

PROGRESS REPORT
QUARTER ENDING MARCH 31, 1992

BECK ROOFING
21123 Meekland Avenue
Hayward, California

Prepared for:
Charlie and Mary Beck
21123 Meekland Avenue
Hayward, CA 94541

L&W Project 2116
????????????????????????????????????, 1992

George Wilson
Vice President

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Geologist

INTRODUCTION

Purpose

This report summarizes and reports work carried out at the Leaking Underground Fuel (LUFT) Tank site at Beck Roofing during the quarter ending March 31, 1992. Beck Roofing is located at 21123 Meekland Avenue in Hayward, California. Work accomplished during this quarter included further overexcavation of contaminated soil, monitoring, sampling and analyses of the three wells. A meeting with the property owners, the property owners consultants and the Alameda County Health Care Services Agency was also held in order to clarify the various issues and work item to be accomplished in order to comply with LUFT program requirements.

This report when forwarded to the Department of Environmental Health of the Alameda County Health Care Services Agency and the Regional Water Quality Control Board, San Francisco Region will serve as a progress report for the quarter ending March 31, 1991.

Background

Beck Roofing is a commercial roofing business that installed an underground gasoline tank as part of their operations to refuel roofing trucks. The only tank associated with the site was a 1000 gallon metal underground gasoline tank. Beck Roofing had the tank removed from the property on May 20, 1991. Upon excavation and tank removal, soil samples were analyzed and found to contain Total Petroleum Hydrocarbons as Gasoline (TPH-G) in excess of 1000 parts per million (ppm).

Under local and state regulations, further work was required and was described in the letter dated August 5, 1991, from the Alameda County Health Care Services Agency. L&W Environmental Services Inc. responded with a Work Plan dated October 10, 1991 and a Work Plan Addendum dated October 29, 1991 describing the work to be carried out in response to the Alameda County Health Care Services Agency letter. Various work items have been carried out at the site in order to comply with the LUFT program requirements.

The following Chronology itemizes the various significant activities carried out at the site to date.

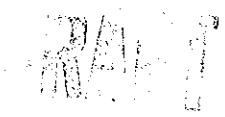
- 05/20/91 A 1000 gallon gasoline tank was removed from the site under the observation of Blaine Tech Services.
- 08/05/91 The Alameda County Health Care Services Agency published a letter regarding the "Requirement for Soil and Groundwater Investigation at Former Underground Fuel Tank Storage Site".
- 10/10/91 L&W Environmental Services Inc. published a Work Plan for work to be accomplished at the site.

- 10/29/91 L&W Environmental Services Inc. published a Work Plan Addendum.
- 10/30/91 Borings MW1 and MW2 were drilled and converted to Monitoring Wells MW1 and MW2.
- 10/30/91 Additional excavation begun to remove contaminated soil adjacent to the original tank removal pit.
- 10/31/91 Borings B1, B2 and MW3 were drilled. Boring MW3 was converted to Monitoring Well MW3.
- 11/04/91 Groundwater Wells MW1, MW2 and MW3 were monitored and sampled, and the water samples analyzed. This was the initial monitoring episode.
- 11/07/91 The additional excavation begun 10/30/91 was complete.
- 12/23/91 Groundwater Wells MW1, MW2 and MW3 were monitored and sampled, and the water samples analyzed. This was the first monthly monitoring episode.
- 01/07/92 Progress Report for Quarter Ending December 31, 1991 was published.
- 01/22/92 Groundwater Wells MW1, MW2 and MW3 were monitored and sampled, and the water samples analyzed. This was the second monthly monitoring episode.
- 01/30/92 Supplemental excavation to remove contaminated soil was conducted.
- 02/24/92 Groundwater Wells MW1, MW2 and MW3 were monitored and sampled, and the water samples analyzed. This was the third monthly monitoring episode.

??????????? MEETING WITH ????????

Site Location and Description

Beck Roofing is located on the south side of Meekland Avenue at 21123 Meekland Avenue, Hayward, California. The location of the site is shown on the Vicinity Map, Figure 1 of Appendix A. The site is essentially rectangular in shape and is used as the yard of a roofing company. The locations of the tank excavation as well as the main building, a shed and Meekland Avenue are shown on Figure 2 of Appendix A.



Site Setting

The site is located approximately 55 feet above sea level, in the province of San Francisco Bay and is geologically affected by the presence of the nearby bay to the west and the Berkeley Hills to the east. In general the site is within alluvial and bay sediments underlain at depth by basement rocks. Groundwater in this region is located at relatively shallow depths, in granular aquifers laid down by alluvial actions on the nearby Berkeley Hills. Groundwater is contained in granular deposits layered with and confined by various fine grained deposits at about 30 feet below ground surface.

WORK ACCOMPLISHED

Excavation During the Current Quarter

Supplemental excavation was carried out to remove addition contaminated soil and to further define the limits of the spread of contamination. The excavation was done on January 30, 1992. Field screening indicated that the contamination had spread toward the northeast in the general direction of Meekland Road. In order to extent the excavation in this direction, a shed was demolished. A large backhoe (hoptoe) was used to carry out the excavation. To provide access to the hoptoe, the excavation was sloped and a maximum depth of about 23 feet below ground surface was excavated. The excavation was extended to the maximum depths possible with the hoptoe. The excavation was stopped in the northeasterly direction in order to prevent undermining a block wall and an above ground propane tank. The limits of this excavation along with the limits of previous excavation are shown on Figure 3. A total of eight soil confirmation samples were taken on January 30 1992. After excavation and sampling the excavation was backfilled with Controlled Density Fill (CDF), a proprietary material composed of cement, sand, water and fly ash with the approximate strength and permeability of a lean clay.

→ The eight confirmation soil samples taken during the most recent excavating activities were analyzed for gasoline related contaminants. The locations of the eight confirmation samples are shown on Figure 3 of Appendix A. The results of the analyses are tabulated and discussed in the FINDINGS section of this report. The locations of the 16 soil confirmation samples taken during the November 1991 excavation are shown on Figure 4 of Appendix A.

Soil Exploration

The subsurface conditions at the site have been explored with five borings to date. The following chart lists the borings, dates drilled and total depths.

<u>Boring Number</u>	<u>Date Drilled</u>	<u>Total Depth</u>
MW1	10/30/91	45.5 feet
MW2	10/30/91	38 feet
B1	10/31/91	25.5 feet

B2	10/31/91	30.5 feet
MW3	10/31/91	38.0 feet

Details of these borings along with drilling methods and procedures are presented in the Progress Report for Quarter Ending December 31, 1991. The locations of these boring are shown on Figure 5 of Appendix A.

Groundwater Exploration

After the soil borings MW1, MW2, and MW3 were finished they were immediately converted to Groundwater Monitoring Wells. The locations are shown on the Figure 5 of Appendix A. Details of the well installations are discussed in the Progress Report for Quarter Ending December 31, 1991.

The three wells have been monitored and sampled four times since their installation in October 1991. The initial monitoring and sampling episode was reported in the Progress Report for Quarter Ending December 31, 1991. The three subsequent episodes were conducted on December 23, 1991, January 22, 1992 and February 24, 1992. During each of these episodes, groundwater surface elevations and preliminary observation samples were taken. Prior to sampling, each well was purged by removing at least four well volumes of water. An air lift pump was used to remove the water and place it into a DOT barrel. After purging and apparent stabilization of the water quality, pH, temperature, and conductivity, samples were obtained by lowering a disposable bailer into the water. Sufficient water was taken for the various analyses and stored in appropriate containers. The containers were labeled, entered on a Chain-of-Custody Form, refrigerated and delivered to a California State Certified Laboratory for the required analyses.

MEETING??

FINDINGS

Subsurface Conditions

The site is underlain by alternating deposits of naturally occurring sandy and silty clays, and fine to medium sands. A silty clay layer was encountered from near the ground surface to a maximum depth of approximately 7 feet. This layer was encountered in all of the borings except MW2, where the near surface layer consisted of a gravel-sand-clay mixture and extended to about 3 feet. Fine sands and silty sands were the next soil type encountered. In MW2 this layer was about 20 feet thick, but was thinner in other borings, ranging from 10 to 14 feet in thickness. A 3-foot thick lens of clay was found in B1 within this sand layer from about 9 to 13 feet. Below the sand, another clay layer was found in all borings down to depths ranging from 30 to 33 feet below ground surface. Borings 1 and 2 were terminated before this clay layer was penetrated. Another sand layer was encountered below the clay in MW1, MW2, and MW3. Data obtained in the deepest boring, MW1, reveal that this sand layer is approximately 5 feet thick and is underlain by more clay down to approximately 45 feet, and is followed by another sand layer of unknown thickness.

A soil profile in the area of the excavation is shown on Figure 6 of Appendix A. This soil profile is based on data obtained during the exploratory borings as well as observations made during the various excavations.

The following tables summarize the analytical results of all the soil samples taken from the site to date. Each sample was analyzed for Total Petroleum Hydrocarbons as Gasoline (TPH-G), The Aromatic Hydrocarbons, Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) and Total Lead. Two samples taken on November 6, 1991 were analyzed for Total Oil and Grease (TOG).

Other abbreviations used in the tables are

ppm parts per million.

NT Not tested as part of this analysis.

ND Not detected at or above the Method Detection Limit.

Results of analyses on samples obtained during tank removal

Sample ID	Date Sampled	TPH-G (ppm)	BTEX (ppm)	TOG (ppm)	LEAD (ppm)
#1	05/20/91	1,300	64/77/28/230	NT	0.22
#2	05/20/91	1,800	5.8/75/33/2107	NT	0.66
#3 A-D	05/20/91	11	ND/ND/ND/ND	NT	ND

Results of analyses on samples obtained from the first overexcavation

Sample ID	Date Sampled	TPH-G (ppm)	BTEX (ppm)	TOG (ppm)	LEAD (ppm)
2116-G1	10/30/91	680	ND/4.7/4.5/110	NT	8.22
2116-G2	10/30/91	1,330	6.3/140/50/280	NT	ND
2116-G3	10/30/91	940	0.53/16/12/150	NT	ND
2116-G4	10/30/91	2,700	37/310/100/520	NT	7.50
2116-NW-17	10/30/91	2,740	16/240/120/650	NT	ND
2116-F	10/30/91	5,760	30/450/230/1270	NT	7.25
2116-SW-15	10/30/91	ND	.011/.071/.015/.087	NT	8.30
2116-SW-17	10/30/91	720	0.40/13/8.4/90	NT	9.35
2116-NW-15	10/30/91	1.5	0.008/0.05/0.016/0.21	NT	ND
2116-EW-14	11/06/91	170	ND/2.7/1.5/10	ND	NT
2116-C-16	11/06/91	780	0.83/15/6.3/48	ND	NT
2116-WW-16	11/07/91	1.0	ND/0.009/ND/0.029	NT	4.0
2116-CF-18	11/07/91	6,800	40/440/140/770	NT	12.2
2116-NW-16	11/07/91	4,200	6.3/240/100/550	NT	11.0
2116-SW-16	11/07/91	3,200	1.8/100/60/350	NT	8.4
2116-EW-16	11/07/91	1.2	ND/0.040/0.008/0.048	NT	ND

Results of analyses on samples obtained from the second overexcavation

Sample ID	Date Sampled	TPH-G (ppm)	BTEX (ppm)	TOG (ppm)	LEAD (ppm)
2116-SE-23	01/30/92	2,790	6.6/140/32/330	NT	5.80
2116-NE-23	01/30/92	70	0.43/2.5/0.52/4.5	NT	4.00
2116-EWL-23	01/30/92	2,760	4.8/125/47/380	NT	ND
2116-NWL-23	01/30/92	1,070	6.1/82/26/140	NT	6.40
2116-NW-23	01/30/92	3,820	6.3/126/67/440	NT	10.8
2116-SW-23	01/30/92	2,440	16/180/63/324	NT	7.50
2116-CP-23	01/30/92	2,410	5/110/42/320	NT	ND
2116-EWL-16	01/30/92	ND	ND/0.15/ND/0.005	NT	ND

Results of analyses on samples obtained from exploratory borings

Sample ID	Date Sampled	TPH-G (ppm)	BTEX (ppm)	TOG (ppm)	LEAD (ppm)
2116-5-MW1	10/30/91	ND	ND/0.016/ND/0.014	NT	ND
2116-10-MW1	10/30/91	ND	ND/0.010/ND/0.007	NT	ND
2116-15-MW1	10/30/91	ND	ND/0.013/ND/0.007	NT	ND
2116-20-MW1	10/30/91	ND	ND/0.010/ND/0.006	NT	ND
2116-25-MW1	10/30/91	ND	ND/0.024/ND/0.007	NT	ND
2116-30-MW1	10/30/91	ND	ND/0.011/ND/0.006	NT	5.00
2116-35-MW1	10/30/91	ND	ND/0.010/ND/0.006	NT	5.50
2116-40-MW1	10/30/91	ND	ND/0.016/ND/0.006	NT	ND
2116-45-MW1	10/30/91	ND	ND/0.015/ND/0.006	NT	4.3
2116-5-MW2	10/30/91	ND	ND/ND/ND/ND	NT	ND
2116-10-MW2	10/30/91	ND	ND/ND/ND/ND	NT	ND
2116-15-MW2	10/30/91	ND	ND/ND/ND/ND	NT	ND
2116-20-MW2	10/30/91	ND	ND/ND/ND/ND	NT	5.90
2116-25-MW2	10/30/91	1.4	0.10/0.085/0.014/0.090	NT	ND
2116-30-MW2	10/30/91	ND	0.044/0.008/ND/ND	NT	ND
2116-35-MW2	10/30/91	ND	0.006/ND/ND/ND	NT	4.20
2116-5-B1	10/31/91	ND	ND/0.017/ND/ND	NT	ND
2116-10-B1	10/31/91	ND	ND/0.011/ND/ND	NT	ND
2116-15-B1	10/31/91	ND	ND/.012/ND/ND	NT	ND
2116-20-B1	10/31/91	5.7	0.250/0.600/0.10/0.57	NT	5.82
2116-25-B1	10/31/91	8.8	0.14/0.60/0.126/0.76	NT	4.20
2116-5-B2	10/31/91	ND	ND/0.018/ND/ND	NT	ND
2116-10-B2	10/31/91	ND	ND/0.013/ND/0.006	NT	4.00
2116-15-B2	10/31/91	ND	ND/0.006/ND/ND	NT	ND
2116-20-B2	10/31/91	ND	0.046/0.011/0.014/0.040	NT	ND
2116-25-B2	10/31/91	35	0.44/1.2/0.32/1.80	NT	ND
2116-30-B2	10/31/91	36	0.27/0.87/0.37/2.1	NT	ND

**Results of analyses on samples obtained from exploratory borings
(continued)**

2116-5-MW3	10/31/91	1	ND/0.018/ND/ND	NT	ND
2116-10-MW3	10/31/91	ND	ND/ND/ND/ND	NT	3.60
2116-15-MW3	10/31/91	ND	ND/0.028/ND/ND	NT	3.60
2116-20-MW3	10/31/91	2.9	0.021/0.017/0.006/0.025	NT	5.80
2116-25-MW3	10/31/91	6.2	0.048/0.022/0.012/0.056	NT	ND
2116-30-MW3	10/31/91	9.8	0.25/0.015/0.048/0.26	NT	3.90
2116-35-MW3	10/31/91	ND	ND/0.014/ND/ND	NT	3.75

Groundwater Hydrology

Based on the results of the exploration program, the groundwater below the site appears to be an aquifer located near the interface of the clay and sand in all three wells. Groundwater was initially encountered at about 33 feet below ground surface in all three wells. The groundwater remained stable in all of the wells at about 33 feet below ground surface until the most recent monitoring episode when the surface elevation in MW1 fell to about 37 feet and the surface elevation in MW3 rose to about 30 feet. The surface elevation in MW2 was at 32.00 feet and was not significantly different from previous episodes.

The observations and measurements from each monitoring episode are presented below:

Location	Date Measured	Top of Casing Elevation	Sheen or Free Product (feet)	Depth to Groundwater (feet)	Piezometric Surface Elevation
MW1	10/18/91	100.01	None	32.32	67.69
MW2	10/18/91	100.13	None	32.44	67.69
MW3	10/18/91	100.00	None	32.40	67.60
MW1	12/23/91	100.01	None	32.54	67.47
MW2	12/23/91	100.13	None	32.64	67.49
MW3	12/23/91	100.00	None	32.60	67.40
MW1	01/22/92	100.01	None	32.08	67.93
MW2	01/22/92	100.13	None	32.19	67.94
MW3	01/22/92	100.00	None	32.14	67.86
MW1	02/24/92	100.01	None	37.26	62.75
MW2	02/24/92	100.13	None	32.00	68.13
MW3	02/24/92	100.00	None	29.90	70.10

The groundwater gradient was calculated based on the measurements taken during each sampling episode. The following table shows the direction and slope of the gradient calculated for each monitoring episode.

Date	Direction of Gradient	Slope of Gradient
11/04/91	2° north of west	0.10 feet per 100 feet
12/23/91	13° south of west	0.09 feet per 100 feet
01/22/92	5° south of west	0.08 feet per 100 feet
02/24/92	49° south of east	14.3 feet per 100 feet

The calculated groundwater gradients have been plotted and are shown on Figures 7 - 10 of Appendix A.

Groundwater Sample Analytical Results

The following tables summarize the analytical results of all the groundwater samples taken from the three groundwater monitoring wells to date. Each sample was analyzed for Total Petroleum Hydrocarbons as Gasoline (TPH-G), the Aromatic Hydrocarbons, Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) and Total Lead.

Other abbreviations used in the tables are

ppb parts per billion.

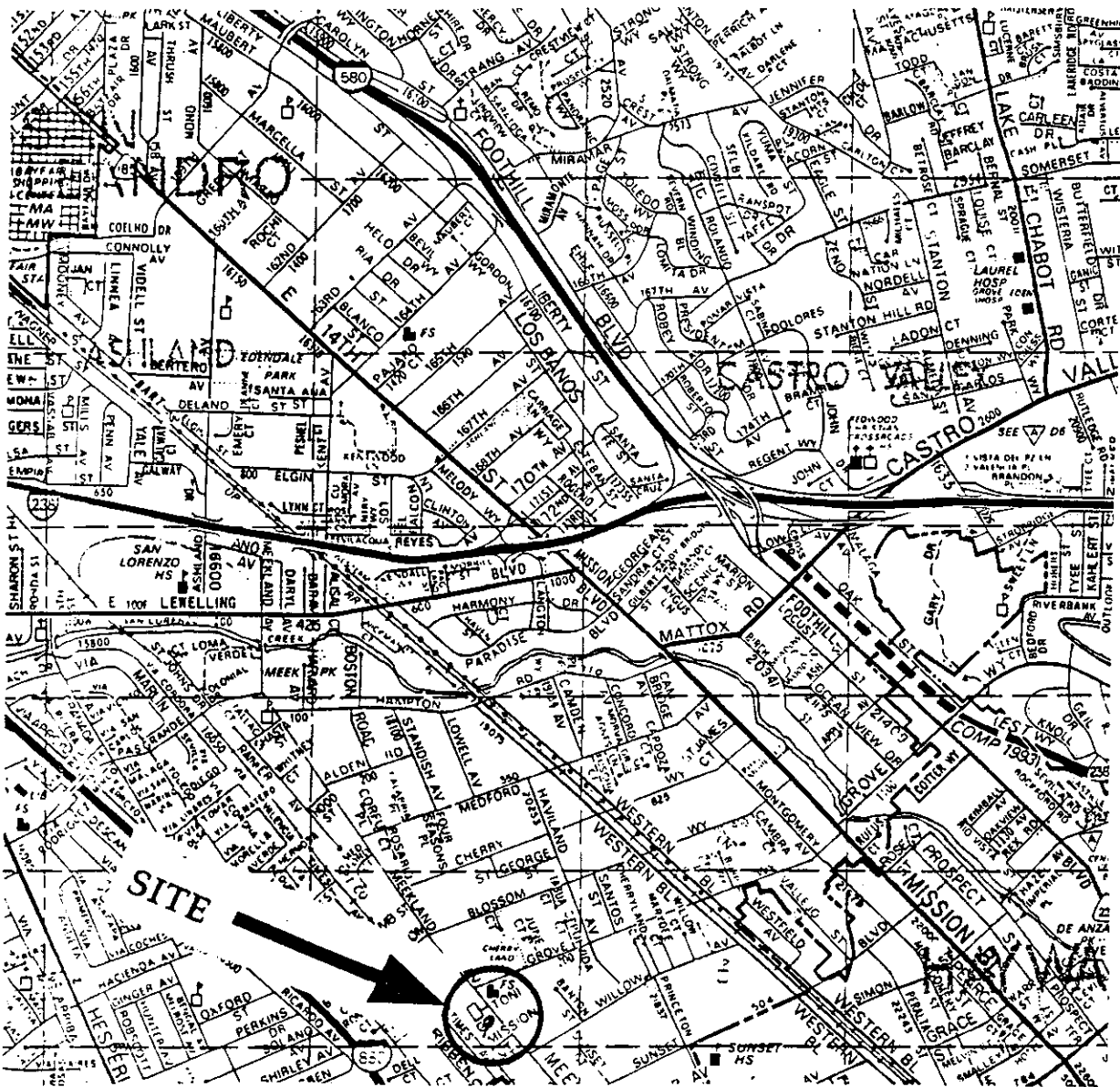
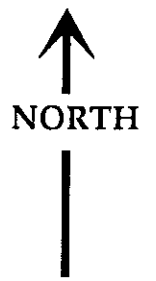
ppm parts per million.

ND Not detected at or above the Method Detection Limit.

Sample Number	Date Sampled	TPH-G (ppb)	BTEX (ppb)	LEAD (ppm)
2116-MW1	11/04/91	ND	ND/ND/ND/ND	ND
2116-MW2	11/04/91	ND	ND/ND/ND/ND	ND
2116-MW3	11/04/91	ND	ND/ND/ND/ND	ND
2116-MW1	12/23/91	ND	ND/ND/ND/ND	ND
2116-MW2	12/23/91	ND	ND/ND/ND/ND	ND
2116-MW3	12/23/91	150	60/0.5/0.6/9.7	ND
2116-MW1	01/22/92	ND	ND/ND/ND/ND	ND
2116-MW2	01/22/92	ND	ND/ND/ND/ND	ND
2116-MW3	01/22/92	ND	ND/ND/ND/ND	ND
2116-MW1	02/24/92	90	0.4/1.0/ND/ND	ND
2116-MW2	02/24/92	330	110/2.0/ND/0.9	ND
2116-MW3	02/24/92	4,360	710/16/69/400	ND

CONCLUSIONS

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L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Vicinity Map

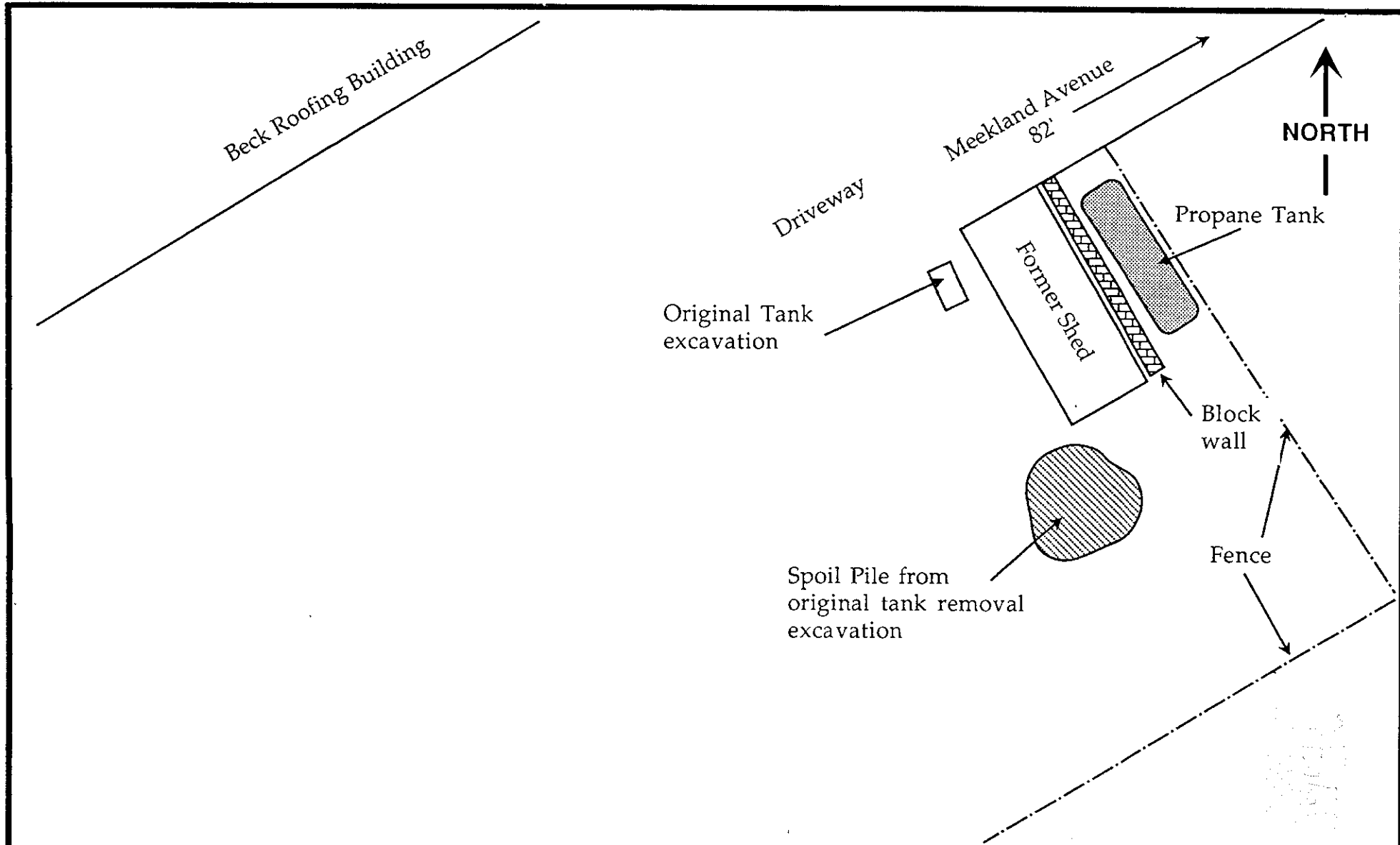
Beck Roofing
21123 Meekland Avenue
Hayward, California

Project Number: 2116

Drawn by: JNC

Date: March, 1992

Figure Number: 1



L & W Environmental Services, Inc.
 2111 Jennings Street
 San Francisco, California

Site Plan
 Beck Roofing
 Hayward, California

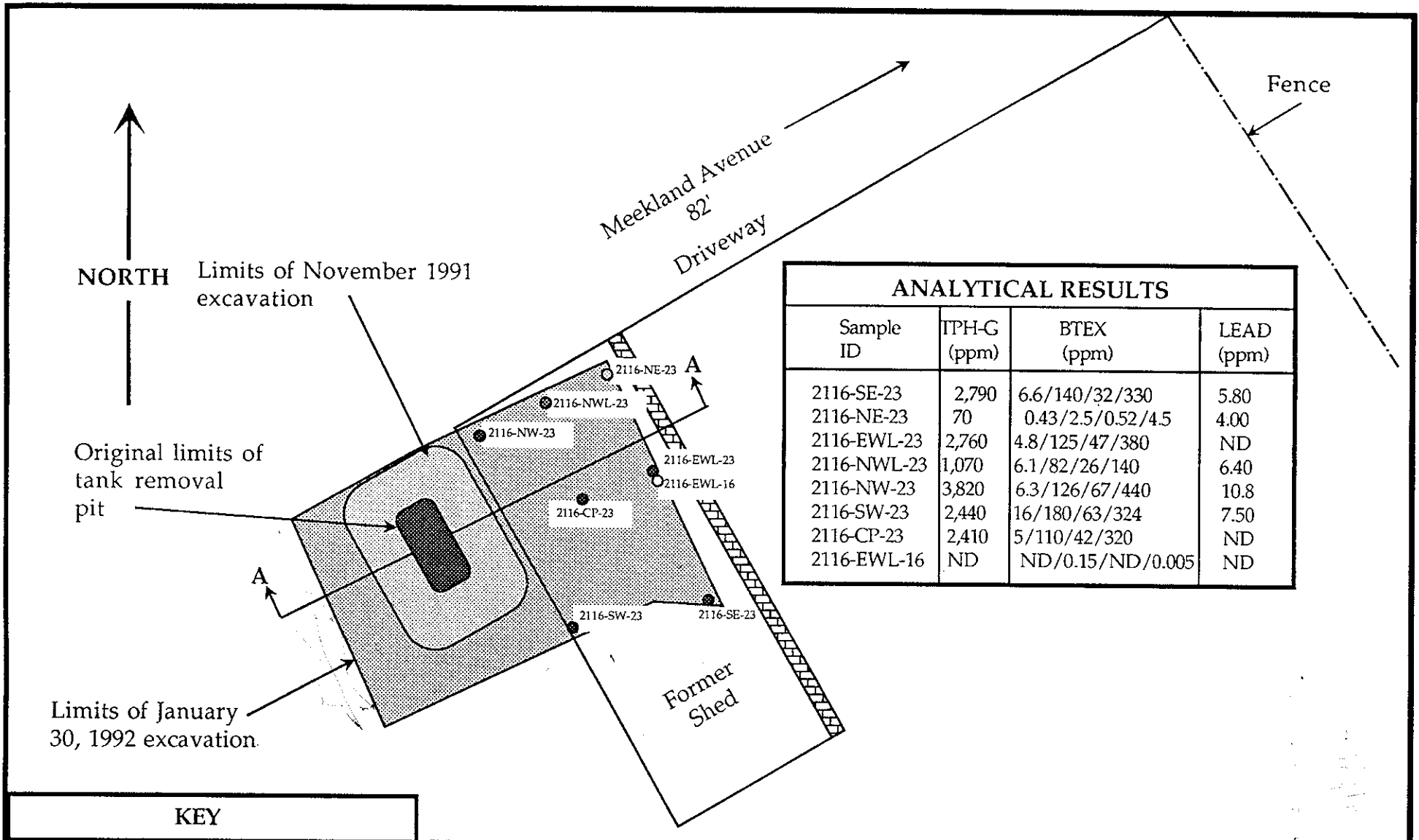
Scale: 1 inch = 20 feet

Project Number: 2116

Drawn by: jnc

Date: March, 1992

Figure Number: 2



ANALYTICAL RESULTS			
Sample ID	TPH-G (ppm)	BTEX (ppm)	LEAD (ppm)
2116-SE-23	2,790	6.6/140/32/330	5.80
2116-NE-23	70	0.43/2.5/0.52/4.5	4.00
2116-EWL-23	2,760	4.8/125/47/380	ND
2116-NWL-23	1,070	6.1/82/26/140	6.40
2116-NW-23	3,820	6.3/126/67/440	10.8
2116-SW-23	2,440	16/180/63/324	7.50
2116-CP-23	2,410	5/110/42/320	ND
2116-EWL-16	ND	ND/0.15/ND/0.005	ND

KEY

- Scale 1"=10"
- Non-detect
- ◐ 0 to 1000 ppm TPH-G
- 1000 to 2000 ppm TPH-G
- Greater than 2000 ppm TPH-G

L & W Environmental Services, Inc.
 2111 Jennings Street
 San Francisco, California

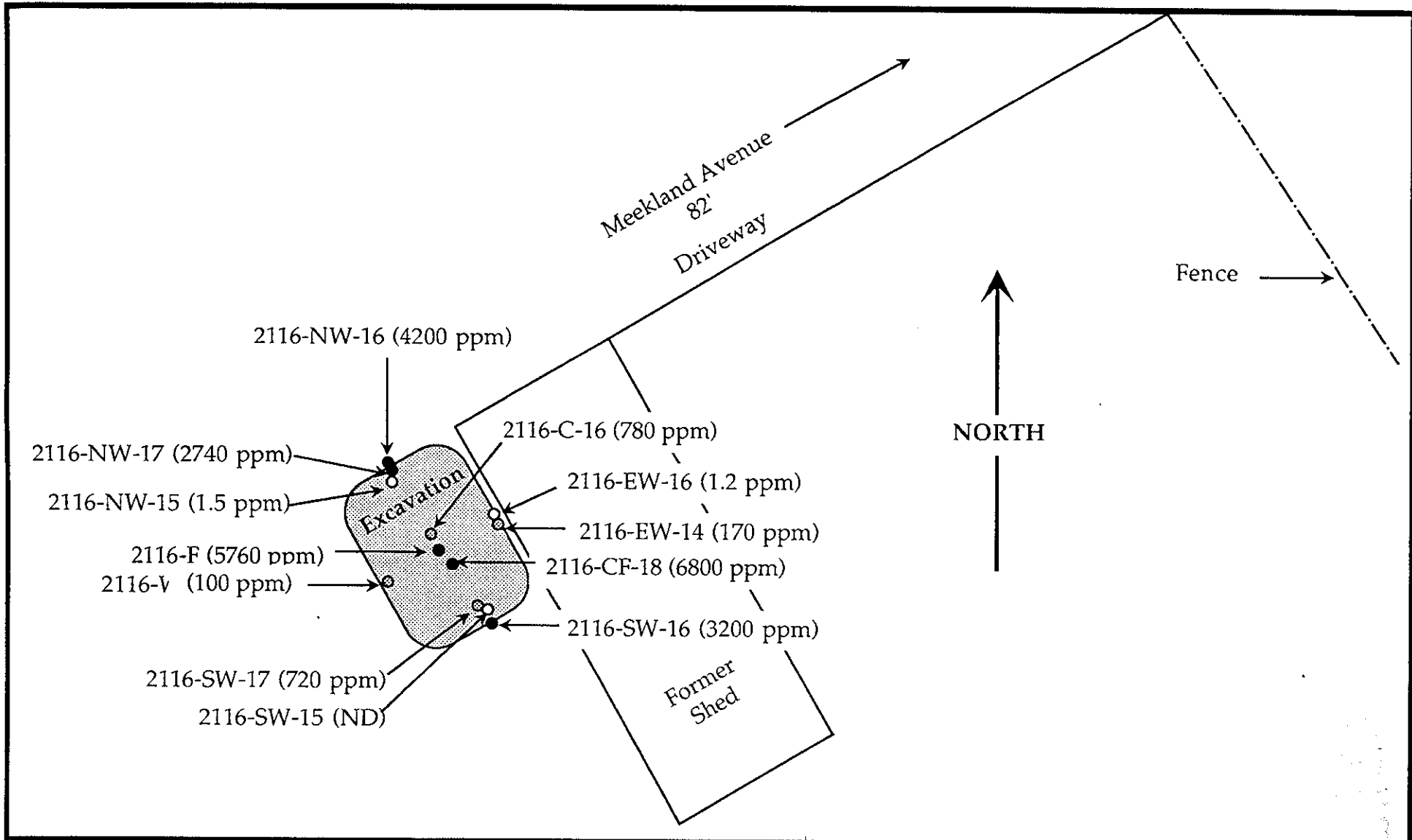
Sample Location Plan
 January 30, 1992 Excavation
 Beck Roofing
 Hayward, California

Project Number: 2116

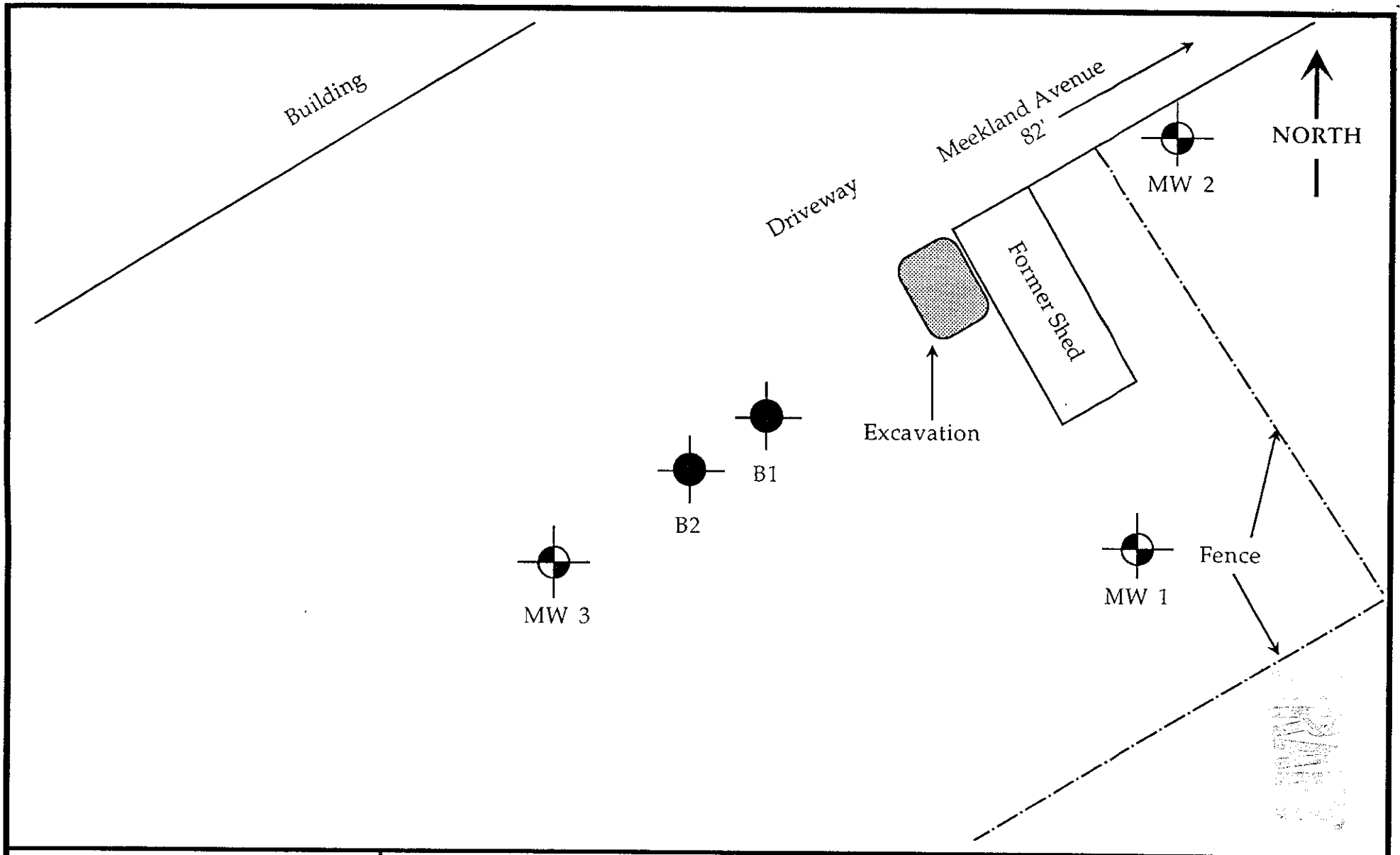
Drawn by jnc

Date: March, 1992



Figure Number 3



KEY		L & W Environmental Services, Inc.		Sample Location Plan	
Scale 1"=10"		2111 Jennings Street San Francisco, California		November 1991 Excavation Beck Roofing Hayward, California	
○ 0 to 99 ppm TPH as Gasoline		Project Number: 2116	Drawn by: jnc	Date: March, 1992	Figure Number 4
◐ 100 to 999 ppm TPH as Gasoline					
● Greater than 999 ppm TPH as Gasoline					



KEY

- Scale 1"=20"
-  Approximate location of boring/monitoring well
-  Approximate location of boring

L & W Environmental Services, Inc.

2111 Jennings Street
San Francisco, California

Boring Location Plan
Beck Roofing
Hayward, California

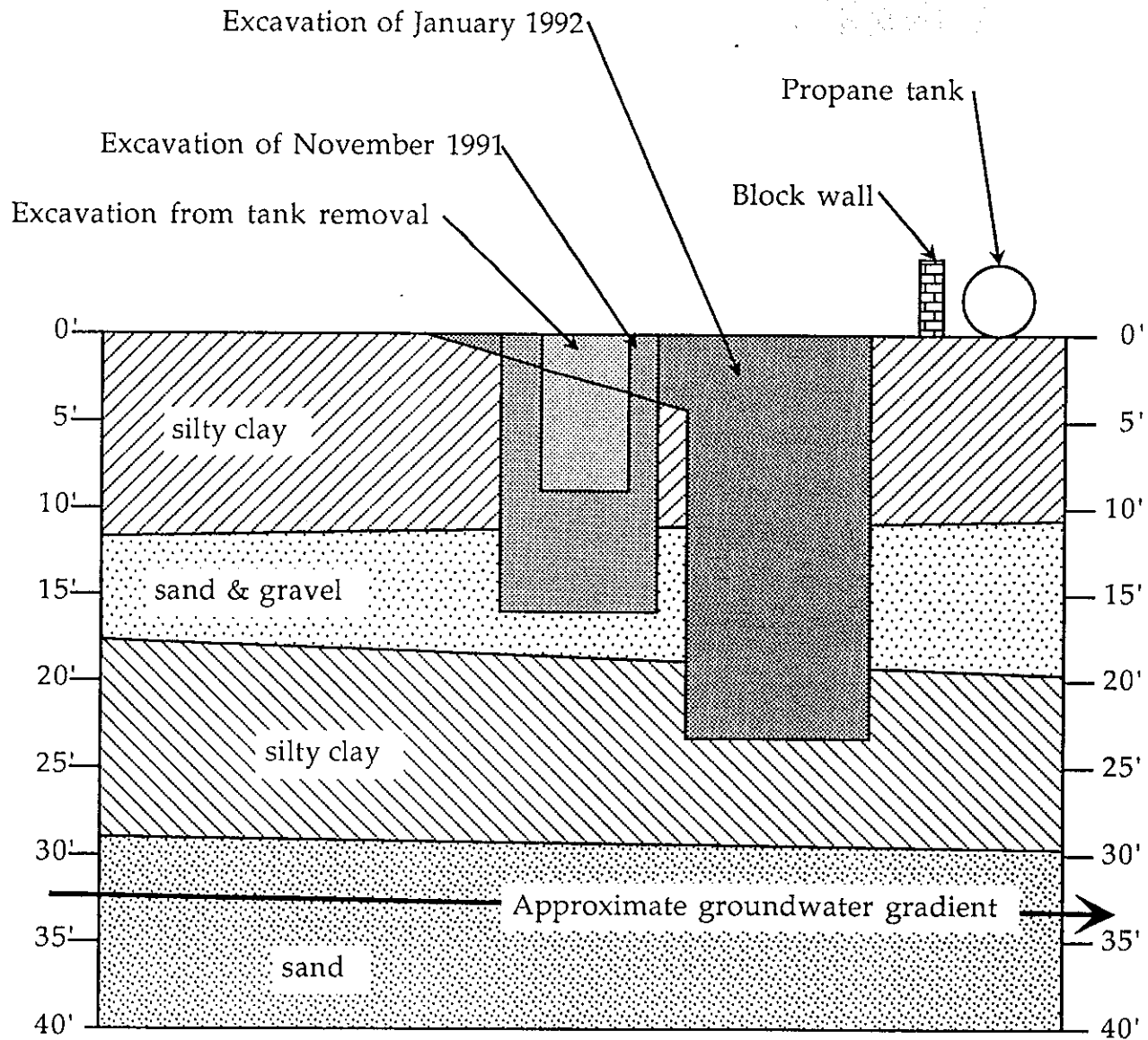
Project Number: 2116

Drawn by: MJK

Date: March, 1992

Figure Number: 5

of



L & W Environmental Services, Inc.
 2111 Jennings Street
 San Francisco, California

Cross Section A-A
 Beck Roofing
 Hayward, California

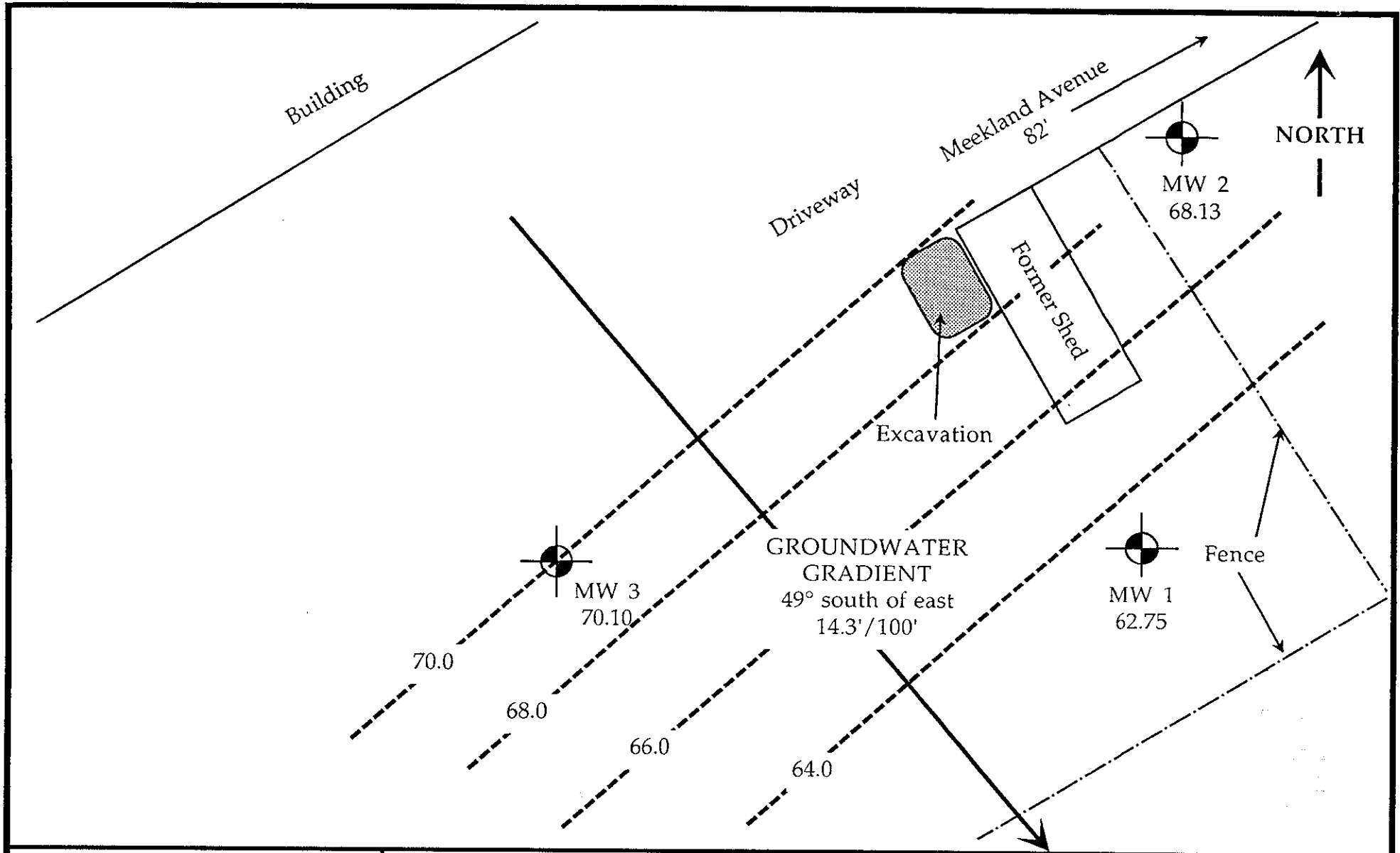
Project Number: 2116



Drawn by: JNC

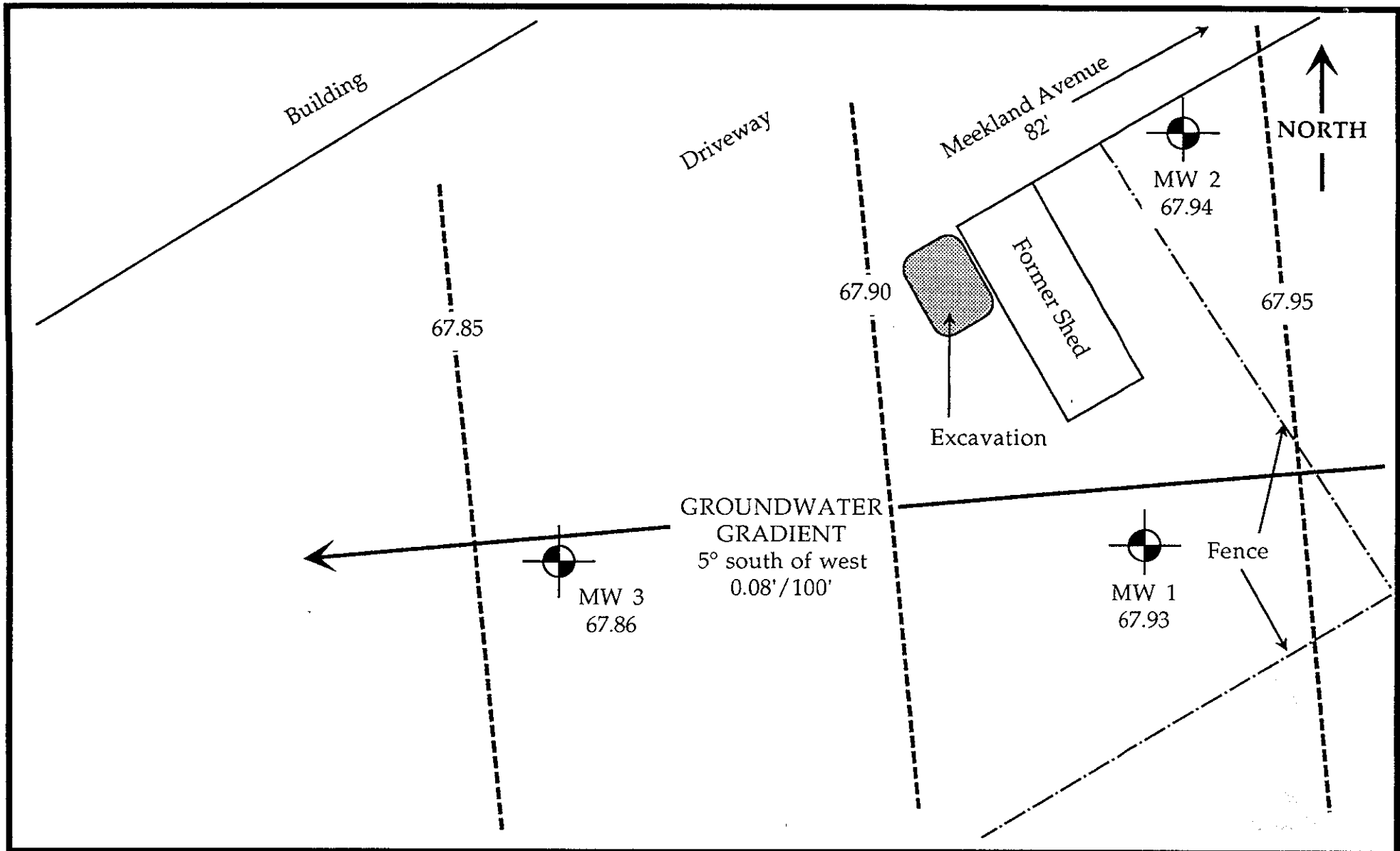
Scale 1"= 10'

Date: March, 1992

Figure Number: 6



KEY		L & W Environmental Services, Inc. 2111 Jennings Street San Francisco, California		GROUNDWATER GRADIENT February 24, 1992 Beck Roofing Hayward, California	
 Scale 1"= 20' Approximate well location	 Groundwater surface elevation	Project Number: 2116	Drawn by: jnc	Date: March, 1992	Figure Number: 7



KEY



Scale 1" = 20'
Approximate well location



Groundwater surface elevation

L & W Environmental Services, Inc.
2111 Jennings Street
San Francisco, California

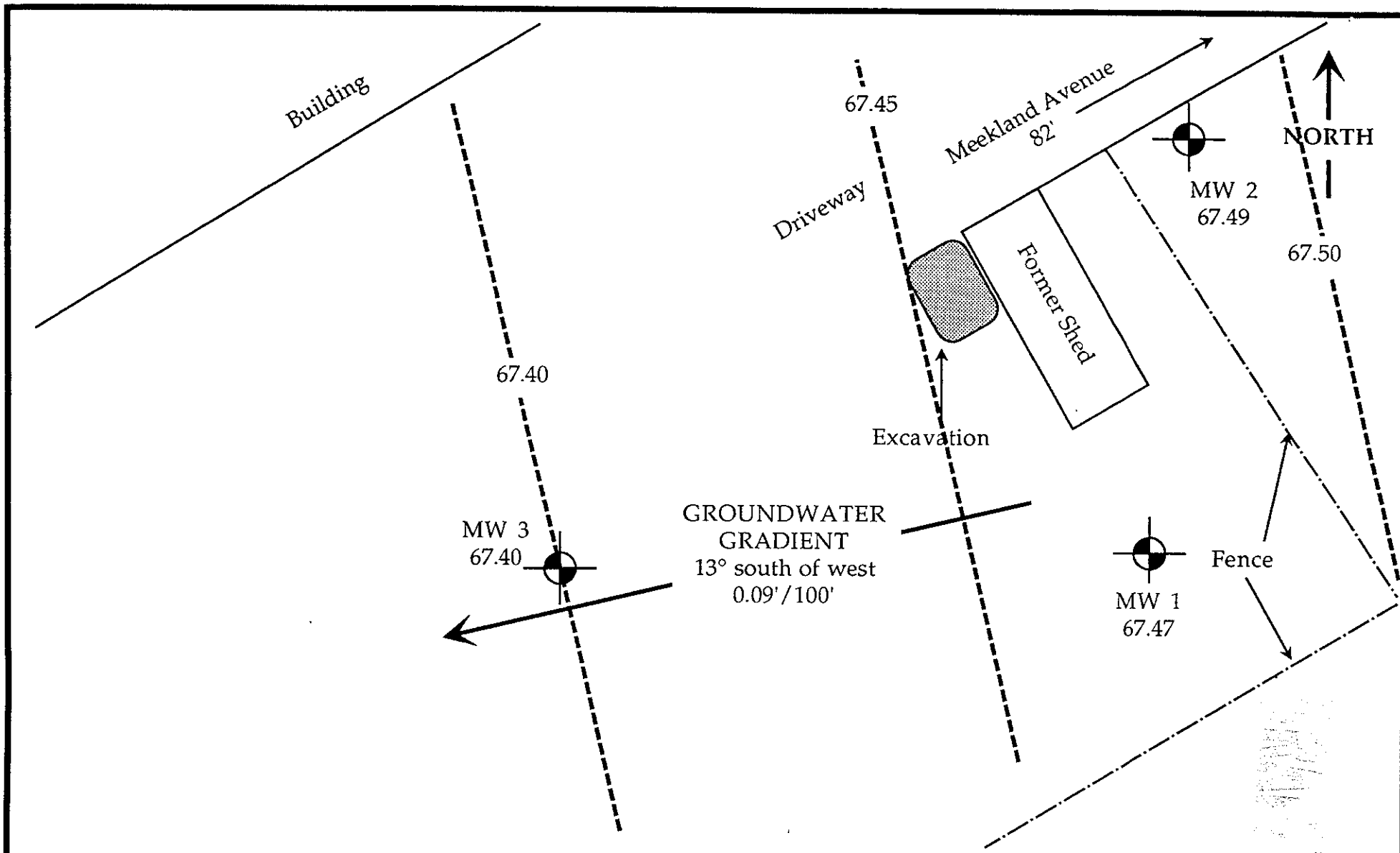
GROUNDWATER GRADIENT
January 22, 1992
Beck Roofing
Hayward, California

Project Number: 2116

Drawn by: jnc

Date: March, 1992

Figure Number: 8



KEY



Scale 1"= 20'
Approximate well location



Groundwater surface elevation

L & W Environmental Services, Inc.
2111 Jennings Street
San Francisco, California

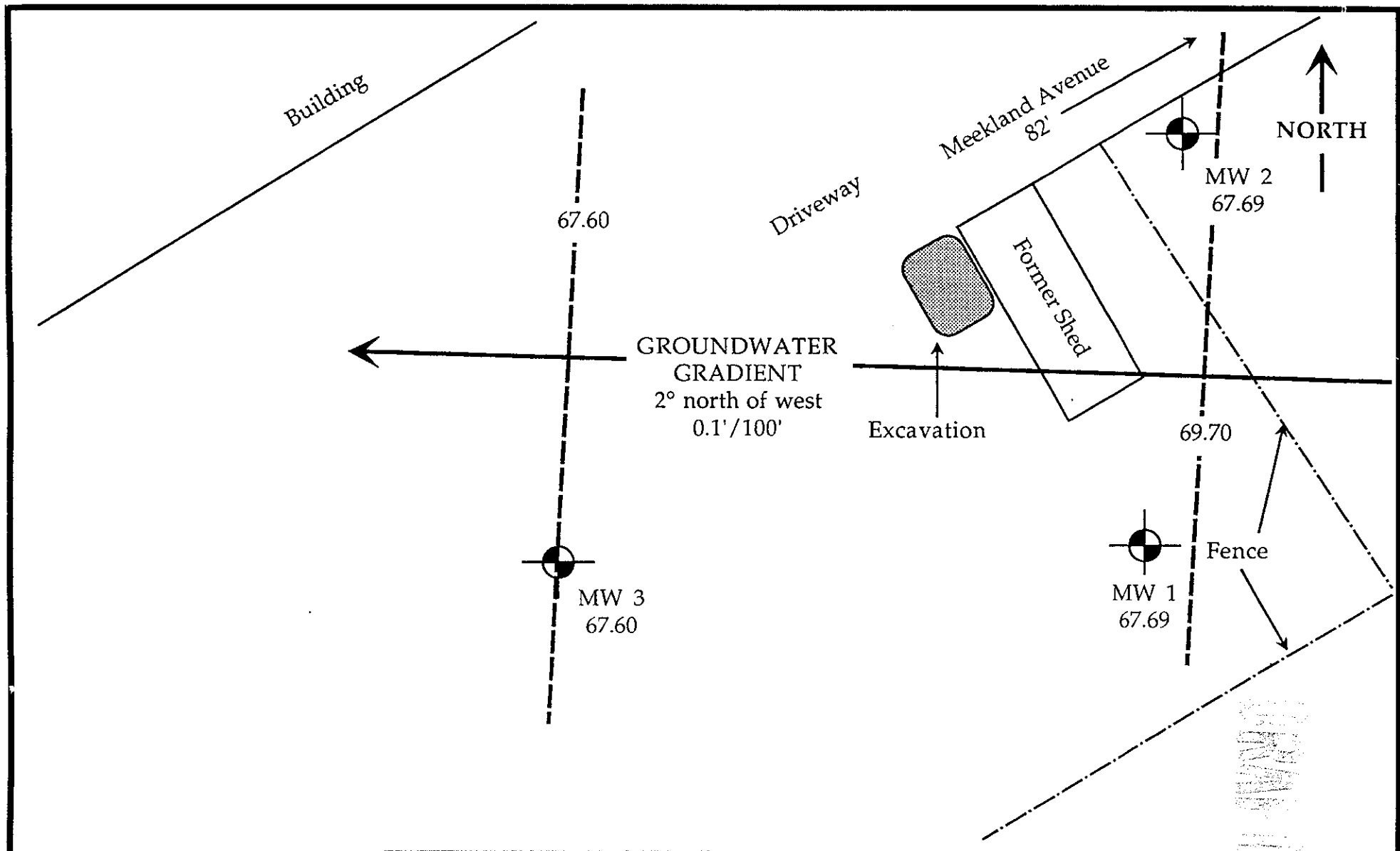
GROUNDWATER GRADIENT
December 23, 1991
Beck Roofing
Hayward, California

Project Number: 2116

Drawn by: jnc

Date: March, 1992

Figure Number: 9



KEY



Scale 1" = 20'
Approximate well location



Groundwater surface elevation

L & W Environmental Services, Inc.
2111 Jennings Street
San Francisco, California

GROUNDWATER GRADIENT
November 4, 1991
Beck Roofing
Hayward, California

Project Number: 2116

Drawn by: jnc

Date: March, 1992

Figure Number: 10

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