



BP OIL

ALCO
HAZMAT

94 JUN -6 PM 4:30

BP Oil Company
Environmental Resources Management
Building 13, Suite N
295 SW 41st Street
Renton, Washington 98055-4931
(206) 251-0667

Transmitted via facsimile

June 2, 1994

Alameda County Health Care Services Agency
Attention Scott Seery
80 Swan Way, Room 200
Oakland, CA 94621

RE: BP Site No. 11105
Castro Valley & Redwood
Castro Valley, CA

Dear Mr. Seery:

This letter responds to your April 18, 1994 letter regarding an investigation BP elected to perform at the above-captioned site, and follows-up our telephone conversation yesterday. BP performed the investigation at the above-captioned site in order to obtain baseline environmental data necessary for the divestment of the facility - not because a release of petroleum hydrocarbons was known to have occurred at the BP site. However, an unauthorized release from an Xtra Oil Company facility located across Redwood Road is migrating to the east, in the direction of the BP site.

where?
First, I would like to thank you for forwarding information regarding assessment activities undertaken by the Xtra Oil Company. Xtra appears to be located hydraulically upgradient of the BP station, and liquid-phase petroleum hydrocarbons have been observed on and downgradient of the Xtra site. We have notified Xtra of our concern that the release at the Xtra station has migrated onto the BP property, and that we will look to Xtra to make BP whole for any additional expenses or losses that BP may incur as a result of the Xtra release. The costs associated with further investigation on the BP property as required by your April 18, 1994 letter, as well as monitoring activities performed since the initial report was submitted, are very likely a direct result of the Xtra release. For this reason, both Xtra and BP should be copied on correspondence from the County. Confirming our discussion, I understand that you will include BP on the distribution list for correspondence from the County to Xtra, and that Xtra will be included on the distribution list for correspondence from the County to BP. You should also note that Xtra has performed joint monitoring with BP.

I understand that your March 18, 1993 letter to Ms. Reith requested that BP perform monthly groundwater elevation measurements. I have attached copies of the flow nets prepared for each quarterly monitoring event, as well as the flow net from the initial assessment report. Upon review of these figures, you

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will note that the flow direction has always been to the southeast. Based upon this data, it does not appear that monthly groundwater elevation measurements are necessary or warranted.

Confirming our discussion yesterday regarding the analysis of groundwater samples from ESE-1, ESE-2 and ESE-3 for used-oil constituents, groundwater elevation contour maps show that ESE-3 is not located downgradient of the used-oil tank. Although we have no indication that a release from the used-oil tank has occurred, BP will sample wells ESE-1 and ESE-2 for used-oil constituents as an added precaution. By copy of this letter to Alisto Engineering Group, **ESE-1 and ESE-2 should be sampled for TPH-D, VOC's by Method 624, and PAH's by Method 8100 during the next sampling event.** These tests will be performed in addition to the planned BTEX and TPH-G analyses. Further sampling for used-oil constituents will be based on the sampling results.

Your April 18, 1994 letter referred to the November 23, 1992 Environmental Science & Engineering (ESE) Preliminary Site Assessment Report. I am troubled that the County has not responded to the finding that the BP site may have been impacted by an upgradient source, and has drawn other conclusions from the report which the consultant did not. Specifically, ESE stated that a possible source of hydrocarbons found in boring ESE-5, is the competitors operating service station located upgradient of the BP site - yet this finding was not acknowledged by the County. Also the County characterizes the groundwater as being under confined or semi-confined conditions, and refers to a probable on-site source of hydrocarbons in soil and groundwater, based on odors that were noted on the test boring logs. BP disagrees with these assertions. The ESE report, prepared by the California-registered geologist, did not state that an onsite source of hydrocarbons -probable or otherwise- exists, nor did it state that groundwater is under confined or semi-confined conditions. I believe that the closer examination of the data presented in the boring logs, and the nature of hydrocarbon migration in the subsurface **supports the conclusion that the BP site has been impacted by an off-site source,** and that groundwater conditions are not confined.

When liquid petroleum hydrocarbons (LPH) reach the capillary fringe, and if the volume is large enough, it forms a layer of increasing thickness under the influence of additional LPH. This exerts a hydrostatic pressure depressing the groundwater surface. Gravitational forces act to restore the initial water level and cause the LPH to move out laterally in the same direction as groundwater flow. At a source area, hydrocarbons will be present in the soil column from the point of release downward to the

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water table. At some distance from the point of release, LPH and vapors will be found primarily in the capillary fringe. Note that the highest vapor measurements shown on the ESE test boring logs were obtained in samples collected at approximate depths of 10 to 15 feet below grade, while the overlying, unsaturated soil samples showed vapor concentrations with significantly lower concentrations (typically over an order-of-magnitude). Based on the relatively high vapor concentrations in samples collected by the capillary fringe, compared to the relatively low concentrations of vapors in the overlying soil samples, one should conclude that the material represents impact to the capillary fringe consistent with a hydrocarbon plume some distance from the point of release - not a source area or point of release.

While the conclusions drawn in your letter appear to be drawn, in large part, to odors reported on the boring logs, BP believes that the vapor detector instrument measurements in the field provide a more reliable indicator of the relative abundance of fuel vapors in a soil sample. Reporting of odor characteristics are often very subjective, and vary from time to time and from person to person. Factors such as olfactory fatigue make the comparison of odors over time a tenuous practice, at best.

I understand that the conclusion drawn by the County that groundwater is under confined or semi-confined conditions is based on a comparison of where saturation was first noted in the test boring logs to the depth where groundwater was subsequently measured in the monitoring wells. You should note that it is very difficult to discern the difference between a saturated and a very moist fine-grained soil matrix in the field. As the difference in moisture content between a saturated and a very moist soil sample is often a matter of a few percent, it is not surprising that field personnel often misjudge the point at which saturation is encountered. Indeed, the recovery of groundwater levels in fine-grained, relatively impermeable materials often occurs over a period of several hours. Because the water table elevations measured in the completed monitoring wells are comparable with the elevated PID measurements on the logs, it seems more likely that groundwater is unconfined (water table hydrostratigraphy) and not a confined aquifer. BP believes that storage coefficients obtained by a pumping test should be evaluated prior to making a conclusion that an aquifer is confined or semi-confined - particularly when water is encountered at shallow depths in an area with relatively even topography.

While It appears most likely that the results of the investigation points towards an off-site source, I also recognize

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that there is a concrete pad which may have been a former pump island location near the eastern portion of the site that we will assess. As we discussed, BP will be submitting a workplan to perform additional assessment in the very near future to investigate a concrete pad near the western portion of the site, and to obtain groundwater data near the upgradient and downgradient portions of the site. Should the data indicate that the concrete pad area is not a potential source, we can make arrangements to allow Xtra to perform future monitoring and cleanup activities at the BP site.

I trust that this response addresses the issues raised in your April 18, 1994 letter. Please give me a call in the event you would like to discuss this matter further. I can be reached at (206) 251-0689.

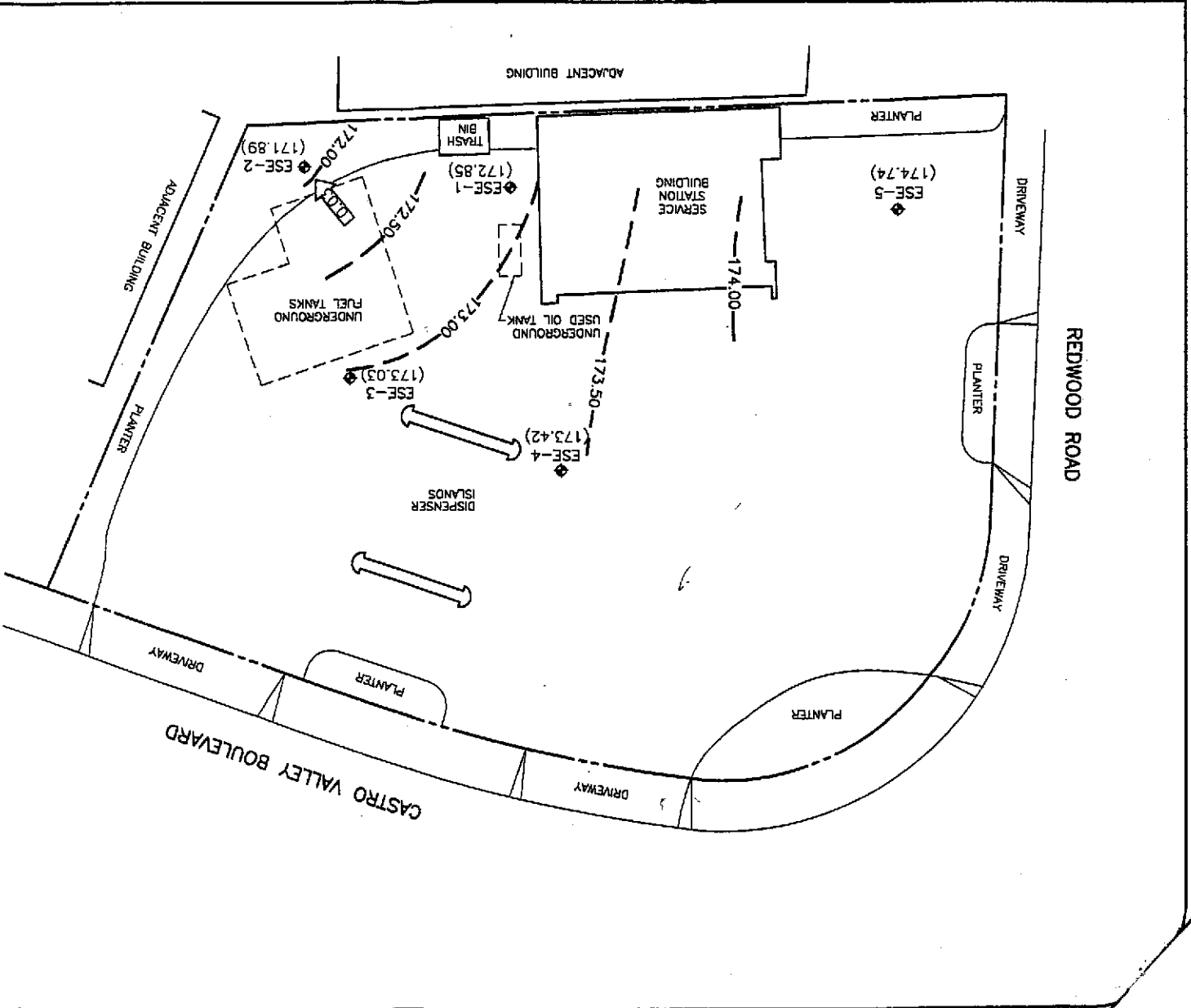
Sincerely,



Scott T. Hooton
Environmental Resources Management

attachments

cc: site file
C. R. Pinzone
B. Nagle - Alisto
Mr. Ted Simas - Xtra Oil Company



◆ GROUNDWATER MONITORING WELL
 (173.03) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
 173.00 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL
 (CONTOUR INTERVAL-0.50 FOOT)
 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT

LEGEND

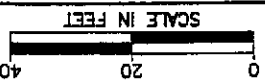
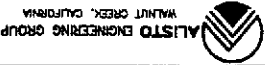


FIGURE 2
 POTENTIOMETRIC GROUNDWATER ELEVATION CONTOUR MAP
 FEBRUARY 17, 1994
 BP OIL SERVICE STATION NO. 11105
 3515 CASTRO VALLEY BOULEVARD
 CASTRO VALLEY, CALIFORNIA
 PROJECT NO. 10-138



ALUSTO ENGINEERING GROUP
MOUNT CREEK, CALIFORNIA

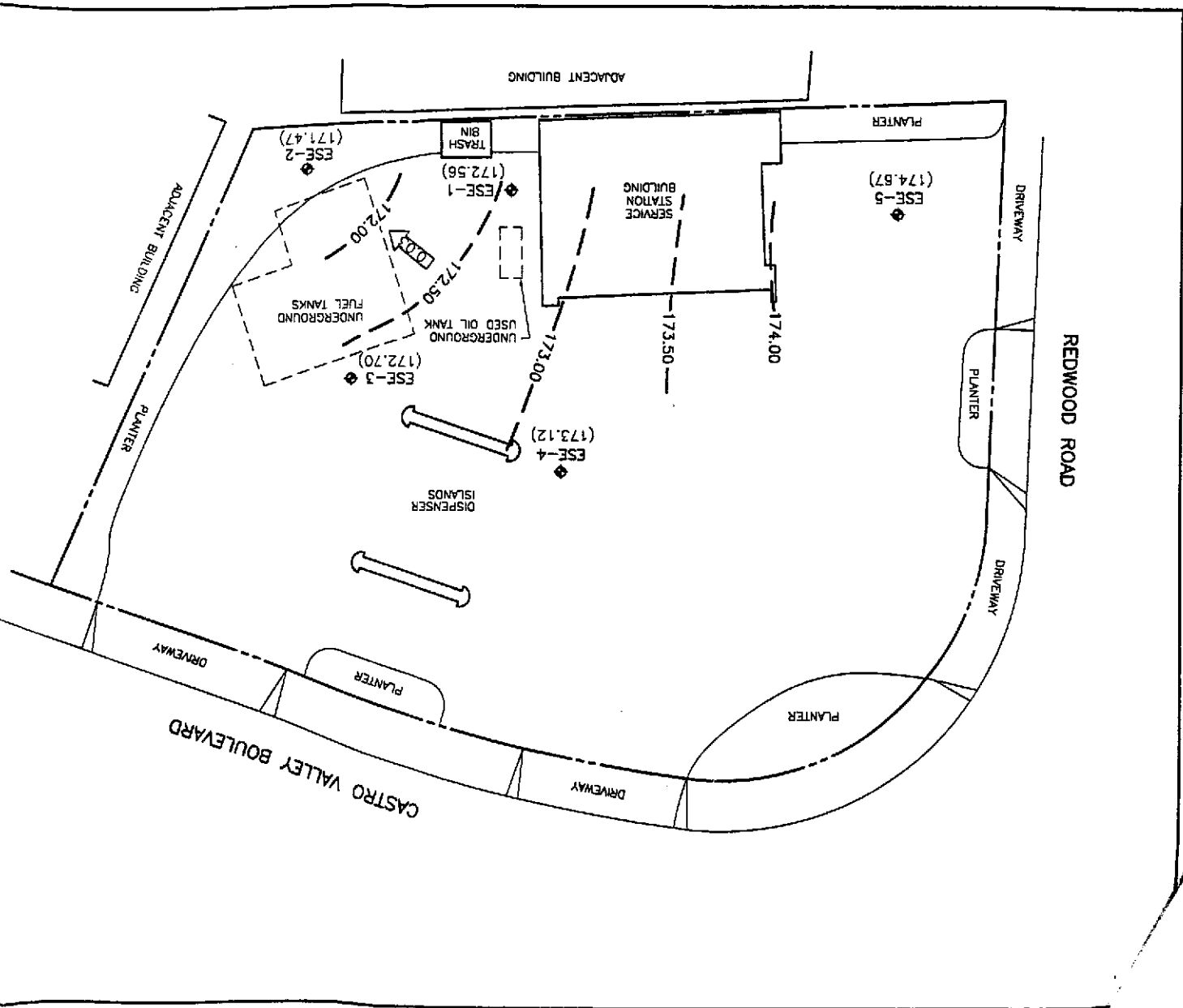
PROJECT NO. 10-138
BP OIL SERVICE STATION NO. 11105
3515 CASTRO VALLEY BOULEVARD
CASTRO VALLEY, CALIFORNIA
DECEMBER 10, 1993
POTENTIOMETRIC GROUNDWATER
ELEVATION CONTOUR MAP
FIGURE 2

GROUNDWATER MONITORING WELL
◆ GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
(172.70)
GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL
172.50
CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT
→ 0.031

LEGEND

SCALE IN FEET
0 20 40

N



10-155-00 11-11-1993 10-155-00

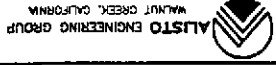
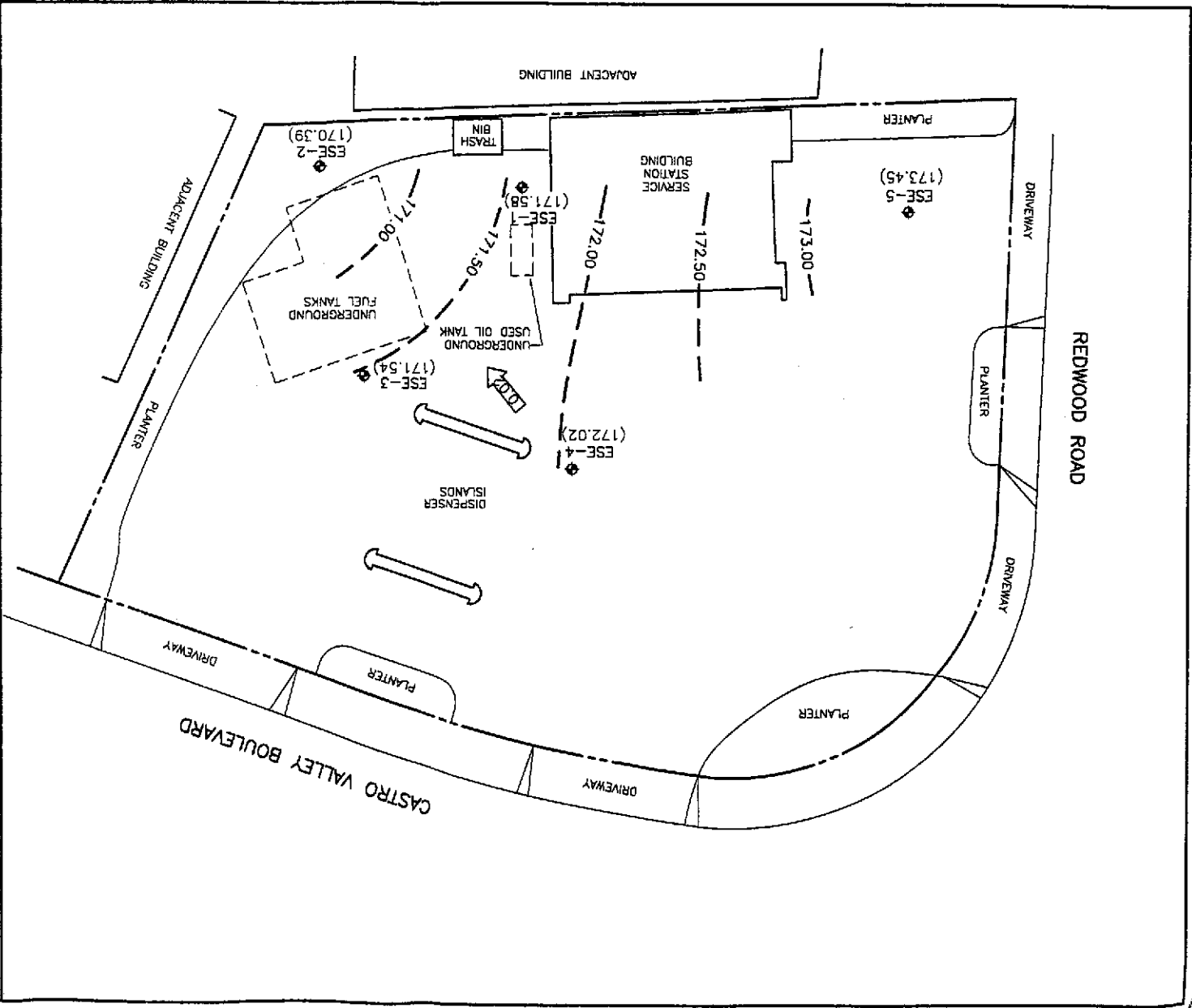
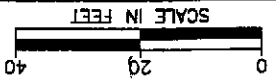


FIGURE 2
 POTENTIOMETRIC GROUNDWATER
 ELEVATION CONTOUR MAP
 SEPTEMBER 23, 1993
 BP OIL SERVICE STATION NO. 11105
 3515 CASTRO VALLEY BOULEVARD
 CASTRO VALLEY, CALIFORNIA
 PROJECT NO. 10-158

LEGEND

- GROUNDWATER MONITORING WELL
- (171.54) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 171.50 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL—0.50 FOOT)
- CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT



10-155-00

10-155-00

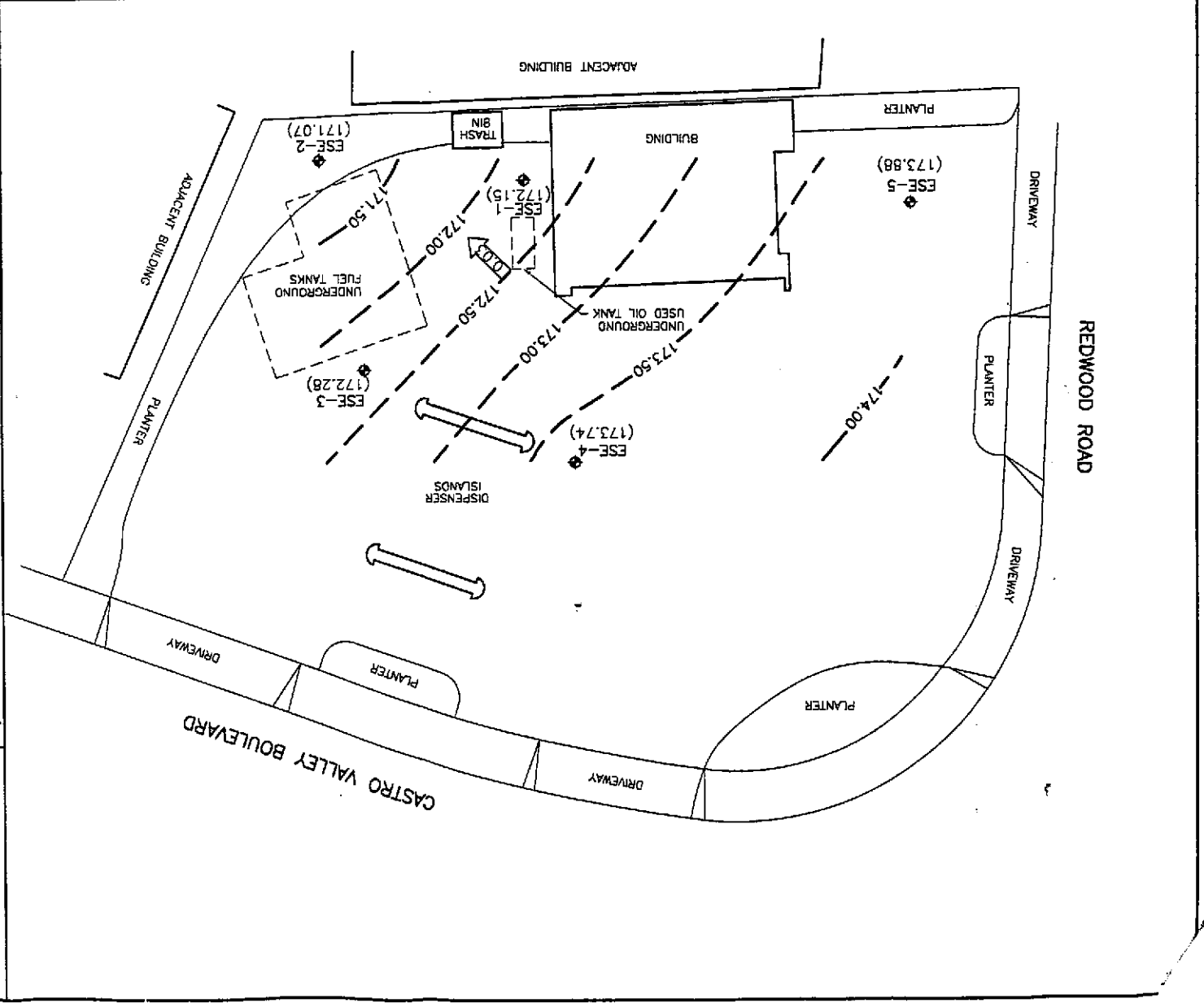
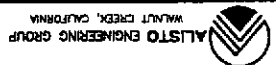
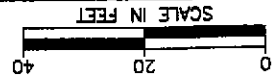


FIGURE 2
 POTENTIOMETRIC GROUNDWATER
 ELEVATION CONTOUR MAP
 JUNE 29, 1993
 BP OIL SERVICE STATION NO. 11105
 3515 CASTRO VALLEY BOULEVARD
 CASTRO VALLEY, CALIFORNIA
 PROJECT NO. 10-138

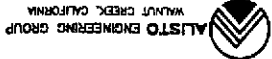
LEGEND

- ◆ GROUNDWATER MONITORING WELL
- (172.28) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 172.00 GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL=0.50 FOOT)
- 0.031 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE IN FOOT PER FOOT



DATE PLOT: 06-29-93 11:11:58 AM 10/25

107807.DWG 4/11/93 BY 1738



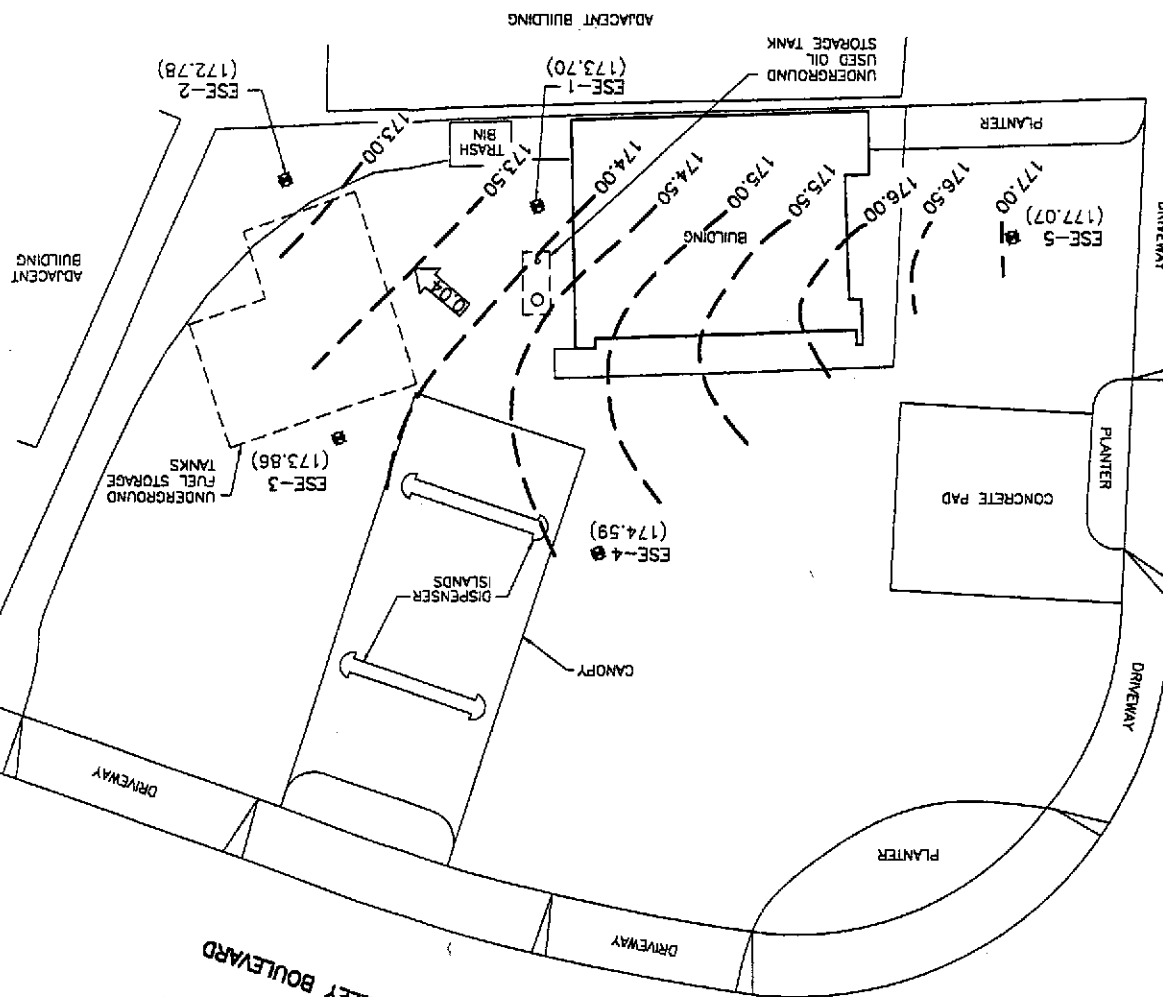
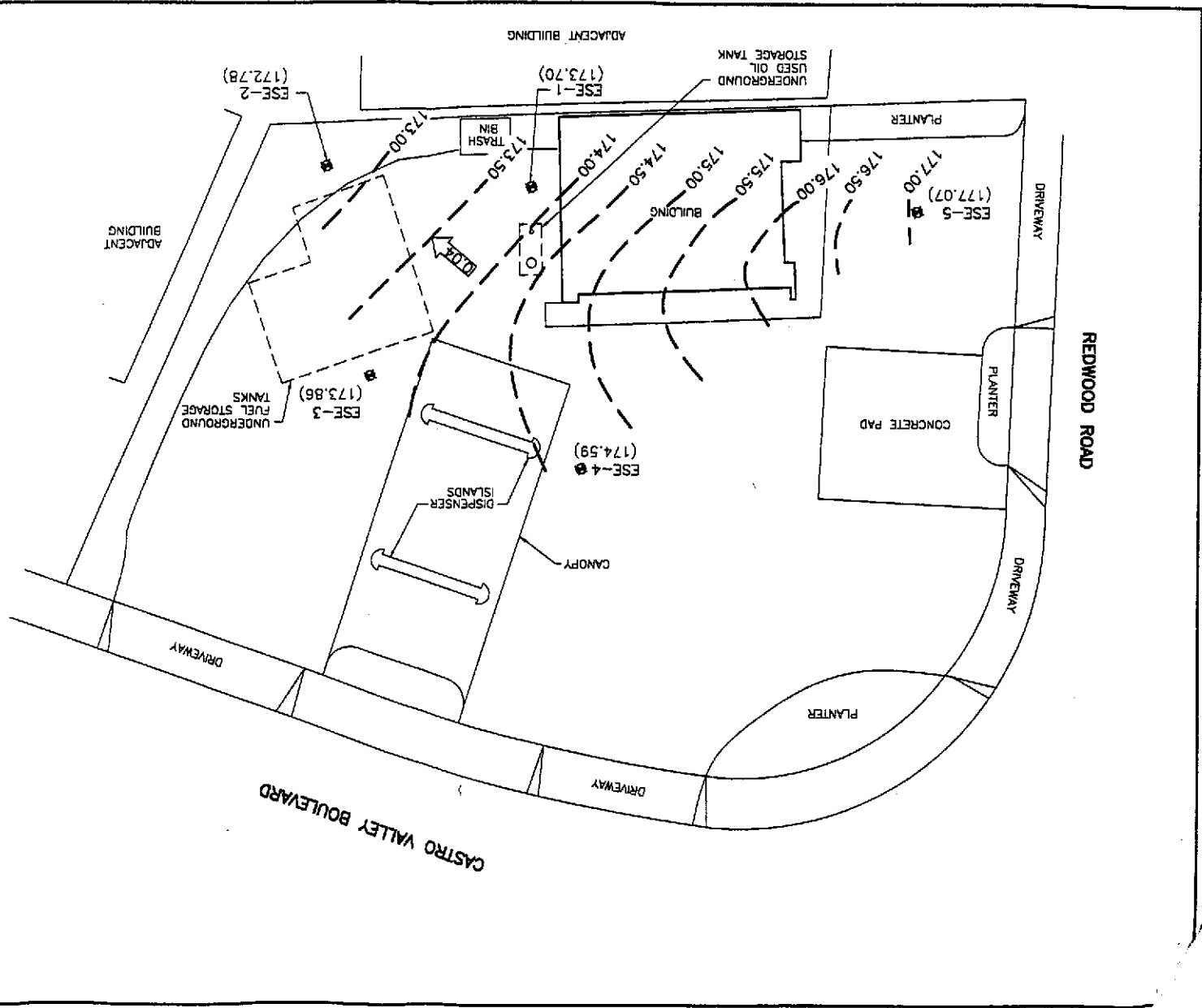
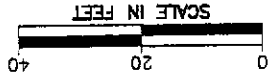
ALISTO ENGINEERING GROUP
WALNUT CREEK, CALIFORNIA

PROJECT NO. 10-138
BP OIL SERVICE STATION NO. 11105
3515 CASTRO VALLEY BOULEVARD
CASTRO VALLEY, CALIFORNIA
APRIL 1, 1993
POTENTIOMETRIC GROUNDWATER
ELEVATION CONTOUR MAP

FIGURE 2

◆ GROUNDWATER MONITORING WELL
◊ (172.78) GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
-175.00- GROUNDWATER ELEVATION CONTOUR IN FEET ABOVE MEAN SEA LEVEL (CONTOUR INTERVAL-0.00 FOOT)
→ 0.04 CALCULATED GROUNDWATER GRADIENT DIRECTION AND MAGNITUDE

LEGEND



DATE	10/92
PROJECT NO.	FS2001
SCALE	AS SHOWN
DRAWN BY	DWR
CHECKED BY	CHV
REVISED	
OCTOBER 6, 1992	
GROUND WATER ELEVATIONS	
FIGURE 3	
3815 CASTRO VALLEY BLVD. CASTRO VALLEY, CALIFORNIA	
BP OIL COMPANY SITE NO. 11108	
Engineering, Inc.	
Environmental Science & Engineering, Inc.	

♦ Ground Water Monitoring Well locations
 171.422 Ground Water Elevations in Feet Above Mean Sea Level
 170.5 Ground Water Elevation Mean Sea Level
 Contours in Feet Above
 Estimated Ground Water Flow Direction

LEGEND

