RJ-333

GRIBI Associates

Geological and Environmental Consulting Services

March 18, 2005

Alameda County Department of
Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, CA 94502

Attention: Robert Schultz

Subject: Interim Remedial Measures (IRM) Workplan
Dublin Toyota UST Site
6450 Dublin Court, Dublin, California
Alameda County LOP Site ID No. 699
GA Project No. 147-01-03

Ladies and Gentlemen:

Gribi Associates is pleased to submit this Interim Remedial Measures (IRM) workplan on behalf of Dublin Toyota for the underground storage tank (UST) site located at 6450 Dublin Court in Dublin, California (see Figure 1 and Figure 2). This letter workplan proposes interim remedial measures to address elevated levels of gasoline-range hydrocarbons encountered in source area soils and groundwater during underground storage tank (UST) removal activities in June 1998.

Background

The Dublin Toyota UST site consisted of three USTs located in a common tank farm which was located outside near the northeast corner of the maintenance garage (see Figure 2). The USTs included two 2,000-gallon steel gasoline tanks and one 1,000-gallon steel waste oil tank. The three USTs were removed from a common excavation by Scott Company on June 10, 1998. Following removal, two soil samples were collected, including one sample, Pit-1-West, from the middle of the west pit sidewall and one sample, Pit-1-East, from the middle of the east pit sidewall, both at unreported depths (see Figure 3). In addition, one grab groundwater sample, T-1-W, was collected from the southwest corner of the UST removal cavity. Laboratory analytical results, which are summarized on Figure 3, showed elevated levels of gasoline constituents, with 52,000 micrograms per liter (ug/l) of MTBE in the T-1-W grab groundwater sample.

Based on soil and grab groundwater sampling results and in accordance with ACDEH approval, the UST excavation cavity was overexcavated on June 18, 1998. The Scott Company change order and invoice for these additional activities indicate that: (1) The excavation cavity was overexcavated approximately one foot laterally on each side and to a final depth of approximately 12 feet below surface grade; (2) Up to 500 gallons of water was removed from the excavation cavity for offsite disposal; (3) Approximately 160 tons of 3/4-inch A/B gravel was imported to

backfill the excavation cavity; and (2) Approximately 93 tons of hydrocarbon-impacted soil was disposed of offsite.

Following completion of overexcavation and pit water removal activities, one soil sample and three grab groundwater samples were collected (see Figure 3). The one soil sample, Pit-1-South, was collected from the south excavation sidewall at an unreported depth. The three pit water samples, Water-West, Water-Center, and Water-East, were collected from the respective west, south center, and east sides of the excavation cavity. Laboratory analytical results for these samples, which are summarized on Figure 3, showed elevated levels of gasoline constituents, with 39,000 ug/l of MTBE in the Water-Center grab groundwater sample.

A new building addition was constructed over the backfilled UST excavation cavity several years ago. This newer addition is concrete slab floored, with an approximately 12-foot ceiling height, and is apparently used for automobile washing and detailing.

Native soils beneath the site generally consist of silts and clays, with occasional interbedded clayey sand layers. During previous subsurface investigations at the site, groundwater was generally encountered in soil borings during drilling at a depth of about 11 feet, and has subsequently been measured in the three site wells at a depth of about five feet below surface grade.

Source Area Remedial Options and Selected Remedial Approach

While elevated levels of gasoline-range hydrocarbons were still present in soil and groundwater following UST removal and overexcavation activities, the contaminant of most concern would appear to be MTBE, which was encountered at relatively high concentrations in soil and grab groundwater samples from the excavation cavity. Also, excavation pit bottom soil samples were not collected; thus, the vertical extent of both soil and groundwater hydrocarbon impacts in the source area has not been defined. Given these conditions, it would seem that the highest priorities relative to source removal investigation and remediation would include: (1) Removing as much MTBE-impacted groundwater as possible; and (2) Characterizing the vertical extent of hydrocarbon, and particularly MTBE, impacts beneath the former UST excavation cavity. These activities should be expedited in order to minimize future migration of source area hydrocarbons.

The construction of the new building addition in the former UST area greatly hampers the ability to characterize and remediate hydrocarbons in the immediate source area. While it would be possible to drill soil borings within the new building addition, this would require specialized limited-access drilling equipment and would need to be completed during non-working hours. Options for remediation of source area soil and groundwater hydrocarbon impacts could include dual-phase (groundwater and soil vapor) extraction or chemical oxidation (ozone sparging, hydrogen peroxide injection). Again, the presence of the new building addition could significantly affect the remediation system design and greatly impede the time schedule relative to either of these remedial options. Also, given the expected low permeability of surrounding native soils, it

would seem expeditious to use the backfilled excavation cavity for remediation, either as a groundwater/SVE pumping gallery or as an chemical oxidant injection gallery.

Given the inherent difficulties posed by the new building addition, we propose to conduct source area characterization and remediation activities using angle borings and wells drilled outside the south (downgradient) side of the new building addition. Coincidentally, this downgradient side of the building provides the closest outside access to the former UST excavation cavity, and our calculations show, as depicted graphically on Figure 4, that a 35-degree from vertical angle boring drilled approximately three feet south from the south new building addition wall would encounter the backfilled UST cavity at about 7.0 vertical feet (8.5 drilled feet). Using this approach, we propose a three-step process, to include: (1) First drilling a single angle boring to test the ability to intersect the excavation backfill using this method and to characterize native soils beneath the former excavation cavity; (2) If the initial angle boring is successful in reaching the excavation backfill, then installing two angle wells adjacent to the previous investigative angle boring; and (3) Conducting Aggressive Fluid Vapor Recovery (AFVR) using the two newly-installed angle wells. AFVR technology consists of high-speed groundwater and subsurface vapor extraction utilizing high negative pressure applied via a vacuum truck. The application of high negative pressure to the well head: (1) Aggressively removes dissolved-phase hydrocarbon-impacted groundwater from the well; and (2) Effectively strips adsorbed hydrocarbons from the vadose zone and smear zones.

Proposed IRM Workplan

In accordance with the project approach summarized above, Gribi Associates proposes to: (1) Drill and sample a single angle soil boring south of the former UST excavation cavity and new building addition; (2) Install and sample two angle wells adjacent to the angle boring; and (3) Conduct weekly AFVR events for at least eight weeks or until significant hydrocarbon reductions are realized. If possible, the first two steps will be conducted concurrently with the previously-approved Soil and Water Investigation (SWI), thereby reducing costs and expediting the IRM.

The IRM will include the following workplan elements. All activities will be conducted in accordance with applicable local, State, and Federal guidelines and statutes.

Prefield Activities

Prior to implementing this workplan, written approval will be obtained from the Alameda County Department of Environmental Health (ACDEH). Also, soil boring and monitoring well installation permits will be obtained from Alameda County Zone 7 Water Agency, and 48-hour notification will be given to ACDEH prior to implementing field activities. In addition, proposed boring and well locations will be marked with white paint, and Underground Services Alert (USA) will be notified at least 48 hours prior to drilling. Also, a private underground utility locator will clear proposed boring locations. In addition, prior to implementing AFVR, necessary permits will be obtained from the Bay Area Air Quality Management District (BAAQMD). Prior

to initiating field activities, a Site Safety Plan will be prepared, and a tailgate safety meeting will be conducted with all site workers.

Location of Boring and Wells

Proposed angle boring and well locations are shown on Figure 5. The one angle boring and two wells will be located immediately south from the new building addition, adjacent to the south end of the former UST excavation cavity. Note that, based on results from the initial angle soil boring, the location of the two angle wells may be modified slightly if necessary.

Drilling and Sampling of Investigative Angle Boring

The investigative angle boring will be drilled to a vertical depth of approximately 17 feet (21 drilled feet) using direct-push hydraulically-driven soil coring equipment. Note that the limited depth for this boring is proposed to minimize the possibility of cross contaminating deeper zones, given the inherent difficulty in grouting a boring that extends through backfill material. Continuos soil cores will be collected to total depth in the boring in a clear plastic acetate tube, nested inside a stainless steel core barrel. After each four-foot core barrel is brought to the surface and exposed, the core will be sliced lengthwise to expose the soil core, examined, logged, and field screened for hydrocarbons by a qualified geologist using sight, smell, and an organic vapor monitor (OVM). Following completion, the investigative boring will be grouted to match existing grade using a cement\sand slurry. Soil cuttings generated during this investigation will be stored onsite in sealed DOT-approved containers.

Field data will be collected using a two-person team, to include at least one registered geologist. In addition, each soil core will first be sliced open lengthwise along the length of the acetate tube, allowing full examination and logging of the soil core prior to sampling. Soil samples will then be collected from specific zones of interest using glass jars with teflon-lined septums as follows: (1) The selected soil interval will be packed tightly into the jar, making sure that air pockets are minimized; (2) The jar will be tightly sealed with a teflon-lined cap; and (3) The sealed soil sample will be labeled and immediately placed in cold storage for transport to the analytical laboratory under formal chain-of-custody. All coring and sampling equipment will be thoroughly cleaned and decontaminated between each sample collection by triple rinsing first with water, then with dilute tri-sodium phosphate solution, and finally with distilled water. Cleaning rinseate will be contained onsite in a sealed drum pending laboratory results.

One grab groundwater sample will be collected from the investigative angle boring. This grab groundwater sample will be collected from the open boring by placing 1-1/4-inch diameter well casing in the boring. Groundwater will then be sampled using a clean small diameter bailer, and poured directly into laboratory-supplied containers. Each sample container will then be tightly sealed, labeled, and placed in cold storage for transport to the laboratory under formal chain-of-custody.

Installation and Sampling of Angle Extraction/Monitoring Wells

Two angle extraction/monitoring wells be installed following completion and evaluation of the angle soil boring investigation. The wells will be installed in accordance with standard well installation protocols using hollow stem auger equipment. Key considerations will include the following:

- If possible, large-diameter (ten-inch) hollow stem auger will be used to drill and install wells.
- Well screen will be placed within the UST excavation backfill, and will not extend significantly below the excavation cavity.
- Slot size and sand size will be maximized to allow for maximum groundwater removal.
- Upon completion, and prior to AFVR, the wells will be developed and sampled in accordance with standard sampling protocols.

Laboratory Analysis of Soil and Water Samples

Approximately six soil samples and three grab groundwater samples will be analyzed for the following parameters:

USEPA 8015M Total Petroleum Hydrocarbons as Gasoline (TPH-G)
USEPA 8020/602 Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)
USEPA 8260B Oxygenates & Lead Scavengers (TBA, MTBE, DIPE, ETBE, TAME, EDB, & 1,2-DCA)

All analyses will be conducted by a State-certified analytical laboratory with two-week turnaround on results.

Aggressive Fluid Vapor Remediation (AFVR)

At least eight weekly AFVR events will be conducted using a vacuum truck to extract both groundwater and vapors. The vacuum truck will be capable of drawing a minimum of 250 cubic feet per minute of air at 200-inches of water column negative pressure supplied. The vacuum truck will also be capable of extracting groundwater at a minimum rate of ten gallons per minute.

Prior to commencement of each AFVR event, a one-inch diameter PVC "drop tube" that is connected to the vacuum truck will be lowered through an air-tight seal attached to the well head. As vacuum is applied, the one-inch diameter drop tube will be extended down to the well to groundwater depth, and then below the groundwater depth as groundwater is "slurped" from the well. The extracted mixture of groundwater and soil vapor will be routed through a 5,000-gallon

tank of the vacuum truck, where extracted groundwater and product will fall out into the tank for offsite disposal at an approved recycler. Hydrocarbon vapors extracted during this event, will be routed through two (2) 1,000 pound granulated activated carbon vessels for removal of VOCs prior to discharge to the atmosphere through an eight-foot tall discharge stack.

To effectively remove hydrocarbon impacted groundwater and adsorbed-phase hydrocarbons from the subsurface, the completion of at least eight weekly eight-hour AFVR events is proposed. If, after completing eight AFVR events, a significant mass of hydrocarbons is still being removed, then the AFVR events will be continued, subject to ACDEH approval. Since the two wells will be located directly in the entrance of the Dublin Toyota maintenance garage, the AFVR events will be conducted after business hours, from approximately 7:00 PM to 3:00 AM.

AFVR Effectiveness Monitoring

During each AFVR event, groundwater and vapor flow rates will be recorded periodically, and a photoionization detector (PID) will be used to provide field evaluation of remediation effectiveness. Also, approximately two extracted soil vapor samples will be collected per event for laboratory analysis. The two soil vapor samples will be collected in Tedlar bags using a 12-volt DC vacuum pump to remove soil vapors from the extracted vapor stream. The filled and labeled Tedlar bag samples will be placed in an un-cooled cooler to help maintain the samples within a normal temperature range for transport to the analytical laboratory under formal chain-of-custody requirements.

Prior to each AFVR event, representative groundwater samples will be collected from the two extraction wells. The groundwater samples will be collected using a disposable polyethylene bailer. The samples will be placed in laboratory-supplied containers, which will then be labeled and placed on ice for transport to the analytical laboratory under formal chain-of-custody requirements.

The two soil vapor and two groundwater samples from each AFVR event will be analyzed for the following parameters within standard hold times.

USEPA 8015M Total Petroleum Hydrocarbons as Gasoline (TPH-G)
USEPA 8020/602 Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)
USEPA 8260B Oxygenates & Lead Scavengers (TBA, MTBE, DIPE, ETBE, TAME, EDB, & 1,2-DCA)

All laboratory analyses will be conducted by a California-certified analytical laboratory.

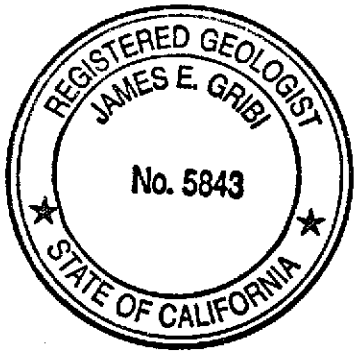
Preparation of Summary Report

A final IRM report of findings will be prepared for submittal to Alameda County Department of Environmental Health. This report will describe all investigative methods and results, and will include tabulated laboratory analytical results, as well as laboratory reports and chain-of-custody records.

We appreciate this opportunity to provide this report for your review. Please contact us if there are questions or if additional information is required.

Very truly yours,

James E. Gribi
Registered Geologist
California No. 5843



Enclosure

cc: Mr. Scott Anderson, Dublin Toyota

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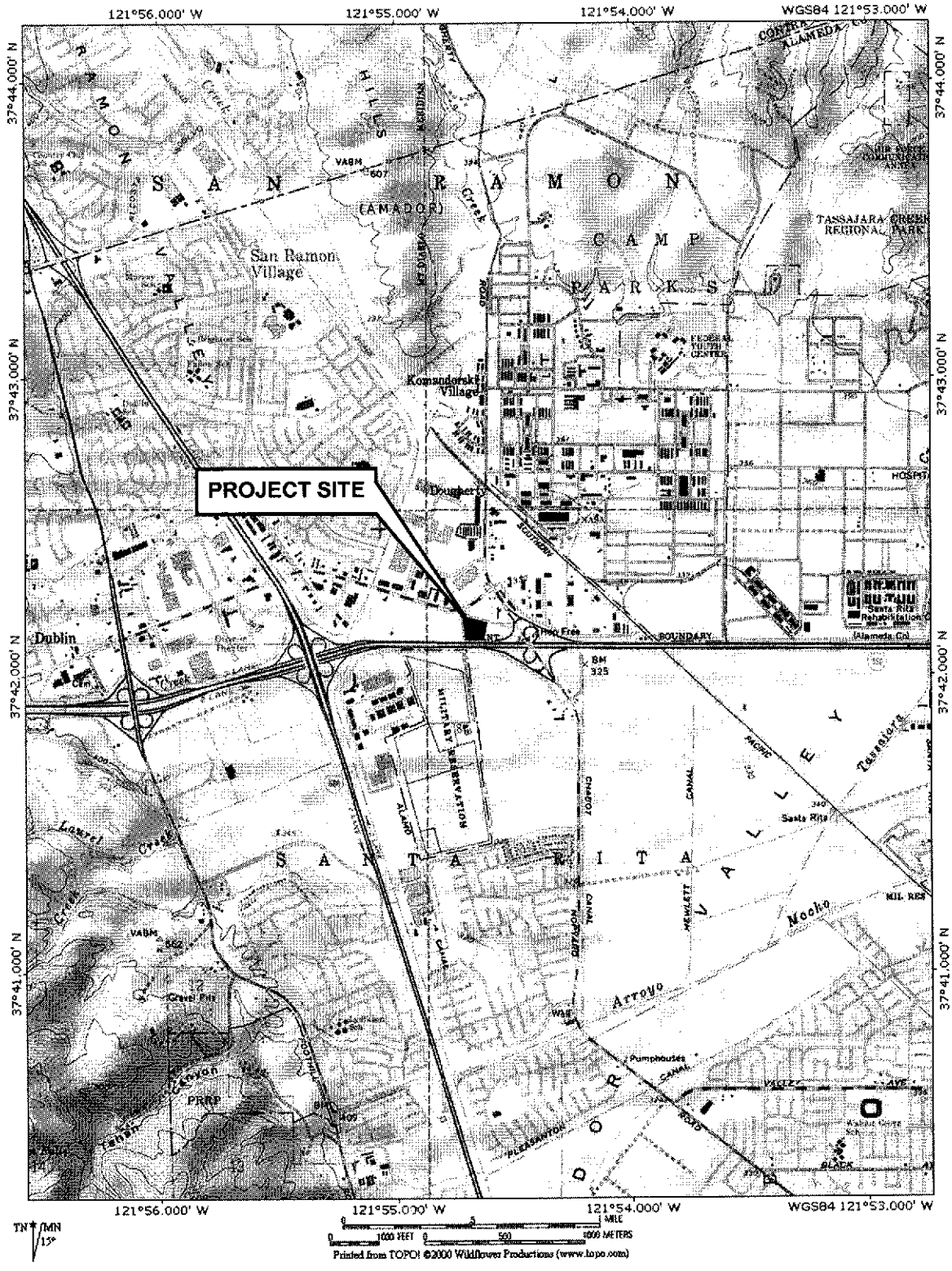

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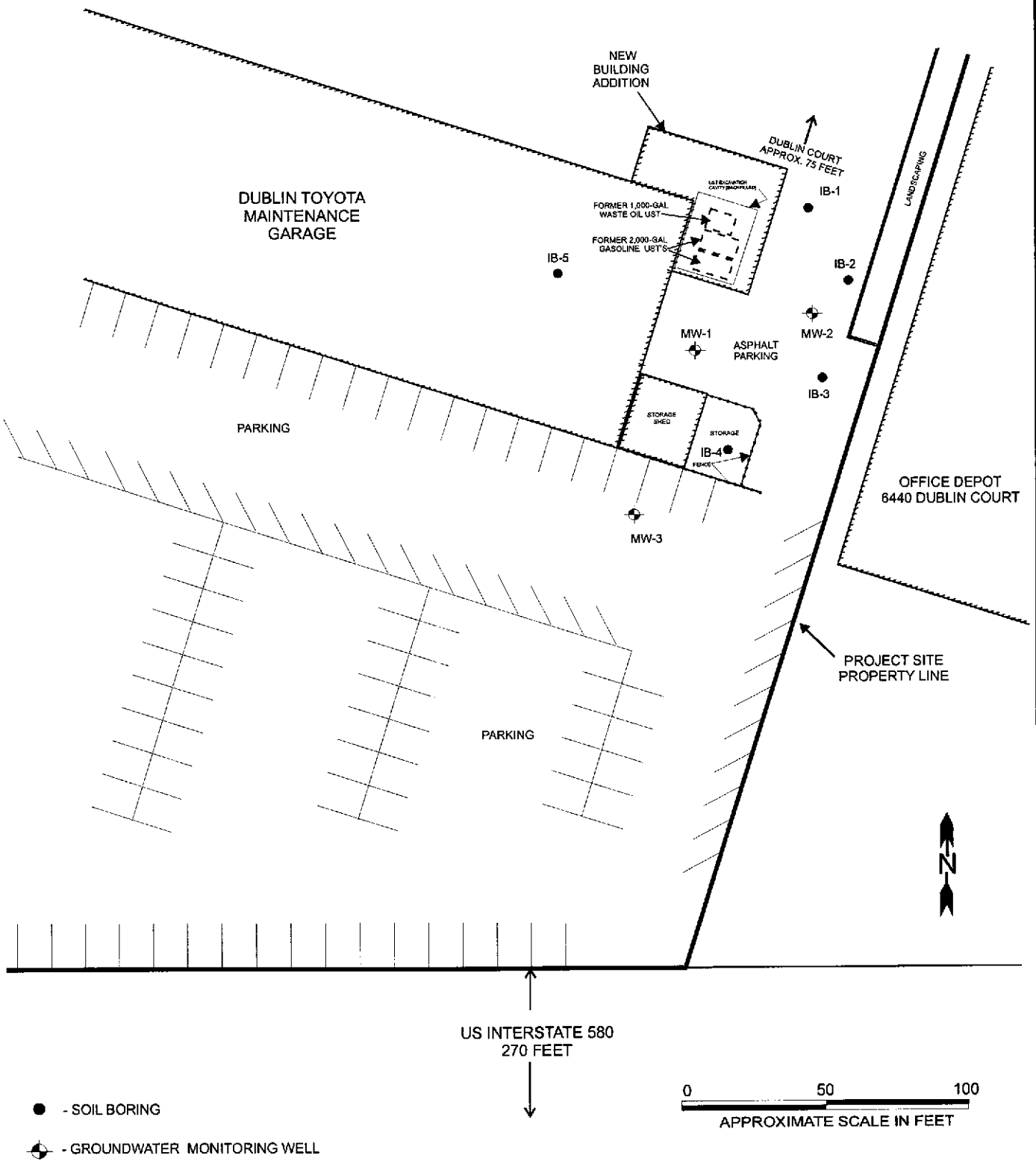
PROJECT NO: 147-01-01			



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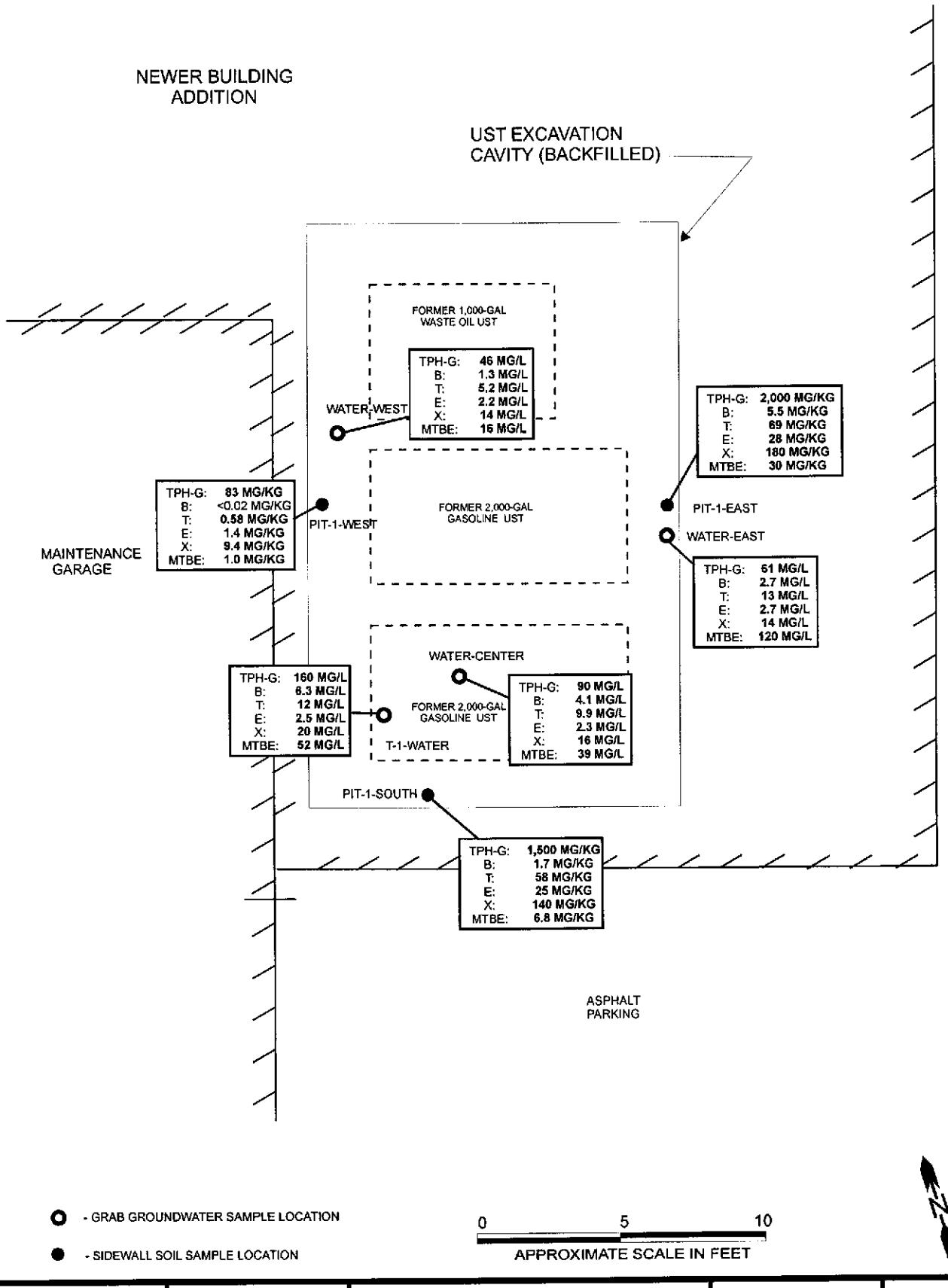

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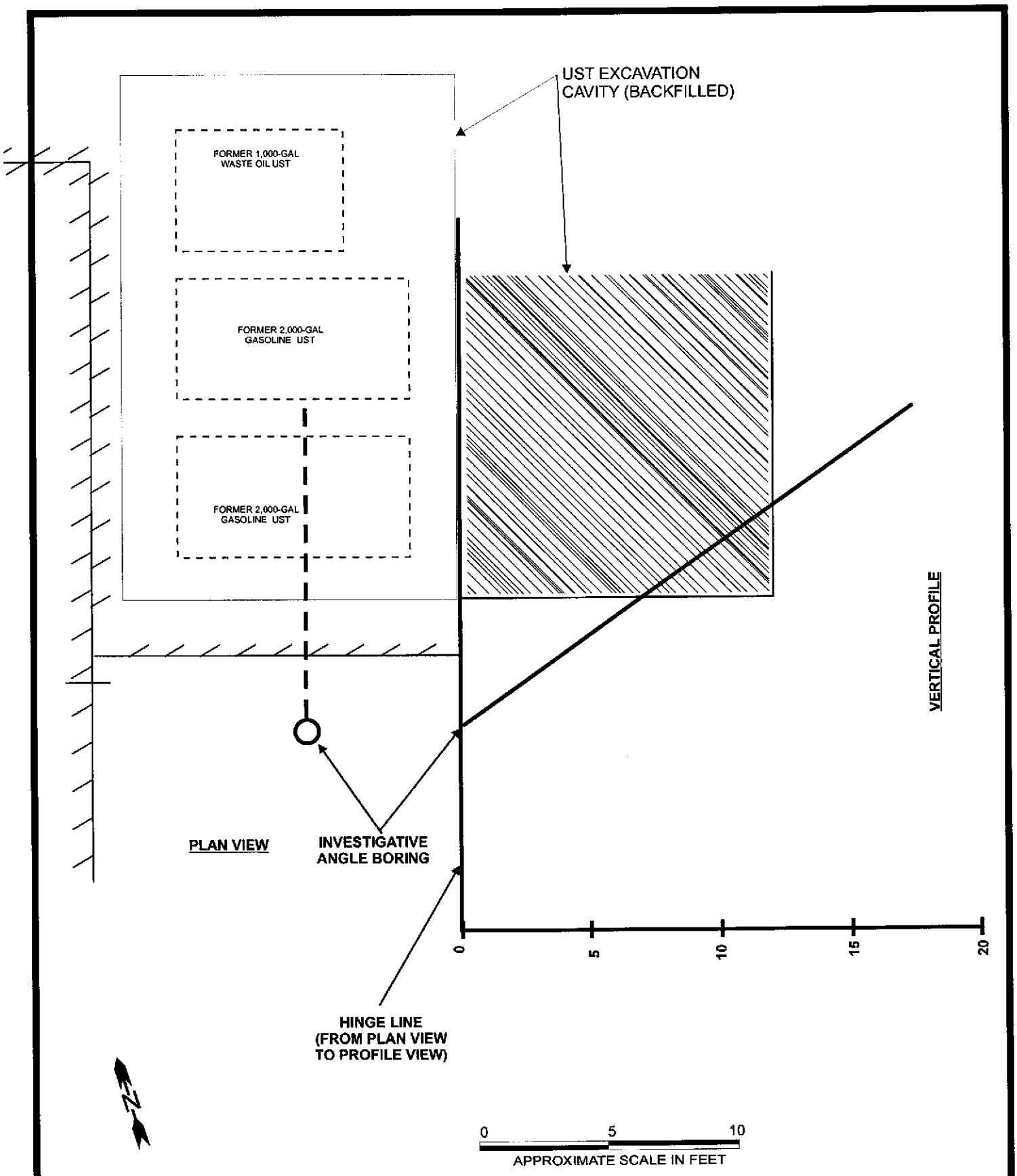

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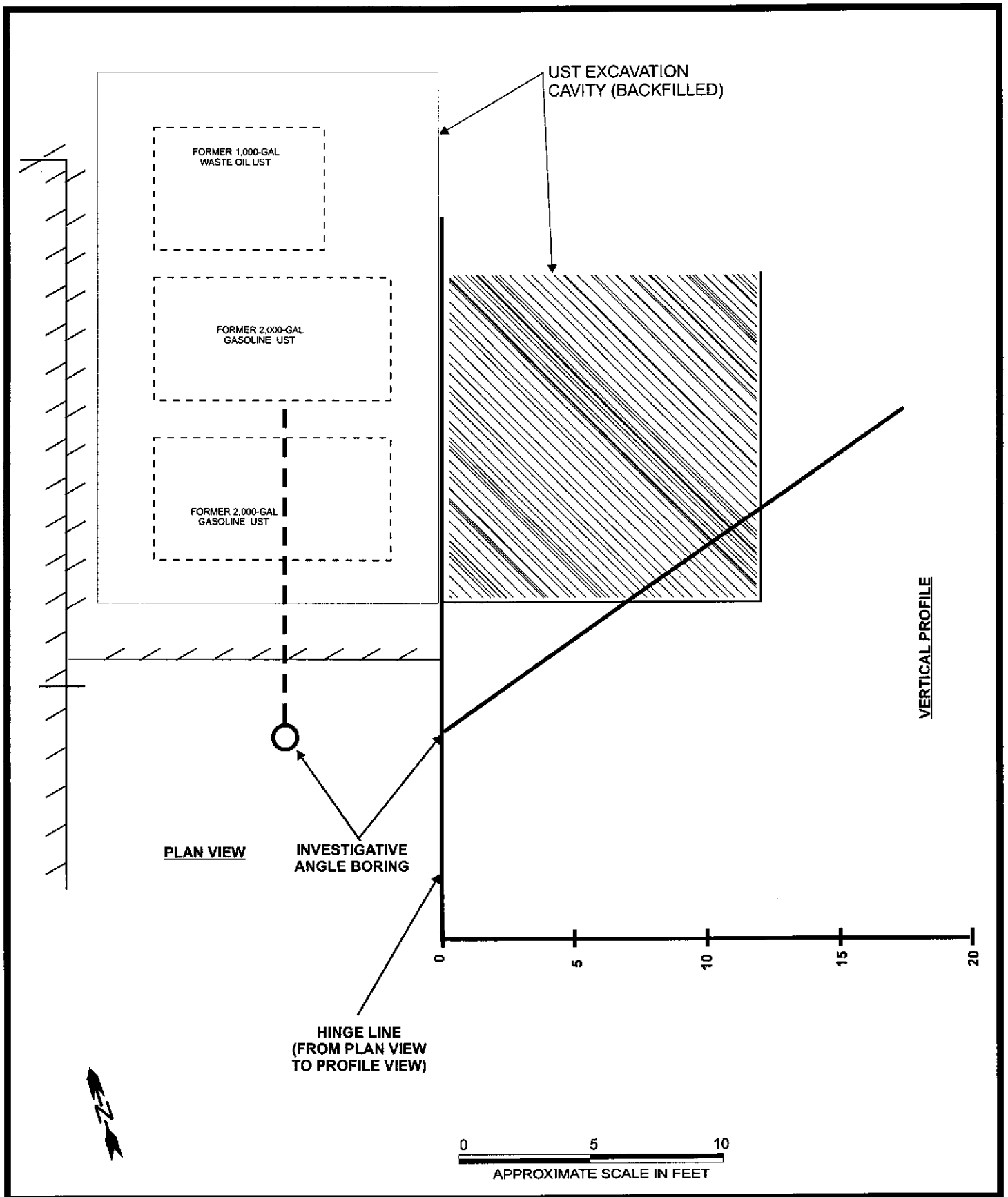

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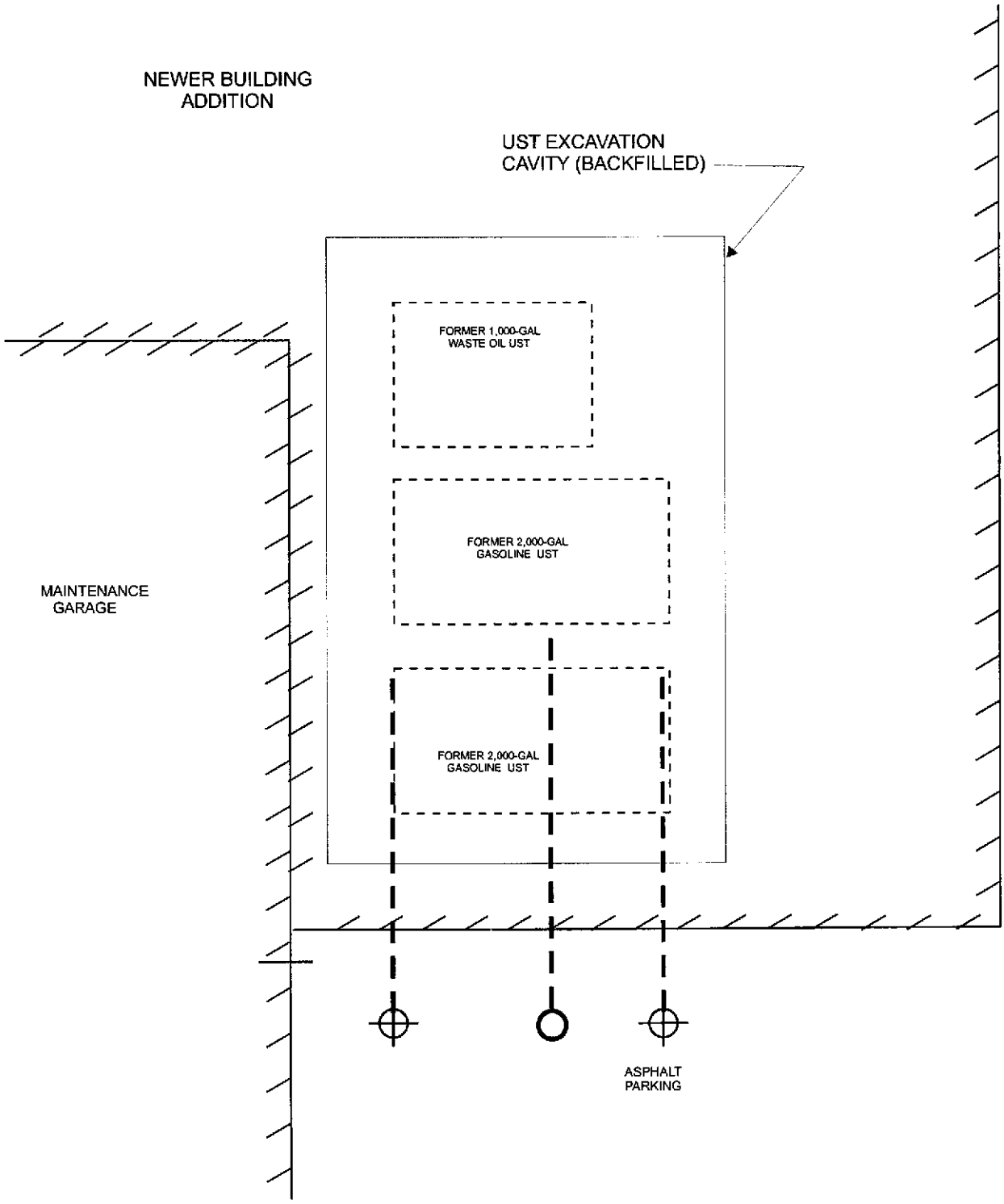

- PROPOSED INVESTIGATIVE ANGLE BORING LOCATION

- PROPOSED ANGLE EXTRACTION/MONITORING WELL LOCATION

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APPROXIMATE SCALE IN FEET

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DESIGNED BY:	CHECKED BY:	**PROPOSED BORING AND WELL LOCATIONS** DUBLIN TOYOTA UST SITE 6450 DUBLIN COURT DUBLIN, CALIFORNIA	DATE: 03/18/05	FIGURE: 5
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PROJECT NO: 147-01-03				