

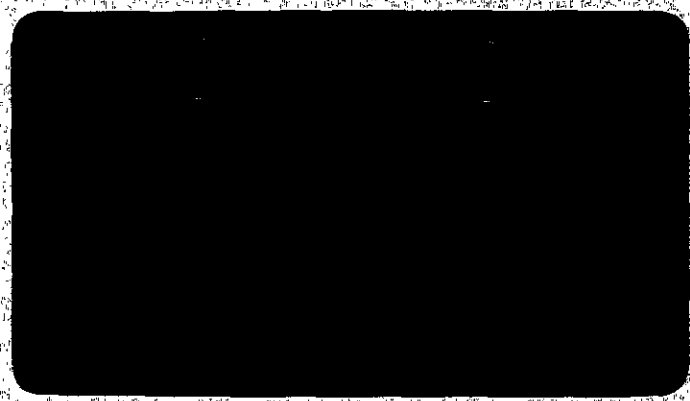
- change SB locations
- include TAT analysis for sample w/ highest TAD conc.
- quantity for MSE too... if
kto - confirm and sample w/
8260



ENVIRONMENTAL BIO-SYSTEMS, INC.

ENVIRONMENTAL
PROTECTION

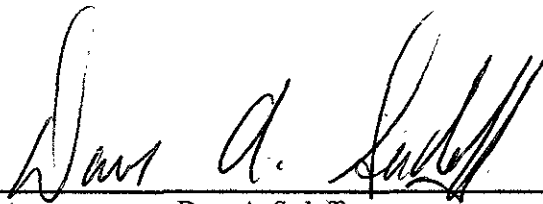
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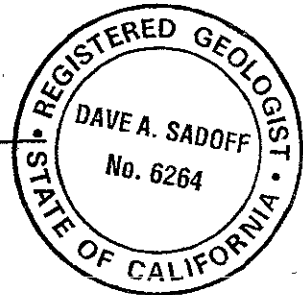
WORK PLAN:
SUBSURFACE EXPLORATION
Project #157-531B

East Bay Dischargers Authority
2651 Grant Avenue
San Lorenzo, California

PREPARED BY ENVIRONMENTAL BIO-SYSTEMS, INC.
FOR
EAST BAY DISCHARGERS AUTHORITY



Dave A. Sadoff
Project Geologist, California R.G. No. 6264



9 August 1999

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1. INTRODUCTION

Environmental Bio-Systems, Inc. (EBS) has been retained by the East Bay Dischargers Authority (the Client) to prepare and carry out this work plan for soil and ground water sampling at the Oro Loma Effluent Pumping Station, located at 2651 Grant Avenue in San Lorenzo, California (the Site). A site location map and site map are included as Figures 1 and 2 in Appendix A.

The site is currently owned by the Client. The principal project contacts are:

Client: Mr. Karl D. Royer, Operation and Maintenance Manager, East Bay Dischargers Authority, 2651 Grant Avenue, San Lorenzo, CA 94580-1841, (510) 278-6547.

Consultant: Mr. Dave A. Sadoff, Project Manager, Environmental Bio-Systems, Inc., P.O. Box 7171, San Jose, CA 95150-7171, (408) 979-8600.

The scope of work described in this work plan is intended to assess the extent of petroleum hydrocarbon impact to site soil and ground water caused by a prior diesel fuel spill. Preparation of this work plan has been mandated by the Alameda County Health Care Services Agency (ACHCSA), as expressed in their letter to the Client dated 15 June 1999.

EBS will begin the scope of work described in this document upon contract acceptance by the Client. Field work will not begin until the work plan has been approved by the ACHCSA.

2. PREVIOUS ENVIRONMENTAL WORK

February 1999

Approximately 555 gallons of diesel fuel was reportedly spilled at the Site. Approximately 75 tons of diesel-impacted soil was excavated by Foss Environmental and Infrastructure of Alameda, California. The soil was reportedly transported to the Altamont Landfill in Livermore, California. It was estimated that between 450 and 550 gallons of diesel fuel was recovered.

3. FIELD PROCEDURES

The scope of work described in this work plan outlines the drilling of 3 exploratory soil cores (to be designated SC1 through SC3), the collection and analysis of soil, vapor, and water samples, and the generation of a project report. All work will be performed by, or under, the direct supervision of a California Registered Geologist.

3.1. Health and Safety Plan

A site-specific health and safety plan will be produced prior to commencement of field work. This plan will include anticipated hazards, personal protective equipment requirements for site workers, and emergency procedures.

3.2. Soil Core Locations and Drilling Methods

Three soil cores will be advanced via direct push technology using a truck mounted Geoprobe (or similar) rig. The borings will be drilled at or near the locations depicted on Figure 2.

3.3. Soil Sampling

Soil samples will be collected from the cores in clear acetate sleeves housed within the push-probe. The sleeves will be visually inspected and cut to remove appropriate sampling intervals. Upon removal from the sampler, the ends of the cut sleeves will be sealed with Teflon™ sheets and tight fitting caps. Each sleeve section will be labeled with a unique designation for this project and immediately given to the on-site laboratory chemist. A chain of custody will be initiated in the field and will accompany all submitted samples to the laboratory.

At least one soil sample will be submitted for laboratory analyses from each soil core at just above the soil/ground water interface. Ground water is anticipated to be encountered at approximately 10 feet bgs. Additional soil samples from other horizons may be submitted if field observations (e.g. elevated PID readings, soil discoloration) indicate the possibility of petroleum hydrocarbon impact.

3.3.1. Drill Cuttings

All soil cuttings generated during drilling will be contained within Department of Transportation (DOT) approved 5-gallon buckets. The labeled buckets will be staged on-site pending analytical results.

3.4. Water Sampling

Water samples will be collected from each of the three soil cores through temporary well screen which will be inserted into the cores. A small diameter bailer will then be used to retrieve samples of accumulated water within the temporary screens. Water samples will be placed into appropriate containers and labeled with a unique designation for this project. All samples intended for chemical analysis will be placed inside an insulated cooler on top of crushed ice pending transportation to the analytical laboratory. A chain of custody will be initiated in the field and will accompany all samples to the laboratory.

*prefabricated
screens
recommended*

3.5. Sample Analyses

All soil and ground water samples will be analyzed by Analytical Sciences, (AS) of Petaluma, California. AS is certified by the California environmental laboratory accreditation program (ELAP) for the requested analyses.

All soil and water samples submitted for laboratory analysis will be analyzed for the following:

- Total petroleum hydrocarbons calculated as diesel (TPHd) using the Environmental Protection Agency (EPA) Method 8015.
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) using the EPA Method 8020.

Sample w/ highest TPHd should also be analyzed for PAHs.

3.6. Decontamination Procedures

All downhole drilling and sampling equipment will be cleaned using an Alconox solution, tap water rinse, and deionized water rinse prior to the drilling of each boring. All decontamination water will be stored in a labeled drum approved by the Department of Transportation (DOT) for this purpose. The drum will be staged on-site pending analytical results.

4. DOCUMENTATION

A final report documenting the observations, results, conclusions, and recommendations will be prepared and submitted upon completion of field work. The report will include scaled diagrams, laboratory analytical reports, and chain of custody documentation.

5. CONDITIONS

The scope of work described in this work plan will be conducted in accordance with generally accepted standards of current environmental practice in California. All documentation generated during the project, including but not limited to additional Work Plans and reports with all conclusions, and recommendations contained therein, shall be time-dependent and should not be considered valid after a 1 year period from their issue. After 1 year from issue, site conditions and recommendations contained within Work Plans and reports should be reviewed.

Evaluation of the condition of the Site, for the purpose of this study, will be made from a limited number of observation points. Subsurface conditions may deviate away from these points. Additional work, including further study of the subsurface, can reduce the inherent uncertainties associated with this type of work.

This study will be performed, and the report prepared for the sole use of our client, East Bay Dischargers Authority. All reports and the findings contained within are not to be disclosed to nor used by any other party without the prior written consent of Environmental Bio-Systems, Inc. It will be the responsibility of the client to convey any and all recommendations to regulatory agencies and other parties, as appropriate.

The recommendations to be provided in the summary project report will be professional opinions that our firm has endeavored to provide with competence and reasonable care. We are not able to

eliminate the risks associated with environmental work. No guarantees or warrants, express or implied, are provided regarding our recommendations.

Any and all hazardous wastes generated during this work are to remain the property of the Client to be disposed of properly. The maximum liability of EBS for any reason attendant to the services provided shall not exceed \$10,000.00.

It is the clients' responsibility to identify property lines and easements. EBS is not responsible for the accuracy of any property line, easement, or other markers identified by the client.

It is the clients' sole responsibility to inform EBS of any hazardous materials or conditions relating to the UST or the work area in general prior to the progression of field work, or immediately upon their subsequent discovery.

EBS will contact Underground Service Alert (USA), a public utilities locating service which is provided by the utility companies. USA will mark the location of utilities on public property. USA is not responsible for the location of utilities on private property. EBS will not be liable for any damages to underground structures as a result of subsurface activities.

6. REFERENCES

Alameda County Health Care Services Agency, Letter to East Bay Dischargers Authority, 15 June 1999.

United States Geological Survey, San Leandro, California Quadrangle Map, 7.5-Minute Series, Topographic, 1959, Photorevised 1980.

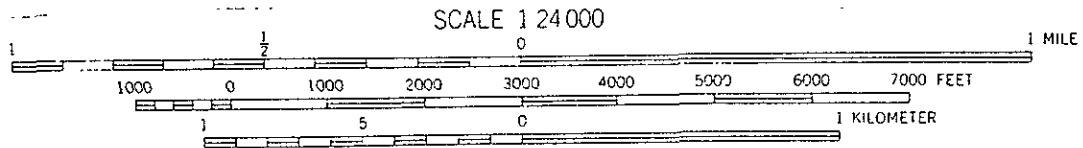
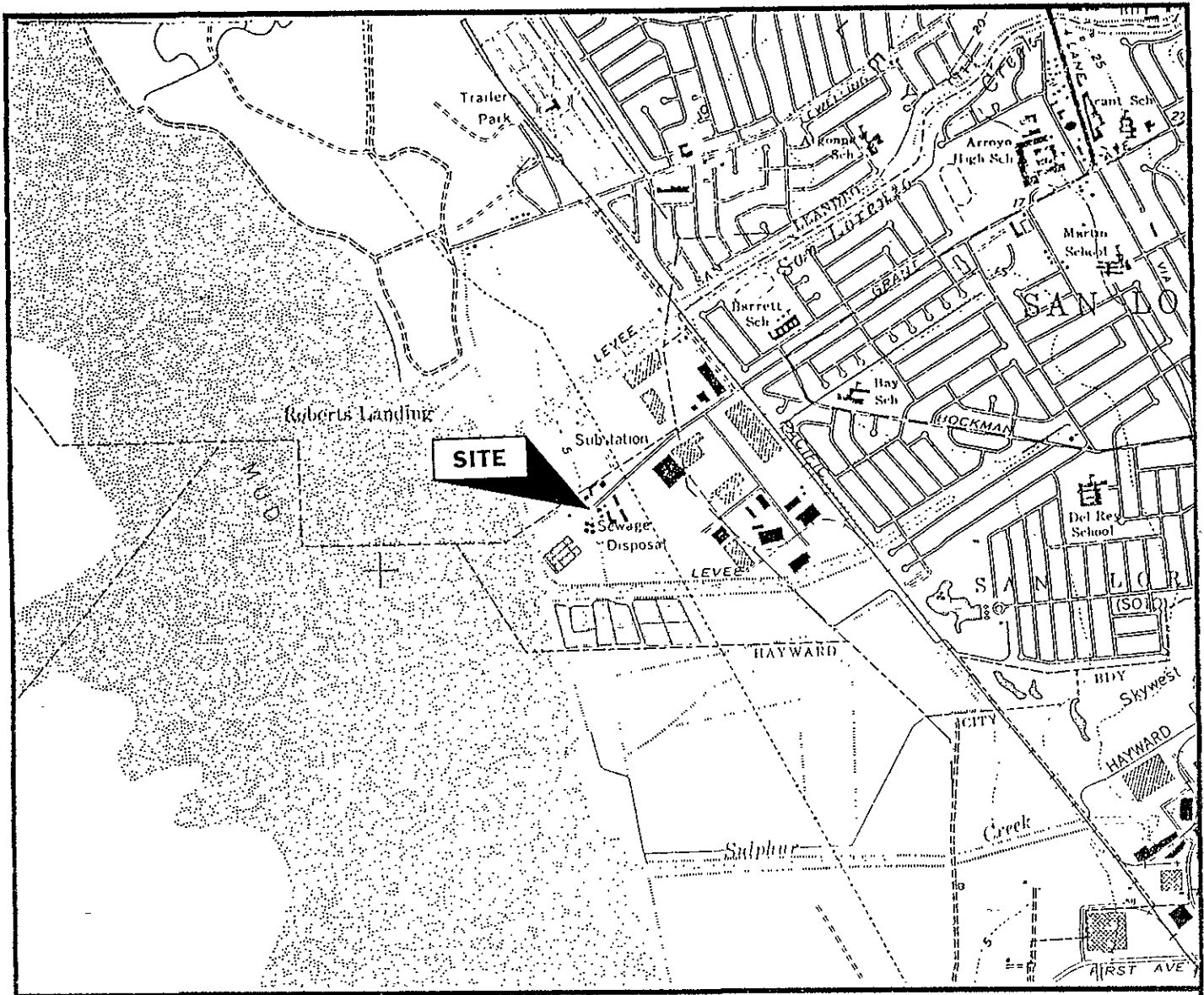
9 August 1999

Work Plan: Subsurface Exploration
East Bay Dischargers Authority
2651 Grant Avenue, San Lorenzo, California

Appendix A

APPENDIX A:


FIGURES



SCALE 1:24,000

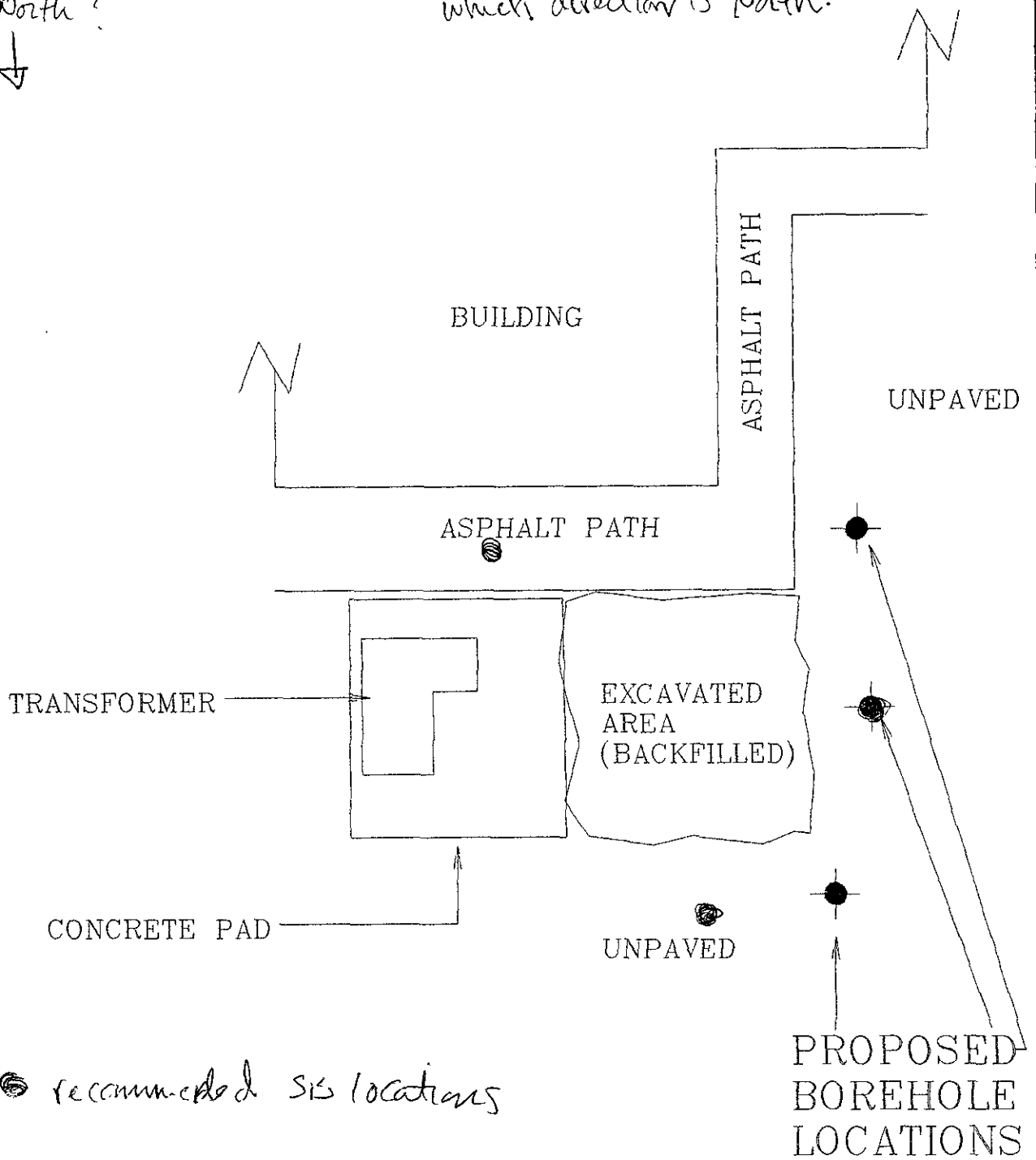
CONTOUR INTERVAL 20 FEET
 DOTTED LINES REPRESENT 5-FOOT CONTOURS
 NATIONAL GEODETIC VERTICAL DATUM OF 1929
 DEPTH CURVES IN FEET—DATUM IS MEAN LOWER LOW WATER
 SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
 THE MEAN RANGE OF TIDE IS APPROXIMATELY 5 FEET

Source: USGS San Leandro, California 7.5-Minute Quadrangle Map

 ENVIRONMENTAL BIO-SYSTEMS, INC.	DATE: 8/9, 99	FIGURE 1: SITE LOCATION MAP
	DRAWN BY: EAS	
	SCALE: 1" = 2,000'	

North?
↓

which direction is North.



● recommended SIS locations

PROPOSED
BOREHOLE
LOCATIONS



ENVIRONMENTAL
BIO-SYSTEMS, INC.

DATE:
7-21-99

DRAWN BY
DAS

SCALE:
NTS

FIGURE 1- PROPOSED BOREHOLE LOCATIONS

East Bay Dischargers Auth.
2651 Grant Avenue
San Lorenzo, California