UWCD-3

The precise discharge locations and volumes for the proposed construction dewatering will be specified in a Construction Dewatering Plan to be prepared by the applicant and reviewed and approved by the City of Oxnard prior to initiation of dewatering. As the additional analysis described in the response to Comment UWCD-1 demonstrates, discharging a portion of the water generated by dewatering operations to the Small Woolsey and Vickers Pits (approximately 45 percent) will minimize drawdown near the Poole Oil Company Site. The portion of water not returned to the Small Woolsey and Vickers Pits could be discharged to any of the original locations identified in the DEIR, except for the Santa Clara River and still be returned to the Forebay. Selection of a specific discharge point, aside from the Small Woolsey and Vickers Pits, will be dependent on the amount of groundwater to be dewatered and the relative location of the area to be dewatered to the discharge point considering mounding effects, and will be defined in the Construction Dewatering Plan. As such, all water generated during dewatering operations will be returned to the Forebay as recharge.

UWCD-4

Several LUST sites under investigation in the area of the RiverPark Project were identified as part of the assessment performed for the DEIR. The Poole Oil Company Site located at 3885 East Vineyard Avenue was identified as one of three active LUST sites. The DEIR (page 4.5-50) correctly indicates that the Poole Oil Company Site had detected elevated concentrations of benzene and MTBE in groundwater samples on the Site. In the round of sampling performed on June 18, 2001, MTBE was detected in groundwater samples ranging up 1,800 ug/L (Well EW2). These results were reported to the VCEHD on October 18, 2001.

UWCD-5

The DEIR on page 4.5-85 indicates that the California Department of Health Services (DHS) primary Maximum Contaminant Level (MCL) for MTBE is 10 ug/L. Effective May 2000, the primary MCL adopted by the DHS for MTBE was 13 ug/L. The secondary MCL for MTBE is 5 ug/L.

UWCD-6

Sampling results for July 18, 2001 submitted to the VCEHD on October 18, 2001 (PWE, 2001a), indicated that MTBE was detected in groundwater samples collected from groundwater monitoring Wells MW-9, MW-10, and MW-11, located down gradient and off-Site of the Poole Oil property. Based on sampling

results for July 18, 2001, MTBE contamination in groundwater appears to extend off-Site to the west and the lateral and vertical extent of MTBE contamination in groundwater has not been fully delineated.

The duration of soil and groundwater cleanup efforts associated with the Poole Oil Company Site is likely to take several years. Currently no active remediation is being performed at the Site. The CAP/RAP, dated February 18, 2002 was developed by PWE (2002) and has been submitted to the VCEHD. Portions of the CAP/RAP have recently been approved, with modifications (VCEHD, 2002a). Given this, it is unknown what portion of the plume maybe reasonably contained within the next four to six months.

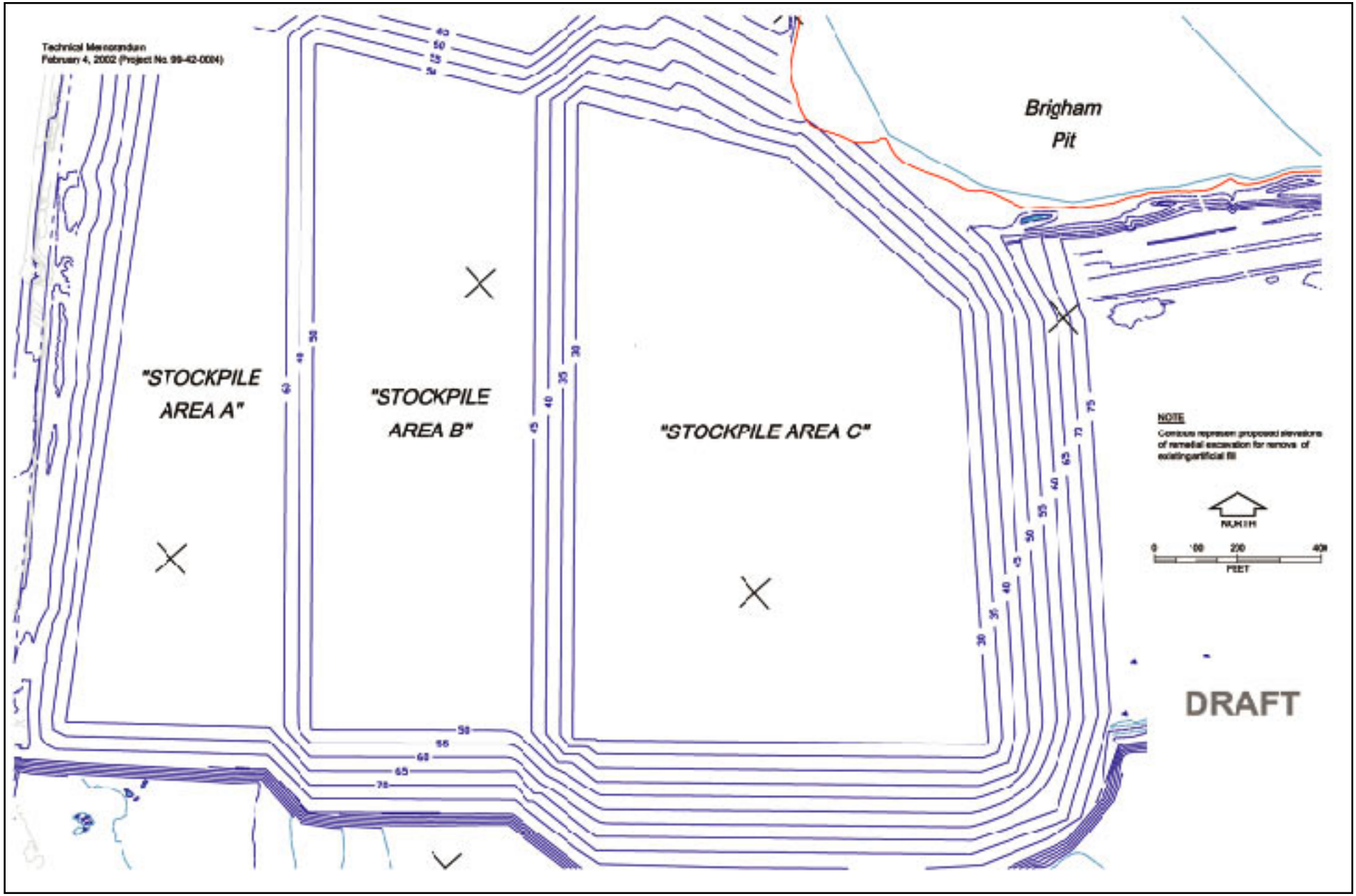
As discussed above, the proposed construction dewatering operation can be performed without accelerating the migration of groundwater contamination from the Poole Oil Company Site, thereby not creating a significant impact.

UWCD-7

At the time of the DEIR preparation, groundwater flow calculations consisting of theoretical distance-drawdown estimates using an analytical mathematical model were performed by Fugro using a range of aquifer numerical values for the area to show the effect of the pits on the proposed dewatering operation as presented in the DEIR (Fugro, 2001; DEIR page 4.5-85). The source of these aquifer values was the calibrated numerical groundwater flow model developed for the Montalvo Forebay Basin prepared by Fugro (1994). This analysis concluded that the dewatering operation as presented in the DEIR would not significantly impact contamination from the Poole Oil Company Site.

The RiverPark groundwater flow model that was used to simulate the long-term effects of storm water discharge on groundwater quality (see Appendix 4.5-2 of the DEIR) has been updated by ETIC to further evaluate the potential effect of the pits on the proposed Stockpile Area dewatering and the groundwater contamination associated with the Poole Oil Company Site (ETIC, 2002).

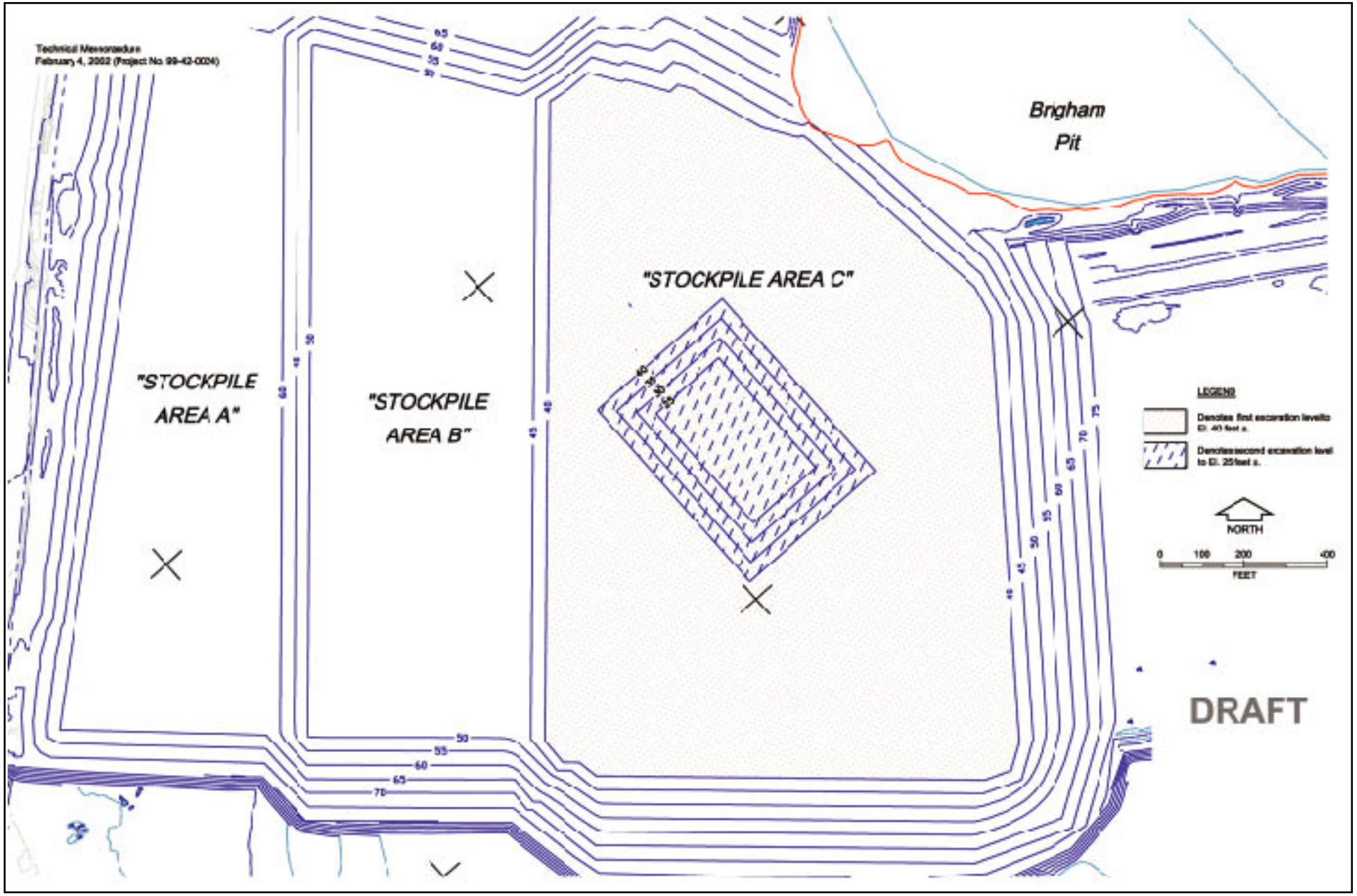
The first task associated with further evaluating the effect that the proposed dewatering operation may have on groundwater contamination associated with the Poole Oil Company Site was to clarify the proposed dewatering operation as outlined previously. In summary, the excavation estimates prepared prior to DEIR preparation (attached **Figure 2-12**) called for all of Stockpile Area C to be excavated to an elevation of 30 feet above MSL. The current conceptual excavation plan (attached **Figure 2-13**) has identified a smaller area within Stockpile Area C that requires excavation to the deepest depth, Stockpile Area D. Stockpile Area C will still need to be dewatered to reach an excavation level of 40 feet above MSL, while only Stockpile Area D requires dewatering to allow excavation to an elevation of 25 feet above MSL. The current expected excavation period has been shortened from a duration of



SOURCE: Fugro, Feb 4, 2002.

FIGURE **2-12**

"Stockpile Area C" Excavation from Exhibit 3 in RFP



SOURCE: Fugro, Feb 4, 2002.

FIGURE **2-13**

Staged Excavation Sequence

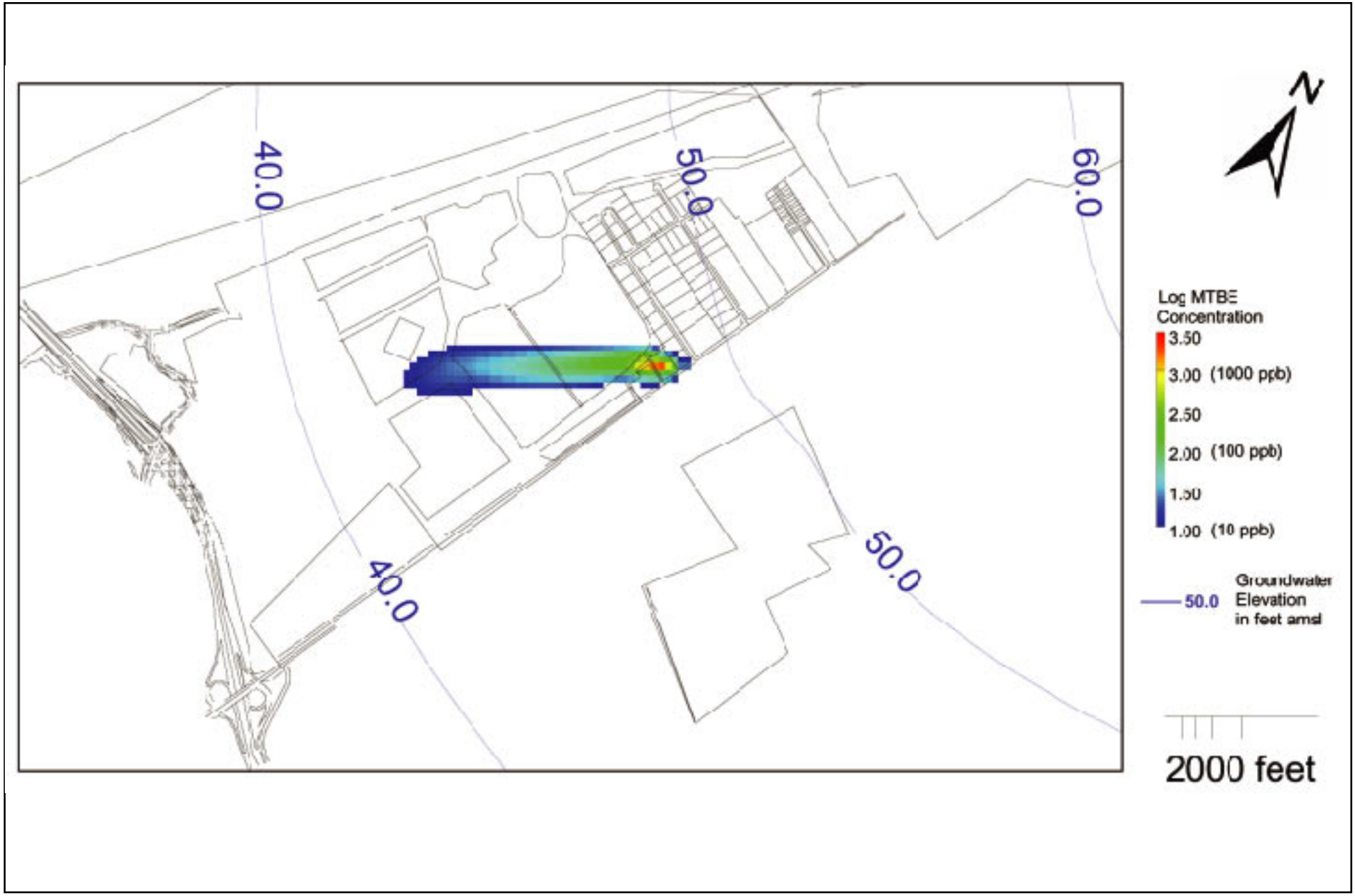
approximately 12 to 16 weeks mentioned in the DEIR, down to approximately eight or nine weeks. In addition, only a small portion of the Stockpile Area needs to be dewatered to the deepest depth.

Groundwater flow simulations were performed by ETIC Engineering, Inc. (ETIC) using the revised RiverPark Groundwater Model to further evaluate the proposed construction dewatering. Water level elevations for 1997 were chosen for baseline conditions, as explained in DEIR Appendix 4.5-2, because fall 1997 groundwater elevations were considered representative of average fall conditions. Based on the dewatering simulations performed by ETIC, groundwater levels returned to pre-dewatering levels within approximately 305 days of simulated recovery following the 60-day construction dewatering period. Because of this, a total time period of one year (365 days) was used to simulate baseline conditions and the effects of dewatering.

This modeling conservatively does not account for any dilution effects of the pits and also does not consider that local groundwater gradients vary dramatically from season to season and from year to year in the Forebay Basin over a standard water year (see Fugro (2001) Figure 3: Water level hydrograph for State Well No. 2N/22W-22H1). The baseline scenario indicates that the contamination from the Poole Oil Company Site would migrate approximately 3,400 feet downgradient (attached **Figure 2-14**) in one year, under ambient conditions.

Additional simulations were performed to further evaluate the effect of discharging water generated by the proposed dewatering operation into the Vickers, Small Woolsey, and Large Woolsey Pits. The goal of discharging into the pits would be to maintain the pre-dewatering water levels (minimal drawdown of water level) in order not to accelerate the migration of MTBE in groundwater from the Poole Oil Company Site. These simulations indicate that the proposed dewatering operation can be performed without accelerating the migration of existing contamination. As indicated by ETIC (2002), discharging water generated by dewatering activities into the Small Woolsey, Vickers and Large Woolsey Pits can offset the potential acceleration effect of dewatering on MTBE migration, although true recharge levels should be lower than those modeled so as not to create a significant eastwards gradient.

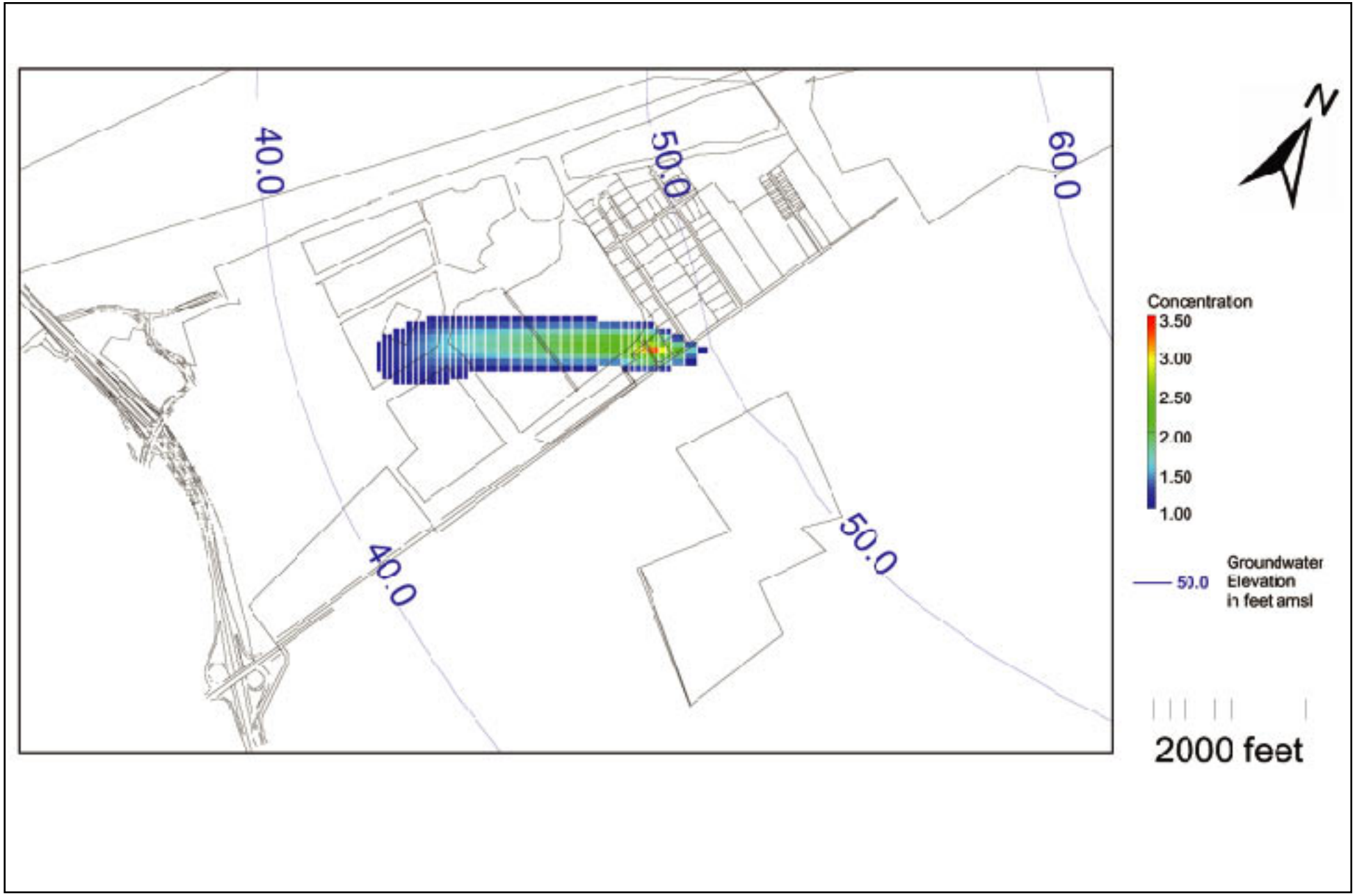
Following the proposed 60-day construction dewatering period, the groundwater contamination will be subjected to varying ambient recharging groundwater flow conditions. A simulation was performed to represent this condition of 60 days of dewatering and recharge, followed by 305 days of groundwater flow under ambient conditions. This simulation indicates that the travel distance of contamination from the Poole Oil Company Site over one year would be similar to that without the proposed construction dewatering, extending approximately 3,900 feet from the Poole Oil Company Site (attached **Figure 2-15**). The difference in contaminant extent of approximately 500 feet represents a modeled travel time of approximately two months under ambient conditions.



SOURCE: ETIC Engineering, Inc.

FIGURE **2-14**

Simulated Transport of Existing MTBE Plume after One Year



SOURCE: ETIC Engineering, Inc.

FIGURE **2-15**

Simulated Transport of Existing MTBE Plume after 365 Days in Response to Stockpile Dewatering/Pit Recharge

Based on clarification of the proposed construction dewatering by the applicant, subsequent results of the modeling analyses performed since preparation of the DEIR and the future preparation and implementation of a Construction Dewatering Plan, the proposed construction dewatering will not move the contamination substantially further than it would under ambient gradient conditions. Therefore, there is no significant impact of the proposed construction dewatering on contaminated groundwater form the Poole Oil Company Site.

During field reconnaissance associated with this evaluation, an existing gasoline station located at 3402 Vineyard Avenue (High Desert Oil #093) was noted to be undergoing construction activities related to the underground storage tanks and/or lines. Based upon this, the VCEHD was contacted and the VCEHD files for that Site were reviewed. In 1988, prior to an underground storage tank (UST) upgrade, soil sampling at the Site detected petroleum hydrocarbon compounds at relatively low concentrations. VCEHD granted the Site closure in August 1990. Between 1990 and 2001, no release of gasoline was reported.

In June 2001, an application was submitted to the VCEHD to replace existing dispensing equipment with new multi-grade dispensers and add one new dispenser with additional product piping. Based upon the permitted construction activities and discussion with the VCEHD UST Case Officer, these modifications were not related to any known or suspected release of contamination (verbal communication, VCEHD, 2002a). The LUFT Case Officer for this Site also indicated that no contamination was reported for soil samples collected during the modification work (verbal communication, VCEHD, 2002b). Based on this information, the existing gasoline station located at 3402 Vineyard Avenue (High Desert Oil #093) does not appear to have groundwater contamination and will not significantly impact the construction dewatering operation.

UWCD-8

The current conceptual dewatering operation includes the discharge of water generated during the proposed Stockpile Area dewatering into the Large Woolsey, Small Woolsey or Vickers Pits. The discharge water will be tested in compliance with any required permits. This testing shall include sampling for MTBE and will be defined in the Construction Dewatering Plan.

UWCD-9

UWCD does not reference what boring data to which they are referring; however, UWCD is probably referring to subsurface data presented in Fugro (1999). That data is mainly for fill materials located in the

stockpile area of the S.P. Milling site. In general, blowcount data obtained from borings located in the stockpile area are in fill materials and do suggest susceptibility to liquefaction. However, as part of the RiverPark development plan, those materials will be excavated and replaced with densified materials.

Other subsurface data for pit slope perimeters and other areas of the proposed development will be presented when it has been obtained and synthesized. However, we note the existing subsurface data for nearby projects and referenced in the appendicized reports (Fugro, 2000, 2001), such as the El Rio Juvenile Justice Center Complex, currently under construction (circa, January 2002), indicates that liquefaction potential is very low for the native alluvial sandy and gravelly soils present in the area.

UWCD-10

The proposed Specific Plan incorporates appropriate set backs, fencing and signing of the open water pit areas, as suggested in this comment.

UWCD-11

Considering UWCD's statements and clarification of the proposed future use of the Pits, additional groundwater modeling was performed by ETIC Engineering Inc. (ETIC) to evaluate whether a significant groundwater quality impact may arise if UWCD uses the Pits to store and recharge water. Based on the simulations performed by ETIC, UWCD can use the Pits to store and recharge water without creating a significant groundwater quality impact associated with groundwater contamination from the Poole Oil Company Site.

Presented below is a summary of the general analysis process used to evaluate the future use of the Pits.

<u>General Evaluation Process</u>

The ability of UWCD to use the Pits without creating a significant groundwater quality impact is related to three primary variables:

1) The extent and remaining mass of contamination associated with the Poole Oil Company Site at the time of the intended use;

2) The details of the proposed future use of the Pits by UWCD, specifically, constraints on the timing, volume and location of water to be delivered to the Pits; and,

3) The ambient conditions of the aquifer at the time of the future use.

Based upon reasonable assumptions associated with the variables mentioned above, analyses using numerical groundwater modeling were performed to evaluate whether a theoretical future use by UWCD can be implemented without creating a significant impact on groundwater quality (ETIC, 2002b). The evaluations were conducted using the Revised RiverPark Model, which was developed to evaluate the potential for dewatering activities to create a significant groundwater quality impact related to contamination from the Poole Oil Company Site (ETIC, 2002a). The threshold for a significant groundwater quality impact associated with UWCD's future use of the Pits is defined as displacement of the MTBE contamination substantially further than expected under ambient groundwater conditions.

Assumed Conditions Associated with the Future Use

The assumed conditions and rationale for those future conditions at the time of the potential use of the Pits by UWCD are summarized below.

Extent and Remaining Mass of Contamination Associated with the Poole Oil Company Site

Since the time of DEIR preparation, more data regarding the extent of contamination and plans for remediating the Poole Oil Company Site have become available. This information primarily confirmed the presence of MTBE associated with the Poole Oil Company Site and the Corrective Action Plan/Remedial Action Plan (CAP/RAP) that has been conditionally approved, indicates the near-term plans for remediation of contamination. The CAP/RAP dated February 18, 2002 was developed by PW Environmental (PWE, 2002) and portions of the CAP/RAP have been granted approval, with modifications (VCEHD, 2002).

Remediation has not started to date. The stated goals of the CAP/RAP (PWE, 2002) are as follows,
"The goals for the required workscope are: 1) to further assess the down-gradient extent of groundwater contamination; 2) implement a remedial action (dual-phase extraction system) to remediate soil and groundwater contamination; and 3) mitigate the continued offsite migration of groundwater contamination in the southwest corner of the property."

The CAP/RAP indicated that, "a total of 13 groundwater extraction wells are required at the site." These wells according to the CAP/RAP are expected to pump at up to 15 gallons per minute (gpm). Although the full CAP/RAP was not approved, it is reasonable to assume that over a three-year period, significant

remediation of the source area and some remediation and control of the downgradient plume extent is expected to occur.

Proposed Future use of the Pits by UWCD

The UWCD has stated that there is flexibility in the proposed future use, in regard to the timing, volume and location of water to be delivered to the Pits. The proposed long-term average amount of water to be recharged is approximately 6,000 acre-feet and the period of recharge over a year is anticipated to occur over a five-month period between December and April.

Model Simulations of Future UWCD Pit Use

To evaluate the effects of using the Pits, baseline groundwater conditions similar to those observed in 1997 were assumed. Water level elevations for 1997 were used for modeling scenarios, as explained in DEIR Appendix 4.5-2, because fall 1997 groundwater elevations were considered representative of average fall conditions, which is the expected aquifer condition prior to initiation of any winter use of the Pits for water storage or recharge.

The baseline simulation started with the current extent of contamination as defined by PW Environmental in July 2001 (PWE, 2001) and simulated the effects of four years of active groundwater remediation. This modeling conservatively does not include any source reduction, any dilution effects of the Pits and also does not consider that local groundwater gradients vary dramatically from season to season and from year to year in the Forebay Basin over a standard water year (see Fugro (2001) Figure 3: Water level hydrograph for State Well No. 2N/22W-22H1).

To simulate the potential effect of the proposed future use of the Pits, it was assumed that 6,000 acre-feet would be recharged across the Large Woolsey, Small Woolsey/Vickers and Brigham Pits beginning in four years. It was also assumed that pump and treat remediation as in the baseline scenario had been occurring for three years prior to, and during the year of delivery to the Pits. The amount of water delivered to the Large Woolsey Pit was 1,500 acre-feet, while 4,500 acre-feet was delivered to the Small Woolsey/Vickers and Brigham Pits. This scenario also conservatively does not include any source reduction, possible dilution effects by the Pits and also does not consider that local groundwater gradients vary dramatically from season to season and from year to year in the Forebay Basin over a standard water year (see Fugro (2001) Figure 3: Water level hydrograph for State Well No. 2N/22W-22H1).

Simulation Results

The result of the baseline scenario indicates that relative capture of the groundwater contamination is possible (see attached **Figure 2-16**). The scenario that includes one-year of recharge to the Pits indicates that even though approximately 6,000 acre-feet are recharged to the northwest of the Poole Oil Site, the extent of contamination is almost identical to the baseline condition (see attached **Figure 2-17**).

Conclusion

The threshold for a significant groundwater quality impact related to the future use of the Pits for water storage and recharge is defined as displacement of the MTBE contamination from the Poole Oil Company Site substantially further than expected under ambient basin conditions. As indicated in attached **Figures 2-18** and **2-19**, a future potential use can be implemented that would not create a significant groundwater quality impact. It should be noted that the modeling scenarios conservatively assume that: there is a continuous source of contamination; the anticipated average volume of water is delivered to the Pits in the first year, instead of increasing volume in a phased manner; and, that water is delivered to all of the Pits in the first year of delivery, whereas, UWCD has expressed flexibility in the location for delivery during initiation of the use of the Pits.

UWCD-12

The City notes this comment supporting the design of the water quality treatment system and agreeing with the analysis in the Draft EIR.

SOURCE: ETIC Engineering, Inc.

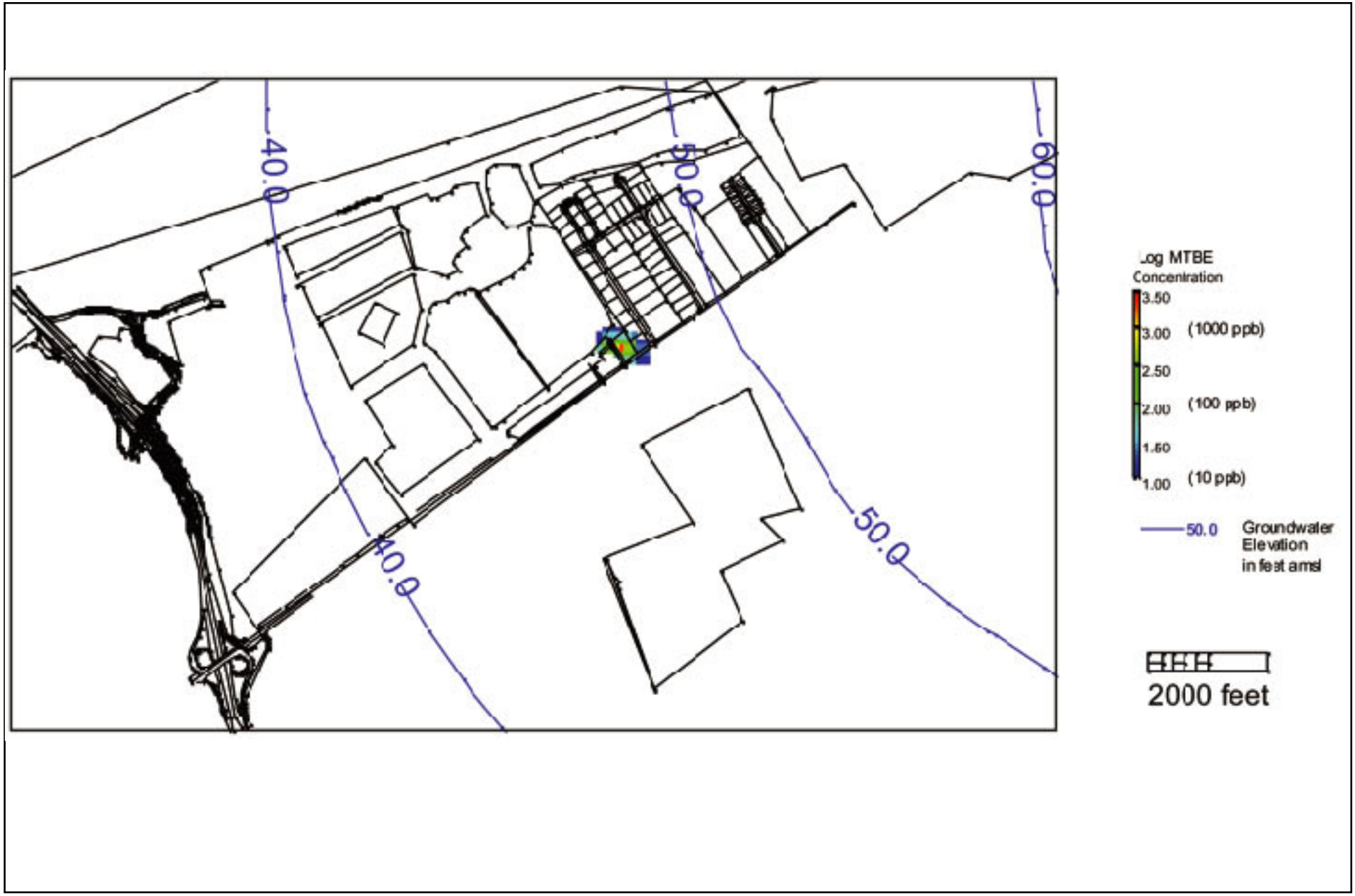
FIGURE **2-16**

Simulated Transport of Existing MTBE Plume after One Year

SOURCE: ETIC Engineering, Inc.

FIGURE **2-17**

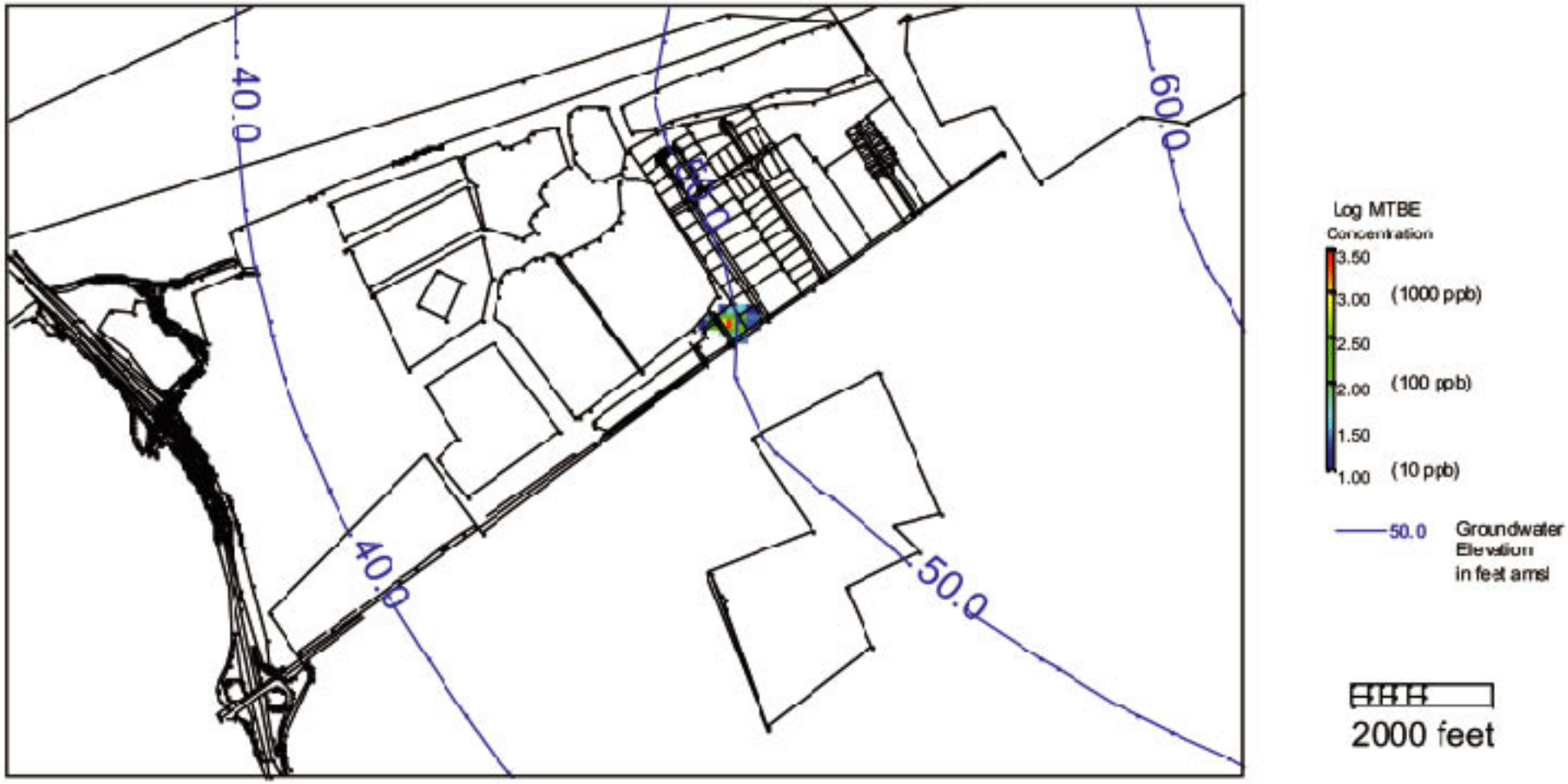
Simulated Transport of Existing MTBE Plume after 365 Days in Response to Stockpile Dewatering/Pit Recharge



SOURCE: ETIC Engineering, Inc.

FIGURE **2-18**

MTBE Plume after Four Years with No Recharge in the Pits, and Using Modified Remediation System Design



*Scenario uses no recharge for three years, and 6,000 acre ft/yr recharge after three years.

SOURCE: ETIC Engineering, Inc.

FIGURE **2-19**

MTBE Plume after Four Years with Recharge in the Pits, and Using Modified Remediation System Design*