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

ENVIRONMENTAL HEALTH SERVICES
1131 Harbor Bay Parkway
Alameda, CA 94502-6577
(510)

May 26, 1998

REMEDIAL ACTION COMPLETION CERTIFICATE

Mr. Bob DeNinno
The Southland Corporation
555 S. Renton Village Place, Suite 700
Renton WA 98055

RE: Underground Storage Tank Closure, Southland Store No. 18608, 4100 Broadway, Oakland CA 94611 (Our site # 4259)

Dear Mr. DeNinno:

This letter confirms the completion of a site investigation for the underground storage tank formerly located at the above referenced location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the former underground storage tanks are greatly appreciated.

Based on information in the above referenced file and with the provision that the information provided to this agency was accurate and complete, no further action related to the underground tank investigation is required.

This Notice is issued pursuant to a regulation contained in Section 2721(e) of Title 23 of the California Code of Regulations.

Please contact Pamela Evans of our office with any questions at (510)567-6770.

Sincerely,

Mee Ling Tung
Director, Environmental Health Specialist

c: Tom Peacock, Environmental Health Services

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

RO# 1067

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

January 9, 1998

Kevin Graves
California Regional Water Quality Control Board
2101 Webster St., Suite 500
Oakland CA 94612

RE: Case Closure – 7-Eleven Store, 4100 Broadway Av., Oakland 94611
Our site #4259

Dear Mr. Graves:

Enclosed is a case closure summary for your review and sign-off.

Thank you for your attention and assistance in this matter. Please contact me with any questions at 567-6770.

Sincerely,

Pamela J. Evans
Senior Hazardous Materials Specialist

Enclosure

C: Dick Pantages, Environmental Health Services

CASE CLOSURE SUMMARY
Leaking Underground Fuel Storage Tank Program

I. AGENCY INFORMATION

Agency name: **Alameda County-EPD**
City/State/Zip: **Alameda, CA 94502**
Responsible staff person: **Pamela Evans**

Date: 11/17/97
Address: **1131 Harbor Bay Pkwy #250**
Phone: **(510) 567-6770**
Title: **Senior Hazardous Materials Specialist**

II. CASE INFORMATION

Site facility name: 7-Eleven Store
Site facility address: 4100 Broadway, Oakland 94611
RB LUSTIS Case No: **N/A** Local Case No./LOP Case No.: 4259
URF filing date: 8/29/86 SWEEPS No: **N/A**

Responsible Parties:	Addresses:	Phone Numbers:
#1 R.L. Coffman,Joan Sopher, P.E. Sopher	1401 Laloma St. Berkeley CA 94708	unknown
#2 Mr. Bob Vasquez, c/o	3146 Gold Camp Dr. #300 Rancho Cordova CA 95670	(916)852-6880

Tank No:	Size in gal.:	Contents:	Closed in-place or removed?:	Date:
1	10,000	leaded gasoline	removed	10/27/86
2	10,000	unleaded gasoline	removed	10/27/86

III. RELEASE AND SITE CHARACTERIZATION INFORMATION

Cause and type of release: unleaded gasoline tank (failed two precision tests)
Site characterization complete? YES
Date approved by oversight agency: 11/5/93
Monitoring Wells installed? YES Number: 4
Proper screened interval? NO (14-19'MW-2, 15-22'MW-3, 19-22'MW-4, 8-13' vapor extraction well; depth to groundwater has been measured at as little as 7.27' bgs.)
Highest GW depth below ground surface: 7.27' , 2/96
Flow direction: south west
Most sensitive current use: Commercial
Are drinking water wells affected? NO Aquifer name: Unknown
Is surface water affected? NO Nearest affected SW name: Not applicable
Off-site beneficial use impacts (addresses/locations): None expected
Report(s) on file? **YES** Where is report filed? **Alameda County**
1131 Harbor Bay Pkwy
Alameda CA 94502

Treatment and Disposal of Affected Material:

Material	Amount (include units)	Action (Treatment of Disposal w/destination)	Date
Tanks	(2) 10,000 gal	Shipped to H&H facility, So. San Francisco	10/27/86
Piping		Unknown	
Product	150 gallons	Unknown	
Soil		Unknown	
Groundwater*	8,600 gal	shipped to H&H facility, So. San Francisco	10/27/86
Barrels		Unknown	

*Groundwater consisted of water and floating product pumped from the well completed in the tank backfill area (MW-1)

III. RELEASE AND SITE CHARACTERIZATION INFORMATION (Continued)

Maximum Documented Contaminant Concentrations - - Before and After Cleanup

Contaminant	Soil (in ppm) before	after	Water (in ppm) Before	after
TPH (gasoline)	60	59	120.0	4.5
benzene	<0.1	0.15	21.0	.010
toluene	0.55	0.17	16.0	.008
xylene	1.7	0.19	14.0	.012
ethyl benzene	0.55	0.15	3.4	.007
heavy metals - lead	NT	20.0	NT	<.100
MTBE	NT	NT	ND	<.005
Notes: NT = Not Tested	"Before" sample results are from soil boring B-1, 10' depth, taken 9/86.	"After" sample results are from the boring done for MW-3, 10.5-11' depth, taken 12/93.	"Before" sample results are from water sample from MW-1 (installed in tank pit back-fill) taken 10/86.	"After" sample results are from gw sample from MW-1, taken 8/96. Initial positive MTBE result (20ug/l) not confirmed with follow up 8240 analysis.

IV. Comments : On August 29, 1986, Southland Corporation reported an unauthorized release from its unleaded gasoline tank. Three soil borings, B-1, B-2 and B-3 were installed and sampled in September, 1986, with some positive analyses for TPHg and BTEX from B-1 and B-2 (both within 10' of tanks).

In October, 1986, two USTs that had previously contained leaded and unleaded gasoline were removed. During excavation, evidence of petroleum contamination was noted in soil at the fill end of the tank pit. The depth of the excavation was approximately 11 to 12 feet. Shortly after removal, water began to accumulate in the pit. A sheen was observed floating on this water. A four inch diameter groundwater extraction well (MW-1) was installed in the former UST excavation during backfilling of the pit.

No soil or groundwater samples seem to have been collected at the time of the tank removal, however, sampling data was available for soil from the borings done in September, '86 and for groundwater from the installation of MW-1 in October, '86. Both B-1 and B-2 were within 10' of the tank pit. B-3, which had no results above detection limits, was approximately 20' due west of the pit, in the down gradient direction.

In December 1993, five new soil borings ranging in depth from 13' to 26' were done. One of these, B-4 was logged and sampled only. The next three borings ranged from 19' to 26' deep and were developed into monitoring wells MW-2, MW-3 and MW-4. The fifth boring was converted to a vapor extraction well (see attached Figure 5). Soil samples collected from these borings were analyzed for TPHg, BTEX and total lead. (See previous Table, column 3). Most of the contamination found in the boring samples came from depths of between 8.5' and 11'

See Section VII, Additional Comments

IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan?

Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan?

Does corrective action protect public health for current land use? YES
Should corrective action be reviewed if land use changes? YES

Monitoring wells Decommissioned: NO
Number Decommissioned: 0 (pending case closure) Number Retained: 4

List enforcement actions taken: None
List enforcement actions rescinded: None

V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Pamela J. Evans Title: Senior Hazardous Materials Specialist
Signature: Pamela J Evans Date: 11/17/97

Reviewed by
Name: Tom Peacock Title: Supervising Hazardous Materials Specialist
Signature: Tom Peacock Date: 1-5-98

Name: Madhulla Logan Title: Hazardous Materials Specialist
Signature: Madhulla Logan Date: 12/22/97

VI. RWQCB NOTIFICATION

Date Submitted to RB: 1/13/98 RB Response: Concur
RWQCB Staff Name: ~~Kevin Graves~~ Stephen Hill Title: ~~San. Eng. Assoc.~~ ES IV Sup. Date: 1/14/98

VII. ADDITIONAL COMMENTS, DATA, ETC.

Based on the soil and groundwater findings, case closure seems appropriate.

The leak has been stopped and the source (tanks) has been removed. Maximum soil concentrations of TPHg and BTEX, based on sampling from borings, are 6.0, <0.1, 0.55, 0.55 and 1.7 ppm, respectively. Also, a total of 8,600 gallons of groundwater was pumped from the tank pit area four different times during February, March and June of 1987.

The site has been adequately characterized. Although well screening intervals were deeper than they should have been, based on later depth-to-groundwater measurements, boring and monitoring well data show that the release is limited to the area that are bounded by the borings and monitoring wells. The hydrocarbon plume does not appear to be migrating, concentrations have dropped in MW-1 and are non-detect in downgradient MW-3, and the groundwater gradient has been fairly consistent.

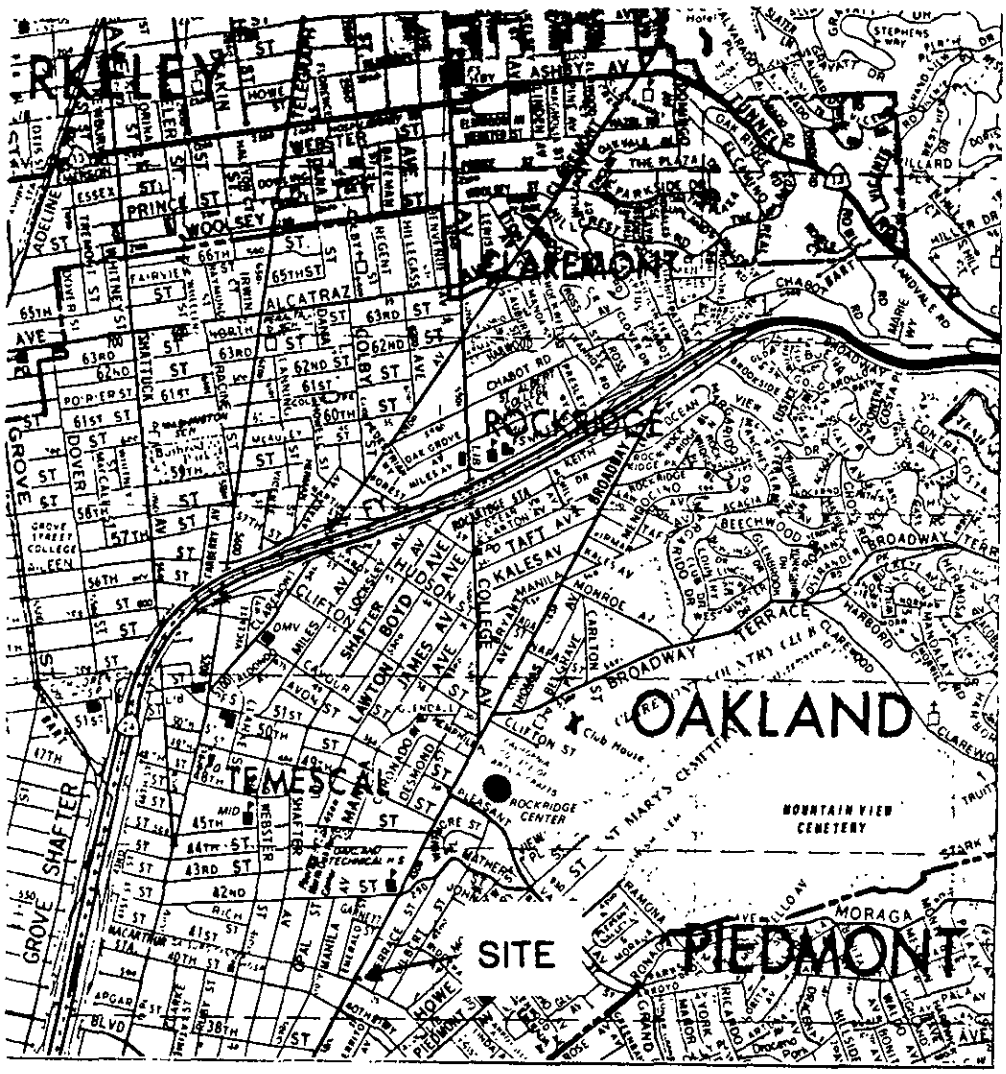
No water wells, deeper drinking water aquifers, surface waters, or other sensitive receptors are likely to be impacted. A well survey of the surrounding area in 1988 located no domestic drinking water wells within a one-mile radius. The groundwater contamination appears to be localized around MW-1, situated in the former tank pit. Eight sampling events of the other three monitoring wells took place from January '94 through May '96. Only once did any tested contaminant show up in a down gradient well, (0.8 ppb xylenes in MW-3 in 5/96). Analysis results of groundwater samples from MW-2, MW-3 and MW-4 have never exceeded drinking water MCLs.

None of the contaminants at the site appears to present a significant risk to human health based on a comparison to ASTM E 1739-95 RBCA RBSL for risk-driving compounds for commercial sites. Because the maximum detected benzene concentrations of 0.15 ppm in soil and 54 ppb in groundwater exceeded the Tier 1 residential RBSLs, a risk assessment and a revised risk assessment were prepared in October of 1996 and April of 1997, respectively, and the concerns of this Office were addressed regarding potential exposure pathways. The Tier 2 evaluation showed that benzene concentrations are below SSTLs for current commercial and future residential scenarios.

The site seems not to present a significant risk to the environment. There are no nearby surface water bodies or other sensitive environmental receptors. An irrigation well located 1,100 feet south east of the site is not known to be impacted and is not located downgradient from the contamination.

See attachments:

1. Site location map (general vicinity)
2. Site diagrams showing wells, borings, former tank pit location and other structures
3. Boring logs (For B-1, B-2, B-4, MW-2, MW-3, MW-4 and V-1. MW-1 installed in tank pit back-fill; no boring log exists)
4. Data tables from reports

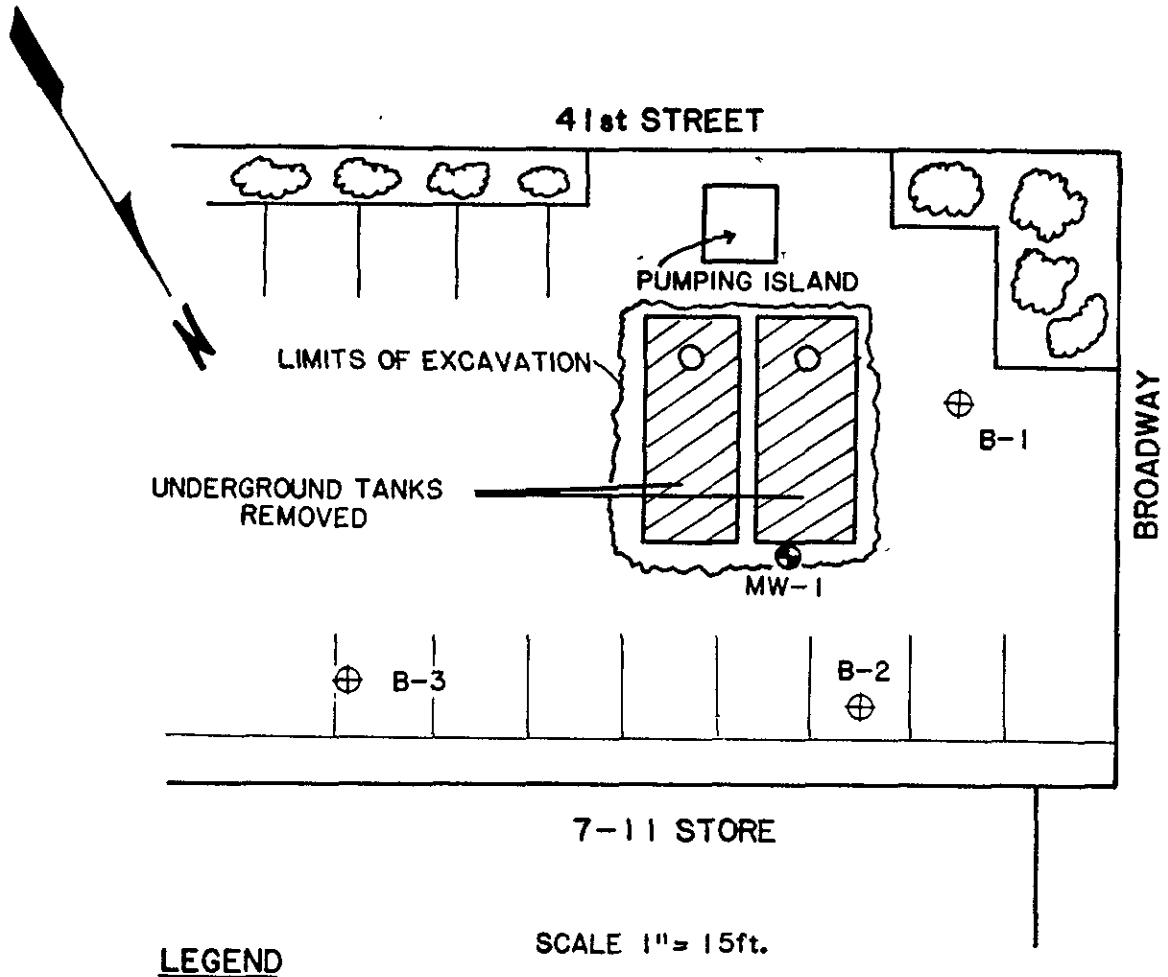


LEGEND

SCALE

← SITE SITE LOCATED AT THE CORNER OF 41st AND BROADWAY

J.H. KLEINFELDER & ASSOCIATES GEOTECHNICAL CONSULTANTS • MATERIALS TESTING LAND AND WATER RESOURCES PROJECT NO. B-1628-1	SOUTHLAND CORPORATION 7-11 4100 BROADWAY, OAKLAND SITE LOCATION MAP	PLATE FIGURE 1

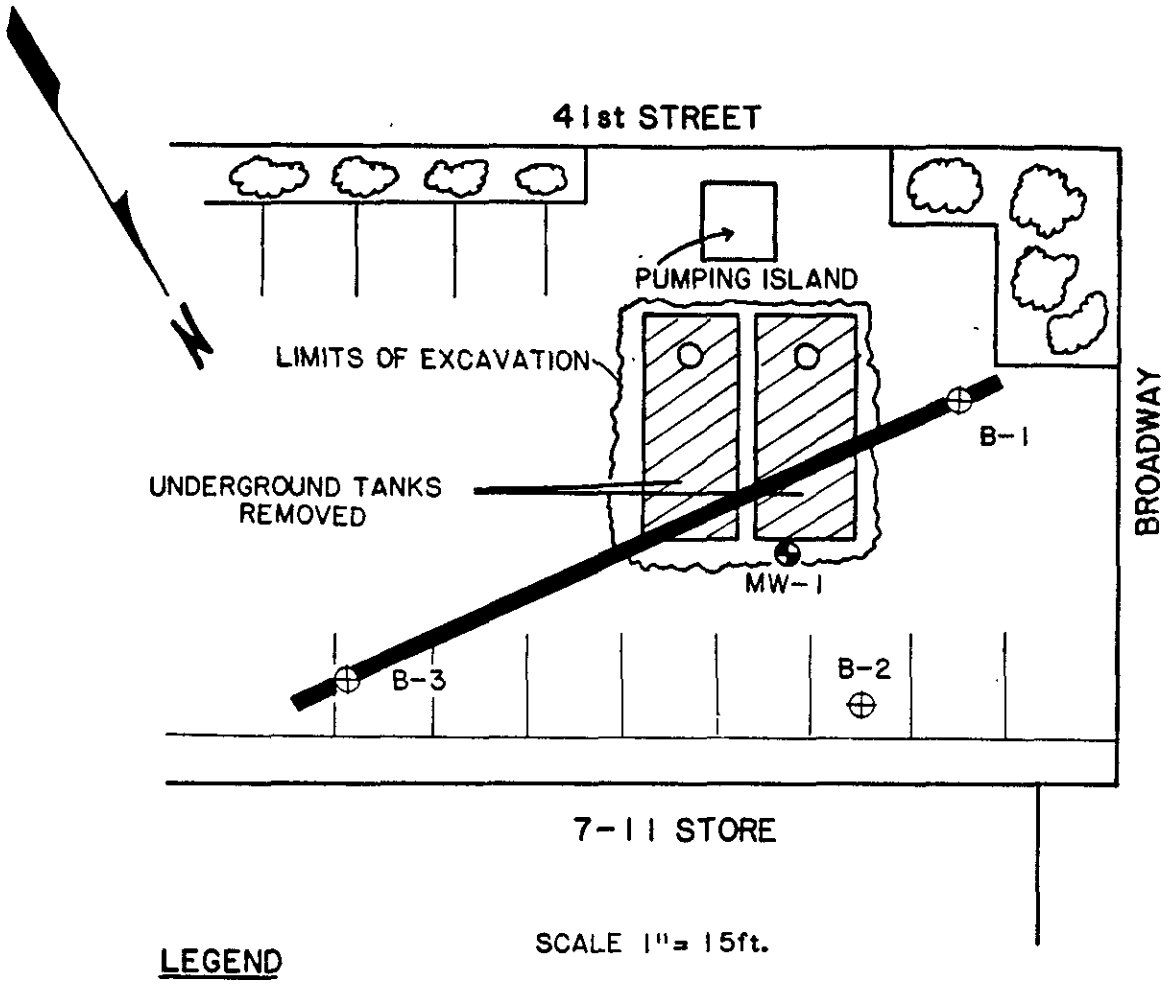


LEGEND

B-1 ⊕ BOREHOLE LOCATION

MW-1 ◉ MONITORING WELL

J.H. KLEINFELDER & ASSOCIATES GEOTECHNICAL CONSULTANTS • MATERIALS TESTING LAND AND WATER RESOURCES PROJECT NO. B-1628-1	SOUTHLAND CORPORATION 7-11 4100 BROADWAY, OAKLAND GENERAL SITE PLAN	PLATE FIGURE 2



SCALE 1"= 15ft.

LEGEND

B-1 ⊕ BOREHOLE LOCATION

MW-1 ◔ MONITORING WELL

LOCATION OF CROSS-SECTION

J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING
LAND AND WATER RESOURCES

PROJECT NO. B-1628-1

SOUTHLAND CORPORATION
7-11
4100 BROADWAY, OAKLAND
LOCATION OF CROSS-SECTION

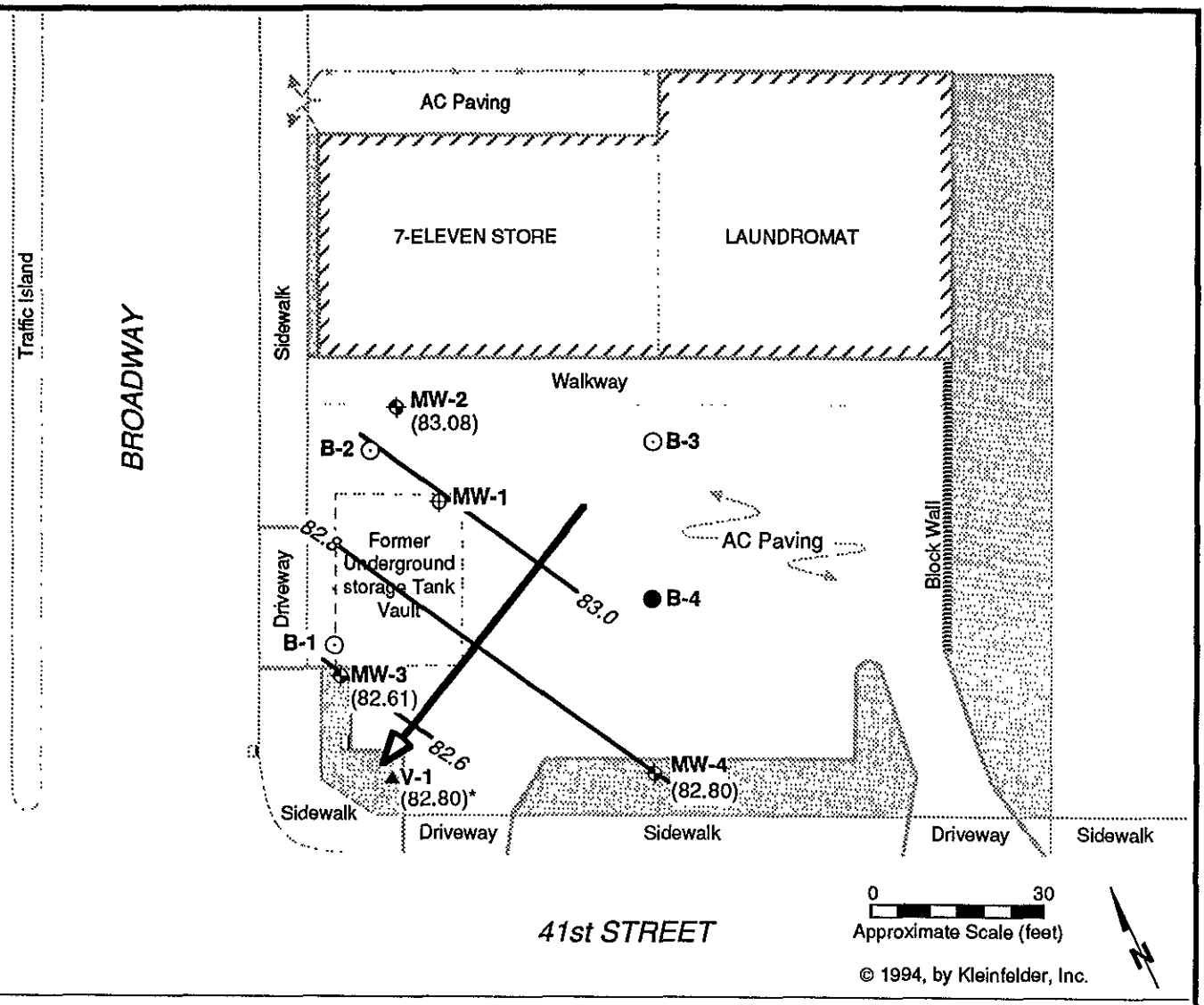
PLATE
FIGURE
3

J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING
LAND AND WATER RESOURCES

PROJECT NO. 10-1628-1

SOUTHLAND CORPORATION
7-11
4100 BROADWAY, OAKLAND
EXCAVATION CROSS-SECTION

PLATE
FIGURE
4



LEGEND

- FENCE
- PLANTED AREA
- STORM DRAIN
- SOIL BORING (drilled 1986; location approximate)
- SOIL BORING (drilled 1993; location surveyed)
- MONITORING WELL (installed 1983; location approximate)
- MONITORING WELL (installed 1993; location surveyed)
- VAPOR WELL (installed 1993; location surveyed)

(82.80) GROUND WATER SURFACE ELEVATION (feet above mean sea level)

82.80 INFERRED GROUND WATER SURFACE CONTOUR (feet above mean sea level)

INFERRED DIRECTION OF GROUND WATER FLOW

NOTES:
Locations surveyed by Kier and Wright on December 20, 1993.

* Well V-1 does not intercept the same water bearing zone as other wells at the site; hence, it was not used in the assessment of the piezometric surfce.

DATE MEASURED: December 27, 1993.

KLEINFELDER

DRAFTED BY: L Sue	DATE: 12-29-93
CHECKED BY: A. Chan	DATE: 2-4-94

GROUND WATER SURFACE ELEVATIONS — DECEMBER 1993

SOUTHLAND #18608
4100 BROADWAY
OAKLAND, CALIFORNIA

PROJECT NUMBER 10-2300-43

PLATE FIGURE 5

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
SOUTHLAND STORE NO. 18608
4100 BROADWAY
OAKLAND, CALIFORNIA

Well I.D.	Date	Sample Depth	TPH gasoline	Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total Lead
		(ft bgs)	(mg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(mg/kg)
MW-2	12/15/93	10.5-11.0	2.7	38	6.8	33	59	15
		14.5-15.0	ND	ND	ND	ND	ND	17
MW-3	12/16/93	10.5-11.0	59	150	170	150	190	18
		14.5-15.0	ND	ND	ND	ND	ND	16
MW-4	12/14/93	19.5-20.0	ND	ND	ND	ND	ND	20
B-1	9/17/86	10.5-11.0	60	ND	550	550	1700	NT
B-2	9/17/86	10.5-11.0	6	ND	150	ND	1120	NT
B-3	9/17/86	10.5-11.0	ND	ND	ND	ND	ND	NT
B-4	12/15/93	7.75-8.25	ND	ND	ND	ND	ND	19
V-1	12/14/93	9.0-9.5	3.4	ND	ND	ND	ND	13

NOTES

ft bgs	Depth in Feet Below Ground Surface
(mg/kg)	milligrams per kilogram
(µg/kg)	micrograms per kilogram
ND	Not Detected at or above laboratory reporting limits
NT	Not Tested

MW-1 RESULTS

TABLE 2
ANALYTICAL SUMMARY OF MW-1 GROUND WATER SAMPLES
SOUTHLAND CORPORATION 7-ELEVEN STORE #18609
4100 BROADWAY, OAKLAND, CALIFORNIA

Sample Date	Depth to Water (feet)	Benzene (ppb)	Toluene (ppb)	Ethyl benzene (ppb)	Total Xylenes (ppb)	TPH-g (ppm)
10/28/86	---	21,000	16,000	3,400	14,000	120
3/12/87	---	8,800	3,000	1,500	4,300	56
6/12/87	---	13,000	3,900	2,200	5,900	67
10/1/87	---	9,200	1,300	2,400	5,700	37
2/9/88	7.95	3,300	150	1,300	4,300	53
4/27/88	10.62	8,400	110	2,500	5,600	43
2/7/89	8.65	1,600	18	1,200	2,200	34
Detection Limit (unless noted otherwise)		0.5	0.5	0.5	0.5	0.1

Notes: ppb parts per billion
ppm parts per million
TPH-gTotal Petroleum Hydrocarbons as gasoline
--- Data not available

TABLE 1A
Historical Groundwater Analytical Results and Monitoring Data

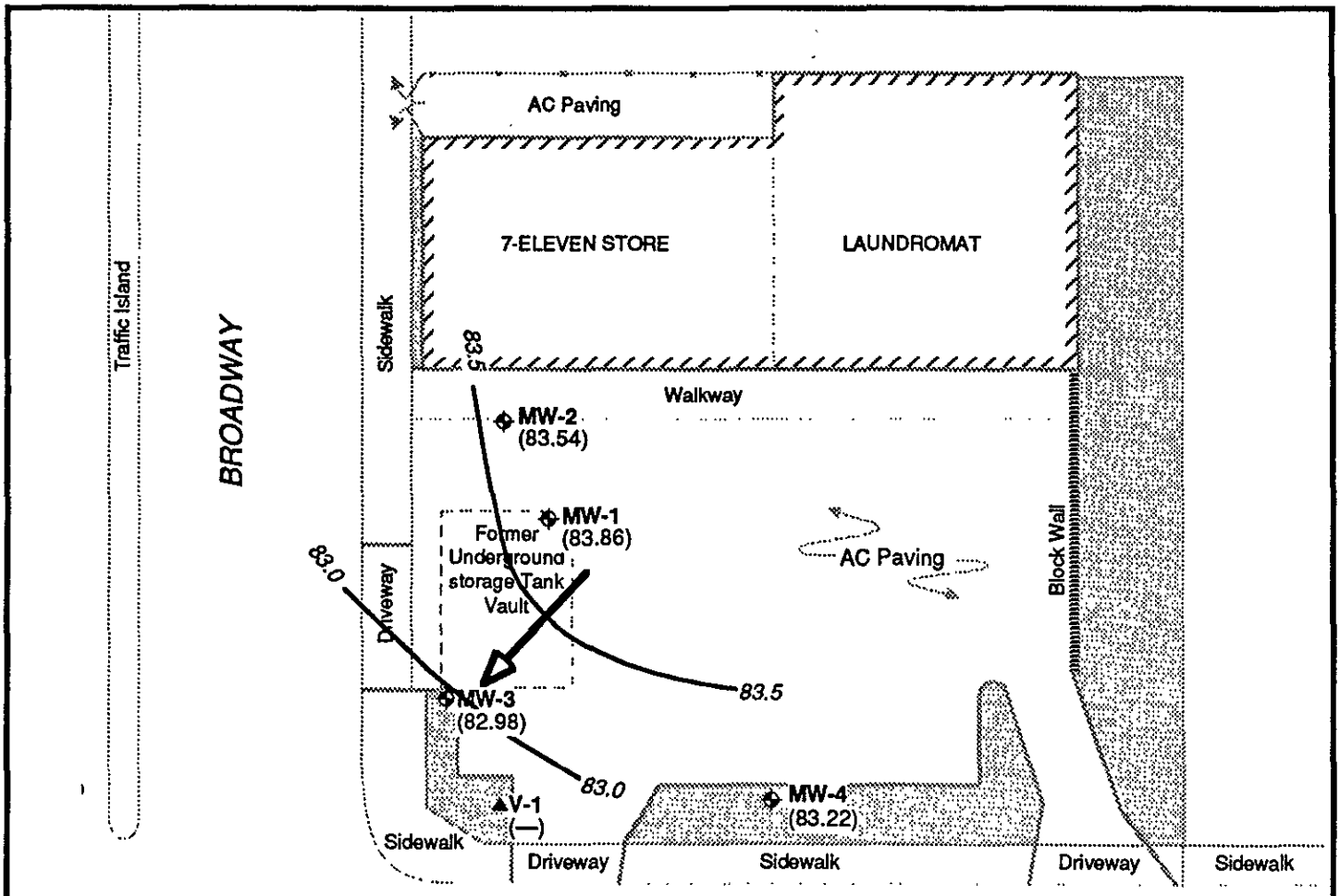
Southland Site No. 18608
4100 Broadway
Oakland, California

Well No./ Elev. (TOC)	Date	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)	TPH-G (µg/L)	DTW (ft)	SPT (ft)	WTE (ft)
MW-1									
92.62	01/07/94	–	–	–	–	–	–	0.00	–
	04/07/94	93	8	<5	6	2,300	8.76	0.00	83.86
	07/13/94	81	9.9	16	12	5,400	9.04	0.00	83.58
	10/12/94	90	15	20	16	6,000	9.50	0.00	83.12
	05/22/95	28	<5	5	14	3,800	7.82	0.00	84.80
	08/24/95	45	5.1	7.0	9.3	3,100	8.55	0.00	84.07
	02/07/96	43	3.1	3.4	7.4	2,500	7.27	0.00	85.35
	05/08/96	54	5.3	5.6	7.8	2,600	7.98	0.00	84.64
MW-2									
92.64	01/07/94	<0.5	<0.5	<0.5	0.6	<50	9.56	0.00	83.08
	04/07/94	<0.5	<0.5	<0.5	<0.5	<50	9.10	0.00	83.54
	07/13/94	<0.5	<0.5	<0.5	<0.5	<50	9.47	0.00	83.17
	10/12/94	<0.5	<0.5	<0.5	<0.5	<50	10.13	0.00	82.51
	05/22/95	<0.5	<0.5	<0.5	<0.5	<50	7.49	0.00	85.15
	08/24/95	<0.5	<0.5	<0.5	<2	<50	8.52	0.00	84.12
	02/07/96	<0.3	<0.3	<0.3	<0.6	<50	7.93	0.00	84.71
	05/08/96	<0.3	<0.3	<0.3	<0.6	<50.	7.55	0.00	85.09
MW-3									
91.78	01/07/94	<0.5	<0.5	<0.5	<0.5	<50	9.17	0.00	82.61
	04/07/94	<0.5	<0.5	<0.5	<0.5	<50	8.80	0.00	82.98
	07/13/94	<0.5	<0.5	<0.5	<0.5	<50	9.17	0.00	82.61
	10/12/94	<0.5	<0.5	<0.5	<0.5	<50	9.77	0.00	82.01
	05/22/95	<0.5	<0.5	<0.5	<0.5	<50	7.41	0.00	84.37
	08/24/95	<0.5	<0.5	<0.5	<0.5	<50	8.37	0.00	83.41
	02/07/96	<0.3	<0.3	<0.3	<0.6	<50	7.48	0.00	84.30
	05/08/96	<0.3	<0.3	<0.3	0.8	<50.	7.47	0.00	84.31
MW-4									
96.17	01/07/94	<0.5	<0.5	<0.5	<0.5	<50	13.37	0.00	82.80
	04/07/94	<0.5	<0.5	<0.5	<0.5	<50	12.95	0.00	83.22
	07/13/94	<0.5	<0.5	<0.5	<0.5	<50	13.25	0.00	82.92
	10/12/94	<0.5	<0.5	<0.5	<0.5	<50	13.85	0.00	82.32
	05/22/95	1	3	<0.5	2	<50	11.51	0.00	84.66
	08/24/95	<0.5	<0.5	<0.5	<0.5	<50	12.41	0.00	83.76
	02/07/96	<0.3	<0.3	<0.3	<0.6	<50	11.87	0.00	84.30
	05/08/96	<0.3	<0.3	<0.3	<0.6	<50.	11.58	0.00	84.59

Explanation:

TOC = Top of casing elevation (in feet above mean sea level)
TPH-G = total petroleum hydrocarbons-as-gasoline
DTW = depth to water
SPT = Separate-phase hydrocarbon thickness
WTE = Water table elevation (in feet above mean sea level)
ft = feet
µg/L = Micrograms per liter

0242hist.wk4



WELL	TPH-g (ppb)	Benzene (ppb)
MW-1	2300	93
MW-2	<50	<0.5
MW-3	<50	<0.5
MW-4	<50	<0.5

0 30
Approximate Scale (feet)

LEGEND

- FENCE
- PLANTED AREA
- MONITORING WELL
- VAPOR WELL
- (83.22) GROUND WATER SURFACE ELEVATION (feet above mean sea level)
- 83.0 GROUND WATER SURFACE CONTOUR (feet above mean sea level)
- DIRECTION OF GROUND WATER FLOW

NOTES:

1. Well locations were surveyed by Kier and Wright on December 20, 1993. All other locations are approximate.
2. The ground water elevation from well V-1, screened in a different water bearing zone, was not used to generate this contour map
3. TPH-g = Total Petroleum Hydrocarbons, as gasoline.
   ppb = parts per billion
4. Where compounds are not detected, the reporting limit is shown.
5. Samples were analyzed according to EPA Methods 8015 and 8020.

KLEINFELDER

DRAFTED BY: L Sue DATE: 4-18-94

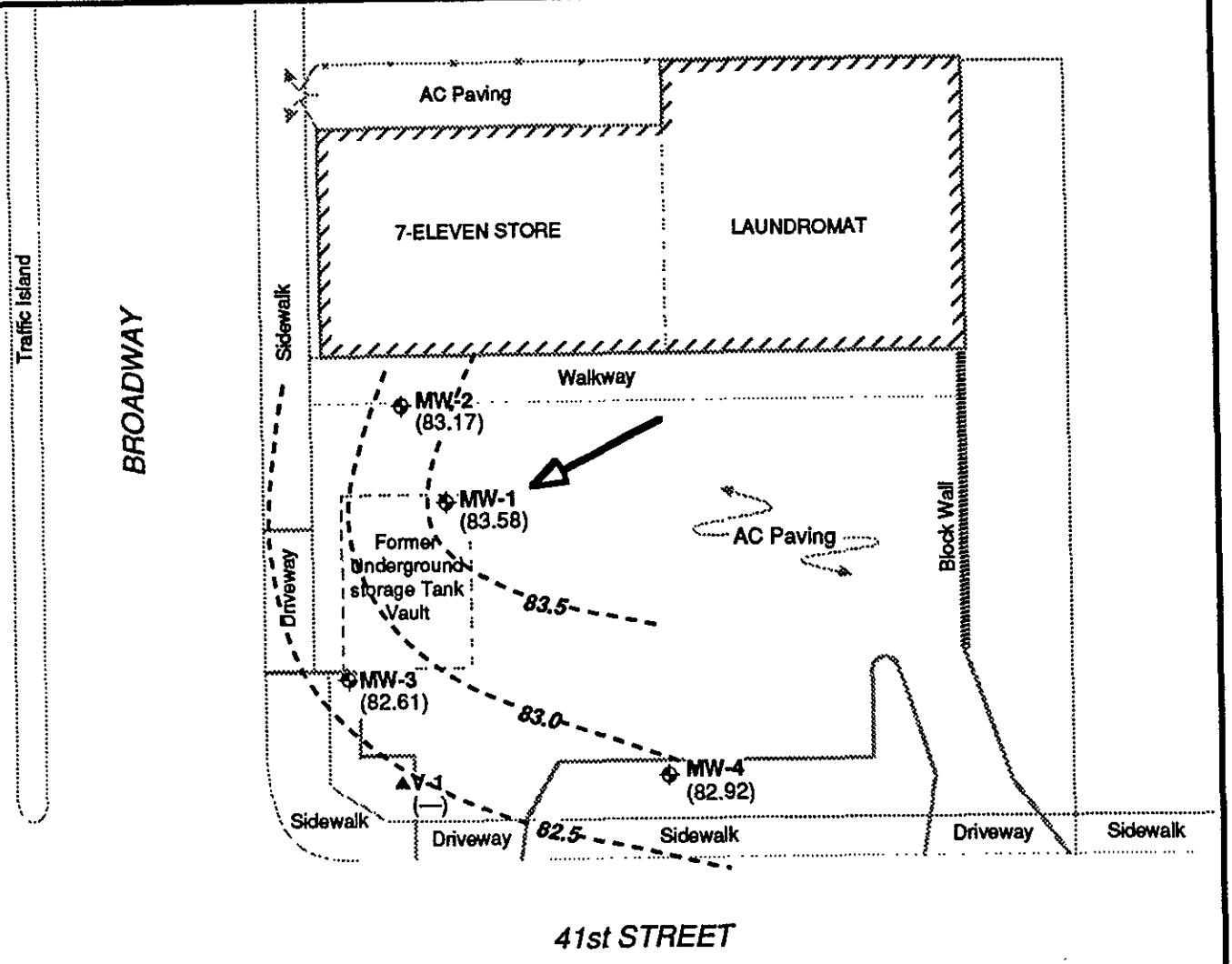
CHECKED BY: L. Freeman DATE: 5-2-94

GROUND WATER SURFACE ELEVATIONS AND ANALYTICAL RESULTS, APRIL 1994

SOUTHLAND STORE NO. 18608
4100 BROADWAY
OAKLAND, CALIFORNIA

PROJECT NUMBER 10-2300-43

PLATE 1



LEGEND

- FENCE
- MONITORING WELL
- VAPOR WELL
- (82.61) GROUND WATER SURFACE ELEVATION (feet above mean sea level)
- (—) NOT SURVEYED OR MEASURED
- -82.5- GROUND WATER SURFACE CONTOUR (feet above mean sea level)
- DIRECTION OF GROUND WATER FLOW

NOTES:

1. Well locations were surveyed by Kier and Wright on December 20, 1993. All other locations are approximate.
2. The ground water elevation from well V-1, screened in a different water bearing zone, was not used to generate this contour map
3. TPH-g = Total Petroleum Hydrocarbons, as gasoline. ppb = parts per billion
4. NS = Not Sampled; NA = Not Analyzed
5. Where compounds are not detected, the reporting limit is shown.
6. Samples were analyzed according to EPA Methods 8015 and 8020.

WELL	TPH-g (ppb)	Benzene (ppb)
MW-1	5400	81
MW-2	<50	<0.5
MW-3	<50	<0.5
MW-4	<50	<0.5

0 30
Approximate Scale (feet)

KLEINFELDER

DRAFTED BY: L Sue DATE: 7-22-94

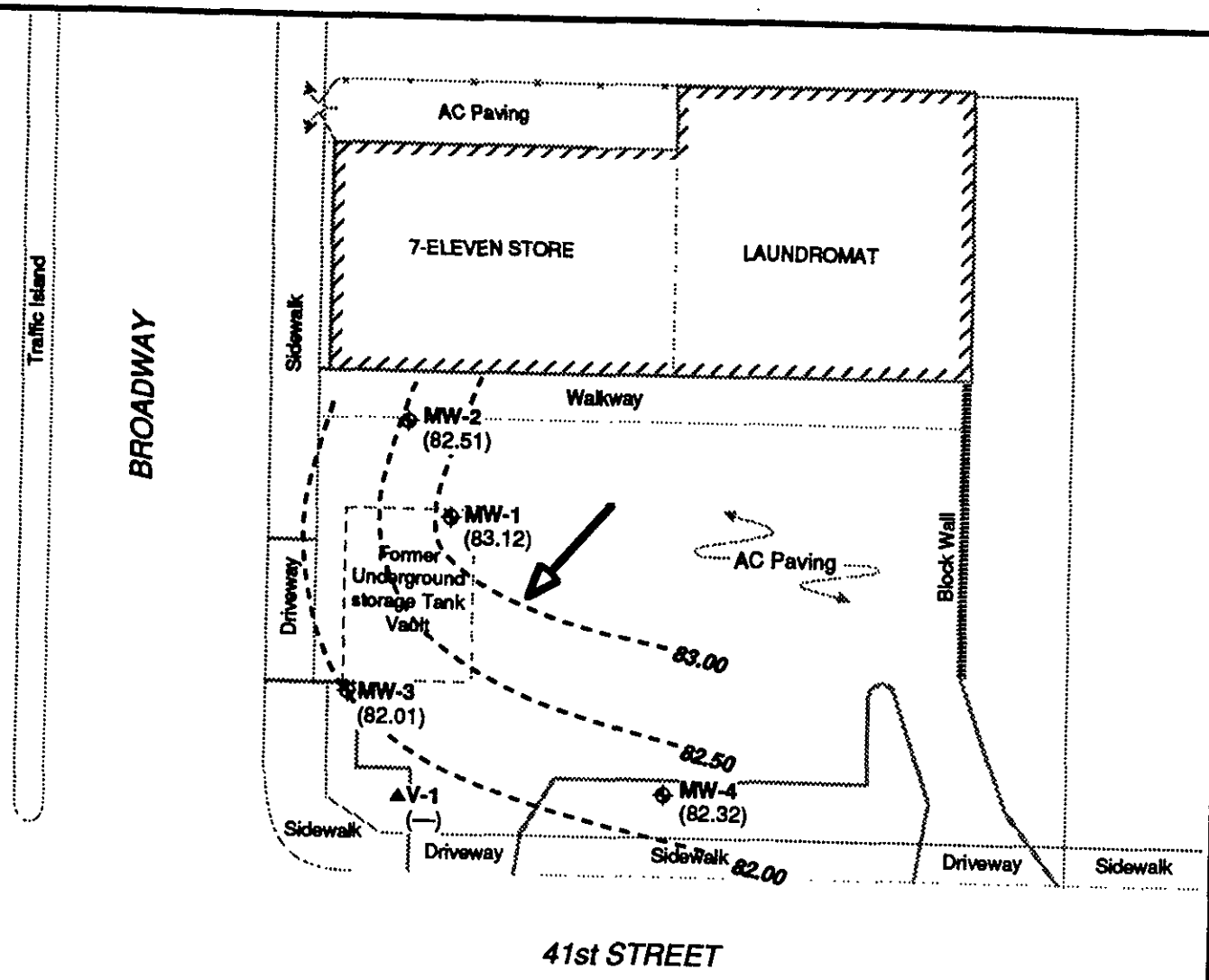
CHECKED BY: A. Chan DATE: 8-8-94

GROUND WATER SURFACE ELEVATIONS AND ANALYTICAL RESULTS, JULY 1994

SOUTHLAND STORE NO. 18608
4100 BROADWAY
OAKLAND, CALIFORNIA

PROJECT NUMBER 10-2300-43

PLATE 2



LEGEND

- FENCE
- MONITORING WELL
- VAPOR WELL
- (83.12) GROUND WATER SURFACE ELEVATION (feet above mean sea level)
- (—) NOT SURVEYED OR MEASURED
- 82.00 GROUND WATER SURFACE CONTOUR (feet above mean sea level)
- DIRECTION OF GROUND WATER FLOW

NOTES:

1. Well locations were surveyed by Kier and Wright on December 20, 1993, and March 9, 1994. All other locations are approximate.
2. The ground water elevation from well V-1, screened in a different water bearing zone, was not used to generate this contour map
3. TPH-g = Total Petroleum Hydrocarbons, as gasoline. µg/L = micrograms per liter = parts per billion
4. NS = Not Sampled; NA = Not Analyzed
5. Where compounds are not detected, the laboratory reporting limit is shown.
6. Samples were analyzed according to EPA Methods 8015 and 8020.

WELL	TPH-g (µg/L)	Benzene (µg/L)
MW-1	6000	90
MW-2	<50	<0.5
MW-3	<50	<0.5
MW-4	<50	<0.5

0 30
Approximate Scale (feet)

KLEINFELDER

DRAFTED BY: L Sue DATE: 10-26-94

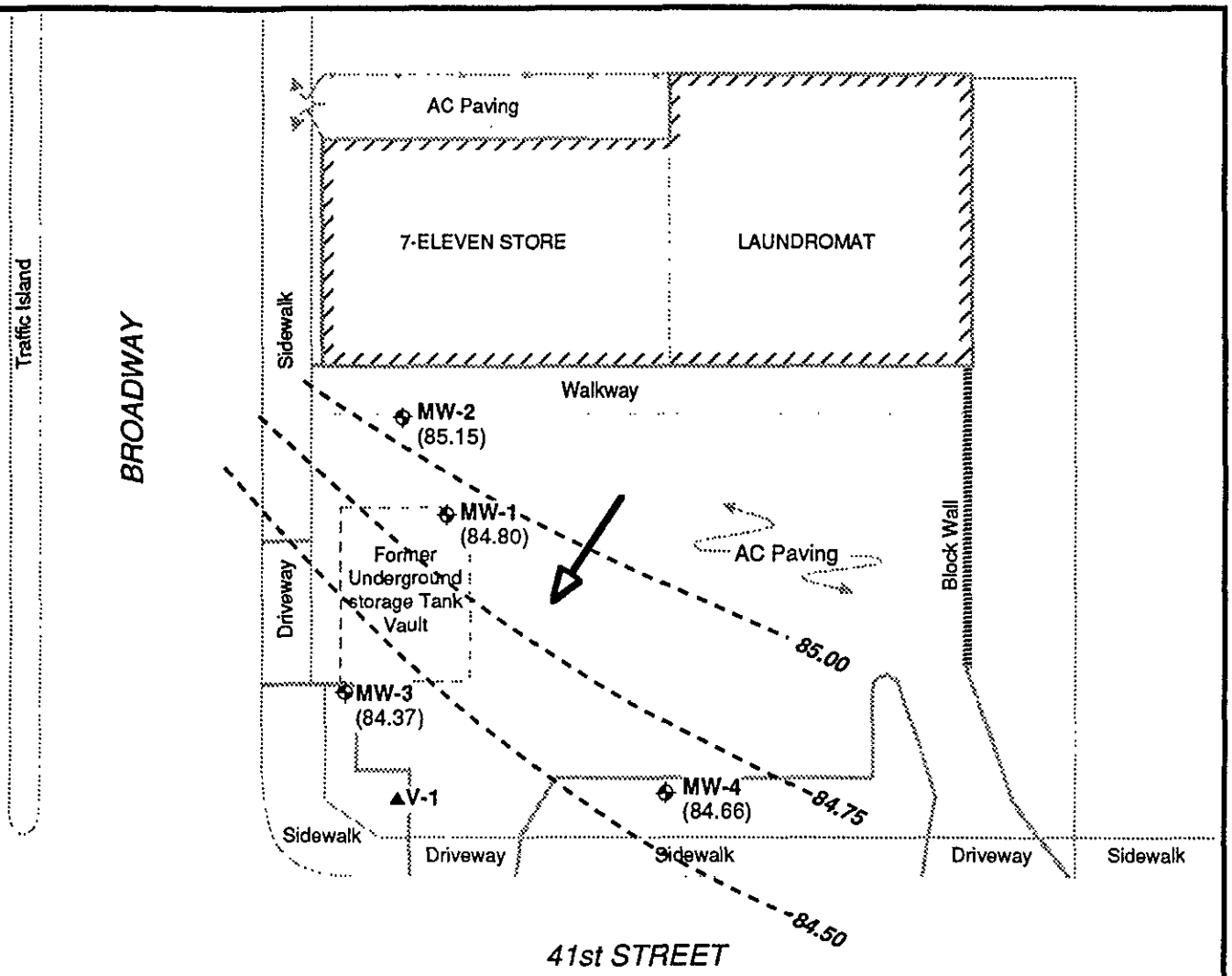
CHECKED BY: L. Freeman DATE: 11-16-94

GROUND WATER SURFACE ELEVATIONS AND ANALYTICAL RESULTS, OCTOBER 1994

SOUTHLAND STORE NO. 18608
4100 BROADWAY
OAKLAND, CALIFORNIA

PROJECT NUMBER 10-2300-43

PLATE 3



LEGEND

- FENCE
- MONITORING WELL
- VAPOR WELL
- (84.66) GROUND WATER SURFACE ELEVATION (feet above mean sea level)
- (—) NOT SURVEYED OR MEASURED
- 85.00 GROUND WATER SURFACE CONTOUR (feet above mean sea level)
- DIRECTION OF GROUND WATER FLOW

NOTES:

1. Well locations were surveyed by Kier and Wright on December 20, 1993, and March 9, 1994. All other locations are approximate.
2. The ground water elevation from well V-1, screened in a different water bearing zone, was not used to generate this contour map
3. TPH-g = Total Petroleum Hydrocarbons, as gasoline. µg/L = micrograms per liter = parts per billion
4. NS = Not Sampled; NA = Not Analyzed
5. <X = Not Detected at or above the noted laboratory reporting limit
6. Samples were analyzed according to EPA Methods 8015 and 8020.

WELL	TPH-g (µg/L)	Benzene (µg/L)
MW-1	3,600	28
MW-2	<50	<0.5
MW-3	<50	<0.5
MW-4	<50	1

0 30
Approximate Scale (feet)

KLEINFELDER

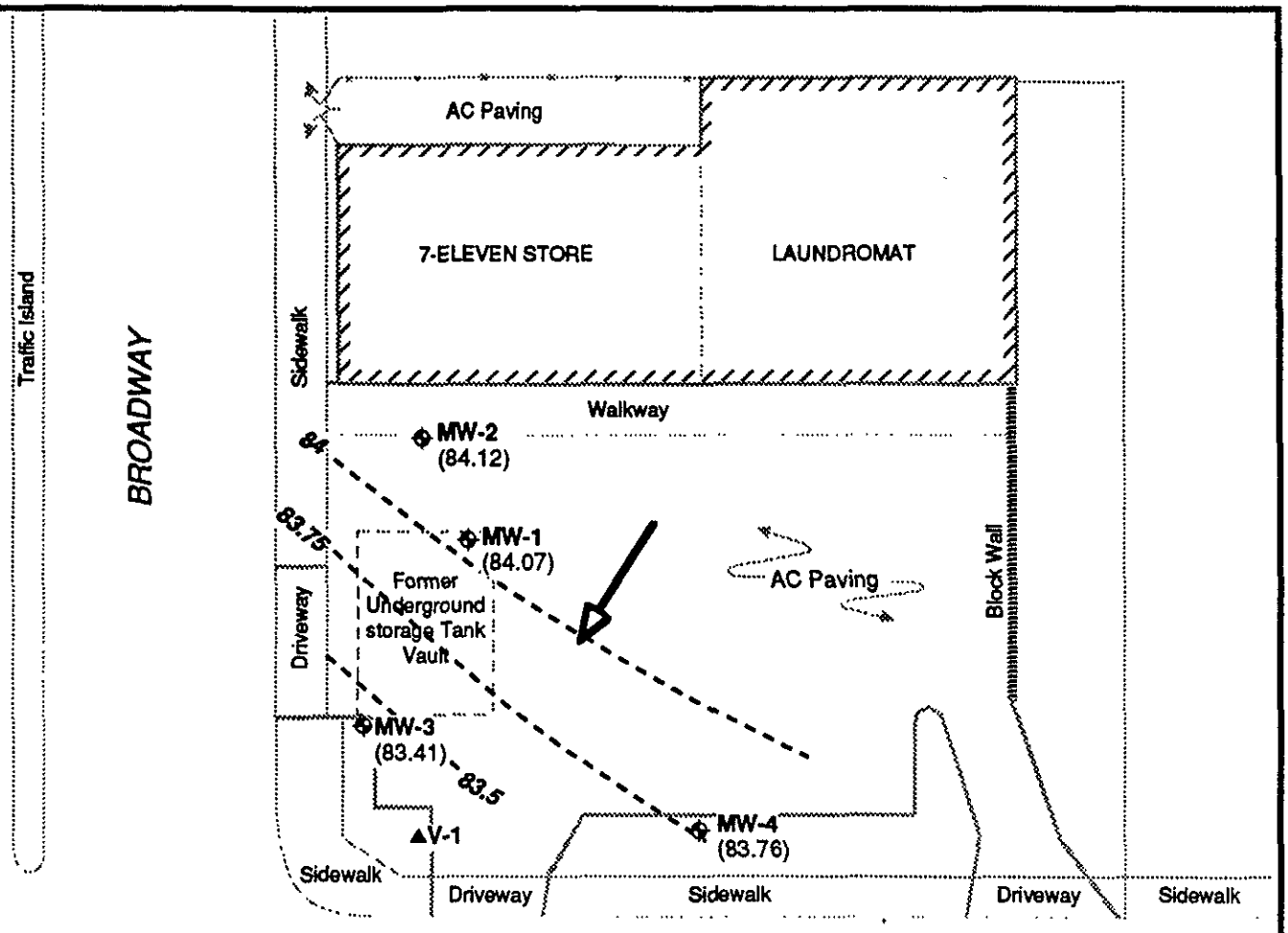
DRAFTED BY: L Sue	DATE: 7-5-95
CHECKED BY: A. Chan	DATE: 7-12-95

GROUND WATER SURFACE ELEVATIONS AND ANALYTICAL RESULTS, MAY 1995

SOUTHLAND STORE NO. 18608
4100 BROADWAY
OAKLAND, CALIFORNIA

PROJECT NUMBER 10-2300-43

PLATE 4



LEGEND

- FENCE
- MONITORING WELL
- VAPOR WELL
- (83.76) GROUNDWATER SURFACE ELEVATION (feet above mean sea level)
- (—) NOT SURVEYED OR MEASURED
- ---83.5 GROUNDWATER SURFACE CONTOUR (feet above mean sea level)
- DIRECTION OF GROUNDWATER FLOW

NOTES:

1. Well locations were surveyed by Kier and Wright on December 20, 1993, and March 9, 1994. All other locations are approximate.
2. The groundwater elevation from well V-1, screened in a different water bearing zone, was not used to generate this contour map
3. TPH-g = Total Petroleum Hydrocarbons, as gasoline. µg/L = micrograms per liter = parts per billion
4. NS = Not Sampled; NA = Not Analyzed
5. <X = Not Detected at or above the noted laboratory reporting limit
6. Samples were analyzed according to EPA Methods 8015 and 8020.

WELL	TPH-g (µg/L)	Benzene (µg/L)
MW-1	3100	45
MW-2	<50	<0.5
MW-3	<50	<0.5
MW-4	<50	<0.5

0 30

Approximate Scale (feet)

KLEINFELDER

GROUNDWATER SURFACE ELEVATIONS AND ANALYTICAL RESULTS, AUGUST 1995

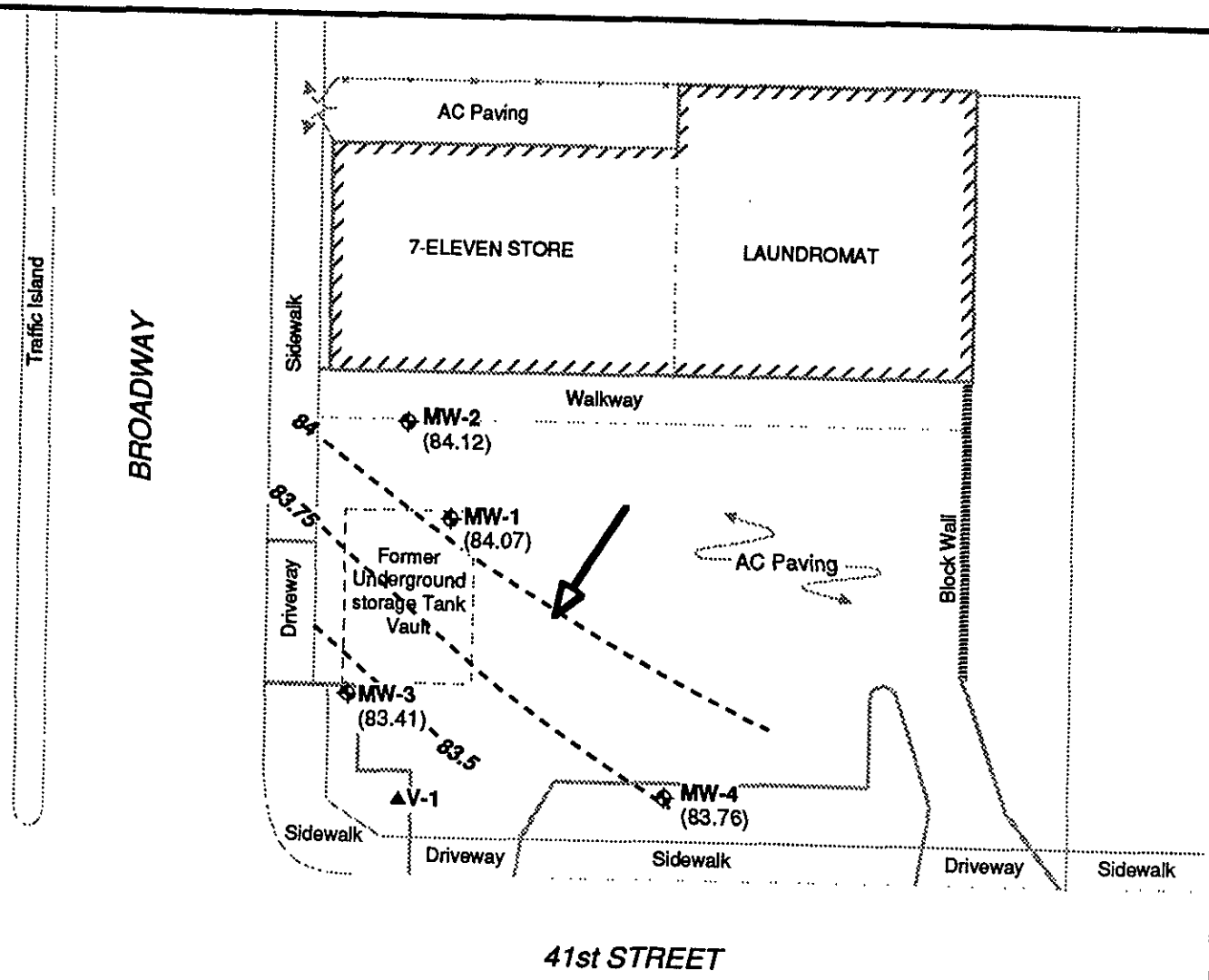
SOUTHLAND STORE NO. 18608
4100 BROADWAY
OAKLAND, CALIFORNIA

PLATE 5

DRAFTED BY: L Sue DATE: 9-5-95

CHECKED BY: A. Chan DATE: 9-5-95

PROJECT NUMBER 10-2300-43



LEGEND

- FENCE
- MONITORING WELL
- VAPOR WELL
- (83.76) GROUNDWATER SURFACE ELEVATION (feet above mean sea level)
- (—) NOT SURVEYED OR MEASURED
- ---83.5 GROUNDWATER SURFACE CONTOUR (feet above mean sea level)
- DIRECTION OF GROUNDWATER FLOW

NOTES:

1. Well locations were surveyed by Kier and Wright on December 20, 1993, and March 9, 1994. All other locations are approximate.
2. The groundwater elevation from well V-1, screened in a different water bearing zone, was not used to generate this contour map
3. TPH-g = Total Petroleum Hydrocarbons, as gasoline. µg/L = micrograms per liter = parts per billion
4. NS = Not Sampled; NA = Not Analyzed
5. <X = Not Detected at or above the noted laboratory reporting limit
6. Samples were analyzed according to EPA Methods 8015 and 8020.

WELL	TPH-g (µg/L)	Benzene (µg/L)
MW-1	3100	45
MW-2	<50	<0.5
MW-3	<50	<0.5
MW-4	<50	<0.5

0 30
Approximate Scale (feet)

KLEINFELDER

DRAFTED BY: L Sue DATE: 9-5-95

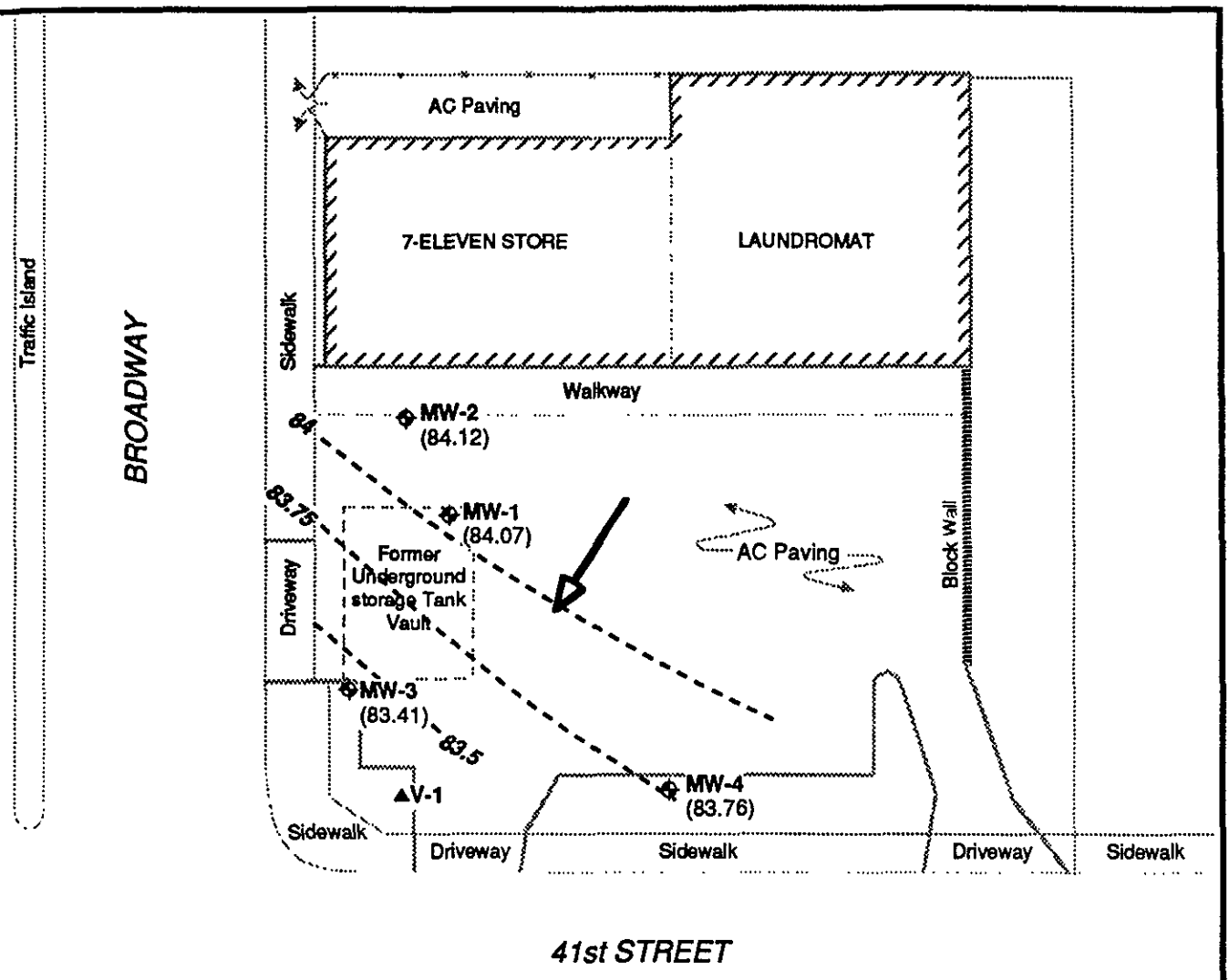
CHECKED BY: A. Chan DATE: 9-5-95

GROUNDWATER SURFACE ELEVATIONS AND ANALYTICAL RESULTS, AUGUST 1995

SOUTHLAND STORE NO. 18608
4100 BROADWAY
OAKLAND, CALIFORNIA

PROJECT NUMBER 10-2300-43

PLATE 6



LEGEND

- FENCE
- MONITORING WELL
- VAPOR WELL
- (83.76) GROUNDWATER SURFACE ELEVATION (feet above mean sea level)
- (—) NOT SURVEYED OR MEASURED
- -83.5- GROUNDWATER SURFACE CONTOUR (feet above mean sea level)
- DIRECTION OF GROUNDWATER FLOW

NOTES:

1. Well locations were surveyed by Kier and Wright on December 20, 1993, and March 9, 1994. All other locations are approximate.
2. The groundwater elevation from well V-1, screened in a different water bearing zone, was not used to generate this contour map
3. TPH-g = Total Petroleum Hydrocarbons, as gasoline. µg/L = micrograms per liter = parts per billion
4. NS = Not Sampled; NA = Not Analyzed
5. <X = Not Detected at or above the noted laboratory reporting limit
6. Samples were analyzed according to EPA Methods 8015 and 8020.

WELL	TPH-g (µg/L)	Benzene (µg/L)
MW-1	3100	45
MW-2	<50	<0.5
MW-3	<50	<0.5
MW-4	<50	<0.5

N

0 30

Approximate Scale (feet)

KLEINFELDER

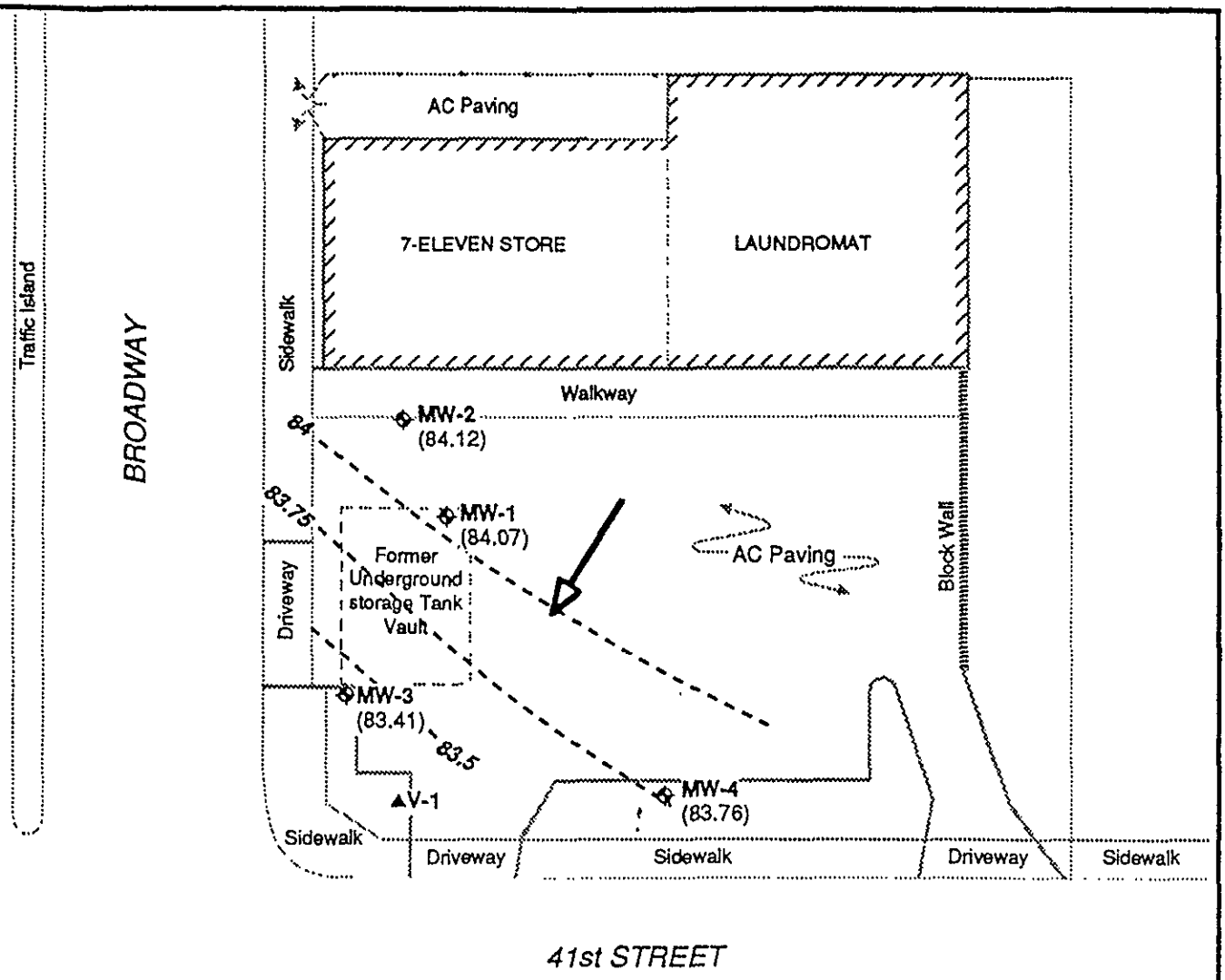
GROUNDWATER SURFACE ELEVATIONS AND ANALYTICAL RESULTS, AUGUST 1995

SOUTHLAND STORE NO. 18608
4100 BROADWAY
OAKLAND, CALIFORNIA

PLATE 7

DRAFTED BY: L Sue	DATE: 9-5-95
CHECKED BY: A. Chan	DATE: 9-5-95

PROJECT NUMBER 10-2300-43



LEGEND

- FENCE
- MONITORING WELL
- VAPOR WELL
- (83.76) GROUNDWATER SURFACE ELEVATION (feet above mean sea level)
- (—) NOT SURVEYED OR MEASURED
- 83.5 GROUNDWATER SURFACE CONTOUR (feet above mean sea level)
- DIRECTION OF GROUNDWATER FLOW

NOTES:

1. Well locations were surveyed by Kier and Wright on December 20, 1993, and March 9, 1994. All other locations are approximate.
2. The groundwater elevation from well V-1, screened in a different water bearing zone, was not used to generate this contour map
3. TPH-g = Total Petroleum Hydrocarbons, as gasoline. µg/L = micrograms per liter = parts per billion
4. NS = Not Sampled; NA = Not Analyzed
5. <X = Not Detected at or above the noted laboratory reporting limit
6. Samples were analyzed according to EPA Methods 8015 and 8020.

WELL	TPH-g (µg/L)	Benzene (µg/L)
MW-1	3100	45
MW-2	<50	<0.5
MW-3	<50	<0.5
MW-4	<50	<0.5

0 30
Approximate Scale (feet)

KLEINFELDER

DRAFTED BY: L Sue DATE: 9-5-95

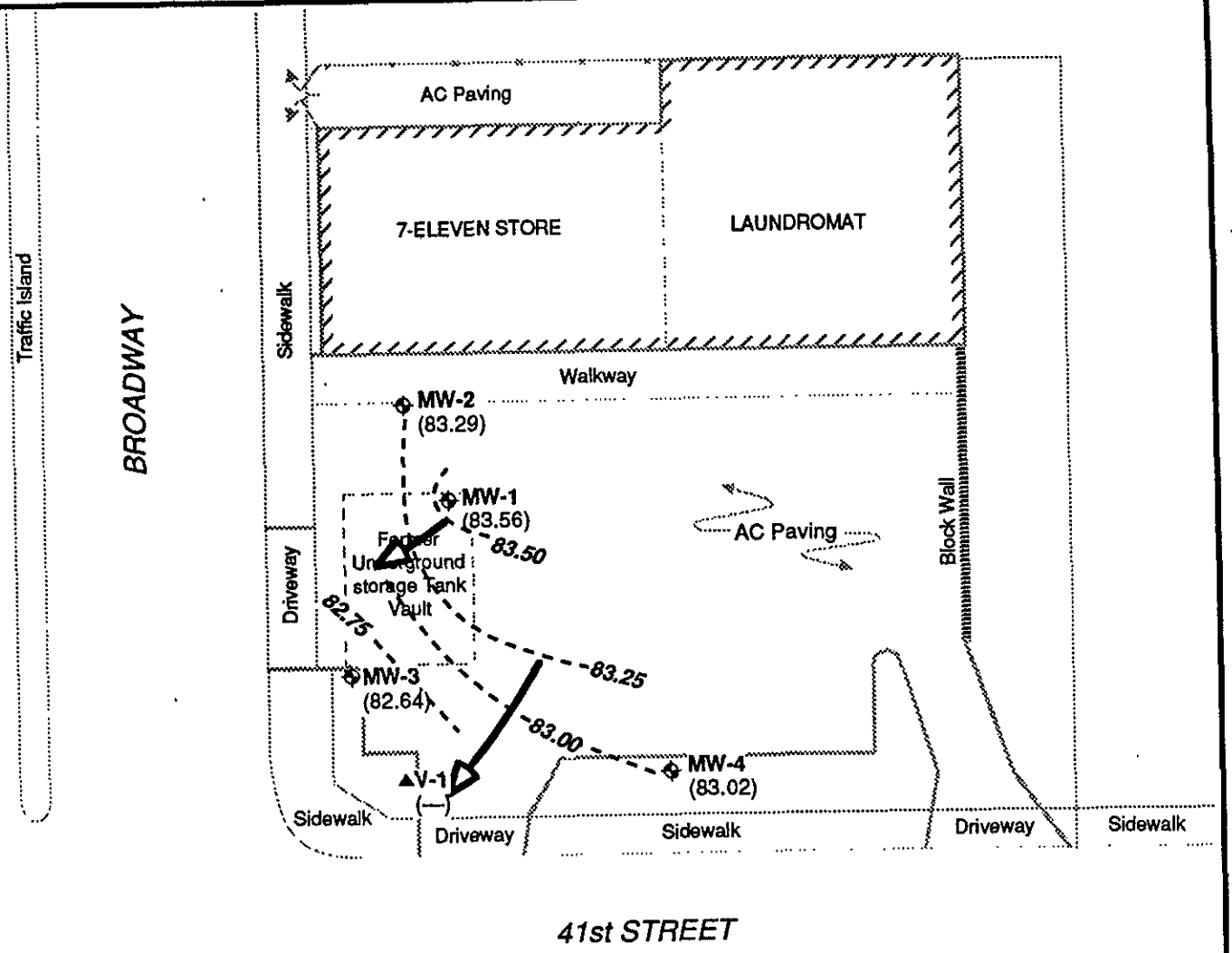
CHECKED BY: A. Chan DATE: 9-5-95

GROUNDWATER SURFACE ELEVATIONS AND ANALYTICAL RESULTS, AUGUST 1995

SOUTHLAND STORE NO. 18608
4100 BROADWAY
OAKLAND, CALIFORNIA

PROJECT NUMBER 10-2300-43

PLATE 8



LEGEND

- FENCE
- MONITORING WELL
- VAPOR WELL
- (82.64) GROUNDWATER SURFACE ELEVATION (feet above mean sea level)
- (—) NOT SURVEYED OR MEASURED
- 83.50 GROUNDWATER SURFACE CONTOUR (feet above mean sea level)
- DIRECTION OF GROUNDWATER FLOW

NOTES:

1. Well locations were surveyed by Kier and Wright on December 20, 1993, and March 9, 1994. All other locations are approximate.
2. The groundwater elevation from well V-1, screened in a different water bearing zone, was not used to generate this contour map
3. TPH-g = Total Petroleum Hydrocarbons, as gasoline. µg/L = micrograms per liter = parts per billion
4. NS = Not Sampled; NA = Not Analyzed
5. <X = Not Detected at or above the noted laboratory reporting limit
6. Samples were analyzed according to EPA Methods 8015 and 8020.

WELL	TPH-g (µg/L)	Benzene (µg/L)
MW-1	6,000	84
MW-2	<50	<0.5
MW-3	<50	<0.5
MW-4	<50	<0.5

0 30
Approximate Scale (feet)

KLEINFELDER

DRAFTED BY: L Sue DATE: 2-1-96

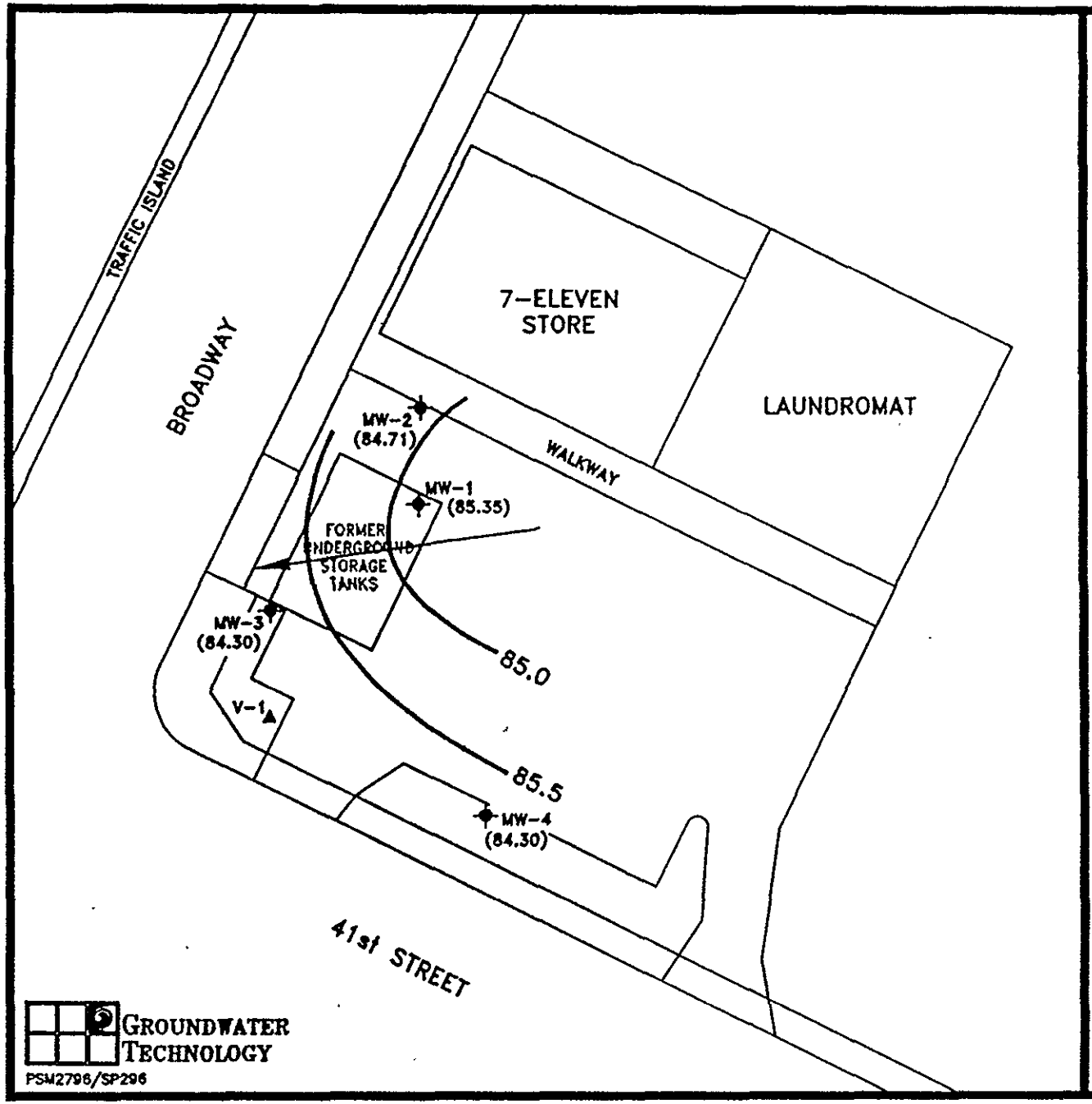
CHECKED BY: L. Freeman DATE: 2-1-96

GROUNDWATER SURFACE ELEVATIONS AND ANALYTICAL RESULTS, NOVEMBER 1995

SOUTHLAND STORE NO. 18608
4100 BROADWAY
OAKLAND, CALIFORNIA

PROJECT NUMBER 10-2300-43

PLATE 9



EXPLANATION

- MONITOR WELL
- BORING LOCATION
- ( ) POTENTIOMETRIC SURFACE ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- POTENTIOMETRIC SURFACE CONTOUR (CONTOUR INTERVAL = 0.5ft)
- GROUNDWATER FLOW DIRECTION

N

0 30 60

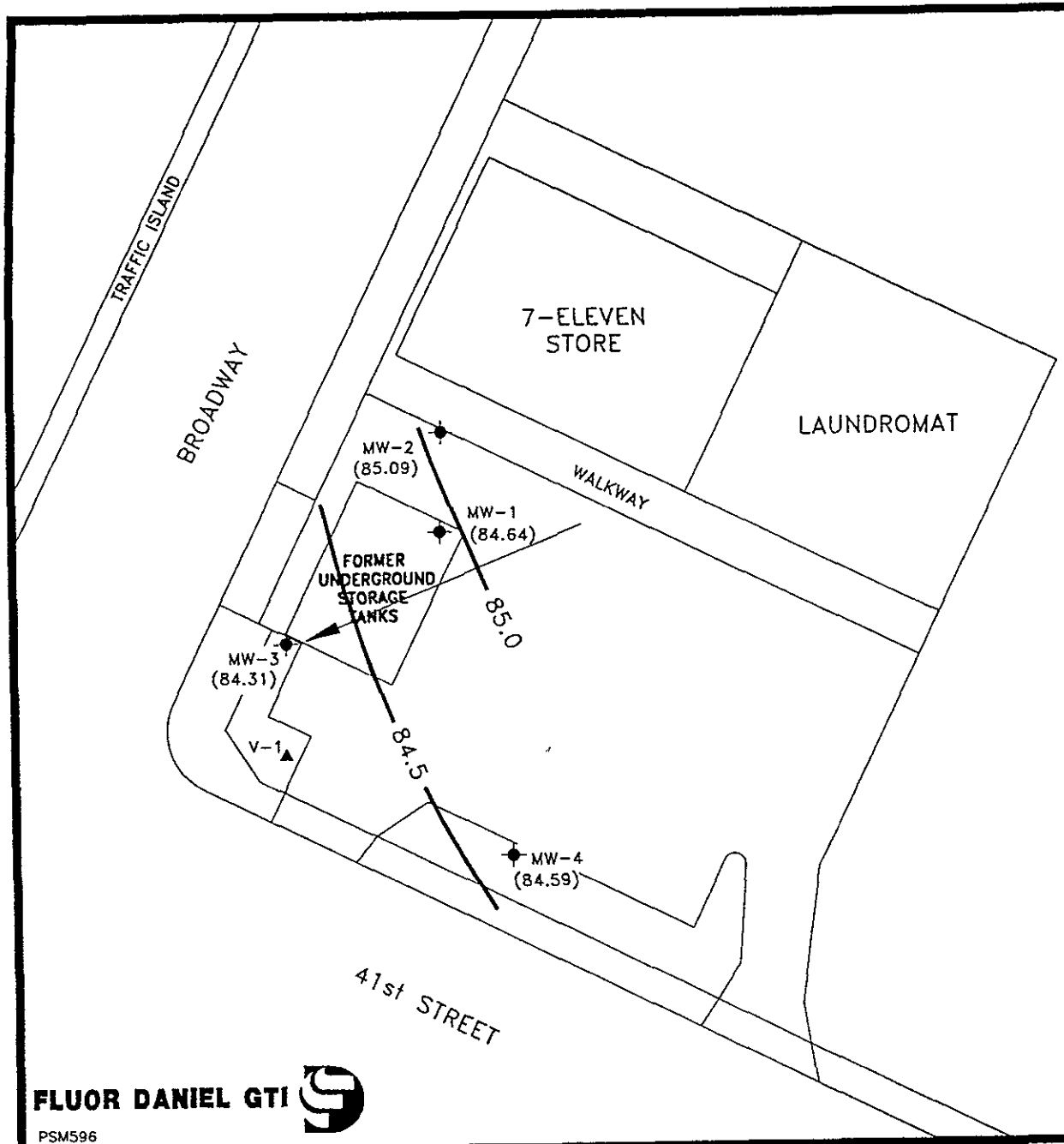
SCALE FEET

SOUTHLAND CORPORATION
7-ELEVEN FACILITY NO. 18608
4100 BROADWAY
OAKLAND, CALIFORNIA
0207000242

DRAWN BY: BB DATE:
DRAFTED BY: ML DATE: 2-29-96
CHECKED BY: DATE: 3/14/96

POTENTIOMETRIC SURFACE MAP (2/7/96)
FIGURE 2

PLATE 10



EXPLANATION

- MONITOR WELL
- BORING LOCATION
- ( ) POTENTIOMETRIC SURFACE ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- POTENTIOMETRIC SURFACE CONTOUR (CONTOUR INTERVAL = 0.5ft)
- GROUNDWATER FLOW DIRECTION

N

0 30 60

SCALE FEET

SOUTHLAND CORPORATION

7-ELEVEN FACILITY NO. 18608

4100 BROADWAY
OAKLAND, CALIFORNIA
0207000242

DRAWN BY: BB DATE:
DRAFTED BY: ML DATE: 2-29-96
CHECKED BY: [illegible] DATE: 6-10-96

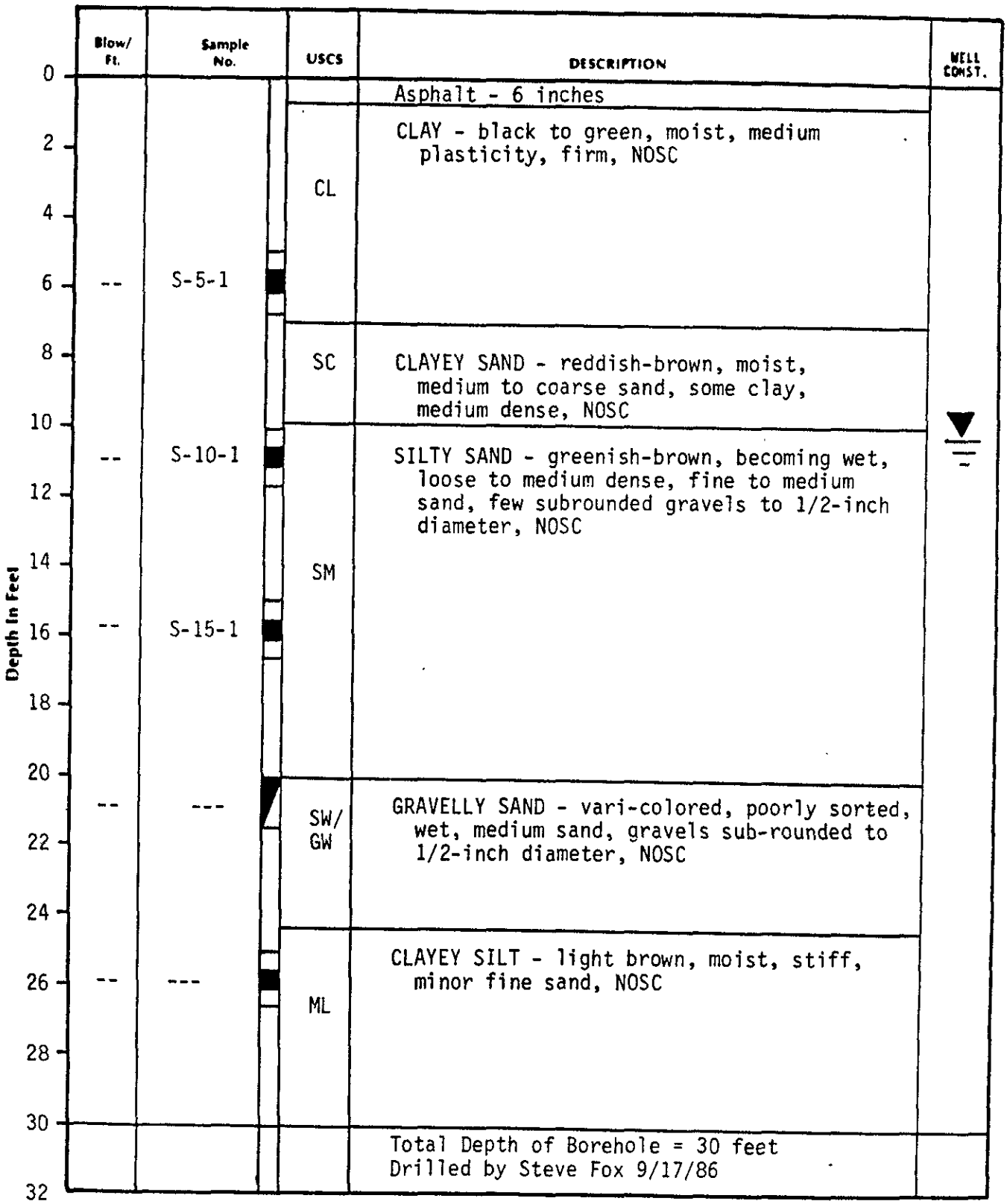
POTENTIOMETRIC SURFACE MAP (5/8/96)

FIGURE 2

FLUOR DANIEL GTI

PSM596

PLATE 11

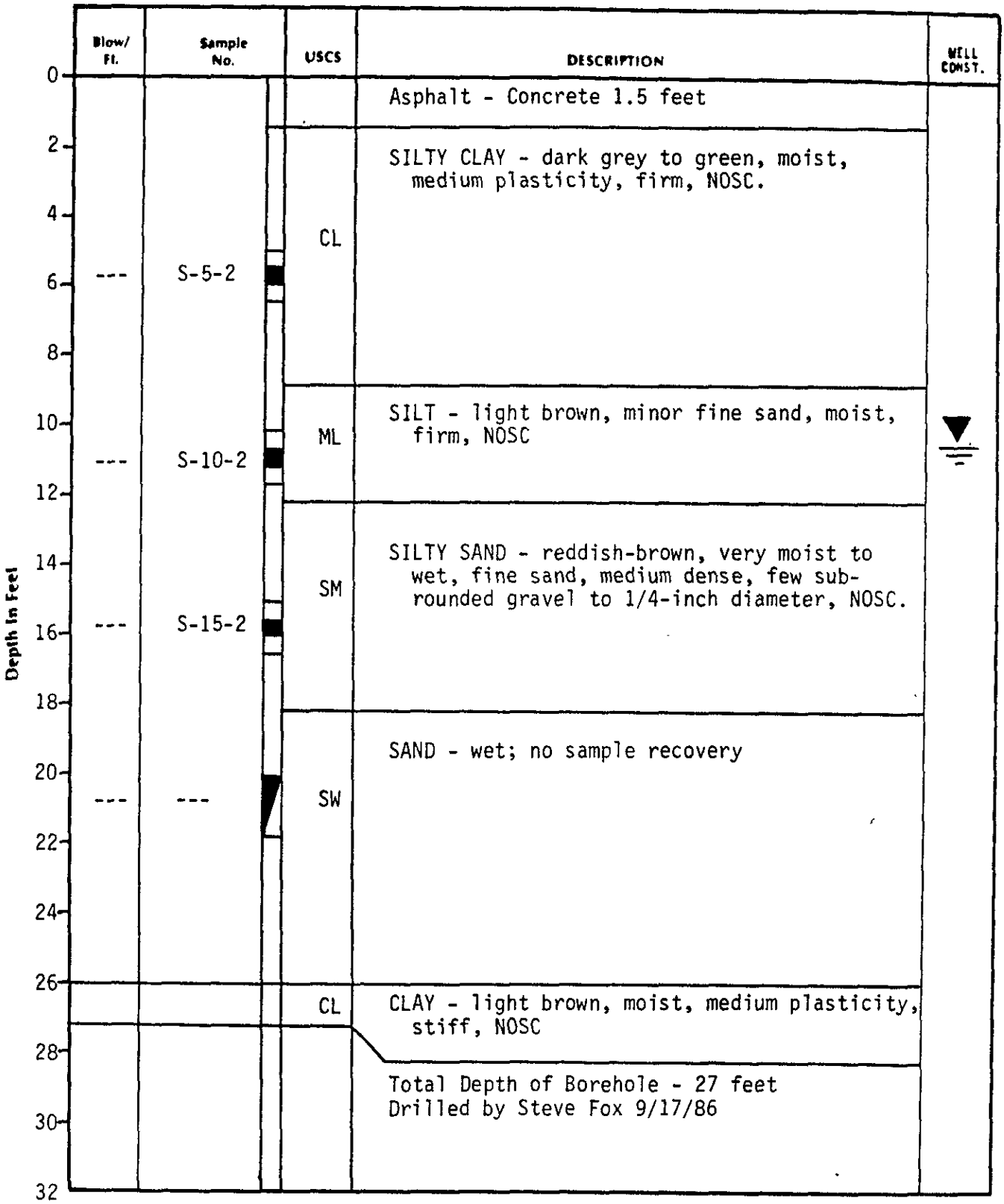


J.H KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING
LAND AND WATER RESOURCES

PROJECT NO. B-1628-1

SOUTHLAND CORPORATION
7-11
4100 BROADWAY, OAKLAND
LOG OF BORING NO. B-1

PLATE
7

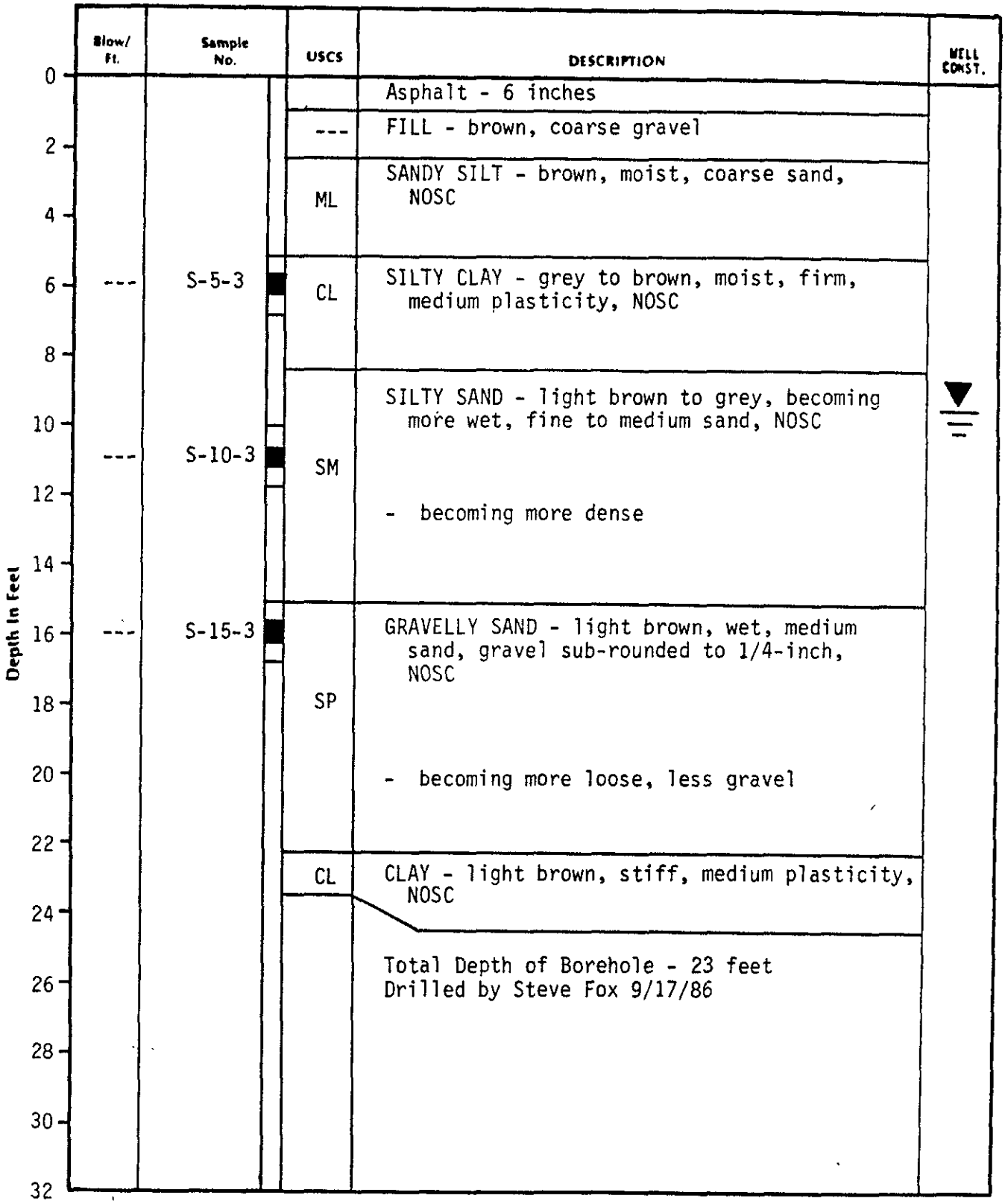


J H KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING
LAND AND WATER RESOURCES

PROJECT NO. B-1628-1

SOUTHLAND CORPORATION
7-11
4100 BROADWAY, OAKLAND
LOG OF BORING NO. B-2

PLATE
6



J.H KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING
LAND AND WATER RESOURCES

PROJECT NO. B-1628-1

SOUTHLAND CORPORATION
7-11
4100 BROADWAY, OAKLAND
LOG OF BORING NO. B-3

PLATE
8

KLEINFELDER

Project	Boring No.
Southland #18608	B-4
Number: 10-2300-43/B21	
Total Depth: 13.0 feet	Sheet: 2 of 2

LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Foot	PID (ppm) reading/background	USCS	Description	Remarks	Well Construction
5			60	14	0/5	SP-SM	poorly graded SAND with silt - dark greenish gray (5GY4/1), moist, medium dense, massive, uncemented, no HCl reaction; estimate 10% fines, 85% sand, 5% gravel to 1 inch		
6					0/5				
7			65	4			poorly graded SAND - dark greenish gray (5GY4/1), moist, medium dense, massive, uncemented, no HCl reaction; estimate 5% fines, 95% fine to medium sand		
8	23471				1.5/0.6	SP			
					2.0/0.6				
9			65	2		SP	5 to 10% white feldspars (?), and red chert, becoming wet	Slight petroleum odor; 12-15-93, 08:07 ▽	
10					10/0.6				
					15/0.6			12-16-93, 09:25 ▼	
11			75	9					
12					3.0/0	SM	silty SAND - olive yellow (2.5Y6/6), moist, medium dense, massive, uncemented; estimate 30% fines, 70% fine sand		
					2.0/0				
13						SM	silty SAND with gravel - light yellowish brown (2.5Y6/3), banded fine grained gravel clasts, otherwise as able; estimate 30% fines, 40% sand, 30% fine gravel		
14									
15									
16									
17									
18									
19									
20									
21									
22									

Designated Purpose(s) of Log

Site Characterization

Note: Logs are to be used only for designated purpose(s).

Logged by	Date	Plate
G. Jett	12-15-93	
Drafted by: L. Sue	Date: 12-29-93	
Reviewed by: J. Romie	Date: 1-26-94	

KLEINFELDER

Project	Boring No.
Southland #18608	MW-2
Number: 10-2300-43/B21	
Total Depth: 19.2 feet	Sheet: 2 of 2

LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Foot	PID (ppm) reading/background	USCS	Description	Remarks	Well Construction
							5" asphalt		
							5" concrete		
1						CH	fat CLAY - black, moist, highly plastic, distinct sulfurous odor (Bay Mud?)	Logged from cuttings	
2									
3									
4									
5			60	10	7.5/0	CH	fat CLAY - reddish brown, damp, highly plastic, massive, uncemented, no HCl reaction, sparse and isolated gravels to 3/4 inches, varicolored cherts; estimate 95% fines		
6					20/0				
7			100	13	160/0	CL	lean CLAY with sand - dark brown (7.5YR4/2), damp, moderately plastic, massive, uncemented, no HCl reaction; estimate 75% fines, 20% sand, 5% fine grained gravel	Distinct petroleum odor	
8					2200/0				
9	23470		100	12	1100/0			12-27-93 ▼	
10					2500/0				
11	23472		100	10	1800/0	ML	sandy SILT with gravel - dark brown (10YR4/3), moist with free liquid, slightly plastic, massive, uncemented, no HCl reaction, trace very fine tubular secondary porosity; estimate 50% fines, 35% sand, 15% gravels to 1.5 inches		
12					2400/0				
13	23473		100	15	2300/1.6	SM	silty SAND - light yellowish brown (10YR6/4) with 50% light medium gray and medium reddish brown irregular mottling, moist, wet in trace tubular secondary porosity, chert and weathered sandstone, gravel clasts to 1 inch, sparse and isolated; estimate 30% fines, 65% sand, 5% gravel	Distinct petroleum odor	
14					2300/1.6				
15	23474		95	15	150/1.9				
16					70/1.9				
17			90	17	60/1.9				
18					54/2.6	SM	silty SAND - light olive brown (2.5Y5/4) with 40% irregular medium gray mottling, moist, medium dense, massive, uncemented, no HCl reaction	12-15-93 ▽	
19					6.8/2.8				
20					8.8/2.8				
21					10.9/3.2		grading to		
22					11/3.2	SC	clayey SAND - free water in coarse irregular fractures at 15.0 feet and 17.0 feet; grading to		
					12/3.9				
					0/0				
					0/0	SM	silty SAND - moist, slightly plastic, massive		
					0/0				
						SP	poorly graded SAND - moist, massive, uncemented		

Designated Purpose(s) of Log

Site Characterization

Note: Logs are to be used only for designated purpose(s).

Logged by	Date	Plate
G. Jett	12-15-93	
Drafted by: L. Sue	Date: 12-29-93	
Reviewed by: J. Romie	Date: 1-26-94	

KLEINFELDER

Project	Boring No.
Southland #18608	MW-3
Number: 10-2300-43/B21	
Total Depth: 24.67 feet	Sheet: 2 of 3

LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Foot	PID (ppm) reading/background	USCS	Description	Remarks	Well Construction
							topsoil		
1							2 to 3 inches concrete	Not logged	
2									
3									
4									
5			100	16	190/0	CH	fat CLAY with sand - dark olive gray (5Y3/2) with 20% dark yellow brown mottling, damp, highly plastic, massive, uncemented; estimate 80% fines, 20% fine sand	Distinct petroleum odor	
6					570/0				
					700/0				
7	23475		75	13			increase to 40% mottling		
					1700/0				
8	23476				1300/0				
9			95	14				12-27-93 ▼	
					150/2.2	CH	sandy fat CLAY - gray (5Y5/1) with 30 to 40% yellowish brown mottling, damp to moist with trace free liquid in trace fine tubular secondary porosity, massive, uncemented; estimate 70% fines, 20% sand; 10% gravel to 1-inch	Distinct petroleum odor	
10					1700/2.2				
					2100/2.0				
11	23477		75	20					
					430/0				
12	23478				60/0	GC	clayey GRAVEL with sand - graded bed; estimate 40% fines, 25% sand, 35% gravel to 1-inch		
13				26		ML	SILT with sand - light olive brown (2.5Y5/4) with 15% medium gray to dark gray tubular mottling, moist; estimate 80% fines, 20% sand		
					50/3.6				
14					11.3/3.6	SM	silty SAND - dark yellowish brown (10YR4/6), moist, very dense, laminated in part, uncemented; estimate 20% fines, 75% fine to medium sand, 5% gravel to 3/4-inch		
					18/3.6				
15	23479		85	27					
					210/3.6			12-15-93 ▽	
16					110/3.6				
					14/3.6	SP	SAND - dark yellowish brown (10YR4/6), moist to wet, medium dense, massive, uncemented; estimate 90% fine to medium sand, 10% fine gravel		
17	23480		65	33					
18									
19			75	22			sand heaved 2 feet into auger		
20									
21									
22									

Designated Purpose(s) of Log

Site Characterization

Note: Logs are to be used only for designated purpose(s).

Logged by	Date	Plate
G. Jett	12-15-93	
Drafted by: L. Sue	Date: 12-29-93	
Reviewed by: J. Romie	Date: 1-26-94	

KLEINFELDER

Project	Boring No.
Southland #18608	MW-3
Number: 10-2300-43/B21	
Total Depth: 24.67 feet	Sheet: 3 of 3

LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Foot	PID (ppm) reading/background	USCS	Description	Remarks	Well Construction
23						SP	SAND - as above, becoming coarser grained, fine sand to fine gravel; sand heaved 23 to 15 feet	Logged from cuttings	
24						CL?	CLAY - driller's estimate	Not sampled because of risk of losing hole to heaving sands	
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									

Designated Purpose(s) of Log

Site Characterization

Note: Logs are to be used only for designated purpose(s).

Logged by	Date	Plate
G. Jett	12-15-93	
Drafted by: L. Sue	Date: 12-29-93	
Reviewed by: J. Romie	Date: 1-26-94	

KLEINFELDER

Project	Boring No.
Southland #18608	MW-4
Number: 10-2300-43/B21	
Total Depth: 26.0 feet	Sheet: 2 of 3

LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Foot	PID (ppm) reading/background	USCS	Description	Remarks	Well Construction
0						ML	SILT with sand - black, moist, firm, organic-rich topsoil; estimate 60% fines, 40% sand		
1						SP	Fill - SAND - light gray, moist, loose		
2						GP-GM	Fill - poorly graded GRAVEL with silt and sand - black, moist; estimate 10% fines, 30% sand, 60% gravel		
3						ML	sandy SILT - dark reddish gray (5YR4/2), damp, stiff, massive, no HCl reaction; estimate 75% fines, 25% sand; common tree roots		
4									
5			100	26	0/0	CL	sandy CLAY - yellowish brown (10YR5/4), damp, massive, no HCl reaction; estimate 85% fines, 15% fine to medium sand		
6					0/0				
7			100	17	0/0				
8					0/0				
9			100	10	0/0		color change to dark yellowish brown (10YR4/4), predominantly fine grained sand with isolated fine gravel clasts of red chert; estimate 80% fines, 20% sand		
10					0/0	ML	SANDY SILT - dark yellowish brown (10YR4/4), predominantly fine grained sand with isolated fine gravel clasts of red chert; estimate 80% fines, 20% sand		
11			0	22	0/0			No recovery	
12									
13			60	12	0/0			12-27-93 ▼	
14	23466					CL	CLAY - olive yellow (2.5Y6/8), moist, stiff, massive, no HCl reaction; estimate 95% fines, 5% fine sand		
15			100	17	0/0	ML	SILT - light yellowish brown (2.5Y6/4) with 30% light gray irregular mottling, trace black organic matter, moist, stiff, crumbles easily (slightly plastic), massive; estimate 95% fines, 5% fine sand		
16					0/0				
17				18					
18									
19	23467		75	17					
20								12-14-93 ▽	
21						SM	silty SAND - light yellowish brown (2.5Y6/3), wet, medium dense, uncemented, no HCl reaction, no visible secondary porosity, trace black organic mottles; estimate 40% fines, 60% fine to medium sand	Not sampled	
22									

Designated Purpose(s) of Log

Site Characterization

Logged by	Date	Plate
G. Jett	12-14-93	
Drafted by: L. Sue	Date: 12-29-93	
Reviewed by: J. Romie	Date: 1-26-94	

Note: Logs are to be used only for designated purpose(s).

KLEINFELDER

Project	Boring No.
Southland #18608	MW-4
Number: 10-2300-43/B21	
Total Depth: 26.0 feet	Sheet: 3 of 3

LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Foot	PID (ppm) reading/background	USCS	Description	Remarks	Well Construction
23								Not sampled	
24			100	20		SM	silty SAND - wet; estimate 40% fines, 60% sand		
25						ML	SILT - moist; estimate 100% fines		
26						CL	lean CLAY - moist; estimate 100% fines		
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
41									
42									
43									
44									

Designated Purpose(s) of Log

Site Characterization

Note: Logs are to be used only for designated purpose(s).

Logged by	Date	Plate
G. Jett	12-14-93	
Drafted by: L. Sue	Date: 12-29-93	
Reviewed by: J. Romie	Date: 1-26-94	

KLEINFELDER

Project	Boring No.
Southland #18608	V-1
Number: 10-2300-43/B21	
Total Depth: 13.0 feet	Sheet: 2 of 2

LOG OF BORING

Depth (feet)	Sample Number	Sample Type	Recovery (%)	Blows/Foot	PID (ppm) reading/background	USCS	Description	Remarks	Well Construction
							topsoil		
1								Not sampled or logged	
2									
3									
4									
5						CL	Fill - CLAY with sand; estimate 70% fines, 30% sand		
			100	11	0/0	CL	CLAY - very dark gray (10YR3/1), moist, medium stiff, moderately plastic, massive uncemented; estimate 95% fines, 5% sand		
6					0/0				
					0/0				
7			100	8	0/0				
					0/0				
8					0/0		Increasing sand content, trace black organic matter; estimate 90% fines, 10% sand with rare gravel to 1-inch		
							SILT - greenish gray (5GY5/1) with 40% reddish brown irregular mottling, stiff, uncemented, massive, no HCl reaction, trace fine tubular secondary porosity; estimate 95% fines, 5% sand	Obvious petroleum odor	
9	23468		100	14	3800/0	ML			
10					1600/0			12-27-93 ▼	
					640/0				
11			85	28	0/0				
	23469				2100/0	GC	clayey GRAVEL with sand - varicolored browns, grays and reds, moist, moderately plastic fines, massive, uncemented, no HCl reaction, predominantly red chert clasts; estimate 20% fines, 20% sand, 60% gravel to more than 2 inches	Distinct petroleum odor	
12					84/0				
13			80	26	0/0	ML	SILT - light olive brown (2.5Y5/4) with 30% medium gray irregular mottling and trace black organic material, very stiff, massive, uncemented, no HCl reaction		
					0/0				
14					0/0				
15									
16									
17									
18									
19									
20									
21									
22									

Designated Purpose(s) of Log

Site Characterization

Note: Logs are to be used only for designated purpose(s).

Logged by	Date	Plate
G. Jett	12-14-93	
Drafted by: L. Sue	Date: 12-29-93	
Reviewed by: J. Romle	Date: 1-26-94	