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March 4, 2009

003-09155-03

Mr. Paresh Khatri
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: Groundwater Monitoring Plan for the former Pacific Electric Motors Site located at 1009 66th Avenue, Oakland, California, Fuel Leak Case Number RO0000411

Dear Mr. Khatri:

This letter presents the proposed Groundwater Monitoring Plan for the former Pacific Electric Motors Site located at 1009 66th Avenue, Oakland, California ("the Site"; Figures 1 and 2). The objective of the groundwater monitoring activities is to collect field data to assess the groundwater flow direction and gradient, and groundwater quality over time at the Site. The analytical data will also be used to assess the effectiveness of the groundwater remediation that is proposed to take place at the Site.

SITE DESCRIPTION

The approximately 2.5-acre Site is the location for a proposed Aspire Charter High School on the western side of 66th Avenue between East 14th Street to the north and San Leandro Street to the south (Figure 1). The area around the Site is developed with a mixture of commercial, industrial, government, and multi-family residential buildings. The Site was previously used for manufacturing and warehousing. Past operations at the Site included manufacturing of specialty magnets, power supplies, and components used in high-energy physics, and repairing and rebuilding of motors, generators, transformers, and specialty magnets. Additional historical land use information for the Site was presented in the report prepared by LFR Inc. (LFR) entitled "Additional Supplemental Site Investigation," dated January 23, 2006.

SITE HYDROGEOLGY

Based on descriptions of soil samples collected during the drilling of soil borings for groundwater monitoring wells installed at the Site, sediments consist of an interval of fine-grained sediment (silt and clay) with relatively thin (less than 1 foot thick), discontinuous intervals of more permeable fine- to coarse-grained sand and gravels from the ground surface to approximately 20 to 21 feet below ground surface (bgs). The relatively thin, discontinuous intervals comprised of more permeable fine- to coarse-grained sand and gravels have generally been encountered between approximately 5 and 17 feet bgs. These sediments contain the shallow or first groundwater at the

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Site, and represent the interval of "shallow zone" groundwater at the Site. During the winter, or rainy season, groundwater has been observed within the sediments in the upper 5 feet.

An interval of poorly graded, coarser grained sediments comprised of fine sand and gravel was consistently encountered from approximately 21 to 34 feet bgs. This interval of coarser grained sediments contains groundwater and represents the "deeper zone."

Depth to groundwater measured in wells and soil borings drilled at the Site for the collection of grab groundwater samples ranges from approximately 3 to 6 feet bgs, suggesting the groundwater at the Site is confined.

GROUNDWATER MONITORING

Periodic groundwater monitoring is proposed to be conducted on a quarterly basis for approximately one year. The quarterly monitoring periods are defined as follows:

1. First Quarter: January through March
2. Second Quarter: April through June
3. Third Quarter: July through September
4. Fourth Quarter: October through December

A total of 21 groundwater monitoring wells are located on the Site. In addition, 16 air injection and 8 soil vapor extraction wells are located at the Site (Figure 2). A summary of the wells and the proposed monitoring schedule is summarized in Table 1. As indicated, samples will be collected from each groundwater monitoring well with the exception of the intermediate zone "nested wells". Samples will be collected from the intermediate zone "nested wells" once a year, during the fourth quarterly monitoring period.

The quarterly groundwater monitoring will consist of first measuring the depth to groundwater in each of the groundwater monitoring wells using a depth-to-water-level sounder. The depth to groundwater will be recorded on a field sheet after two consistent depth-to-water measurements are made back to back. Following the water-level monitoring, each well will be purged and sampled. Purging and sampling will be completed using conventional low-flow techniques in accordance with the EPA's protocol published in the April 1996 "Ground Water Issue" under the title "Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures."

A low-flow pump such as an electrical peristaltic pump will be used to minimize the drawdown during purging. General water-quality parameters will be monitored during well purging using an in-line monitoring device. Groundwater samples will be collected after the general water-quality parameters have stabilized for three successive readings to within the following criteria:

- pH ± 0.5 unit
- electrical conductivity ± 5%
- turbidity or dissolved oxygen ± 10%

Groundwater samples will be collected using the low-flow pump and placed into the appropriate laboratory-supplied groundwater sample containers. The sample containers will be properly labeled and placed in an ice-chilled cooler for transportation to the analytical laboratory. The samples will be analyzed by a California-certified analytical laboratory for those compounds detected previously at the Site, namely for total petroleum hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, and total xylenes (BTEX), and Fuel oxygenates as summarized in the sample matrix provided as Table 1.

Groundwater monitoring is proposed to be conducted for four consecutive quarters, for a period of one year. Following the completion of one year of groundwater monitoring and reporting, the monitoring schedule (including the number of wells to be monitored) will be revaluated.

Task 4: Reporting

Quarterly groundwater monitoring reports will be prepared following each quarterly groundwater monitoring event described above. The quarterly monitoring reports will include summary tables of groundwater elevations and analytical data; figures presenting groundwater elevation contours, approximate flow direction, and analytical data; and a discussion of the monitoring results. Copies of relevant field forms such as well purge field forms and chain-of-custody forms, and copies of the certified analytical reports will be included in the appendices of each quarterly monitoring report. LFR will also inform the ACEH of significant findings of the monitoring as they become available.

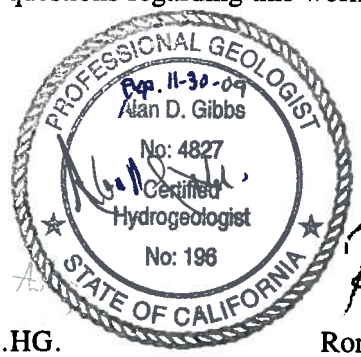
Schedule

After receiving approval from ACEH for this groundwater monitoring plan, LFR will initiate the quarterly groundwater monitoring program described above. Quarterly groundwater monitoring reports will be submitted to ACEH within 45 days after the end of each quarter.

In accordance with ACEH, all reports will be uploaded to the ACEH file transfer protocol site and to the Regional Water Quality Control Board GeoTracker database.

LFR will begin implementing the scope of work described above following concurrence from the ACEH. If you have any questions regarding this work plan, please contact either of the undersigned.

Sincerely,



Alan D. Gibbs, P.G., C.HG.
Vice President/Principal Hydrogeologist

Ron Goloubow
Senior Associate Geologist

Attachments

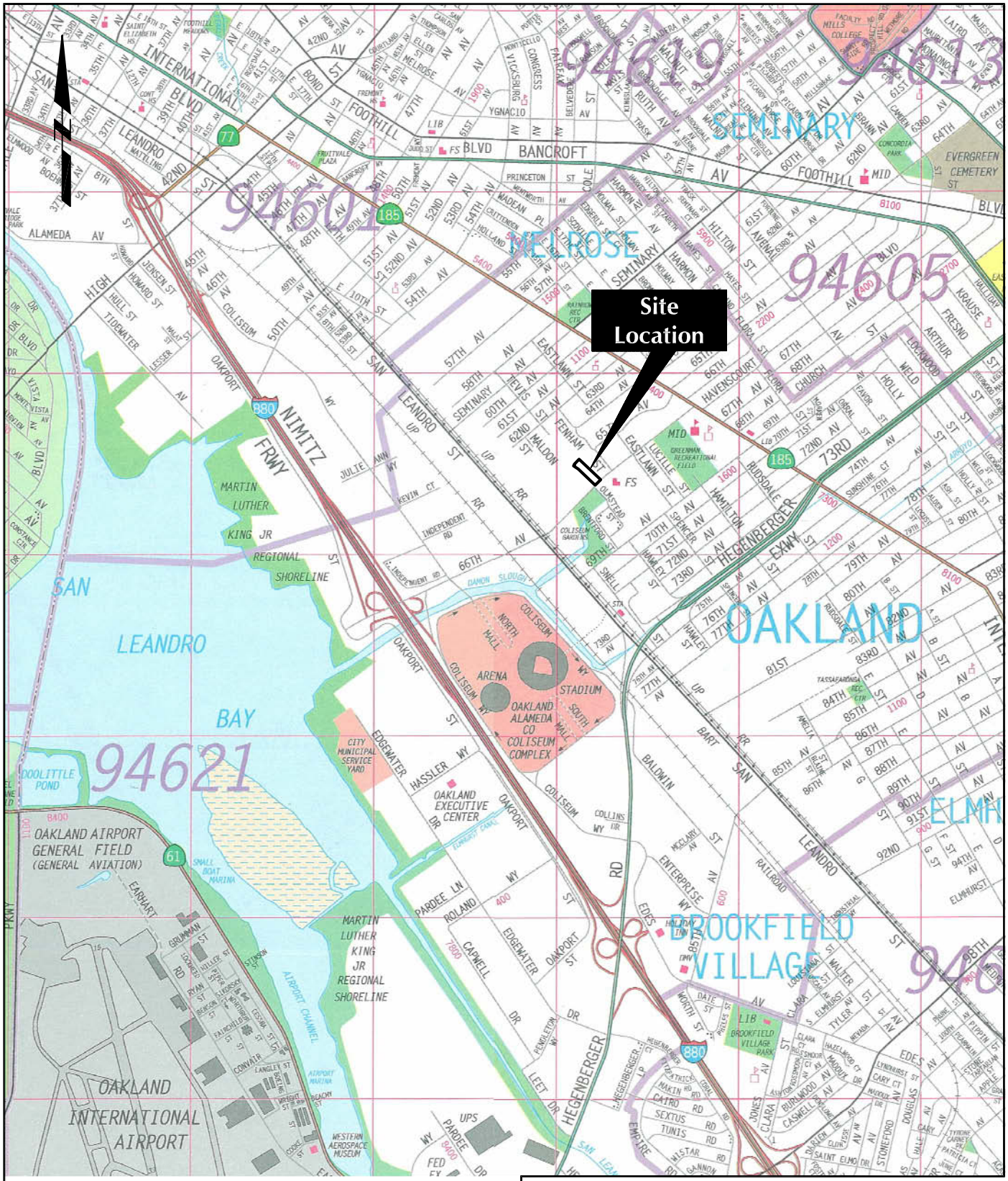
cc: Mr. Charles Robitaille – Aspire Public Schools

Table 1
Quarterly Groundwater Monitoring Sample Matrix
Former Pacific Electric Motors Facility
1009 66th Avenue, Oakland, California

Well ID	Date Installed	Approximate Screen Interval top (feet bgs)	bottom (feet bgs)	TPHg 8260	BTEX 8260	Fuel Ox 8260
Shallow-Zone Groundwater Monitoring Wells						
NW-1S	19-Dec-05	3	7	x	x	x
NW-2S	26-Dec-05	3	6	x	x	x
NW-2S	19-Dec-05	3	6	x	x	x
Intermedaite-Zone Groundwater Monitoring Wells [1]						
NW-1I[1]	19-Dec-05	13	18	x	x	x
NW-2I[1]	26-Dec-05	10	15	x	x	x
NW-3I[1]	19-Dec-05	10	16	x	x	x
ASMW-2I	23-Oct-08	10	17	x	x	x
ASMW-3I	6-Jan-09	9	14	x	x	x
ASMW-4I	9-Jan-09	9	13	x	x	x
ASMW-5I	8-Jan-09	9	13	x	x	x
Deep Zone Groundwater Monitoring Wells						
MW-1	Sep-98	15.5	25	x	x	x
MW-2	Sep-98	15.5	25	x	x	x
MW-3	Sep-98	15.5	25	x	x	x
MW-4	14-Sep-98	15.5	25	x	x	x
NW-1D	19-Dec-05	23	28	x	x	x
NW-2D	26-Dec-05	20	30	x	x	x
NW-3D	19-Dec-05	20	25	x	x	x
ASMW-2D	23-Oct-08	19	27	x	x	x
ASMW-3D	6-Jan-09	20	30	x	x	x
ASMW-4D	9-Jan-09	15	23	x	x	x
ASMW-5D	8-Jan-09	17	27	x	x	x
Quality Assurance and Quality Control Samples [2]						
Field Blank	na	na	na	x	x	x
Trip Blank	na	na	na	x	x	x

Notes:
feet bgs = feet below ground surface
"x" = sample to be analyzed
[1] Samples will be collected from wells NW-1I, NW-2I, and NW-3I during the fourth quarter of

[2] One field blank (FB) sample will be collected during each quarterly monitoring event if dedicated sampling equipment (i.e. tubiing) is NOT used, one trip blank (TB) sample will be collected for every cooler of samples transported to the laboratory during every quarterly monitoring event.
TPHg = total petroleum hydrocarbons as gasoline by EPA Method 8260
BTEX = benzene, toluene, ethylbenzene, and total xylenes by EPA Method 8260
Fuel Ox = fuel oxygenates by EPA Method 8260



Site Location Map

1009 66th Ave, Oakland, California

Source: Thomas Guide 2001

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Figure 1

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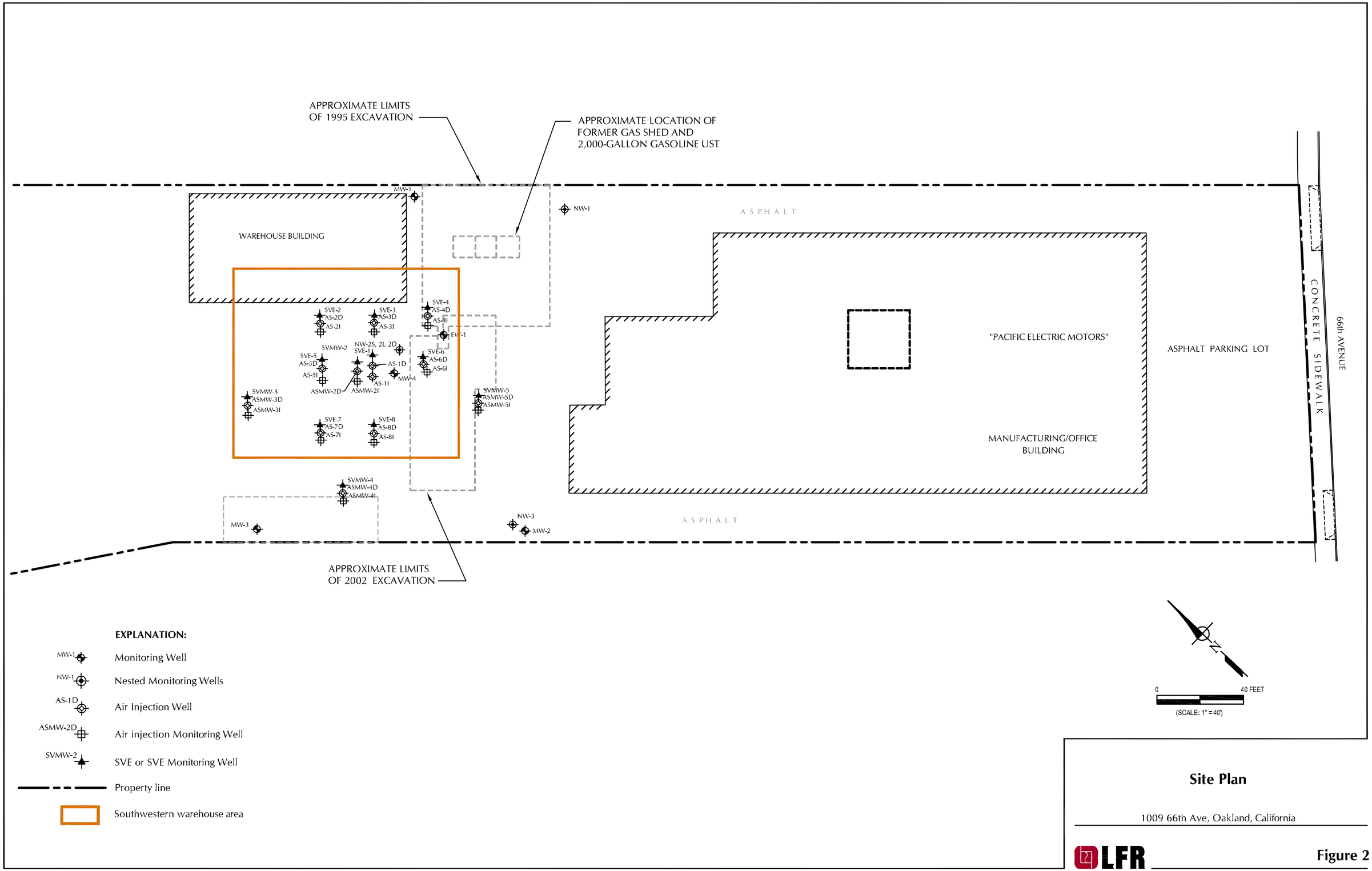

Site Plan

1009 66th Ave, Oakland, California

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Figure 2

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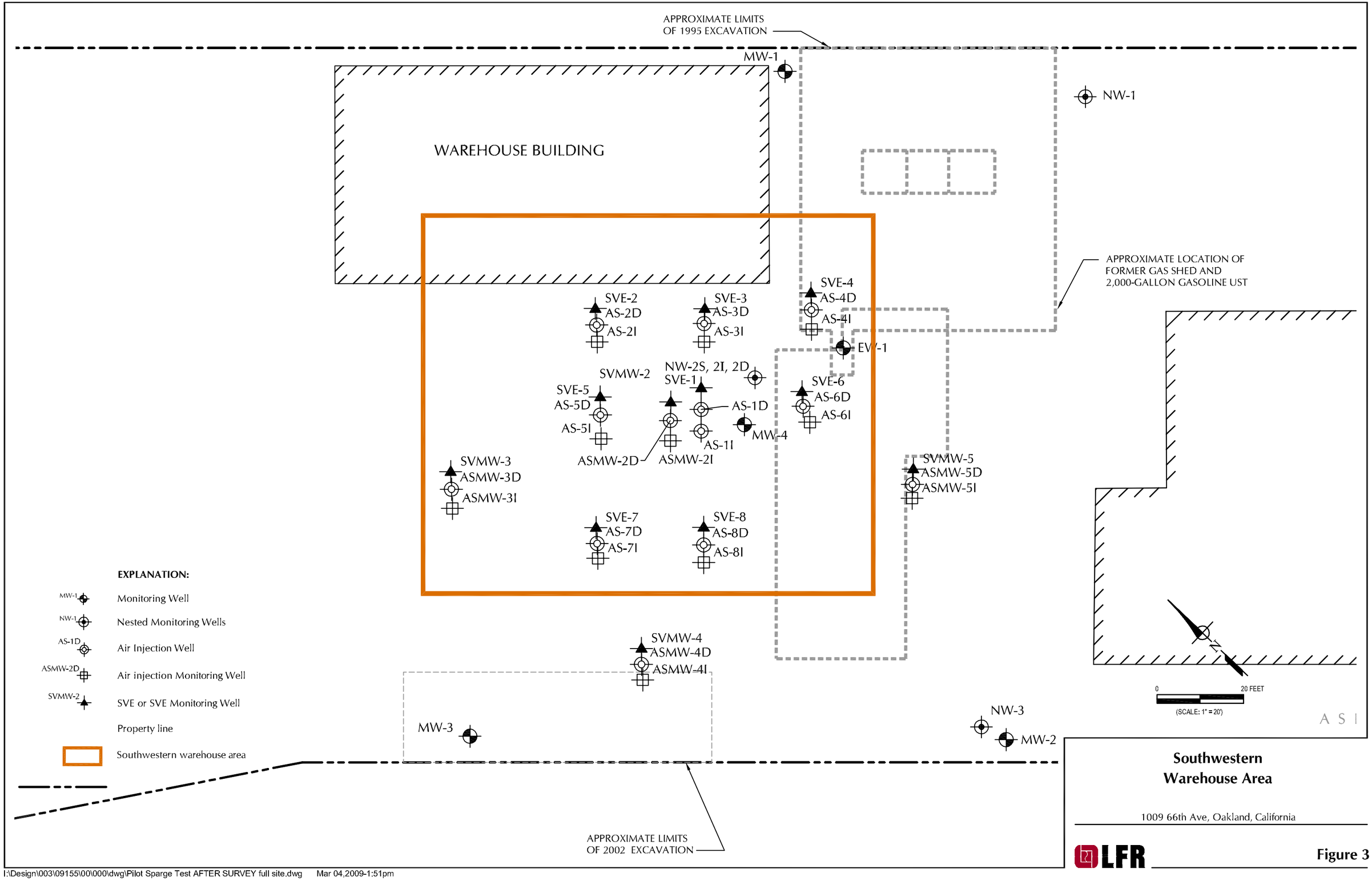

Southwestern Warehouse Area

1009 66th Ave, Oakland, California

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Figure 3

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