EQUIPOISE
CORPORATION

November 27, 2006

Steven Plunkett
Hazardous Materials Specialist
Alameda County Health Care Services
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
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Off-Site Soil and Groundwater Investigation Workplan
Former Thrifty Oil Co. Station #063
ARCO Products Company Station #9542
6125 Telegraph Avenue
Oakland, California

Fuel Leak Case No. RO00000005
RWQCB File No. 01-1479
Facility Global ID No. T0600101366

Dear Mr. Plunkett:

Equipoise Corporation (EQC) is pleased to present this off-site soil and groundwater investigation workplan (Workplan) on behalf of Thrifty Oil Co. (Thrifty) to install two off-site groundwater monitoring wells, as requested by the Alameda County Environmental Health (ACEH) in the letter *Fuel Leak Case No. RO00000005, Thrifty Oil #63/ARCO #9542, 6125 Telegraph Ave., Oakland, CA – Request for Work Plan* dated October 24, 2006, for Thrifty Station #063 located at 6125 Telegraph Avenue, Oakland, California (Site) (**Figure 1**) subsequently referred to as the ACEH Letter. The ACEH Letter requests that Thrifty perform an offsite investigation to determine soil and groundwater conditions immediately downgradient of the Site.

BACKGROUND

Soil and groundwater impacted by total petroleum hydrocarbons as gasoline (TPHg), benzene, and methyl tertiary butyl ether (MTBE) have been identified from samples previously collected at the Site.

As part of the ongoing groundwater monitoring and sampling program, depth to groundwater is measured in each monitoring well on a quarterly basis. A corrected groundwater elevation contour map based on the July 26, 2006, data is presented in **Figure 2**. The groundwater flow direction is to the southwest at an approximate gradient of 0.0373 feet/foot.

Groundwater samples were obtained from monitoring wells MW-1, MW-3, MW-4, MW-5, and MW-6 on July 26, 2006. Groundwater samples were obtained by Earth Management Company (EMC) and delivered in a chilled state following strict Chain-of-Custody procedure to a state-certified laboratory. The samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) by EPA Method 8015M, and for benzene, toluene, ethylbenzene, xylenes (BTEX) and methyl tert-butyl ether (MTBE) and other oxygenates by EPA Method 8260B.

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Laboratory results indicate the highest concentrations of TPHg and benzene were detected in monitoring well MW-1 with concentration of 8,850 micrograms per liter (ug/L) and 151 ug/L, respectively. The highest MTBE concentration was present in well MW-4 (1,160 ug/L).

Site remedial activities were initiated in April 1991. Currently, the remediation system consists of a groundwater treatment system that extracts groundwater from monitoring wells MW-3 and MW-4 with treatment utilizing activated carbon. Between June 27, 2006 through August 25, 2006, the groundwater treatment system processed approximately 9,840 gallons of groundwater and has treated approximately 2,775,479 gallons of groundwater since start-up (April 1991).

The system was upgraded in the 2nd Quarter 2005, consisting of a pump replacement in well MW-3 and the addition of well MW-4 to the extraction well array. On May 10, 2005, the system was restarted with a new pump in well MW-3; and on May 13, 2005, a pump was installed in well MW-4. The pump in well MW-4 was started on May 20, 2005.

TECHNICAL APPROACH

To address the ACEH Letter request for an offsite investigation immediately downgradient of the Site, Thrifty proposes to install two monitoring wells on the adjacent south western property with the objective of defining lateral extent of soil and groundwater conditions. The adjacent property owner is Oriental BBQ Town (O B Town) located at 6101 Telegraph Avenue. The proposed locations of the wells are as follows:

- One off-site well (MW-7) will be located approximately 25 feet downgradient of existing monitoring well MW-4.
- The second off-site well (MW-8) will be located approximately 75 feet downgradient of the former and existing UST.

Figure 3 shows the location of the proposed monitoring well locations. Based on the results of this investigation, recommendations will be made within the report summarizing these activities regarding the need for additional groundwater monitoring wells.

EQC reviewed historic groundwater elevation data for the on site wells MW-1, and MW-3 through MW-6 collected between 1986 and 2006 and graphs of groundwater elevation over time for monitoring wells MW-1, MW-3, MW-4, MW-5, and MW-6 are presented in **Attachment A**. Review of these graphs shows a significant water level (an elevation) fluctuation over the time period, with a minimum fluctuation of 8 feet at monitoring well MW-6 and a maximum fluctuation of 17 feet at monitoring well MW-3. Detailed review of the data for monitoring wells MW-5 and MW-6 (selected because they are the farthest from the existing groundwater extraction wells) indicates that there is a general seasonal trend in the groundwater elevation data with higher water conditions in the winter and spring quarterly monitoring events and the magnitude and timing of the fluctuations generally tied to periods of rainfall.

Based on this information, EQC does not recommend depth discrete screen intervals or wells because there will be substantial periods when either the entire well screen is submerged or the wells are dry based on annual rainfall. In addition, based on the significant change in water elevation at the Site, EQC proposes screen lengths of 20 feet (intervals between 5 and 25 feet bgs).

SCOPE OF WORK

The proposed scope of work for the groundwater monitoring well installation at the Site is described below.

Pre-drilling Activities. Prior to beginning field activities, EQC will select appropriate field equipment, schedule subcontractors, and conduct a utility clearance. The following steps will be taken to avoid encountering subsurface utilities and substructures:

1. Underground Service Alert (USA) will be notified at least 48 hours prior to drilling to mark known substructure locations and utilities.

2. At locations where numerous utilities exist nearby, the upper 5 feet of the subsurface will be cleared using hand augering methods or equivalent. A geophysical survey may be used if necessary.

3. The drilling equipment will be operated slowly and carefully in the upper 10 feet bgs. Encountering of any obstruction will be cause to stop and/or probe further with a hand auger before continuing. If necessary, the sampling rig will be moved laterally 2 to 5 feet to an alternatively cleared location.

Monitoring well permits from the ACEH will be obtained. Prior to starting field activities, EQC will review the existing site specific Health and Safety Plan (HASP). Upon approval of this Workplan, an access agreement will be initiated with the property owner to the southwest of the Site (6101 Telegraph Avenue).

Drilling Activities and Monitoring Well Construction. After the boring locations are cleared for the presence of underground utilities, drilling and well installations will be conducted using hollow-stem auger drilling method. A drill rig equipped with a nominal 8-inch diameter auger will be used to complete the bore holes to total depth. An EQC geologist or engineer will be on site to monitor activities and provide hydrogeologic and logistical supervision. Also, the geologist or engineer will record field activities in a bound notebook with numbered pages or on standard field daily logs. Boring logs will be completed on appropriate boring log forms.

Wells will be constructed using 2-inch schedule 40 PVC flush-threaded casing with 0.01-inch slotted screen. The screened section will extend from approximately 5 to 25 feet bgs (groundwater has been measured at between 9 and 21 feet bgs at the Site). Groundwater elevation over time for monitoring wells MW-1, MW-3, MW-4, MW-5, and MW-6 are presented in **Attachment A**. The base of the screened section will be sealed with a PVC flush-threaded bottom cap and the top of the casing will be covered with a locking well cap. A 12-inch traffic-rated well box will be set in concrete and completed in a manner to prevent accumulation of surface water on or near the well box lid.

The annulus around the well screen interval will be filled with #2/12 sand filter pack from the base of the silt trap to approximately 1 feet above the screen. The well will be swabbed and bailed before the seal is installed. A 2-foot-thick hydrated bentonite pellet seal will be placed above the filter pack. The height of the filter pack and bentonite seal will be periodically measured during well installation by using a weighted tape. Concrete will be used to set the traffic-rated well box from 2 feet bgs to the surface. **Figure 4** shows the well construction details.

Monitoring Well Development. Well development is required to enhance groundwater flow into the well and to provide representative groundwater samples. Development consists of flushing water through the well screen, the well filter pack, and the formation so that sediment is removed. Grout will be allowed to cure at least 48 hours prior to initiating development procedures. Water will be flushed out of and into the well casing by moving a surge block and/or swab up and down within the water column in the well. The surging/flushing dislodges fine sediment and pulls water and sediment around the well casing and into the well. Well development will continue until the produced well water turbidity does not exceed 20 nephelometric turbidity units (NTU) and/or the chemical parameters of pH and electrical conductivity have stabilized. Groundwater temperature, pH, and electrical conductivity will be measured and recorded at regular intervals during development. Development will continue until evacuated groundwater is relatively clear and free of sand and silt.

A submersible pump also may be used to purge additional water to achieve the appropriate turbidity. All purged groundwater generated stored in labeled Department of Transportation (DOT) approved 55-gallon drums. All development tools will be decontaminated prior to and after use.

Soil Sampling. During drilling activities, soil samples will be obtained at 5-foot depth intervals. Soil samples will be collected with a split-barrel sampler and be visually classified using the Unified Soil Classification System (USCS) on standard boring log forms. The number of blows required to drive the sampler each 6-inch interval will be recorded and used as a qualitative measure of soil density.

Samples will be labeled, and recorded on a standard chain-of-custody forms, and will be placed into an ice-chilled cooler for transport to a State-certified analytical laboratory. Soil samples will also be checked for discoloration, odors, and monitored for volatile organic compounds (VOCs) using a photoionization detector (PID) calibrated to 100 parts per million hexane.

Samples will be analyzed for TPHg by EPA Test Method 8015 modified for gasoline; BTEX, MTBE, and other oxygenates (DIPE, ETBE, TAME, TBA, EDB, EDC) by EPA Test Method 8260B; and ethanol and methanol by EPA Test Method 8015M.

Groundwater Sampling. Sampling groundwater from the wells will be performed at least 24 hours after well development. Prior to sampling, the wells will be purged with a bailer or submersible pump until approximately 3 to 4 well volumes of water are removed or (in the case of low yielding wells) the well has been purged dry twice. Wells are monitored after development and prior to purging for the potential presence of free product using an electric interface probe and/or a transparent sampling bailer.

Water samples will be obtained by EQC using a disposable Teflon or stainless bailer. Samples will be transferred to the appropriate laboratory-supplied sample bottles in a manner to minimize potential sample aeration. The sample bottles will then be sealed, labeled, and immediately placed into a cooled ice chest for transport to a State-certified analytical laboratory. Samples will be recorded on a standard chain-of-custody form to document sample identification and handling. Observations during groundwater well monitoring, and groundwater sampling will be recorded on standard EQC forms.

Samples will be analyzed for TPHg by EPA Test Method 8015 modified for gasoline; BTEX, MTBE, and other oxygenates (DIPE, ETBE, TAME, TBA, EDB, EDC) by EPA Test Method 8260B; and ethanol and methanol by EPA Test Method 8015M.

Waste Disposal. All soil cuttings, decontamination water, and water produced during well development and purging will be stored in Department of Transportation approved 55-gallon steel drums, which will be

sealed and labeled with the borehole number and accumulation date. The drums will be placed onsite out of traffic areas pending laboratory results. Upon receipt of the laboratory results, waste profiling and disposal will be conducted by Thrifty in accordance with applicable regulations.

Updated Well Survey. Upon evaluation of previous monitoring reports, it was found that groundwater flow directions have been generally consistent for the past two decades. Therefore with your approval, an updated well survey will be done after the completion of the offsite well installation activities.

Soil and Groundwater Investigation Report Preparation. EQC will prepare a technical report describing the well installation activities. The report will include, as attachments, a site map showing the locations of the wells, appropriate cross sections, completed well construction diagrams with boring logs, and analytical data from the soil and groundwater sampling. Should the ACEH require an updated SCM immediately after the offsite assessment is completed, EQC can also prepare a SCM Update document either as an appendix to the Site Assessment Report or as a separate report in lieu of the fourth quarter 2006 monitoring report.

SCHEDULE

Thrifty and EQC anticipate starting the groundwater well installation immediately after the Workplan approval by the ACEH **AND** acquisition of an off-site access agreement with the property owner southwest of the Site. The Soil and Groundwater Investigation Report will be submitted to the ACEH within 2 weeks of completion of receiving all laboratory data.

All hydrogeologic and geologic information, conclusions, and recommendations in this document have been prepared under the supervision of and reviewed by an Equipoise Corporation California Registered Civil Engineer.

Very truly yours,

EQUIPOISE CORPORATION

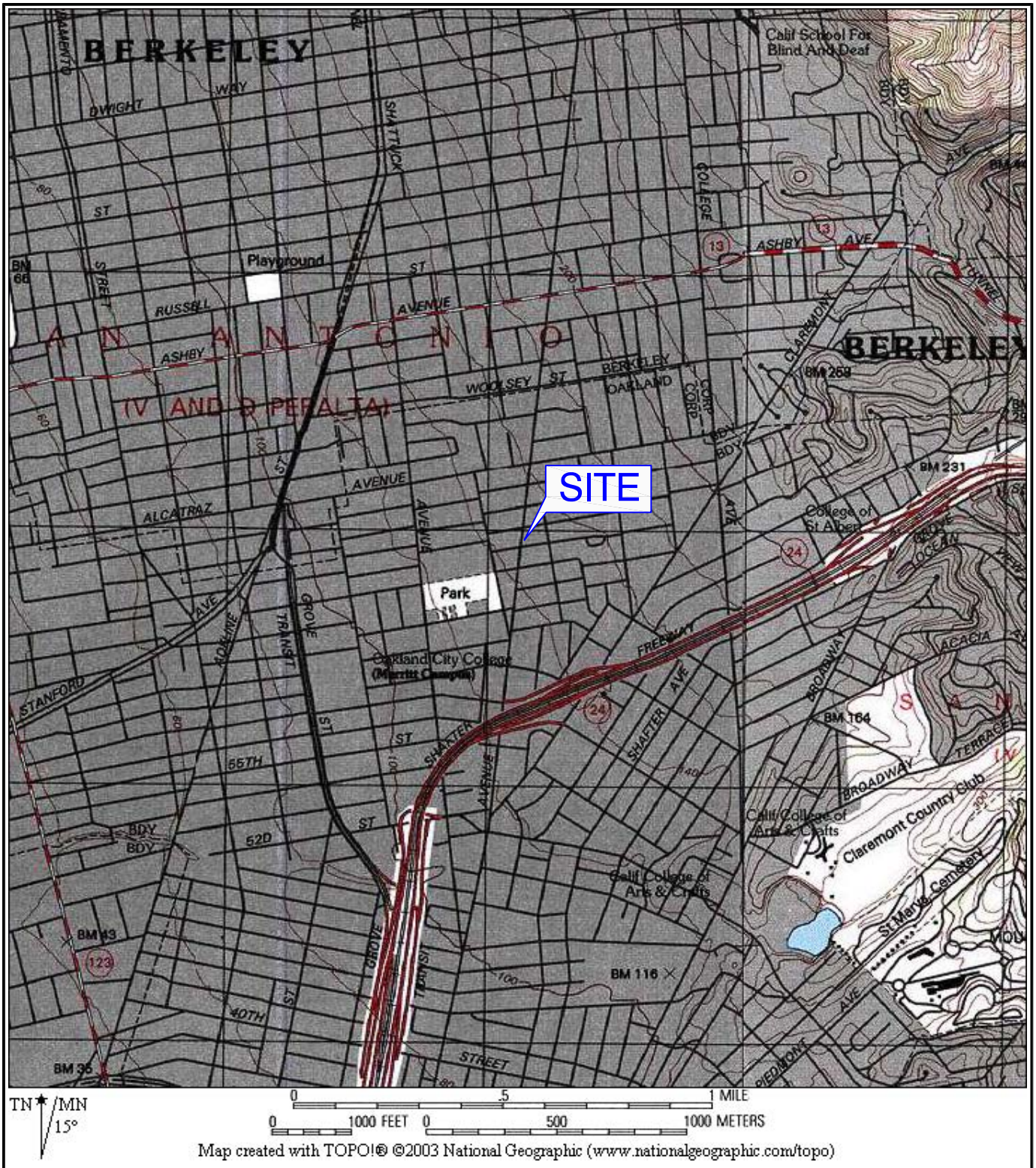
Timothy E. Nelligan, P.E.
Senior Engineer
Registered Civil Engineer No. C68666

Attachments: Figure 1 – Site Vicinity Map
Figure 2 – Recent Groundwater Elevation Contour Map
Figure 3 – Groundwater Well Locations
Figure 4 – Groundwater Monitoring Well Construction Detail

Attachment A: Groundwater Elevation vs. Time Graphs
MW-1, MW-3, MW-4, MW-5, and MW-6

cc: Chris Panaitescu – Thrifty Oil Co.
Equipoise File

FIGURES



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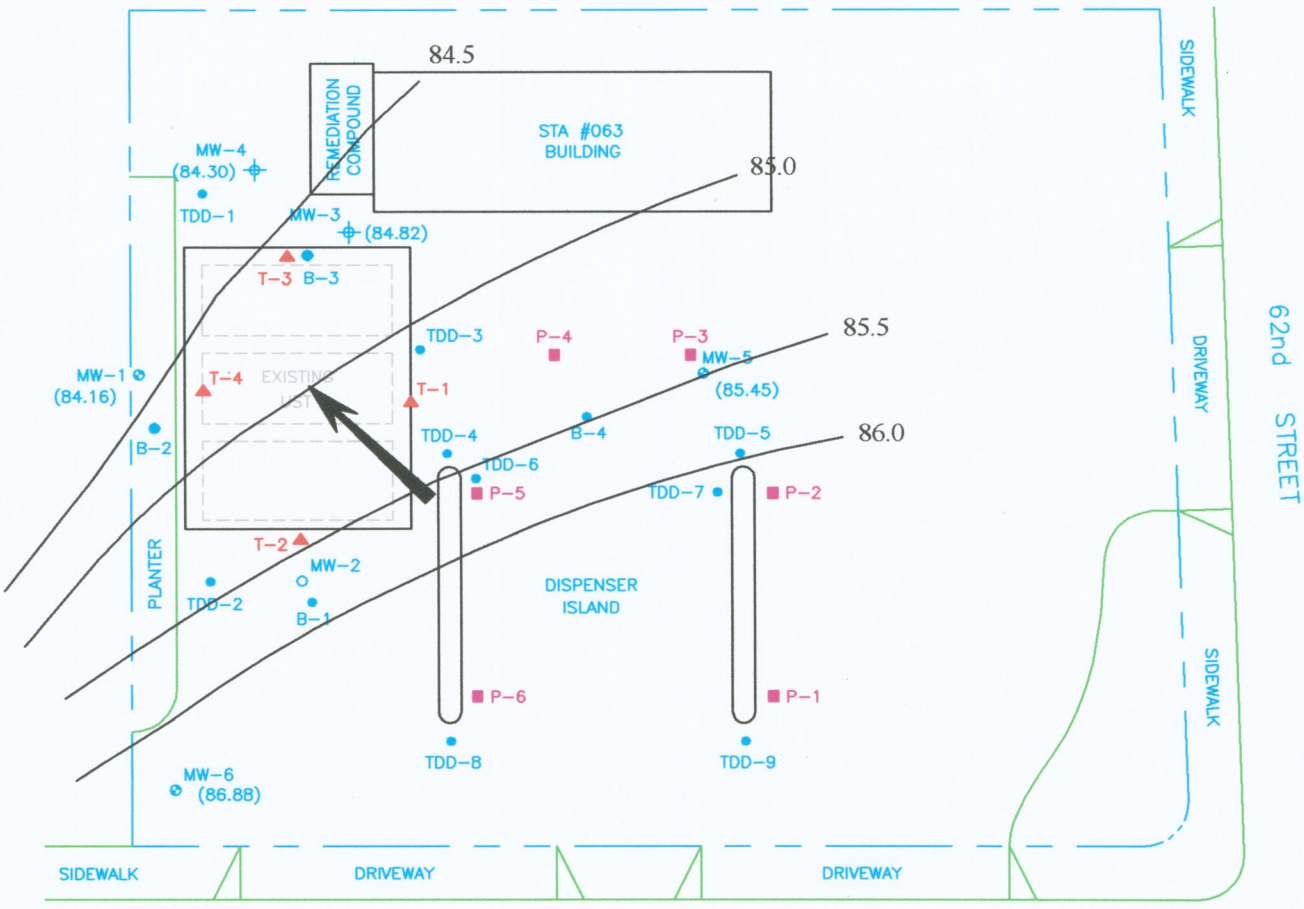
FILE NAME: *SITE VICINITY MAP.DWG*

SITE VICINITY MAP
THRIFTY OIL CO. #063
6125 Telegraph Avenue
Oakland, California

FIGURE: 1
SHEET: of
REVISION NO: 0
DATE: 2/06



LEGEND

- ⊗ – GROUNDWATER MONITORING WELL
- ⌖ – GROUNDWATER RECOVERY WELL
- ○ – ABANDONED GROUNDWATER MONITORING WELL
- ● – SOIL BORING
- ▲ – TANK BOTTOM SAMPLE POINT
- ■ – PIPING SAMPLE POINT

APPROXIMATE SCALE IN FEET

0' 30' 60'

NOTE: ALL MONITORING WELL ELEVATION DATA BASED ON AN ONSITE REFERENCE POINT
FORMER TANKS AND DISPENSERS WERE IN THE SAME LOCATION AS EXISTING TANKS AND DISPENSERS

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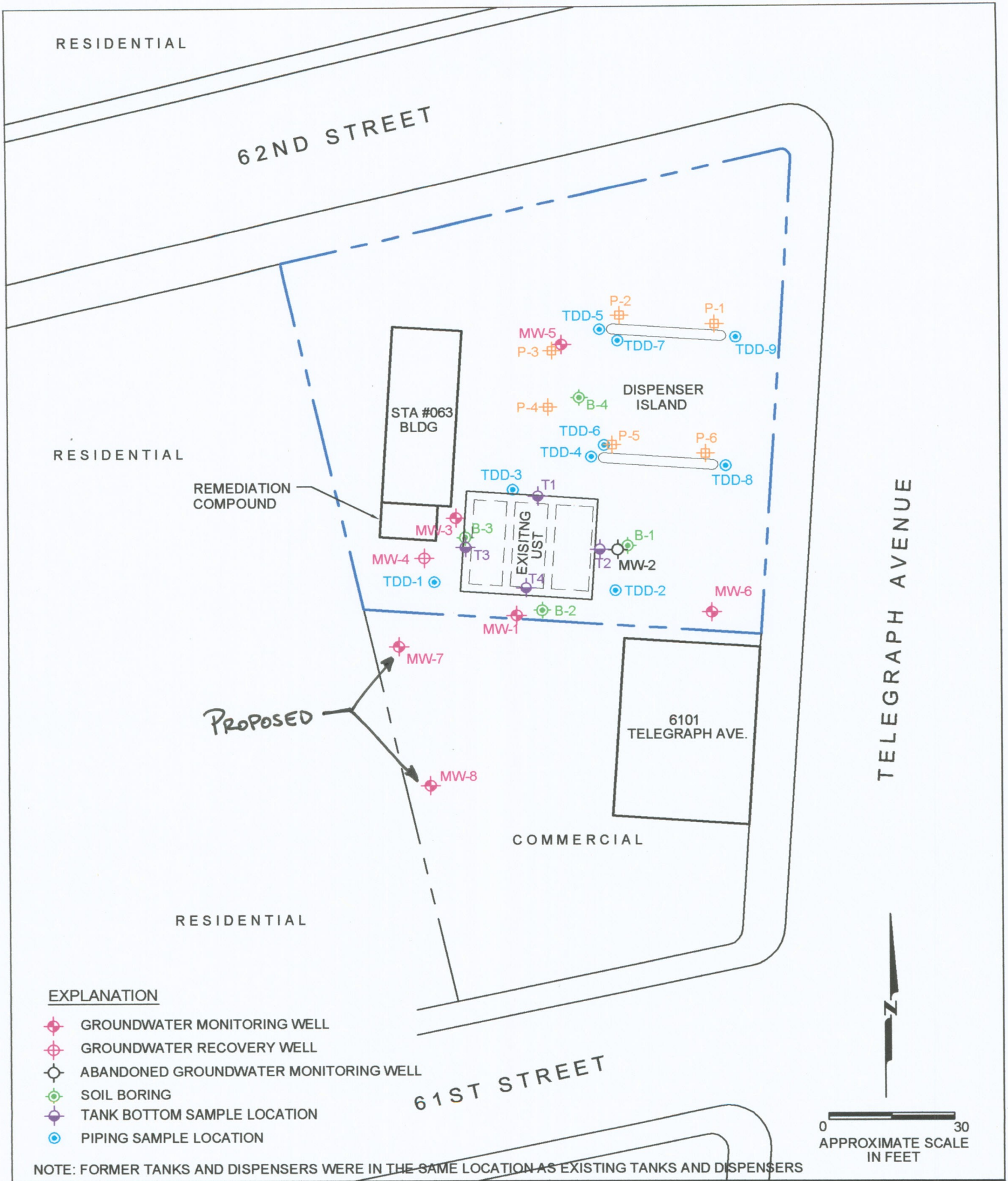
NORTH

DATE: 01/06

FIGURE 2
ELEVATION CONTOUR MAP
THRIFTY SERVICE STATION #063
6125 Telegraph Avenue
Oakland, CA



NOTE: FORMER TANKS AND DISPENSERS WERE IN THE SAME LOCATION AS EXISTING TANKS AND DISPENSERS

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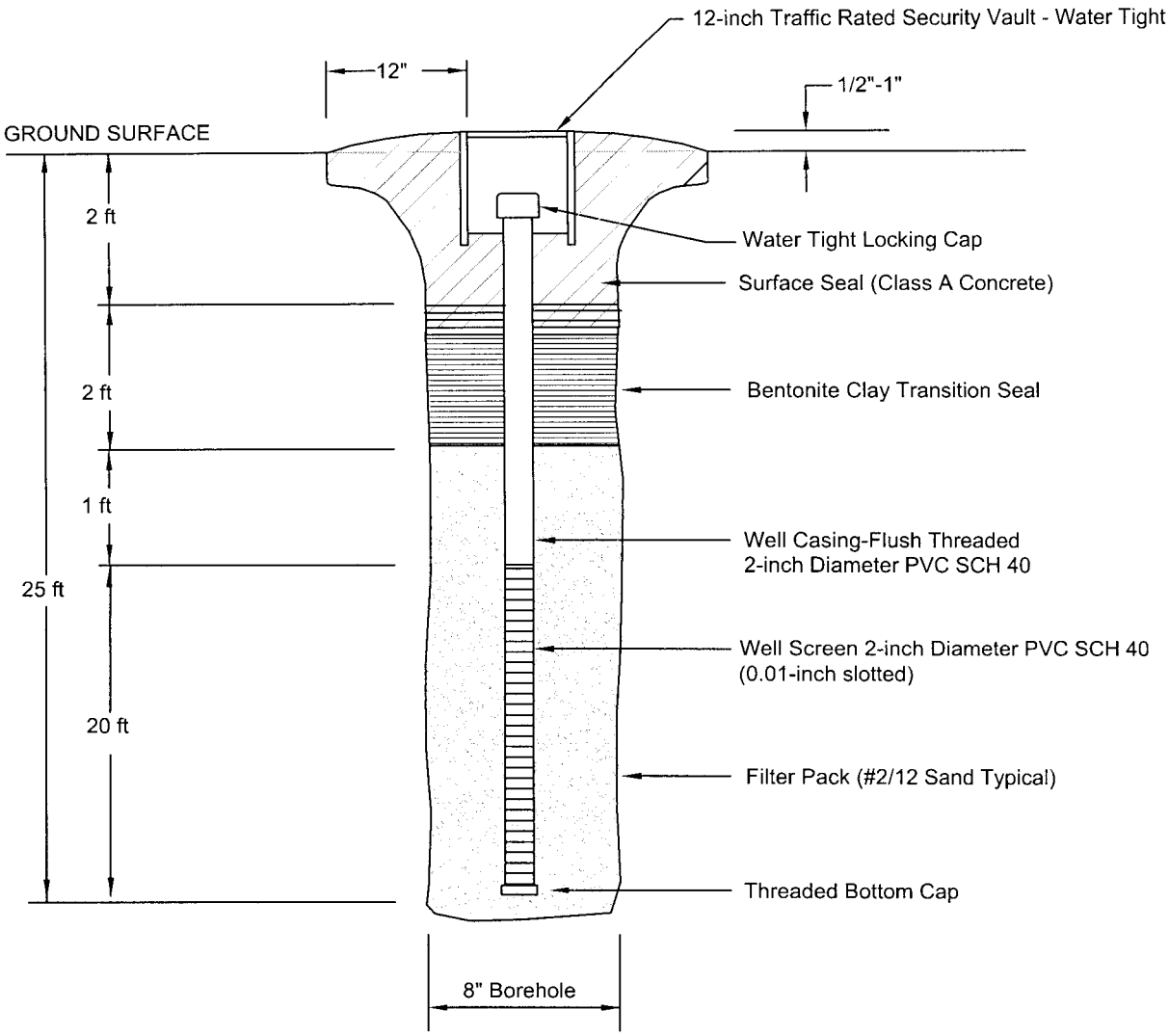
WELL LOCATION MAP

Thrifty Station No. 063
6125 Telegraph Avenue
Oakland, California

FIGURE: 3
SHEET: of
REVISION NO: 0
DATE: 11/06

PROJECT NO. -
FILE NO. SITE PLAN_T063.dwg



LEGEND

PVC	POLYVINYL CHLORIDE
SCH	SCHEDULE
ft	FEET

NOT TO SCALE

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GMW CONSTRUCTION DETAIL.DWG

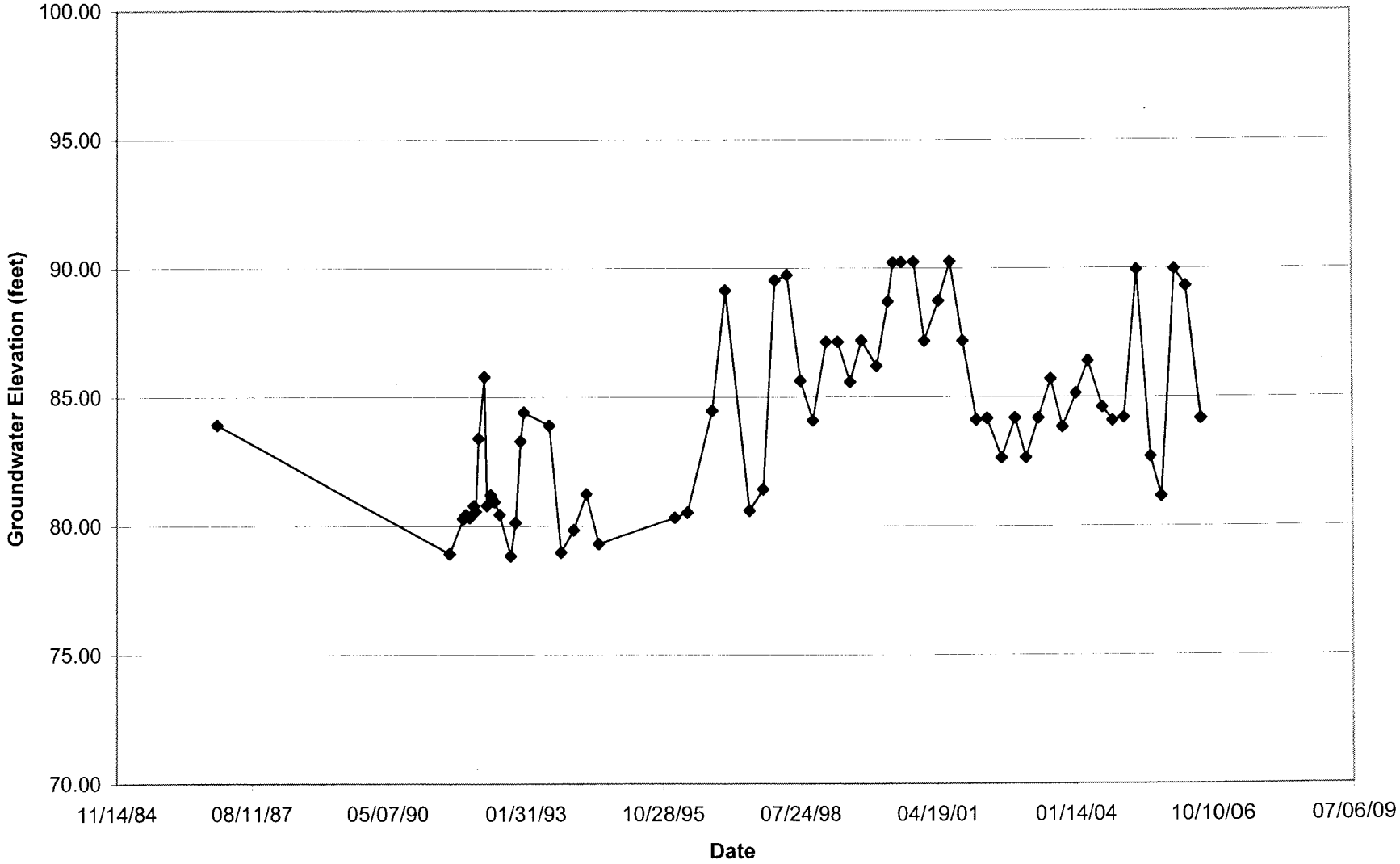
MONITORING WELLS MW-7 and MW-8
CONSTRUCTION SCHEMATIC
Thrifty Oil Co. Station #063
6125 Telegraph Avenue, Oakland, California

FIGURE: 4
REVISION NO: 0
DATE: 11/06

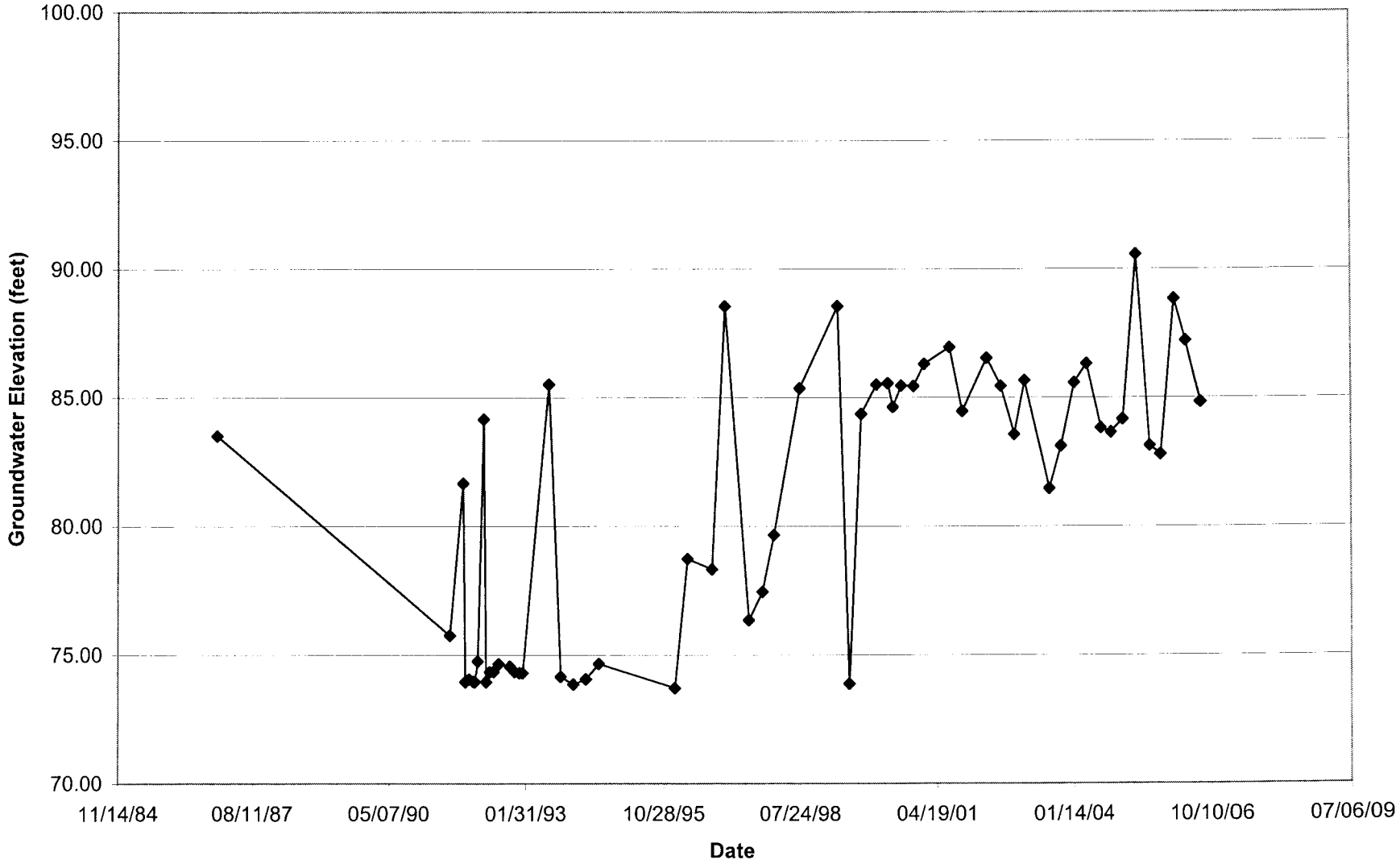
APPENDIX A

GROUNDWATER ELEVATION vs. TIME GRAPHS

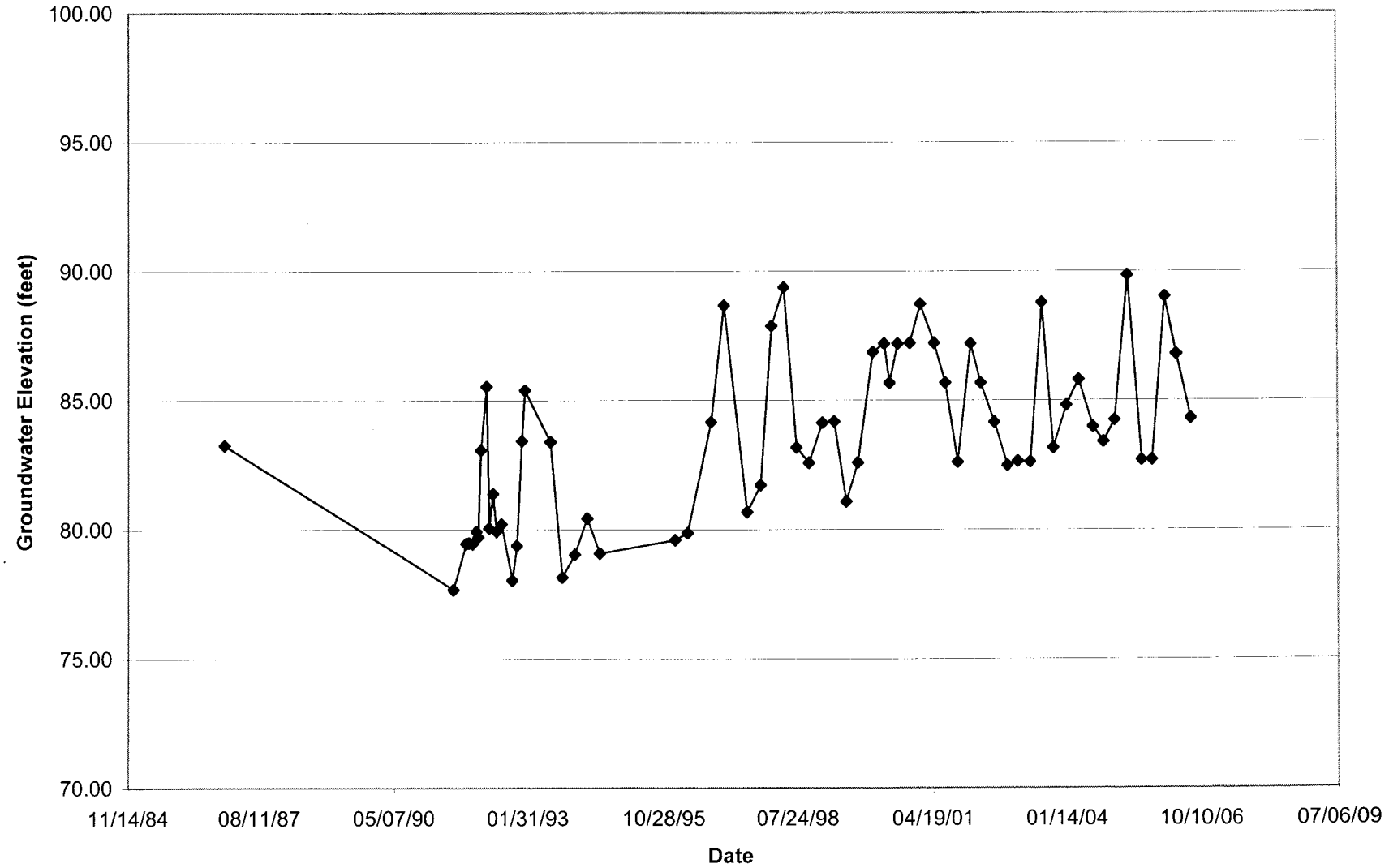
MW-1 Groundwater Elevation vs. Time

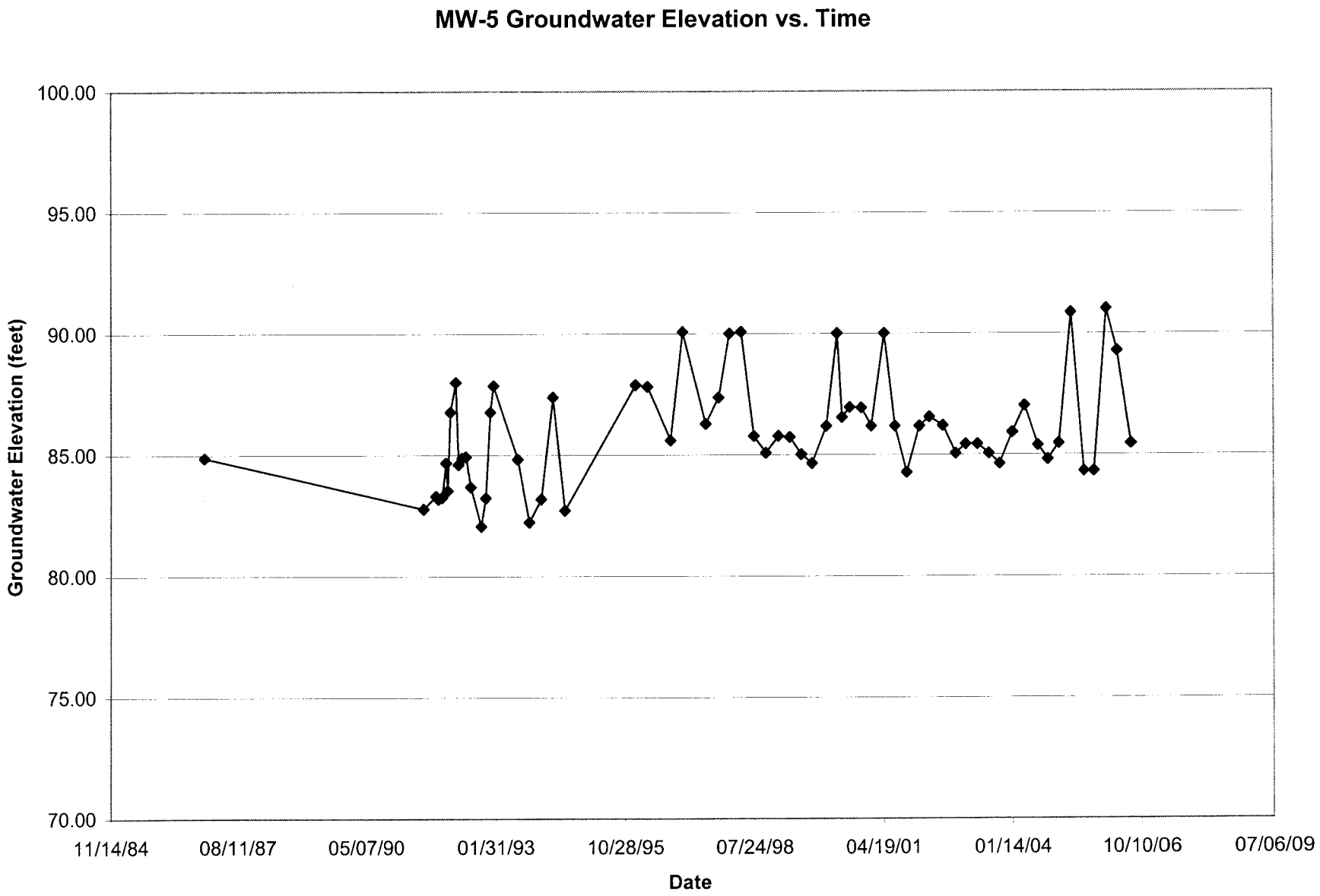


MW-3 Groundwater Elevation vs. Time



MW-4 Groundwater Elevation vs. Time




MW-5 Groundwater Elevation vs. Time
100.00
95.00
90.00
85.00
80.00
75.00
70.00
Groundwater Elevation (feet)
11/14/84
08/11/87
05/07/90
01/31/93
10/28/95
07/24/98
04/19/01
01/14/04
10/10/06
07/06/09
Date

MW-6 Groundwater Elevation vs. Time