Allterra Environmental, Inc. 849 Almar Avenue, Suite C No. 281 Santa Cruz, California 95060

# Client:Manwel ShuwayhatProject Location:160 Holmes Street, Livermore, CaliforniaSubject:Well Destruction and Waste Materials Removal ReportReport Date:May 25, 2016

To Whom It May Concern:

I have reviewed the report referenced above and approve its distribution to the necessary regulatory agencies. Should any of the regulatory agencies require it, "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached proposal or report is true and correct to the best of my knowledge."

RECEIVED

By Alameda County Environmental Health 9:07 am, May 26, 2016

Sincerely,

MANN



#### Well Destruction and Waste Materials Removal Report Fuel Leak Case No. RO0000324, Livermore Gas and Mini Mart 160 Holmes Street, Livermore, California

*Date:* May 25, 2016

Project No.: 160

Prepared For: Livermore Gas and Mini Mart Attention: Manwel and Samira Shuwayhat 54 Wolfe Canyon Road Kentfield, California 94904

> Allterra Environmental, Inc. 849 Almar Avenue, Suite C, No. 281 Santa Cruz, California 95060

> > Phone: (831) 425-2608 Fax: (831) 425-2609 http://www.allterraenv.com



May 25, 2016

Manwel and Samira Shuwayhat 54 Wolfe Canyon Road Kentfield, California 94904

#### Subject: Well Destruction and Waste Materials Removal Report, Fuel Leak Case No. RO0000324, Livermore Gas and Mini-Mart, 160 Holmes Street, Livermore, California

Dear Mr. and Mrs. Shuwayhat:

On your behalf, Allterra Environmental, Inc. (Allterra) has prepared this *Well Destruction and Waste Materials Removal Report* for the property located at 160 Holmes Street in Livermore, California (Site). The report documents the destruction of nineteen (19) monitoring/extraction wells located at and proximate to the Site, removal of all investigation/remediation derived wastes from the Site, and is intended to provide the Alameda County Environmental Health (ACEH) with the information required to finalize case closure.

#### Site Location and Description

The Site is located at the northeast intersection of Holmes Street and Second Street in Livermore, California (Figure 1). The Site is currently occupied by a gasoline service station and minimart. The surrounding area is primarily residential with scattered retail businesses along 1<sup>st</sup> and 2<sup>nd</sup> Streets. The approximate surface elevation at the Site is 465 feet above mean sea level and the surface slightly slopes to the northwest. Pertinent site features, including the locations of the former existing monitoring and extraction wells are presented on Figure 2.

#### Permitting

Prior to field activities, well destruction permits were obtained from Zone 7 Water Agency (Zone 7). Wells permitted for destruction included MW-1A through MW-9B and EW-1 through EW-3B. A Copy of the approved Zone 7 permit is included as Appendix A. Additionally, a revocable encroachment permit was obtained from the City of Livermore for work performed in the public right-of-way (Appendix B).

#### **Field Activities**

On May 2 and 3, 2016, a total of nineteen monitoring/extraction wells (MW-1 through MW-9B, and EW-1 through EW-3B) were destroyed by tremie and/or free fall grouting (free fall for dry wells) each well from total depth to 2 feet below surface grade. Following grouting activities, each well was pressurized to 25 psi and maintained for a minimum of 5 minutes to push the sealing material through the well screen perforations and into the surrounding earth materials. Following completion of pressurizing activities, each pressure fitting was removed and the

Well Destruction Report 160 Holmes Street, Livermore, California Page 2

remaining empty casing was filled to surface grade with neat cement. Upon completion of grouting and pressurizing activities, well box materials were removed and each well box cavity was filled to surface grade with neat cement (or compacted fill material for wells located in park/landscaping areas). With oversight provided by Allterra, all wells were destroyed in accordance with California Department of Water Resources (DWR) and Zone 7 protocols by Environmental Control Associates, Inc. (C-57 Lic. No. 695970). A Zone 7 representative was on-site during all well destruction activities and all field procedures were performed pursuant to SCVWD recommendations. Upon completing the well destructions, DWR Well Completion Reports were prepared and submitted to Zone 7. The DWR Well Completion Reports are included as Appendix D. The Well Destruction Completion Notices provided by SCVWD are included as Appendix C.

#### Waste Material Removal

To complete case closure, Allterra has removed all waste piles, drums, debris and other investigation and remediation derived materials. To date, all investigation and remediation derived materials have been properly removed in accordance with local and state requirements. Following submittal of this report, case closure will be complete.

#### Conclusions

Well destruction activities are complete and all on-site and off-site monitoring/extraction wells were destroyed in accordance with state and local guidelines. All investigation and remediation derived materials have been properly removed in accordance with local and state requirements. The well destructions and waste removal were the final field activities and following submittal of this report, case closure will be complete.

#### Limitations

Allterra prepared this report for the use of Mr. and Mrs. Shuwayhat, ACEH, Zone 7, and RWQCB in evaluating subsurface conditions at select on-site locations at the time of this study. Statements, conclusions, and recommendations in this report are based solely on the field observations related to work performed by Allterra and there is no warranty, expressed or implied. Site conditions and data can change over time; therefore, data presented in this report is only applicable to the timeframe of this study. Allterra's services have been performed in accordance with environmental principles generally accepted at this time and location.



Well Destruction Report 160 Holmes Street, Livermore, California Page 3

If you have any questions, please call Allterra at (831) 425-2608.

Sincerely, Allterra Environmental, Inc.

455IONAL GEO PRO AARON POWERS No. 8977 PTEOFCALIFC

Aaron Powers, P.G 8977 Senior Geologist

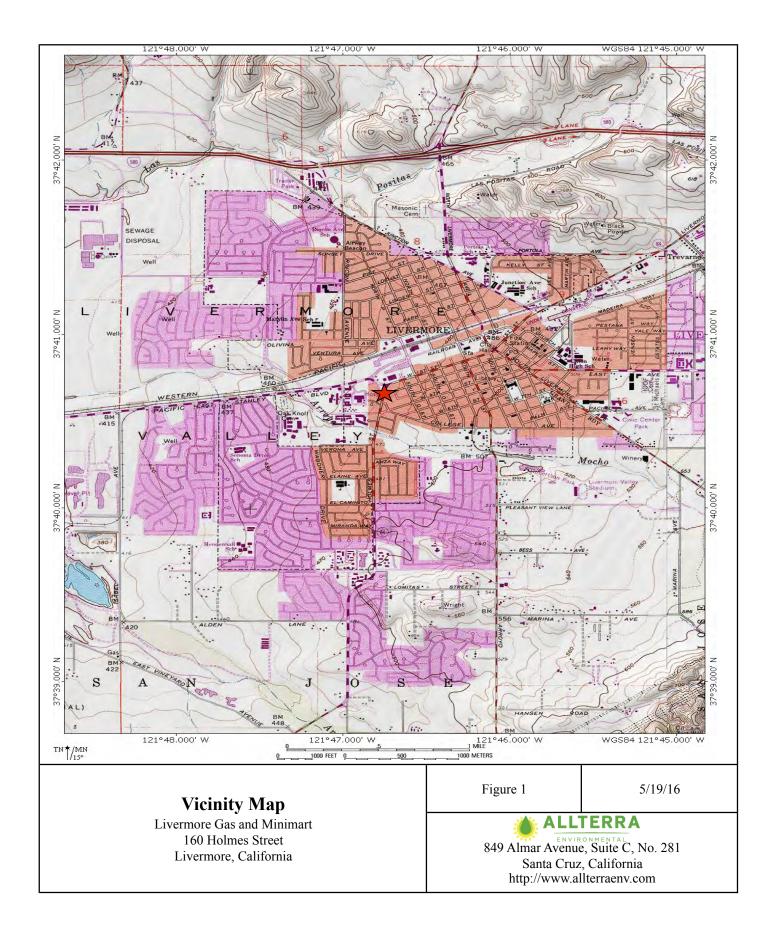
<u>List of Figures:</u> Figure 1: Vicinity Map Figure 2: Site Plan

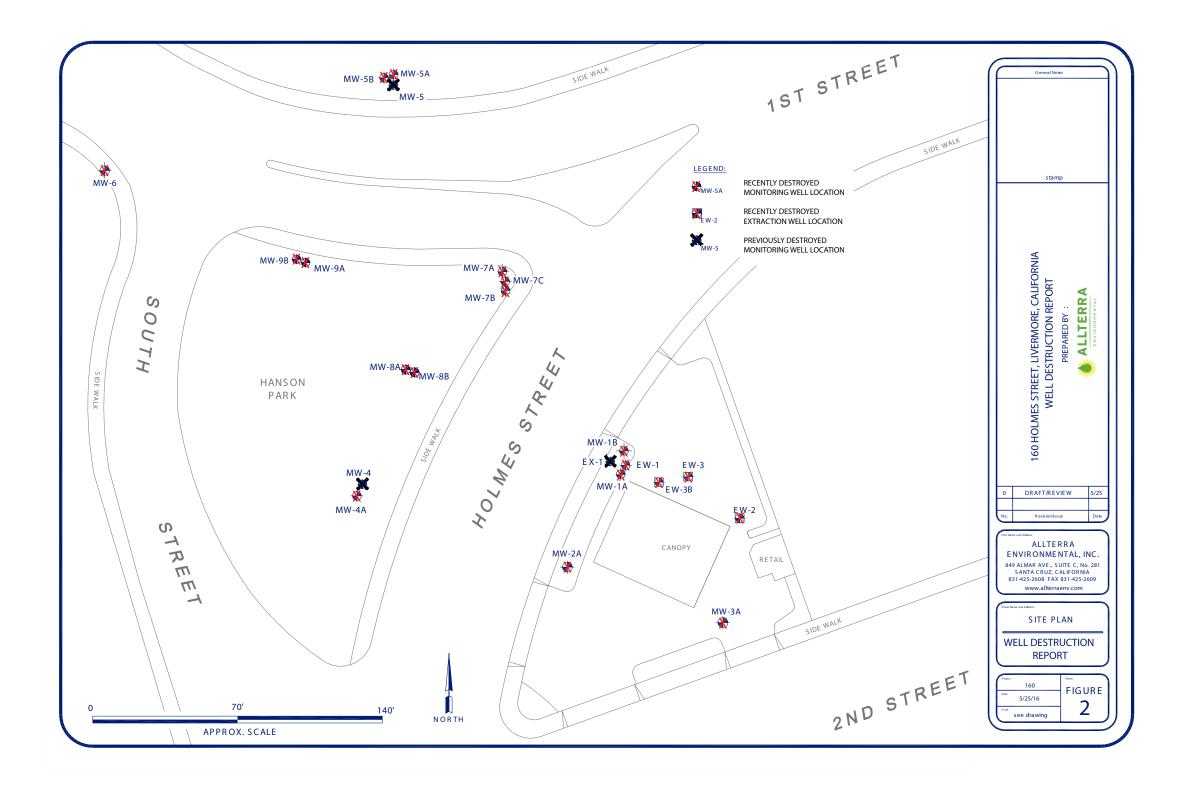
Appendix A: Zone 7 Well Destruction Permit Appendix B: City of Livermore Encroachment Permit Appendix C: DWR Well Completion Reports

cc: Anne Jurek, ACEH Mitch Buttress, Zone 7 Water Agency



FIGURES 1 - 2





APPENDIX A Zone 7 Well Destruction Permit



#### APPLICATION FOR DRILLING PERMIT

Zone 7 Water Agency 100 North Canyons Parkway Livermore, CA 94551 (925) 454-5000 wellpermits@zone7water.com

	For Off	cs Use	
Рел	nit No.: 2016035 Permit Date: 3/10/16	Receipt No.: 719137 Well No.: see a	ittached
	For Applican	to Complete	
Арр	licent: Allterra Environmental, Inc.	Client: Manwel Shuwayhat	
Add	ress: 849 Almar Ave., Suite C. No. 281	Address: 54 Welfe Canyon Road	
City	State, Zip: Santa Cruz, CA 95060	City, State, Zip: Kentfield, CA 9455	D
Pho	ne: 831 425 2008 Email: a area Califernance	1Phone: 415 461 9557 Email: Mshuwa	thategnal.co
	Project Location: 160 Holmes Street	Is Client the Property Owner? 1 N (If not, attach Prop	. Owner info)
Site	Livermore, CA 94550	Assessor's Parcel Number: 97-82-7-7	
-	GeoTracker or EnviroStor ID: 14244	Latitude: Longitude:	
	Well Construction (\$397/well) Well Destruction (\$397/well)		on System 5/alte)
2	Proposed or Previous Well Use:	Type of Investigation: Type of Syn	stem:
ž	Domestic Domestic	Geotechnical     Groundwa	
	Inigation Dewatering	Environmental     Extraction	
Project Type	Cathodic Protection     Industrial	Soil Vapor     Vapor Ext	raction
	Geothermal     Monitoring	🗆 In-Situ Tre	atment
	🗅 Inclinometer 🛛 Other:	D Other: D Other:	-
	Drilling Method	Drilling Company: Environment-1 Contr	ro l
Drilling	Mud Rotary     Hollow Stem Auger	Drilling Company: Associete	5
	Air Rotary     Direct Push	Driller's C57 License No.: 695170	
	Cable Tool Cither:		
ø	Owner Well ID Borehole Casing Material		Well Depth
Spece	MW-1A 8.25" Sch 40 pvc	2" 13feet bys 3	O feet bys
5	see attached list: Total of 19 monijoring wells	· · · · · · · · · · · · · · · · · · ·	
Well	· · · · · · · · · · · · · · · · · · ·		
	For Well Destr	action Projects	
Des	truction Method: 🛛 Perforate (Mills Knife) 🖾 Pressure		
		Boring Projecta	
Nur		mum Depth: Estimated Depth-to-Water:	
	mated Starting Date: April 1st 2016	Projects Estimated Completion Date: April 10th 2.0	16
	* Please attach a Site Plan Including all proposed drilling locatio		
L			
i he	reby agree to comply with all requirements of this permit (see Page		
Арг	olicants Signature:	Date:2,2,9,16	
	For Off	ice Use	
Apr	proved: Uyman Hong	Date: 3/10/16	
			<u></u> ł

Rev 01/20/2016

March 29, 2016

#### Zone 7 Water Resources Engineering Groundwater Protection Ordinance

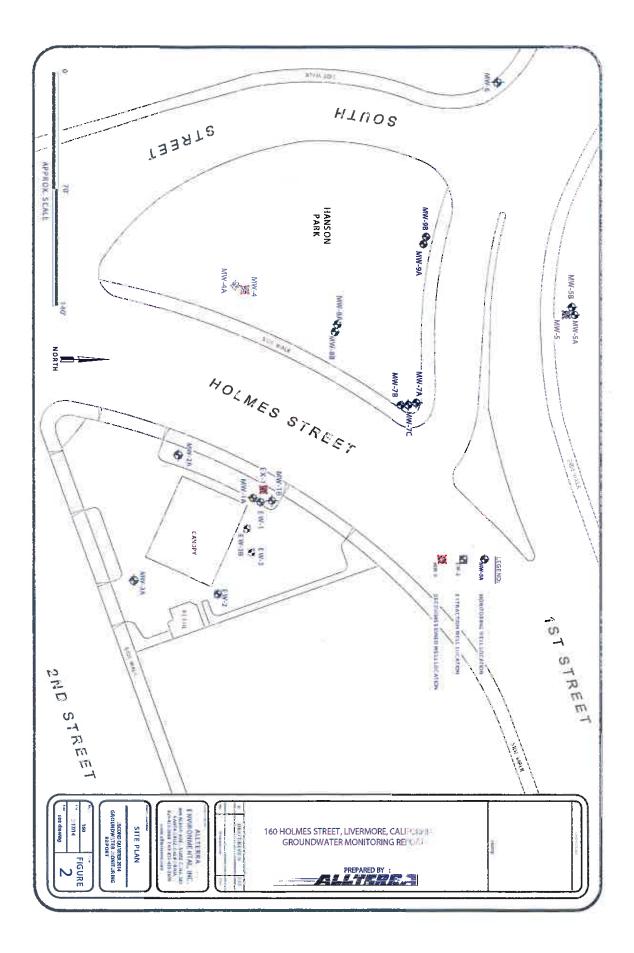
#### Livermore Gas and Mini-Mart 160 Holmes Street Livermore

Wells MW-1A, MW-1B, MW-2A, MW-3A, MW-4A, MW-5A, MW-5B, MW-6, MW-7A, MW-7B, MW-7C, MW-8A, MW-8B, MW-9A, MW-9B, EW-1 to EW-3 & EW-3B Permit 2016035

#### **Destruction Requirements:**

- 1. Remove from the well any pump, appurtenances, debris, or other materials.
- 2. Sound the well as deeply as practicable and record for your report.
- 3. Fill casing with neat cement or cement grout sealing material to two feet below the finished grade and pressurize to 25 psi and maintain for 5 minutes, forcing the sealing material through the existing perforations and into the surrounding formation.
- 4. Release the pressure and refill the empty portion of the casing with grouting material allowing it to spill over the top of the casing to form a cap.
- 5. Cut and remove any casing(s) to two feet below the finished grade or original ground, whichever is the lower elevation (optional).
- 6. After seal has set, backfill the remaining hole with compacted material.

STATE WELL#	OWNER WELL#	DEPTH (FT)	<u>DIA (IN)</u>	UP PERF (FT)	LOW PERF (FT)	<u>STATUS</u>
	MW-1A	30	2	-		
	MW-1B	55	2			
	MW-2A	30	2			
	MW-3A	30	2			
	MW-4A	30	2			
	MW-5A	30	2			
	MW-5B	56	2			
3S/2E-17C28	MW-6	50	2	20	) 50	)
	MW-7A	30	2			
	MW-7B	50	2			
	MW-7C	70	2			
3S/2E-17C34	MW-8A	36	2			
3S/2E-17C35	MW-8B	51	2			
3S/2E-17C37	MW-9A	36	2			
3S/2E-17C38	MW-9B	52	2			
	EW-1	30	4			
	EW-2	30	4			
3S/1E-17C33	EW-3	35	4	25	5 30	)
3S/2E-17C41	EW-3B	39	4			





March 1, 2016 Project No.: 160

Wyman Hong Zone 7 Water Agency 100 North Canyons Parkway Livermore, California 94551

#### SUBJECT: Well Destruction Permit Applications, Fuel Leak Case No. RO0000324, Livermore Gas and Mini-Mart, 160 Holmes Street, Livermore, California

Dear Mr. Hong:

On behalf of Manwel and Samira Shuwayhat, Allterra Environmental, Inc. (Allterra) is submitting these well destruction permit applications for the above referenced site. Alameda County Environmental Health Services (ACEHS) has issued a directive to destroy the existing monitoring/extraction wells associated with the above referenced case and this is the final step to case closure.

Eight (8) of the wells are located at the 160 Holmes Street property (APN 97-82-7-7). The remaining eleven (11) wells are located in the public right of way owned by the City of Livermore (see attached Site Plan). An encroachment permit will be obtained from the City of Livermore Public Works Department prior to any well destruction field activities associated with these off-site wells.

Should you have any questions or need any additional information please contact me at (831) 454-6494.

Sincerely, Allterra Environmental, Inc.

Aaron Powers, P.G. Project Geologist

719 RECENPT DATE 3/9/16 No. RECEIVED FROM ALL CRRA ENVIRONMENTAL \$ / Seven Thousiand Five Hundred Forty-Three and OFOR RENT PERMIT # 2016035 Check # 11819 Zong 7 WATER CASH ACCOUNT CRIECK FROM PAYMENT 7543 DĨ MONEY BAL. DUE

APPENDIX B City of Livermore Encroachment Permit

#### City of Livermore

*Community Development Department 1052 S. Livermore Avenue Livermore, CA 94550 (925) 960-4500*  Encroachment Permit No. EN160156 Type: Other

PERMIT TO DO WORK IN ACCORDANCE WITH CHAPTER 12.08 OF THE LIVERMORE MUNICIPAL CODE AND SPECIFICATIONS AS ADOPTED BY THE CITY OF LIVERMORE AND ANY SPECIAL REQUIREMENTS SHOWN OR LISTED HEREIN.

		Inspection Fee - EN - 2016	\$330.00
		Permit Fee - BU - 2028	\$90.00
Applicant/F	Permitteo:		
Name:	Allterra Environmental - Aaron Powers		
Address:	207 McPherson St., Ste. B		
	Santa Cruz CA, 95060		
Phone:	831-425-2608		

Total:

\$420.00

Contractor: Name: Address: Phone:

PLEASE READ THIS PERMIT CAREFULLY. KEEP IT AT THE WORK SITE. TO ARRANGE FOR AN INSPECTION, PHONE (925) 960-4500 AT LEAST 24 HOURS BEFORE YOU START WORK.

JOB LOCATION: 160 HOLMES ST , LIVERMORE 94550

DESCRIPTION OF WORK: Monitoring well destruction field activities. Pressure grout existing monitoring wells, remove all other well materials for 11 wells in ROW (site plan attached). PM# .

Attention is directed to the General Provisions printed on the reverse side of this permit and to the attached special requirements (to be determined as needed by the Engineering Division).

Prosecution of Work: All work authorized by the permit shall be performed in a workmanlike, diligent, and expeditious manner, and must be completed to the satisfaction of the City Engineer.

Liability and Damages: The permittee shall be responsible for all liability imposed by law for personal injury or property damage which may arise out of the work permitted and done by permittee under this permit, or which may arise out of the failure on the part of the permittee to perform his obligations under said permit in respect to maintenance and encroachment. The permittee shall protect and indemnify the City of Livermore, its officers and employees, and save them harmless in every way from all action at law for damage or injury to persons or property that may arise out of or be occasioned in any way because of his operations as provided in this permit.

Hold Harmless and Indemnification Agreement: Allterra Environmental - Aaron Powers agrees to defend, indemnify and hold the City of Livermore, elected

officials, officers, directors, employees, agents and volunteers harmless from and against any and all loss, liability, damage, including reasonable attorney and expert fees and/or court costs, arising out of or in connection with this agreement, except for the gross negligence and willful misconduct of the City of Livermore, its elected officials, officers, directors, employees, agents and volunteers.

Allterra Environmental - Aaron Powers Signature of Permittee:

Title:	Project	n	60	6z	5	S	
	4.28.						
	rk Completed:		4		ĺ	6	

City Engineer Date of Issue:

Inspector: \_\_\_\_\_

#### Encroachment Permit No. EN160156

**City of Livermore** Community Development Department 1052 S. Livermore Avenue Livermore, CA 94550 (925) 960-4500

#### SPECIAL REQUIREMENTS APPLICABLE TO WORK ASSOCIATED WITH

#### JOB LOCATION: 160 HOLMES ST , LIVERMORE 94550

**DESCRIPTION OF WORK:** Monitoring well destruction field activities. Pressure grout existing monitoring wells, remove all other well materials for 11 wells in ROW (site plan attached).

#### See Attached Drawing/Plans

Pedestrian access must be maintained at all times, including if necessary, escorting pedestrians through the work area.





#### ENCROACHMENT PERMIT APPLICATION

 For Office Use Only

 Date Received:
 Project Number:

 Ready to Issue:
 Total Fees Required:

 Notified Applicant By: Telephone/Mail
 Date Contacted:

Project Address: 160 Holins Struct Liverologica 94550 Tract# Applicant's Name: <u>Aaron Cowers</u>	Lot# APN# <u>97-82-7-7</u> Telephone number: <u>831</u> 454 64-94-
Applicant's Address: 207 McPheison St, Suite B	City SANTA Cruz State CA Zip 95060
PROPERTY OWNER:	CONTRACTOR:
Name: Man well and Samira showaghet	Name: Allterra Environmental, Inc.
Address: 54 Wolfe Canyon Road	Address: 207 McPheison st, suite B
City/Zip: Kentfield, California 94904	City/Zip: Santa Cruz, CA 95060
Telephone Number: 415 461 9557	Telephone Number: 831 454 6494

Description of work:

Monitoring well	destruction field ac	fivities. Pressure	grout existing	in onitaring
wolls, remove all	other well muterials a	nd fill well cavit	ies to surface	stade. Please
sec cour lette	r (attached) for a 1	nore detailed d	escuption of fie	eld activities.

See attached site plan.

Document

Submit applications to: City Hall Community Development Department 1052 South Livermore Avenue Livermore, CA 94550

phone: (925) 960-4500 fax: (925) 960-4505 TDD: (925) 960-4104 www.cityoflivermore.net



April 4, 2016 Project No.: 160

Joe Kuderca Community Development Department 1052 South Livermore Avenue Livermore, California 94550

#### SUBJECT: Letter of Intent for Encroachment Permit Application 498 South 4<sup>th</sup> Street, San Jose, California

Dear Mr. Kuderca.

Allterra Environmental, Inc. (Allterra) has prepared this Letter of Intent for the encroachment permit application (attached) associated with 160 Holmes Street in Livermore, California (Site). This letter provides a full description of the proposed environmental construction activities to be performed in the public right of way located near the Site.

#### **Project Description**

As the final condition of case closure recently issued by Alameda County Environmental Health (ACEH), all of the existing groundwater monitoring wells associated with the Site need to be properly destroyed. Nine of the wells are located on City of Livermore Property (MW-4A, MW-6, MW-7A, MW-7B, MW-7C, MW-8A, MW-8B, MW-9A, and MW-9B). One of the wells is located on the sidewalk on the west side of South Street (MW-6). The remaining eight wells are located in Hanson Park (wells are located outside of pedestrian walk way areas).

In accordance with Zone 7 Water Agency (Zone 7) requirements (Permit # 2016035) all well casings will be filled with neat cement sealing material and pressurized to 25 psi for a minimum of five minutes. All well boxes and lids will be removed and the remaining cavity will be filled with neat cement to a minimum of two (2) feet below surface grade. The remaining cavity will be filled with compacted earth (in the park) and concrete (on the sidewalk) to surface grade. All well materials will be removed and the well locations will be returned to pre-investigation conditions to the maximum extent feasible. No heavy equipment will be required for the proposed well destruction field activities.

Allterra Environmental, Inc., 849 Almar Avenue, Suite C, No. 281, Santa Cruz, California 95060 Phone: (831) 425-2608 • Fax: (831) 425-2609 • http://www.allterraenv.com

ALLTERRA

March 1, 2016 Project No.: 160

Wyman Hong Zone 7 Water Agency 100 North Canyons Parkway Livermore, California 94551

#### SUBJECT: Well Destruction Permit Applications, Fuel Leak Case No. RO0000324, Livermore Gas and Mini-Mart, 160 Holmes Street, Livermore, California

Dear Mr. Hong:

On behalf of Manwel and Samira Shuwayhat, Allterra Environmental, Inc. (Allterra) is submitting these well destruction permit applications for the above referenced site. Alameda County Environmental Health Services (ACEHS) has issued a directive to destroy the existing monitoring/extraction wells associated with the above referenced case and this is the final step to case closure.

Eight (8) of the wells are located at the 160 Holmes Street property (APN 97-82-7-7). The remaining eleven (11) wells are located in the public right of way owned by the City of Livermore (see attached Site Plan). An encroachment permit will be obtained from the City of Livermore Public Works Department prior to any well destruction field activities associated with these off-site wells.

Should you have any questions or need any additional information please contact me at (831) 454-6494.

Sincerely, Allterra Environmental, Inc.

Aaron Powers, P.G. Project Geologist



#### APPLICATION FOR DRILLING PERMIT

Zone 7 Water Agency 100 North Canyons Parkway Livermore, CA 94551 (925) 454-5000 wellpermits@zone7water.com

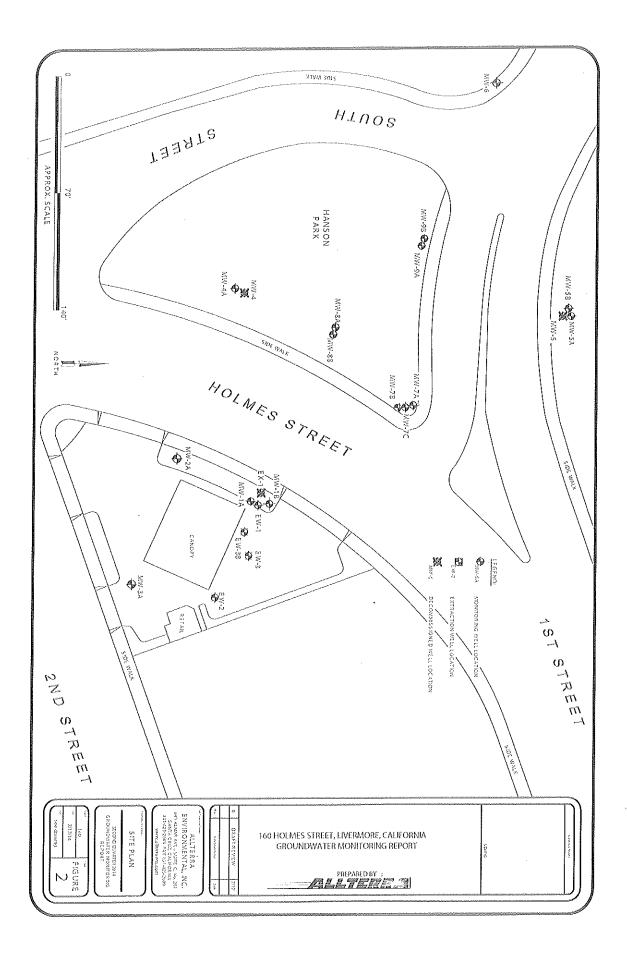
For Office Use									
Per	Permit No.: 2016035 Permit Date: 3/10/16 Receipt No.: 719137 Well No.: see attached								
For Applicant to Complete									
Applicant: Allferra Environmental, Inc. Client: Manuel showing hat									
	dross: 849 Almar Ave., Suite C. No. 281	Address: Str Wel							
City	y, State, Zip: Santa Cruz, CA 95060	A A CONTRACT OF	and the second		94550				
Ph	one: 831 425 2008 Emelli aaron Callerraearo								
	Project Location: 160 Holmes Street	Is Client the Property Ow	vner?: (ON	(if not, att	ach Prop. Owner Info)				
25	Livermore, CA 94550	Assessor's Parcel Numbe	юг: <b>Ч</b>	1 - 82 -	-7-7				
	GeoTracker or EnviroStor ID: 14294	Latitude:		ongitude:					
	Well Construction (\$397/well)     Well Destruction (\$397/well)	Exploratory Bo     (\$265/site)	orings )		emediation System (\$265/alte)				
	Proposed or Previous Well Use:	Type of Investigation	-	D	rpa of Svatem:				
Troject Type	Domestic D Municipal	🖾 Geotechnical			Froundwater				
Ť	Imigation     Dewatering	Environmental		E	odraction				
ğ	Cathodic Protection     Industrial	Soll Vapor		ΠV	apor Extraction				
jeta.	🗆 Geothermal 🛛 🖾 Monitoring			🗖 Jr	n-Situ Treatment				
	🗆 Inclinemèter 🔲 Other:	🖬 Other:			hher				
	Drilling Method	B.1E	Indiron	nest-1	Control				
P	🖾 Mud Rotary 🛛 🖾 Hollow Stem Auger	Drilling Company:		Asso	cietes				
	Air Rotery     Direct Push	Driller's C57 License No.:		695	170				
	Cable Tool  Other:	Dilligi 2 Cor License No.	· F	<b>G</b> • •					
	Owner Well ID Borehole Casing Material	Casing Diamster S	Surfaca Sei	al Depth	Total Wall Depth				
Spece	MW-1A B.25" Sch 40 pvc	2.13	134	at bas	30 福井 125				
ŝ	see attached list. Total of 19 monitoring wells		• 	D <del></del>	,				
Mon	,				Lamman and Autor Martin Martin Contraction and Autor				
	For Well Destru	icilon Prolecta							
Des	truction Method: 🛛 Perforate (Mills Knife) 🖾 Pressure		D Oth	er:					
	For Exploratory				<u>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</u>				
Nua			Estimated C	)epth-to-W	later;				
	For All		A	. 1 1 1 4	Ma a st /				
Esti	mated Starting Date: April 154 2016	Estimated Completion Da	•		m 2,016				
المستعمليونين. المستعمليونين	* Please stitch a Site Plan Including all proposed drilling location	ıə, existing welle, elgnliiceni	it eite festum	ee, and adj	icent filesis "				
hai	reby agree to comply with all requirements of this permit (see Page	2) and Alameda County O	DrdInance N	lo. 0-2016	-20.				
	licante Signature:	Date: 2	,29.16	9					
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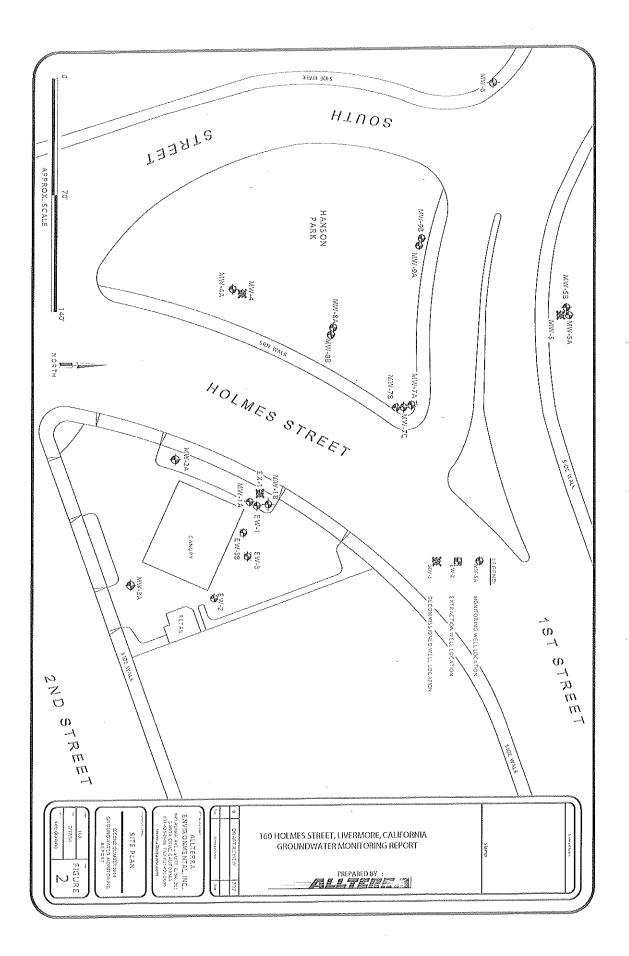
STATE WELL#	<u>OWNER WELL#</u>	<u>DEPTH (FT)</u>	<u>DIA (IN)</u>	<u>UP PERF (FT)</u>	LOW PERF (FT)	<u>STATUS</u>
	MW-1A	30	2	·		
	MW-1B	55	2			
	MW-2A	30	2			
	MW-3A	30	2			
	MW-4A	30	2			
	MW-5A	30	2			
	MW-5B	56	2			
3S/2E-17C28	MW-6	50	2	20	50	)
	MW-7A	30	2			
	MW-7B	50	2			
	MW-7C	70	2			
3S/2E-17C34	MW-8A	36	2			
3S/2E-17C35	MW-8B	51	2			
3S/2E-17C37	MW-9A	36	2			
3S/2E-17C38	MW-9B	52	2			
	EW~1	30	4			
	EW-2	30	4			
3S/1E-17C33	EW-3	35	4	25	30	
3S/2E-17C41	EW-3B	39	4			

APPENDIX C DWR Well Completion Reports

### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)



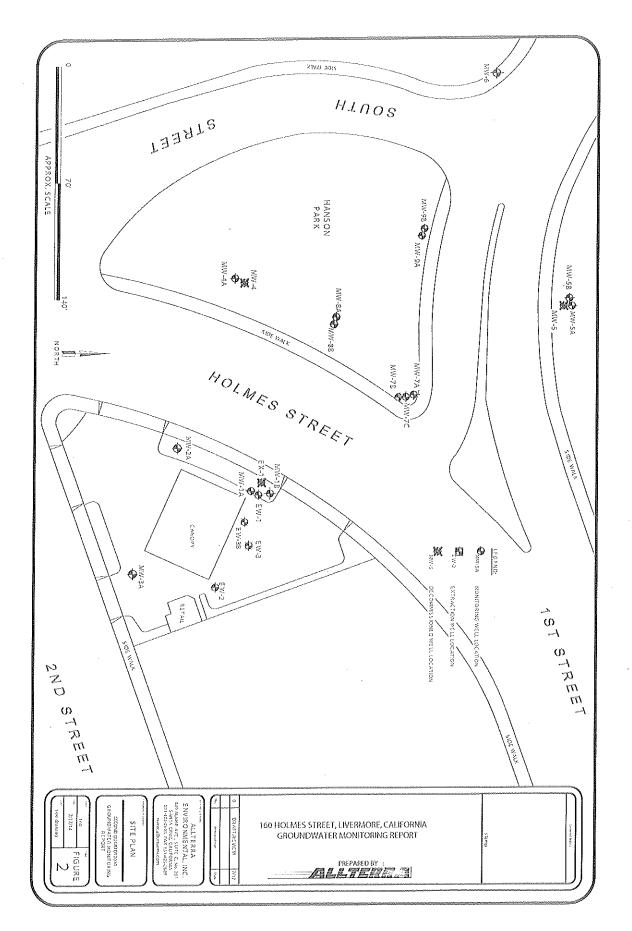
### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)



Field location	ofbor	ing	-	1			ll/Borin	Boring ID	MW-1B	Page: 1 of 2
		0							per: 015-01-012	
		(Sec attache	d Site Plan)					Date: 2/23/06		
								Location: 160	Holmes St., Livern	iore, CA
								Logged By: J	A	
Drilling Metho	d/Boring	g Diameter (it	ches): Hollow	stem auger	/8	<u> </u>	20000000000000		ration Geoservices	ture Q turala
ion		or	0	et)			ę.	-	ation data: 2-inch ca	
Well Construction Details	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)	-	le	Soil Group Symbol (USGS)	(bgs) screen i	to 55 feet below gro	
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		<u> </u>	<u> </u>			2	SSC	Soil at ground su		
				2						
				3						
				4				Denine MD 1 mm	s logged continuously for	lithology from surface
				5					gs. See Boring log from I	
				7		• • • • • • • • • • • • • • • • • • • •		information for fi		
				8						
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				30						annorm,
117		al Informati	<u></u>	When opp	icab	10.31-	60 feet bgs on			
Date		/el Informati ime	on Depth (feet)	- when app		bage 2				
2/23/06		1:45	36.05	Notes:			= Cement			
		l		J			= Benton = #2 Sand			

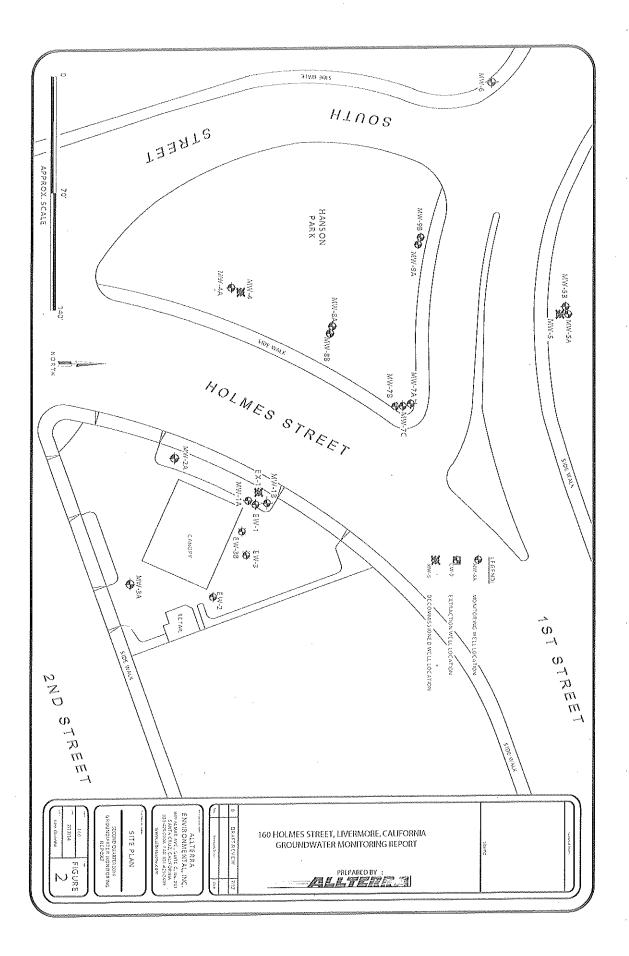
								r <u>e</u> 7		
				Fie	eld V	Vell/	/Borin			
Field location of	of bori	ing						Boring ID	MW-1B	Page: 2 of 2
									ber: 015-01-012	
		(See attac	ched Site Plan)					Date: 2/23/0		ava CA
									0 Holmes St., Liverm	ore, CA
		D'		dans augo	/0			Logged By:	oration Geoservices	
Drilling Method/	Boring	g Diameter	(inches): Hollow	stem auge	1/8			Lanna and L	lation data: 2-inch cas	una l'inch
g		Ŀ		Ð			~	-		
Well Construction Details	Ê	Blows/ft. or PSI	8	Depth (feet)			son oroup Symbol (USGS)	bore hole, 50	to 55 feet below grou	ind surface
ils	PID (ppm)	vs/1	Sample ID	E	Sample	6	5 g S	(bgs) screen	interval	
Well Cons Deta	8	SI	am	Cep	am	1.0			Description	1
	<u>~</u>	<u></u>	<u> </u>	31					<u>D</u> 0001111101	
				32	<u></u>					
		•••••		33	· • • • • • • • • • • • • • • • • • • •			Boring MB-1 wa	is logged continuously for li	thology from surface
	·····			34	1				bgs. See Boring log from M	
				35		$\nabla$	<b>7</b>	information for f	ïrst 50 feet	
				36						
				37	ļļ					
				38						·····
				39						
				40 41						
				41						
				43						
				44						
				45	·					
995 P895			*****	46						
				47						
88 - <b>8</b> 81 -				48						
88   1880_ 1881_				49		~~~				
×===	ND			50			GM			lasticity fines, 25% medium
				51				to coarse sand, 4	0% mediaum to coarse grav	el, medium dense, wet, NPO
<b>8 - 183</b> -				52 53						
8 8	·····			53						
8 <b>1111</b> 1	ND	7,11,13		55	····· 🎆		GM	As above		
		7,11,13		56			0.01		······	••••••
· · · · ·	ND		MW-1B@57	57		8-	CL	Silty clay with sc	ome fine to medium sand, br	own, 60% low to med.
	····	5,6,10		58					0% fine to med. sand, med.	
				59		8				
				60			CL	As above, 65% k	ow to medium plasticity find	es, 35% fine sand
	ND		MW-1B@61	61	ww	ä				
Special Note: Sa										
encountered at a					180	AA				
Drilling was cor				Notes:			Cement Bentoni		$\bigtriangledown$	= initial water level
that the clay lay verification, the	er was	s significa	Int. Alter			iei	#2 Sand		<u> </u>	
bentonite from 5	oorin 6 to 6	g was dao S1 feet - A	L-foot sand	1				nch slotted PV	'C screen	
			the bentonite			_		VC casing		

### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)

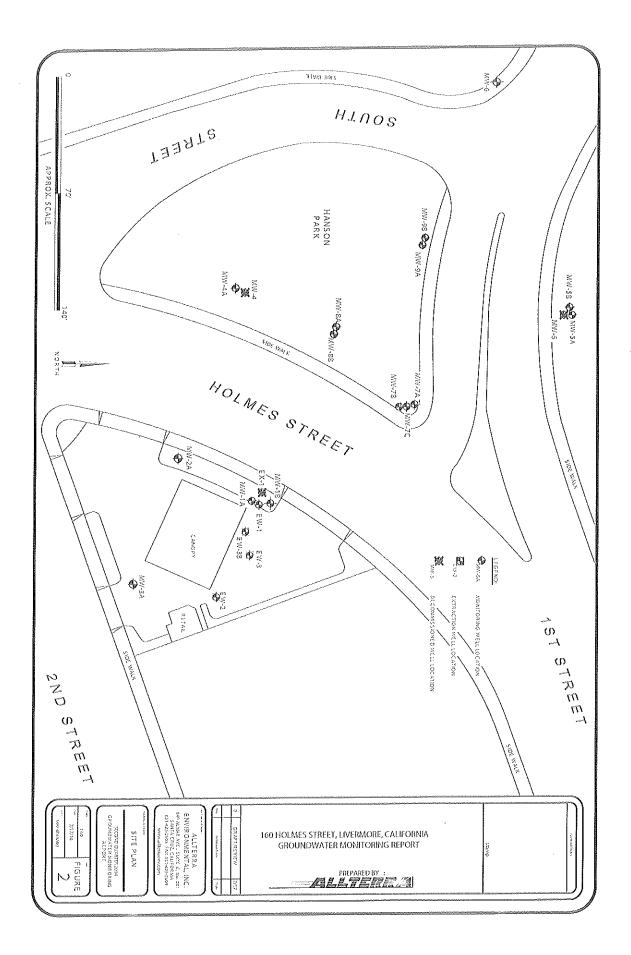


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### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)

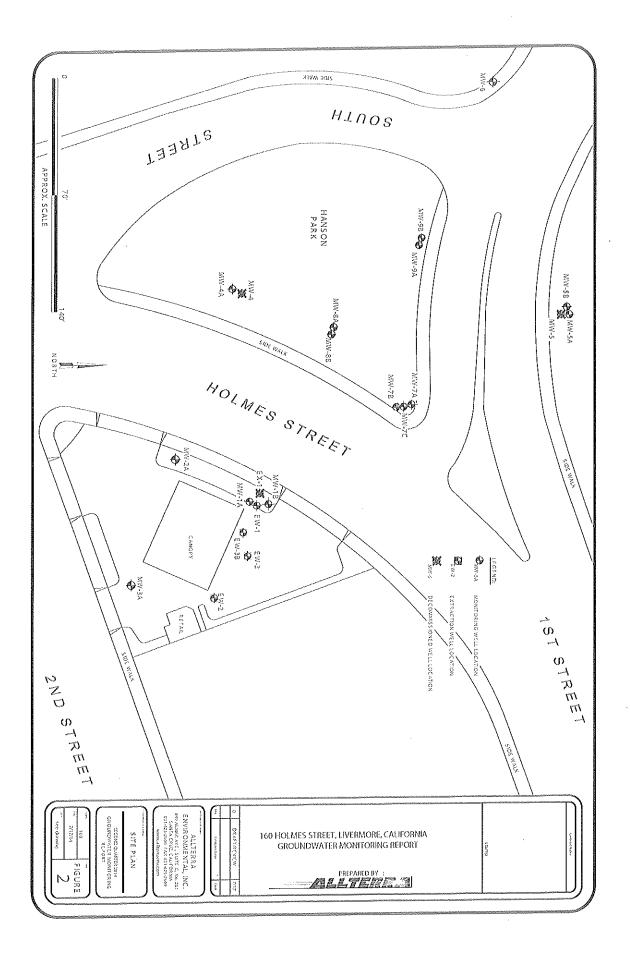


### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)



Well Construction Details Details			ched Site Plan)				ell/Borin	g Log	<u>1995 - N. M. Martine and S. S. S. Statistics of S. M. Martine</u>	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
			ched Site Plan)							1
ction		(See attac	ched Site Plan)					Boring ID	MW-4A	Page: 1 of 1
ction								Date: 2/28/0	0 Holmes St., Liverm	ore, CA
ction	od/Borin	g Diameter	(inches): Hollow	stem augo	cr/8			7	oration Geoscryices	
	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)		Sample	Soil Group Symbol (USGS)	Casing instal	llation data: 2-inch cas to 30 feet below grou	and surface
				1		T		Soil at ground su		
				2			4			
	<b>.</b>			3			-			
				4						n 5 feet of MW-4A, therefore
	<b>.</b>			6				soil from MW-4.	A boring was not classified	
				7						
				9					••••••	
	8			10	·					
				11	1					
				12	1					
				13	1					
× *	8			14	ļ	ļ				
× ×	<u>]</u>			15	ļ					
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X X				17	-	_				
XI	g			18						
×===	8			19						
X X	ğ			20 21						
8 8	8			22		$\vdash$		· · ·		
				23		1			·····	
8 1	8			24	†					
	8			25	<u></u>					
	8			26		[				
X 8	ğ			27						
\$\$ <b></b> \$\$				28						
	ğ			29						
88 <b></b> 188	8			30				Total depth = 30	feet bgs	
		11.0								
Date		vel Inform	Depth (feet)	1				*****		
Date				Notes:			= Cement = Bentoni = #2 Sanc = 0.001 ir = Blank P	ite 1 1ch slotted PV	C screen	

### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)

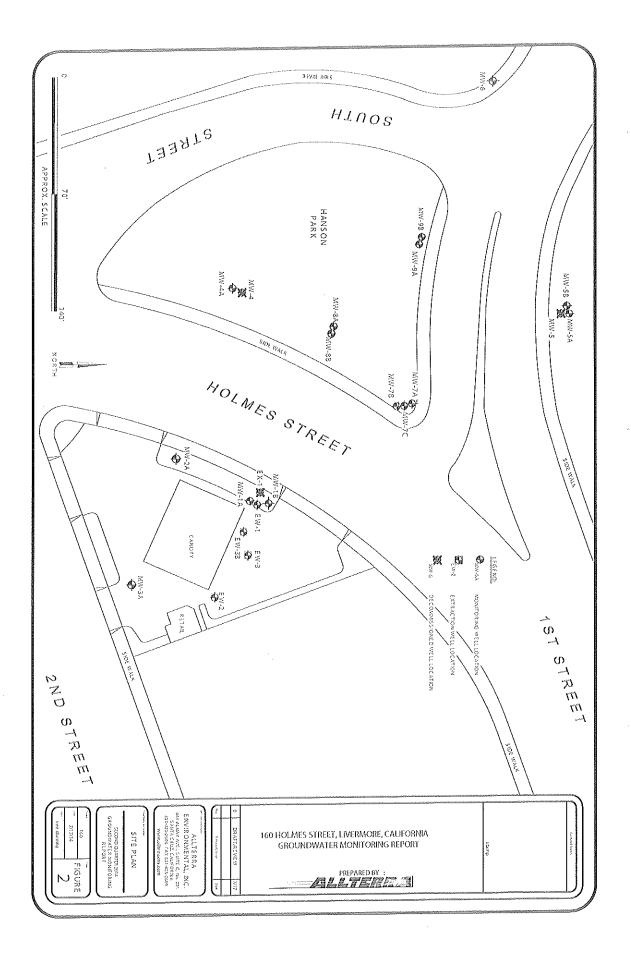


								T <i>E</i> H:	7.62./3		
								11/Boring			
Field	location	of bor	ing						Boring ID	MW-5A	Page: 1 of 2
										ber: 015-01-012	
			(See attac	ched Site Plan)					Date: 2/27/0	6	
										0 Holmes St., Liverme	ore, CA
				- ADDISTON					Logged By:		
Drilli	ng Method	l/Borin	g Diameter	(inches): Hollow s	tem auge	r/8 r				oration Geoservices	ing Q inch
	uo		or	0	et)			đ		llation data: 2-inch cas	
	ucti	) Úl	/Ĥ. (	le II	(fe		ບຼ	brou ol		reen interval 20 to 35	leet below ground
E E	Construction Details	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)		Sample	Soil Group Symbol (USGS)	surface (bgs)	Description	
Well	ပိဂိ	Ы	PS	S	Lanna and the second	<u> </u>	ň		Landscaping at p		
					1				Caluscapting at J	giodila surface	
					3						
					4						
					5	ļ					
					6	ļ				1 - 5 Con Stelanov of	5 A intervals to 40 feet bus
					7					or MW-5B for lithology info	5-ft intervals to 40 feet bgs.
					8 9				See boring log r		
					10						
					11						
					12						
					13	ļ	<u> </u>				
					14	<u> </u>					
					15 16	<u> </u>					
					17	1					
					18		<u> </u>				
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<b>88</b> -					20		<b> </b>				
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					25	]	]				
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羉	<b></b> 88				27	ļ					
₿₿Ē	<b></b> 88				28 29						
84				<u> </u>	30	<u> </u>	<u> </u>				
<u>₩</u> 4				) 		<u> </u>	1	<u>'</u>			
	Wa	ater Le	vel Inforn	nation	When app			-60 feet bgs on			
	Date		lime	Depth (feet)	Notes:	1	bage 2	= Cement			
					inutes:			= Benton			
		•••••			1			= #2 Sano	1		
									nch slotted P	VC screen	
1								= Blank I	VC casing		

	<u></u>						TER				
				Fie	əld	We	ll/Borin	g Log			
Field location	on of bo	ring		A7111111110_A.C.				Boring ID	MW-5A		Page: 2 of 2
		0						Project Num	ber: 015-01-012		
		(See atta	ched Site Plan)					Date: 2/27/00	5		
		Ì							) Holmes St., Liv	rmore	, CA
		m						Logged By: 1	NA		
Drilling Metl	10d/Borii	ng Diameter	(inches): Hollows	stem auge	er/8			Driller: Expl	oration Geoservi	ces .	0.1.1
								i	lation data: 2-inc		
Well Construction Details	Ê	Blows/ft. or PSI	8	Depth (feet)			Soil Group Symbol (USGS)	bore hole, se	reen interval 20 t	o 35 fee	et below ground
ls truc	Įdd	s/fi	၂ ခရ	р Ц	-	ple	B B E	surface (bgs)			
Well Constru Details	PID (ppm)	NO	Sample ID	ept		Sample	oil Vm US	Bulluov (ogo)	Descr	intion	
	ᇒᅟᅙᅳ	[ 편 현	<u> </u>	31	<u>  '</u>	<u>s</u>	SSC		Desen	(puon	
88 8	8			32							
	<u> 8</u>		1			·{					
	8	+		34						•••••	
	8			33 34 35	· <u> </u> ·····	·/·····		Total depth = 35	feet bgs		
16504BS	اغدة			36	1			·····			
				37		1					
				38							· · · · · · · · · · · · · · · · · · ·
				39		ŀ					
				40	ļ						
				41 42							
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				43							
				44 45						•••••	
				43							
	•••••			40	+	+				•••••	
				48							
		+		49	ł	-			•••••••••••	•••••	
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				58 59							
		+		60	<u></u>	·}				••••••	
				61	÷	·					
	: 	<u></u>		<u> </u>		<u>.</u>			,		
				Notes:			= Cemen				
							= Benton			7=	initial water level
						888	= #2 San				
								tch slotted PV	'C screen		
							= Blank I	VC casing			

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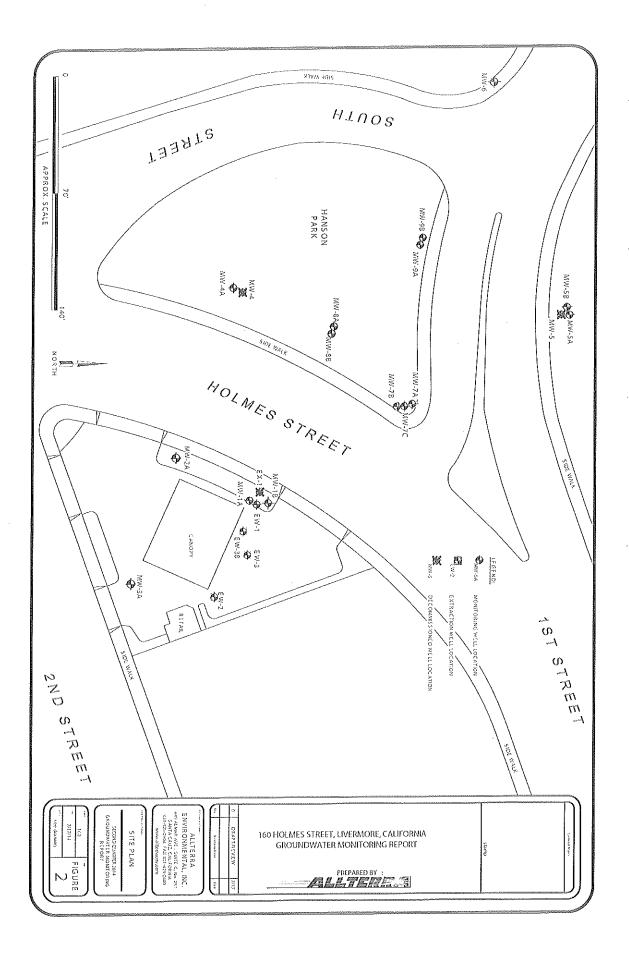
### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)



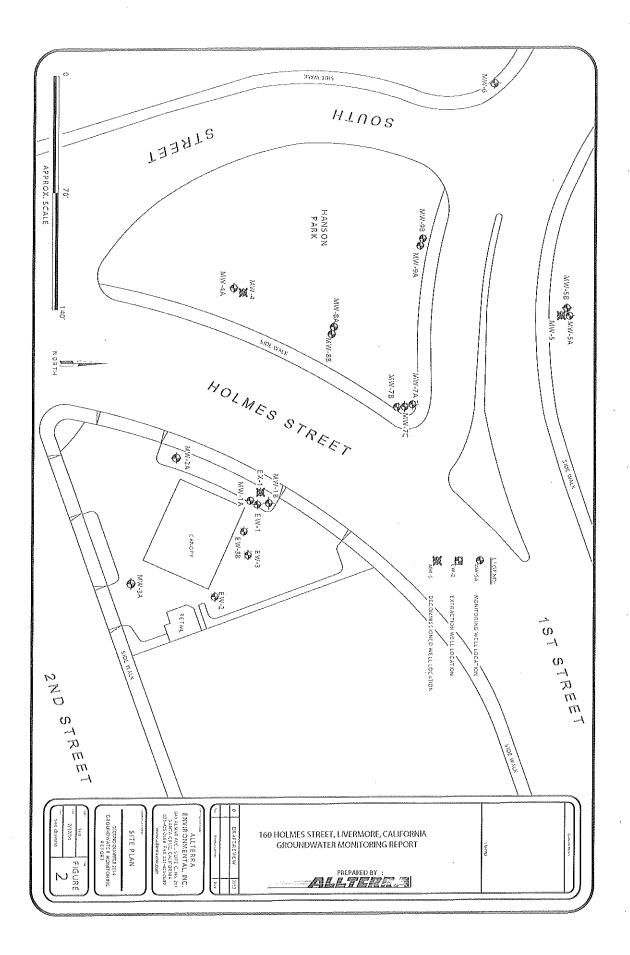
			······			- TEA	RAZ / I		
				Fie	eld W	/ell/Borin	g Log		i
Field location	of bori	ing					Boring ID	MW-5B	Page: 1 of 2
								per: 015-01-012	
		(See attac	ched Site Plan)				Date: 2/27/06		<u></u>
								) Holmes St., Liverm	ore, CA
							Logged By: N	•••••	
Drilling Method	d/Borinį	g Diameter	r (inches): Hollow :	stem auge	178			oration Geoservices lation data: 2-inch ca	sing. 8-inch
ion		or		G		đ		to 55 feet below grou	
ruct Is	ndd	s/ft.	le I	h (fi	ole	Gro Bol	(bgs) screen i		
Well Construction Details	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)	Sample	Soil Group Symbol (USGS)		Descriptio	1)
		ഫ്	<u> </u>	$1 - \frac{\mu}{1}$			Landscaping at g	2000-077	
				2					
				3					
				4		000			
				5		ML			city fines, 30% fine to coarse
				6		[	sand, 5%, fine to	medium gravel, dry, NPO	
				7					
				8 9					
	ND			10		ML	As above, moist		
				11					
				12					
				13			<u></u>		
				14				and Kababaan 20	50/ low plasticity lines 15%
				15		GM		d, 60% fine to medium gra	5% low plasticity fines, 15%
				16 17			The to coarse san		
				18					
			• •	19					
	ND			20		GM	As above		
				21					
				22		-			
				23 24		\			
	ND	·····		24		CL	Sandy clay, medi	um brown, 55% low to me	dium plasticity fines, 45%
				26	<b>)</b>		fine to coarse san		
				27					
				28					
				29					
	ND			30		CL	As above, very m	loist	
ττ <i>ί</i>	ton I	ial Inform	l	When any	licable	1-60 feet bgs on	1		
Date		vel Inform Time	Depth (feet)	when app	pagi				
- Date				Notes:		= Cemen			
	ļ			-		= Benton = #2 San			
							u nch slotted PV	C screen	
	<u>.</u>						PVC casing		

Field location	ofbor	ing						g Log Boring ID	MW-5B	Page: 2 of 2
Piteiti iocation	01 000	шg						Project Numbe	r: 015-01-012	
		(See attac	ched Site Plan)					Date: 2/27/06		~ ~ ~
		,						Location: 160 I	Iolmes St., Liverme	ore, CA
								Logged By: NA	ation Geoservices	
Drilling Metho	d/Boring	g Diameter	(inches): Hollow s	stem augo	21/8				tion data: 2-inch cas	ing 8-inch
R		H	_	<b>E</b>			0.	-		
icti	я Я	Ĥ. c	Sample ID	Depth (feet)	0		rouj	bore hole, scree	en interval 50 to 55	feet below ground
l ustru ails	E	/sw	aple	bth	ldu	•	SG a b	surface (bgs)		annang, annang P
Well Construction Details	PID (ppm)	Blows/ft. or PSI	San	Del	Sample		Soil Group Symbol (USGS)		Descriptior	1
				31						
				32			$\mathbf{i}$			
				33						
	ND			34 35		<b></b>	GM	Silty gravel, mediu	m brown, 35% medium p	lasticity fines, 25% mediu
				36				to coarse sand, 40%	mediaum to coarse grav	el, medium dense, wet, NP
				37						
				38						
				39	++					
				40 41		***	GM	As above 20% mc	fium to coarse sand, 45%	med. to coarse gravel,
	ND			42	1		0m	some cobbles	,	
				43	1					
				44						
				45 46			014		lium to coarse sand, 40%	word to ocorre groupal
	ND			46 47			GM	As above, 25% med	Jum to coarse sailu, 40%	med, to coarse graver
				48	1					
8 8				49						
×==				50						
X = X	ND			51	<u>                                     </u>		GM	As above		
×==				52 53						
×==				53	+					
	ND		MW-5B@55	55		Ŵ	CL		e fine to medium sand, bi	
			<u> </u>	56					6 fine to med. sand, med.	
				57						
				58				Total depth = $55 far$	>t has	
								Total deptil – 55 lee		
				****	+					
	<u>.</u>									
					n	888	- 0	<u> </u>		
				Notes:					$\nabla$	= initial water level
									<u> </u>	
							= 0.001 i	nch slotted PVC	screen	
				59 60 61 Notes:	······································			ite đ		_= initial water l

### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)

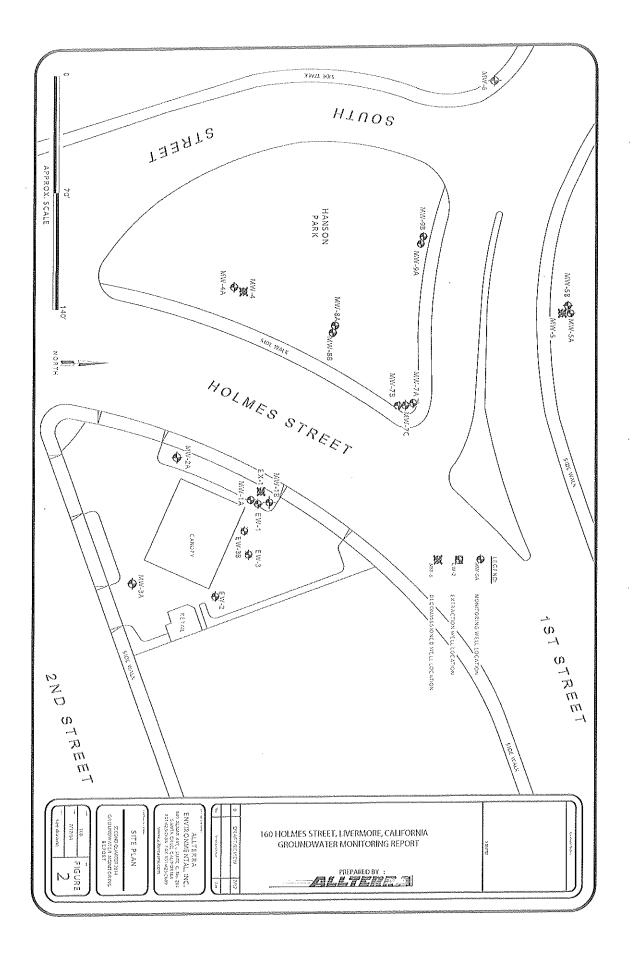


### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)



									g Log		
Field location	ofbor	inσ		ГI	10	we		m	Boring ID	MW-7A	Page: 1 of
riciu iocation	01 001	шĘ								er: 015-01-012	1 ugo, 1 o,
		(See attach	ed Site Plan)						Date: 2/27/06	Cr. 015-01-012	
		(See analon								Holmes St., Liverme	ore, CA
									Logged By: JA		
Drilling Method	/Borin	o Diameter (i	nches): Hollow	stem auge	r/8					ration Geoservices	
- <u>.</u>					Γ				Casing installa	ation data: 2-inch cas	ing, 8-inch
Well Construction Details	()	Blows/ft. or PSI	Ê	Depth (feet)			Soil Group Symbol	_		en interval 15 to 30	
ls	ıdd)	vs/fl	ple	th (j		ard	Gr Ibol	ß	surface (bgs)		
Vell Const	PID (ppm)	SIOV	Sample ID	Oep		oampre	Soil Syn	(US		Description	1
	<u> </u>					-			Lawn (landscaping	g)	
				2							
				3							
				4		~					
				5						1 1 the soule for B	the loan from surface
				6						logged continuously for li s. See Boring log from M	
				7 8	·····				information	s. See Boring log rom w	10-0-101 (((((())))))
	<b>-</b> .			9	÷				Mithination		
				10		•••••					
				11							
1000				12							
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× *				14							
× *				15							
<b>88 - 8</b> 8				16 17							
<b>88 - 18</b>				18							
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				29							
<u> </u>				30							
<u>x x x</u>											
		vel Informat	ion	When app				s on			
Date		lime	Depth (feet)	Notes:	9 1	age 2	= Cen	nen	<u> </u>		any,
						0.00	= Ben				
						<u>888</u>	= #2 \$	Sano	d	~	
	• • • • • • • • • • • • •			1			~ 0.00	<u>۱۱ ה</u>	nch slotted PV0	screen	

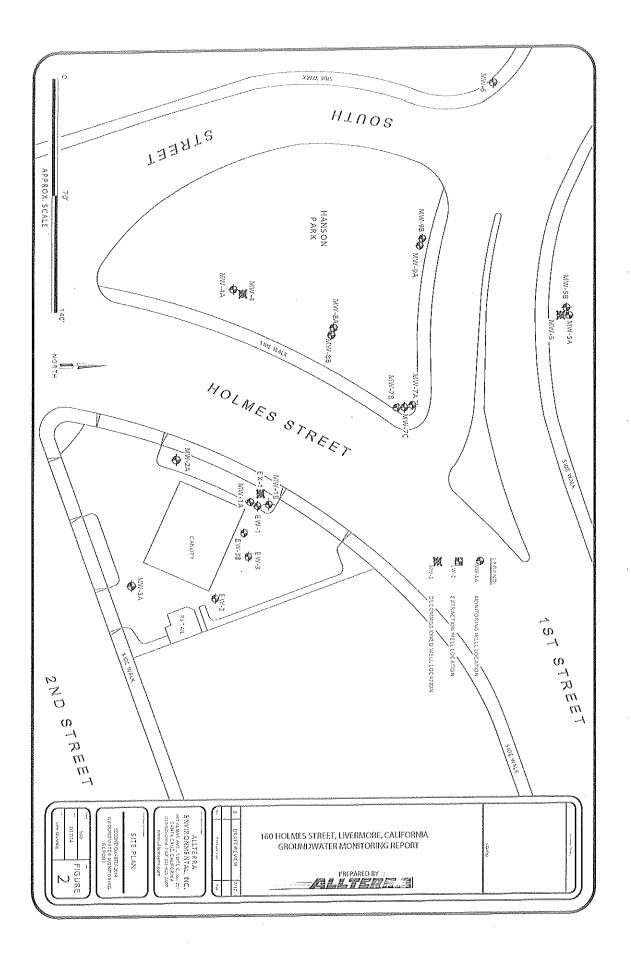
### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)



						TER	15.4		
				Fie	eld W	ell/Boring	g Log	аны 2011 года и стану промини СС - стану - стурити и стану - стану - стурити и стану - стану - стурити и стану	
Field location	ofbori	ing					Boring ID	MW-7B	Page: 1 of 2
			ched Site Plan)		-/9		Date: 2/28/0 Location: 16 Logged By:	0 Holmes St., Liverm NA	ore, CA
Drilling Metho	d/Boring		· (inches): Hollow :	stem auge				oration Geoservices lation data: 2-inch cas	sing. 8-inch
Well Construction Details	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)	Sample	Soil Group Symbol (USGS)	-	reen interval 45 to 50	feet below ground
<u>රිරිදි</u> 8880 8888	I	PS B1	<u> </u>		Ň		Grass (landscapi	Description	1
				$\begin{array}{c c} 2\\ 3\\ 4\\ 5\\ 6\\ 7\\ 8\\ 9\\ 10\\ 11\\ 12\\ 13\\ 14\\ 15\\ 16\\ 17\\ 18\\ 19\\ 20\\ 21\\ 22\\ 23\\ 24\\ 25\\ 26\\ 27\\ 28\\ 29\\ \end{array}$			grade to 32 feet	as logged continuously for I bgs and boring MW-7C was et bgs. See Boring logs from ation	logged continuously
				30					
<u>1888</u>	1			-					
		vel Inform	nation	When app	licable 3 page	1-60 feet bgs on 2			
Date		ĭme	Depth (feet)	Notes:		= Cement = Benton = #2 Sanc = 0.001 in	ite	/C screen	

							, te e e e e e e e e e e e e e e e e e e	762/7	2	
							ell/Borin			
Field location	ofbo	ring						Boring ID	MW-7B	Page: 2 of 2
									er: 015-01-012	
		(See attac	ched Site Plan)					Date: 2/28/06		
		•							Holmes St., Liverm	ore, CA
Duliting Mathema	1/17	a Diomoto	(inches): Hollow s	tem auge	-/8	1000		Logged By: E	ration Geoservices	
Drining Method	Леоп		(inclies). Honows		10				ation data: 2-inch cas	sing 8-inch
B		5		(j)	:		<u>م</u>			
Well Construction Details	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)		U U	Soil Group Symbol (USGS)		een interval 45 to 50	Teet below ground
Well Constru Details	ਿਲ	SW .	ldu	pth	1	Sample	SG:	surface (bgs)		
Well Cons Detai	L H	Blo PSI	Sar		0.00	0.61	<u>G Sy</u>		Description	n
				31						
				32						
				33		ļ				
	<b>.</b>	<b> </b>		34						
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<u> </u>				49			4 2 2 4			
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000460004				51						·
				52				Total depth = 50 f	eet bgs	
				53		ļ				
				54						·····
				55						
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		<u> </u>		58 59						
				60						
				61			4.000			A LANSING MALE AND A LANSING MALE A
					E C	on in	~			#//###################################
				Notes:			= Cement = Benton			= initial water level
							= Benton = #2 Sano			
						202		nch slotted PV(	C screen	
					ł			VC casing	0.00000	
					l		- DIALIK I	ve casing		

### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)

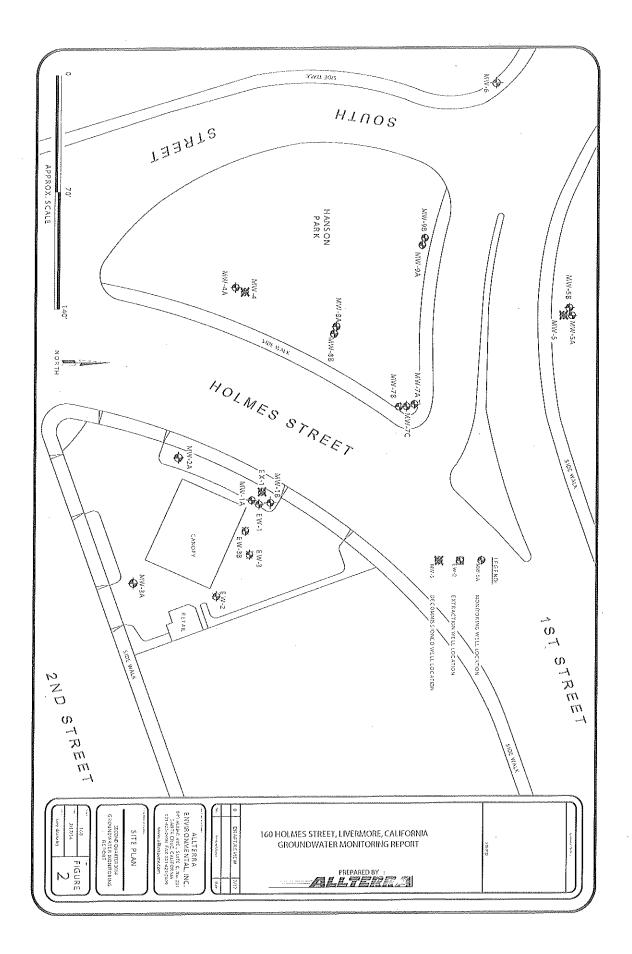


Field location of county       Image: Sector of the sector o	Field location	ofbori	ng		I 1	~10		ell/Borin	Boring ID	MW-7C	Page: 1 of
Drilling Method/Boring Diameter (inches): Hollow stem auger/8     Driller: Exploration Geoservices       uigging riginal diameter (inches): Hollow stem auger/8     Driller: Exploration Geoservices       uigging riginal diameter (inches): Hollow stem auger/8     Driller: Exploration Geoservices       uigging riginal diameter (inches): Hollow stem auger/8     Driller: Exploration Geoservices       uigging riginal diameter (inches): Hollow stem auger/8     Driller: Exploration Geoservices       uigging riginal diameter (inches): Hollow stem auger/8     Driller: Exploration Geoservices       uigging riginal diameter (inches): Hollow stem auger/8     Driller: Exploration Geoservices       uigging riginal diameter (inches): Hollow stem auger/8     Driller: Exploration Geoservices       uigging riginal diameter (inches): Hollow stem auger/8     Driller: Exploration Geoservices       uigging riginal diameter (inches): Hollow stem auger/8     Driller: Exploration Geoservices       uigging riginal diameter (inches): Hollow stem auger/8     Grass (andscapping)       uigging riginal diameter (inches): Hollow stem auger/8     Boring MB-3 was logged continuously for Hollow stem auger/8       uigging riginal diameter (inches): Hollow stem auger/8     Boring MB-3 was logged continuously for Hollow stem auger/8       uigging riginal diameter (inches): Hollow stem auger/8     Boring MB-3 was logged continuously for Hollow stem auger/8       uigging riginal diameter (inches): Hollow stem auger/8     Boring MB-3 was logged continuously for Hollow stem auger/8				hed Site Plan)					Project Numbe Date: 2/27/06 Location: 160 I	r: 015-01-012 Holmes St., Liverme	
Image: Second state of the second state s	Drilling Method	/Boring	Diameter	(inches): Hollows	stem auge	r/8					
Image: Constraint of the constraint							sample	soil Group Symbol USGS)	Casing installat	tion data: 2-inch cas en interval 65 to 70 f	eet below groun
3         4         5         6         7         8         9         10         11         12         13         14         15         10         11         12         13         14         15         16         17         18         19         22         23         24         25         26         27         28         29		4	<u> </u>	<u> </u>		<u> </u>			Grass (landscaping		
4         5         6         7         8         9         10         11         12         13         14         15         16         17         18         19         20         21         22         23         24         25         26         27         28					+						
5         6           7         Boring MB-3 was logged continuously for lithology from surface grade to 32 feet bgs. See Boring tog from MB-3 for lithology information for first 32 feet           10         11           11         12           13         14           15         16           17         18           19         20           21         22           22         23           24         25           26         27           28         29							<u> </u>				
6         7           8         9           9         9           10         11           12         13           14         15           16         17           18         19           20         21           21         22           22         23           24         25           26         27           28         29					+						
8         grade to 32 feet bgs. See Boring log from MB-3 for lithology           10         11           11         12           13         14           15         16           17         18           19         20           21         22           22         23           24         25           26         27           28         29					· · · · · · · · · · · · · · · · · · ·	<u>}</u>					
9       information for first 32 feet         10       11         12       13         13       14         15       16         17       16         17       18         19       20         21       22         23       23         24       25         26       27         28       29					• • • • • • • • • • • • • • • • • • • •	ļ	ļ				
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$											B-3 for ithology
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$											
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$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$											
20       21       22       23       24       25       26       27       28       29					**************						
21       22       23       24       25       26       27       28       29					<						
23       24       25       26       27       28       29					21						
24       25       26       27       28       29							<b> </b>				
25           26           27           28           29						<u>.</u>	<u> </u>				
26           27           28           29						¦	}				
28 29					1						
29						ļ	ļ				
							ļ				
					When app	olicab r	le 31- age 2	-60 feet bgs on			
Water Level Information When applicable 31-60 feet bgs on	Date	T	ime	Depth (feet)	Notes:	بر 			<u>l</u> it		
Date Time Depth (feet) page 2		••••••						= Benton	ite		
Date     Time     Depth (feet)     page 2       Notes:     = Cement       = Bentonite							888			screen	
Date     Time     Depth (feet)     page 2       Notes:     Image 2     Image 2			l		ł			0.0011	PVC casing		

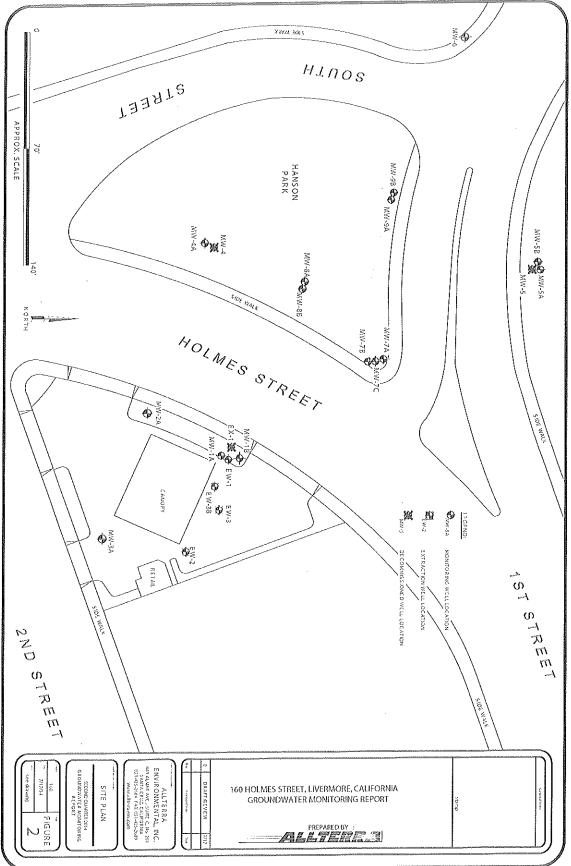
		-1/							
				Fie	eld We	ll/Borin			ануулынуу
Field location	l of bor	ing					Boring ID	MW-7C	Page: 2 of 3
								er: 015-01-012	
		(See attac	hed Site Plan)				Date: 2/28/06	Holmes St., Liverm	ore CA
							Logged By: E		
Drilling Metho	d/Borins	Diameter	(inches): Hollow	stem auge	r/8	······································	Driller: Explo	ration Geoservices	
		,						ation data: 2-inch ca	sing, 8-inch
Well Construction Details		or	0	(it)		<del>L</del>	, U	een interval 65 to 70	-
s ruc	IIdd	s/ft.	le II	1 (fe	<u>0</u>	lo lo (Si			for boion Broand
Well Constru Details	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)	Sample	Soil Group Symbol (USGS)	surface (bgs)		
Well Cons Deta	L Z	E S			Š	<u>ઝ જ ਦ</u>		Descriptio	11
				31					
	ND			32 33		GM	Silty gravel light	brown, 35% medium plas	ticity fines, 25% medium
				34			to coarse sand, 40	% medium to coarse grave	el, medium dense, wet, MPO
				35					
				36					
				37		014			
	ND			38 39		GM	As above, NPO		
				40					
				41					•••••••••••••••••••••••••••••••••••••••
				42					
				43					
				44		CM		260/ 1	ing alexiate Gage 200/
	ND			45 46		GM		brown, 25% low to medi sand, 45% meium to coar	
				40			Incertain to course		
				48					
				49					
				50		014			
				51 52		GM	As above		
				52					
				54					
				55					
				56		<u></u>			
	ND			57		GM	As above		
				58 59					
				60					
				61					
<u>. 13.818</u>						90 feet bgs on			
					page 3	~~~~~			2-21-21-21-21-21-21-21-21-21-21-21-21-21
				Notes:		= Cement		<b>A</b>	= initial water level
						<ul><li>Bentoni</li><li>#2 Sand</li></ul>			
					2000		' ich slotted PVC	C screen	
						= Blank P			

_				F16	eld We	ell/Borin	7		
Field location	of bor	ing					Boring ID	MW-7C	Page: 3 of 3
		(Sce atta	ched Site Plan)				Date: 2/27/06	) Holmes St., Livern	iore, CA
	/D	- D'anata	(inches): Hollow	stem suce	r/8		Driller: Explo	oration Geoservices	
		g Diameter				E E	Casing instal	lation data: 2-inch ca	sing, 8-inch
Well Constructi on Details	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)	Sample	Soil Group Symbol (USGS)	bore hole, ser surface (bgs)	een interval 65 to 70	feet below ground
Wel Cor on J	PIC	Blo or J	Sar		Sau	Sy So C		Descriptio	n
Í	ND			61 62		GM	As above, some	cobbles	
				63 64		8			
88 - 88 - 88 - 88 - 88 - 88 - 88 - 88				65					
₩ <u>₩</u> ₩				66	·				
XX XX				67		GM	As above		
				68					
<b>***</b>				69		<u> </u>			
	ND		MW-7C@70	70		CL		ome fine sand, light brown	
				71			plasticity fines, 3	5% fine sand, med. stiff, n	noist, NPO
				72 73		-			
				74	÷	-			
				75					
				76		-			
	•••••			77					
				78					
				79	ļ		· <b>· · · · · · · · · · · · · · · · · · </b>		
				80		-		<u>.                                    </u>	
				81 82			Total depth = 70	faat hae	
				82		-	Total depth = 70	icci ogs	
			<u>.</u>	84		-		· · · · · · · · · · · · · · · · · · ·	·····
				85	† <b>†</b>	-			
				86					
				87					
				88		-			
				89					
				90	<b>├ </b>	-			
					<u>i. l</u>				<u></u>
				Notes:		= Cemen = Benton = #2 San	iite d		= initial water lev
							nch slotted PV PVC casing	C screen	

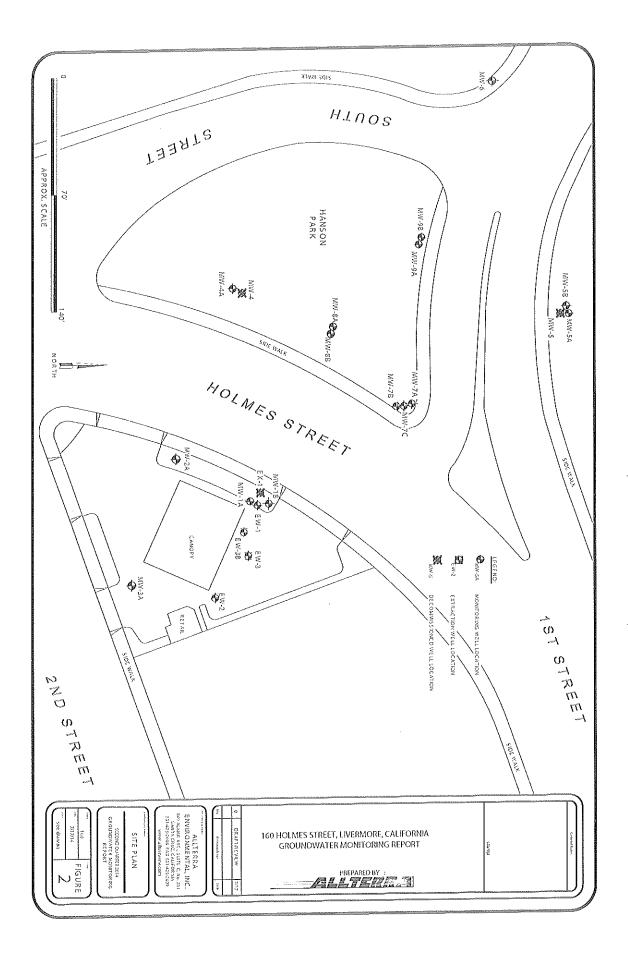
### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)



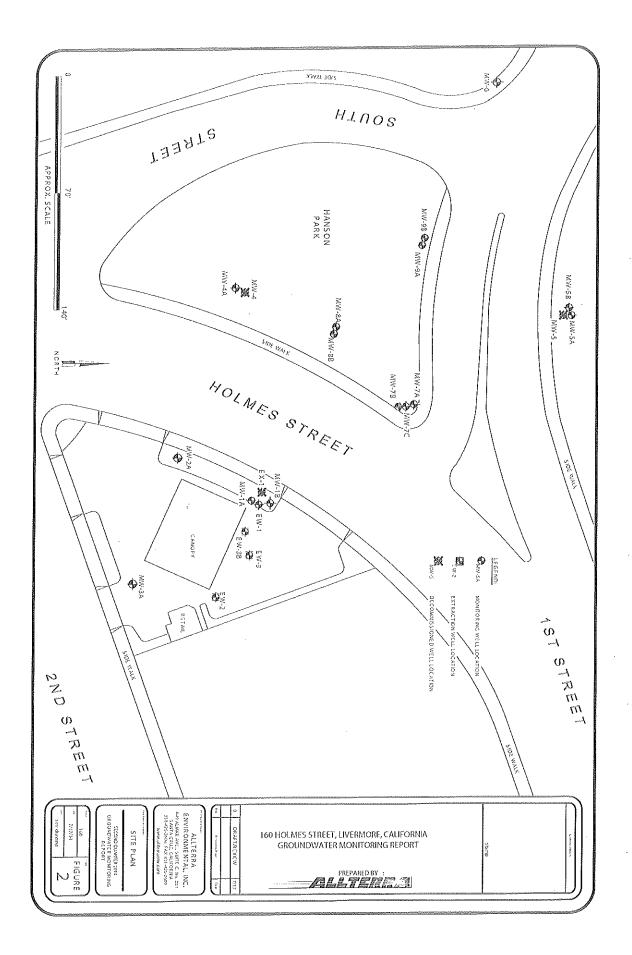
### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)



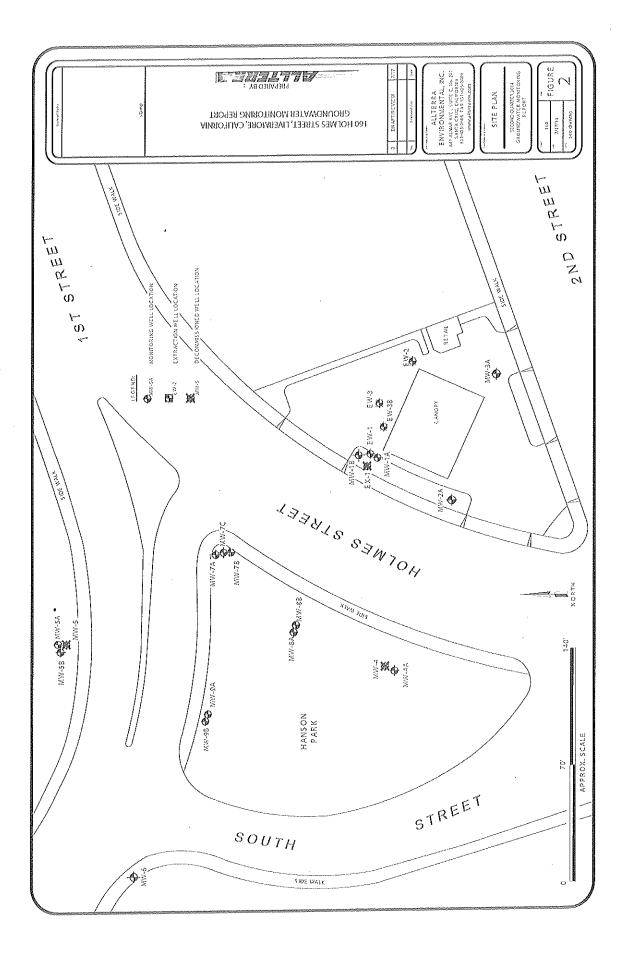
### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)



### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)



### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)

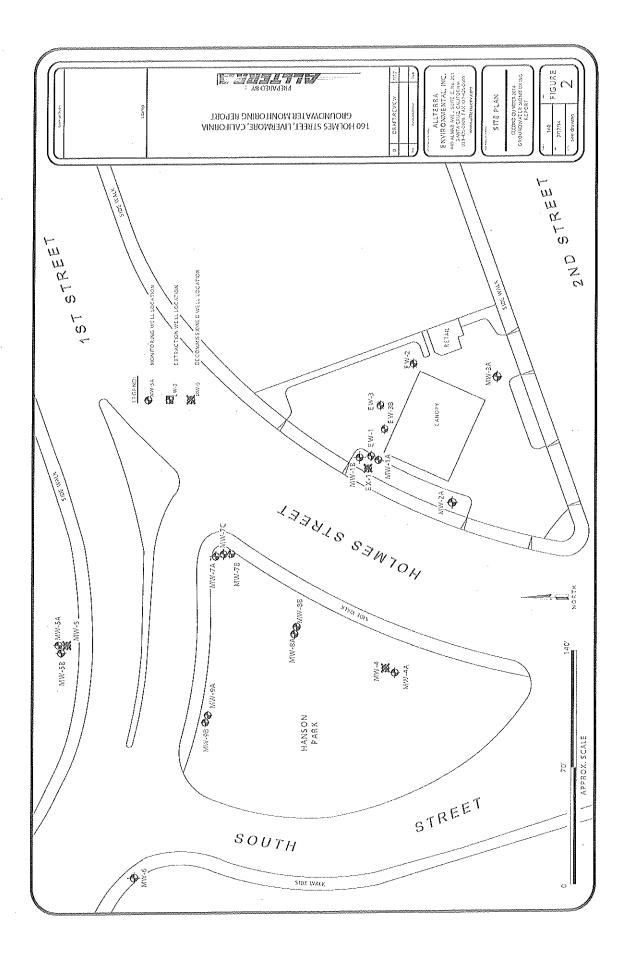


							IJ	TBR	9 <i>62. (</i> *1			
					Fie	eld V	Wε	ell/Boring	g Log			
Field	l location	of bor	ing						Boring ID	E	W-1	Page: 1 of 2
									Project Num	ber: 015-	01-012	
			(See attac	ched Site Plan)					Date: 2/24/0			
									Location: 16	0 Holmes	St., Livermo	ore, CA
									Logged By:	MK		······
Drilli	ing Method	d/Borin	g Diameter	(inches): Hollow	stem auge	er/ 12			Driller: Expl			
	К		н		- ÷			ط	Casing instal			
	rcti	(ud	Ψ. c		(fé	0		ol (S	bore hole, 15		t below grou	nd surface
=	Construction Details	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)	Sample	4	Soil Group Symbol (USGS)	(bgs) screen	interval		w., and and a constant,
Well	<u> </u>	ЫП	PS	Sai	- minuismo	Sa Sa		Sys	ano	<u>-</u>	Description	
					1		•••••		Soil at ground st	urface		
					2		•••••					
		<b>.</b>			3		•••••	-				
					5	+	•		Boring MB-1 w	as logged co	ntinuously for li	thology from surface
					6	1						B-1 for lithology
		•••••			7				information for	first 40 feet		
			{		8							
				1 5 5 7	9	ļ	••••					
				L	10		•••••					
					11 12		•••••					
					12	ŀ	•••••				*****	······
					13							
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酈	<u> </u>			······································	22	+					.,	
	<b>==</b> 188				23							
₿Ø₽					24							
I I I I I I I I I I I I I I I I I I I	=88		[		25	ļļ						
酈	<u> </u>				26							
I SE					27							
	<b></b> 88				28 29							
I IIII					30					•••••	•••••	
		1						3				· · · · · · · · · · · · · · · · · · ·
	Wa		vel Inforn	nation	When app			-60 feet bgs on				
	Date	1	Fime	Depth (feet)	Net	pa B	ge 2 HH		<u> </u>	- (14) VIII-		
2/	24/06	<u> </u>	4:49	19.46	Notes:	500 S S S S S S S S S S S S S S S S S S		<ul><li>Cement</li><li>Benton</li></ul>				
						23090 2010	ß	= #3 Sano	1			
									nch slotted PV	/C screen	L	
								= Blank F	VC casing			

							ell/Borin					
Field location	of bor	ing		Boring ID	EW-1	Page: 2 of 2						
		(Sce atta	ched Site Plan)	Project Number: 015-01-012 Date: 2/24/06 Location: 160 Holmes St., Livermore, CA Logged By: MK Driller: Exploration Geoservices								
	Bouin		(inches). Fionow		170			Casing instal	llation data: 4-inch o	casing, 12-inch		
Well Construction Details	Well Construction Details PID (ppm) PSI PSI Sample ID				-	Sample	Soil Group Symbol (USGS)	bore hole, 15 to 40 feet below ground surface (bgs) screen interval Description				
		<u> </u>		15 Depth (feet)		ļ						
				32 33 34 35 36 37				Boring MB-1 war grade to 50 feet information for	as logged continuously fo bgs. See Boring log fron first 50 feet	or lithology from surface		
				38 39 40				Total depth = 40	feet bgs			
				$\begin{array}{c c} 41 \\ 42 \\ 43 \\ 44 \\ 45 \\ 46 \\ 47 \\ 48 \\ 49 \\ 50 \\ 51 \\ 52 \\ 53 \\ \end{array}$								
				54 55 56 57 58 59 60 61								
				Notes:				ite	/C screen	= initial water level		

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### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)



							T E R					
				Fie	eld	We	ll/Borin	g Log	·····			
Field location	ofbor	ing	<u>مەتتىكە بېرىن مىلىسىسىسىتىكىكە بېرىن بىرىسى</u>					Boring 1D	EW-2	Page: 1 of 2		
				Project Numbe	er: 015-01-012							
		(See attach	ed Site Plan)	Date: 2/24/06								
								Location: 160	Holmes St., Liverm	ore, CA		
								Logged By: M				
Drilling Metho	l/Borin	g Diameter (i	nches): Hollow	stem auge	r/ 12			Driller: Explor	ation Geoservices			
uo		5	~				d.		tion data: 4-inch ca			
Well Construction Details	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)	4	U U	Soil Group Symbol (USGS)		o 40 feet below grou	and surface		
Well Constru Details	D (p	I	Idm	epth	Samula	d III	oil C dm/ JSG	(bgs) screen interval				
Cons Deta	μIJ	<u> n</u> s	S	ļğ	<u> </u>	ř.	<u> </u>	a 11 /	Descriptio			
				1				Soil at ground surf				
				2								
				4								
				5					ged continuously for lith			
				6					s. See Boring log from E	3-2 for lithology		
				7				information for firs	t 30 feet			
				8								
				10								
		·		11								
				12								
				13								
# #				14								
<u> </u>				15 16	•••••							
				17								
				18								
				19								
X X				20								
				21					,,,			
	·····			22								
X X				24								
X X				25								
X (				26								
X X				27								
X X				28								
X X				29 30						······		
<u></u>	L		- 100mmmmm 01/2-,	- 50	<u>. l</u>							
_ Wa	ter Le	vel Informat		When app	licabl	e 31-0	50 feet bgs on					
Date		ſime	Depth (feet)	21.4		age 2	- 0	4				
				Notes:	1		= Cement = Benton					
				-	2	33	= #3 Sand	d				
••••••			••••••	1	F		- 0.002	nch slotted PVC	screen			

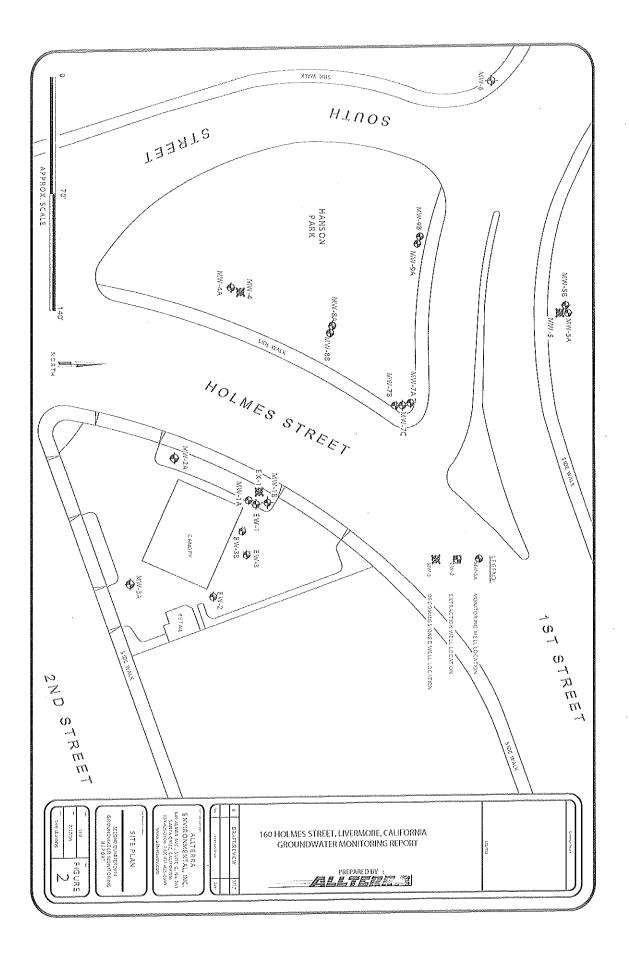
				- · · · · · · · · · · · · · · · · · · ·					
					Fie	eld '	We	ll/Boring	
Field	location	ofbo	ing				,m		Boring ID EW-2 Page: 2 of 2
(See attached Site Plan)									Project Number: 015-01-012 Date: 2/24/06 Location: 160 Holmes St., Livermore, CA Logged By: MK
Drillin	ng Methor	1/Borir	g Diameter	(inches): Hollow s	stem auge	r/8			Driller: Exploration Geoservices
	Construction of Details	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)	Sample	Auquido	Soil Group Symbol (USGS)	Casing installation data: 4-inch casing, 12-inch bore hole, 15 to 40 feet below ground surface (bgs) screen interval Description
₩Ê		ND			31	8			Silty gravel, medium brown, 35% medium plasticity fines, 25% medium
			· · · · · · · · · · · · · · · · · · ·		32 33 34 35				to coarse sand, 40% mediaum to coarse gravel, medium dense, wet, NPO
		ND		EW-2@36.5	36 37 38 39			GM	As above
<u> </u>	=88				40	·		GM	As above
	¥XXX	ND		EW-2@41.5	$\begin{array}{c} 10 \\ 41 \\ 42 \\ 43 \\ 44 \\ 45 \\ 46 \\ 47 \\ 48 \\ 49 \\ 50 \\ 51 \\ 52 \\ 53 \\ 54 \\ 55 \\ 56 \\ 57 \\ 58 \\ 59 \\ 60 \\ 61 \\ \end{array}$				Total depth = 40 fect bgs
		<b></b>	<u>inggo</u>		Notes:				nite $ = $ initial water level

### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)

Field location o	f bori	ng					11/Boring	Boring ID	EW-3	Page: 1 of 2
			L - 1 Olta Dina)		er: 015-01-027					
		(See attac	hed Site Plan)		Holmes St., Livermo	ore, CA				
				Logged By: M						
Drilling Method/	Boring	g Diameter	(inches): Hollow s	tem auger	r/ 12	2		Driller: Explo	ration Geoservices	
		-					д	Casing install	ation data: 4-inch cas	ing, 12-inch
s	(md	/ft. e	le II	ı (fe		le	ool NS)	bore hole. Scr	een interval; 25 to 30	) feet below ground surf and 30 to 35 feet bgs.
Well Construction Details	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (fect)		Sample	Soil Group Symbol (USGS)	(ogs); olank n	Description	
<u>∂č≙</u>	<u> </u>	<u> </u>	<u> </u>		(	$\frac{1}{1}$	<u> </u>	6" concrete		
				2						
				3						
			Ola comulat	4 5			SM	Brown silty sand	and silt, moist, medium de	nse, no PO
			(No samples collected for	6	}	+	DIVI	Brown any Sund	,	
			analysis)	7		1				
				8						
				9 10						
			1	11						
				12						
				13		_				
				14 15			ML	Brown silt and cl	ay, moist to very moist, mo	dium, slight PO
				15			, mB			
				17					· · ·	
				18		. <b>.</b>				
	•••••	•••••	1	19 20		- <b> </b>		Grayish brown si	It with clay and sand, mois	t, medium, strong PO
				21						
				22						
	•••••			23 24				······		
				24				Grayish brown si	It with clay and sand, mois	it, medium, strong PO
				26						
				27		. <b>.</b>				
		······	 	28 29						
				30	•			Same but stronge	r PO and very moist	
		vel Inforr	nation	When app		ble 31 page i	-60 feet bgs or 2	1		
Date		<u>Fime</u>	Depth (feet)	Notes:			= Cemer		aanaay,	
5/10/07		(initial)	~31'				<ul> <li>Benton</li> <li>#3 Sar</li> </ul>			
5/10/07		(static)	~28'				- #3 Sar	ia inch slotted PV	0	

								re í			
				Fie	ld	We	ll/Borin	· · · · · · · · · · · · · · · · · · ·			
Field location		(See attac	hed Site Plan)					Boring IDEW-3Page: 2 of 2Project Number: 015-01-027Date: 5/10/07Location: 160 Holmes St., Livermore, CALogged By: MK			
Drilling Method	l/Borin	g Diameter	(inches): Hollows	stem auge	r/8			Driller: Expl	oration Geoservices		
Well Construction Details	Depth (feet)	Comalo	auproc	Soil Group Symbol (USGS)	Casing installation data: 4-inch casing, 12-inch bore hole. Screen interval: 25 to 30 feet below ground st (bgs); blank interval: 0.5 to 25 feet and 30 to 35 feet bgs Description						
	(udd) (III	Blows/ft. or		$\begin{array}{c c} 31 \\ 32 \\ 33 \\ 34 \\ 35 \\ 36 \\ 37 \\ 38 \\ 39 \\ 40 \\ 41 \\ 42 \\ 43 \\ 44 \\ 45 \\ 46 \\ 47 \\ 48 \\ 49 \\ 50 \\ 51 \\ 52 \\ 53 \\ 51 \\ 52 \\ 53 \\ 54 \\ 55 \\ 56 \\ 57 \\ 58 \\ 59 \\ 60 \\ 61 \\ \hline \end{array}$			GM	Grayish brown s	ilif/sand/gravel, wet, mediu	n/stiff, SPO	
				Notes:				ite	√C screen	= initial water level	

### STATE OF CALIFORNIA DWR WELL COMPLETION REPORT (WELL LOGS)



					'	72	jees		
							oring Log_		
location o	f boring:						Boring ID	EW-3B	Page: 1 of 2
		(See Site plan)			Project Numbe	er: 160			
neast of Tu	er dispensera	(bee blie plant)					Date: 3/5/13		
							Location: 160	Holmes St., Livern	10re, CA
							Logged By: A		
ng Method/	Boring Diam	eter (inches): Hollow	y stem at	iger/ 1	2		Driller: Exploi	ration Geoservices	Inc.
			_						asing, 12-inch diameter
Construction Details	ft. o	E E	Depth (feet)	ø	Inor	Symbol (USGS)		to 39 feet below gro	ound surface
Constru Details	PID (ppm) Blows/ft. c	Sample ID	pth	Sample	ii G	SG	(bgs) screen ir		277 - 175-177, Martin,
Deta	PID (ppm) Blows/ft. or	Sar		Sa	S	<u>SS</u>		Descri	
			1				Silty Gravel with	sand (GM), medium brow	wn, loose, dry, no product odor (npo) mmon trash [Artificial Fill]
			2					ea gravel at 2 feet bgs to	
			<u>3</u>		G	M to		ca graver at 2 rect 055 to	
-			5	<u></u>		GW	S	ome large cobbles in Fil	(hard drilling), loose, dry, npo
			6		_				
			7				Gravel with sand	(GW) at 4 fect bgs, some	cobbles, dry, loose,
			8				npo [Artificial Fil	1	
			9				Silt with trace clay	y (MH), brown, medium	stiff, low plasticity, slightly moist, npo
			10	$\geq$		MH			
	0.0		11					· · · · · · · · · · · · · · · · · · ·	
			12 13						
	0.0		13 14	•••••••					
	0.0		15		$\leq$	ML	Silt with trace san	nd (ML), light brown, sol	to medium stiff, slightly moist,
			16	Í		, <u> </u>	no plasticity, npo		
			17			GW	Sandy Gravel (G)	W), brown to grey, coars	e grained sand, loose, moist, npo
			18						raded gravel in clay matrix,
		EW 2D (20)	19		<b>&gt;</b>	GC	very little recover		
		EW-3B@20'	20 21	·	```~ <b>~</b> ~				redium plasticity, moist, slight product
			22	++		CT.	odor (spo)		
			23			CL			
	5.2		24						
==#88		EW-3B@25'	25	$\geq$	$\leq$				soft, high plasticity, damp, moderate
=8			26			CL	product odor (mp	0)	
		X	27						
<b></b>  88	2.1		28 29				Gravelly Sand wi	ith some silt and clay (SV	W), brownish grey, loose, saturated, sp
==##	3.1	EW-3B@30'	30	$\geq$	<	GW	very little recover		
	i I I	1311 015(1)00		<del>سسمیکنانی</del>					nnayy
Wate	r Level Info	rmation	When ag			feet bgs	;		······································
Date ·	Time	Depth (feet)	Matari	on p B	age 2	Cem	ent		unning - Minimum - Addining - Casterning - Casterning - Casterning - Casterning - Casterning - Casterning - Cas
3/5/13	12:49	28	Notes:	100		Bent		$\sum$	= initial water level
= Coarse sand = 0.04 inch slotted PVC screen = static water level								= static water level	

					4			Fee fa -	<u>/</u> ]			
					Fie	eld	Well/B	oring Log			. ,	
Field location	ı of bo	ring:						Boring ID	EW-	<u>3B</u>	Page: 2 of 2	
			-t		Project Number: 160 Date: 3/5/13							
		(See ana	ched Site Plan)		Location: 160 Holmes St., Livermore, CA							
					Logged By: AP							
Drilling Metho	d/Borir	ig Diamete	r (inches): Hollo	w stem au		loration Geose						
ű		н		÷			0.				asing, 12-inch diameter	
icti	l a	ff. c	E E	(fee		പ		bore hole, 24 to 39 feet below ground surface				
11 nstrn tails	PID (ppm)	Blows/ft. or PSI	Sample ID	Depth (feet)		sample	Soil Group Symbol (USGS)	(bgs) screen	interval			
Well Construction Details	IId	BIc PSI	Sau	De De		Nai Nai	<u>G &amp; S</u>			Descr	iption	
	j			31	<i>.</i>	<b> </b>						
				32 33			GW	See previous par	ge		,u	
	3			34	¦							
			EW-3B@35'	35	$\geq$	~		Sand with some	gravel (SP), coar	se graine	d sand, loose, saturated, npo	
	<u>.</u>	]		36		ļ	<u>an</u>	·····				
				37 38			SP					
				39 39				Total depth = 39	feet bgs			
	Ì			40								
	[			41								
				42 43								
				43	<b> </b>							
				45								
				46						•••••		
				47 48								
				40								
				50								
				51								
				52 53								
				53 54		•••••						
				55								
				56								
				57 58					<del></del>			
				58 59								
				60					na n r <del>r </del>			
				61								
				Notes:			= Ceme	nf				
			1				= Bento			$\bigtriangledown$	= initial water level	
						33	= Coarse			V	= static water level	
					ļ			inch slotted P	VC screen			
							= Blank	PVC casing			-	