29 September 2006

Mr. Steven Plunkett
Alameda County Environmental Health Department
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

Attention: Mr. Steven Plunkett

Subject: Revised Workplan for Limited Site Investigation and Well Installation Activities
2900 Main Street
Alameda, California 94501

Dear Mr. Plunkett:

On behalf of Alameda Gateway Limited (Alameda Gateway), ERM-West, Inc. (ERM) has prepared this *Workplan for Limited Site Investigation and Well Installation Activities* (workplan) for the site located at 2900 Main Street, Alameda, California (site). As requested in a 3 May 2006 letter from the Alameda County Environmental Health Department (ACEH) to Alameda Gateway, and per the 6 September 2006 proposal from ERM to Mr. John Beery, this workplan has been prepared to address data gaps identified by ACEH.

This workplan presents the following information:

- Project background, including a site description and history and a brief summary of previous investigations;
- Objectives of the proposed investigation;
- Proposed scope of work to address investigation objectives;
- The scope of the summary report to be prepared upon completion of investigation activities; and
- A schedule for implementing the proposed scope of work and preparing the associated summary report.

BACKGROUND

This section presents a site description, site history, and a summary of previous investigations at the site.

Site Location and Description

The site is located at 2900 Main Street, Alameda California (Figure 1), in a primarily industrial part of Alameda. The site is approximately 50 acres in size and is comprised of three piers and several structures owned and leased by Alameda Gateway (Figure 2). The site is triangular in shape and is bordered to the north by the Oakland Harbor. To the west is Main Street and the northwest portion of the site abuts the Alameda Ferry Terminal. To the east is a spur railroad track beyond which is the Naval Supply Center. The main entrance to the site is approximately 0.5 miles east of the main gate of the former U.S. Naval Air Station Alameda (NAS Alameda), which dominates the surrounding area.

The investigation proposed herein focuses on the locations of three former underground storage tanks (USTs). These USTs (#85a/85b, #133, #137) are shown relative to site features on Figure 2.

Site History

Until the early 1900's the site and the surrounding area was undeveloped marshlands and tidal flats along the San Francisco Bay. In 1912, Southern Pacific Railroad Company (SP) began development of the site, including the construction of a large warehouse (currently Building 61, Figure 2) for the repair, maintenance and painting of railcars. The site was the principal west coast service base for SP for many years. At some time near the start of World War II, the property was taken over and operated in turn by Matson Steamship Lines, United Engineering Co., Ltd., and Todd Shipyard Corporation (Todd). Todd operated the property until 1983 when they sold the property to Alameda Gateway, the current owner.

Previous Investigations

Various consultants at the site have conducted subsurface environmental investigations beginning in the mid-1980's. Four USTs were removed

from the property in 1990 by Mittelhauser Corp. Limited soil over-excavation and soil sampling occurred at this time.

In November 1992, three groundwater monitoring wells were installed to characterize the possible groundwater contamination associated with the former USTs. Soil and groundwater samples collected during this effort confirmed the presence of petroleum hydrocarbons in the vicinity of the former USTs.

In 2001, Greensfelder & Associates conducted a limited soil and groundwater investigation, which included advancing a total of 12 borings in the vicinity of former USTs #137 and #85a/85b. Analytical data generated during this investigation indicate the presence of petroleum hydrocarbons in soil and groundwater in the area of both former USTs.

PROJECT OBJECTIVE

The objective of this proposed investigation is to determine what, if any, lingering impacts to site soil and groundwater exist as a result of the former USTs.

PROPOSED SCOPE OF WORK

To meet the stated project objective, the following scope of work has been developed:

- Conduct a limited soil and groundwater investigation and install a replacement well for lost Well MW-3 (UST #85a/85b);
- Conduct a limited soil and groundwater investigation and install a replacement well adjacent to the former area of MW-2 (UST #133);
- Conduct a limited soil and groundwater investigation in the vicinity of MW-1 (UST #137);
- Perform quarterly groundwater monitoring of 3 wells for one year; and
- Conduct research and mapping of utilities in the area of UST #137, including on-site sewer lines and the EBMUD corridor.

The following subsections detail the methods and procedures associated with the scope of work.

Permitting and Utility Clearance

Prior to implementing the field investigation activities, ERM will secure all appropriate permits to complete the scope of work, including drilling permits from the Alameda County Public Works Agency.

Prior to conducting field activities, all proposed drilling locations will be marked. Underground Services Alert (USA), a notification service for marking underground utilities on public rights of way, will be notified 48 hours prior to initiating the proposed work. In addition to notifying USA, all proposed drilling locations will be cleared by a private utility locating service to minimize the chance of encountering underground utilities during the investigation activities.

Limited Soil and Groundwater Investigation and Replacement Well MW-3A (UST #85a/85b)

In their 3 May 2006 letter, ACEH requested that existing monitoring wells MW-1 and MW-3 be either located and restored or replaced. MW-1 has recently been successfully re-located and is in serviceable condition. MW-3, however, has not been located and as a result replacement well MW-3A will be installed in the vicinity of former UST #85a/85b (Figure 3).

In an effort to determine if impacts to soil and groundwater remain in this area, four soil borings will be advanced, one to the north, south, east and west of former UST #85a/85b. The locations of the proposed borings are shown on Figure 3. If visual signs of impacts are observed in the field, additional borings may be completed at the time of the investigation. The soil borings will be advanced with a direct push drill rig. Soil samples will be collected continuously for physical characterization and chemical analysis. As part of the soil characterization activities, the soil samples will be (1) visually examined to characterize the subsurface geology according to the Unified Soil Classification System, (2) evaluated for visible evidence of contamination, and (3) field-screened with a photoionization detector (PID) for the presence of organic vapors. Soil descriptions and results of the PID screenings will be documented on an associated boring log. Soils samples will be collected for chemical analysis at the capillary

fringe, immediately above first groundwater, and any additional interval where there is evidence of impacts. Soil samples will be collected in 6-inch acetate sleeves, capped with Teflon tape and plastic end caps and stored in an iced cooler.

Upon reaching first groundwater, a temporary well constructed of 1-inch-diameter PVC will be installed in the boring and a grab groundwater sample will be collected. Groundwater samples will be collected into laboratory-provided containers and stored in an iced cooler. Soil and groundwater samples will be submitted under proper chain-of-custody procedures to a California-certified laboratory for the following analyses:

- Total Petroleum Hydrocarbons as diesel and motor oil (TPH-d, TPH-mo) by United States Environmental Protection Agency (USEPA) Method 8015M; and

- Total Petroleum Hydrocarbons as gasoline (TPH-g), benzene, ethyl benzene, toluene and xylenes (BTEX) and methyl-tert-butyl-ether (MTBE) by USEPA Method 8015M/8021.

Upon completion of the soil and groundwater sampling, the borings will be abandoned using a neat-cement via tremmie, according to Alameda County Public Works Agency guidelines.

The soil boring to the north of former UST #85a/85b will be converted to replacement monitoring well MW-3A using a conventional drill rig equipped with 8-inch-diameter hollow stem augers (HSA). The monitoring well will be constructed of 2-inch-diameter, polyvinyl chloride (PVC) with 5 feet of 0.010-inch slotted PVC screen from approximately 10 to 15 feet bgs and blank riser to surface. The exact screen interval will be based upon observations made in the field during completion of the co-located soil boring. An appropriate filter pack will be emplaced in the annular space to approximately 2 foot above the top of the screen interval. The transition seal will consist of approximately 2 feet of bentonite chips hydrated for approximately 30 minutes before the remainder of the annular space is backfilled with neat cement. The grout will be emplaced via tremmie, according to Alameda County Public Works Agency guidelines. The well will be fitted with an expandable locking cap and will be completed at the surface with a flush-mounted, steel, protective road box.

Following installation, the new monitoring well will be developed no sooner than 72 hours following placement of the grout seal. The well will be developed by pumping or bailing a minimum of 10 casing volumes of water from the well. The well will also be surged during development to remove any sediment that may have entered during installation. Stabilization parameters (pH, specific conductance, turbidity, and temperature) will be monitored during development.

Limited Soil and Groundwater Investigation and Replacement Well MW-2A (UST #133)

Army Corp. of Engineers, on behalf of the Port of Oakland recently widened the channel adjacent to the project site in an effort to produce a turning basin for vessels. As a part of these widening activities, a portion of the site bordering the Oakland Inner Harbor was removed, including Building 133 and MW-2. In addition, a bulkhead was constructed in this area and transects the former location of Building 133 and MW-2 (Figure 4). A majority of the soil impacts associated with UST #133, located on the seaward side of the bulkhead, were removed during this effort and the contaminated soil was disposed of. Details of the construction of the bulkhead, and a review of the analytical data and soil disposal procedures will be documented in the summary report discussed below.

In an effort to determine if impacts to soil remain in this area, five soil borings will be advanced on the landward side of the new bulkhead. The locations of the proposed borings are shown on Figure 4. Three additional "contingency borings" are also shown on Figure 4 and will only be completed if visual signs of impacts are seen in the field. The soil borings will be advanced with a direct push drill rig. Soil samples will be collected continuously for physical characterization and chemical analysis. As part of the soil characterization activities, the soil samples will be (1) visually examined to characterize the subsurface geology according to the Unified Soil Classification System, (2) evaluated for visible evidence of contamination, and (3) field-screened with a photoionization detector (PID) for the presence of organic vapors. Soil descriptions and results of the PID screenings will be documented on an associated boring log. Soils samples will be collected for chemical analysis at the capillary fringe, immediately above first groundwater, and any additional interval where there is evidence of impacts. Soil samples will be collected in 6-inch acetate sleeves, capped with Teflon tape and plastic end caps and stored in an iced cooler.

Upon reaching first groundwater, a temporary well constructed of 1-inch-diameter PVC will be installed in the boring and a grab groundwater sample will be collected. Groundwater samples will be collected into laboratory-provided containers and stored in an iced cooler. Soil and groundwater samples will be submitted under proper chain-of-custody procedures to a California-certified laboratory for the analysis listed above.

Upon completion of the soil and groundwater sampling, the borings will be abandoned using a neat-cement via tremmie, according to Alameda County Public Works Agency guidelines.

Based upon the results of the grab groundwater samples, one monitoring well (MW-2A) will be installed. The monitoring well will be installed using a conventional drill rig equipped with 8-inch-diameter HSAs. The well will be constructed of 2-inch-diameter PVC with 5 feet of screen from approximately 4 to 9 feet bgs with blank riser to the surface. The exact screen interval will be based upon field observations. An appropriate filter pack will be emplaced in the annular space to approximately 2 foot above the top of the screen interval. The transition seal will consist of approximately 2 feet of bentonite chips hydrated for approximately 30 minutes before the remainder of the annular space is backfilled with neat cement. The grout will be emplaced via tremmie, according to Alameda County Public Works Agency guidelines. The well will be fitted with an expandable locking cap and will be completed at the surface with a flush-mounted, steel, protective road box.

Following installation, the new monitoring well will developed, as described above.

Limited Soil and Groundwater Investigation (UST #137)

Four soil borings will be advanced adjacent to former UST #137 in order to determine what, if any, impacts to soil and groundwater remain in the vicinity. The locations of the proposed borings are shown on Figure 5. If visual signs of impacts are observed in the field, additional borings may be completed at the time of the investigation. The soil borings will be advanced with a direct push drill rig. Soil samples will be collected continuously for physical characterization and chemical analysis. As part of the soil characterization activities, the soil samples will be (1) visually examined to characterize the subsurface geology according to

the Unified Soil Classification System, (2) evaluated for visible evidence of contamination, and (3) field-screened with a photoionization detector (PID) for the presence of organic vapors. Soil descriptions and results of the PID screenings will be documented on an associated boring log. Soils samples will be collected for chemical analysis at the capillary fringe, immediately above first groundwater, and any additional interval where there is evidence of impacts. Soil samples will be collected in 6-inch acetate sleeves, capped with Teflon tape and plastic end caps and stored in an iced cooler.

Upon reaching first groundwater, a temporary well constructed of 1-inch-diameter PVC will be installed in the boring and a grab groundwater sample will be collected. Groundwater samples will be collected into laboratory-provided containers and stored in an iced cooler. Soil and groundwater samples will be submitted under proper chain-of-custody procedures to a California-certified laboratory for the analysis listed above.

Upon completion of the soil and groundwater sampling, the borings will be abandoned using a neat-cement via tremmie, according to Alameda County Public Works Agency guidelines.

Recovered monitoring well MW-1 will be re-developed in conjunction with the development of the new monitoring wells in order to insure it is in working condition following a period of inactivity. MW-1 will be developed using the techniques discussed above.

Investigation-derived wastes (IDW) generated during the well installation and sampling activities will include soil cuttings, development water, and purge water. IDW will be contained on site in 55-gallon steel drums pending waste characterization. The IDW will then be properly disposed off site in accordance with local, state, and federal regulations at a licensed disposal facility.

A California-registered land surveyor will survey the horizontal coordinates, ground surface elevation, and top of casing elevation for the new monitoring wells. Northing and easting coordinates will be surveyed relative to the 1983 North American Datum (NAD 83) with an accuracy of ± 1.0 foot horizontal. Elevations will be surveyed relative to the 1988 National Geodetic Vertical Datum (NGVD 88) with an accuracy of ± 0.01 foot vertical.

Stockpiled Soil Documentation

During the original removal and over-excavation of former USTs #85a/85b, #133 and #137 the excavated soils were stockpiled on-site. ACEH has requested that the appropriate documentation regarding the sampling and off-haul of the soils be provided.

A review of historical documents and reports will be conducted in an effort to determine the fate of the stockpiled soils. Documentation of this review will be included in the summary report, discussed below.

Quarterly Groundwater Monitoring

Following installation of new monitoring wells MW-2A and MW-3A, quarterly groundwater monitoring of three wells (MW-1, MW-2A and MW-3A) will commence for one year. During each quarterly groundwater monitoring event, depth to water measurements will be taken at each well prior to collection of groundwater samples.

Each well will be sampled using traditional purge-and-sample techniques. A minimum of three well casing volumes will be removed using a pump or a disposable bailer and stabilization parameters (pH, specific conductance, turbidity, and temperature) will be monitored. Once the parameters have stabilized, groundwater samples will be collected into laboratory-provided containers and stored in an iced cooler. Samples will be sent under proper chain-of-custody procedures to a California-certified laboratory for the following analyses:

- TPH-d, TPH-mo by USEPA Method 8015M;
- TPH-g by USEPA Method 8015M; and
- Volatile Organic Compounds (VOCs) by USEPA Method 8260B.

Following each sampling event, a quarterly groundwater monitoring report summarizing the groundwater flow direction and gradient, as well as the analytical results will be submitted to ACEH.

Utility Survey

A utility survey will be completed in the vicinity of UST #137 to evaluate the possibility that a preferential pathway for the migration of contaminants exists along adjacent utility corridors.

The utility survey will include review of facility maps, field reconnaissance, discussions with facility staff, and communication with East Bay Municipal Utility District (EBMUD) regarding the location of their utilities, including the sanitary sewer line. In addition, a private utility locator may be retained to survey the area for additional subsurface utilities.

REPORTING

Following completion of the site investigation and well installation activities, ERM will evaluate the data generated during the investigation and will prepare a summary report. The report will present a description of the work performed, an evaluation of the soil and ground water analytical results, a data quality review, conclusions, and recommendations. The report will include graphical and tabular presentations of the data as well as the original, raw data in appendices.

The appropriate ERM professionals (e.g., Professional Geologist, Professional Engineer) will certify the report prior to its submittal to the ACEH.

SCHEDULE

The scope of work described herein will be completed six weeks following approval of the workplan by ACEH.

CLOSING

On behalf of Alameda Gateway, ERM is pleased to submit this workplan to the ACEH, and appreciates your prompt review. If you have any questions or comments regarding this submittal, please direct them to either of the undersigned at 925-946-0455.

Sincerely,

John O. Cavanaugh, P.G.
Partner-in-Charge

JOC/rls/0055161.00

Enclosures – Figures 1 through 5

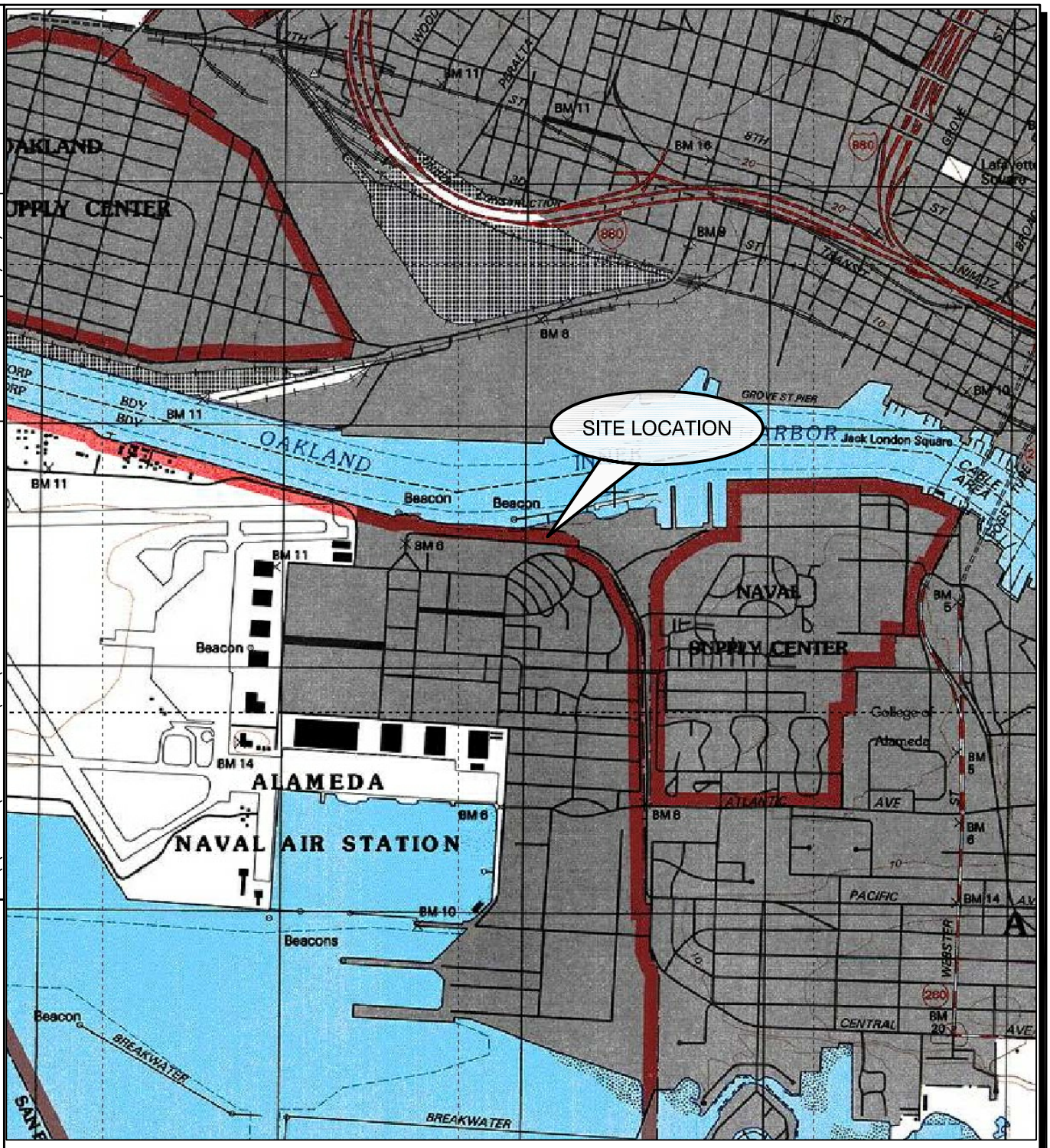
Figures

Project No. 0055161.00

Date: 09/11/06

Drawn By: J. Mason

CAD File: G:\DWGS\00055161\00\0055161100.01



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1 .5 0 1 KILOMETER

N

References:
TOPO!® Software
U.S.G.S. 7.5 Minute Series (Topographic) Quadrangle,
Alameda, California
Dated: 1993

Figure 1
Site Location Map
2900 Main Street
Alameda, California

ERM 09/06

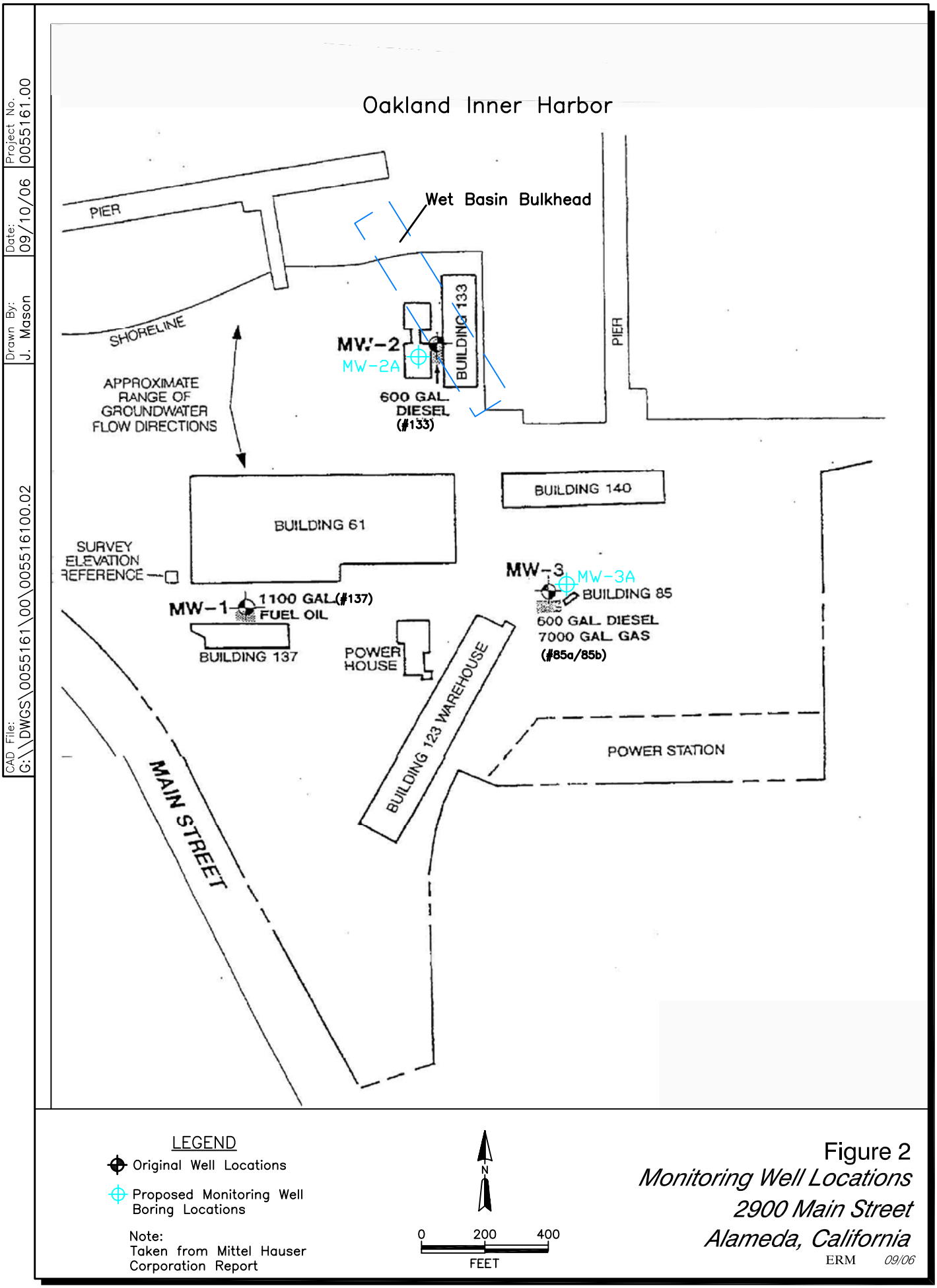

Figure 2
Monitoring Well Locations
2900 Main Street
Alameda, California
ERM 09/06

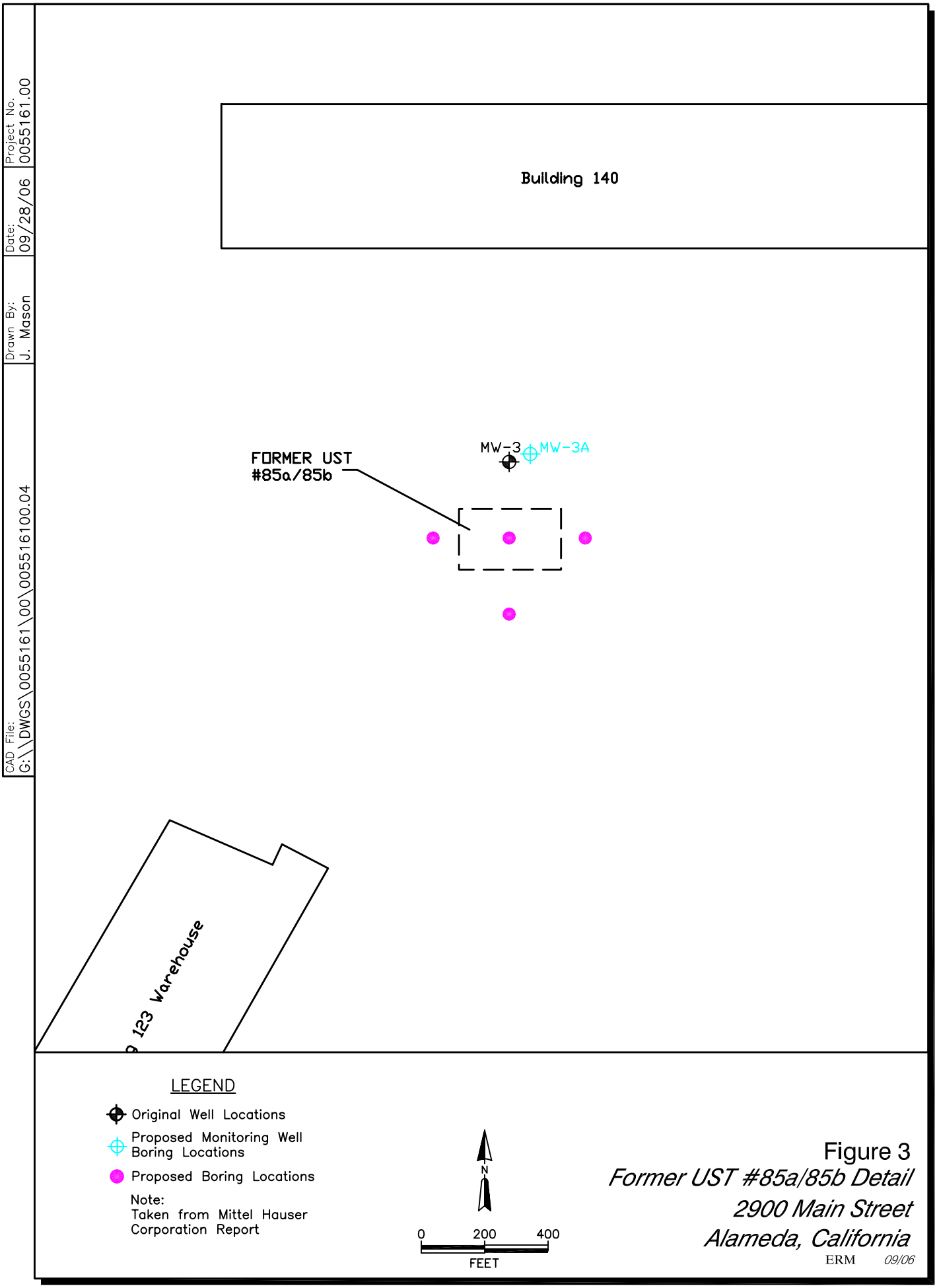

Figure 3

Former UST #85a/85b Detail

2900 Main Street

Alameda, California

ERM *09/06*

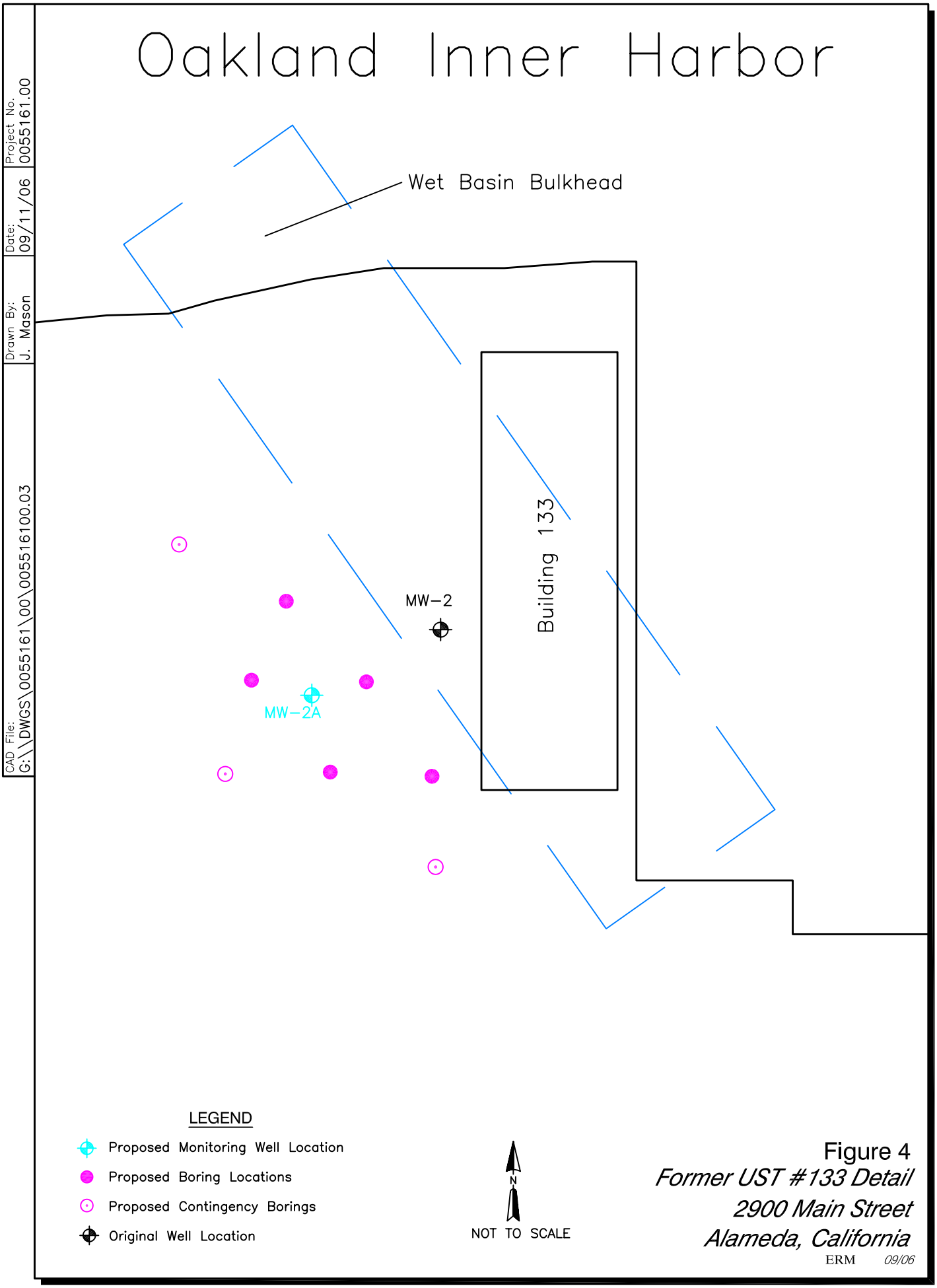

Figure 4
Former UST #133 Detail
2900 Main Street
Alameda, California
ERM 09/06

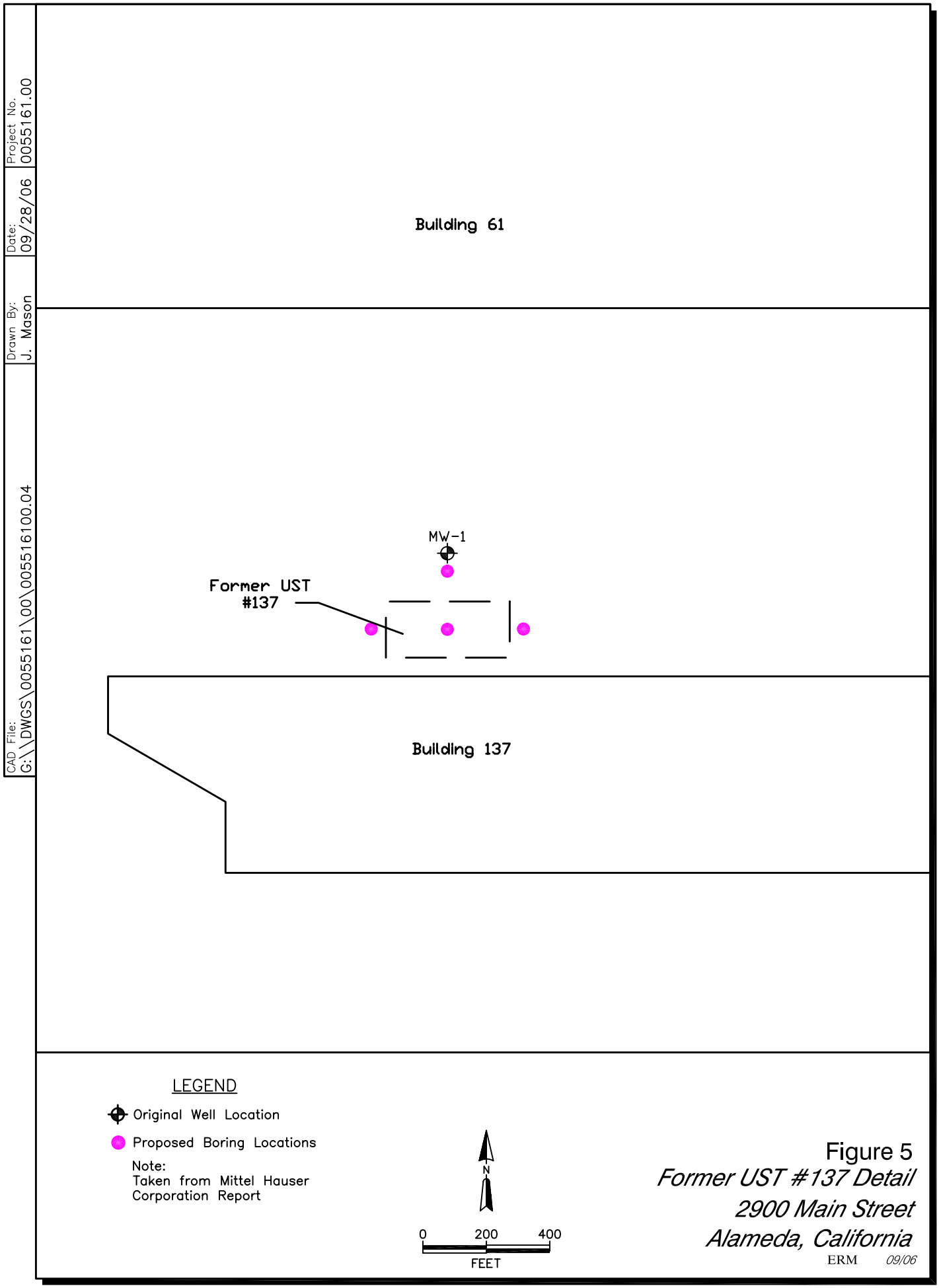

Figure 5
Former UST #137 Detail
2900 Main Street
Alameda, California
ERM 09/06