KLEINFELDER

APPLICATION FOR WASTE DISCHARGE PERMIT, INDUSTRIAL ASPHALT PROPERTY, PLEASANTON, CALIFORNIA

September 28, 1992

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September 28, 1992
File 10-1682-11/103

Mr. John Jang
Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, California 94612

SUBJECT: Application for Waste Discharge Permit, Industrial Asphalt Property, Pleasanton, California

Dear Mr. Jang:

Enclosed you will find an Application for a Waste Discharge Permit for the Industrial Asphalt Property located in Pleasanton, California. This report is submitted on behalf of Industrial Asphalt.

This report responds to the requirements for an application for a Facility Permit/Waste Discharge as outlined in communications with RWQCB. The Facility Permit/Waste Discharge application form is included in Appendix A of this report.

If you have any questions or comments on the report, please do not hesitate to call either myself or Mr. Dennis Hunt of Industrial Asphalt.

Sincerely,

KLEINFELDER, INC.

David K. Behrens, P.E.
Senior Project Manager

cc: Dennis Hunt, Industrial Asphalt
Dwight Beavers, Industrial Asphalt
Ravi Arulanantham, ACDEHHMP
Mr. Jerry Killingstad, ACFCWCD-Zone 7

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KLEINFELDER

A Report Prepared for:

Industrial Asphalt Company
52 El Charro Road
Pleasanton, California 94566

APPLICATION FOR WASTE DISCHARGE PERMIT, INDUSTRIAL ASPHALT PROPERTY, PLEASANTON, CALIFORNIA

Kleinfelder Job No. 10-1682-08/103

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1.0 INTRODUCTION

This document has been prepared to provide supplemental information required for formal application for a Waste Discharge Permit (WDR) for the ground water treatment system to be constructed at the Industrial Asphalt facilities (Site) in Pleasanton, California. The Application for Facility Permit/Waste Discharge form is included in Appendix A.

In an effort to present information necessary to obtain a WDR for the Site, some sections of this document contains excerpts from previous Kleinfelder reports, while other sections may only reference previous reports. These documents include those previously submitted to the Regional Water Quality Control Board (RWQCB) and other regulatory agencies. Of particular significance are:

- Kleinfelder (1990a), "Remedial Investigation / Remedial Action Plan, Industrial Asphalt, Pleasanton, California," dated January 15, 1990;
- Kleinfelder (1990b), "Remedial Investigation (RI) Report for Industrial Asphalt, Pleasanton, California," dated December 28, 1990;
- Kleinfelder (1991), "Feasibility Study for Soil and Ground Water Remediation, Industrial Asphalt, Inc., 52 El Charro Road, Pleasanton, California," dated August 14, 1991, and;
- Kleinfelder (1992c), "Draft Ground Water Flow Model, Industrial Asphalt, Pleasanton, California," which is currently in agency review.

2.0 BACKGROUND

Industrial Asphalt leases a portion (approximately 5 acres) of the 177 acre parcel owned by Jamieson Company in Pleasanton, California. Plate 1 shows the location of the site. The site history and background are thoroughly discussed in Kleinfelder, 1991, pages 4 through 6. The objectives for remediation of the Industrial Asphalt site are:

1) to reduce the mobility of petroleum hydrocarbons and PCBs present in the subsurface; and,

2) to reduce the amount of petroleum hydrocarbons and PCBs present in the subsurface (Kleinfelder 1991, p 27).

The following information again describes the site location, description and charactistics of the Site.

2.1 SITE LOCATION AND DESCRIPTION

The Industrial Asphalt facility is located at 52 El Charro Road, Pleasanton, Alameda County, California, near the northwest corner of the intersection of East Stanley Boulevard and El Charro Road. The facility is situated in the Livermore Valley, approximately two miles south of Interstate 580 and 1.5 miles west of the Livermore Airport. Plate 1 is a site location map.

Industrial Asphalt runs its operations on part of a 177 acre parcel leased from the Jamieson Company, 501 El Charro Road, Pleasanton. The parcel is identified by the Alameda County Planning Department as Map Book #946, Block #1350, Parcel #5. The facility property and the surrounding area are zoned A (agricultural), though gravel quarrying is the predominant land use. The A zoning designation specifies a maximum population density of one residence per 100 acres. The nearest urban residential areas to the Industrial Asphalt facility are located approximately two miles west in the City of Pleasanton.

Land use for the Industrial Asphalt site and vicinity is gravel and sand quarrying. The area is designated as a significant regional mineral resource area under the California Surface Mining and Reclamation Act. Quarry operators in the area are granted long-term operating permits by the Alameda County Planning Department and must submit reclamation plans for long-term restoration. The Industrial Asphalt facility is located on a parcel of land which is permitted by Alameda County for gravel quarry operations. Jamieson Company holds the permit which runs through December 31, 2030.

2.2 SITE CHARACTERISTICS

The Livermore Valley is generally surrounded by hilly to mountainous terrain. Topography of the Industrial Asphalt facility is nearly level, with a slight downward slope from the southwest corner to the northeast corner of the site. The approximate elevations range from 380 feet above mean sea level in the southwest corner to 376 feet above mean sea level in the northeast corner.

The site stratigraphy generally resembles an alluvial fan deposit, with interfingered beds containing varying amounts of clay, silt, sand, and gravel. Fine-grained material (silty clay and silt), identified as fill, is found to varying depths (60 feet maximum) below ground surface. Unconsolidated silty-clayey gravel deposits are found below the fill material to depths of 130 feet below ground surface. Onsite borings have not advanced deeper than 130 feet below grade.

Interfingered with the silty-clayey gravel deposits are discontinuous water-bearing zones of silty-sandy gravel, typically found at 90 to 110 feet below ground surface. At some locations, the gravel becomes increasingly clayey with depth; this clayey gravel has been identified as having aquitard properties. At other locations, a four foot thick layer of silt is found at 110 feet below ground surface. This deposit is also classified as having aquitard properties. At 120 feet below ground surface, a deeper water-bearing zone is found. Sand and gravel content increases with depth in the water-bearing deposits.

3.0 HYDROGEOLOGIC ASSESSMENT

3.1 LOCAL GEOLOGIC CONDITIONS

Geologic conditions underlying the site are described in detail in Kleinfelder 1990b, pages 22 through 24. Geologic cross-sections illustrating the geologic conditions and distribution of hydrocarbon and PCB impacts beneath the site are also presented in Kleinfelder 1990b as Plates 8 and 9 (eight total cross sections). Boring logs for ground water monitoring wells and soil borings have been presented in the following reports: MW-1, MW-2, and MW-3 -- Kleinfelder 1987; MW-4 through MW-8 -- Kleinfelder 1988; MW-9, MW-10, and MW-11 -- Kleinfelder 1989; MW-13 through MW-16 and SB-1 through SB-10 -- Kleinfelder 1990b (Appendix A). More recently, ten ground water extraction wells have been installed at the site. Boring logs for these wells have been submitted to the Alameda County Environmental Health Department and RWQCB. Table 1 summarizes the construction of the monitoring and extraction wells at the site.

In general, the site is described as being underlain by approximately sixty feet of fill material consisting of brown silty clay to clayey silt with isolated gravel clays. No free water was encountered in this interval. Below about sixty feet below grade to the maximum depth explored (approximately 130 feet) are predominantly silty gravel layers with variable amounts of fine to medium sand and clay. In three wells, the water bearing zone was subdivided by an apparently discontinuous layer of brown silt to clayey silt up to four feet thick. Overall, the cited reports indicate that the site specific geological conditions are similar to those described from the surrounding region.

3.2 AQUIFER PROPERTIES

Measurements of depths to ground water have varied considerably since installation of monitoring wells began at the Site. These depths have ranged from 75 to 95 feet below grade with the highest levels observed in 1987 (Kleinfelder, 1990b, p 24).

This water bearing zone appears to be unconfined. This zone averages about thirty feet thick. Observed ground water gradients have generally been towards the northeast, occasionally with a northerly to northwesterly component beneath the western portion of the site. During March

1992 these gradients varied between 0.007 and 0.014 feet per foot (Kleinfelder 1992b). Using the transmissivity data used for the ground water modeling (Kleinfelder, 1992c), ground water velocities would vary between 0.036 and 0.073 feet per day.

Because deeper water bearing zones beneath the site have not been penetrated, vertical ground water gradients are unknown. Regionally, piezometric surfaces of deeper water bearing zones are 10 to 100 feet lower than the shallower zone, implying a net downward vertical gradient. Thick clay layers (up to 50 feet thick) separating the water bearing zones should reduce the potential for vertical migration of hydrocarbons and PCBs. (Kleinfelder 1990b, pp 21, 24).

The transmissivity and storativity of the water bearing zone was estimated from data gathered during a pump test of monitoring well MW-13. Values for transmissivity ranged from 1,500 to 4,200 gallons per day per foot (gpd/ft), averaging 2,500 gpd/ft. Storativity values ranged from 8×10^{-2} to 9×10^{-4} averaging 1.7×10^{-3} (Kleinfelder 1990b, pp 34-39).

An estimate of an inferred capture zone based on the data above indicated that a single ground water extraction well would not be sufficient to capture the entire area apparently containing contaminants. Numerical modelling indicated that ten ground water extraction wells would be necessary to adequately control migration of contaminants beneath the site, including those needed for potential shifts in ground water gradients (Kleinfelder, 1992c). These extraction wells were installed in June, 1992, following verbal approval of the Feasibility Study for the site (Kleinfelder, 1991) by the RWQCB.

3.3 SURFACE WATER INTERACTIONS

Surface water in the immediate vicinity of the site may be found in three locations: a desiltation pond along the northern margin of the site, and Arroyo Mocho, to the east of the site, and two recharge ponds R-11 and R-14, also east of the site. Although water elevations in the desiltation pond are commonly lower than elevations of ground water beneath the site, ground water modelling has indicated there is very little communication between the two (Kleinfelder, 1992c). Interaction between the pond and the ground water is presumably restricted by fine silt deposited in the desiltation pond.

Arroyo Mocho is an ephemeral stream located to the east of the site. The bottom of this stream is no more than 15 feet below the surrounding surface. Ground water at the site in recent years has been present at a depth approximately 90 feet below grade (Kleinfelder, 1992a). Surface water in Arroyo Mocho is therefore at least 75 feet above the observed ground water beneath the site. As a result, ground water beneath the site cannot be expected to have an impact on the surface water in the arroyo.

Ponds R-11 and R-14 are proposed as the discharge point for treated ground water from the site. Water in Ponds R11 and R14 have direct communication with ground water. These ponds were constructed explicitly for the purpose of recharging ground water that is pumped from Jamieson working pits. It is unlikely that discharge of ground water from Industrial Asphalt would have a detectable impact on ground water under R11 and R14. Please refer to Section 5 for a full description of these ponds and their proposed use as the discharge point for the recharge system.

3.4 OTHER SITE FEATURES

3.4.1 Site Topography

The topography of the site is nearly flat with surface elevations ranging from about 375 to about 380 feet above sea level. The site slopes gently from northeast to southwest with a grade of approximately 0.5 percent. There are no drainage or irrigation structures at the site. Rainfall either flows as sheet runoff along the local surface gradient or ponds on the surface until it evaporates. The area is primarily covered by asphalt pavement and structures. Surface infiltration rates have not been estimated but it is unlikely that rainfall infiltrates from the Industrial Asphalt site. The asphalt pavement is at least one foot thick, is well-compacted by heavy truck traffic, and is sealed by dust embedded in the surface.

3.4.2 Average Annual Rainfall

Annual rainfall for Pleasanton and Livermore for the past ten years was provided by ACFCWCD. It appears that rainfall at Industrial Asphalt would nearly coincide with rainfall levels with Pleasanton, i.e., 10-year average annual rainfall close to 20.39 inches. Please refer to Table 2, Average Annual Rainfall.

3.4.3 Flooding Potential

Information available to Kleinfelder at the time of this application was not sufficient to infer the flooding potential of this site. It is however, believed to be low with relatively shallow depths of inundation (less than one foot). Butch Kelly of Jamieson has not recalled flooding at Industrial Asphalt during the 26 years he has worked in the immediate vicinity (personal communication, July 27, 1992).

3.4.4 Nearby Wells

A total of 23 wells were identified within a one mile radius of the site during a well canvass completed in 1990. Six of these wells were within one-half mile of the site not including wells installed at the site. Locations and uses of these wells were discussed in Kleinfelder 1990b, pp 25-26.

4.0 ASSESSMENT OF CONSTITUENTS OF INTEREST

Chemical compounds and mixtures detected at this site during the past year include total petroleum hydrocarbons as diesel (TPH(d)), total petroleum hydrocarbons as waste oil (TPH(wo)), oil and grease, total hydrocarbons, polychlorinated biphenyl compounds (PCBs), and the volatile organic compounds benzene, ethylbenzene, total xylenes, 1,1-dichloroethane, and vinyl chloride. Of these, petroleum hydrocarbons and PCBs were the most prevalent.

4.1 PRODUCT SHEEN AND CHEMICAL CONCENTRATIONS

Ground water monitoring at the site has been ongoing since 1987 (Kleinfelder 1990a, p 21). No measurable floating product has been observed in any of the wells at the site since January 1989 (Kleinfelder 1990a, p 21). Product sheen has been observed in monitoring wells MW-1, MW-2, MW-3, and MW-8 during the first two sampling rounds of 1992 (Kleinfelder 1992a, 1992b).

Current concentrations of compounds dissolved in the ground water beneath the site are also discussed in Kleinfelder 1992a and 1992b. Please refer to those documents.

4.2 EXTENT OF GROUND WATER CONTAMINATION

The extent of ground water contamination beneath the site has been described and illustrated in the Remedial Investigation Report (Kleinfelder 1990b, pp 30-31 and Plate 11) and the Feasibility Study (Kleinfelder 1991, pp 13 to 14 and Plates 11 and 12). The extent of PCB impact is smaller than and lies within the limits of the TPH(d) impact. Laboratory reports used to prepare the cited plates are referenced in the above documents.

4.3 EXTENT OF SOIL CONTAMINATION

The extent of soil impact beneath the site has been described and illustrated in the Remedial Investigation Report (Kleinfelder 1990b. pp 29-30 and Plate 10) and the Feasibility Study (Kleinfelder 1991, p 13 and Plates 6 through 10). As with the ground water, the extent of

PCB contamination lies within the limits of the TPH(d) impact. Laboratory reports used to prepare the cited plates are referenced in the above documents.

4.4 CHEMICAL CHARACTERISTICS OF PROCESS WATER

While the recently installed ground water extraction wells have not been tested for compounds of concern at this site, the concentrations anticipated for the process water are estimated from samples collected from existing monitoring wells at the site. Please refer to the following sections on tests for Petroleum Hydrocarbons, Volatile Organic Compounds, and Base/Neutral-Acid Extractables.

4.4.1 EPA Priority Pollutant Elements

Laboratory analysis for the EPA priority pollutant elements has never been requested for this site or considered necessary by the Alameda County Environmental Health Department which is the lead agency for this site.

4.4.2 Petroleum Hydrocarbons

Hydrocarbon compounds present in ground water beneath the site have been quantified as TPH(d), TPH(wo), oil and grease and total hydrocarbons. Kleinfelder (1992b) tabulates the results of laboratory analyses for these constituents for the last four quarterly sampling rounds. Based on those and previous results, Kleinfelder anticipates an influent petroleum hydrocarbons concentration of 100 mg/l based on an average of maximum concentrations found since 1987. This is a conservative (high) estimate. The concentration will be reduced to 10 mg/l in the oil/water separator and to discharge levels by granular activated carbon. With proper operation of the proposed remediation system, no detectable concentrations of petroleum hydrocarbons should be present in the treated effluent.

4.4.3 Volatile Organic Compounds

Laboratory analysis for volatile organic compounds using EPA Test Method 8240 has never been requested by the lead regulatory agency for this site.

Volatile organic compounds present in ground water beneath the site have, however, been quantified using Modified EPA Test Methods 8020 for benzene, toluene, ethylbenzene, and

5.0 DESCRIPTION OF REMEDIATION SYSTEM

5.1 LOCATION OF REMEDIATION SYSTEM

A site map showing the locations of the monitoring wells, extraction wells, treatment system, infiltration pond and latitude and longitude is included as Plate 2 and as Plate 3.

5.2 FLOW RATES

The maximum flow rate to the system is estimated to be 50,400 gallons per day. The average flow rate is estimated to be 31,680 gallons per day. These flow rates are based on the results of the pumping test described in the Remedial Investigation Report (Kleinfelder, 1990b).

5.3 GROUND WATER REMEDIATION SYSTEM

The recommended ground water remediation system for attaining remedial objectives at the Industrial Asphalt facility comprises: (1) extraction wells to pump ground water; (2) a Granular Activated Carbon (GAC) system to remove petroleum hydrocarbons and PCBs from the extracted ground water; (3) discharge of treated water to Pond R11.

5.3.1 Extraction System

Data collected from a pumping test at an onsite extraction well were analyzed. Average transmissivity and storativity values were calculated to be 2,500 gpd/ft (330 feet^2/day) and 0.0017 ft/ft, respectively. During the test, a sustained yield of 2.5 gpm was maintained with 15 feet of drawdown. Estimates of capture zone dimensions for this pumping rate are 23 feet in the downgradient direction with a width of 145 feet.

It is assumed that a flowrate of 3 gpm will be sustainable from a properly designed extraction well. Eleven ground water extraction wells were installed onsite to intercept ground water in the upper water-bearing zone, i.e. 85 to 110 feet below grade. Electric submersible pumps with automatic level controls will pump water to the treatment system which will be located on a small concrete pad located at the northern edge of the facility. Treated water will be discharged to pond R11. The eleven extraction wells pumping at a rate of 3 gpm each equates to approximately 33 gpm total ground water extraction rate. Extraction of ground water will provide hydrodynamic control of the site, thereby reducing the mobility of petroleum hydrocarbons and PCBs through ground water.

5.3.2 Remediation System

Treating extracted ground water with GAC will remove petroleum hydrocarbons and PCBs from the ground water, thereby reducing the amount of these chemicals in the subsurface. Plate 4 shows the piping and instrument diagram for the GAC system. For simplicity of controls, extracted ground water is first pumped into an oil/water separator which will reduce concentrations to below 10 mg/l. Oil product will collect in one sump and water in a second sump. A transfer pump then pumps the ground water from the water sump into the treatment system at a higher pumping rate than the extraction wells pump into the sump. This allows the extraction wells to pump continuously while the transfer pump operates in response to the water level in the sump. The continuous pumping of the extraction wells allows greater hydrodynamic control of the ground water. The transfer pump discharges the ground water through a filter to remove sediments and through a UV-lamp sterilizer to reduce biological fouling. The water then passes through four 2,000-pound GAC vessels (in a series of three) and is piped to Pond R11 for discharge. The periodic discharge rate from the treatment system into Pond R11 will be greater than the extraction rate of the wells into the equalization tank, but the average discharge rate will be equal to the ground water extraction rate, i.e. up to 35 gpm.

Carbon mass consumption is conservatively estimated at ten times the estimated mass of compounds, i.e. the first 2,000 pound carbon vessel will be depleted after 200 pounds of compounds were adsorbed to the carbon surfaces. Twenty pounds of adsorbed hydrocarbons converts to 9×10^7 mg. If the system operates continuously at maximum design flow, then ground water will be treated at a rate of 35 gpm or 190,800 l/day. The concentration of hydrocarbons entering the GAC vessels will be 10 mg/*l* or less, i.e. the discharge concentration from the oil/water separator. The time to depletion of the first 2,000 pound carbon vessel will be as follows:

$$9 \times 10^7 \text{ mg} \times 1\ l/10 \text{ mg} \times 1 \text{ day}/\ 190{,}800\ l = 47.2 \text{ days}$$

However, break through of hydrocarbons will occur much earlier. It is forecast that when breakthrough concentrations reach 20% of influent concentrations then the first vessel will be replaced. Actual time to break through and the acceptable concentrations at change-out will be established during system start up. At change-out of the first vessel, the second vessel in the series will become the first unit in the series and a new vessel will become the polishing unit.

The treatment system is equipped with controls to automatically shut off operations if a variety of conditions were to occur. The extraction well and treatment system pumps will shut off if either the oil or the water level in the oil/water separator sumps reach high levels. Similarly, the pumps will shut off if the pressure reaches high levels in the filters or GAC vessels.

The GAC vessels are sized to handle chemical concentrations much higher than 10 mg/*l* in the event that the level switch in the oil sump fails and higher concentrations come through the separator. As part of regular maintenance procedures, operations personnel will be inspecting equipment and observe levels in sumps and tanks. If the oil level is high in the sump, the condition can be spotted and corrected. Also, through regular monitoring of water quality at the GAC intermediate ports, an increase in the carbon consumption rate can alert personnel to increased hydrocarbons in water.

Thus, these three approaches to safeguarding water quality will work together to maintain discharge limits.

5.4 TREATMENT SYSTEM DISCHARGE LEVELS

Treatment system discharge levels are determined by RWQCB and must comply with their "nondegradation" policy. Discharge limits for petroleum hydrocarbons, PCBs and potential VOCs would likely be non-detectable levels.

5.5 DESCRIPTION OF POND(S)

Two nearby recharge ponds (R-11 and R-14) are proposed for use for reinfiltration of the treated ground water from the Site. The first impoundment is used by Jamieson for percolation of ground water extracted from active pits. The impoundment is designated as Pond R11 (R11) by ACFCWCD and is located about 1,400 feet east of the Industrial Asphalt facility. Industrial Asphalt proposes to discharge treated ground water from their ground water remediation system directly into R11. Water from R11 is frequently pumped to Pond R14 (R14) which is located about 1000 feet east of R11. R14 is also used for percolation of ground rate than flow into the pond. The depths of these ponds do not exceed the largest surface dimension and so are not required to comply with the Underground Injection Control Program (40 CFR Part 144).

5.6 WATER BALANCE FOR THE RECEIVING WATERS

Because R11 and R14 water levels are interrelated, i.e., water from R11 is pumped to R14, an estimate of the water balance includes both ponds. There would be three sources of influent water to the ponds during the treatment system operation: Jamieson ground water, Industrial Asphalt ground water, and rainfall. The primary source of influent to the ponds is from Jamieson Company. Butch Kelly has indicated that the Jamieson contribution occurs at a flow rate of 1600 gpm for approximately three working days per week over a sixteen-week period, Jamieson's influent would be nearly 37 million gallons. Influent contributed by Industrial Asphalt at 35 gpm on a continuous basis would reach about 4.5 million gallons in the same four months. Because Jamieson pumps water to the ponds during periods of increased water in the active pits, it is likely that much of this water is a result of rainfall during the wet season. Assuming that Jamieson pumps water to the ponds from December through March, the contribution to the influent by rainfall would be about 13.59 inches total, or 5.5 million gallons. This estimate is based on ten years of annual precipitation recorded by ACFCWCD from Livermore and Pleasanton from 1981 to 1991. Please refer to Table 2: Average Annual Rainfall. The estimate of rainfall contribution assumes that the rainy season occurs from October 1 through April 1 with two-thirds of the rainfall occurring from December through March. Rainfall at Industrial Asphalt is conservatively estimated to be the same as rainfall for Pleasanton, i.e., an annual average of 20.39 inches or 13.59 inches from December through March. Total combined influent to both ponds from all sources over a four-month period would be about 46.5 million gallons.

Effluent water flows are limited to evaporation and percolation through the gravel layer. Evaporation was estimated at 7 inches or 1.5 million gallons for the months of December through March. This estimate is based on evaporation rates recorded at the nearby Livermore Water Reclamation Plant from 1967 through 1991. Pan evaporation means for the months of December through March were multiplied by monthly pan-to-lake coefficients developed for Lake Del Valle by ACFCWCD. These coefficients reduce the evaporation rate to adjust for the depth and thermal gradation of Lake Del Valle. Because Ponds R11 and R14 are much smaller than Lake Del Valle, the estimated volume of water evaporated from the ponds is probably lower than the actual amount, thus the estimate is conservative.

Since 1990 the water surface elevation in R11 has fluctuated from about 379 to about 385 feet. Available freeboard has ranged from 20 feet (empty) to about 5 feet. When remaining freeboard is reduced to about five feet by discharge from Jamieson's working pit, the pump in R11 is turned on and water is diverted to R14. The level in R14 does not exceed a depth of approximately six feet at the shallow end because the infiltration rate is so high. Freeboard in R14 ranges from total depth (15 to 20 feet) to 10 feet.

Percolation through the ground is estimated based on these observations by Jamieson personnel. The influent to the ponds does not cause water levels to rise above fifteen feet in R11 or above six to eleven feet in R14. Thus percolation from the ponds appears to be the major factor influencing the water balance of R11 and R14. It appears that ample freeboard will be sustained during the Industrial Asphalt remediation period.

5.7 OPERATIONS AND MAINTENANCE MANUAL

An Operations and Maintenance (O&M) Manual will be drafted after the system design is completed and equipment is purchased and installed. The manual will be finalized during the first year of operations. The manual will include operations manuals provided by equipment supplies, as-built drawings, and supplementary instructions.

A tentative schedule for sampling of influent, process, and effluent water is presented in Table 3. As shown in the Table 3, the influent to the oil/water separator, process water into the carbon vessels and the effluent from the treatment system will be sampled during startup and monthly thereafter.

respectively), reinfiltration of the treated water at a maximum design flow of 35 gpm at Pond R11 should not provide a driving force leading to dispersal of affected ground water away from the site.

6.2 MONITORED PHYSICAL AND CHEMICAL PARAMETERS

Monitored physical parameters will include those routinely collected by Kleinfelder. These include field measurements for temperature, specific conductance, salinity, pH, turbidity, and depth to water.

Monitored chemical parameters will be the same as currently specified for the existing quarterly monitoring program. Specifically, these include the following:

Detection Parameter	Method	Limit
Total Petroleum Hydrocarbons as Diesel (TPH(d))	GCFID (extraction)	0.05 mg/L
Total Petroleum Hydrocarbons as Waste Oil (TPH(wo))	GCFID (extraction)	0.1 mg/L
Polychlorinated Biphenyl Compounds (PCBs)	EPA Test Method 8080	0.5 ug/L
Total Petroleum Hydrocarbons	SM 5520E	0.5 mg/L

All samples will be collected following chain of custody procedures and submitted to a State-certified analytical laboratory.

Frequency of ground water monitoring will follow the currently established quarterly monitoring schedule. Quarterly monitoring rounds are scheduled for the months of February, May, August, and November. In addition, during the first three months of treatment system operation, depth to water measurements will be taken in all monitoring wells at the site following the same schedule as for sampling the treatment system. These measurements will allow an assessment of the effectiveness of ground water extraction by the treatment system.

The analytical results will be tabulated. When appropriate, the results of selected parameters will be graphed to indicate temporal trends or contoured to estimate the current extent of subsurface distribution, i.e., a plume map. Changes in the configuration of the plume will likely allow discrimination between control and cleanup in contrast to dispersal. Assessing the cause of concentration changes cannot be forecast at this time nor until the treatment system is in operation and data is collected from the ground water monitoring wells.

6.3 CORRECTIVE ACTION PLAN

If the effluent limits are exceeded, the system will be shut down immediately upon receipt of laboratory analyses indicating this condition. The system will be assessed and appropriate measures taken to correct system performance. The most likely cause of concentrations above the discharge limits is depletion of the adsorbent capacity of the granular activated carbon. However, the likelihood of this occurrence is low because of the design features described in this document.

Should petroleum hydrocarbons or PCBs be detected in the effluent, water in discharge pond R11 will then be tested using an integrated depth sampling device to test for these compounds.

7.0 LIMITATIONS

This report was prepared in general accordance with the accepted standard of practice which exists in Northern California at the time the investigation was performed. It should be recognized that definition and evaluation of environmental conditions is a difficult and inexact art. Judgements leading to conclusions and recommendations are generally made with an incomplete knowledge of the conditions present. More extensive studies, including additional environmental investigations, can tend to reduce the inherent uncertainties associated with such studies. If the Client wishes to reduce the uncertainty beyond the level associated with this study, Kleinfelder should be notified for additional consultation.

Our firm has prepared this report for the Client's exclusive use for this particular project and in accordance with generally accepted engineering practices within the area at the time of our investigation. No other warranties, expressed or implied, as to the professional advice provided are made.

8.0 REFERENCES

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Kleinfelder, 1992c "Draft Ground Water Flow Model, Industrial Asphalt, Pleasanton, California," Kleinfelder, 2121 North California Boulevard, Suite 570, Walnut Creek, California, in agency review.

Lunn, David, 1992. Personal communication with Mr. David Lunn, Water Resources Engineer, ACFCWCD, 5997 Parkside Drive, Pleasanton, California 94588. July 27, 1992.

TABLE 1
MONITORING AND EXTRACTION WELL CONSTRUCTION DATA
INDUSTRIAL ASPHALT FACILITY

Well No.	Total Depth[1] (ft)	Top of Casing[2] (ft)	Screen Interval[3] (ft)	Well Diameter[4] (inch)	Slot Size (inch)	Screen/Casing Material[5]	Top of Filter Pack[3] (ft)	Type of Filter Pack	Depth of Well Seal[5] (ft)	Completion Date
MW-1	88	379.41	58-88	2	0.020	PVC/PVC	56	#3	53	JUNE 1987
MW-2	90	379.80	65-90	4	0.020	PVC/PVC	62	#3	59	JULY 1987
MW-3	90	378.54	65-90	4	0.020	PVC/PVC	62	#3	59	JULY 1987
MW-4	95	376.26	55-95	4	0.020	PVC/PVC	52	#3	48	MARCH 1988
MW-5	110	382.55	57-107	4	0.020	PVC/PVC	53	#3	49	MARCH 1988
MW-6	109	379.15	69-109	4	0.020	PVC/PVC	64	2/12	61	JUNE 1988
MW-7	109	378.94	69-109	4	0.020	PVC/PVC	64	#3	61	JUNE 1988
MW-8	109	378.56	69-109	4	0.020	PVC/PVC	64	2/12	61	JUNE 1988
MW-9	108	377.40	78-108	4	0.020	PVC/PVC	75.4	2/12	70	JULY 1989
MW-10	111	378.04	81-111	4	0.020	PVC/PVC	78.2	2/12	73	JULY 1989
MW-11[6]	75	379.02	55-75	2	0.040	PVC/PVC	53	LA	51	JULY 1989
MW-14	114.5	380.09	99.5-114.5	4	0.020	PVC/PVC	96.5	2M	94	JUNE 1990
MW-15	117	378.12	97-117	4	0.020	PVC/PVC	94	2M	91	JUNE 1990
MW-16	110	379.65	90-110	4	0.020	PVC/PVC	86.5	2M	83.5	JUNE 1990
EW-1	122	--[8]	81-121	6	0.040	PVC/PVC	77	#8	74	MAY 1992
EW-2	122	-[8]	81-121	6	0.040	PVC/PVC	76.5	#8	73.5	MAY 1992
EW-3	122	-[8]	79-119	6	0.040	PVC/PVC	76.5	#8	73.5	MAY 1992
EW-4	122	-[8]	81-121	6	0.040	PVC/PVC	78	#8	75	MAY 1992
EW-5	122	-[8]	77-117	6	0.040	PVC/PVC	72.5	#8	69	MAY 1992
EW-6	122	-[8]	81-121	6	0.040	PVC/PVC	77.5	#8	74	MAY 1992
EW-7	122	-[8]	81-121	6	0.040	PVC/PVC	76	#8	73	MAY 1992
EW-8	122	-[8]	81-121	6	0.040	PVC/PVC	76.5	#8	73.5	MAY 1992
EW-9	122	-[8]	81-121	6	0.040	PVC/PVC	76.5	#8	74	MAY 1992
EW-10	122	-[8]	81-121	6	0.040	PVC/PVC	77	#8	74	MAY 1992
EW-11[7]	116	380.21	76-116	6	0.045	SS/PVC	64	MA	62	AUGUST 1990

NOTES:

1 Total depth of borehole below ground surface
2 Elevation in feet above mean sea level (USGS Datum)
3 Depth below ground surface
4 Nominal casing/screen diameter
5 PVC - Polyvinyl Chloride plastic (Schedule 40), SS - stainless steel
6 Well abandoned on 8 August 1990
7 Previously designated MW-13
8 Not yet surveyed

MW Monitoring Well
EW Extraction Well
MA Medium aquarium sand
#2M No. 2 Monterey sand
#3 No. 3 Monterey sand
#8 #8 Mesh sand
LA Lonestar aquarium sand

KLEINFELDER

TABLE 2
AVERAGE ANNUAL RAINFALL
1981 TO 1991

Year	Pleasanton	Livermore
1981	14.42	10.30
1982	34.13	24.38
1983	44.77	31.88
1984	18.14	12.96
1985	17.69	12.59
1986	27.46	19.79
1987	12.61	8.89
1988	11.66	8.69
1989	14.71	11.15
1990	13.37	9.35
1991	15.33	11.32
Average	20.39	14.66
Maximum	44.77	31.88
Minimum	11.66	8.69

Source:

Alameda Flood Control and Water Conservation District, Zone 7

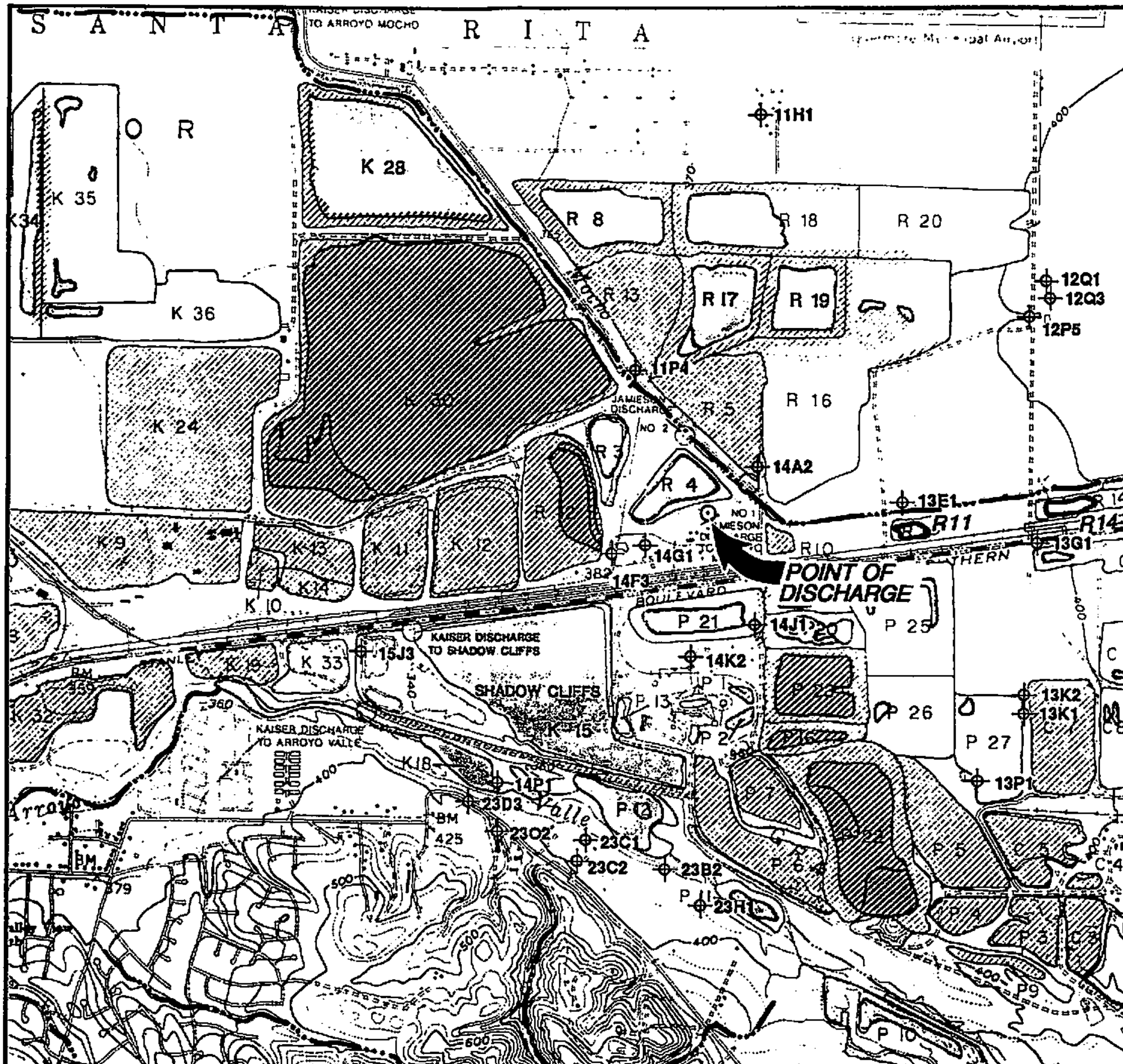
TABLE 3
SAMPLING COMPLIANCE SCHEDULE(1)
INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

	System Startup		System Monitoring Program			
Sampling Point	Daily (for week 1)	Weekly (for month 1)	Monthly (for months 2 & 3)	Monthly (after startup phase)	Quarterly (after startup phase)	Annually (after startup phase)
SP-1	X	X	X	X	X	X
SP-4	X	X	X	X	X	X
SP5[2]	X	X	X	X	X	X
EW-1 to EW-11			X[3]		X	X

Notes:

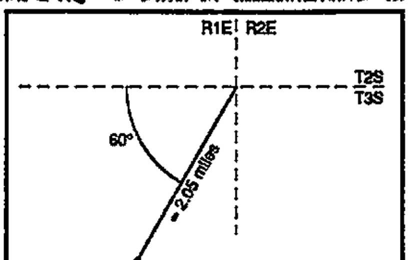
(1) All samples collected will be tested for compounds listed in the text (Section 6.2).
(2) SP-6 and SP-7 will be sampled when V-2 and V-3 act as the primary units, respectively.
(3) 2nd Startup month only, then annually.

KLEINFELDER



- ⊙ POINT OF DISCHARGE
- ⌖ WATER WELL
- DRAINAGE COURSE

Outline of pit
P 4 — Pit Number
Clay



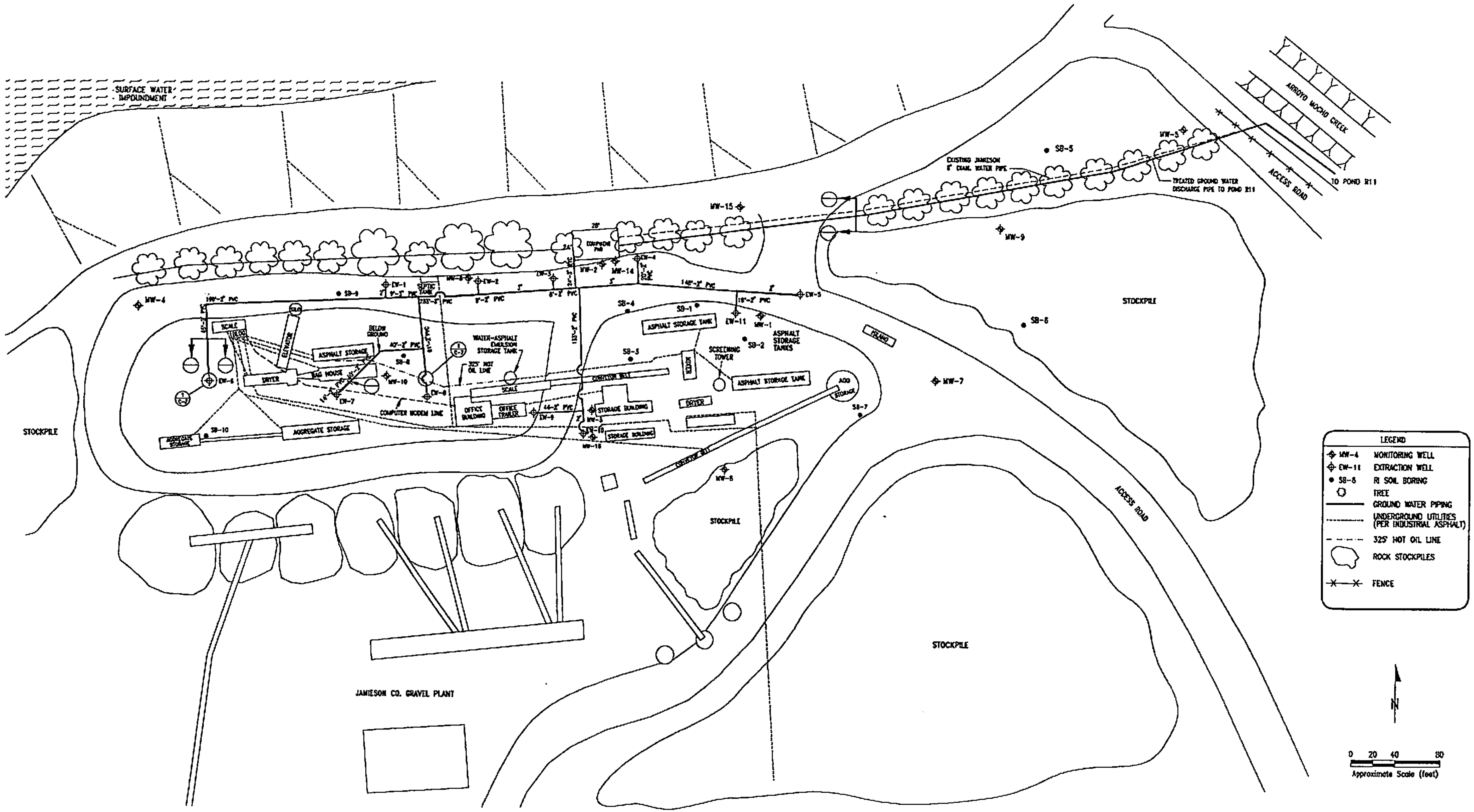
Pt. of Discharge
Latitude 37°40' 32.78"
Longitude 121° 49' 41.25"

N

0 1000 2000
FEET

BASEMAP:
U.S.G.S. 7.5' Topographic Series,
Livermore Quadrangle, California Quadrangles.

KLEINFELDER		POINT OF DISCHARGE LOCATION MAP INDUSTRIAL ASPHALT 52 EL CHARRO ROAD PLEASANTON, CALIFORNIA	PLATE 2
DRAFTED BY: L. Sue	DATE: 2-25-92		
CHECKED BY: B. Bradley	DATE: 2-25-92	PROJECT NUMBER 10-1862-08	



NOTES:

1. PIPING FROM EW-7 IS ABOVE GROUND UNDER BAG HOUSE.
2. PVC SHALL BE SCHEDULE 40 BELOW GRADE AND SCHEDULE 80 ABOVE GRADE.
3. DUCTILE IRON PIPE (DIP) SHALL BE CLASS 51.

BASE MAP SOURCE:
Site details from 1988 photo (No. AV 3368-27-44), Pacific Aerial Surveys, Oakland, California.

REV.	DESCRIPTION	BY	DATE

PIPING LAYOUT

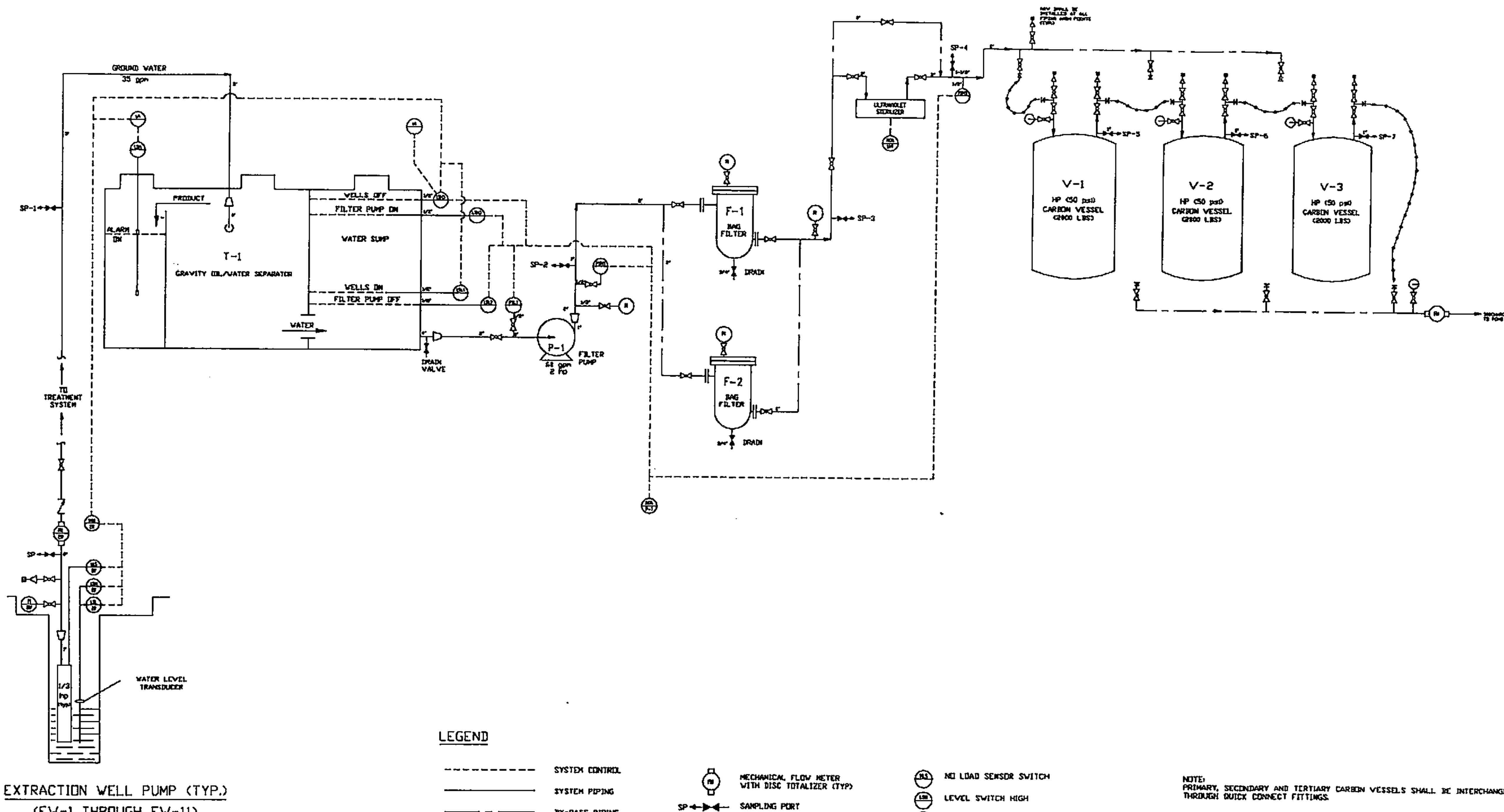
INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

DRAWN BY: LGS	CHECKED BY: DRB	DESIGNED BY: BRB
SCALE: SEE BAR SCALE	DATE: 08/7/92	
JOB NO.: 10-1682-08/320	CAD FILE: C:\1682\PIPELAY	

KLEINFELDER
WALNUT CREEK, CALIFORNIA

SHEET
OF ___ SHEETS

PLATE 3



LEGEND

SYSTEM CONTROL	
SYSTEM PIPING	
BY-PASS PIPING	
2" HOSE WITH QUICK CONNECT FITTINGS	
MECHANICAL FLOW METER WITH DISC TOTALIZER (TYP)	NO LOAD SENSOR SWITCH
SAMPLING PORT	LEVEL SWITCH HIGH
CHECK VALVE	LEVEL SWITCH LOW
AIR VACUUM RELEASE VALVE	PRESSURE INDICATOR
GATE VALVE (OPEN)	HANDS OFF AUTO SWITCH
GATE VALVE (CLOSED)	PRESSURE SWITCH HIGH
BALL VALVE (OPEN)	PRESSURE SWITCH LOW
BALL VALVE (CLOSED)	LEVEL ALARM (WARNING LAMP)
REDUCER	
FLANGE	
ELBOW DOWN	
QUICK CONNECT FITTINGS	

NOTE:
PRIMARY, SECONDARY AND TERTIARY CARBON VESSELS SHALL BE INTERCHANGEABLE THROUGH QUICK CONNECT FITTINGS.

REV.	DESCRIPTION	BY	DATE
0			

PIPING AND INSTRUMENT DIAGRAM

INDUSTRIAL ASPHALT
PLEASANTON, CALIFORNIA

DRAWN BY: LGS	CHECKED BY: [illegible]	DESIGNED BY: BRB
SCALE: NONE	DATE: 7/28/92	
JOB NO: 10-1682-08/130	CAD FILE: [illegible]	

KLEINFELDER
WALNUT CREEK CALIFORNIA

SHEET
OF ___ SHEETS

PLATE 4

APPLICATION FOR FACILITY PERMIT/WASTE DISCHARGE

FOR OFFICE USE ONLY

Form 200 Rec'd

Fee (RWQCB) (SWMB)

Letter to Discharger ____

Report Rec'd ____

Effective Date ____

CDF Notified ____

DOHS No. ____

SWMB No. ____

This form is to be used for filing a/an: (check all appropriate)

1. [X] **REPORT OF WASTE DISCHARGE** (pursuant to Division 7 of the State Water Code)
2. [ ] **APPLICATION FOR A HAZARDOUS WASTE FACILITY PERMIT** (pursuant to Health and Safety Code Section 25200)
3. [ ] **APPLICATION FOR A SOLID WASTE FACILITIES PERMIT** (pursuant to Government Code Section 66796.30)
4. [ ] **APPLICATION FOR A RUBBISH DUMP PERMIT** (pursuant to Public Resources Code Sections 4371–4375 and 4438)

I. FACILITY

NAME OF FACILITY: Industrial Asphalt

TELEPHONE #: (510)846-5125

ZIP CODE

ADDRESS: 52 El Charro Road, Pleasanton, California 94566

NAME OF LEGAL OWNER OF FACILITY: IA A California Joint Venture Partnership

TELEPHONE #: ( ) Same

ZIP CODE

ADDRESS:

NAME OF BUSINESS OPERATING FACILITY: Industrial Asphalt

TELEPHONE #: (510) 846-5125

ZIP CODE

ADDRESS: P.O. Box 636 Pleasanton, California 94566

TYPE OF BUSINESS OPERATING FACILITY

[ ] Sole Proprietorship [X] Partnership [ ] Corporation [ ] Government Agency

NAME OF OWNER(S) OF BUSINESS OPERATING FACILITY: Same

TELEPHONE #: ( )

ZIP CODE

ADDRESS WHERE LEGAL NOTICE MAY BE SERVED: P.O. Box

II. REASON FOR FILING

CHECK ALL APPROPRIATE:

A. [X] New discharge or facility
B. [X] Existing discharge or facility
C. [ ] Increase in quantity of discharge
D. [ ] Change in character of discharge
E. [ ] Change in place or method of disposal
F. [ ] Change in design or operation
G. [ ] Change in business operating facility
H. [ ] Enlargement of existing facility
I. [ ] Other (explain below)

New discharge into existing pond

III. TYPE OF OPERATION

CHECK ALL APPROPRIATE:

A. [ ] Transfer station
B. [ ] Solid waste disposal site
C. [ ] Hazardous waste disposal site
D. [ ] Sewage treatment
E. [ ] Industry (on-site disposal facility)
F. [ ] Industry (discharge to sewer)
G. [ ] Woodwaste site
H. [X] Other (explain below)

Disposal pond for treated ground water

IV. TYPE OF WASTE

CHECK ALL APPROPRIATE:

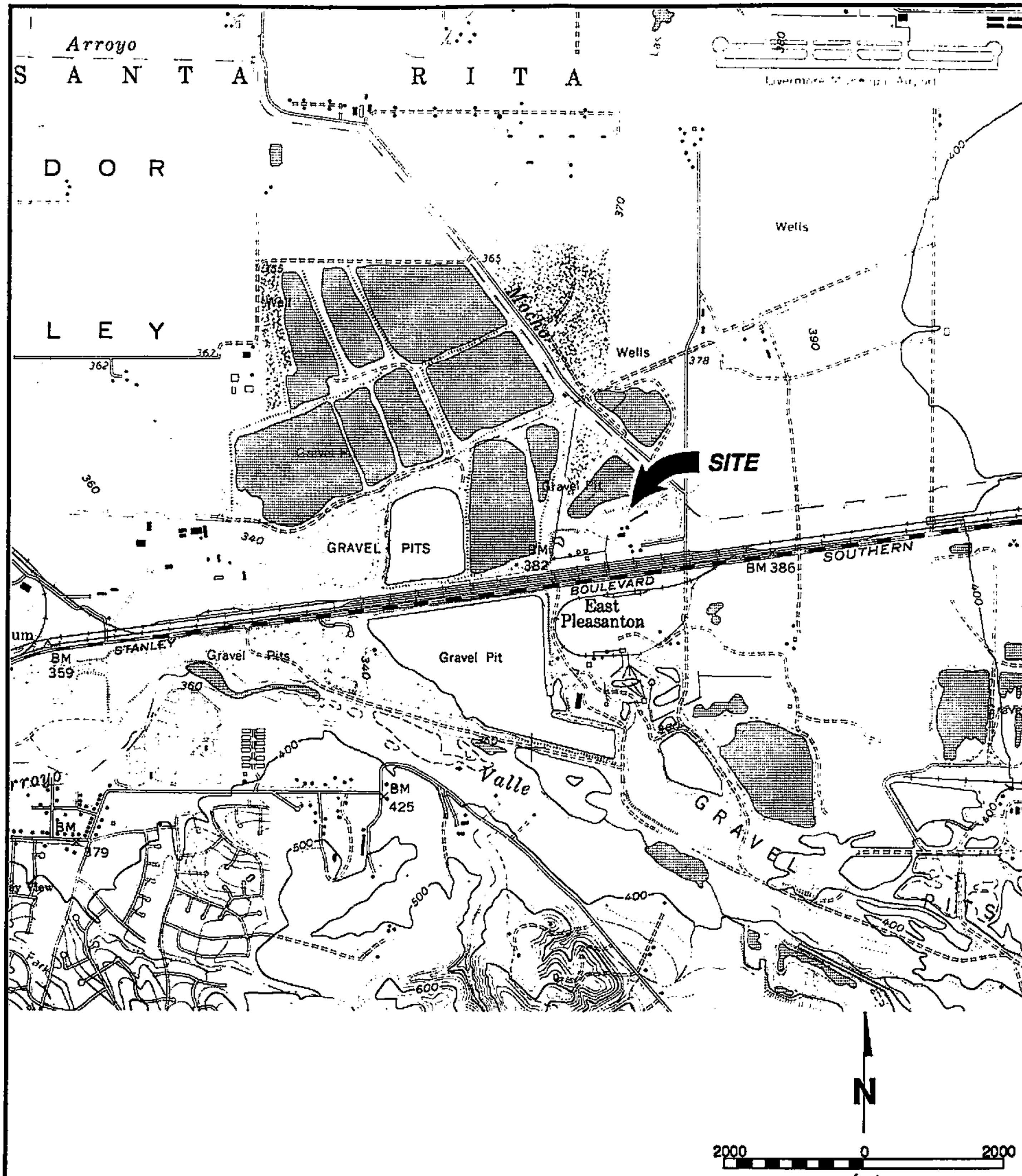
A. [ ] Sewage, sewage sludge, and/or septic tank pumpings
B. [ ] Industrial wastes
C. [ ] Municipal solid wastes
D. [ ] Hazardous wastes
E. [ ] Agricultural wastes
F. [ ] Animal wastes
G. [ ] Forest product wastes
H. [ ] Construction/demolition wastes
I. [ ] Inert materials
J. [ ] Dead animals
K. [ ] Tires
L. [X] Other (explain below)

Treated Ground water

V. SITE DESIGN CAPACITY

A. PRESENT POPULATION OR CAPACITY	B. DESIGN POPULATION OR ULTIMATE CAPACITY	C. LIFE EXPECTANCY (YEARS)
None	Ponds R-11 and R-14 will be in	use as long as quarry operations

exist in area



BASE MAP:
U.S.Geologic Survey, 7.5-Minute Topographic Series, Livermore, California, Quadrangle.

KLEINFELDER	SITE LOCATION MAP INDUSTRIAL ASPHALT PLEASANTON, CALIFORNIA	PLATE 1
PROJECT NUMBER 10-1682-03		

VI. QUANTITY OF WASTES

	MAXIMUM	AVERAGE	B. DESIGN FLOW (IN MGD)
PRESENT OR PROPOSED DAILY FLOW (IN MGD):	0.058	0.029	0.043

	DAILY QUANTITY	TOTAL IN PLACE QUANTITY	D. AREA IN WHICH SOIL WILL BE DISTURBED (IN ACRES)	TOTAL SITE AREA
SOLID WASTE DISPOSAL SITE (IN TONS OR CUBIC YARDS):	N/A	N/A	N/A	N/A

VII. LOCATION OF POINT OF DISPOSAL OR OPERATION

DESIGN AND ATTACH MAP, SKETCH, OR LOCATION ON U.S.G.S. QUADRANGLE MAP, 7.5 OR 15 MINUTE SERIES.)
LIST DISTANCES OR BEARING AND DISTANCE FROM SECTION CORNER OR QUARTER CORNER, SECTION, TOWNSHIP, RANGE, BASE AND MERIDIAN:

Approximately: 12,400 Feet due south from the southwest corner of: SE ¼, Sec. 35,

T25, RIE, Mt Diablo Base Meridian

VIII. SOURCE OF WATER SUPPLY (CHECK ALL APPROPRIATE)

A. ☐ MUNICIPAL OR UTILITY SERVICE:

NAME OF WATER PURVEYOR

ADDRESS OF PURVEYOR

B. ☒ INDIVIDUAL (Wells)

C. ☐ SURFACE SUPPLY:

NAME OF STREAM, LAKE, SPRING, ETC. (IF NAMED)

TYPE OF WATER RIGHTS: ☐ Riparian ☐ Appropriation

WATER RIGHTS PERMIT OR LICENSE #

IX. ENVIRONMENTAL IMPACT REPORT (EIR)

Has an EIR been prepared for this project? ☐ Yes ☒ No

If "Yes", please enclose a copy.

If "No", will an EIR be prepared? ☐ Yes ☒ No

Will a negative declaration be prepared? ☐ Yes ☒ No

If "Yes", please answer the following:

WHO WILL PREPARE THE NEGATIVE DECLARATION?	APPROX. DATE OF COMPLETION

CERTIFICATION

I hereby certify under penalty of perjury that the information provided in this application and in any attachments is true and accurate to the best of my knowledge.

SIGNATURE OF OWNER OF FACILITY		SIGNATURE OF OPERATOR OF FACILITY	
PRINTED OR TYPED NAME		PRINTED OR TYPED NAME	
TITLE	DATE	TITLE	DATE

LIST TITLES OF ANY ATTACHMENTS:

Attachment A - Brief description of site, treatment system and receiving waters.
Attachment B - Response to RWQCB letter of July 14, 1992

You will be notified of the correctness of filing fee and submittal of any additional information deemed necessary to complete your Report of Waste Discharge pursuant to Division 7, Section 13260 of the State Water Code, or to complete your permit application pursuant to Government Code Section 66796.30 and Health and Safety Code Section 25200.