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August 7, 2008

Jerry Wickham
Alameda County Health Care Services Agency
Environmental Health Services, Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: Pilot Test Work Plan, 700 Independent Road, Oakland, California
Fuel Leak Case No. RO0002900

Dear Mr. Wickham,

Enclosed is a Pilot Test Work Plan for the property at 700 Independent Road, Oakland, California. The Pilot Test Work Plan was prepared by Kleinfelder Inc. on behalf of Equity Office Properties – Industrial Portfolio, LLC. This work plan provides a scope of work to assess the effectiveness of in situ chemical oxidation at the site and obtain design parameters for full implementation. This work plan is being submitted to Alameda Health Care Services Agency, Environmental Health Services pursuant to your request in a letter to Mr. James Soutter dated May 13, 2008 and with submittal date as approved by you in an email message to Charles Almestad dated July 22, 2008.

I declare, under penalty of perjury, that the information and / or recommendations contained in the attached document is true and correct to the best of my knowledge.

Sincerely,
EOP – Industrial Portfolio, LLC.

James Soutter
Director – Engineering

Enclosure: Pilot Test Work Plan, 700 Independent Road, Oakland, California

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PILOT TEST WORK PLAN
700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

August 6, 2008

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A Report Prepared for:

Mr. James Soutter
EOP – Industrial Portfolio, LLC
2655 Campus Drive, Suite 100
San Mateo, CA 94403

PILOT TEST WORK PLAN
700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

Kleinfelder Job No: 54504 / 6

August 6, 2008

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PLATES

1.0 INTRODUCTION

Kleinfelder has prepared this work plan for Equity Office Properties – Industrial Portfolio, L.L.C. (EOP) to conduct pilot test to assess the effectiveness of *in situ* chemical oxidation (ISCO) and obtain design parameters for full scale implementation at the former EOP property located at 700 Independent Road in Oakland, California (the Site). The current property owner is 700 Independent Road, LP. Alameda County Health Care Services Agency (ACHCSA) is providing regulatory oversight for the Site and has assigned the Site fuel leak case number RO0002900. This report was prepared per the request of ACHCSA in order to initiate site clean up and remediate petroleum hydrocarbons in soil and groundwater at the site.

2.0 BACKGROUND INFORMATION

2.1 SITE DESCRIPTION

The 700 Independent Road property is located in an industrial area of Oakland, California (Site). The property is approximately five-acres in size and is located about 1,000 feet north of the McAfee Stadium (Plate 1). On the property is a one-story warehouse building, a parking lot and a railroad spur. Attached to the north side of the warehouse building is a concrete block building that is about 900 square feet in size (Plate 2). The facility has been used as a warehouse since the 1950's. Currently, the Eagle Bag Company manufactures and warehouses plastic bags at the site. Previous subsurface investigations indicate that near surface soils at the Site are predominantly clay and silty clay in texture, and that groundwater is generally first encountered at about 8 feet to 10 feet below ground surface (bgs).

2.2 UST REMOVAL AND PREVIOUS ENVIRONMENTAL SITE INVESTIGATION SUMMARY

A prospective purchaser of the 700 Independent Road property discovered the presence of petroleum hydrocarbons in soil and groundwater near the loading dock on the subject property in 2004. As a follow up to this discovery, Kleinfelder searched regulatory agency records and found no records indicating the presence of a UST on the property. Kleinfelder then performed a geophysical survey and identified the presence of a UST and associated piping in the vicinity of the loading dock. On August 17, 2005, Kleinfelder removed and disposed of one 1,100-gallon UST, under permit with the City of Oakland. The tank was in poor condition, with several holes, and the soil underneath the tank was visibly impacted with petroleum hydrocarbons. Kleinfelder collected confirmation samples from the bottom of the excavation. Backfilling and compaction was performed on September 15 and 16, 2005. A Site plan, indicating the approximate location of the former UST, exploratory borings, and monitoring wells locations are presented in Plate 3.

The top of the UST was encountered at about four feet bgs. A product pipeline was observed in the excavation about a foot below the top of the excavation. The product line from the tank had previously been traced using surface geophysical methods under the block building to an exterior corner between the block building and the main warehouse building. At this location a pedestal was observed where a fuel dispenser is believed to have existed. A vent line was observed on the side of the warehouse building, extending through the overhang of the warehouse roof. The product and vent lines were left in place when the tank excavation was backfilled. The depth of the product and vent pipelines below the floor of the block building is not known. No excavation activities other than those required to sample shallow soil were performed in the vicinity of the dispenser during UST removal work. Analytical results from the confirmation samples collected below the UST indicated the presence of total petroleum hydrocarbons as gasoline (TPH-g) at concentrations as high as 877 milligrams per kilogram (mg/kg) and total petroleum hydrocarbons as diesel (TPH-d) as high as 5,090 mg/kg. Kleinfelder summarized the tank removal work and analytical results in a report titled "Underground Storage Tank Removal Report, 700 Independent Road, Oakland, California", dated November 1, 2005 (Kleinfelder, 2005). The report was submitted to the City of Oakland Fire Department.

Given the concentrations of petroleum hydrocarbons present, the Fire Department referred the Site to ACHCSA for regulatory oversight. On February 24, 2006 the ACHCSA sent a letter requesting that EOP delineate the extent of the contamination associated with the recently removed UST. On July 24 and 25 and August 10, 2006 Kleinfelder performed the requested investigation, which consisted of collecting soil and groundwater samples from 13 soil boring locations (K-1 through K-13, Plate 3) advanced in the vicinity of the former UST location. Eleven of the borings were advanced to depths ranging from 16-feet to 24-feet bgs, and two borings were advanced to a depth of 32 feet bgs. Groundwater was first encountered at depths ranging from about 5.5 to 19 feet bgs.

Kleinfelder summarized the results of the investigation in the "Site Field Investigation Report," dated September 27, 2006, which was submitted to the ACHCSA (Kleinfelder 2006). In brief, benzene, toluene, ethylbenzene, and xylenes (BTEX) in soil were reported at concentrations up to 3,000 micrograms per kilogram (µg/kg), 2,400 µg/kg, 17,000 µg/kg, and 33,000 µg/kg, respectively. TPH-g was detected as high as 810 milligrams per kilogram (mg/kg). In groundwater, BTEX was reported as high as 13,800 micrograms per liter (µg/L), 929 µg/L, 2,810 µg/L, and 3,140 µg/L, respectively. TPH-g and TPH-d were reported at concentrations up to 42 milligrams per liter (mg/L) and 4.19 mg/L respectively.

In a letter to EOP dated October 6, 2006 the ACHCSA requested that EOP further assess the horizontal extent of petroleum hydrocarbon impacts to the subsurface. The request included the collection of soil and groundwater samples in the southeast direction of the former UST location, installation of three monitoring wells, assessment of the presence of petroleum hydrocarbons in soil vapor, a well survey, and an assessment of potential preferential pathways. In response, Kleinfelder prepared a work plan titled "Work Plan for Further Site Investigation" that was submitted to ACHCSA on December 12, 2006.

The work plan was approved by the ACHCSA in a letter dated December 26, 2006. Between March 4 and March 7, 2007, Kleinfelder collected soil-vapor samples from five sample locations in the warehouse building, advanced and collected soil and groundwater samples for chemical analysis from seven soil boring locations (K-14 through K-20), and installed three monitoring wells. The results of the investigation are summarized in the May 11, 2007 "Further Site Investigation Report" (Kleinfelder 2007a).

The soil-vapor investigation did not indicate the presence of organic volatiles, including TPH-g, at concentrations above regulatory environmental thresholds. The soil and groundwater investigation identified two water bearing zones (seven to 11 feet bgs and 18 to 24 feet bgs) impacted with petroleum hydrocarbons. The 18 to 24 foot bgs zone is characterized by thicker, more permeable and more laterally continuous sediments than the shallower zone. Three monitoring were wells installed to target water quality in the 18 to 24 foot depth water bearing zone.

In soil, the highest TPH-g, TPH-d, and BTEX concentrations were reported at approximately 19 feet bgs in the samples collected from borings MW-1 and K-19. In MW-1, advanced approximately 65 feet east of the UST, TPH-g, TPH-d, and BTEX concentrations were reported at 1,200,000 µg/Kg, 588,000 µg/Kg, 63,000 µg/Kg, 250,000 µg/Kg, 310,000 µg/Kg, and 1,200,000 µg/Kg, respectively. In K-19, advanced adjacent to the former UST location, TPH-g, TPH-d, and BTEX concentrations were reported at 1,900,000-µg/Kg, 200,000-µg/Kg, 11,000-µg/Kg, 26,000-µg/Kg, 33,000-µg/Kg, and 170,000-µg/Kg, respectively.

In groundwater, the highest TPH-g, TPH-d, and BTEX concentrations were reported in the samples collected from borings MW-2 and K-19, both in close proximity to the former UST. In MW-2, TPH-g, TPH-d, and BTEX concentrations were reported at

38,000 µg/L, 940 µg/L, 11,600 µg/L, 274 µg/L, 588 µg/L, and 2,880 µg/L, respectively. In K-19, TPH-g, TPH-d, and BTEX concentrations were reported at 33,100 µg/L, 370 µg/L, 5,170 µg/L, 235 µg/L, 1,010 µg/L, and 955 µg/L, respectively. In addition, significantly high levels of contamination were reported in the groundwater sample collected from K-17, where TPH-g, TPH-d, and BTEX concentrations were reported at 24,000-µg/L, 530-µg/L, 2,780-µg/L, 150-µg/L, 774-µg/L, and 563-µg/L, respectively. Together, the groundwater samples chemical results suggest that the 18 to 24 foot bgs groundwater bearing zone is a more significant preferential pathway for contaminant migration.

Well survey data and water level measurements made on April 13, 2007 indicate groundwater flow to the south; however, some of the highest petroleum hydrocarbon concentrations were reported to the east of the former UST (MW-1), as opposed to the south (K-17), suggesting that groundwater flow patterns may be variable.

On June 13, 2007, after reviewing the May 11, 2007 "Further Site Investigation Report", the ACHCSA requested that the extent of petroleum hydrocarbons east of the recently installed MW-1 be assessed and that quarterly groundwater monitoring be implemented at the Site.

Kleinfelder prepared a "Site Investigation Work Plan" dated September 26, 2007 describing the objectives, tasks, methods and schedule for performing the investigations requested by the ACHCSA in the June 13, 2007 letter (Kleinfelder 2007b). In the ACHCSA's letter approving the work plan, two additional soil borings and one monitoring well were requested. These additional borings and well were incorporated into the scope of work. The work performed and results of the additional investigation are described in a report prepared by Kleinfelder titled "Additional Site-Characterization Report" dated March 31, 2008 (Kleinfelder 2008b).

On May 13, 2008, after reviewing the March 31, 2008 "Additional Site- Characterization Report", the ACHCSA concurred that the extent of petroleum contamination has been defined and concluded that no further investigation is required at this time. In addition, the ACHCSA requested that a Pilot Test Work Plan be prepared to initiate site cleanup (ACHCSA 2008).

3.0 PILOT TEST OBJECTIVES

A pilot test study will be implemented to assess ISCO effectiveness and to initiate the remediation activities related to petroleum hydrocarbons in soil and groundwater at the site. This test is intended to provide sufficient information to determine if ISCO can be applied as a remedial technology at the site. This will primarily be judged by the successful reduction in petroleum hydrocarbons concentrations and an examination of reaction byproducts, and hydraulic and geochemical changes in the injection zone. Through this study, additional information will be obtained regarding such items as dosage rates (injection volume), injection pressures, radius of influence (ROI), injection location (depth and screen interval) and oxidant ratios. Based on these parameters, a full scale injection program can be designed, should this technology be considered feasible. Full scale design will include injection point spacing, frequency of injections, as well as full scale remediation costs.

The pilot test would be implemented at locations where the concentrations of petroleum hydrocarbons, chemicals of concern (COCs [i.e., benzene and total petroleum hydrocarbons]), exceed their respective and most recent Environmental Screening Levels (ESLs) developed by the San Francisco Bay Region Regional Water Quality Control Board (RWQCB). The most recent ESLs are summarized in the Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final dated November 15, 2007 (RWQCB, 2008). Based on these ESLs Plate 4 presents the ISCO pilot test treatment area.

The ESLs used in this report were obtained from Table B from the RWQCB ESL document (for shallow, less than 3 meters deep soils) and Table D (for greater than 3 meters bgs soils). These tables were developed assuming that groundwater is not a current or potential source of drinking water. For this investigation, these tables were used because the concentration of dissolved solids in the groundwater at the site is significantly greater than 3,000 milligrams per liter as documented in Kleinfelder's Fourth Quarter 2007 Groundwater Monitoring Report (Kleinfelder 2008a) for the site, making the groundwater unsuitable as a drinking water resource.

4.0 PILOT TEST DESIGN

ISCO is a remediation technology that involves subsurface injection of oxidants that are capable of destroying organic contaminants in-place (*in situ*). The technology has the potential advantages of achieving rapid and complete treatment. General feasibility and design challenges relate to ensuring that the oxidation reactions will achieve an adequate level of treatment and that the oxidant can be effectively injected and distributed into the subsurface so that target treatment intervals are contacted with oxidant. ISCO technologies can be designed to mitigate COCs existing in dissolved phase in groundwater, sorbed to soil, or as mobile or residual light non-aqueous phase liquid (LNAPL).

The ISCO process involves injecting oxidants (substances readily reduced) and, in some instances, other reaction generating substances (catalysts) into contaminated areas of the subsurface. The oxidant reacts with the contaminant causing decomposition of the contaminant and the production of innocuous substances such as carbon dioxide and water. This reaction, called oxidation, is a chemical reaction characterized by the loss of one or more electrons from an atom or molecule. When an atom or molecule combines with oxygen, it tends to give up electrons to the oxygen in forming a chemical bond. Carbon in the form of organic carbon and manufactured hydrocarbons are common substances readily oxidized (reductants). For ISCO to effectively reduce contaminant concentrations there must be direct contact between the oxidant and the contaminant.

The proposed ISCO reagent to be used at the site is modified Fenton's reagent. The modified Fenton's system includes the use of higher concentrations of hydrogen peroxide (typically 8 to 12% hydrogen peroxide) or calcium peroxide (with or without chelating agents) than the traditional low-concentration hydrogen peroxide/iron mixture used for ISCO. The chemical reactions associated with this type of system are more complex than traditional Fenton's chemistry. Modified Fenton's processes that use proprietary chelated-iron catalysts and stabilized hydrogen peroxide were developed with the goal of improving on the traditional Fenton's process. The greatest advantage of the modified Fenton's process is that *in situ* oxidation is accomplished without altering the groundwater pH and without a significant temperature rise in the groundwater (typically an increase of no more than two degrees Celsius). This advantage not only extends the longevity of the oxidant, but also minimizes the mobilization of metals from the aquifer matrix. The modified Fenton's reagent will be introduced to the subsurface at the treatment area by direct-push technology (DPT). The modified Fenton's reagent will be introduced in the subsurface (soil and/or groundwater) at locations where concentrations of COCs exceed ESLs established for sites where groundwater is not a current or potential source of drinking water. The ISCO reagent would produce oxidizing agents that will degrade organic chemicals to water and carbon dioxide.

This pilot test will allow Kleinfelder an opportunity to optimize the effectiveness of the ISCO injection and therefore, the remedial program. Following completion of pilot test, Kleinfelder will evaluate the site-specific data to optimize dosage rates (injection volume), injection pressures, injection location based on radius of influence (ROI), injection depth and screen interval, and oxidant ratios.

Kleinfelder proposed to inject the modified Fenton's reagent at approximately 11 injection locations across the treatment area. Because the contaminated zone is heterogeneous, test injections may be necessary at different vertical intervals to determine pressures needed to effectively treat the varying zones of permeability; each injection location will include three injection depths (approximately 9 to 14 feet, 14 to 19 feet and 19 to 25 feet) to deliver reagent across the treatment area. The number and spacing of the locations is based upon an anticipated 12.5-foot reagent distribution radius. A conceptual layout of the locations of the pilot test injection points are shown on Plate 4. Well locations are approximate and may be moved based on field conditions.

5.0 PILOT TEST IMPLEMENTATION

The elements associated with the implementation of the pilot test are summarized below.

5.1 PLANNING AND PRE-CONSTRUCTION ACTIVITIES

Prior to mobilizing to the site to perform the pilot test, Kleinfelder will coordinate with EOP, the property owner, and our subcontractors to schedule the field activities. Kleinfelder will obtain the required permits, prepare a health and safety plan, and conduct the bidding and bid selection process.

5.1.1 Permitting

Kleinfelder will apply for necessary injection permits according to the local jurisdiction and lead regulatory agency.

5.1.2 Health and Safety

The existing site-specific health and safety plan (HASP) will be amended as needed to protect workers and the community during the planned pilot test implementation. This plan will be prepared by Kleinfelder's designated Health and Safety Officer and reviewed by a Certified Industrial Hygienist. In accordance with Occupational Safety and Health Administration (OSHA) standard "Hazardous Waste Operations and Emergency Response" guidelines (29 Code of Federal Regulations 1910.120), the HASP will include at a minimum:

- A description of the work to be performed, site controls, and the schedule for site safety meetings;
- The current environmental conditions with respect to the identified constituents of concern including site hazard identification and mitigation measures;
- The appropriate levels of personal protective equipment (PPE) and monitoring requirements;
- Personnel training and medical surveillance requirements; and

- An emergency response plan including a map indicating the most efficient route to the nearest hospital.

5.1.3 Biding and Bid Selection

Kleinfelder will perform a pre-screening process of potential subcontractors to identify whether these contractors have the experience required to implement the pilot test. Following the pre-screening process, we will invite qualified environmental contractors to submit bids for pilot test implementation. We will prepare a brief scope of work outline summarizing the pilot test activities and coordination issues (e.g., permitting, equipment delivery, reagent delivery and injection). Kleinfelder will conduct a bid walk with the selected contractors for competitive bidding. Upon receiving the bids, we will prepare a summary of the bids and recommend one contractor for selection.

5.2 PILOT TEST ACTIVITIES

5.2.1 Subsurface Utility Clearance

Prior to intrusive fieldwork, subsurface utility clearance will be obtained by utilizing geophysical resources, and notifying Underground Service Alert (USA). We will notify USA of our injection activities at least 48 hours in advance and schedule a private utility locator to check for utilities in each of the proposed sampling locations. Kleinfelder will hire a qualified subsurface utility locating contractor to identify possible subsurface obstructions and utilities. If utilities are located, the injection location will be relocated and the clearance procedure will be repeated for the new location.

5.2.2 Reagent Injection

Kleinfelder's subcontractor will utilize DTP to introduce the ISCO reagent at the treatment area. During the pilot test event, Kleinfelder's subcontractor will inject at approximately 11 injection locations across the treatment area; each injection location will include three injection depths (approximately 9 to 14 feet, 14 to 19 feet and 19 to 25 feet) to deliver reagent across the treatment area. The number and spacing of the locations is based upon an anticipated 12.5-foot reagent distribution radius.

ISCO reagent will be injected through direct-push injection screens installed by the DPT contractor. Each injection screen will be approximately 5 feet long and deployed through 1.25-inch or 1.5-inch direct push rod. This method of selective vertical injection will deliver reagent across the entire vertical extent of the target treatment interval. Injection flow rates will vary from approximately two gallons per minute (gpm) to greater than 10 gpm depending upon the area specific permeability of the aquifer matrix.

The subcontractor will setup a temporary direct-push injection screen and inject water into the subsurface, followed by stabilized 8 to 12% hydrogen peroxide (modified Fenton's reagent). Water is then injected to flush the reagent away from the screen. Following the water flush, Kleinfelder may choose (decision to be made in the design phase) an iron catalyst into the subsurface. A final water injection would be completed to flush the reagent from the injection equipment. This process would be repeated for each of the 33 injection screen (3 injection screens per location).

Approximately 150 to 300 gallons of reagent would be injected in each of the 33 injection screens or approximately 5,000 to 10,000 gallons for the pilot test.

Sufficient ISCO reagent (stabilized 8 to 12% hydrogen peroxide) will be transported to the Site in 55-gallon drums by the chemical manufacturer or subcontractor prior to the pilot test. Kleinfelder anticipates using the reagent in its entirety thus preventing the need for on-site storage of surplus material.

It is anticipated that the water required to create the injection solution will be obtained from East Bay Municipal Water District (EBMUD) from a tap at the site.

Concrete coring will be required prior to injection work on the loading dock and within the building.

5.2.3 Equipment Decontamination Procedures

All drilling and sampling equipment will be properly decontaminated prior to use and between each location. The down-hole drilling equipment will be decontaminated by steam cleaning at a designated wash pad or within a portable containment unit.

5.2.4 Waste Characterization, Handling, and Disposal

The anticipated investigative derived waste (IDW) that will be generated during the remedial pilot test includes soil cuttings, equipment decontamination fluids, and used personal protective equipment. Soil cutting and decontamination rinse water will be containerized in DOT-approved 55-gallon drums or larger appropriate holding tanks with covers. Samples of the IDW will be collected to evaluate appropriate disposal options. All used PPE will be double plastic-bagged and placed in the soil cuttings drums. The containers storing the generated wastes will be temporarily stored at a centralized location until the waste characterization results are received. An adhesive label will be affixed to each container noting the following: container number, waste type, location that the IDW was generated, and date of waste generation.

Following receipt of analytical data from the laboratory the waste will be profiled, disposal options identified, and the waste transported and disposed of at a permitted facility.

5.2.5 Field Documentation

Field activities will be documented. These forms will be kept on file at Kleinfelder and selected forms will be included in the Pilot Test Implementation Report.

6.0 SOIL AND GROUNDWATER MONITORING

Prior to injection of ISCO reagent into the injection points, *in situ* hydraulic conductivity testing will be performed at monitoring wells MW-1 and MW-2. The hydraulic conductivity testing will be performed prior to, and after the injection of ISCO reagent after the testing has ended. The primary purpose of the testing is to determine whether the hydraulic conductivity of materials in the screen zone of the nearby monitoring wells MW-1 and MW-2 change as a result of the injection of ISCO reagent during the pilot testing.

The contaminant load in all phases along with natural chemical and physical components of soil and groundwater which consume the oxidant is called the total oxidant demand (TOD). The natural oxidant demand components consist of dissolved- and solid-phase reduced minerals, and dissolved- and sorbed-phase natural organic matter (NOM), usually represented by total organic carbon (TOC) measurements.

- Parameters of interest for evaluating ISCO include: The measurement of baseline pH of the groundwater is important, especially when Fenton's Reagent is injected. Lower pH promotes the production of hydroxyl radicals by keeping iron in solution.

- Alkalinity is a measure of the carbonate and bicarbonate concentrations in water. Measurement of alkalinity is important because:

    - It helps determine the amount of acid required to reduce the pH level for Fenton's injections.

    - Hydroxyl radicals are scavenged in the presence of highly alkaline water.

    - High carbonate concentrations can limit the effectiveness of oxidation by ozone.

- Oxidation-reduction potential (ORP), sometimes referred to as redox or Eh, is a measure of the oxidizing environment and can be used to determine oxidant movement through the subsurface. Positive values of redox indicate oxidizing conditions.

- The dissolved oxygen (DO) concentration in groundwater and distribution throughout the contaminant plume can indicate contaminant movement, degradation, or plume stability. The DO concentration usually reflects its organic contaminant load (the lower the DO, the greater the contaminant concentrations). Baseline DO is also important because following hydrogen peroxide, Fenton's systems, the DO concentrations should increase.

- A temperature increase of the groundwater is usually detected immediately after injection of hydrogen peroxide Fenton's systems.

- The specific conductivity of groundwater frequently increases following injections and can be used to determine the extent of oxidant dispersion.

In addition, ISCO processes can oxidize some metals, such as iron, chromium, and selenium, to more soluble forms, thereby increasing their mobilization potential. The characterization should include analyzing arsenic, barium, cadmium, chromium, copper, iron, lead, and selenium. The concentration of Fe+2 should be measured and the result used to estimate the amount of iron, if any, to be injected with modified Fenton's applications. If baseline iron content is high and the amount of iron in injections is not reduced accordingly, overdosing of iron could be the result. Overdosing of iron may result in reduction of aquifer permeability (due to formation of iron oxides) and thereby reduce the overall distribution of the oxidant.

6.1 SOIL AND GROUNDWATER SAMPLING

Soil and groundwater sampling will be performed before and one month after the pilot test.

Soil samples will be collected from two borings utilizing truck-mounted Geoprobe (i.e., direct-push) sampling equipment. The borings will be continuously cored to a depth of approximately 25 feet and logged in the field.

A Kleinfelder representative will oversee the sampling activities, and will prepare a log of the soils encountered in each boring. Samples will be collected for chemical analyses at each location. The soil samples will be screened in the field using a photoionization detector (PID) to measure volatile organic compounds. In the event that signs of impacted soils are observed (i.e., visual staining, odor, elevated PID readings, etc.), samples from the impacted soil interval will be collected. Sampling equipment will be decontaminated between sampling intervals. We anticipate that two soil samples will be collected for chemical analyses at each boring location. If there are no obvious signs of contamination, samples will be collected at approximately 10 and 20 feet bgs. Soil samples will be retained in acetate sampling sleeves.

Groundwater samples will be obtained from monitoring wells MW-1 and MW-2. Using a clean disposable bailer or dedicated polyethylene tubing, a groundwater sample will be retrieved from each monitoring well, and decanted into clean containers provided by the chemical testing laboratory.

Soil and groundwater samples to be chemically analyzed will be stored in a chilled ice-chest and delivered to a state-certified chemical testing laboratory under chain-of-custody protocol for the chemical analyses.

6.2 FIELD MONITORING

Using down-hole field equipment, the well groundwater samples from monitoring wells MW-1 and MW-2 will be monitored in the field for the following parameters:

- pH;
- DO;
- ORP;
- Temperature;
- Conductivity; and
- Turbidity.

6.3 ANALYTICAL METHODS

The soil and groundwater samples will be submitted to a state-certified chemical testing laboratory under chain-of-custody protocol. The soil samples and monitoring well groundwater samples will be analyzed using one or more of the following analytical methods:

- TPH-d using U.S. Environmental Protection Agency (USEPA) Method 8015M following silica gel cleanup;

- TPH-g using USEPA Method 8015M;
- BTEX using USEPA Method 8021B;
- Selected metals (arsenic, barium, cadmium, chromium, copper, iron, lead, and selenium) using USEPA Method 200.7;
- Major ions (sodium, potassium, calcium, magnesium, iron) using USEPA Method 200.7;
- Dissolved ferrous iron, using EPA Method 200.7
- Alkalinity as calcium carbonate, using EPA Method SM2320B;
- Total dissolved solids (TDS) using USEPA 160.1; and
- TOC using USEPA 415.3.

The soil and groundwater samples will be analyzed on a standard turn-around time of approximately one to two weeks.

6.4 QUALITY CONTROL / QUALITY ASSURANCE

All sampling equipment will be cleaned between sample locations to prevent potential cross-contamination from one boring to the next. Only new and clean sample containers will be used and new disposable bailers will be used to collect groundwater samples. All samples will be placed in an ice chest containing ice to preserve the samples prior to delivery to the analytical laboratory. Chain of custody documentation will be initiated with each sample to track samples to the laboratory.

A duplicate groundwater sample will be collected for each 10 groundwater samples collected for chemical analysis to assess laboratory precision. Analytical laboratory quality assurance reports will be reviewed to verify laboratory quality assurance criteria have been met.

7.0 PILOT TEST REPORT

Kleinfelder will compile the chemical test results and prepare data summary tables. The report will include an assessment of the effectiveness of the pilot test activities. In addition, the report will include a comparison of the results to relevant regulatory criteria and guidance. Kleinfelder will prepare a written report that describes the implementation of the pilot test, the scope and findings of the soil and groundwater sampling and analyses; presents our conclusions regarding the effectiveness of the pilot test; and provides recommendations for full scale implementation, as appropriate.

8.0 SCHEDULE

A Gantt chart with a tentative schedule is presented in Plate 5. This schedule on Plate 5 assumes work will commence on or about the week of August 25, 2008. The estimated duration of the pilot test is approximately 22 weeks.

9.0 LIMITATIONS

Kleinfelder prepared this report in accordance with generally accepted standards of care that exist in Alameda County at this time. All information gathered by Kleinfelder is considered confidential and will be released only upon written authorization of EOP or as required by law.

Kleinfelder offers various levels of investigation and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present. Although risk can never be eliminated, more-detailed and extensive investigations yield more information, which may help understand and manage the level of risk. Since detailed investigation and analysis involves greater expense, our clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface investigations or field tests, may be performed to reduce uncertainties. Acceptance of this report will indicate that EOP has reviewed the document and determined that it does not need or want a greater level of service than provided.

During the course of the performance of Kleinfelder's services, hazardous materials may be discovered. Kleinfelder will assume no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Nothing contained in this reports should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, generator, or person who arranges for disposal, transport, storage or treatment of hazardous materials within the meaning of any governmental statute, regulation or order. EOP will be solely responsible for notifying all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of Kleinfelder's services. EOP will be responsible for all arrangements to lawfully store, treat, recycle, dispose, or otherwise handle hazardous materials, including cuttings and samples resulting from Kleinfelder's services.

Regulations and professional standards applicable to Kleinfelder's services are continually evolving. Techniques are, by necessity, often new and relatively untried. Different professionals may reasonably adopt different approaches to similar problems. As such, our services are intended to provide EOP with a source of professional advice, opinions and recommendations. Our professional opinions and recommendations are/will be based on our limited number of field observations and tests, collected and performed in accordance with the generally accepted engineering practice that exists at the time and may depend on, and be qualified by, information gathered previously by others and provided to Kleinfelder by EOP. Consequently, no warranty or guarantee, expressed of implied, is intended or made.

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10.0 REFERENCES

ACHCSA. 2008. *Fuel Leak Case No. RO0002900 and Geotracker Global ID T0600165110, SPK Industrial Property*, 700 Independent Road, Oakland, California 94621. May 13.

Kleinfelder. 2005. *Underground Storage Tank Report*, 700 Independent Road, Oakland, California. November 1.

Kleinfelder. 2006. *Site Field Investigation*, 700 Independent Road, Oakland, California. September 27.

Kleinfelder. 2007a. *Further Site Investigation*, 700 Independent Road, Oakland, California. May 11.

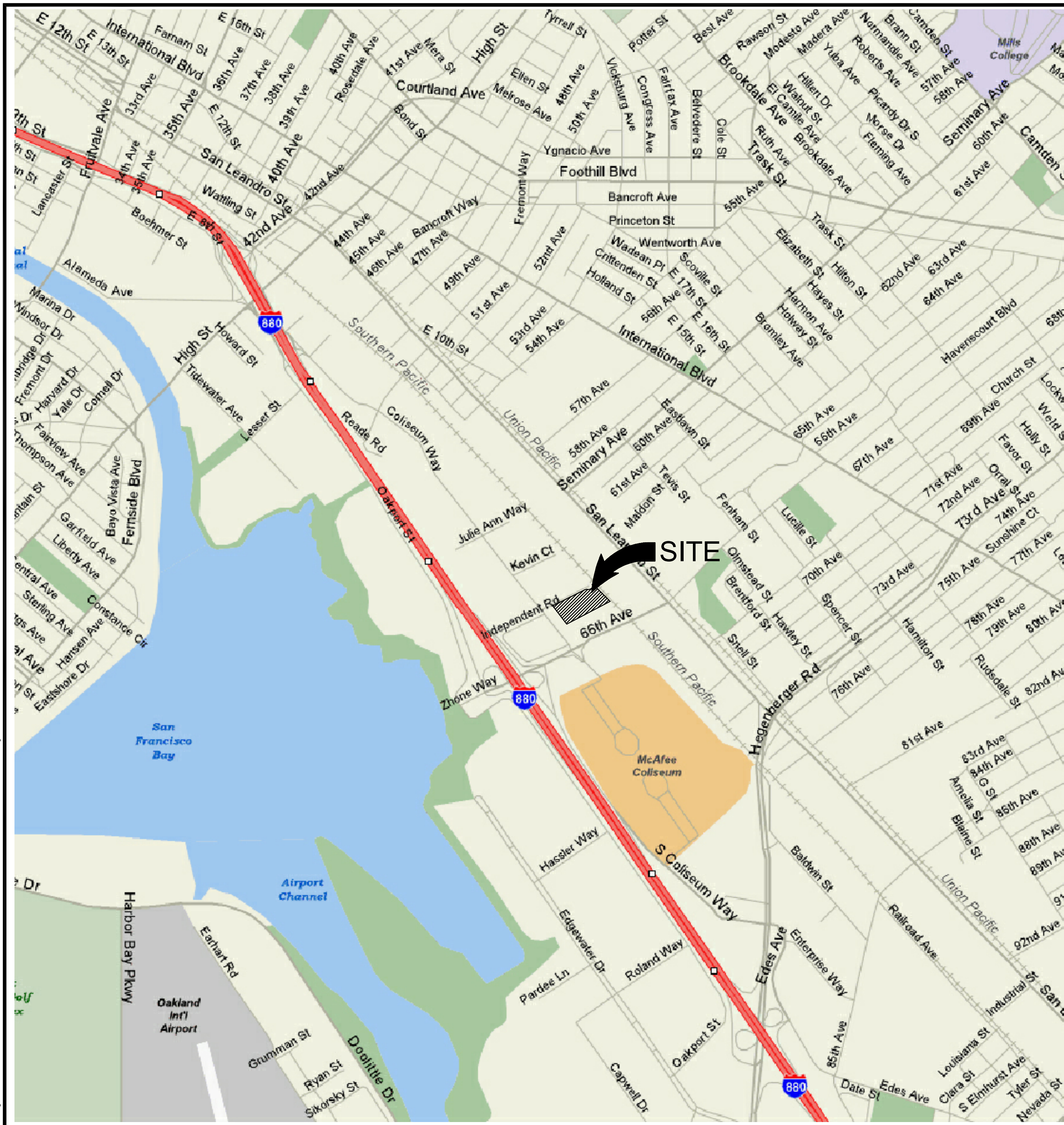
Kleinfelder. 2007b. *Site Investigation Work Plan*, 700 Independent Road, Oakland, California. September 26.

Kleinfelder. 2008a. *Fourth Quarter 2007 Groundwater Monitoring Report*, 700 Independent Road, Oakland, California. January 29.

Kleinfelder. 2008b. *Additional Site-Characterization Report*, 700 Independent Road, Oakland, California. March 31.

RWQCB. 2008. Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Tables B and D. Revised May. (http://www.swrcb.ca.gov/rwqcb2/RBSL/esl1107/esl.pdf)

PLATES



N

2000 0 2000
APPROXIMATE SCALE (feet)

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KLEINFELDER Bright People. Right Solutions. www.kleinfelder.com	PROJECT NO. 54504	SITE VICINITY MAP	PLATE
	DRAWN: JUL 2008		1
	DRAWN BY: LGS		
	CHECKED BY: SD		
	FILE NAME: Task6_P-01.dwg	700 INDEPENDENT ROAD OAKLAND, CALIFORNIA	

PLOTTED: 24 Jul 2008, 9:00am, Isue LAYOUT: Layout1
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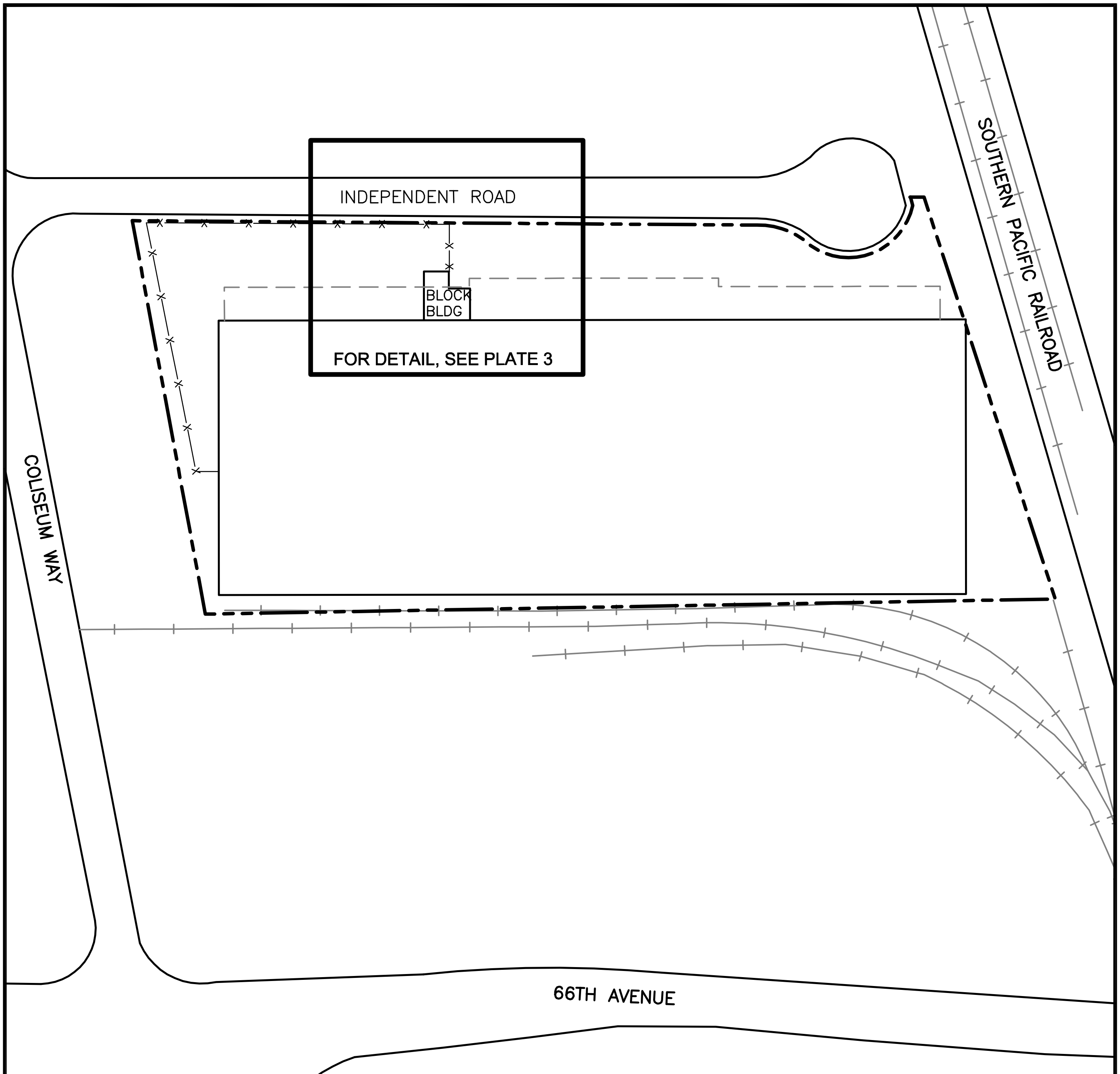
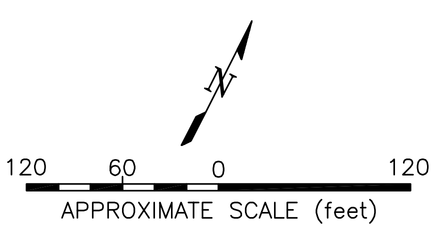
PLEASANTON, CA CAD FILE: L:\2008\08Projects\54504\GRAPHICs\6\07-2008\





LEGEND

- PROPERTY BOUNDARY
- FENCE LINE
- LIMITS OF BUILDING OVERHANG

NOTE: Locations are approximate.

PLOTTED: 24 Jul 2008, 8:59am, Isue   LAYOUT: PLATE 2
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XRef: Eng-B_08x11_P_StyleA.dwg
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ATTACHED XREFS:
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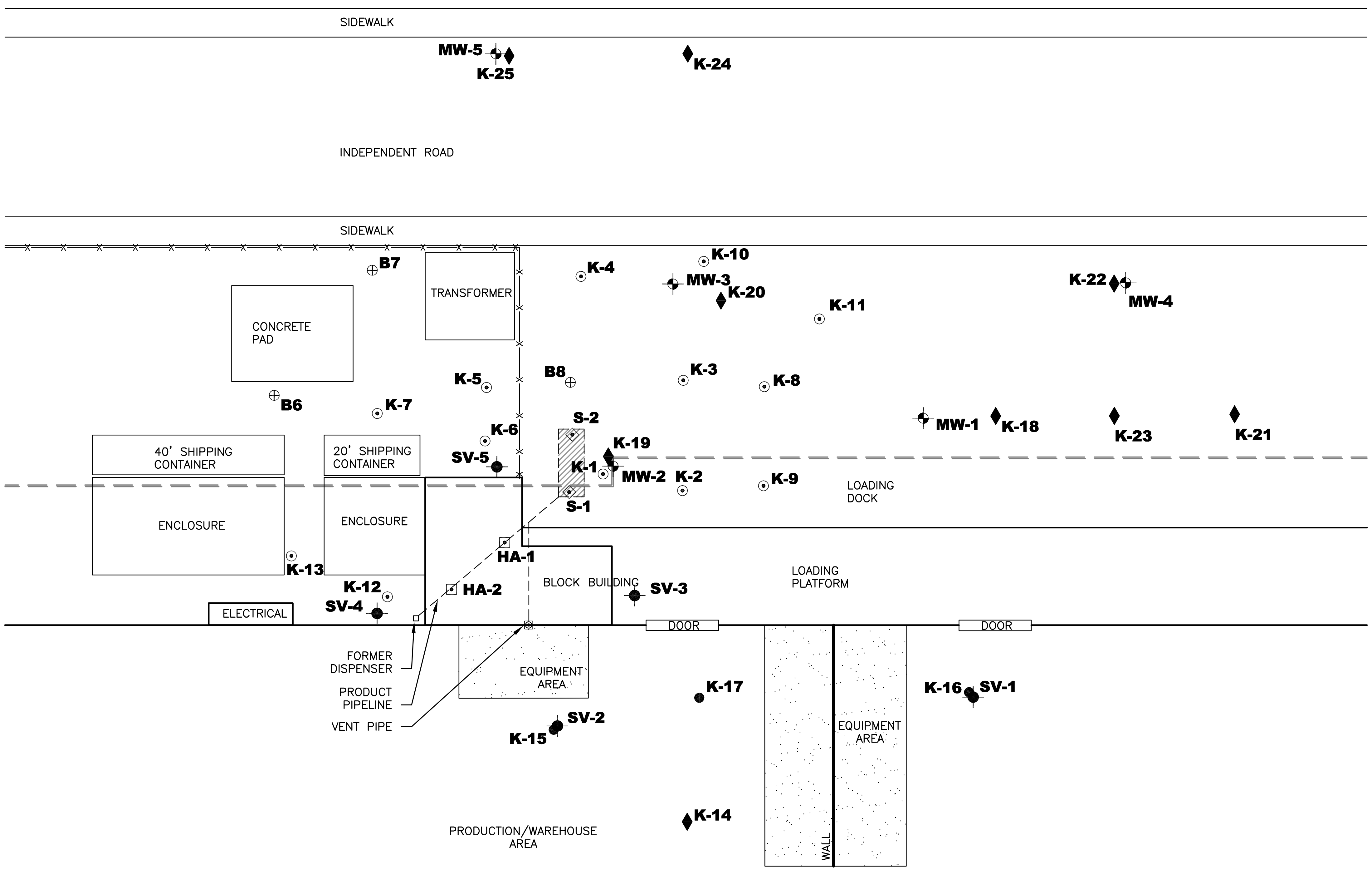
PROJECT NO.	54504
DRAWN:	JUL 2008
DRAWN BY:	LGS
CHECKED BY:	SD
FILE NAME: Task6_P-02.dwg	

SITE PLAN: OVERALL

700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

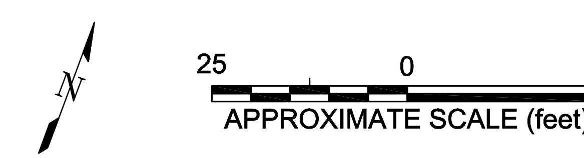
PLATE
2



LEGEND

- ROOF OVERHANG
- FENCE
- PRODUCT PIPELINE
- FORMER UNDERGROUND STORAGE TANK
- MONITORING WELL (Kleinfelder, March 2007)
- SOIL VAPOR BORING (Kleinfelder, March 2007)
- SOIL BORING depth 24-32 ft (Kleinfelder, March 2007)
- SOIL BORING depth 38-45 ft (Kleinfelder, March 2007 and February 2008)
- SOIL BORING (Kleinfelder, 2006)
- SOIL BORING (Golder Associates, August 2004)
- HAND AUGER
- UST CONFIRMATION SOIL SAMPLE

NOTE:
Golder boring B8 located in the field.
Locations of Golder borings B6 and B7 are approximate.



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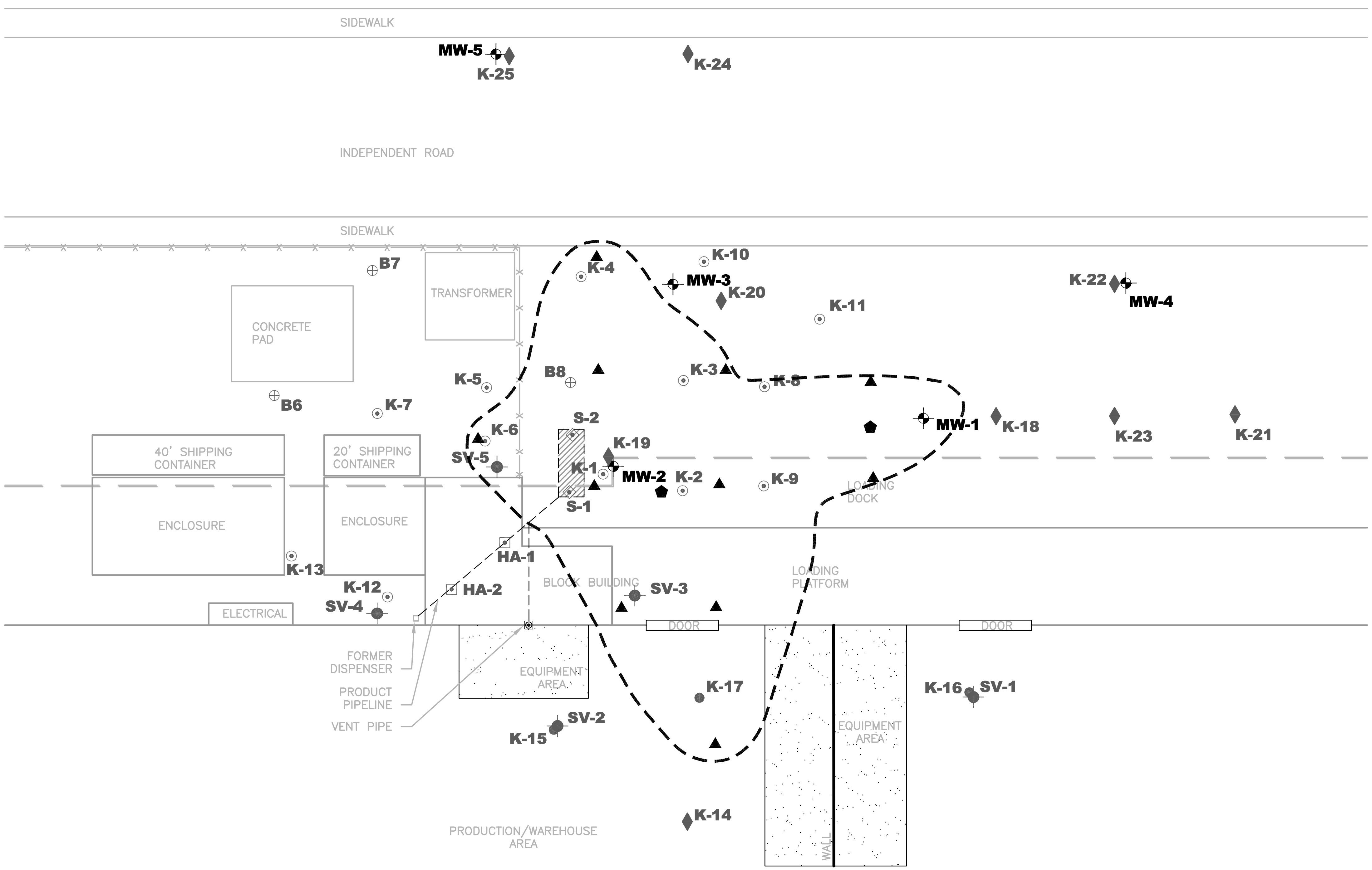
SOIL BORING AND MONITORING WELL LOCATIONS

700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

PLATE
3



LEGEND

ROOF OVERHANG
FENCE
PRODUCT PIPELINE
FORMER UNDERGROUND STORAGE TANK
MONITORING WELL (Kleinfelder, March 2007)
SOIL VAPOR BORING (Kleinfelder, March 2007)
SOIL BORING depth 24-32 ft (Kleinfelder, March 2007)
SOIL BORING depth 38-45 ft (Kleinfelder, March 2007 and February 2008)
SOIL BORING (Kleinfelder, 2006)
SOIL BORING (Golder Associates, August 2004)
HAND AUGER
UST CONFIRMATION SOIL SAMPLE
PROPOSED IN SITU CHEMICAL OXIDATION (ISCO) INJECTION LOCATION
PROPOSED SOIL BORING LOCATION
APPROXIMATE LIMIT OF ISCO TREATMENT AREA

NOTES:
Golder boring B8 located on the field. Locations of Golder borings B6 and B7 are approximate.

25 0 25
APPROXIMATE SCALE (feet)

PLOTTED: 30 Jul 2008, 11:00am, jsala
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DRAWN:	JUL 2008
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CHECKED BY:	SD
FILE NAME:	Task6_P-04.dwg

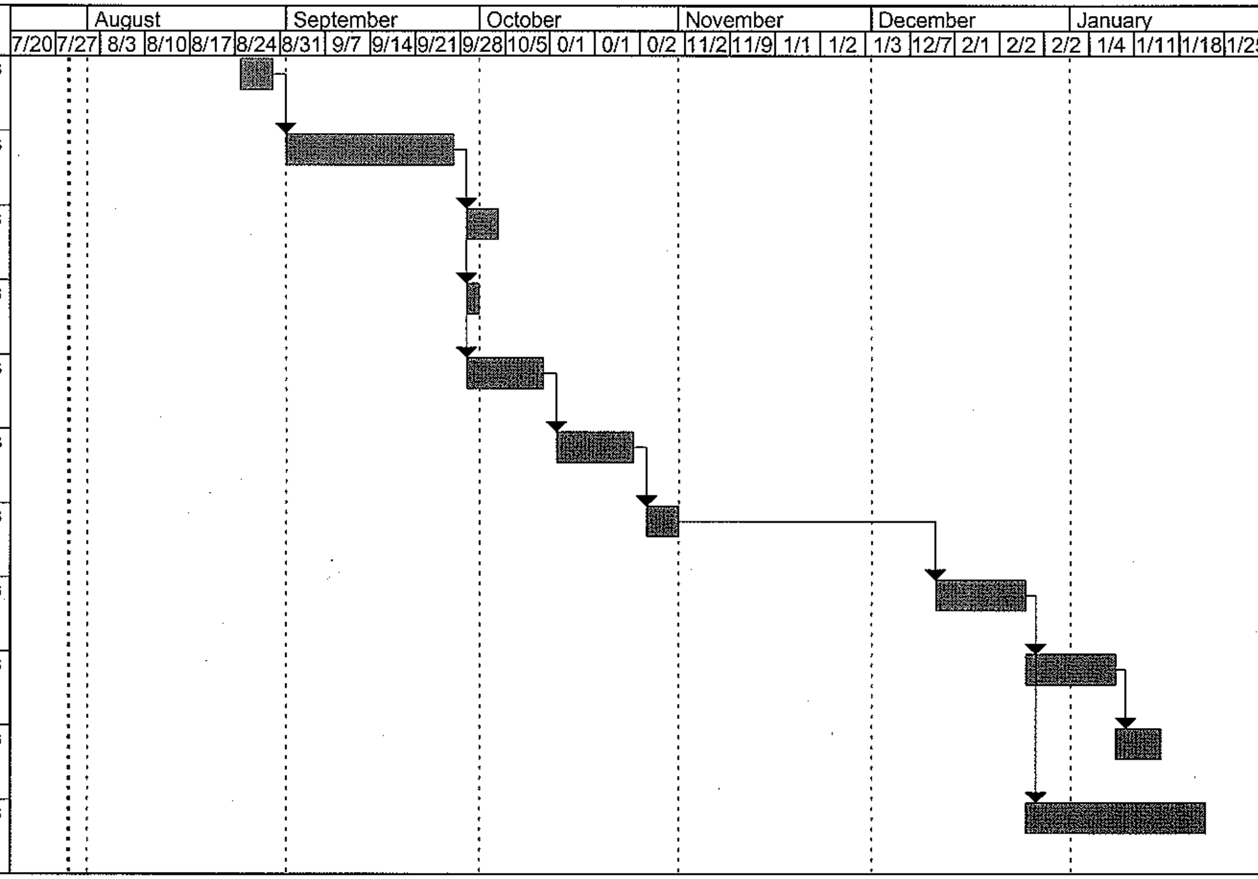
ISCO PILOT TEST TREATMENT AREA AND CONCEPTUAL DESIGN

700 INDEPENDENT ROAD
OAKLAND, CALIFORNIA

PLATE
4

Plate 5 Tentative ISCO Pilot Test Schedule
700 Independent Road
Oakland, California

ID	Task Name	Duration
1	Project Planning	5 days
2	Bid Procurement and Bid Selection	20 days
3	Boring Layout and Utility Clearance	5 days
4	Health and Safety Planning	2 days
5	Permitting	10 days
6	Initial Sampling and Analysis	10 days
7	ISCO Injection	5 days
8	Follow-up Sampling and Analysis	10 days
9	Waste Sampling and Profiling	10 days
10	Waste Disposal	5 days
11	Report Preparation	20 days



Project: IRW ISCO Pilot Test
Date: Tue 7/29/08