RO2514

Chong and Myung Kim
2601 Telegraph Avenue
Oakland, CA 94612

March 21, 2005

Barney Chan
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

SUBJECT: REPORT AND WORKPLAN
925-949 West Grand Avenue
Oakland, California

Dear Mr. Chan:

Enclosed please find the latest report and workplan for the environmental investigation at the site. I would truly appreciate your quick review and response to this workplan as we can't proceed with our sale of the property until the proposed work is complete.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

Sincerely,

Chong Kim

4/15 - 5/5/05

R Kutay: Cell : (925)413-8604

3/22/05.

aqua science engineers inc.

March 16, 2005

AREA CONDUIT STUDY, REVIEW OF SANBORN MAPS, AND WORKPLAN
for
ADDITIONAL SOIL AND GROUNDWATER ASSESSMENT
at
Kim Property
925-949 West Grand Avenue
Oakland, California

Submitted by:
AQUA SCIENCE ENGINEERS, INC.
208 West El Pintado
Danville, CA 94526
(925) 820-9391

1.0 INTRODUCTION

This submittal presents Aqua Science Engineers, Inc. (ASE)'s subsurface conduit study and workplan for an additional soil and groundwater assessment at 925-949 West Grand Avenue in Oakland, California (Figures 1 and 2). The site assessment activities were initiated by Mr. Chong Kim, owner of the property, as required by the Alameda County Health Care Services Agency (ACHCSA) in their letter dated January 13, 2005 (Appendix A).

2.0 BACKGROUND INFORMATION

The site is located in a mixed commercial/residential area of Oakland, on the southwest corner of the intersection of West Grand Avenue and Market Street.

2.1 June 2000 Phase I Environmental Assessment

According to a Phase I Environmental Site Assessment prepared by AEI Consultants in June 2000, the site contained a dry cleaning operation at 941 West Grand Avenue. The dry cleaner operated at the site for approximately 10 years and was issued a violation for the improper disposal of waste in 1986.

The site was also previously occupied by Foster & Kleiser Company and previously contained an auto and truck storage area, an auto repair area, gas, oil and paint storage areas, dip painting areas, advertising sign painting area, and a warehouse.

The report also noted an adjacent property (905 West Grand Avenue) that previously contained three underground fuel storage tanks (USTs). Although case closure has been granted by the ACHCSA for 905 West Grand Avenue, AEI suggested that the fuel release at 905 West Grand Avenue likely had impacted the site based on the proximity of the 905 West Grand Avenue property to the site and the groundwater flow direction.

AEI recommended a soil and groundwater assessment for the site and a magnetometer survey to locate any potential USTs that may have been present beneath the site.

2.2 March 2002 Phase II Subsurface Investigation

In March 2002, AEI Consultants drilled five soil borings at the site. Three borings were drilled in suspected locations of previous gas and oil storage, and two borings were drilled in the former dry cleaning area (Figure 2).

No significant petroleum hydrocarbon concentrations were detected in soil samples collected in areas of suspected gas and oil storage. Groundwater samples collected from these borings contained up to 460 parts per billion (ppb) total petroleum hydrocarbons as gasoline (TPH-G) and 380 ppb total petroleum hydrocarbons as diesel (TPH-D). Only relatively low concentrations of ethylbenzene and total xylenes (0.73 ppb ethylbenzene and 1.3 ppb total xylenes) were detected in one of the three borings. No benzene, toluene, or methyl tertiary butyl ether (MTBE) were detected in any of the groundwater samples collected from these borings.

Both soil and groundwater samples collected from the borings drilled in the former dry cleaning area contained significant concentrations of petroleum hydrocarbons and volatile organic compounds (VOCs). Soil samples collected from 8-feet below ground surface (bgs) contained up to 2.5 parts per million (ppm) TPH-G, 0.017 ppm benzene, 0.21 ppm toluene, 0.12 ppm ethylbenzene, 0.011 ppm xylenes, 0.0051 ppm trichloroethene (TCE), 0.022 ppm tetrachloroethene (PCE), 0.14 ppm cis-1,2-dichloroethane (cis-1,2-DCE) and 0.012 ppb vinyl chloride. Groundwater samples collected from these borings contained 140,000 ppb TPH-G, 810 ppb benzene, 1,900 ppb toluene, 470 ppb ethylbenzene, 14,000 ppb total xylenes, 550 ppb cis-1,2-DCE and 60 ppb vinyl chloride.

2.3 May 2003 Soil and Groundwater Investigation

In May 2003, Eras Environmental drilled five soil borings (A through E) at the site (Figure 2). Borings A through D were located downgradient of the former dry cleaning area. Boring E was located between the dry cleaner and the former gasoline station at 905 West Grand Avenue. Only very low hydrocarbon concentrations of up to 10 ppm TPH-G and 0.2 ppm TPH-G were detected in soil samples collected between 10.5 and 11.5-feet bgs in borings A and E, respectively. No hydrocarbons were detected in soil samples collected from any of the remaining borings. No VOCs or MTBE were detected in soil samples collected from any of the borings. Groundwater samples collected from boring E contained 4,300 ppb TPH-G and 190 ppb n-propylbenzene. No MTBE was detected in groundwater samples collected from this boring. TPH-G was also detected in

groundwater samples collected from boring A at 100 ppb. No TPH-G was detected in groundwater samples collected from the remaining borings. Groundwater samples collected from borings A through D also contained up to 35 ppb MTBE, 1.6 ppb TCE, 5.0 ppb cis-1,2-DCE and 1.6 ppb vinyl chloride.

2.4 August 2004 Soil and Groundwater Investigation

In August 2004, ASE drilled soil borings SB-F, SB-G and SB-H using a Geoprobe direct-push hydraulic sampling rig. ASE also installed three groundwater monitoring wells at the site. The soil samples collected from 14-feet bgs in boring MW-1, 9.5-feet bgs in borings MW-2, SB-F and SB-G, and 14.5-feet bgs in borings MW-3 and SB-H were analyzed for TPH-D, TPH-G, BTEX, oxygenates and halogenated volatile organic compounds (HVOCs). The analytical results are tabulated in Table Two. The only soil sample that contained concentrations of any of the compounds analyzed was MW-2 at 9.5-feet bgs. This sample contained 1,000 ppm TPH-G, 430 ppm TPH-D, 0.71 ppm benzene, 0.091 ppm toluene, 15 ppm ethylbenzene and 45 ppm total xylenes.

The groundwater samples collected from borings SB-F through SB-H and monitoring wells MW-1 through MW-3 were analyzed for TPH-D, TPH-G, BTEX, oxygenates and HVOCs. The analytical results are tabulated in Table Three. The highest TPH-D, MTBE and HVOC concentrations were detected in groundwater samples collected from boring SB-G, which is located in the upgradient corner of the site. This suggests that these compounds may be related to an upgradient, off-site source. A significant TPH-G concentration of 1,200 ppb was also detected in groundwater samples collected from upgradient boring SB-G. The highest TPH-G and BTEX concentrations were detected in groundwater samples collected from monitoring well MW-2, which is immediately downgradient of the former dry cleaning operation at the site. Boring SB-F, located down/crossgradient of monitoring well MW-2, contained 5,000 ppb TPH-G, 2.1 ppb benzene and 16 ppb MTBE. No HVOCs were detected in the groundwater samples collected from monitoring well MW-2, located adjacent and downgradient of the former dry cleaner, which suggests that any residual low HVOC concentrations that were previously detected in this area have degraded to non-detectable.

Groundwater appeared to flow to the southwest beneath the site at a gradient of 0.0043-feet/foot.

3.0 CONDUIT AND POTENTIAL PREFERENTIAL PATHWAY STUDY

This study was conducted by reviewing Underground Service Alert (USA) markings in the site vicinity, reviewing documents such as as-built drawings supplied by the city, and contacting individuals that would have knowledge of the individual utility lines. Figure 3 presents the location of all known utility lines in the site vicinity. A discussion of each type of line is presented below along with an evaluation as to whether each line could present a potential preferred pathway for the movement of groundwater contamination.

3.1 Main Water Lines

Main water lines in the site vicinity belong to East Bay Municipal Water District (EBMUD). The lines were mapped based on Underground Service Alert (USA) markings. Water lines run down all four streets surrounding the site. On February 9, 2005, ASE spoke to Mr. Patrick Clinton of EBMUD for additional information on these lines. Mr. Clinton stated that they do not have specific data on depth to water lines in this area; however, EBMUD assumes that the bottom of the trenches for water lines in the site vicinity are 3-feet bgs, which is generally very reliable. Their lines have no pitch.

Since the shallowest groundwater measured at the site was over 9.7-feet bgs, these lines are above groundwater and will not provide a conduit for the migration of groundwater.

3.2 Natural Gas Lines

Natural gas lines in the site vicinity belong to Pacific Gas and Electric (PG&E). Based on USA markings and utility vaults, gas lines are located under Myrtle Street, under Market Street, and under the north side of West Grand Avenue. ASE has previously spoken with Mr. Steve Bovaild of PG&E regarding their lines in the Oakland area. Mr. Bovaild stated that PG&E's gas lines in the site vicinity are typically 36-inches bgs and placed on 4-inches of sand. Based on diameter of the lines, the sand base and typical depth of the line, he stated that the bottom of the trenches in the site vicinity is typically 44-inches bgs. The only variation is if an electric and gas line were placed in the same trench, then the trench would be 12-inches deeper. However, electric lines in the site vicinity are overhead so that would not apply.

Given the depth to groundwater in the site vicinity, these lines will not present a conduit for the preferential flow of groundwater.

3.3 Electric Lines

Electric lines in the site vicinity belong to PG&E. All of the PG&E electric lines in the immediate site vicinity are overhead, and therefore will not present a conduit for the preferential flow of groundwater.

3.4 Telephone Lines

Telephone lines in the site vicinity belong to SBC (formerly Pacific Bell). ASE contacted SBC and spoke with Joe Sitzmann. Mr. Sitzman confirmed that all telephone lines in the immediate site vicinity are overhead, and therefore will not present a conduit for the preferential flow of groundwater.

3.5 Cable Television Lines

The cable television lines in the site vicinity belong to Comcast. Comcast could not be reached to confirm whether they have any underground lines in the site vicinity. No cable television lines were marked by USA in the site vicinity. It is likely that these lines are overhead. If buried, Comcast has previously told ASE that they typically bury lines approximately 36-inches below grade. Based on this information, these lines, if present, will not present a conduit for the preferential flow of groundwater.

3.6 Storm Sewer Lines

The City of Oakland has a 42-inch diameter storm sewer line down the southern side of 21st Street. The bottom of this line is approximately 11.2-feet bgs at the intersection of 21st Street and Myrtle Street to 11.6-feet bgs at the intersection of 21st Street and Market Street and pitches to the east. There was no information available as to what material may have been used to backfill the trenches over the line. This line is approximately crossgradient of the known environmental concerns at the site. Based on the depth to water measurements in September 2004, this line is below the approximate depth to groundwater in the site vicinity and is therefore a potential conduit for the preferential movement of groundwater.

The City of Oakland also has an 18-inch diameter storm sewer that begins on the corner of West Grand Avenue and Myrtle Street that runs to the

west. The bottom of this line is approximately 3.5-feet bgs. The line is approximately crossgradient of the known environmental concerns at the site. Based on the depth to water measurements in September 2004, this line is over 6-feet above the water table and therefore is not a potential conduit for the preferential movement of groundwater.

City of Oakland sewer maps and monument elevations are included in Appendix B.

3.7 Sanitary Sewer Lines

The City of Oakland has sanitary sewer lines in three streets adjacent to the site. There is an 8-inch diameter sanitary sewer line that runs down Myrtle Street. The bottom of this line is approximately 4.9-feet bgs, and pitches to the north. This line is downgradient of the known environmental concerns at the site. Based on the depth to water measurements in September 2004, this line is over 4-feet above the water table and therefore is not a potential conduit for the preferential movement of groundwater.

There is a sanitary sewer line beneath 21st Street that does not have a specified diameter. The bottom of this line is approximately 5.2-feet bgs at the intersection of 21st Street and Myrtle Street and 6.6-feet bgs at the intersection of 21st Street and Market Street, and pitches to the east. There was no information available as to what material may have been used to backfill the trenches over the line. This line is approximately crossgradient of the known environmental concerns at the site. Based on the depth to water measurements in September 2004, this line is over 3-feet above the water table and therefore is not a potential conduit for the preferential movement of groundwater.

There is a 16-inch diameter sanitary sewer line beneath Market Street. The bottom of this line is approximately 6.6-feet bgs at the intersection of 21st Street and Market Street and approximately 10.6-feet bgs at the intersection of West Grand Avenue and Market Street. This line pitches to the north. There was no information available as to what material may have been used to backfill the trenches over the line. This line is approximately upgradient of the known environmental concerns at the site. Based on the depth to water measurements in September 2004, this line is below the approximate depth to groundwater in the site vicinity and is therefore a potential conduit for the preferential movement of groundwater in the site vicinity.

3.8 Other Lines

The City of Oakland has a sewer map that shows a line that is not designated as either sanitary or storm sewer that runs down West Grand Avenue. This line is 48-inches in diameter and pitches to the west. The bottom of this line is 15.4-feet bgs at the corner of West Grand Avenue and Market Street and 13.1-feet bgs at the corner of West Grand Avenue and Myrtle Street. The line pitches to the west and is constructed out of concrete. There was no information available as to what material may have been used to backfill the trenches over the line. This line is approximately upgradient and crossgradient of the known environmental concerns at the site. Based on the depth to water measurements in September 2004, this line is below the approximate depth to groundwater in the site vicinity and is therefore a potential conduit for the preferential movement of groundwater in the site vicinity.

The City of Oakland sewer map also shows an abandoned line down West Grand Avenue. No other information on this line is known.

4.0 SANBORN MAP REVIEW

ASE has reviewed all available Sanborn Fire Insurance Maps for the site to identify any potential source areas for contamination that were not previously identified and investigated. Sanborn Maps were available for the years 1902, 1912, 1951, 1952, 1957, 1958, 1961, 1967 and 1970. Copies of these maps are included in Appendix C. ASE's discussion will cover the entire block from West Grand to 21st Street and from Myrtle Street to Market Street.

4.1 1902 Map

The 1902 map shows two buildings, one labeled dwelling and other labeled COEAP (meaning not known). There is also a windmill with associated tank (assumed to be water tank).

4.2 1912 Map

The 1912 map shows Market Street Station at northeast corner of the block (in the area currently occupied by the former gasoline service station and not a portion of this site). There are also several tents on the eastern side of the site and several residential buildings on the southern portion of the site.

4.3 1951 through 1961 Maps

The 1951 through 1961 maps are very similar with no significant variations between them. The maps show the northwest portion of the block occupied by Foster and Kleiser Company. This is in the approximate location of the former gasoline service station at 905 West Grand Avenue, and is not part of the site. The far northeastern corner has offices with an area listed as cars and trucks south of the offices. Further to the west and located partially on the subject site is an area shown as advertising sign painting. Monitoring well MW-3 is located in this former painting area. Borings E, SB-G, SB-H are also located in this general area.

The eastern portion of the property is listed as staging area. There is another staging area on the southern portion of the property with a small area marked as paints and oils. This location is now shown on ASE's Figure 4, and has not been investigated.

A dip painting area is noted on the western portion of the site, in an area under the current site building. Boring D is directly downgradient of this location, and borings A and B are also located downgradient of this location. A label stating "electric saw" is shown to the north of the dip painting area.

4.4 1967 and 1970 Maps

The 1967 and 1970 maps are very similar with no significant variations between them. The general site layout in these maps is very similar to the current site configuration. The maps show the northwest portion of the block occupied by a gasoline service station at 905 West Grand Avenue, which is not part of the site. The entire western portion of the property is a building containing several stores and a restaurant. The rest of the site is used for parking.

5.0 DISCUSSION OF POTENTIAL SOURCE AREAS

It appears that there was a release of gasoline in or near Unit 941 at the site, which previously contained a dry cleaner. There is currently no information as to what the source of this gasoline may have been. Previously, there had been speculation that this gasoline may have been related to the former gasoline service station at 905 West Grand Avenue. However, borings drilled between Unit 941 and the former gasoline service station didn't show hydrocarbon concentrations as elevated as

those in Unit 941, indicating that the gasoline service station didn't appear to be the sole source of the elevated hydrocarbons.

However, since the highest HVOC concentrations at the site are in boring BH-G, located on the upgradient property line, it appears that the TPH-D, MTBE and HVOC concentrations are related to an upgradient, off-site source. There are several automotive related businesses across West Grand Avenue to the north, upgradient of the site (See Appendix D). There are also deep utility lines in West Grand Avenue upgradient of the site that could be acting as a potential source of the TPH-D, MTBE and HVOCs detected at the site. Part of the upcoming assessment will be to collect further data along the upgradient property line to confirm an off-site source of these compounds.

Phase I Environmental Assessments completed by others and Sanborn Maps reviewed by ASE have revealed the following potential source areas:

- The gasoline service station at 905 West Grand Avenue. This case has been closed and borings drilled on the upgradient edge of the site adjacent to the former gasoline station did not suggest that the former station was a significant threat to soil and groundwater beneath the subject site.

- A suspected area of gas and oil storage on the eastern portion of the subject site was previously assessed with three borings and found to not be a significant threat to soil and groundwater at the site.

- A former dip paint area is located under the building on the western property line. Several borings were drilled downgradient of this location and suggested that this was not a significant threat to groundwater beneath the site. no boring directly in this area.

- An advertising sign painting area was previously located in a portion of the site near the property line with 905 West Grand Avenue. Monitoring well MW-3 is located in this area, and borings E, SB-H and SB-G are located in areas adjacent to the former painting area. Some elevated VOCs and hydrocarbons were identified in boring BH-G; however, no elevated concentrations were identified in the soil from this boring, and given the upgradient location of this boring it appears likely that the elevated VOC and hydrocarbon concentrations are related to an upgradient, off-site source.

- A former paint and oil area was located along the southern portion of the site. This area has not been assessed to date and will be investigated in the upcoming work at the site.

6.0 OUTLINE OF PROPOSED SCOPE OF WORK (SOW)

The purpose of this assessment is to (a) assess whether VOCs detected in groundwater beneath the site are related to an off-site upgradient source, (b) assess soil in a former paints and oils area on the southern portion of the site as shown on the 1951 to 1961 Sanborn maps, and (c) determine the extent of gasoline in subsurface soil and groundwater in Unit 941, which previously contained a dry cleaner. The scope of work for this project is to:

1) Obtain drilling permits from the Alameda County Public Works Agency.

2) Drill three (3) soil borings to a depth not to exceed 20-feet below ground surface (bgs) on the northern property line using a Geoprobe, and collect soil and groundwater samples for analysis. The purpose of these borings is to determine whether VOCs, TPH-D and MTBE detected in groundwater beneath the site are related to an upgradient, off-site source.

3) Drill three (3) soil borings to a depth not to exceed 20-feet bgs using a Badger limited-access direct-push drill rig in areas surrounding borings SB-4 and SB-5, where elevated TPH-G and BTEX has previously been identified, and collect soil and groundwater samples for analysis. The purpose of these borings is to further define the extent of elevated hydrocarbons and VOCs in this area.

4) Analyze one (1) soil and one (1) groundwater sample from each boring described above for TPH-G, BTEX, five oxygenates, and HVOCs by EPA Method 8260, and TPH-D by EPA Method 8015.

5) Drill two (2) soil borings to a depth not to exceed 4-feet bgs in a former paint and oil area on the southern portion of the site and collect soil samples for analysis.

6) Analyze one (1) soil sample from each boring described in Task 5 for TPH-G, BTEX, five oxygenates, and HVOCs by EPA Method 8260, and TPH-D and total petroleum hydrocarbons as motor oil (TPH-MO) by EPA Method 8015.

7) Backfill the borings with neat cement to the ground surface.

8) Prepare a report presenting methods and findings of this assessment.

8.0 DETAILS OF PROPOSED SOW

Details of the assessment are presented below.

TASK 1 - *OBTAIN A DRILLING PERMIT FROM THE ALAMEDA COUNTY PUBLIC WORKS AGANCY*

Prior to drilling, ASE will obtain a drilling permit from the Alameda County Public Works Agency. ASE will also notify USA to have underground utility lines marked in the site vicinity.

TASK 2 - *DRILL THREE SOIL BORINGS ON NORTHERN PROPERTY LINE AND COLLECT SOIL AND GROUNDWATER SAMPLES FROM THE BORINGS FOR ANALYSIS*

ASE will drill three soil borings along the northern property line to determine whether TPH-D, VOCs and MTBE detected in groundwater at the site may be related to an off-site, upgradient source (Figure 4). Potential upgradient sources include the automotive related business across West Grand Avenue, as well as the deep sewer conduits beneath West Grand Avenue. The borings will be drilled using a Geoprobe or similar type drill rig. An ASE geologist will direct the drilling.

Undisturbed soil samples will be collected continuously for subsurface hydrogeologic description and possible chemical analysis. The samples will be described by the ASE geologist according to the Unified Soil Classification System (USCS). The samples will be collected in acetate tubes using a drive sampler advanced as the boring progresses. Each tube will be immediately removed from the sampler, cut at the appropriate sample interval, trimmed, sealed with Teflon tape and plastic caps, secured with duct tape, and labeled with the site location, sample designation, date and time the sample was collected, and the initials of the person collecting the sample. The samples will then be placed into an ice chest containing wet ice for delivery under chain of custody to a CAL-EPA certified analytical laboratory.

Soil from the remaining tubes not sealed for analysis will be removed for hydrogeologic description and will be screened for volatile compounds with a photoionization detector (PID). The soil will be screened by emptying soil from one of the tubes into a plastic bag. The bag will be sealed and placed in the sun for approximately 10 minutes. After the hydrocarbons have been allowed to volatilize, the PID will measure the vapor through a small hole, punched in the bag. These PID readings will be used as a screening tool only since these procedures are not as rigorous as those used in an analytical laboratory.

After groundwater is encountered, ASE will collect groundwater samples from the borings using a bailer. The groundwater samples to be analyzed for volatile compounds will be slowly decanted from the bailer into 40-ml volatile organic analysis (VOA) vials, preserved with hydrochloric acid and sealed without headspace. The groundwater samples to be analyzed for non-volatile compounds will be slowly decanted from the bailer into 1-liter amber glass bottles. The samples will then be labeled and placed in an ice chest with wet ice for transportation to the analytical laboratory under chain of custody documentation.

All sampling equipment will be cleaned in buckets with brushes and an Alconox solution, then rinsed twice with tap water. Rinsates will be contained on-site in 55-gallon steel drums until off-site disposal can be arranged.

TASK 3 - *DRILL THREE SOIL BORINGS SURROUNDING PREVIOUS BORINGS SB-4 AND SB-5 AND COLLECT SOIL AND GROUNDWATER SAMPLES FROM THE BORINGS FOR ANALYSIS*

ASE will drill three soil borings surrounding borings SB-4 and SB-5 to further define the extent of elevated hydrocarbon concentrations in this area (Figure 4). A Badger direct-push drill rig will be used inside building locations where a truck-mounted drill rig can not be utilized. An ASE geologist will direct the drilling.

Undisturbed soil samples will be collected continuously for subsurface hydrogeologic description and possible chemical analysis. The samples will be described by the ASE geologist according to the USCS. The samples will be collected in acetate tubes using a drive sampler advanced as the boring progresses. Each tube will be immediately removed from the sampler, cut at the appropriate sample interval, trimmed, sealed with Teflon tape and plastic caps, secured with duct tape, and labeled with the site location, sample designation, date and time the sample was collected,

and the initials of the person collecting the sample. The samples will then be placed into an ice chest containing wet ice for delivery under chain of custody to a CAL-EPA certified analytical laboratory.

Soil from the remaining tubes not sealed for analysis will be removed for hydrogeologic description and will be screened for volatile compounds with a PID. The soil will be screened by emptying soil from one of the tubes into a plastic bag. The bag will be sealed and placed in the sun for approximately 10 minutes. After the hydrocarbons have been allowed to volatilize, the PID will measure the vapor through a small hole, punched in the bag. These PID readings will be used as a screening tool only since these procedures are not as rigorous as those used in an analytical laboratory.

After groundwater is encountered, ASE will collect groundwater samples from the borings using a bailer. The groundwater samples to be analyzed for volatile compounds will be slowly decanted from the bailer into 40-ml VOA vials, preserved with hydrochloric acid and sealed without headspace. The groundwater samples to be analyzed for non-volatile compounds will be slowly decanted from the bailer into 1-liter amber glass bottles. The samples will then be labeled and placed in an ice chest with wet ice for transportation to the analytical laboratory under chain of custody documentation.

All sampling equipment will be cleaned in buckets with brushes and an Alconox solution, then rinsed twice with tap water. Rinsates will be contained on-site in 55-gallon steel drums until off-site disposal can be arranged.

TASK 4 - ANALYZE ONE SOIL AND ONE GROUNDWATER SAMPLE COLLECTED FROM EACH BORING DESCRIBED ABOVE

One soil and one groundwater sample from each boring will be analyzed at a CAL-DHS certified environmental laboratory for TPH-G, BTEX, five oxygenates, and HVOCs by EPA Method 8260, and TPH-D by EPA Method 8015. The soil sample selected for analysis in each boring will be the sample that appears to be the most contaminated based on odors, staining, and/or PID readings. If there is no indication of possible contamination in any of the borings, the sample collected from the capillary zone will be analyzed.

TASK 5 - DRILL TWO SOIL BORINGS IN THE FORMER PAINT AND OIL AREA ON THE SOUTHERN PROPERTY LINE AND COLLECT SOIL SAMPLES FROM THE BORINGS FOR ANALYSIS

ASE will drill two soil borings in the former paint and oil area near the southern property line and collect soil samples for analysis (Figure 4). The borings will be drilled using a Geoprobe or similar type drill rig. An ASE geologist will direct the drilling.

Undisturbed soil samples will be collected continuously for subsurface hydrogeologic description and possible chemical analysis. The samples will be described by the ASE geologist according to the USCS. The samples will be collected in acetate tubes using a drive sampler advanced as the boring progresses. Each tube will be immediately removed from the sampler, cut at the appropriate sample interval, trimmed, sealed with Teflon tape and plastic caps, secured with duct tape, and labeled with the site location, sample designation, date and time the sample was collected, and the initials of the person collecting the sample. The samples will then be placed into an ice chest containing wet ice for delivery under chain of custody to a CAL-EPA certified analytical laboratory.

Soil from the remaining tubes not sealed for analysis will be removed for hydrogeologic description and will be screened for volatile compounds with a PID. The soil will be screened by emptying soil from one of the tubes into a plastic bag. The bag will be sealed and placed in the sun for approximately 10 minutes. After the hydrocarbons have been allowed to volatilize, the PID will measure the vapor through a small hole, punched in the bag. These PID readings will be used as a screening tool only since these procedures are not as rigorous as those used in an analytical laboratory.

All sampling equipment will be cleaned in buckets with brushes and an Alconox solution, then rinsed twice with tap water. Rinsates will be contained on-site in 55-gallon steel drums until off-site disposal can be arranged.

TASK 6 - ANALYZE SOIL SAMPLES COLLECTED FROM THE BORINGS DESCRIBED IN TASK 5

At least one soil sample from each boring will be analyzed at a CAL-DHS certified environmental laboratory for TPH-G, BTEX, five oxygenates, and HVOCs by EPA Method 8260, and TPH-D and total petroleum hydrocarbons as motor oil (TPH-MO) by EPA Method 8015. The soil

sample selected for analysis in each boring will be the sample that appears to be the most contaminated based on odors, staining, and/or PID readings. If there is no indication of possible contamination in any of the borings, then sample collected from 2-feet bgs will be analyzed.

TASK 7 - BACKFILL THE BORINGS WITH NEAT CEMENT

Following collection of the soil and groundwater samples, the boreholes will be backfilled with neat cement placed by tremie pipe.

TASK 8 - PREPARE A SOIL AND GROUNDWATER ASSESSMENT REPORT

ASE will prepare a subsurface assessment report presenting the methods and findings of this assessment. This report will include a summary of the results, the site background and history, tabulated soil and groundwater analytical results, geologic cross-sections, potentiometric surface maps, an updated conceptual site model, conclusions and recommendations for appropriate additional assessment and feasibility tests for remediation, as necessary. Formal boring logs, analytical reports, and chain of custody documents will be included as appendices. This report will be submitted under the seal of a California registered civil engineer or geologist.

8.0 SCHEDULE

ASE will proceed with this project immediately upon approval of this workplan by the ACHCSA.

Should you have any questions or comments, please call us at (925) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

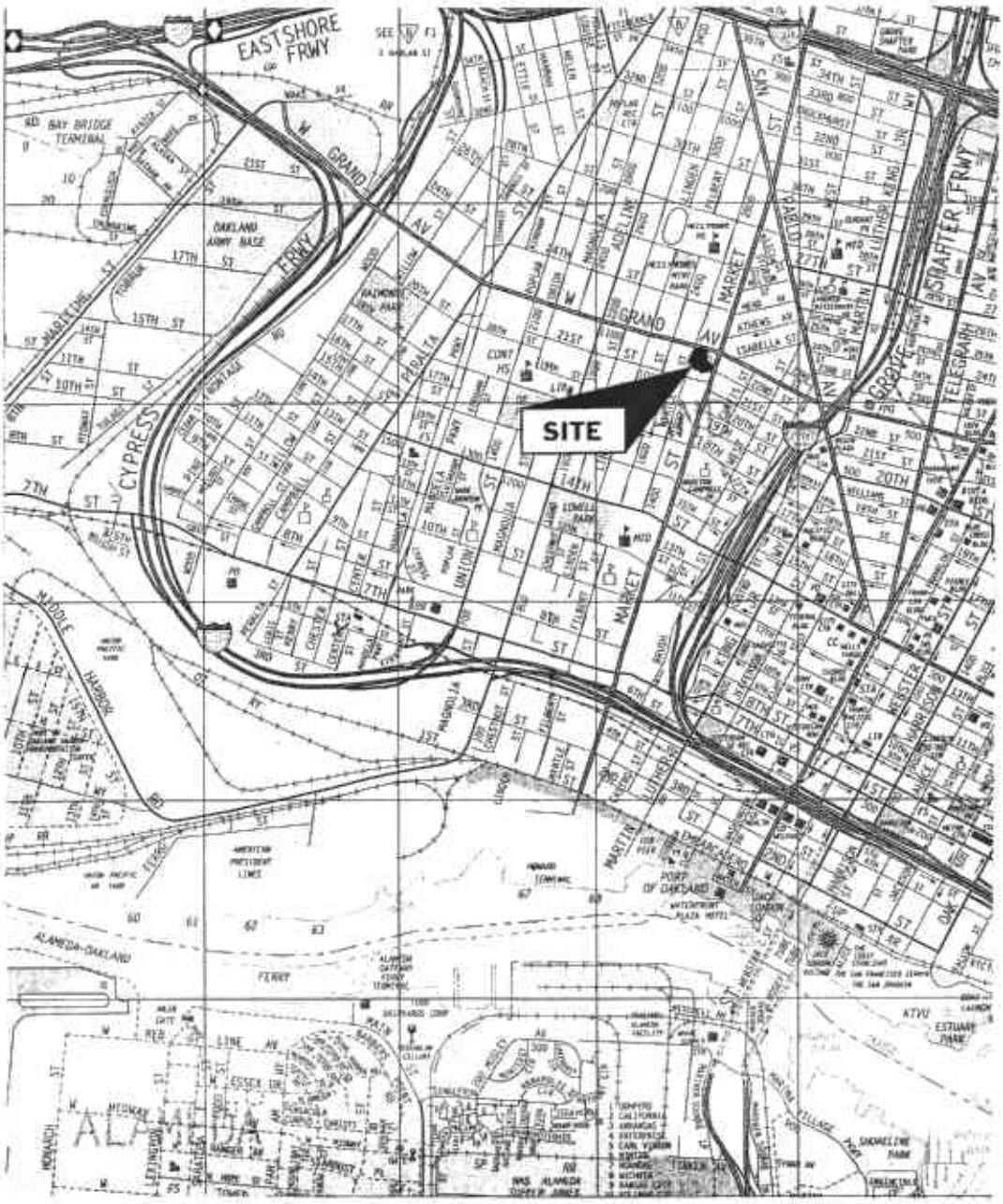
Robert E. Kitay, R.G., R.E.A.
Senior Geologist

cc: Chong and Myung Kim, 2601 Telegraph Avenue, Oakland, CA 94612

Don Kim, Compass Realty, 1714 Franklin Street, Suite 400, Oakland, CA 94612

Barney Chan, Alameda County Health Care Services Agency, 1131 Harbor Bay Parkway, Suite 250, Alameda, CA 94502

Betty Graham, California Regional Water Quality Control Board, San Francisco Bay Region, 1515 Clay Street, Suite 1400, Oakland, CA 94612

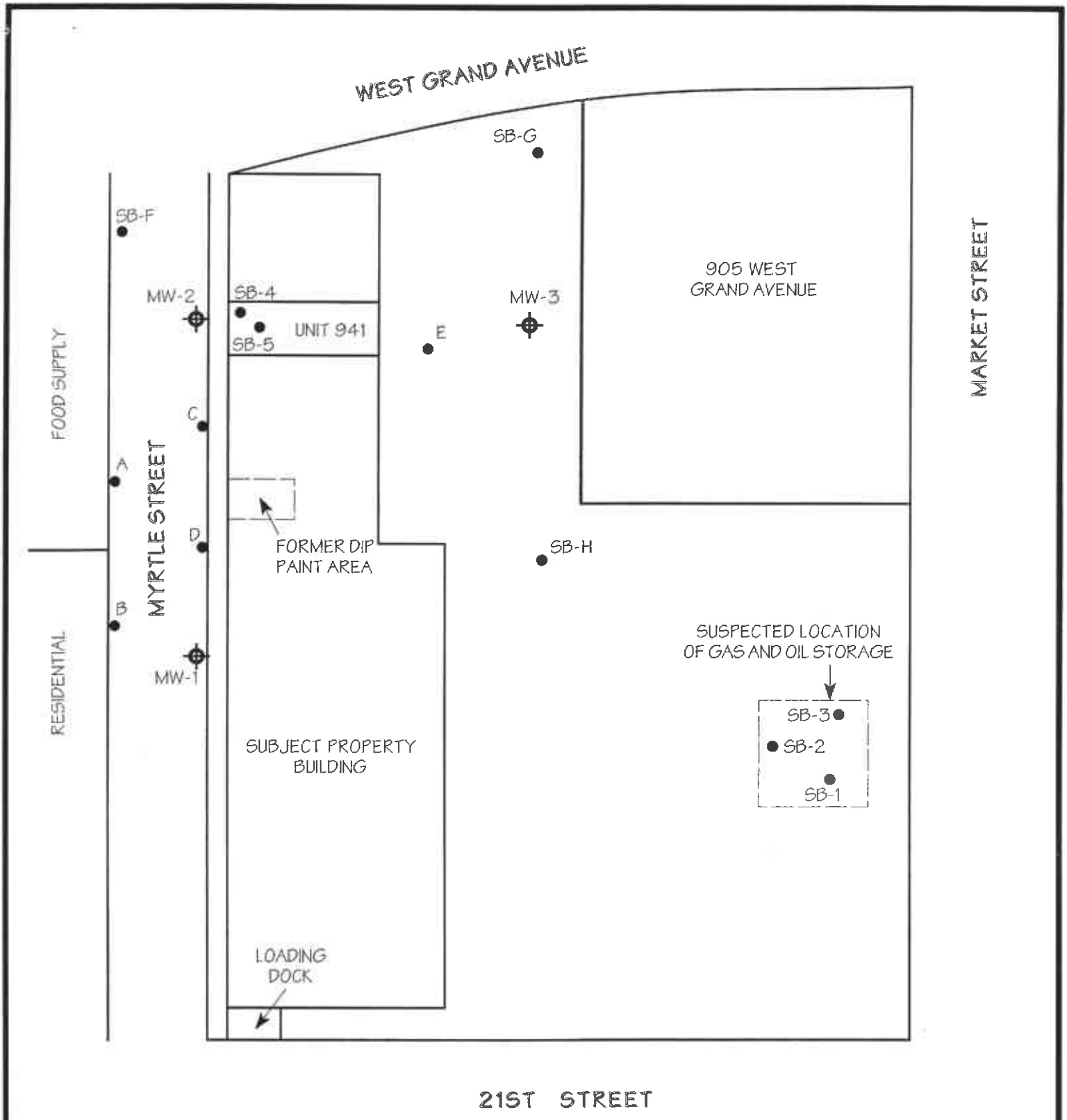


NORTH

SITE LOCATION MAP

KIM PROPERTY
925-949 West Grand Avenue
Oakland, California

AQUA SCIENCE ENGINEERS, INC. | Figure 1



BASE MAP:
ERAS ENVIRONMENTAL "LIMITED SOIL AND GROUNDWATER INVESTIGATION," 5/27/2003, FIGURE 2
AND AEI CONSULTANTS "PHASE II SUBSURFACE INVESTIGATION," 3/21/2002, FIGURE 2

LEGEND

B ● Previous Soil Boring

MW-1 ⊕ Montoring Well

NORTH

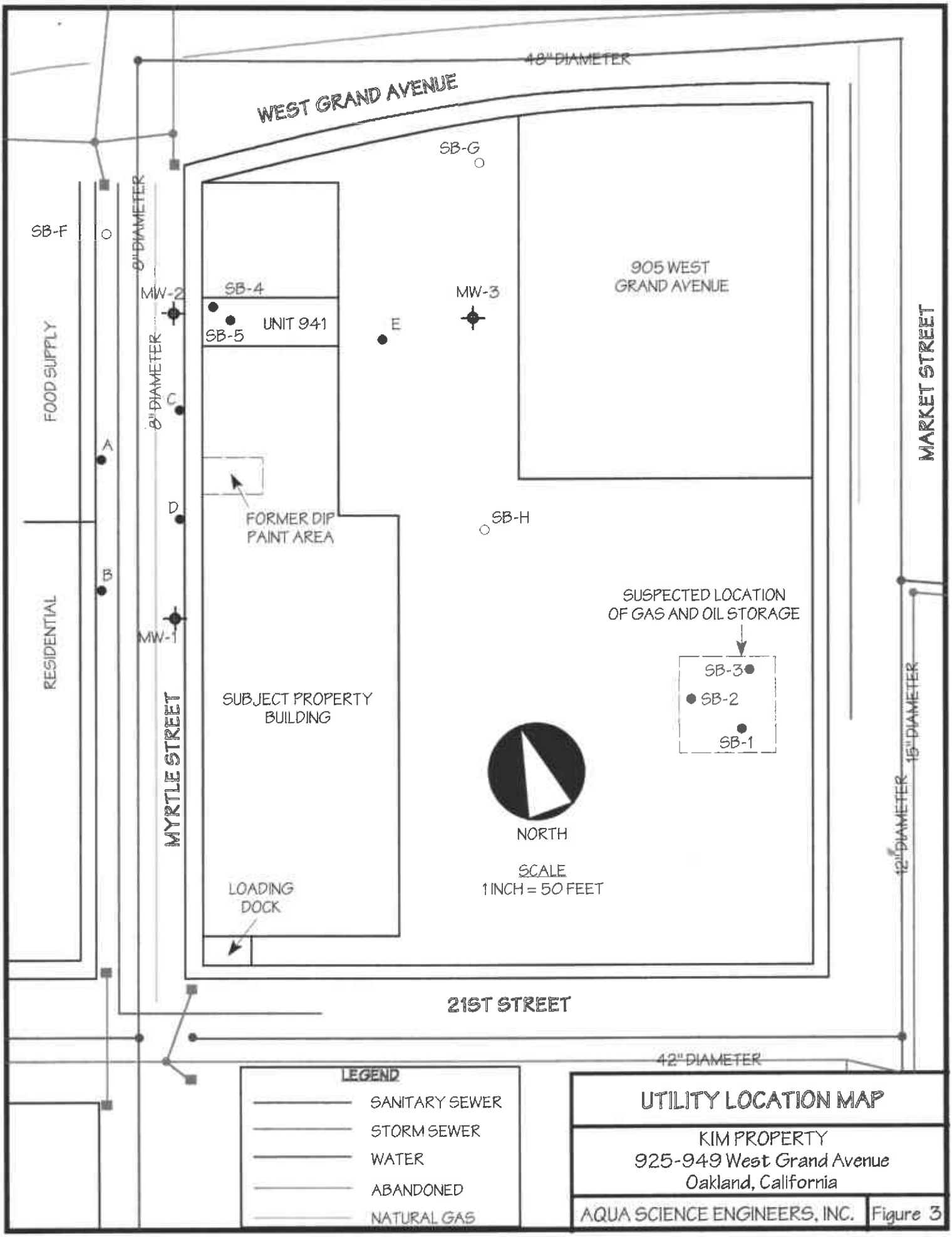
SCALE
1 INCH = 50 FEET

0 50

MONITORING WELL AND SOIL BORING LOCATION MAP

KIM PROPERTY
925-949 West Grand Avenue
Oakland, California

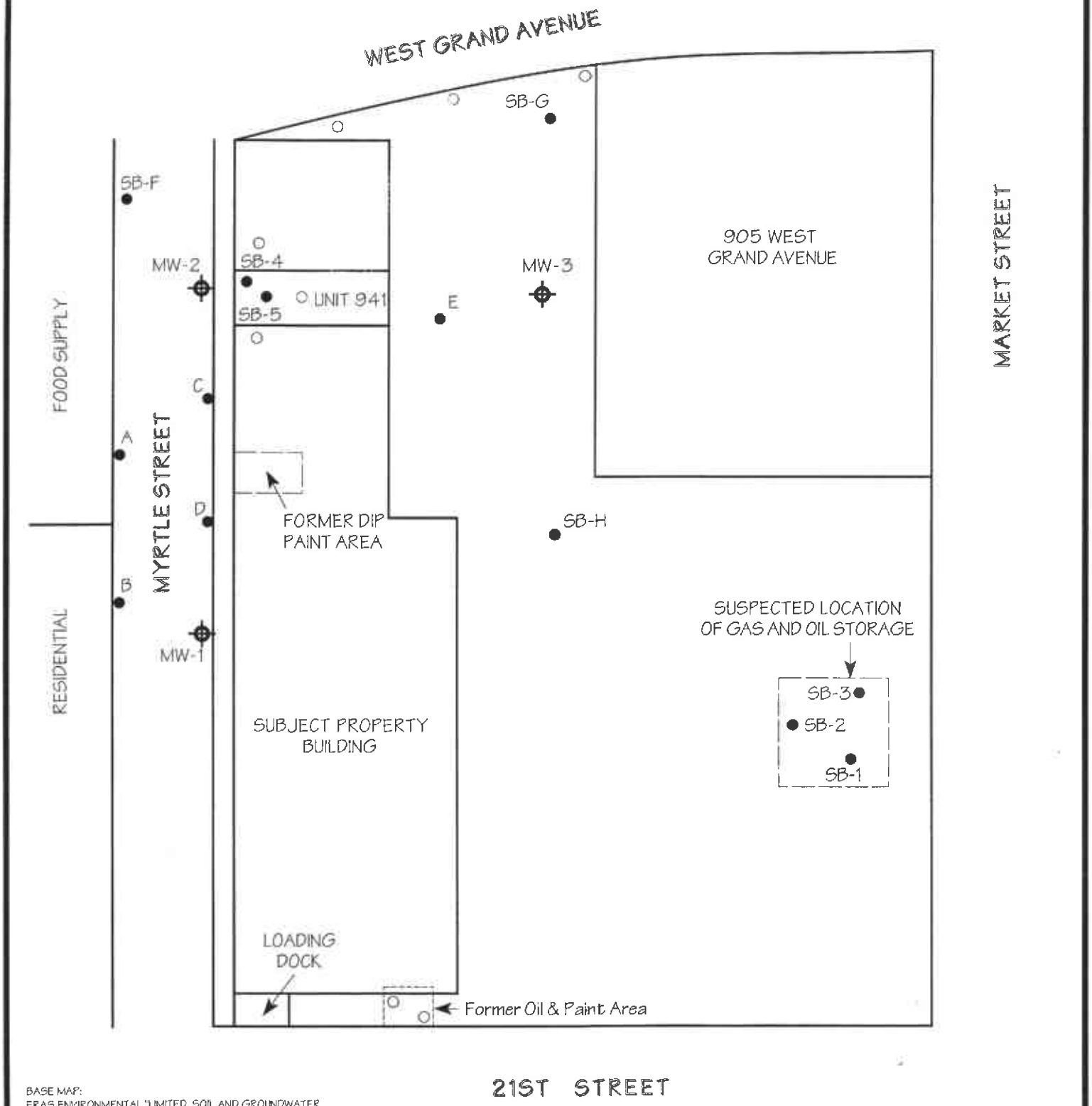
AQUA SCIENCE ENGINEERS, INC. | Figure 2



UTILITY LOCATION MAP

KIM PROPERTY
925-949 West Grand Avenue
Oakland, California

AQUA SCIENCE ENGINEERS, INC. | Figure 3



BASE MAP:
ERAS ENVIRONMENTAL "LIMITED SOIL AND GROUNDWATER INVESTIGATION," 5/27/2003, FIGURE 2
AND AEI CONSULTANTS "PHASE II SUBSURFACE INVESTIGATION," 3/21/2002, FIGURE 2

LEGEND

- B ● Previous Soil Boring
- ○ Proposed Soil Boring
- MW-1 ⊕ Monitoring Well

NORTH

SCALE
1 INCH = 50 FEET
0 50

PROPOSED SOIL BORING LOCATION MAP

KIM PROPERTY
925-949 West Grand Avenue
Oakland, California

AQUA SCIENCE ENGINEERS, INC. | Figure 4

APPENDIX A

January 13, 2005 Letter from the ACHCSA

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

January 13, 2005

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

Mr. Chong Kim
2601 Telegraph Ave.
Oakland, CA 94612

Dear Mr. Kim:

Subject: Leak Case RO0002514, 925-949 W. Grand Ave., Oakland, CA 94607

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the subject site including the September 30, 2004 Soil and Groundwater Assessment prepared by Aqua Science Engineers (ASE) and determined that additional information is needed at your site to progress towards case closure. We request that you address the following technical comments and submit the technical reports requested below.

TECHNICAL COMMENTS

1. Groundwater Monitoring- Please perform groundwater monitoring at this site on a quarterly basis. Please analyze groundwater samples for TPH as diesel, TPH as gasoline, BTEX, MTBE and halogenated volatile organic compounds (HVOCs). EPA Method 8260 is recommended for this analysis.
2. Phase I information- We request that you provide figure(s) of the historical locations of buildings and all known uses within the buildings and on the property. It appears that there may be areas of potential chemical use or storage, which have not yet been investigated. The use of Sanborn maps is advisable. Please include a sampling proposal for any areas of concern identified in the report requested below.
3. The extent of the petroleum and HVOC releases has not been defined. In addition, off-site sources of these releases have been alluded to but have not been verified. Additional investigation will be required to define the extent of the releases and identify other sources of contamination. Please include a proposal for additional plume definition in the report requested below.
4. Utility/preferential pathway investigation- our office previously requested that you perform a utilities investigation within and adjacent to the site, particularly near the former dry cleaning units. Please provide this information and propose, as necessary, any sampling along identified utilities in the technical report requested below.
5. We understand that you would like a meeting to discuss the potential residential development of this property. We suggest that a meeting be scheduled at the same time you submit the requested technical reports.

TECHNICAL REPORT REQUEST

Please submit the following technical reports to our office according to the following schedule:

- February 15, 2005- Groundwater Monitoring report for 1st quarter 05, Phase I figures and sampling proposal, plume definition work plan and utilities investigation report.
- May 15, 2005- Groundwater Monitoring report for 2nd quarter 05

- August 15, 2005- Groundwater Monitoring report for 3rd quarter 05
- November 15, 2005- Groundwater Monitoring report for 4th quarter 05

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

Please call me at (510) 567-6765 if you have any questions.

Sincerely,

Barney M. Chan
Hazardous Materials Specialist

C: B. Chan, D. Drogos
Mr. Robert Kitay, ASE, 208 W. El Pintado Rd., Danville, CA 94526
Mr. Don Kim, 80 Grand Ave., Ste. 205, Oakland, CA 94612

1_13_05 925WGrand

APPENDIX B

City of Oakland Sewer
and Monument Elevation Maps

AVE.

STREET

W. Grand Ave

Abandoned

48" x 319.9' CONC.

WEST ISABELLA

N H(ELM) ST.

Q (LOCUST) RD ST.

22ND STREET

21ST STREET

20TH STREET

CURTIS STREET

Myrtle St.

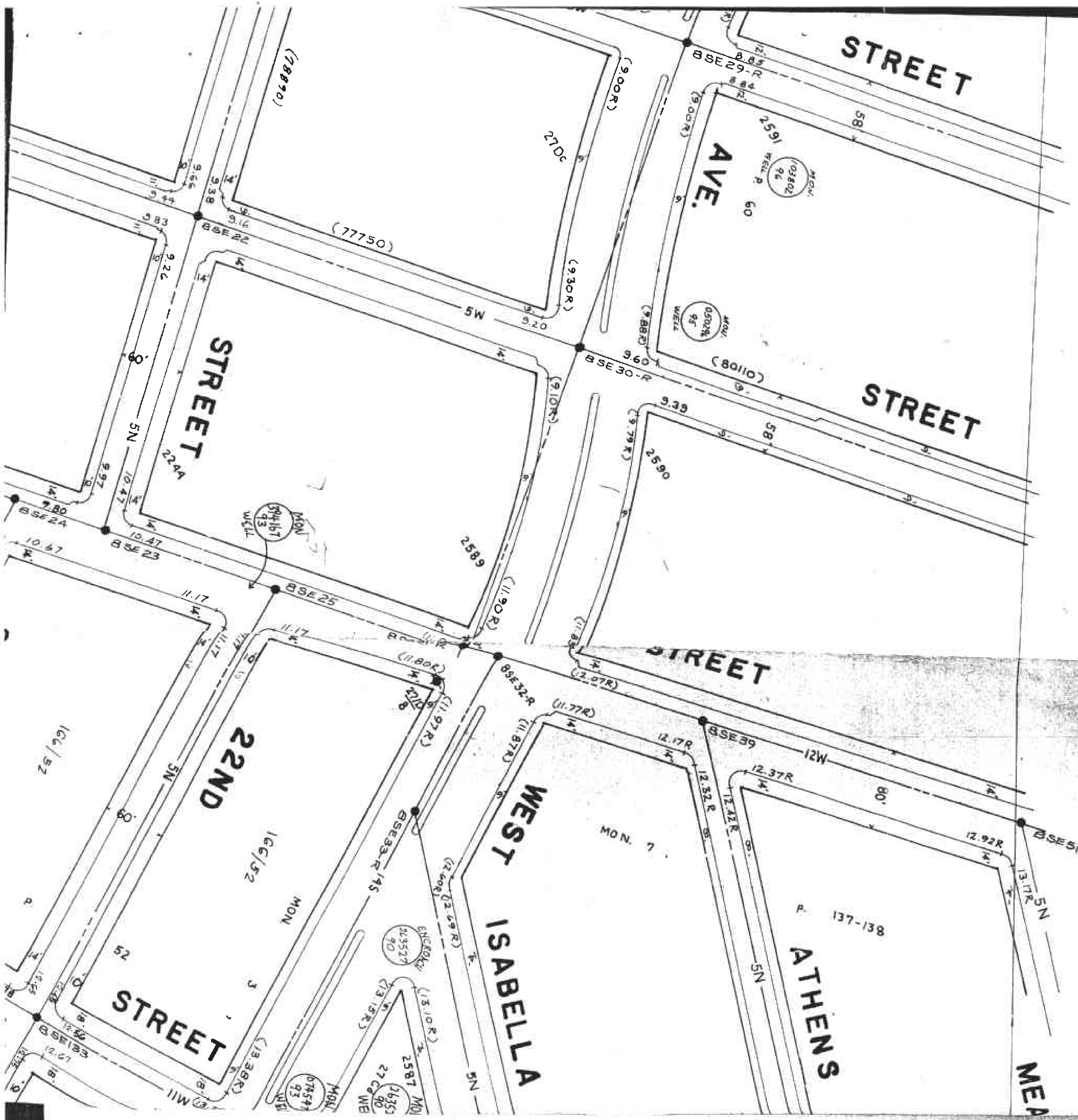
Market St.

PLOT OF BERGER'S MAP OF V. & D. PERALTA

SUBDIV. WALL TRACT

616

238


STREET
AVE.
STREET
STREET
STREET
22ND
STREET
WEST
ISABELLA
ATHENS
MEA
2591
2590
2589
2244
27Dc
(78890)
(77750)
(80110)
BSE22
BSE24
BSE23
BSE25
BSE29-R
BSE30-R
BSE32-R
BSE33-R
BSE39
BSE51
BSE133
5W
12W
11W
5N
MON. 7
P. 137-138
1G6/52

252

APPENDIX C

Sanborn Maps

EDR™ Environmental Data Resources Inc

"Linking Technology with Tradition"®

Sanborn® Map Report

Ship To: Robert Kitay
Aqua Science Engineers
208 W. El Pintado Road
Danville, CA 94526

Order Date: 2/8/2005 **Completion Date:** 2/9/2005
Inquiry #: 1356539.1s
P.O. #: NA
Site Name: 941 West Grand Avenue
Address: 941 West Grand Avenue
City/State: Oakland, CA 94607
Cross Streets:

Customer Project: NA
1023366WIL 925-820-9391

Based on client-supplied information, fire insurance maps for the following years were identified

1902 - 1 Map
1912 - 1 Map
1951 - 1 Map
1952 - 1 Map
1957 - 1 Map
1958 - 1 Map
1961 - 1 Map
1967 - 1 Map
1970 - 1 Map

Limited Permission to Photocopy Total Maps: 9

USER'S GUIDE

This User's Guide provides guidelines for accessing Sanborn Map® images and for transferring them to your Word Processor.

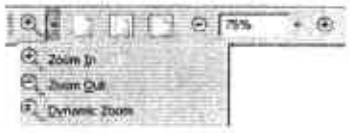
Reading Sanborn Maps

- Sanborn Maps document historical property use by displaying property information through words, abbreviations, and map symbols. The Sanborn Map Key provides information to help interpret the symbols and abbreviations used on Sanborn Maps. The Key is available from EDR's Web Site at: http://www.edrnet.com/reports/samples/key.pdf

Organization of Electronic Sanborn Image File

- Sanborn Map Report, listing years of coverage
- User's Guide
- Oldest Sanborn Map Image
- Most recent Sanborn Map Image

Navigating the Electronic Sanborn Image File



1. Open file on screen.
2. Identify TP (Target Property) on the most recent map.
3. Find TP on older printed images.
4. Using Acrobat® Reader®, zoom to 250% in order to view more clearly. (200-250% is the approximate equivalent scale of hardcopy Sanborn Maps.)
   A. On the menu bar, click "View" and then "Zoom to..."
   B. Or, use the magnifying tool and drag a box around the TP

Printing a Sanborn Map From the Electonic File

- EDR recommends printing images at 300 dpi (300 dpi prints faster than 600 dpi)
- To print only the TP area, cut and paste from Acrobat to your word processor application.

Acrobat Versions 6 and 7

1. Go to the menu bar
2. Click the "Select Tool"
3. Draw a box around the area selected
4. "Right click" on your mouse
5. Select "Copy Image to Clipboard"
6. Go to Word Processor such as Microsoft Word, paste and print.

Acrobat Version 5

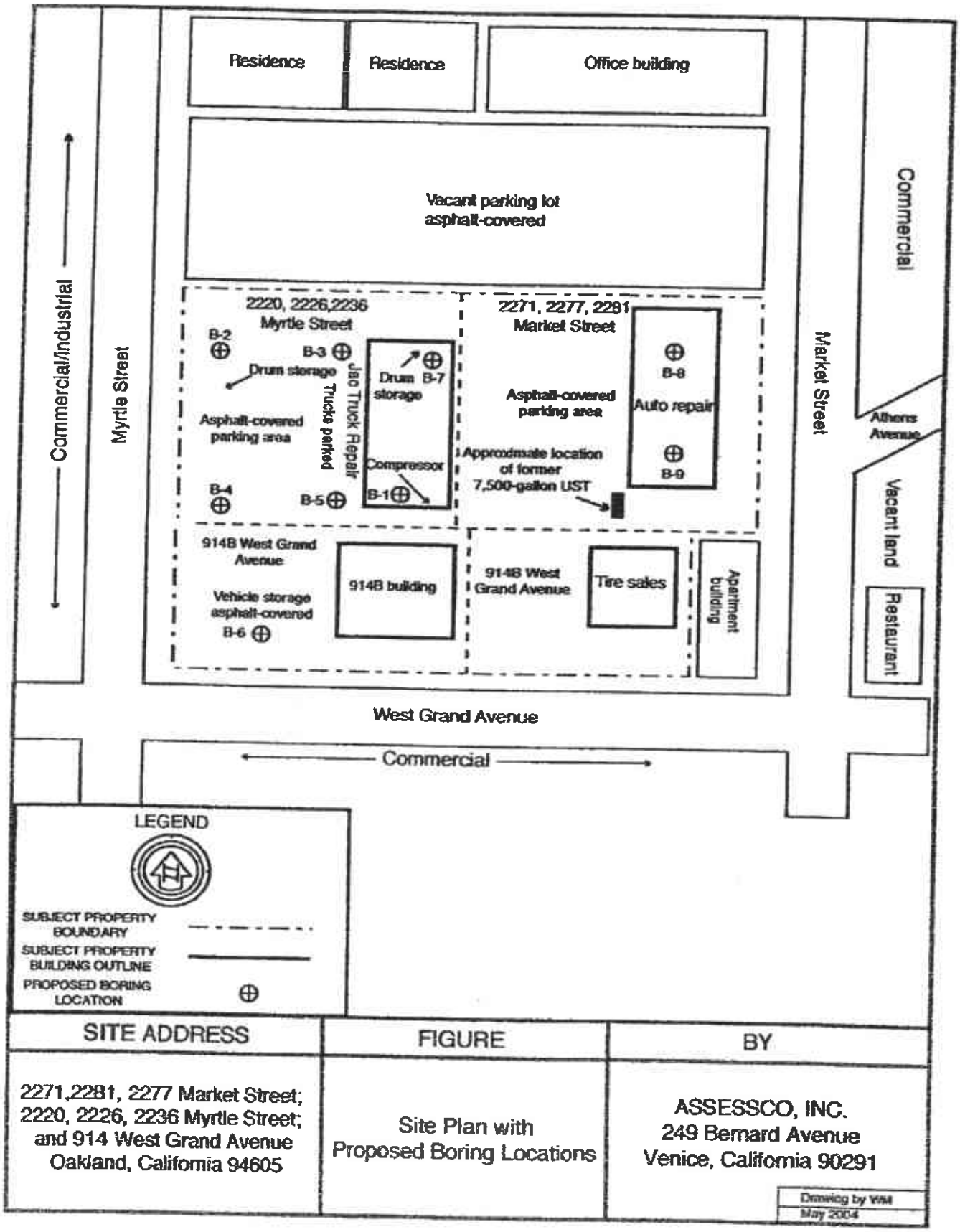
1. Go to the menu bar
2. Click the "Graphics Select Tool"
3. Draw a box around the area selected
4. Go to "Menu"
5. Highlight "Edit"
6. Highlight "Copy"
7. Go to Word Processor such as Microsoft Word, paste and print.

Important Information about Email Delivery of Electronic Sanborn Map Images

- Images are grouped intro one file, up to 2MB.
- In cases where in excess of 6-7 map years are available, the file size typically exceeds 2MB. In these cases, you will receive multiple files, labeled as "1 of 3", "2 of 3", etc. including all available map years.
- Due to file size limitations, certain ISPs, including AOL, may occasionally delay or decline to deliver files. Please contact your ISP to identify their specific file size limitations.

APPENDIX D

Drawing of Automotive Businesses
Across West Grand Avenue



SITE ADDRESS	FIGURE	BY
2271,2281, 2277 Market Street; 2220, 2226, 2236 Myrtle Street; and 914 West Grand Avenue Oakland, California 94605	Site Plan with Proposed Boring Locations	ASSESSCO, INC. 249 Bernard Avenue Venice, California 90291

Drawing by WM
May 2004