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Alameda County Health Care Services Agency
Department of Environmental Health
Hazardous Materials Division
80 Swan Way, Room 200
Oakland, Ca 94621
Attn: Eva Chu

Dear Ms Chu:

This letter forwards the work plan for subsurface investigation of tank no B-732-2 excavation site at camp parks Army Reserve Facility, Dublin, California.

This work plan seeks to define the horizontal and vertical extent of possible contamination at the site as discussed in your phone conversation of January 4, 1994 with Mr. Pacifico Icasiano, the Environmental Engineer for this project.

Our work plan will utilize samples from bore holes within 10 ft of the site where tank no B-732-2 was excavated. The bore samples should indicate the depth of migration of fuel oil contamination through the soil and groundwater, if any. Three monitoring wells will be installed within 15 ft of the tank site to determine the groundwater gradient if testing of the groundwater from the initial borings indicate contamination and/or if soil contamination shows high enough concentration for the installation of monitoring wells.

Our point of contact is Mr. Pacifico Icasiano at (510) 302-5483.

Sincerely,

D. S. Lent
Head, Environmental Department
By direction of the
Commanding Officer

Encl:

(1) Work Plan for the Initial Subsurface Investigation of tank no B-732-2 excavation site at Camp Parks, Dublin, California

CERTIFICATION

I hereby certify that I have examined the site to be investigated, observed removal of the tanks from this site and having reviewed the recommendations of Tri Regional Staff for preliminary evaluation and investigation of underground tank sites, believe that the attached work plan has been prepared in accordance with good engineering practice.

Stephen P. Worthington
Printed name of Registered Professional Engineer,
Registered Environmental Assessor

Signature of Registered Professional Engineer
Registered Environmental Assessor

Date:_____ Engineer Registration No 4137 State: California
Registered Environmental Assessor No. REA-05123, expires 6/31/94
State: California

WORK PLAN FOR INITIAL SUBSURFACE INVESTIGATION OF TANK NO B-732-2 EXCAVATION SITE AT CAMP PARKS, DUBLIN, CALIFORNIA

I. INTRODUCTION

A. STATEMENT OF SCOPE OF WORK: Investigation to determine possible vertical and horizontal extent/concentration of soil/groundwater contamination at tank no B-732-2 excavation site at Camp Parks, Dublin, California.

B. SITE LOCATION: The vicinity and location maps and the tank plot plan are shown on the attached sketches 1 through 3.

C. BACKGROUND: The Navy Public Works Center, San Francisco Bay (PWCSFB) excavated and removed two underground storage tanks (USTs) nos B-732-1 and B-732-2 at Camp Parks on March 17, 1993. Tank no B-732-1 (20,000 gals) showed no soil or groundwater contamination. However, tank no B-732-2 showed possible fuel oil leaks as indicated by petroleum odor and diesel contamination through results of laboratory analysis. Further investigation is necessary to verify and define the vertical and horizontal extent of contamination in accordance with Alameda County Environmental Health Hazardous Material Services requirements.

II. PLAN FOR DETERMINING EXTENT OF SOIL AND GROUNDWATER CONTAMINATION:

A. Three boreholes with 6 inch nominal diameter will be drilled by an independent contractor (registered geologist) within 10 feet away from the center of tank no B-732-2 to obtain soil and groundwater samples for analysis.

B. If groundwater shows contamination above State Water Resources Board limits, and/or if soil contamination shows high enough consentration for the regulatory agency to warrant installation of monitoring wells, three monitoring wells will be installed around tank no B-732-2 within 15 feet from the center of the tank's former location to determine groundwater gradient, and a quarterly sounding and sampling for one year will be taken to determine gradient direction variation, if any. A fourth monitoring well will be installed down gradient of tank no B-732-2 after establishing a consistent gradient direction, if none of the three monitoring wells mentioned above happen to be installed within the down gradient of the tank. A quarterly sample will be taken from the down gradient monitoring well as applicable for one year to monitor the site if the samples developed from the monitoring wells show low contamination. Otherwise, the required number of years and frequency of sampling per monitoring well will

increase depending on the extent/concentration of contamination established by all the monitoring well samplings.

C. PLAN FOR DETERMINING EXTENT OF SOIL CONTAMINATION:

1. Method/technique for determining extent of contamination within the excavation:

a. One of the three bore holes will be located within the excavation a few feet from the center of the previouly removed tank no B-732-2 to determine extent of soil contamination.

b. If high concentration of soil contamination is found requiring removal of the soil in addition to monitoring wells, the soil will be excavated to the following depth:

(1). To one foot below observed contamination from boring, and

(2). To one foot below and sides of observed contamination when excavating the remaining areas.

2. Sampling methods and procedures to be used:

a. A soil gas survey is not planned.

b. Soil borings are to be used to determine the extent of soil contamination:

(1). Number and location (mapped) of proposed borings:Three borings will be drilled within 10 feet of the tank as shown on sketch no 4.

(2). Depth of borings: Borings will be to the groundwater with sampling of undisturbed materials at three levels:

(a). One foot below surface.
(b). Five foot below surface.
(c). Every five foot interval, thereafter, until groundwater is reached.

(3). Soil classification system, soil sampling method and rationale: Drive a california modified sampler to obtain sample in brass cores to depth of groundwater (expected to be about 15 feet).

(4). Boring drilling method, including decontamination procedures: Hollow stem auger, with nominal 6 inch diameter with continous sampling of each bore hole.

(5). Boring abandonment method: Grouted to land surface with cement granite slurry tremmie grout into the bore holes.

c. Field screening of VOC's will be done by using an HNU (or similar) in soil samples from the bottom of excavations (if excavation is required).

(1). A flame or photo detector will be used to verify removal of contamination from all excavations by sampling the headspace of each volatilized sample (if excavation is required).

3. Method and criteria for screening clean versus contaminated soil, including a complete description of procedures to be used for storing and disposal of any excavated soil:(if excavation is required)

a. Volume and rate of aeration/turning: none

b. Method of containment and cover: covered bins and/or stockpiled on plastic sheet with opague plastic sheet cover.

c. Wet weather contingency plans: covered bins and/or stockpiled on plastic sheet with opague plastic sheet cover.

d. Sample prior to disposal: Samples will be taken of the removed soil contained in the bins or stockpiles. These samples will be by brass tube, four samples per bin or each 25 cubic yard. These four samples will be composited at the laboratory and analyzed for the five ICP metals (Cr, Cd, Ni, Zn and Pb). Additional analysis will include total petroleum hydrocarbons as diesel, and gas/BTEX and as required by the Alameda County inspector.

e. Disposal at approved landfill: Disposal will be based on sample results. On site treatment (such as bioremediation) will be utilized by PWCSFB, if cost effective. Off site storage is not planned.

4. Security measures planned for excavation hole and contaminated soil:(if excavation is required)

a. The excavated pit and stockpiled soil areas will be completely surrounded by six foot chain link fence with a locked gate and required caution signs.

D. PLAN FOR DETERMINING GROUNDWATER CONTAMINATION AND INSTALLATION OF MONITORING WELL:

1. Following the soil borings, one groundwater sample from each of three borings (3 total) will be taken and analyzed for total petroleum hydrocarbons as diesel, and gas/BTEX and as requested by the Alameda County inspector.

a. Placement and rationale for location of monitoring wells, including a map to scale: if groundwater contamination is indicated, three monitoring wells will be installed to determine groundwater gradient, (see sketch no. 4 for location).

b. Drilling method for construction of monitoring wells, including decontamination procedures: Utilize a 12-inch outside diameter hollow-stem auger to construct a 4-inch diameter well for monitoring and pumping out the contaminated groundwater from the well, otherwise, use an 8-inch hollow-stem auger with a 2-inch diameter well if only monitoring of the groundwater contamination is required as a result of the groundwater contamination analysis. (See sketch no 5 for monitoring well construction). The PWCSFB Decontamination trailer will be at the site as neccessary.

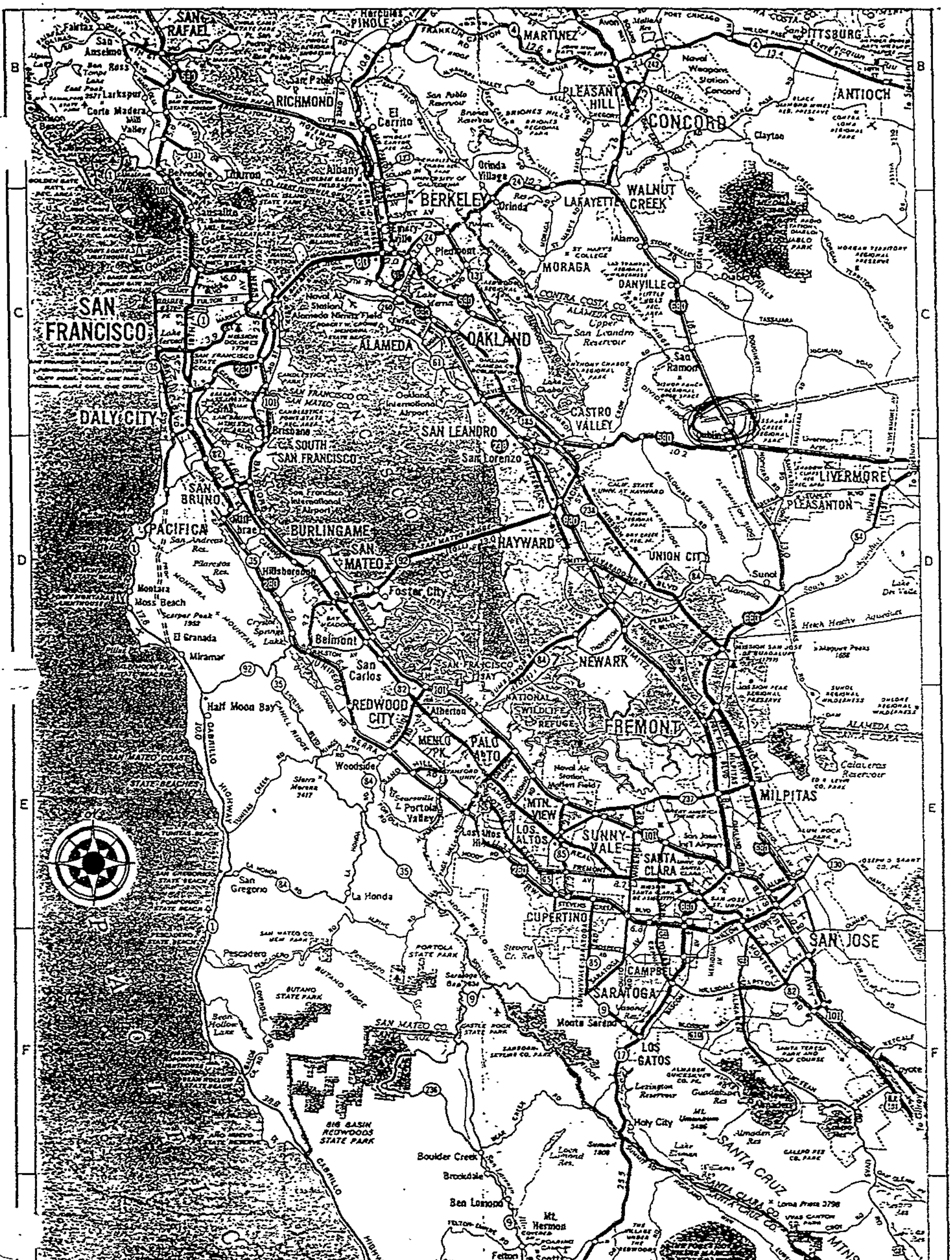
c. Groundwater sampling plans: Groundwater will be obtained from three soil borings, and analyzed as described above to determine extent of contamination. Groundwater sampling frequency from the down gradient monitoring well or from more wells as applicable will be established based on the results of the initial samplings.

III. SITE SAFETY PLAN:

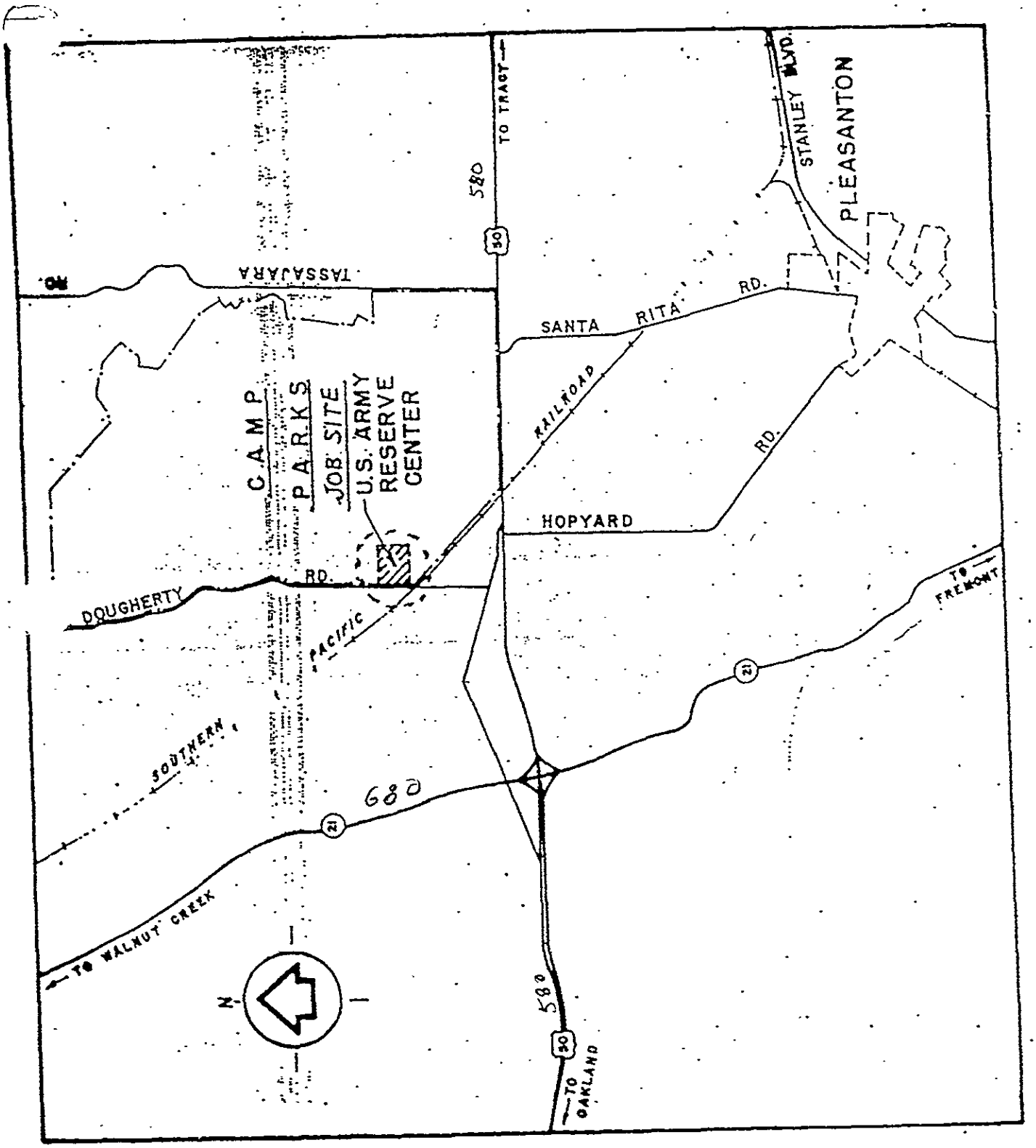
A. A site specific safety plan will be prepared by the contractor and/or A & E firm for their personnel doing the bore samples. The contractor and/or A & E will provide a site safety officer and follow navy safety procedures for their work. Navy PWCSFB personnel working at the site will follow the approved site specific plan which is based on the established safety procedures as outlined in the NAVY PUBLIC WORKS CENTER, SAN FRANCISCO BAY OCCUPATIONAL SAFETY AND HEALTH PROGRAM (PWCSFB inst 5100.1C of 18 September 1989). A site specific health and safety plan was written for the tank removal project based on the requirements of 29 CFR 1910.120. Navy PWC employees will follow this plan. The site safety officer for PWCSFB will be Joe Shepler (510-302-5453) or his designee.

IV. FINAL REPORT:

A. A report will be submitted to Alameda County following collection of the information proposed in this work plan. The report will provide the collected information in an orderly fashion and include any recommendations for additional needed work.


SAN FRANCISCO
VICINITY MAP
SAN RAFAEL
PINOLE
MARTINEZ
PITTSBURG
RICHMOND
PLEASANT HILL
CONCORD
ANTIOCH
El Cerrito
Albany
BERKELEY
Orinda
LAFAYETTE
WALNUT CREEK
MORAGA
DANVILLE
SAN FRANCISCO
ALAMEDA
OAKLAND
San Ramon
DALY CITY
SOUTH SAN FRANCISCO
SAN LEANDRO
CASTRO VALLEY
San Lorenzo
LIVERMORE
PLEASANTON
SAN BRUNO
PACIFICA
BURLINGAME
SAN MATEO
HAYWARD
UNION CITY
Foster City
Belmont
San Carlos
NEWARK
Half Moon Bay
REDWOOD CITY
Atherton
MENLO PK.
PALO ALTO
FREMONT
MILPITAS
Woodside
MTN. VIEW
LOS ALTOS
SUNNYVALE
SANTA CLARA
San Gregorio
La Honda
CUPERTINO
SAN JOSE
Pescadero
CAMPBELL
SARATOGA
LOS GATOS
Boulder Creek
Ben Lomond
Felton
Scotts Valley
Davenport
Sausalito
Tiburon
Larkspur
Corte Madera
Mill Valley
Moss Beach
El Granada
Miramar
Montara
SANTA CRUZ MTNS.

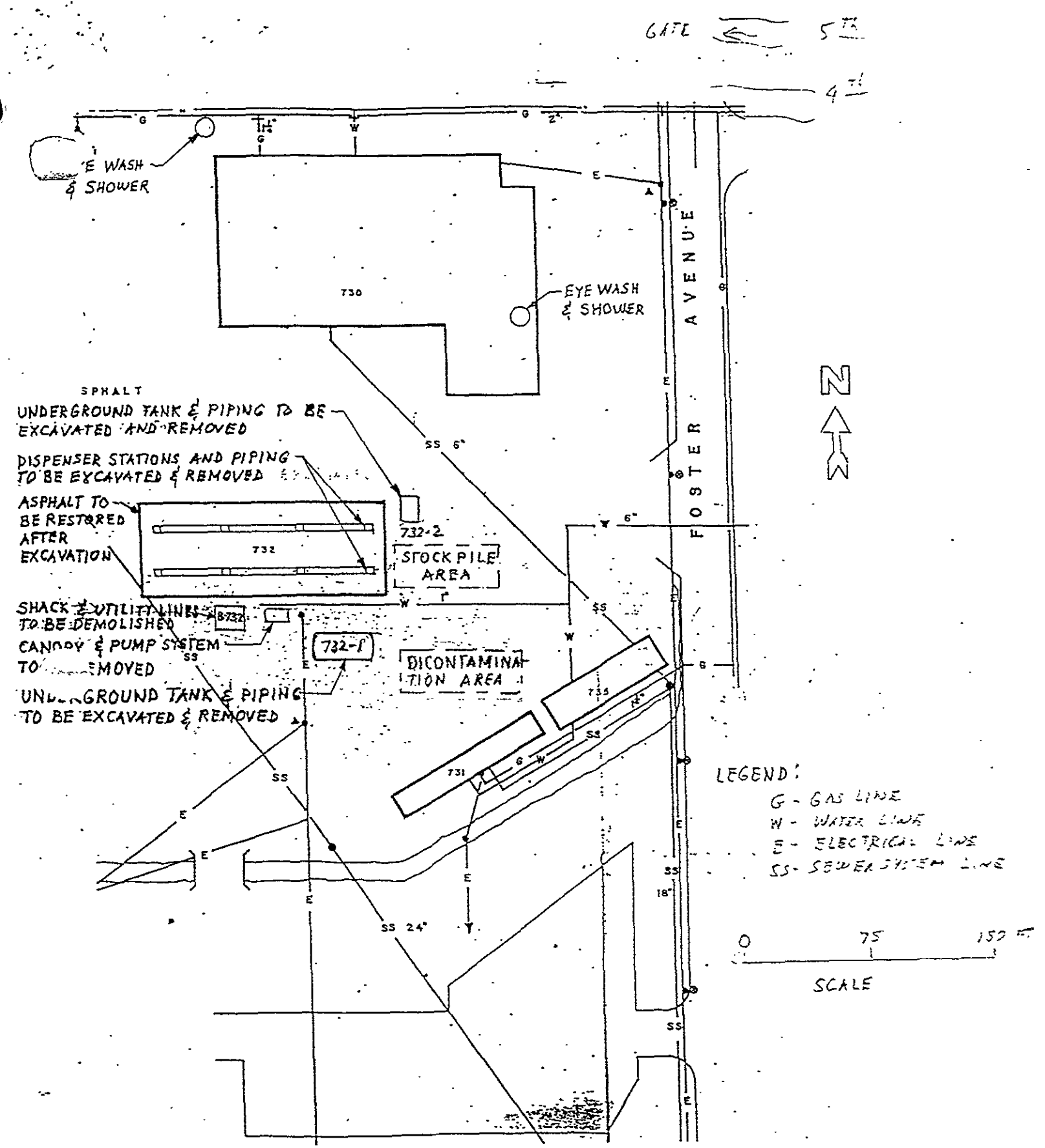
SKETCH # 1



CAMP PARKS

LOCATION MAP

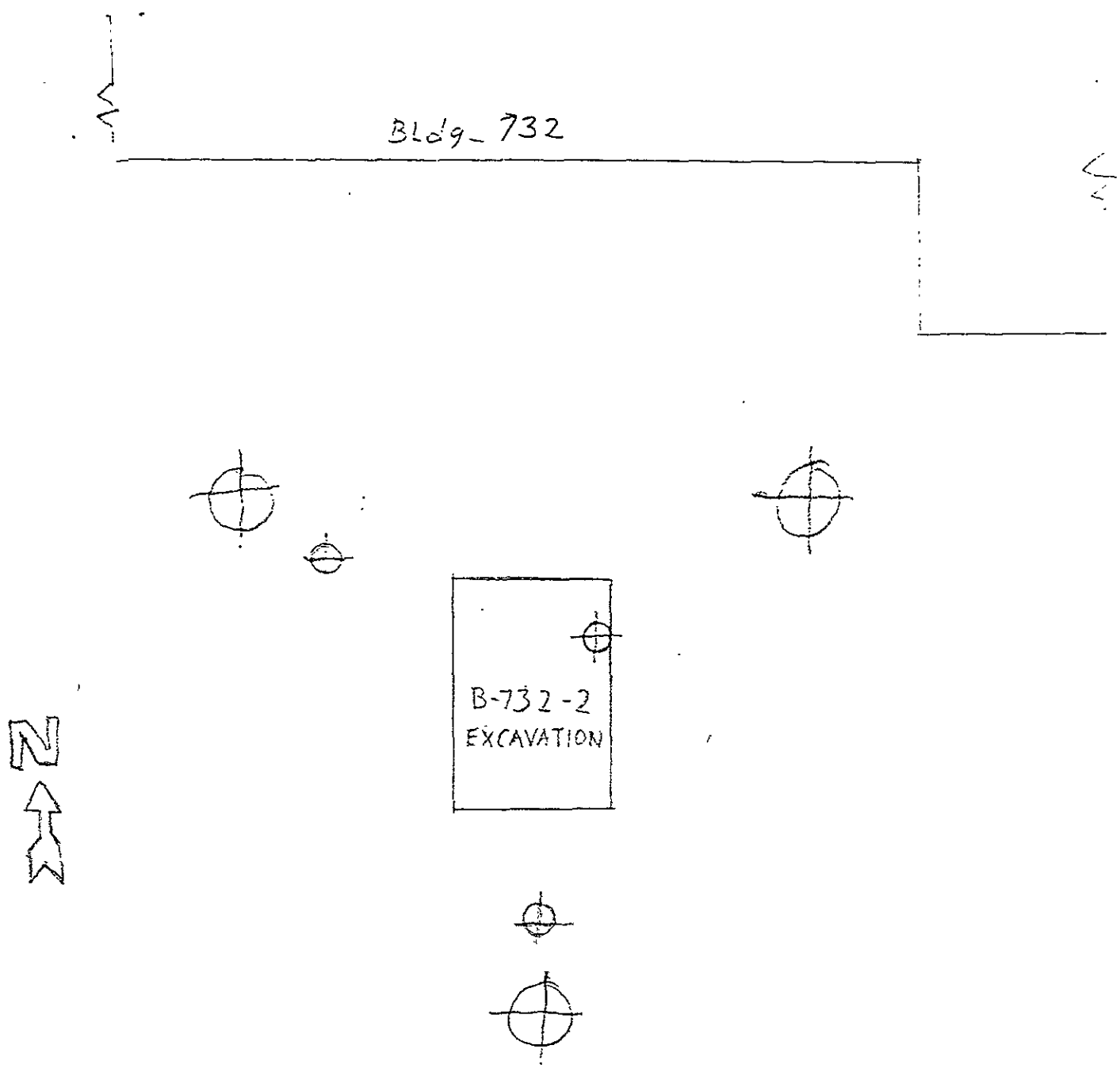
SKETCH #2



CAMP PARKS (ECS-30)

PLOT PLAN B-732

SKETCH #3



NOTE:

1. A FOURTH MONITORING WELL WILL BE INSTALLED DOWN GRADIENT OF TANK, IF NECESSARY.

LEGEND:

- 6" BORING HOLES WITHIN 10 FT AWAY FROM CENTER OF EXCAVATION
- MONITORING WELLS WITHIN 15 FT FROM CENTER OF EXCAVATION

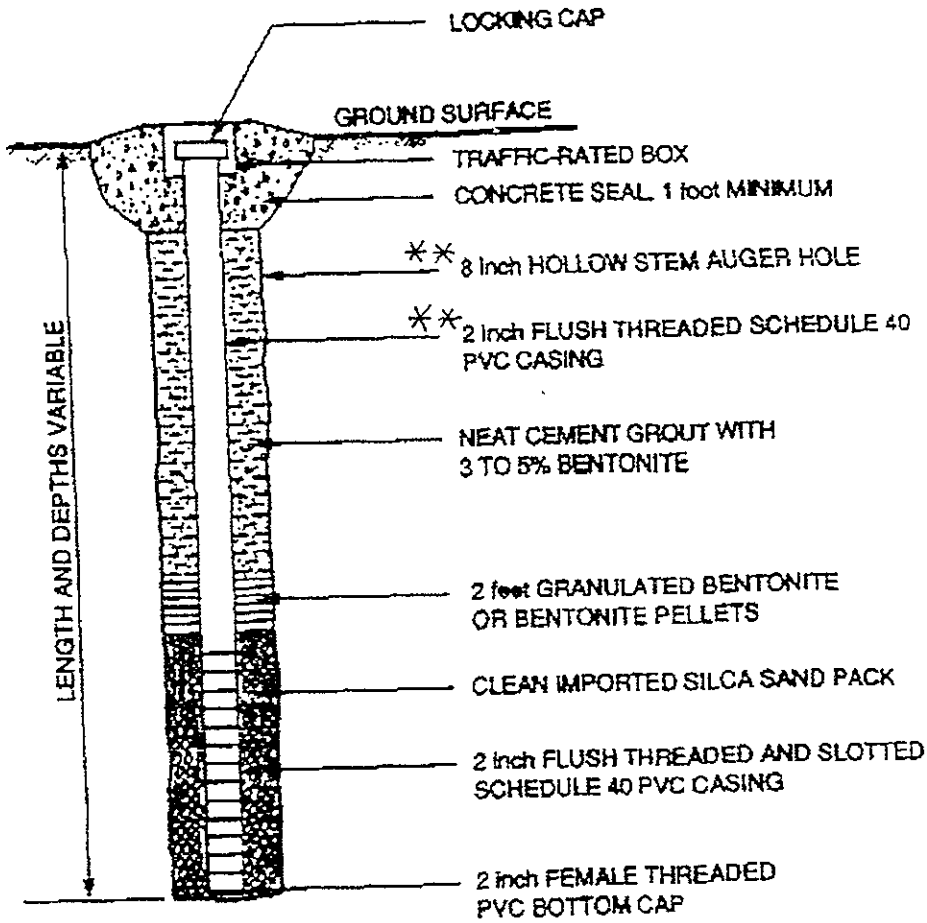
CAMP PARKS (ECS-30) BORING HOLES AND MONITORING WELL LOCATIONS

(SCALE: 1" = 3/16")

SKETCH # 4

GROUNDWATER MONITORING WELL

*2 Inch at Grade Completion



NOT TO SCALE

* Sketch shown (size 2-inch at grade completion) is for monitoring after well characteristics are established.

** For Pumping recovery capability, in addition to monitoring, a larger well is required (size 4-inch at grade completion) utilizing same sketch except using 12 -inch hollow stem auger hole and 4-inch flush threaded schedule 40 PVC casing instead of 8-inch and 2-inch respectively.

SKETCH NO 5