.03	<0.02
	Jan-98	<0.01	<0.01	**0.037**	<0.005	<0.005	**0.031**	**0.0074**	<0.005	<0.05	<0.0005	**0.011**	**0.013**	<0.015	<0.005	<0.01	**0.015**	**0.068**
	Nov-99	NA	<0.01	NA	NA	<0.001	<0.01	NA	**0.0257**	**0.0102**	NA	NA	<0.01	NA	NA	NA	NA	**0.104**
	Jun-00	NA	<0.01	NA	NA	<0.001	<0.01	NA	<0.01	<0.003	NA	NA	<0.01	NA	NA	NA	NA	**0.0841**
	Jul-01	NA	<0.005	NA	NA	<0.002	<0.005	NA	<0.005	<0.005	NA	NA	<0.005	NA	NA	NA	NA	<0.01
	Dec-02	NA	<0.005	NA	NA	<0.005	<0.01	NA	<0.01	<0.003	NA	NA	<0.02	NA	NA	NA	NA	<0.02
	Apr-03	NA	<0.005	NA	NA	<0.005	<0.01	NA	<0.01	<0.003	NA	NA	<0.02	NA	NA	NA	NA	<0.02
	Nov-07	NA	<0.005	NA	NA	<0.005	<0.005	NA	<0.005	<0.0034	NA	NA	<0.005	NA	NA	NA	NA	<0.02
	Jan-11	NA	<0.01	NA	NA	<0.002	<0.01	NA	<0.02	<0.005	NA	NA	<0.01	NA	NA	NA	NA	<0.02

Notes:
Bold value indicates analyte above laboratory reporting limits
<0.001 = Below reporting limit of 0.001 mg/l
NA= Not analyzed

Cal MCLs = Califiornia Maximum Contaminant Levels
mg/L=milligrams per liter
(a) = Values are Action Levels under the Copper and Lead Rule

NV = No MCL value for this metal

Figures



SITE LOCATION MAP

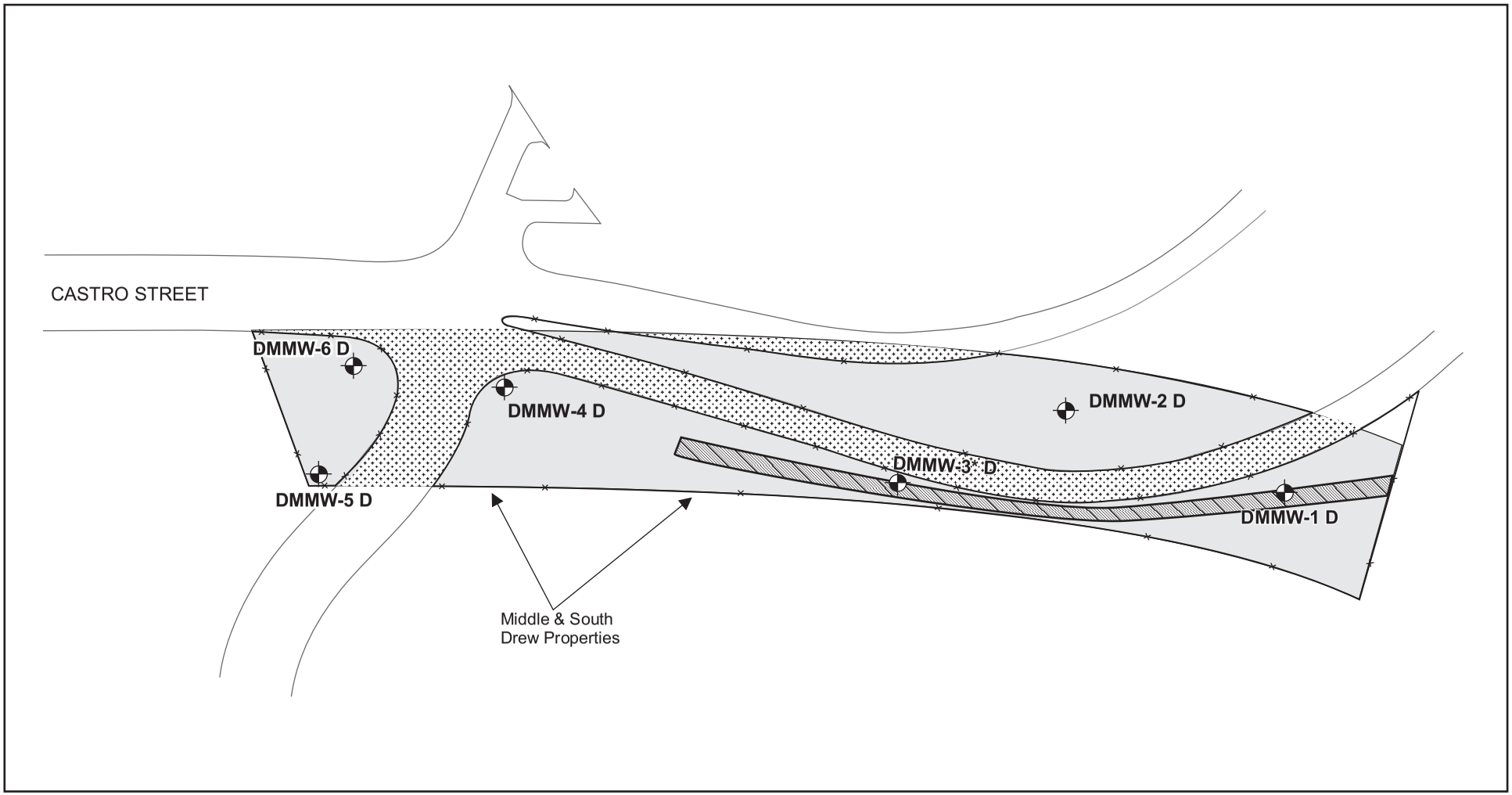
Middle and South Drew Properties
Five Year Review
Richmond, California

March 2012
28068082

URS

FIGURE 1

3/30/12 hk ...\28068082 American Standard\F1_slm_drew.ai



LEGEND

- DMMW-1 — Monitoring Well Location
- Area of Asphalt Cap
- Area of Roadway Paved Cap
- * — Location for Re-installation of Monitoring Well DMMW-3
- Fence
- Area of Soil Excavation for Bay Trail (2006)

N

0 50 100

Scale In Feet

SITE PLAN SHOWING
MONITORING WELLS AND PAVED AREAS

Middle and South Drew Properties
Five Year Review
Richmond, California

March 2012
28068082

URS

FIGURE 2

3/30/12 hk ...\28068082 American Standard\F2_sp_mwlocs_drew.ai

APPENDIX A
INVESTIGATION SOIL ANALYTICAL RESULTS SUMMARY TABLES

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS SUMMARY - TASK 1
SOUTH DREW PROPERTY (1A-105a)

Sample Location Sample Depth	SS-1 0.5′	SS-2 0.5′	SS-3 0.5′	SS-4 0.5′	SS-5 0.5′	SS-6 0.5′	SS-7 0.5′	SS-8 0.5′	SS-9 0.5′	SS-10 0.5′	10×STLC/ TTLC
ANALYTE											
BTEX (mg/kg)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
TPH-IDQ (mg/kg)	ND	ND	ND	ND		ND	ND	ND	ND	ND	
Waste Oil					370						
TRPH (mg/kg) (EPA 418.1)	32	1,400	55	480	750	24	96	300	93	140	
METALS (mg/kg)											
Aluminum	17,125	8,750	15,000	14,250	3,450	6,500	13,000	7,000	5,000	3,750	-/-
Arsenic	65.5	87.5	89.2	100	88.5	38.0	80.8	10.4	28.2	26.0	50/500
Barium	225	375	185	400	500	56.0	515	575	33.2	24.0	1,000/10,000
Cadmium	1.00	37.5	5.00	14.0	35.2	ND	2.25	4.80	ND	ND	10/100
Cobalt	6.80	16.5	13.8	18.8	10.5	7.25	7.25	11.0	3.50	3.00	800/8,000
Chromium	25.0	80.0	47.5	48.5	77.5	17.0	42.0	150	16.2	18.8	50[1]/2,500
Copper	220	640	120	245	975	120	165	400	30.8	23.5	250/2,500
Iron	24,750	71,250	26,500	33,000	80,250	32,000	40,700	59,000	25,250	18,750	-/-
Nickel	25.0	140	36.5	115	50.0	34.2	35.0	69.2	14.2	14.2	200/2,000
Lead	1,410	18,900	1,125	8,400	31,250	44.2	2,100	2,650	375	390	50/1,000
Antimony	42.5	500	30.0	75.0	825	2.40	32.5	60.0	10.0	10.0	150/500
Vanadium	25.5	63.0	51.2	58.5	27.8	39.2	27.5	25.8	6.25	5.25	240/2,400
Zinc	2,475	16,625	850	6,600	22,250	33.5	2,025	2,700	53.8	64.2	2,500/5,000
Silver	0.50	28.8	2.50	2.35	22.0	ND	0.65	0.50	ND	ND	50/100
Magnesium	6,150	5,000	5,000	4,450	1,400	2,175	6,350	2,450	1,050	825	-/-
Manganese	375	6,700	1,150	1,625	10,550	210	1,650	825	200	190	-/-
Mercury	0.11	2.10	0.38	0.96	3.97	0.10	0.42	0.57	0.02	0.02	2.0/20
Tin	14.8	2,300	52.5	425	1,550	24.0	67.5	92.5	6.80	2.25	-/-
Titanium	550	600	425	425	105	85.0	700	500	170	200	-/-
Zirconium	160	235	6.80	87.5	6.25	2.50	145	77.5	10.5	11.0	-/-

Notes:
[1] 10 × STLC value for Chromium (Total) and Chromium (III) compounds is 5,600 mg/kg; the TCLP for Chromium (Total) and Chromium (III) is 5 mg/kg (federal requirement)
ND Not Detected
Above ten times STLC
☐ Above TTLC

TABLE 1 (Concluded)
SOIL SAMPLE ANALYTICAL RESULTS SUMMARY - TASK 1
MIDDLE DREW PROPERTY (1A-105b)

Sample Location Sample Depth	SS-1 0.5′	SS-2 0.5′	SS-3 0.5′	SS-4 0.5′	SS-5 0.5′	SS-6 0.5′	SS-7 0.5′	SS-8 0.5′	SS-9 0.5′	SS-10 0.5′	SS-11 0.5′	10×STLC/ TTLC
ANALYTE												
BTEX (mg/kg) Toluene	ND	ND	ND	0.013	ND	0.019	0.011	0.008	0.020	0.013	0.030	
TPH-IDQ (mg/kg) Waste Oil	220	ND	ND	ND	ND	ND	ND	ND	ND	260	ND	
TRPH (mg/kg) (EPA 418.1)	410	180	55	ND	39	41	74	270	62	520	260	
METALS (mg/kg)												
Aluminum	16,500	3,350	20,600	15,500	7,500	10,750	13,500	5,750	17,750	4,700	10,500	-/-
Arsenic	84.5	14.2	120	91.0	55.5	85.0	55.0	32.5	67.5	37.5	57.5	50/500
Barium	195	72.5	600	250	560	825	130	105	275	150	255	1,000/10,000
Cadmium	ND	3.50	ND	ND	13.8	ND	ND	ND	4.50	ND	15.0	10/100
Cobalt	10.8	6.25	12.0	14.0	9.50	13.8	10.2	5.25	30.0	8.5	8.25	800/8,000
Chromium	42.5	3.80	24.5	40.0	23.0	40.0	30.0	32.5	30.0	10.0	45.0	50/2,500
Copper	24.2	3.80	180	27.0	8,925	500	27.5	40.0	2,500	47.5	225	250/2,500
Iron	23,250	845	81,875	23,000	29,500	48,000	22,500	8,250	60,750	9,250	63,500	-/-
Nickel	45.0	6.00	33.0	46.0	190	60.0	42.5	40.0	80.0	22.5	50.0	200/2,000
Lead	120	475	375	14.0	2,950	1,150	77.5	315	1,975	450	11,250	50/1,000
Antimony	ND	0.80	6.50	ND	65.0	10.0	ND	8.0	37.5	13.0	45.0	150/500
Vanadium	37.5	4.80	130	43.0	28.5	22.5	30.0	10.0	17.5	11.0	155	240/2,400
Zinc	110	43.8	385	90.0	30,000	2,050	115	360	3,950	465	9,750	2,500/5,000
Silver	ND	ND	ND	ND	1.25	0.38	ND	ND	1.40	0.20	3.00	50/100
Magnesium	5,750	665	2,325	5,500	1,825	3,675	5,750	3,000	3,100	1,850	1,650	-/-
Manganese	850	2.80	4,500	770	345	465	480	145	875	270	2,725	-/-
Mercury	0.04	ND	ND	0.03	0.18	0.39	0.09	0.14	0.27	0.19	0.81	2.0/20
Tin	ND	ND	7.25	ND	97.5	28.0	ND	ND	150	9.00	555	-/-
Titanium	225	110	2,425	460	265	595	135	200	330	270	440	-/-
Zirconium	3.25	13.2	60.0	ND	82.5	57.5	ND	ND	72.5	50.0	75.0	-/-

Notes:
(1) 10 × STLC value for Chromium (Total) and Chromium (III) compounds is 5,600 mg/kg; the TCLP for Chromium (Total) and Chromium (III) is 5 mg/kg (federal requirement)
ND Not Detected
Above ten times STLC
□ Above TTLC

TABLE 2
SOIL SAMPLE ANALYTICAL RESULTS SUMMARY - TASK 2
SOUTH AND MIDDLE DREW PROPERTIES

Boring Number Sample Depth	DMMW-1 (4')	DMMW-2 (4')	DMMW-3 (4')	DMMW-4 (5')	DMMW-5 (4')	DMMW-6 (6')
ANALYTE TPH-IDQ (mg/kg)						
Kerosene	NA	NA	NA	ND < 1.0	ND < 1.0	ND < 1.0
Gasoline	NA	NA	NA	ND < 1.0	ND < 1.0	ND < 1.0
Mineral spirits	NA	NA	NA	ND < 1.0	ND < 1.0	ND < 1.0
Diesel	NA	NA	NA	ND < 1.0	2.8	7.9
JP-5	NA	NA	NA	ND < 1.0	ND < 1.0	ND < 1.0
Oil	NA	NA	NA	ND < 5.0	17	26
BTEX (mg/kg)						
Benzene	NA	NA	NA	ND < 0.005	ND < 0.005	ND < 0.005
Toluene	NA	NA	NA	0.012	0.010	0.010
Ethylbenzene	NA	NA	NA	ND < 0.005	ND < 0.005	ND < 0.005
Xylene	NA	NA	NA	0.008	0.006	0.010
pH	9.3	8.5	8.6	8.4	8.3	9.6

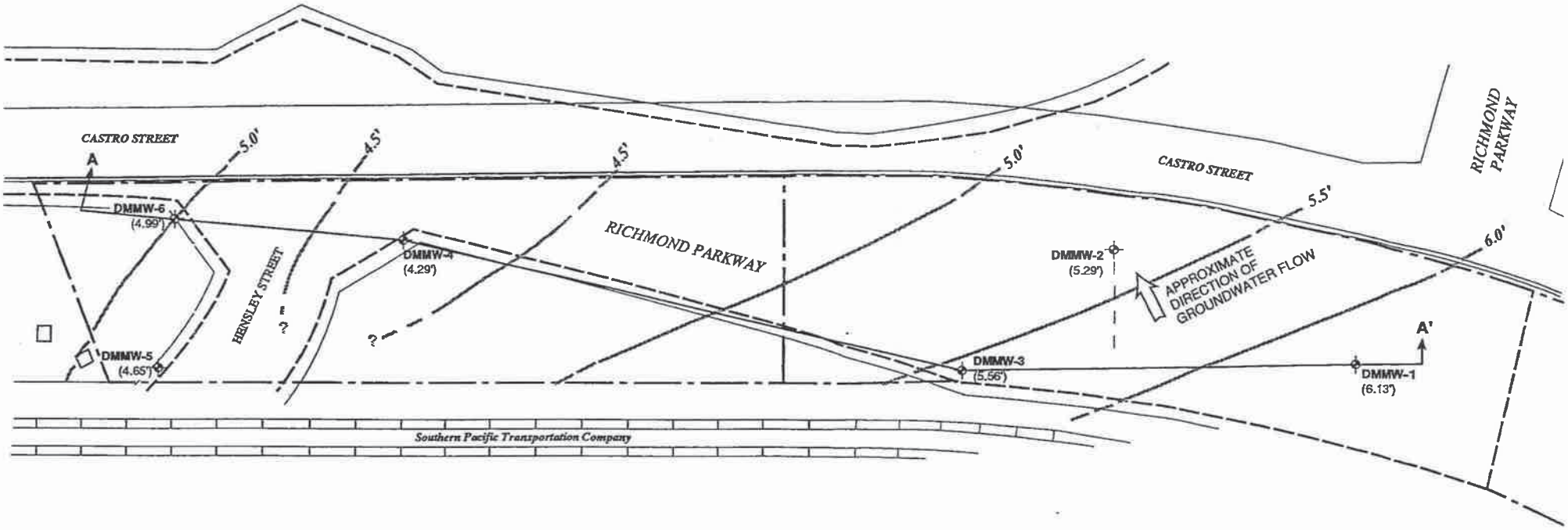
NOTES: NA Not Analyzed
ND Not Detected

TABLE 2 (Concluded)
SOIL SAMPLE ANALYTICAL RESULTS SUMMARY - TASK 2
SOUTH AND MIDDLE DREW PROPERTIES

Boring Number Sample Depth	DMMW-1 (4')	DMMW-2 (4')	DMMW-3 (4')	DMMW-4 (5')	DMMW-5 (4')	DMMW-6 (6')	10×STLC/ TTLC
METALS (mg/kg)							
Aluminum	8,685	15,510	16,900	9,980	13,840	12,370	-/-
Arsenic	38.2	72.9	85.0	57.0	68.2	58.0	50/500
Barium	57.0	190	140	250	220	125	1,000/10,000
Beryllium	ND < 0.008	ND < 0.008	ND < 0.008	ND < 0.008	ND < 0.008	ND < 0.008	7.5/75
Cadmium	ND < 0.08	ND < 0.08	ND < 0.08	ND < 0.08	ND < 0.08	ND < 0.08	10/100
Cobalt	3.47	10.1	11.0	5.35	11.5	7.80	800/8,000
Chromium	14.8	34.0	42.5	22.0	34.5	28.3	50/2,500
Copper	31.8	20.7	25.5	65.3	41.5	16.7	250/2,500
Iron	31,890	33,340	26,220	19,200	28,780	15,970	-/-
Molybdenum	ND < 0.15	ND < 0.15	ND < 0.15	ND < 0.15	ND < 0.15	ND < 0.15	3,500/3,500
Nickel	19.4	40.4	57.0	27.2	36.8	31.5	200/2,000
Lead	305	25.8	5.50	305	2,590	5.25	50/1,000
Antimony	12.8	ND < 0.40	ND < 0.40	5.90	28.7	ND < 0.40	150/500
Selenium	ND < 0.85	ND < 0.85	ND < 0.85	ND < 0.85	ND < 0.85	ND < 0.85	10/100
Thallium	ND < 1.10	ND < 1.10	ND < 1.10	ND < 1.10	ND < 1.10	ND < 1.10	70/700
Vanadium	14.9	34.6	39.0	24.5	30.5	28.0	240/2,400
Zinc	290	97.0	83.0	415	2,815	34.6	2,500/5,000
Silver	ND < 0.04	ND < 0.04	ND < 0.04	ND < 0.04	ND < 0.04	ND < 0.04	50/100
Magnesium	2,980	6,160	9,115	4,280	5,010	5,920	-/-
Manganese	235	475	385	465	665	230	-/-
Mercury	0.08	0.04	0.05	0.04	0.12	0.06	2.0/20
Tin	10.0	ND < 0.08	ND < 0.08	10.8	6.75	3.25	-/-
Titanium	365	285	180	250	500	68.8	-/-
Tungsten	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	ND < 1.0	-/-
Zirconium	65.0	4.00	5.25	75.0	38.8	ND < 3.80	-/-

NOTES: Above ten times STLC
□ Above TTLC

APPENDIX B
HISTORICAL GROUNDWATER ELEVATION CONTOUR MAPS



KEY

- Proposed Parkway Route
- Drew Property Boundary
- DMMW-4 (4.29') Task 2 Monitoring Well (Water Level Elevation, Feet Above MSL)
- 5.0' Water Level Contours
- Cross Section Line. Cross Section shown on Figure 4

N

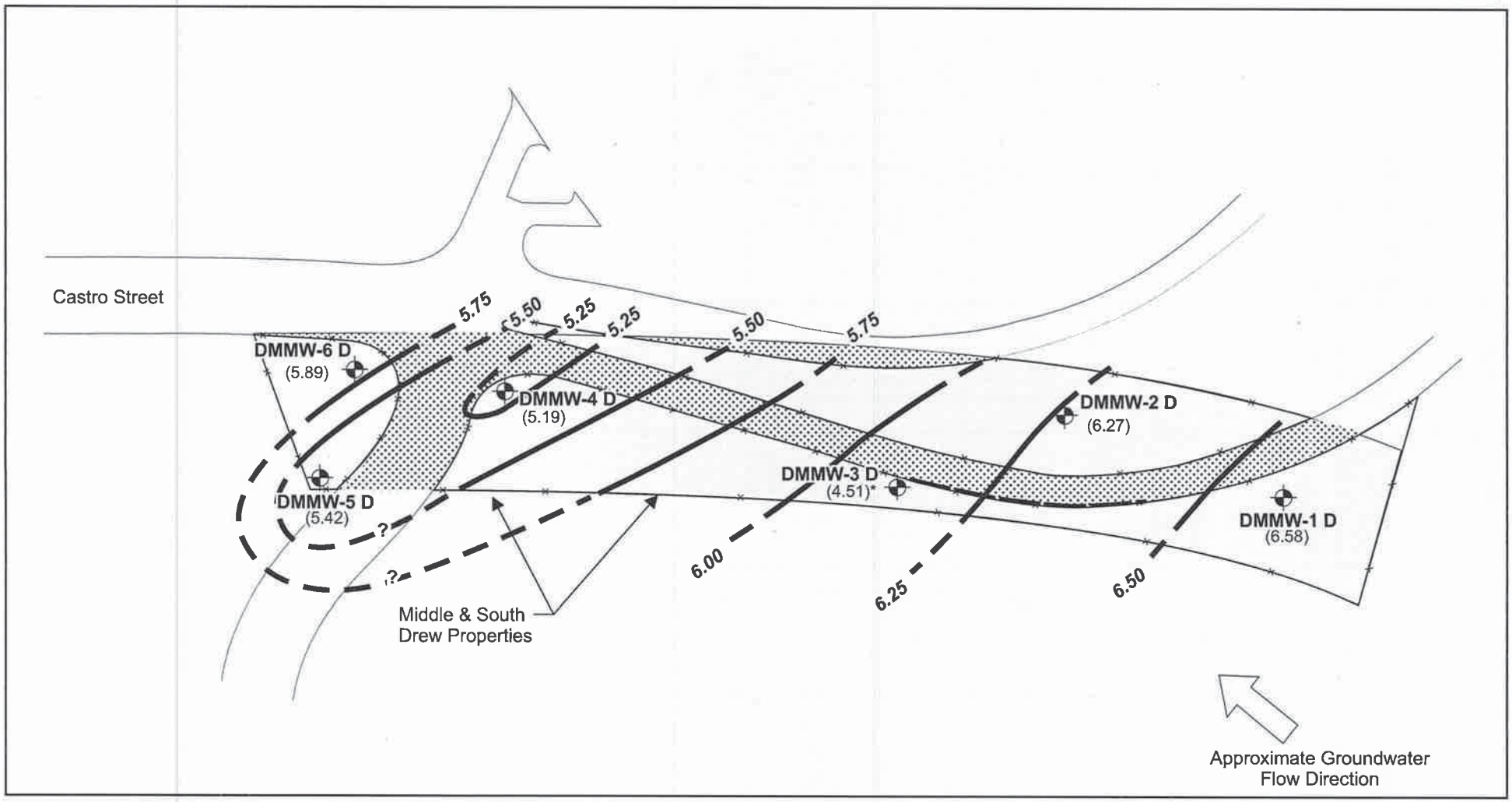
0 100

Feet

WATER LEVEL ELEVATIONS AND CONTOUR

December 1993
383-043

South and Middle Drew Properties
City of Richmond, Parkway Proje
Richmond, Californ



LEGEND

DMMW-1 (6.92) — Monitoring Well Location (Groundwater Elevation)

Area of Asphalt Cap

Area of Roadway Paved Cap

Interpreted Groundwater Flow Direction

6.0 — Groundwater Elevation Contour (dashed where inferred)

*(4.51) not considered in contour elevation mapping

N

0 50 100

Scale In Feet

GROUNDWATER ELEVATION CONTOUR MAP

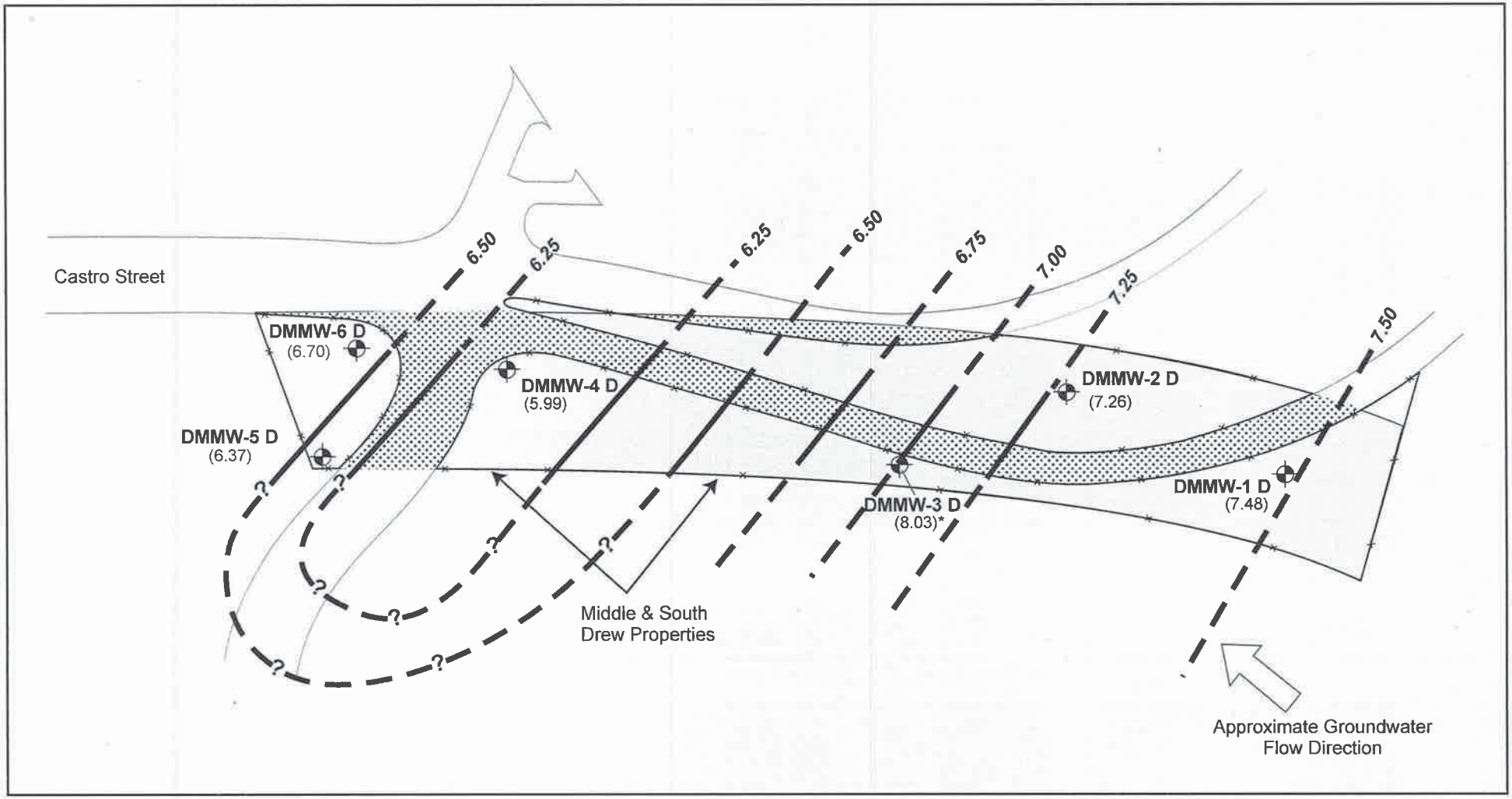
Middle and South Drew Properties
Biennial Operations and Maintenance 2007/2008
Richmond, California

January 2008
28067374

URS

FIGURE 3

2/4/08 hk..\28065615 American Standard\F3_GW elev cont_drew_11-07.cdr



LEGEND

- DMMW-1 (6.92) — Monitoring Well Location (Groundwater Elevation)
- Area of Asphalt Cap
- Area of Roadway Paved Cap
- Interpreted Groundwater Flow Direction
- 6.0 — Groundwater Elevation Contour (dashed where inferred)

*(8.03) not considered in contour elevation mapping

N

0 50 100

Scale In Feet

GROUNDWATER ELEVATION CONTOUR MAP

Middle and South Drew Properties
April 2011 Biennial Operations and Maintenance
28067892 Richmond, California

URS

FIGURE 3

4/15/11 hk ..T:\American Standard Richmond\F3_GW ELEV CONT_DREW.ai

APPENDIX C
PHOTOLOG

URS

PHOTOGRAPHIC LOG

City of Richmond	Drew Middle and South Property	URS Project No. 28068082 Date: 12/31/11

Photo No. 1

Direction Photo Taken:

South

Description:

View of the sign posted on the fence at the South Drew Property entrance.

Photo No. 2

Direction Photo Taken:

West

Description:

View of the South Drew Property cap.

URS

PHOTOGRAPHIC LOG

City of Richmond	Drew Middle and South Property	URS Project No. 28068082 Date: 12/31/11

Photo No. 3

Direction Photo Taken:

South

Description:

View of the South Drew property from across Hensley Street (Southern end of Middle Drew Property.

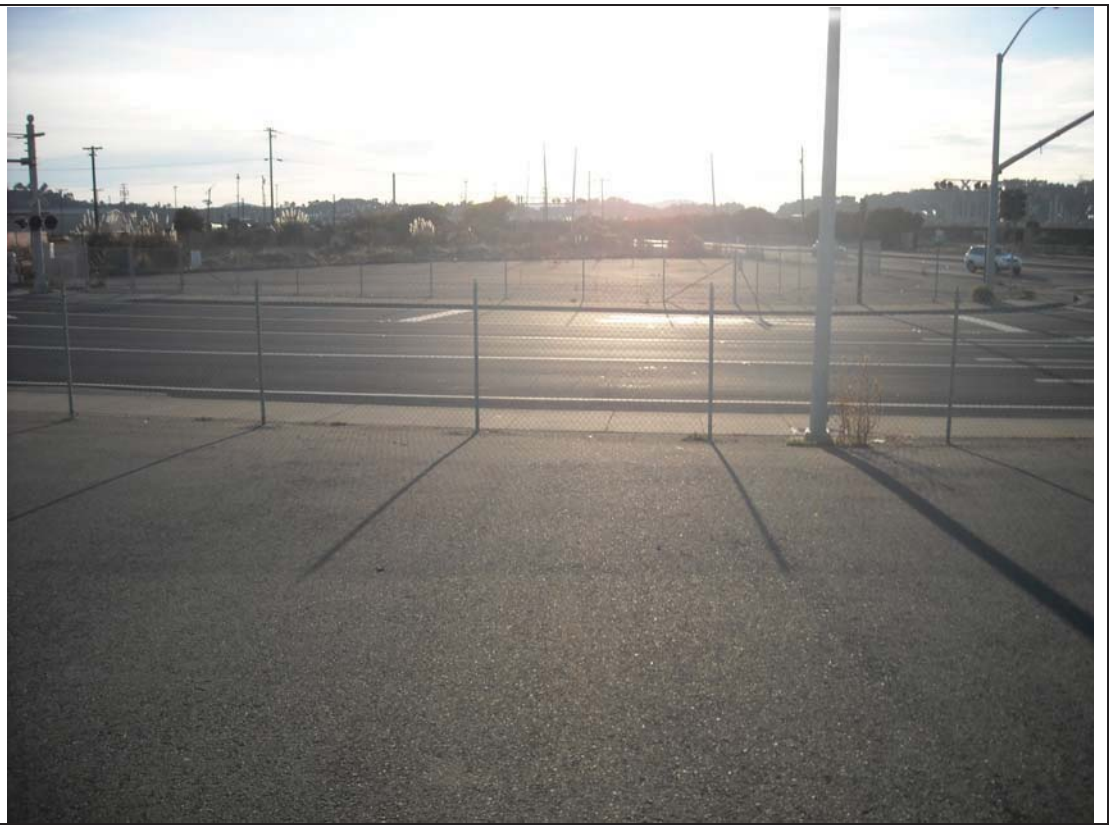


Photo No. 4

Direction Photo Taken:

Down

Description:

View of the marker for the Bay Trail at the southern end of the Middle Drew property.

URS

PHOTOGRAPHIC LOG

City of Richmond	Drew Middle and South Property	URS Project No. 28068082 Date: 12/31/11

Photo No. 5

Direction Photo Taken:

North

Description:

View of the eastern side of the Middle Drew Property.

Photo No. 6

Direction Photo Taken:

Northwest

Description:

View of the eastern side of the Middle Drew Property from the southeast corner of the property.

URS

PHOTOGRAPHIC LOG

City of Richmond	Drew Middle and South Property	URS Project No. 28068082 Date: 12/31/11

Photo No. 7

Direction Photo Taken:

Southwest

Description:

View to the southwest from near the center of the eastern side of the Middle Drew Property.

Photo No. 8

Direction Photo Taken:

Northwest

Description:

View of Middle Drew property from beneath overpass.

URS

PHOTOGRAPHIC LOG

City of Richmond	Drew Middle and South Property	URS Project No. 28068082 Date: 12/31/11

Photo No. 9

Direction Photo Taken:

Southwest

Description:

View looking to the south across the Parkway. The Chevron refinery is in the background of the photo. Note the weeds growing up between the K rail and the edge of the asphalt cap.

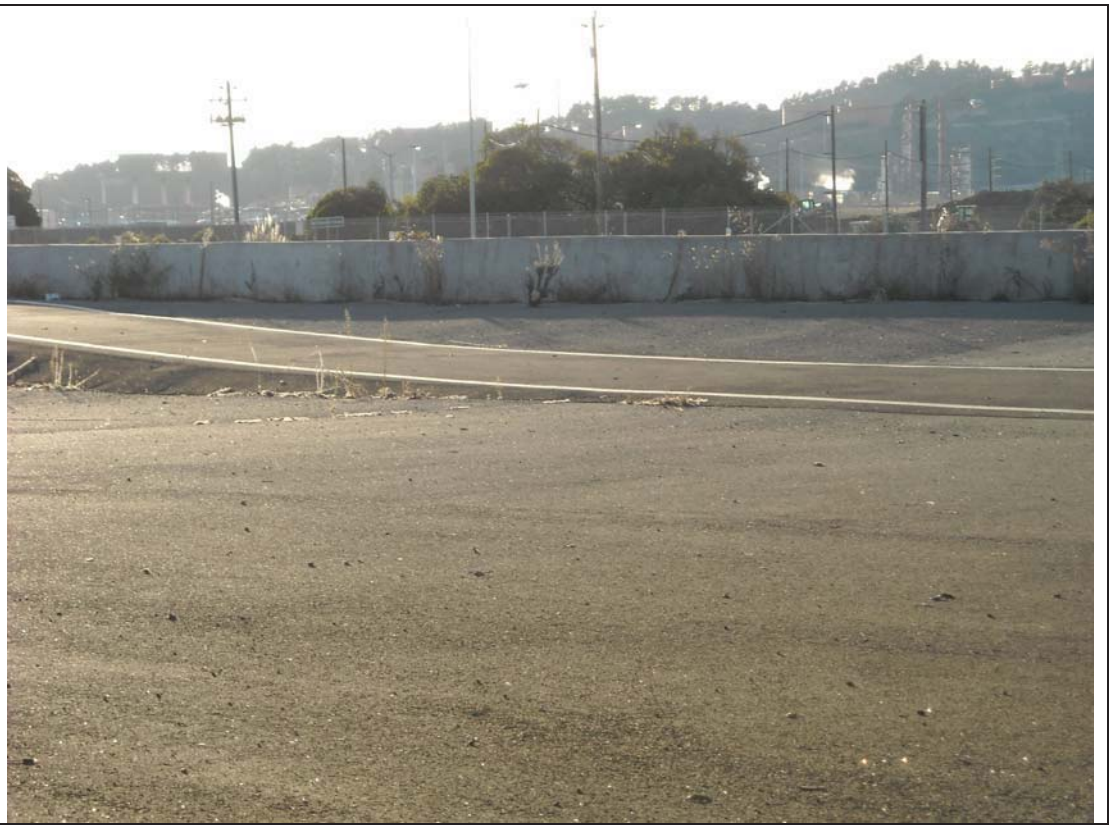


Photo No. 10

Direction Photo Taken:

Northeast

Description:

View of the missing fence in the northeast corner of the Middle Drew Property.

URS

PHOTOGRAPHIC LOG

City of Richmond	Drew Middle and South Property	URS Project No. 28068082 Date: 12/31/11

Photo No. 11

Direction Photo Taken:

West

Description:

View of the northern end of the Middle Drew Property.

Photo No. 12

Direction Photo Taken:

South

Description:

View of the western side of the Middle Drew Property.

URS

PHOTOGRAPHIC LOG

City of Richmond	Drew Middle and South Property	URS Project No. 28068082 Date: 12/31/11

Photo No. 13

Direction Photo Taken:

Northeast

Description:

View of the damaged fence on the northern portion of the western side of the Middle Drew property.

Photo No. 14

Direction Photo Taken:

East

Description:

Entrance gate to the western side of the Middle Drew Property.