PALOS VERDES LANDFILL
REMEDIAL INVESTIGATION REPORT

APPENDIX D.8

REPORT ON WELL ABANDONMENT FOR WELLS MW-1 AND MW-6 (DALE HINKLE, P.E. INC.)

Dale Hinkle, P.E. Inc.
15510 ROCKFIELD, SUITE "B"
IRVINE, CA 92718
(714) 458-0498 FAX (714) 458-1918

February 4, 1992

Mr. Charles W. Carry
County Sanitation Districts of Los Angeles County
1955 Workman Mill Road
P O Box 4998
Whittier, California 90607

Re: Report of Well Abandonment, Seven Wells (MW-1 through MW-6 and G-9) Palos Verdes Landfill

Dear Sir:

This letter will serve as a transmittal for the enclosed report for the Palos Verdes Landfill Well Abandonment.

At this time we have completed all of the tasks requested in your RFP for the abandonment of seven monitoring wells at the Palos Verdes Landfill.

Drilling for all wells was much more difficult than anticipated with the exception of G-9. The difficultly was caused by the deformation of the well casing due to the proximity of the landfill excavation and the alignment to be up to 20 degrees out of true and difficult access. This was especially true for MW-3 which required a large amount of hand built tooling and manouvering of drill rigs.

All wells were successfully abandoned and the project has been completed.

It has been our pleasure to be of service to you on this project and if you have any questions please feel free to call our office.

Sincerely,

R. D. Hinkle

R. D. Hinkle
RGE #402

REPORT OF WELL ABANDONMENT

MW-1 THROUGH MW-6 AND G-9

PALOS VERDES LANDFILL

PROJECT PERFORMED FOR LOS ANGELES COUNTY SANITATION DISTRICTS

Prepared By: Dale Hinkle P. E. Inc.
15510 B Rockfield
Irvine, California 92718
714 458 0498
FAX 714 458 1918

TABLE OF CONTENTS

Introduction 1

Purpose 1

Scope of Work 1

Well Abandonment Procedures 2

MW-1 2
MW-2 3
MW-3 4
MW-4 5
MW-5 6
MW-6 7
G-9 8

Unusual Situations Encountered 9

APPENDIX

Well Abandonment Summary .....

Monitoring Well Abandonment-As Built ..... Figures 1, 2, & 3

Copies of Application for Well Permit ....

Logs of Borings .....

REPORT OF WELL ABANDONDMENT
PALOS VERDES LANDFILL

Introduction

This project was performed under contract to the Los Angeles County Sanitation Districts and coordinated by Mr. Sailesh Banaji and Ms. Mary Jacobs of the engineering staff.

The project was conducted by Dale Hinkle P. E. Inc., with Layne Environmental Services as the drilling contractor. The wells selected for abandonment were chosen by the Districts.

Purpose

The purpose of the project was abandonment of seven monitoring wells at the Palos Verdes Landfill site. The abandonment was to be performed according to State of California Department of Water Resources (DWR) procedures.

Scope of Work

The scope of work consisted of the following:

1. Perform a review of existing DWR well Abandonment procedures, well construction details (provided by LACSD), and existing geologic reports for the site.

2. Preparation of a Health and Safety Plan to be used by all personnel during investigative and remedial activities at the site.

3. Obtain all necessary permits and licenses to carry the project to completion.

4. Develop access for drilling equipment to the sites of the various wells.

5. Abandonment of 7 monitoring wells (MW-1 through MW-6 and G-9).

6. Preparation of final summary report.

Well Abandonment Procedures

MW-1

1. Measure depth to groundwater and length of well casing.

2. Remove concrete slab and box.

3. Drill out the hole to a depth of 42' with a 36" diameter auger using a Watson 2000 bucket auger drill mounted on 11 foot wide tracks provided by Mahaffey Drilling.

4. Remove well casing, cement, sand and gravel pack.

5. Backfill the hole with volclay grout to within 6' of the ground surface using a pump and tremie pipe located 2' off the bottom of the hole.

6. After 24 hours, check the hole for settlement and refill with additional Volclay grout.

7. After the Volclay grout has cured for a minimum of 72 hours, place a cement/bentonite plug to within 2' of the ground surface.

8. Backfill the upper 2' of the borehole with clean on-site material, compacted with a hand operated compactor, to the original surface.

MW-2

1. Measure depth to groundwater and length of well casing.

2. Remove concrete slab and box.

3. Drill out the hole to a depth of 73.25' using a 24" diameter auger using a E-Z Bore 90 bucket auger drill provided by Layne Environmental Services.

4. Remove well casing, cement, sand and gravel pack.

5. Backfill the hole with volclay grout to within 6' of the ground surface using a pump and tremie pipe located 2' off the bottom of the hole.

6. After 24 hours, check the hole for settlement and refill with additional Volclay grout if necessary.

7. After the Volclay grout has cured for a minimum of 72 hours, place a cement/bentonite plug to within 2' of the ground surface.

8. Backfill the upper 2' of the borehole with clean on-site material, compacted with a hand operated compactor, to the original surface.

MW-3

1. Remove concrete slab and box.

2. Measure depth to groundwater and length of well casing.

3. Drill out the hole to a depth of 15' with a 36" diameter auger using a Bayshore 929 Track Mounted Helical auger drill provided by Mahaffey Drilling.

4. Remove upper 15' of well casing and cement.

5. Set and seal a new 15' by 36" steel casing over the well.

6. Backfill around casing with a mixture of dry Volclay and soil.

7. Hand expose the well casing and fit a new PVC pipe on top.

8. Clean well of debris with a CME 75 drill with sliding head using air rotary procedures provided by Discovery Drilling Inc.

9. Perforate the well a minimum of 1 hole per foot using a swinger crane rig to a depth of 119' (Perforated a total of 104') with 1/2 inch diameter holes punched with a hydraulic perforator fabricated by us for this project.

10. Pressure grout the well with Volclay at a pressure of 46 psi to within 15' of the ground surface.

11. After 24 hours, check the hole for settlement and refill with additional Volclay grout if necessary.

12. Fill the in-place steel casing with Volclay grout to within 5' of the ground surface.

13. After the Volclay grout has cured for a minimum of 72 hours, place a cement/bentonite plug to within 2' of the ground surface. The 36 inch steel casing was left in-place.

14. Backfill the upper 2' of the borehole with clean on-site material, compacted with a hand operated compactor, to the original surface.

MW-4

1. Remove concrete slab and box.

2. Measure depth to groundwater and length of well casing.

3. Drill out the hole to a depth of 35' with a 36" diameter auger using a Bayshore 929 track mounted helical auger drill provided by Mahaffey Drilling.

4. Remove well casing, cement, sand and gravel pack.

5. Backfill the hole with volclay grout to within 6' of the ground surface using a pump and tremie pipe located 2' off the bottom of the hole.

6. After 24 hours, check the hole for settlement and refill with additional Volclay grout if necessary.

7. After the Volclay grout has cured for a minimum of 72 hours, place a cement/bentonite plug to within 2' of the ground surface.

8. Backfill the upper 2' of the borehole with clean on-site material, compacted with a hand operated compactor, to the original surface.

MW-5

1. Remove concrete slab and box.

2. Measure depth to groundwater and length of well casing.

3. Drill out the hole to a depth of 129' with a 36" diameter auger using a E-Z Bore 90 bucket auger drill provided by Layne Environmental Services.

4. Remove well casing, cement, sand and gravel pack.

5. Backfill the hole with volclay grout to within 6' of the ground surface using a pump and tremie pipe located 2' off the bottom of the hole.

6. After 24 hours, check the hole for settlement and refill with additional Volclay grout if necessary.

7. After the Volclay grout has cured for a minimum of 72 hours, place a cement/bentonite plug to within 2' of the ground surface.

8. Backfill the upper 2' of the borehole with clean on-site material, compacted with a hand operated compactor, to the original surface.

MW-6

1. Remove concrete slab and box.

2. Measure depth to groundwater and length of well casing.

3. Drill out the hole to a depth of 15' with a 36" diameter auger and from 15' to 73' with a 24" diameter auger using a E-Z Bore 90 bucket auger drill provided by Layne Environmental Services

4. Remove well casing, cement, sand and gravel pack.

5. Backfill the hole with volclay grout to within 6' of the ground surface using a pump and tremie pipe located 2' off the bottom of the hole.

6. After 24 hours, check the hole for settlement and refill with additional Volclay grout if necessary.

7. After the Volclay grout has cured for a minimum of 72 hours, place a cement/bentonite plug to within 2' of the ground surface.

8. Backfill the upper 2' of the borehole with clean on-site material, compacted with a hand compactor and place asphalt patch over the backfill.

G-9

1. Remove asphalt from top of well.

2. Measure depth to groundwater and length of well casing.

3. Drill out the hole to a depth of 110' and 13.5" diameter using a CME 95 hollow stem auger drill provided by Layne Environmental Services.

4. Remove well casing, cement, sand and gravel pack.

5. Backfill the hole with volclay grout to within 6' of the ground surface using a pump and tremie pipe located 2' off the bottom of the hole.

6. After 24 hours the Volclay grout had settled 20'. The hole was then refilled to within 6 feet of the ground surface.

7. After the Volclay grout has cured for a minimum of 72 hours, place a cement/bentonite plug to within 6' of the ground surface.

8. Backfill the upper 6' of the borehole with imported, clean gravel material, compacted with a hand operated compactor, to the original surface.

9. Area left as soil at the request of Districts personnel for future repaving.

All wells were measured with a Gastech for the presence of methane gas prior to the start of drilling. No methane gas was detected in any of the wells. Well cuttings were measured with a Photovac Tip for the presence of hydrocarbons. None were detected.

Samples of the well cuttings were transported by LACSD personnel to the Districts laboratory for testing.

Unusual Situations Encountered

Wells MW-1 through MW-6 were very close to the old excavation on the south side of the site. The close proximity of the excavation caused the monitoring well casings to be severely deformed by settlement of the landfill. The upper 10 to 15 feet of the wells were in fill or soil affected by fill settlement and the lower portions were in bedrock. The wells were also bent up to 20 degrees, causing the casing to deform, making it impossible to drill a straight hole in the wells. It was necessary to drill 2 or 3 holes at the surface to hit the lower straight portion of the wells.

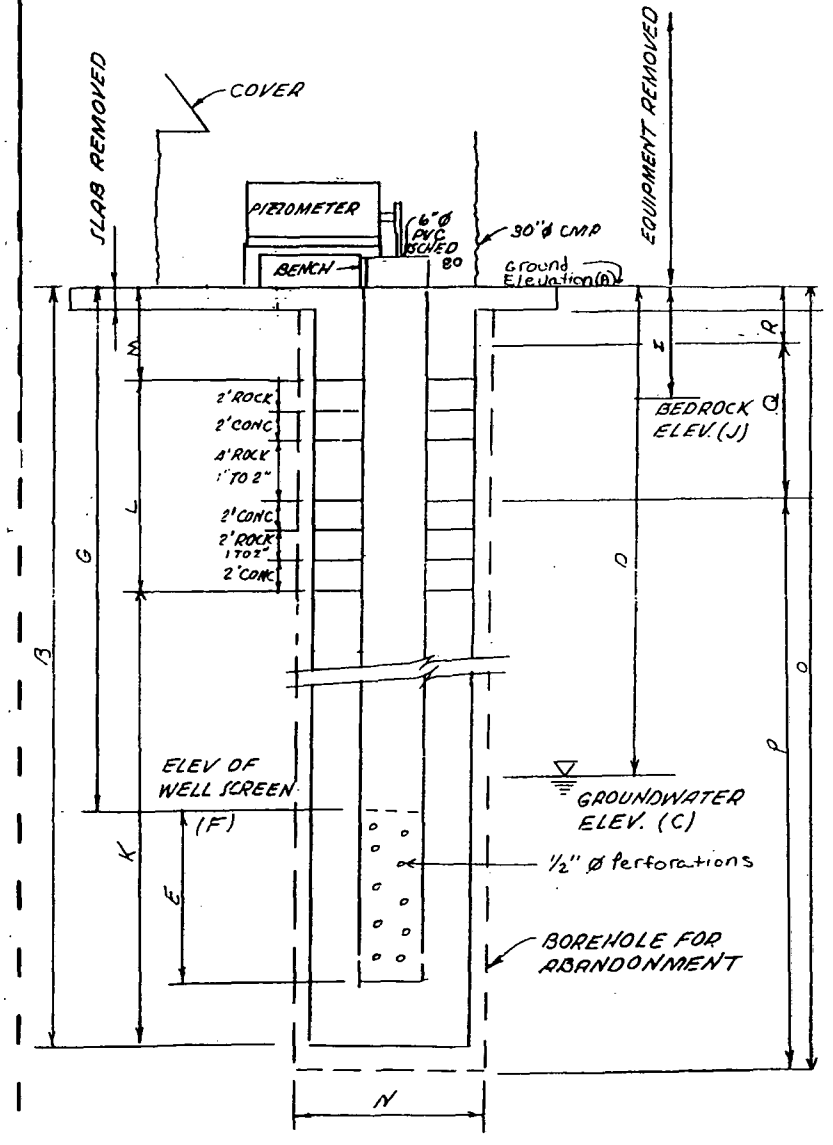
The cuttings from the drilling project (approximately 100 cubic yards) were transported to the Puente Hills Landfill after testing by the Districts. The tests showed no significant contaminants.

All wells were successfully abandoned and the project was completed as of December 1991.

APPENDIX

WELL ABANDONMENT SUMMARY

Well #	Length of Well Casing (ft)	Depth of Ground-Water (ft)	Depth of Boring (ft)	Diameter of Boring (in)	Method of Abandonment	Qty. of Volclay (50#)	Qty of Cement (94#)	Qty of Water (gal.)
MW-1	41.0	33.0	42.0	36.0	Bucket Auger	91	20	3000
MW-2	72.0	34.0	73.25	24.0	" "	110	20	2700
MW-3	119.0	50.0	15.0	36.0	Helical Auger (to 15') Pressure Grout (to 119.0')	24	12	550
MW-4	35.0	30.0	35.0	36.0	Helical Auger	82	5	2250
MW-5	129.0	90.0	129.0	36.0	Bucket Auger	153	10	4750
MW-6	73.0	54.0	73.0	36 to 15' 24 to 73'	" "	120	6	3750
G-9	108.0	92.0	110.0	13.5	Hollow-Stem Auger	20	6	750



	WELL NUMBER	MW-1	MW-2	MW-3
A.	Ground Elevation (ft. above M.S.L.) (USGS Topo)	350.0	380.0	350.0
B.	Length of Well Casing and Screen (ft)	41.0	72.0	119.0
C.	Groundwater Elevation (ft. above M.S.L.)	317.0	346.0	257.0
D.	Static Water Level (ft) Below Ground Level	33.0	34.0	93.0
E.	Length Of Well Screen (ft)	5.0	5.0	5.0
F.	Elevation of Well screen (ft. above M.S.L.)	316.5	313.0	236.0
G.	Length of Well Casing (ft)	33.5	67.0	113.0
H.	Elevation of Top of Casing (ft. above M.S.L.)	350.0	380.0	350.0
I.	Depth to Bedrock (ft)	15.0	20.0	N.E.
J.	Elevation of Top of Bedrock (ft. above M.S.L.)	335.0	360.0	N.E.
K.	Length of Rock Filter Pack (ft) (1-2" diameter)	23.0	54.0	101.0
L.	Length of Concrete/Rock Surface Seal (ft) (Well)	14.0	14.0	14.0
M.	Length of Concrete Slab (ft)	4.0	4.0	4.0
N.	Diameter of Borehole (in)	36.0	24.0	36.0
O.	Length of Borehole (ft)	42.0	73.25	15.0
P.	Length of Volclay Grout to Seal Borehole (ft)	36.0	67.25	10.0
Q.	Length of Cement/Bentonite to Seal Borehole (ft)	4.0	4.0	3.0
R.	Length of Backfill to Cap Borehole (ft)	2.0	2.0	2.0
S.	Quantity of Volclay, Used (50# bags)	91	110	24
T.	Quantity of Cement Used (94# bags)	20	20	12
U.	Quantity of Water Used (gallons)	3000	2700	550
V.	Drill Method	Bucket Auger	Bucket Auger	Helical Auger

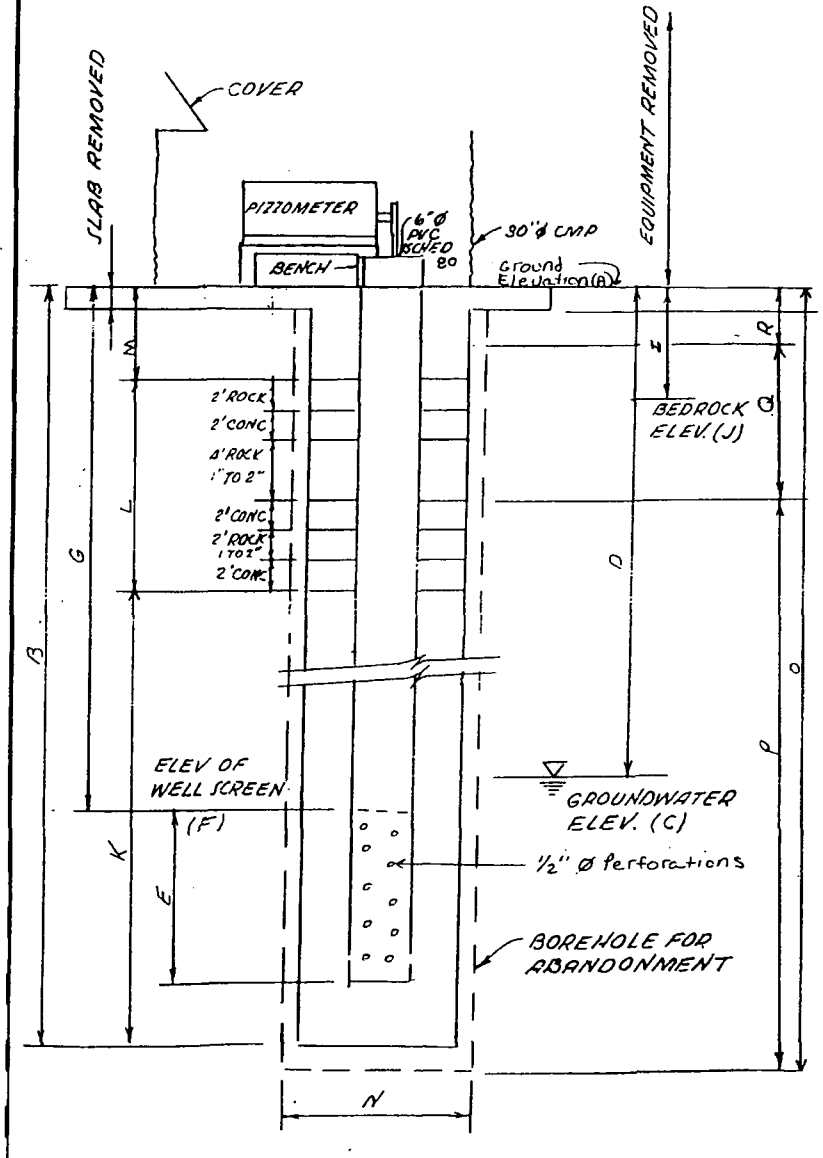
PALOS VERDES LANDFILL
MONITORING WELL ABANDONMENT PROJECT

SCALE: NO SCALE	APPROVED BY:	DRAWN BY GPD
DATE: 11-5-91		REVISED

MONITORING WELL ABANDONMENT-AS BUILT

DALE HINKLE P.E. INC.

DRAWING NUMBER FIG. 1



	WELL NUMBER	MW-4	MW-5	MW-6
A.	Ground Elevation (ft. above M.S.L.) (USGS Topo)	360.0	340.0	280.0
B.	Length of Well Casing and Screen (ft)	35.0	129.0	73.0
C.	Groundwater Elevation (ft. above M.S.L.)	330.0	250.0	226.0
D.	Static Water Level (ft) Below Ground Level	30.0	90.0	54.0
E.	Length Of Well Screen (ft)	5.0	5.0	5.0
F.	Elevation of Well screen (ft. above M.S.L.)	331.0	217.5	214.0
G.	Length of Well Casing (ft)	29.0	122.5	66.0
H.	Elevation of Top of Casing (ft. above M.S.L.)	360.0	340.0	280.0
I.	Depth to Bedrock (ft)	32.0	EST. 20.0	70.5
J.	Elevation of Top of Bedrock (ft. above M.S.L.)	328.0	EST. 320.0	209.5
K.	Length of Rock Filter Pack (ft) (1-2" diameter)	17.0	109.5	55.0
L.	Length of Concrete/Rock Surface Seal (ft) (Well)	14.0	14.0	14.0
M.	Length of Concrete Slab (ft)	4.0	4.0	4.0
N.	Diameter of Borehole (in)	36.0	36.0	36.0 to 15' 24.0 to 73'
O.	Length of Borehole (ft)	35.0	129.0	73.0
P.	Length of Volclay Grout to Seal Borehole (ft)	29.0	123.0	67.0
Q.	Length of Cement/Bentonite to Seal Borehole (ft)	4.0	4.0	4.0
R.	Length of Backfill to Cap Borehole (ft)	2.0	2.0	2.0
S.	Quantity of Volclay, Used (50# bags)	82	153	120
T.	Quantity of Cement Used (94# bags)	5	10	6
U.	Quantity of Water Used (gallons)	2250	4750	3750
V.	Drill Method	Helical Auger	Bucket Auger	Bucket Auger

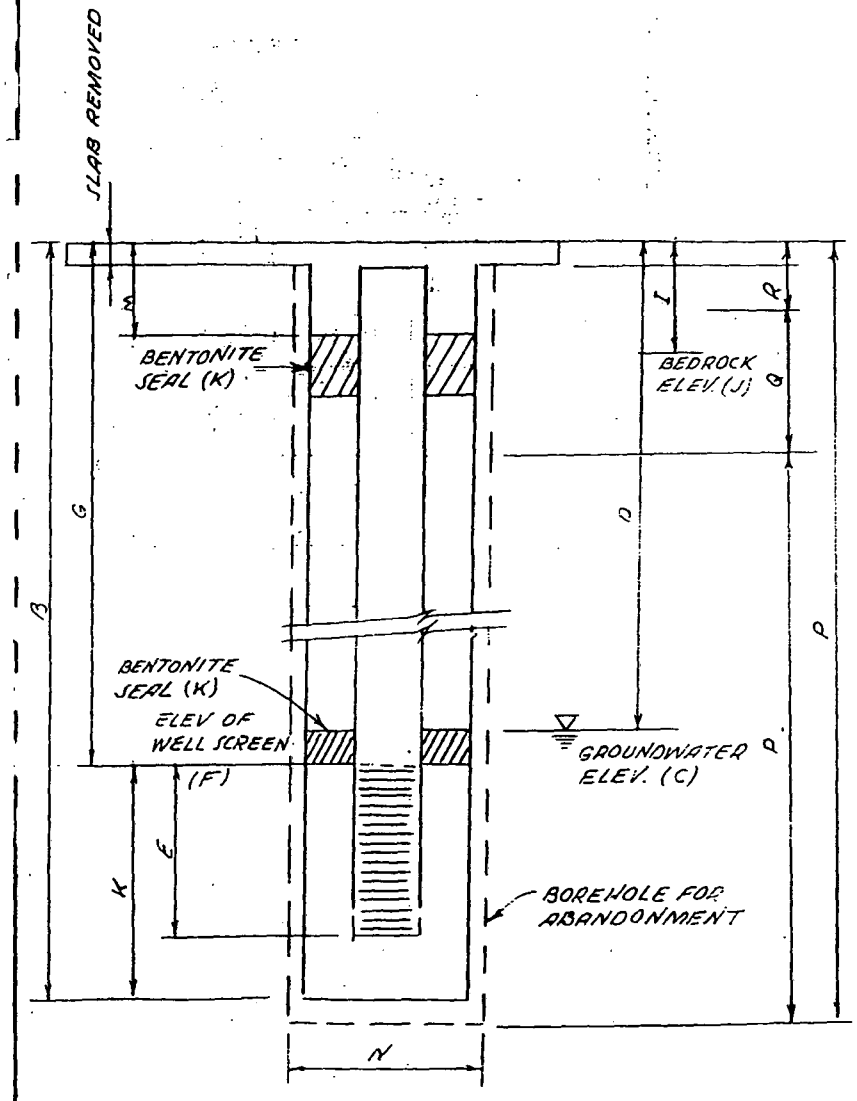
PALOS VERDES LANDFILL
MONITORING WELL ABANDONMENT PROJECT

SCALE: NO SCALE	APPROVED BY:	DRAWN BY GPD
DATE: 11-5-91		REVISED

MONITORING WELL ABANDONMENT-AS BUILT

DALE HINKLE P.E. INC.

DRAWING NUMBER FIG. 2



	WELL NUMBER	G-9		
A.	Ground Elevation (ft. above M.S.L.) (USGS Topo)	300.0		
B.	Length of Well Casing and Screen (ft)	108.0		
C.	Groundwater Elevation (ft. above M.S.L.)	208.0		
D.	Static Water Level (ft) Below Ground Level	92.0		
E.	Length Of Well Screen (ft)	35.0		
F.	Elevation of Well screen (ft. above M.S.L.)	228.0		
G.	Length of Well Casing (ft)	72.0		
H.	Elevation of Top of Casing (ft. above M.S.L.)	300.0		
I.	Depth to Bedrock (ft)	90.0		
J.	Elevation of Top of Bedrock (ft. above M.S.L.)	210.0		
K.	Length of Rock Filter Pack (ft) (1-2" diameter)	42.0		
L.	Length of Concrete/Rock Surface Seal (ft) (Well)	62.0		
M.	Length of Concrete Slab (ft)	2.0		
N.	Diameter of Borehole (in)	13.5		
O.	Length of Borehole (ft)	110.0		
P.	Length of Volclay Grout to Seal Borehole (ft)	90.0		
Q.	Length of Cement/Bentonite to Seal Borehole (ft)	14.0		
R.	Length of Backfill to Cap Borehole (ft)	6.0		
S.	Quantity of Volclay, Used (50# bags)	20		
T.	Quantity of Cement Used (94# bags)	6		
U.	Quantity of Water Used (gallons)	750		
V.	Drill Method	HOLLOW STEM AUGER		

PALOS VERDES LANDFILL
MONITORING WELL ABANDONMENT PROJECT

SCALE: NO SCALE	APPROVED BY:	DRAWN BY GPD
DATE: 11-5-91		REVISED

MONITORING WELL ABANDONMENT-AS BUILT

DALE HINKLE P.E. INC.

DRAWING NUMBER FIG.3

PPLICATION FOR WELL PERMIT

ENVIRONMENTAL MANAGEMENT - 2615 S. GRAND AVENUE, LOS ANGELES, CA 90007, ROOM 604
COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES

DATE: 10-21-91

JESC...TION

TYPE OF PERMIT (CHECK)

- ☐ NEW WELL CONSTRUCTION
- ☐ RECONSTRUCTION OR RENOVATION
- ☒ DESTRUCTION

TYPE OF WELL

- ☐ PRIVATE DOMESTIC
- ☐ PUBLIC DOMESTIC
- ☐ IRRIGATION
- ☒ OBSERVATION/MONITORING
- ☐ CATHODI
- ☐ INDUSTRIAL
- ☐ GRAVEL PACK
- ☐ TEST

TYPE OF CASING

~~3" Sch 40 PVC~~ 6" Sch 80 PVC MW-1

METHOD OF SEALING OF CASING

Drill out and fill with volclay grout

METHOD OF DESTRUCTION

~~Hollow stem auger~~ Watson 2000 & 929 Bayshore 36" Helical auger

LOCA...JN

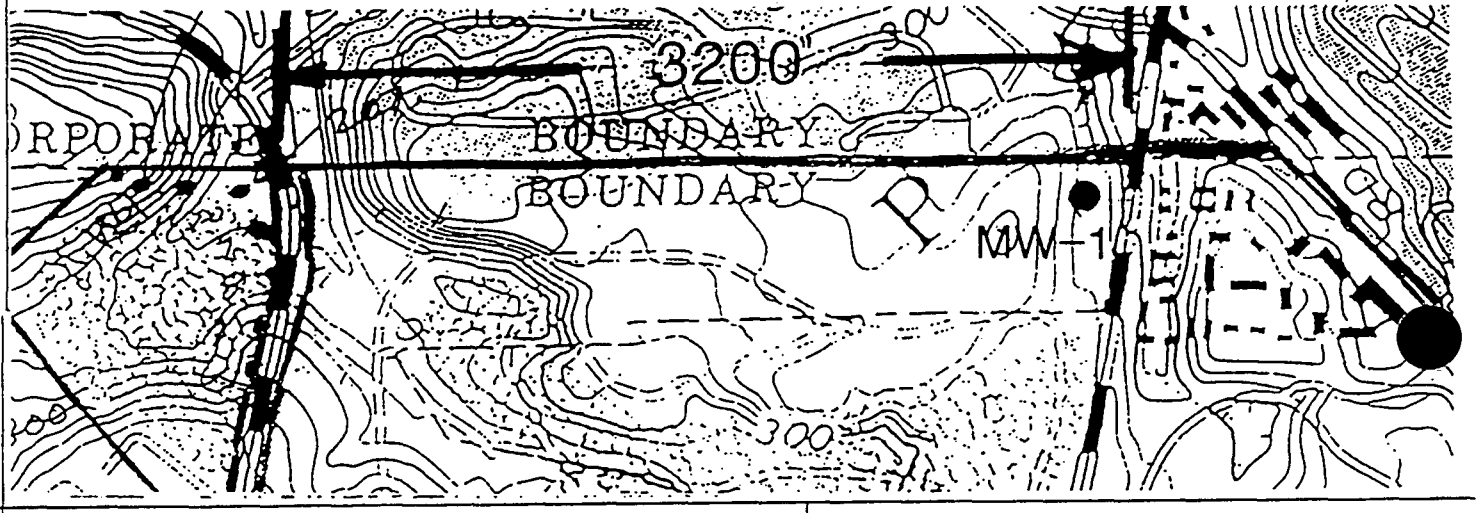
ADDRESS (NUMBER, STREET, AND NEAREST INTERSECTION)

25706 Hawthorne Boulevard

CITY

Rolling Hills Estate

DIAGRAM (SHOW PROPERTY LINES, STREET, ADDRESS, WELL SITE, SEWERS, AND PRIVATE SEWAGE DISPOSAL SYSTEMS ALONG WITH LABELS AND DIMENSIONS)



NAME OF WELL DRILLER (PRINT)

~~Dwaine Snyders~~ Dwaine Porter

TRADE NAME

~~Maxxxx Drilling Co~~ Mahaffey Drilling Co

BUSINESS ADDRESS

~~1210 West 190th St~~ Torrance ~~90502~~

CITY

NAME OF WELL OWNER (PRINT)

L.A. County Sanitation District

MAILING ADDRESS

P O Box 4998

CITY

Whitier

PLIC

I hereby agree to comply in every respect with all regulations of the County Preventive/Public Health Services and with all ordinances and laws of the County of Los Angeles and of the State of California pertaining to well construction, reconstruction and destruction. Upon completion of well and within ten days thereafter, I will furnish the County Preventive/Public Health Services with a complete log of the well, giving date drilled, depth of well, all perforations in casing, and any other data deemed necessary by such County Preventive/Public Health Services.

Applicant's Signature

DISPOSITION OF APPLICATION: (For Sanitarians Use Only)

- ☐ APPROVED
- ☐ DENIED
- ☐ APPROVED WITH CONDITIONS

If denied or approved with conditions, report reason or conditions here:

DATE | SANITARIAN

DATE | SECTION CHIEF

When signed by Section Chief, this application is a permit.

APPLICANT

76A668 (REV. 12-84)
H-13 (1/89)

APPLICATION FOR WELL PERMIT

ENVIRONMENTAL HEALTH 2525 Corporate Place Monterey Park, Ca 91754
COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES

DATE: 10-22-91

TYPE OF PERMIT (CHECK)

- ☐ NEW WELL CONSTRUCTION
- ☐ RECONSTRUCTION OR RENOVATION
- ☒ DESTRUCTION

TYPE OF WELL

- ☐ PRIVATE DOMESTIC
- ☐ PUBLIC DOMESTIC
- ☐ IRRIGATION
- ☒ OBSERVATION/MONITORING
- ☐ CATHODIC
- ☐ INDUSTRIAL
- ☐ GRAVEL PACK
- ☐ TEST

TYPE OF CASING
6" Sch 80 PVC MW-2

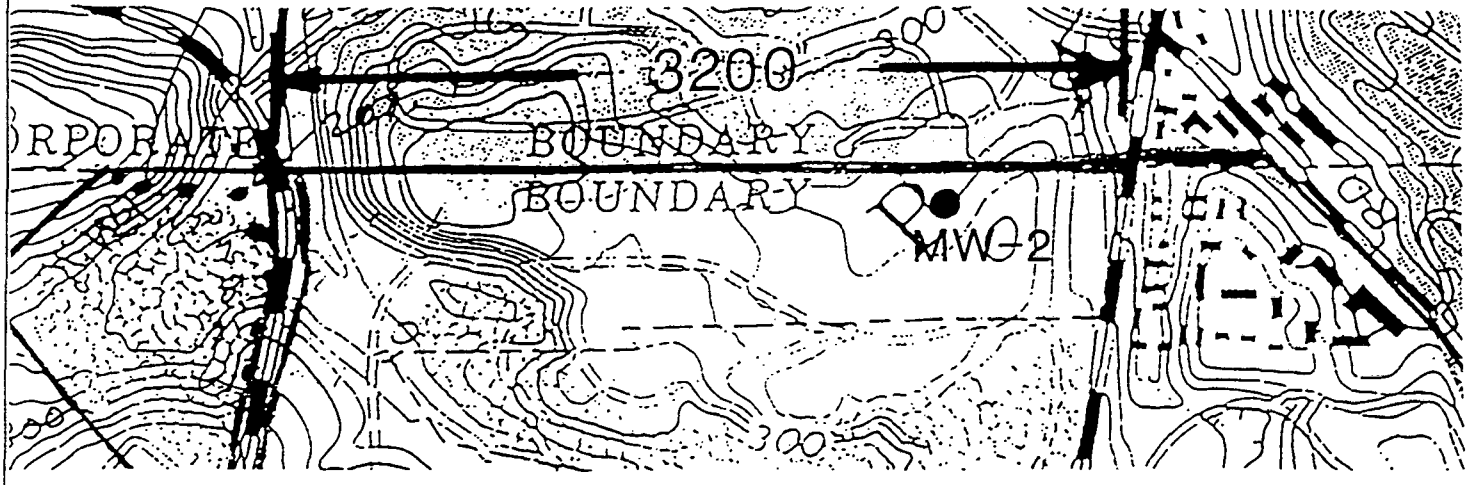
METHOD OF SEALING OF CASING
Drill out and fill with volclay grout

METHOD OF DESTRUCTION
EZ Bore 90 24" and 36" bucket auger

ADDRESS (NUMBER, STREET, AND NEAREST INTERSECTION)
25706 Hawthorne Blvd

CITY
Rolling Hills Est.

DIAGRAM (SHOW PROPERTY LINES, STREET, ADDRESS, WELL SITE, SEWERS, AND PRIVATE SEWAGE DISPOSAL SYSTEMS ALONG WITH LABELS AND DIMENSIONS)



NAME OF WELL DRILLER (PRINT)
Gary Gibson

NAME OF WELL OWNER (PRINT)
L. A. County Sanitation Districts

TRADE NAME
Layne Environmental

MAILING ADDRESS
P O Box 4998

BUSINESS ADDRESS
1749 East 28th Street Long Beach 90806

CITY
Whittier, Calif 90607

I hereby agree to comply in every respect with all regulations of the County Preventive/Public Health Services and with all ordinances and laws of the County of Los Angeles and of the State of California pertaining to well construction, reconstruction and destruction. Upon completion of well and within ten days thereafter, I will furnish the County Preventive/Public Health Services with a complete log of the well, giving date drilled, depth of well, all perforations in casing, and any other data deemed necessary by such County Preventive/Public Health Services.

Applicant's Signature

DISPOSITION OF APPLICATION: (For Sanitarians Use Only)

- ☐ APPROVED
- ☐ DENIED
- ☐ APPROVED WITH CONDITIONS

If denied or approved with conditions, report reason or conditions here:

DATE | SANITARIAN

DATE | SECTION CHIEF

When signed by Section Chief, this application is a permit.

APPLICANT

76A668
H-13 (Rev. 3/91)

APPLICATION FOR WELL PERMIT

ENVIRONMENTAL HEALTH 2525 Corporate Place Monterey Park, Ca 91754
COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES

DATE: 10-22-91

TYPE OF PERMIT (CHECK)

- ☐ NEW WELL CONSTRUCTION
- ☐ RECONSTRUCTION OR RENOVATION
- ☒ DESTRUCTION

TYPE OF WELL

- ☐ PRIVATE DOMESTIC
- ☐ PUBLIC DOMESTIC
- ☐ IRRIGATION
- ☒ OBSERVATION/MONITORING
- ☐ CATHODIC
- ☐ INDUSTRIAL
- ☐ GRAVEL PACK
- ☐ TEST

TYPE OF CASING

6" Sch 80 PVC MW-3

METHOD OF SEALING OF CASING

Grouting with cement/bentonite

METHOD OF DESTRUCTION

929 Bayshore 36" Helical auger for the 1st 15'

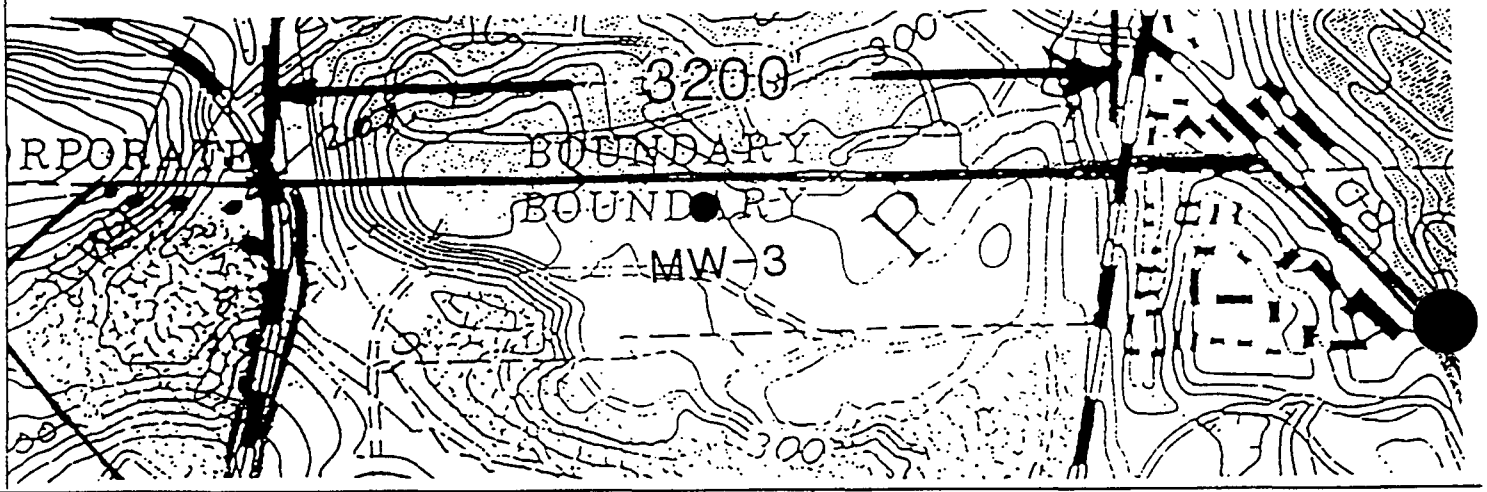
ADDRESS (NUMBER, STREET, AND NEAREST INTERSECTION)

25706 Hawthorne Blvd

CITY

Rolling Hills Est.

DIAGRAM (SHOW PROPERTY LINES, STREET, ADDRESS, WELL SITE, SEWERS, AND PRIVATE SEWAGE DISPOSAL SYSTEMS ALONG WITH LABELS AND DIMENSIONS)



NAME OF WELL DRILLER (PRINT)

Dwaine Porter

TRADE NAME

Mahaffey Drilling Co

BUSINESS ADDRESS **CITY**

1210 West 190 th St. Torrance 90502

NAME OF WELL OWNER (PRINT)

L. A. County Sanitation District

MAILING ADDRESS

P O Box 4998

CITY

Whittier, Calif 90607

I hereby agree to comply in every respect with all regulations of the County Preventive/Public Health Services and with all ordinances and laws of the County of Los Angeles and of the State of California pertaining to well construction, reconstruction and destruction. Upon completion of well and within ten days thereafter, I will furnish the County Preventive/Public Health Services with a complete log of the well, giving date drilled, depth of well, all perforations in casing, and any other data deemed necessary by such County Preventive/Public Health Services.

Applicant's Signature

DISPOSITION OF APPLICATION: (For Sanitarians Use Only)

- ☐ APPROVED
- ☐ DENIED
- ☐ APPROVED WITH CONDITIONS

If denied or approved with conditions, report reason or conditions here:

DATE	SANITARIAN
DATE	SECTION CHIEF

When signed by Section Chief, this application is a permit.

APPLICANT

76A668
H-13 (Rev. 3/91)

PLICATION FOR WELL PERMIT

ENVIRONMENTAL HEALTH 2525 Corporate Place Monterey Park, Ca 91754

COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES

DATE: 10-22-91

TYPE OF PERMIT (CHECK)

- ☐ NEW WELL CONSTRUCTION
- ☐ RECONSTRUCTION OR RENOVATION
- ☒ DESTRUCTION

TYPE OF WELL

- ☐ PRIVATE DOMESTIC
- ☐ PUBLIC DOMESTIC
- ☐ IRRIGATION
- ☒ OBSERVATION/MONITORING
- ☐ CATHODIC
- ☐ INDUSTRIAL
- ☐ GRAVEL PACK
- ☐ TEST

TYPE OF CASING

6" Sch 80 PVC MW-4

METHOD OF SEALING OF CASING

Drill out and fill with volclay grout

METHOD OF DESTRUCTION

929 Bayshore 36" Helical auger

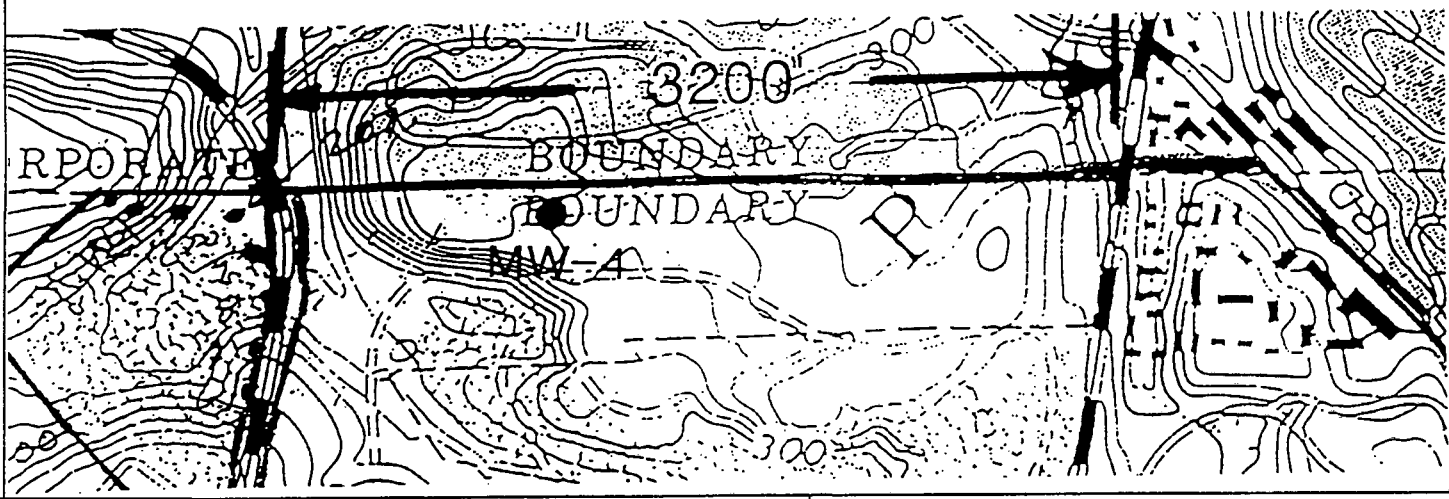
ADDRESS (NUMBER, STREET, AND NEAREST INTERSECTION)

25706 Hawthorne Blvd

CITY

Rolling Hills Est.

DIAGRAM (SHOW PROPERTY LINES, STREET, ADDRESS, WELL SITE, SEWERS, AND PRIVATE SEWAGE DISPOSAL SYSTEMS ALONG WITH LABELS AND DIMENSIONS)



NAME OF WELL DRILLER (PRINT)

Dwaine Porter

TRADE NAME

Mahaffey Drilling Co

BUSINESS ADDRESS CITY

1210 West 190th St Torrance 90502

NAME OF WELL OWNER (PRINT)

L. A. County Sanitation District

MAILING ADDRESS

P O Box 4998

CITY

Whittier, Calif. 90607

I hereby agree to comply in every respect with all regulations of the County Preventive/Public Health Services and with all ordinances and laws of the County of Los Angeles and of the State of California pertaining to well construction, reconstruction and destruction. Upon completion of well and within ten days thereafter, I will furnish the County Preventive/Public Health Services with a complete log of the well, giving date drilled, depth of well, all perforations in casing, and any other data deemed necessary by such County Preventive/Public Health Services.

Applicant's Signature

DISPOSITION OF APPLICATION: (For Sanitarians Use Only)

- ☐ APPROVED
- ☐ DENIED
- ☐ APPROVED WITH CONDITIONS

If denied or approved with conditions, report reason or conditions here:

DATE | SANITARIAN

DATE | SECTION CHIEF

When signed by Section Chief, this application is a permit.

76A668

APPLICANT

APPLICATION FOR WELL PERMIT

ENVIRONMENTAL HEALTH 2525 Corporate Place Monterey Park, Ca 91754
COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES

DATE: 10-22-91

TYPE OF PERMIT (CHECK)

- ☐ NEW WELL CONSTRUCTION
- ☐ RECONSTRUCTION OR RENOVATION
- ☒ DESTRUCTION

TYPE OF WELL

- ☐ PRIVATE DOMESTIC
- ☐ PUBLIC DOMESTIC
- ☐ IRRIGATION
- ☒ OBSERVATION/MONITORING
- ☐ CATHODIC
- ☐ INDUSTRIAL
- ☐ GRAVEL PACK
- ☐ TEST

TYPE OF CASING
6" Sch 80 PVC MW-5

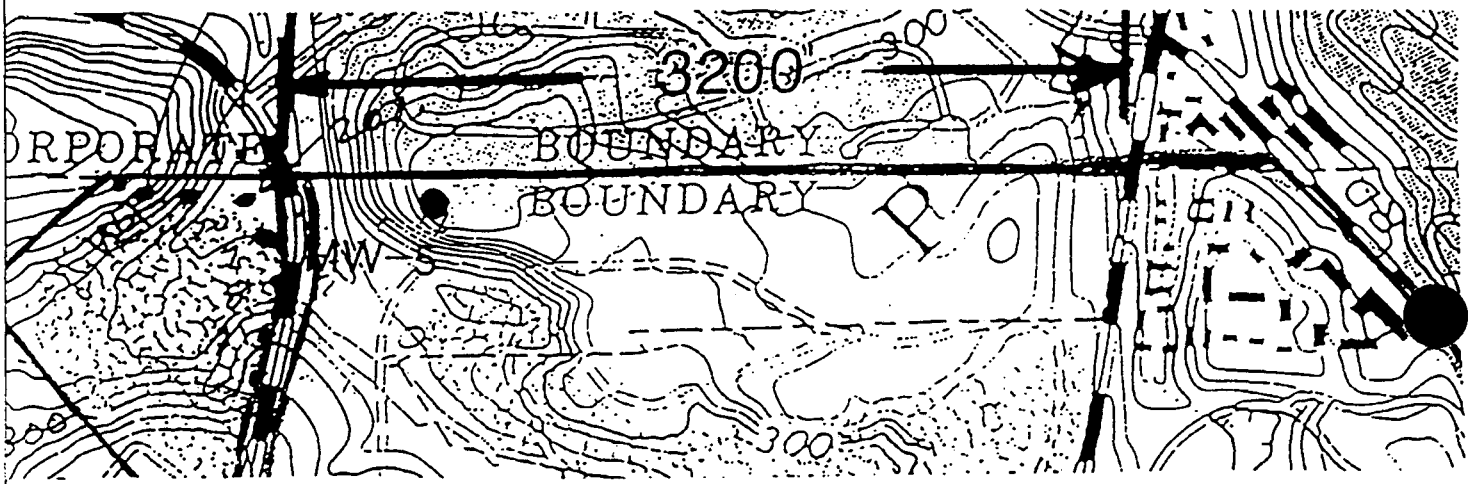
METHOD OF SEALING OF CASING
Drill out and fill with volclay grout

METHOD OF DESTRUCTION
EZ Bore 120 Bucket auger 36"

ADDRESS (NUMBER, STREET, AND NEAREST INTERSECTION)
25706 Hawthorne Boulevard

CITY
Rolling Hills Est.

DIAGRAM (SHOW PROPERTY LINES, STREET, ADDRESS, WELL SITE, SEWERS, AND PRIVATE SEWAGE DISPOSAL SYSTEMS ALONG WITH LABELS AND DIMENSIONS)



NAME OF WELL DRILLER (PRINT)
Gary Gibson

TRADE NAME
Layne Environmental

BUSINESS ADDRESS
1749 East 28th St. Long Beach

CITY

NAME OF WELL OWNER (PRINT)
L. A. County Sanitation District

MAILING ADDRESS
P O Box 4998

CITY
Whittier, Calif 90607

I hereby agree to comply in every respect with all regulations of the County Preventive/Public Health Services and with all ordinances and laws of the County of Los Angeles and of the State of California pertaining to well construction, reconstruction and destruction. Upon completion of well and within ten days thereafter, I will furnish the County Preventive/Public Health Services with a complete log of the well, giving date drilled, depth of well, all perforations in casing, and any other data deemed necessary by such County Preventive/Public Health Services.

Applicant's Signature

DISPOSITION OF APPLICATION: (For Sanitarians Use Only)

- ☐ APPROVED
- ☐ DENIED
- ☐ APPROVED WITH CONDITIONS

If denied or approved with conditions, report reason or conditions here:

DATE | SANITARIAN

DATE | SECTION CHIEF

When signed by Section Chief, this application is a permit.

APPLICANT

76A668
H-13 (Rev. 3/91)

PLICATION FOR WELL PERMIT

ENVIRONMENTAL HEALTH 2525 Corporate Place Monterey Park, Ca 91754
COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES

DATE: October 21, 1991

TYPE OF PERMIT (CHECK)

- ☐ NEW WELL CONSTRUCTION
- ☐ RECONSTRUCTION OR RENOVATION
- ☒ DESTRUCTION

TYPE OF WELL

- ☐ PRIVATE DOMESTIC
- ☐ PUBLIC DOMESTIC
- ☐ IRRIGATION
- ☒ OBSERVATION/MONITORING
- ☐ CATHODIC
- ☐ INDUSTRIAL
- ☐ GRAVEL PACK
- ☐ TEST

TYPE OF CASING
6" Sch 80 PVC MW-6

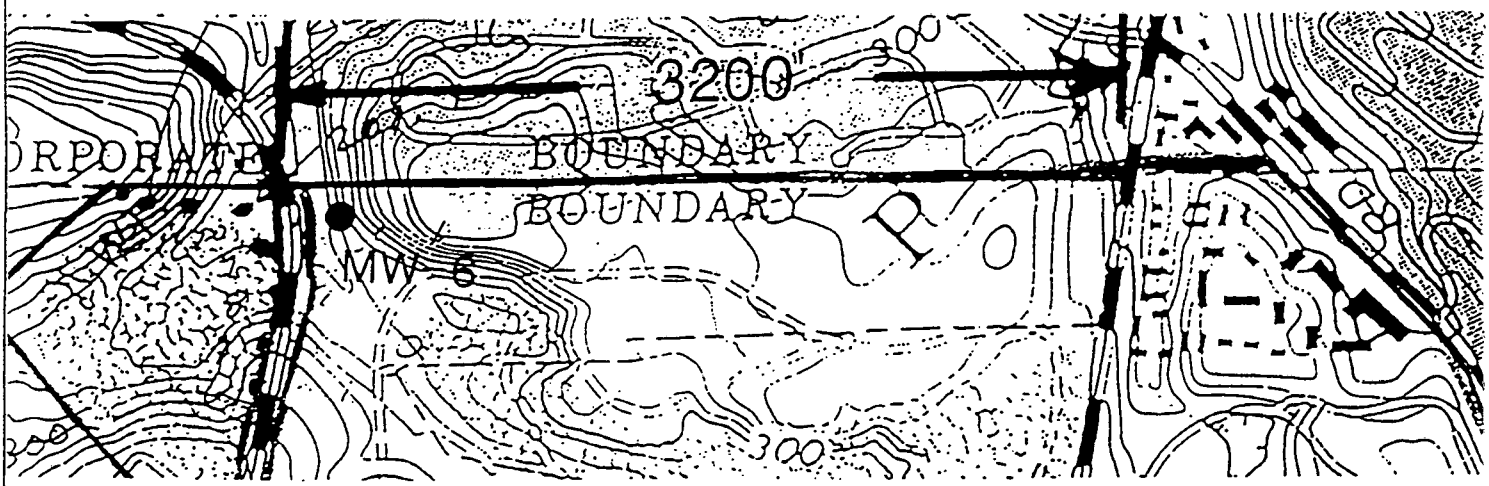
METHOD OF SEALING OF CASING
Drill out and fill with volclay grout

METHOD OF DESTRUCTION
EZ Bore 95 24"and 36" bucket auger

ADDRESS (NUMBER, STREET, AND NEAREST INTERSECTION)
25706 Hawthorne Blvd

CITY
Rolling Hills Est.

DIAGRAM (SHOW PROPERTY LINES, STREET, ADDRESS, WELL SITE, SEWERS, AND PRIVATE SEWAGE DISPOSAL SYSTEMS ALONG WITH LABELS AND DIMENSIONS)



NAME OF WELL DRILLER (PRINT)
Gary Gibson

NAME OF WELL OWNER (PRINT)
L. A. County Sanitation District

TRADE NAME
Layne Environmental

MAILING ADDRESS
P O Box 4998

BUSINESS ADDRESS
1749 East 28th St. Long Beach 90806

CITY
Whittier 90607

I hereby agree to comply in every respect with all regulations of the County Preventive/Public Health Services and with all ordinances and laws of the County of Los Angeles and of the State of California pertaining to well construction, reconstruction and destruction. Upon completion of well and within ten days thereafter, I will furnish the County Preventive/Public Health Services with a complete log of the well, giving date drilled, depth of well, all perforations in casing, and any other data deemed necessary by such County Preventive/Public Health Services.

Applicant's Signature

DISPOSITION OF APPLICATION: (For Sanitarians Use Only)

- ☐ APPROVED
- ☐ DENIED
- ☐ APPROVED WITH CONDITIONS

If denied or approved with conditions, report reason or conditions here:

DATE | SANITARIAN

DATE | SECTION CHIEF

When signed by Section Chief, this application is a permit.

APPLICANT

76A668
H-13 (Rev. 3/91)

APPLICATION FOR WELL PERMIT

ENVIRONMENTAL HEALTH 2525 Corporate Place Monterey Park, Ca 91754

COUNTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES

DATE: 10-21-91

DESCRIPTION

TYPE OF PERMIT (CHECK)

- ☐ NEW WELL CONSTRUCTION
- ☐ RECONSTRUCTION OR RENOVATION
- ☒ DESTRUCTION

TYPE OF WELL

- ☐ PRIVATE DOMESTIC
- ☐ PUBLIC DOMESTIC
- ☐ IRRIGATION
- ☒ OBSERVATION/MONITORING
- ☐ CATHODIC
- ☐ INDUSTRIAL
- ☐ GRAVEL PACK
- ☐ TEST

TYPE OF CASING: 3" Sch. 40 PVC G-9

METHOD OF SEALING OF CASING: Drill out and fill with volclay grout

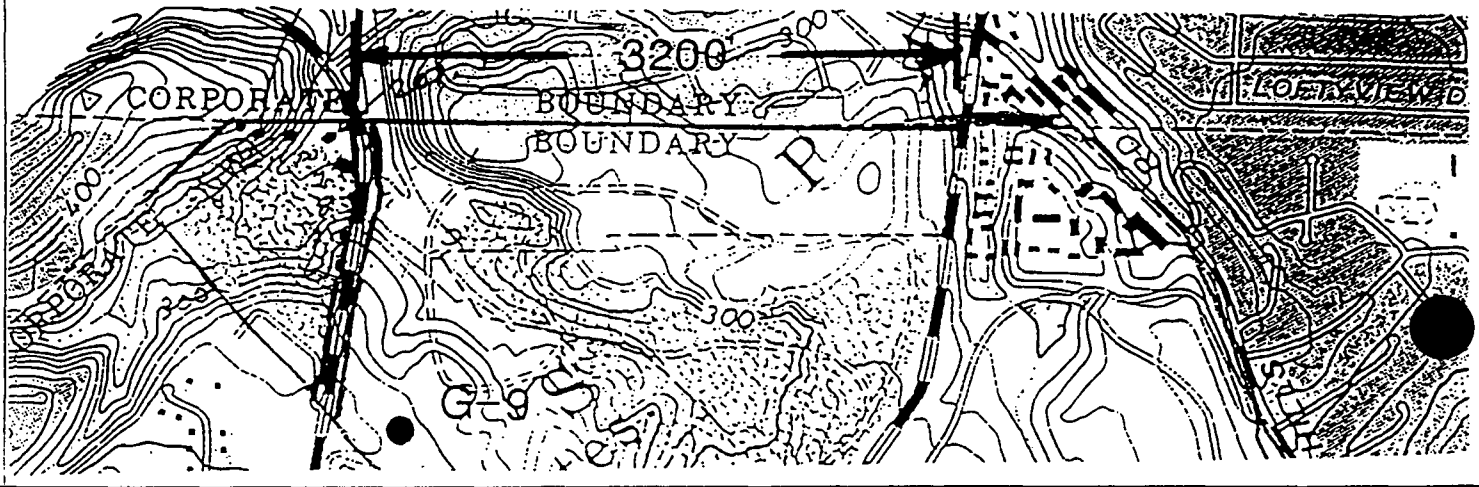
METHOD OF DESTRUCTION: Hollow Stem auger 13 1/2"

LOCATION

ADDRESS (NUMBER, STREET, AND NEAREST INTERSECTION): P V Landfill 25707 Hawthorne Byd

CITY: Rolling Hills Est.

DIAGRAM (SHOW PROPERTY LINES, STREET, ADDRESS, WELL SITE, SEWERS, AND PRIVATE SEWAGE DISPOSAL SYSTEMS ALONG WITH LABELS AND DIMENSIONS)



APPLICANT

NAME OF WELL DRILLER (PRINT): Dudley Zuidema

TRADE NAME: Layne Environmental

BUSINESS ADDRESS: 1749 East 28th Street CITY: Long Beach 90806

NAME OF WELL OWNER (PRINT): L. A. County Sanitation Districts

MAILING ADDRESS: P O Box 4998 ½

CITY: Whittier, Calif 90607

I hereby agree to comply in every respect with all regulations of the County Preventive/Public Health Services and with all ordinances and laws of the County of Los Angeles and of the State of California pertaining to well construction, reconstruction and destruction. Upon completion of well and within ten days thereafter, I will furnish the County Preventive/Public Health Services with a complete log of the well, giving date drilled, depth of well, all perforations in casing, and any other data deemed necessary by such County Preventive/Public Health Services.

Applicant's Signature

DISPOSITION OF APPLICATION: (For Sanitarians Use Only)

- ☐ APPROVED
- ☐ DENIED
- ☐ APPROVED WITH CONDITIONS

If denied or approved with conditions, report reason or conditions here:

DATE | SANITARIAN

DATE | SECTION CHIEF

When signed by Section Chief, this application is a permit.

76A668
H-13 (Rev. 3/91)

APPLICANT

Please Return All Copies

CASE NO. _____

THE CITY OF
ROLLING HILLS ESTATES

4045 PALOS VERDES DRIVE NORTH • ROLLING HILLS ESTATES, CA. 90274
TELEPHONE — 377-1577

PLANNING SERVICE REQUEST

PROJECT ADDRESS: Palos Verdes Landfill
25706 Hawthorne Boulevard
NAME OF APPLICANT: Dale Hinkle P. E. Inc
LOT NO.: _____ TRACT NO.: _____
PROJECT DESCRIPTION: Abandon 7 monitoring wells 1 near office 6 along north property line

REQUEST:
- ____ NEIGHBORHOOD COMPATIBILITY
- ____ CONDITIONAL USE PERMIT
- ____ PRECISE PLAN OF DESIGN
- ____ SPECIAL USE PERMIT
- ____ AMENDMENT TO PREVIOUSLY APPROVED APPLICATION
- XX VARIANCE *
- ____ MINOR DEVIATION
- ____ GRADING
- X OTHER NOISE VARIANCE ($25.00 FILING FEE)

WHAT THE REQUEST IS FOR: Use of truck mounted bucket auger between approximately August 19 - September 20 1991 We anticipate approximately 75 dbs.

* If a variance is being requested, please describe in detail what the variance is for and attach a sheet responding to each of the required findings.

PRIMARY CONTACT PERSON: To whom all correspondence will be sent.
To be filled in, even if same as applicant

NAME Dale Hinkle P. E. Inc. DAY PHONE 714 458 0498
ADDRESS 15510 B Rockfield CITY/ZIP Irvine, Calif 92718

OWNER OF PROPERTY Los Angeles County Sanitation Districts

SIGNATURE R. D. Hinkle
R. D. Hinkle Jr.

MAILING ADDRESS (Owner) P O Box 4998
Whittier, California 90607

PHONE NUMBER: 213 699 7411 Contact person Ethan Laden

NOTICE OF APPLICATION FOR

NOISE VARIANCE

NV-101-91

NOTICE IS HEREBY GIVEN THAT THE LOS ANGELES COUNTY SANITATION DISTRICT HAS CONTRACTED WITH DALE HINKLE, P.E. INC., TO ABANDON SEVEN GROUNDWATER MONITORING WELLS, SIX OF WHICH ARE LOCATED APPROXIMATELY 10' FROM THE FENCE AT THE NORTHERN PROPERTY LINE OF THE PALOS VERDES LANDFILL SITE. CONSTRUCTION ASSOCIATED WITH THE ABANDONING OF THESE WELLS IS ANTICIPATED TO EXCEED THE CITY'S ESTABLISHED NOISE LEVEL BY 20 dB (75 dB), THEREBY REQUIRING AN APPLICATION FOR A NOISE VARIANCE. THIS APPLICATION WILL PERMIT CONSTRUCTION TO TAKE PLACE DURING THE WEEKDAY HOURS OF 8:00 A.M. AND 5:00 P.M., BETWEEN AUGUST 19 AND SEPTEMBER 20, 1991.

In accordance with Article II of the Rolling Hills Estates Municipal Code, Section 695.14 permits the City Manager to grant a Noise Variance subject to specific terms and conditions.

Any questions or comments regarding this application should be directed to David Wahba, Assistant Planner, of the City of Rolling Hills Estates, 4045 Palos Verdes Drive North.

Douglas Prichard, City Manager

8/16/91
Date

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 9/20-24/91
Drilling Firm: MAHAFFEY
Hole Diameter: 36 INCHES
Hammer Weight: ---
Water Depth: 33 FEET
Depth to Bedrock: 15 FEET

Job Number: 9-20-24
Boring Number: MW1
Engr. Geologist: DRK
Drill Type: WATSON 2000, 92" BAYSHORE
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 350 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					1	[CL] FILL-SILTY CLAY, light-medium brown, dry, loose, with sand, clay is non-plastic, with some rubbish, 2" gravel, also with concrete slab.
					2	
					3	
					4	
					5	
					6	
					7	
					8	
					9	
					10	
					11	
					12	
					13	
					14	
					15	[ ] BEDROCK, ALTAMIRA SHALE, brown, moist, dense.
					16	
					17	
					18	
					19	
					20	
					21	

Log Continued on Next Page

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 9/20-24/91
Drilling Firm: MAHAFFEY
Hole Diameter: 36 INCHES
Hammer Weight: ---
Water Depth: 33 FEET
Depth to Bedrock: 15 FEET

Job Number: 9-20-24
Boring Number: MW1
Engr. Geologist: SRK
Drill Type: WATSON 2000, 92° BAYSHORE
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 350 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					22	BEDROCK, ALTAMIRA SHALE, brown, moist, dense.
					23	
					24	
					25	
					26	
					27	
					28	
					29	
					30	
					31	
					32	
					33	saturated at 33'.
					34	
					35	
					36	
					37	
					38	
					39	
					40	
					41	GROUNDWATER ENCOUNTERED AT 33 FEET.
					42	BORING TERMINATED AT 42 FEET.

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 8-30/9-3-91
Drilling Firm: LAYNE ENVIRONMENTAL
Hole Diameter: 18"/4'-24" BELOW 4'
Hammer Weight: ---
Water Depth: 34 FEET
Depth to Bedrock: 20 FEET

Job Number: 8-30
Boring Number: MW2
Engr. Geologist: DRK
Drill Type: E Z BORE 90
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 380 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					1	[SP] FILL-SAND, tan, dry, loose, fine-coarse grained, with rock fragments, also PVC casing and concrete to a depth of 4'.
					2	
					3	
					4	2' of 1" gravel to 6'.
					5	
					6	approximately 2' of gravel and 2' of concrete to 11' in depth.
					7	
					8	
					9	
					10	
					11	[CL] CLAY, brown, wet, soft, cohesive, plastic, with gravel.
					12	
					13	with concrete pieces, we are not in a layer of concrete as specs. show.
					14	
					15	
					16	[SP] SAND, dark gray, moist, loose, coarse grained, with clay, with 6-12" pieces of concrete.
					17	
					18	concrete layer at 18' to a depth of 20'.
					19	
					20	[ ] BEDROCK, ALTAMIRA SHALE, brown, moist, dense.
					21	

Log Continued on Next Page

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 9-30/9-3-91
Drilling Firm: LAYNE ENVIRONMENTAL
Hole Diameter: 18"/4'-24" BELOW 4'
Hammer Weight: ---
Water Depth: 34 FEET
Depth to Bedrock: 20 FEET

Job Number: 8-30
Boring Number: MW2
Engr. Geologist: DRK
Drill Type: E 7 BORE 90
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 380 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					22	ALTAMIRA SHALE, brown, moist, dense.
					23	
					24	
					25	
					26	
					27	
					28	
					29	
					30	
					31	
					32	
					33	
					34	saturated at 34'.
					35	
					36	
					37	
					38	
					39	
					40	
					41	
					42	

Log Continued on Next Page

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 8-30/9-3-91
Drilling Firm: LAYNE ENVIRONMENTAL
Hole Diameter: 18"/4'-24" BELOW 4'
Hammer Weight: ---
Water Depth: 34 FEET
Depth to Bedrock: 20 FEET

Job Number: 8-30
Boring Number: MW2
Engr. Geologist: DRK
Drill Type: E Z BORE 5(
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 380 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					43	ALTAMIRA SHALE, brown, moist, saturated, dense.
					44	
					45	
					46	
					47	
					48	
					49	
					50	
					51	
					52	
					53	
					54	
					55	
					56	
					57	
					58	
					59	
					60	
					61	
					62	
					63	

Log Continued on Next Page

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 8-30/9-3-91
Drilling Firm: LAYNE ENVIRONMENTAL
Hole Diameter: 18"/4'-24" BELOW 4'
Hammer Weight: ---
Water Depth: 34 FEET
Depth to Bedrock: 20 FEET

Job Number: 8-30
Boring Number: MW2
Engr. Geologist: DRK
Drill Type: E Z BORE 90
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 380 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					64	ALTAMIRA SHALE, brown, saturated, dense.
					65	
					66	
					67	
					68	
					69	
					70	
					71	
					72	Bottom of PVC is as 72'3".
					73	GROUNDWATER ENCOUNTERED AT 34 FEET. BORING TERMINATED AT 73 FEET, 3 INCHES.

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 9-24-91
Drilling Firm: MAHAFFEY
Hole Diameter: 36 INCHES
Hammer Weight: ---
Water Depth: 93 FEET
Depth to Bedrock: N.E.

Job Number: 9-24
Boring Number: MW3
Engr. Geologist: DRK
Drill Type: 929 BAYSHORE
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 350 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					1	[CL] FILL-SILTY CLAY, dry, loose, with sand and gravel, with concrete to a depth of 4'.
					2	concrete slab at 2', corragated steel is outside of concrete.
					3	saturated and very soft at 3'.
					4	
					5	
					6	
					7	
					8	
					9	
					10	
					11	
					12	
					13	
					14	
					15	GROUNDWATER ENCOUNTERED AT 3 FEET. BORING TERMINATED AT 15 FEET.

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 9/25-26/91
Drilling Firm: MAHAFFEY
Hole Diameter: 36 INCHES
Hammer Weight: ---
Water Depth: 30 FEET
Depth to Bedrock: 32 FEET

Job Number: 9-25
Boring Number: MW4
Engr. Geologist: DRK
Drill Type: 929 BAYSHORE
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 360 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					1	[CL] FILL, SILTY CLAY, light medium tan, dry, medium stiff, with gravel and some pieces of rubbish.
					2	color change to dark gray to black, very soft, plastic, with 1-2" gravel.
					3	
					4	layer of concrete from 2' to 35'.
					5	
					6	
					7	
					8	
					9	
					10	
					11	
					12	
					13	
					14	
					15	
					16	
					17	
					18	
					19	
					20	
					21	

Log Continued on Next Page

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 9/25-26/91
Drilling Firm: MAHAFFEY
Hole Diameter: 36 INCHES
Hammer Weight: ---
Water Depth: 30 FEET
Depth to Bedrock: 32 FEET

Job Number: 9-25
Boring Number: MW4
Engr. Geologist: DRK
Drill Type: 929 BAYSHORE
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 360 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					22	
					23	
					24	
					25	
					26	
					27	
					28	
					29	
			/		30	saturated at 30'.
					31	
					32	[ ] BEDROCK, ALTAMIRA SHALE, brown, saturated, dense.
					33	
					34	ALL WELL CASING REMOVED. GROUNDWATER ENCOUNTERED AT 30 FEET.
					35	BORING TERMINATED AT 35 FEET.

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 9/18-24/91
Drilling Firm: LAYNE
Hole Diameter: 24 INCHES
Hammer Weight: ---
Water Depth: 90 FEET
Depth to Bedrock: ESTIMATE 20 FEET

Job Number: 9-18
Boring Number: MW5
Engr. Geologist: DRK
Drill Type: E Z BORE 120
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 340 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					1	[CL] cover and top 4' is CONCRETE, with FILL, SILTY CLAY, light-
					2	medium brown, wet, soft, non-plastic, with 1" pieces of
					3	gravel, with pieces of gray PVC.
					4	2" pieces of gravel.
					5	
					6	2' of concrete with fill.
					7	
					8	4' of 1-2" gravel with fill.
					9	
					10	
					11	
					12	2' of concrete, with 1-2" gravel, with fill.
					13	
					14	2' of 1-2" gravel, with fill.
					15	
					16	2' of concrete, with 1-2" gravel, with fill.
					17	
					18	1-2" gravel, with pieces of concrete, with fill.
					19	
					20	[ ] BEDROCK, ALTAMIRA SHALE, brown, moist, dense.
					21	
					22	
					23	
					24	
					25	
					26	
					27	
					28	
					29	
					30	
					31	
					32	
					33	
					34	
					35	
					36	
					37	
					38	
					39	
					40	
					41	
					42	

Log Continued on Next Page

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 9/18-24/91
Drilling Firm: LAYNE
Hole Diameter: 24 INCHES
Hammer Weight: ---
Water Depth: 90 FEET
Depth to Bedrock: ESTIMATE 20 FEET

Job Number: 9-18
Boring Number: MW5
Engr. Geologist: DRK
Drill Type: E Z BORE 120
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 340 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					43	ALTAMIRA SHALE, brown, moist, dense.
					44	
					45	
					46	
					47	
					48	
					49	
					50	no more concrete at 50'.
					51	
					52	
					53	
					54	
					55	
					56	
					57	
					58	
					59	
					60	
					61	
					62	
					63	
					64	
					65	
					66	
					67	
					68	
					69	
					70	
					71	
					72	
					73	
					74	
					75	
					76	
					77	
					78	
					79	
					80	
					81	
					82	
					83	
					84	

Log Continued on Next Page

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 9/18-24/91
Drilling Firm: LAYNE
Hole Diameter: 24 INCHES
Hammer Weight: ---
Water Depth: 90 FEET
Depth to Bedrock: ESTIMATE 20 FEET

Job Number: 9-18
Boring Number: MW5
Engr. Geologist: DRK
Drill Type: E Z BORE 120
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 340 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					85	ALTAMIRA SHALE, brown, moist, dense.
					86	
					87	
					88	
					89	
					90	saturated at 90'.
					91	
					92	
					93	
					94	
					95	
					96	
					97	
					98	
					99	
					100	
					101	
					102	
					103	
					104	
					105	
					106	
					107	
					108	
					109	
					110	
					111	
					112	
					113	
					114	
					115	
					116	
					117	
					118	
					119	
					120	
					121	
					122	
					123	
					124	
					125	
					126	

Log Continued on Next Page

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 9/18-24/91
Drilling Firm: LAYNE
Hole Diameter: 24 INCHES
Hammer Weight: ---
Water Depth: 90 FEET
Depth to Bedrock: ESTIMATE 20 FEET

Job Number: 9-18
Boring Number: MW5
Engr. Geologist: BRK
Drill Type: E I BORE 120
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 340 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					127	
					128	GROUNDWATER ENCOUNTERED AT 90 FEET.
					129	BORING TERMINATED AT 129 FEET.

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 9/6-11/91
Drilling Firm: LAYNE
Hole Diameter: 18"/24"
Hammer Weight: ---
Water Depth: 54 FEET
Depth to Bedrock: 70.5 FEET

Job Number: 9-6
Boring Number: MW6
Engr. Geologist: DRK
Drill Type: E Z BORE 90
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 280 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					1	[SP] FILL, SAND, light tan, moist, loose, medium-coarse grained, with clay, with 1-3" concrete.
					2	
					3	with steel casing around PVC covert, covert is inside auger, 18" covert.
					4	
					5	
					6	hit another section of steel covert, 36" auger.
					7	
					8	
					9	
					10	cobble size pieces of concrete, loose pieces of steel casing.
					11	[CL] FILL, CLAY, light-medium brown, wet, soft, plastic, with 6" layer of concrete just below 11', with steel casing.
					12	
					13	concrete, with steel casing to 15'.
					14	
					15	with 1-2" gravel, with well casing, no concrete.
					16	
					17	
					18	18" x 18" pieces of concrete, with PVC casing in the middle of concrete.
					19	
					20	
					21	

Log Continued on Next Page

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 9/6-11/91
Drilling Firm: LAYNE
Hole Diameter: 18"/24"
Hammer Weight: ---
Water Depth: 54 FEET
Depth to Bedrock: 70.5 FEET

Job Number: 9-6
Boring Number: MW6
Engr. Geologist: DRK
Drill Type: E Z BORE 90
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 280 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					22	FILL, SILTY CLAY, light brown, wet, soft, plastic, with rock, no concrete.
					23	
					24	
					25	
					26	
					27	
					28	
					29	18" layer of concrete to 30', with PVC casing inside.
					30	
					31	
					32	
					33	
					34	
					35	
					36	
					37	
					38	
					39	
					40	3-6" pieces of gravel or concrete at 40'.
					41	
					42	

Log Continued on Next Page

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 9/6-11/91
Drilling Firm: LAYNE
Hole Diameter: 18"/24"
Hammer Weight: ---
Water Depth: 54 FEET
Depth to Bedrock: 70.5 FEET

Job Number: 9-6
Boring Number: MW6
Engr. Geologist: DRK
Drill Type: E Z BORE 90
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 280 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					43	
					44	
					45	
					46	
					47	
					48	
					49	
					50	
					51	
					52	
					53	
					54	saturated at 54', no concrete.
					55	
					56	
					57	
					58	1-2" gravel, very soft.
					59	
					60	
					61	
					62	
					63	

Log Continued on Next Page

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 9/6-11/91
Drilling Firm: LAYNE
Hole Diameter: 18"/24"
Hammer Weight: ---
Water Depth: 54 FEET
Depth to Bedrock: 70.5 FEET

Job Number: 9-6
Boring Number: MW6
Engr. Geologist: DRK
Drill Type: E Z BORE 90
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 280 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					64	
					65	
					66	
					67	
					68	
					69	
					70	
					71	[ ] BEDROCK, ALTAMIRA SHALE, brown, saturated, dense.
					72	GROUNDWATER ENCOUNTERED AT 54 FEET. BORING TERMINATED AT 72.5 FEET.

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 9-18-91
Drilling Firm: LAYNE
Hole Diameter: 11.75"
Hammer Weight: ---
Water Depth: 92 FEET
Depth to Bedrock: 90 FEET

Job Number: 9-18
Boring Number: 69
Engr. Geologist: DRK
Drill Type: CB 95
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 300 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					1-18	[SM] FILL, SILTY SAND, light tan, dry, loose, fine-medium grained, with 1" gravel, with concrete casing.
					10	with rubbish at 10'.
					19-42	[CL] FILL, SILTY CLAY, light-medium brown, moist, soft, plastic, packed voiclay seal to 90'.

Log Continued on Next Page

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 9-18-91
Drilling Firm: LAYNE
Hole Diameter: 11.75"
Hammer Weight: ---
Water Depth: 92 FEET
Depth to Bedrock: 90 FEET

Job Number: 9-18
Boring Number: G9
Engr. Geologist: DRK
Drill Type: CR 95
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 300 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					43	FILL, SILTY CLAY, light-medium brown, moist, soft, plastic, packed volclay seal to 90'.
					44	
					45	
					46	
					47	
					48	
					49	
					50	
					51	
					52	
					53	
					54	
					55	
					56	
					57	
					58	
					59	
					60	
					61	
					62	
					63	
					64	
					65	
					66	
					67	
					68	
					69	
					70	
					71	
					72	
					73	
					74	
					75	
					76	
					77	
					78	
					79	
					80	
					81	
					82	
					83	
					84	

Log Continued on Next Page

Job Name: PALOS VERDES LANDFILL
Job Location: PALOS VERDES
Date Drilled: 9-18-91
Drilling Firm: LAYNE
Hole Diameter: 11.75"
Hammer Weight: ---
Water Depth: 92 FEET
Depth to Bedrock: 90 FEET

Job Number: 9-18
Boring Number: 69
Engr. Geologist: DRK
Drill Type: CB 95
Sample Type(s): ---
Hammer Drop: ---
Ground Elevation: APPROX. 300 FEET

TOTAL BLOWS PER FOOT	INCHES DRIVEN	DRY DENSITY (PCF)	NATURAL MOIST. CONTENT (%)	SAMPLE TYPE	Feet	Visual Classification
					85	
					86	
					87	
					88	
					89	
					90	[ ] BEDROCK, ALTAMIRA SHALE, light-medium brown, moist, dense.
					91	
					92	saturated at 92'.
					93	
					94	
					95	
					96	
					97	
					98	
					99	
					100	
					101	
					102	
					103	
					104	
					105	
					106	
					107	
					108	end of PVC casing.
					109	GROUNDWATER ENCOUNTERED AT 92 FEET.
					110	BORING TERMINATED AT 110 FEET.