

INFORMATION HANDOUT

**For Contract No. 03-0H11U4
At 03-Sac-51, 160-4.0/4.3, R44.4/47.0**

**Identified by
Project ID 0316000035**

RAILROAD RELATIONS

Railroad Relations and Insurance Requirements: Sacramento Regional Transit District, RT Special Conditions.

MATERIALS INFORMATION

Caltrans Maintenance Program, 2013 Pavement Conditions Survey Inventory

Water Source Information

Aerially Deposited Lead Report, State Route 160, Post Mile R43.3 to 47.0, Sacramento, California

SACRAMENTO REGIONAL TRANSIT DISTRICT
RT SPECIAL CONDITIONS

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1. General

In general, the specifications herein apply to all PROJECT work related to, or affecting, RT FACILITIES (hereinafter "WORK"). All contractors performing WORK must comply with the Project Technical Specifications and Special Provisions, the latest Caltrans's Standard Specifications for Public Construction ("Standard Specifications"), and all applicable specifications in this **Exhibit A**. In the event the Caltrans's Standard Specifications and the specifications herein conflict, the parties shall meet and confer regarding those specifications that shall apply to the WORK.

1.01 Definitions

RT FACILITY: Light rail tracks, switch equipment, signal systems, communications ductbanks, overhead catenary system, traction power feeder conduits and cables, and stations, including all appurtenant furnishings and equipment.

PROJECT: State Route 160 Modular Headlight Glare Screen Replacement Project.

2. Disruptions in Service

Contractor and its subcontractors, regardless of tier, must not perform any Work that will require an unscheduled disruption of RT's service at any time. All Work must be performed with sufficient labor, materials, and standby equipment to ensure that unscheduled service disruptions do not occur.

Contractor's failure to either complete the scheduled activities by the planned time or to put in place an approved contingency plan may adversely impact RT's light rail service. If RT's light rail service is disrupted by Contractor's action or failure to act, RT will incur damages, including but not limited to costs to transport passengers by bus, overtime wages for crew and flagperson(s), and costs for additional dispatching. Such damages are extremely difficult or impractical to quantify. The parties therefore agree that in the event of such disruption, Contractor is liable for liquidated damages in the sum of two thousand five hundred dollars (\$2,500) per lost headway. Caltrans must deduct the amount of such liquidated damages from any payment to the Contractor that is due under the Contract or may call upon the Service Disruption Bond.

3. Service Disruption Bond

The PROJECT contractor shall provide to Caltrans, in a form approved by RT, a Service Disruption Bond in the amount of \$50,000 prior to commencement of PROJECT construction covering costs incurred by RT from any disruption to RT's light rail service. The surety on the Service Disruption Bond must be authorized to do business in California and must be either a current Treasury Listed Surety (Federal Register); and either a current A.M Best AIV rated surety OR one having a current Standard and Poors

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(S&P) rating of A. The bond must be submitted with the following: The original, or a certified copy of the unrevoked appointment, power of attorney, bylaws, or other instrument entitling or authorizing the person who executed the bond to do so.

4. Indemnification

To the extent permitted by law, Contractor does hereby assume liability for, and agrees to defend, with counsel acceptable to RT, indemnify, protect, save and keep harmless RT and its respective directors, officers, employees, and its successors and assigns (“Indemnitees”) from and against any and all liabilities, obligations, losses, damages, penalties, fines, claims, actions, suits, costs and expenses and disbursements including reasonable attorneys’ fees and expenses (including allocated costs of RT staff attorneys) of any kind and nature imposed in, asserted against, incurred or suffered by Indemnitees by reason of damage, loss or injury (including death) of any kind or nature whatsoever to persons or property in any way relating to or arising out of:

(a) any act or omission by or on behalf of Contractor or any of its officers, agents, servants, employees, subcontractors of any tier in its or their performance hereunder whether or not caused in part by RT’s passive negligence, but not to the extent of RT’s sole or active negligence or willful misconduct; and/or

(b) any act or omission by or on behalf of Contractor or any of its officers, agents, servants, employees, invitees, or subcontractors of any tier when such act or omission would obligate RT to indemnify a party pursuant to the terms and conditions of any agreement referenced in the Contract Documents; and/or

(c) any claim of patent, trademark or copyright infringement in connection with the services performed and/or work products provided under this Contract by Contractor or any of its officers, agents, servants, employees, subcontractors or subcontractors of any tier; and/or

(d) a release by Contractor or any of its officers, agents, servants, employees, or subcontractors of any tier in its or their performance hereunder of any substance or material defined or designated as a hazardous or toxic substance, material or waste by any federal, state or local law or environmental statute, regulation or ordinance presently in effect, or as amended or promulgated in the future, but only to the extent based upon principles of comparative fault that such release is not proximately contributed to or caused by RT, or its directors, officers or employees; and/or

(e) successful efforts to enforce this indemnity provision.

Each party must notify the other party where appropriate of any claims, administrative actions or legal actions with respect to any of the matters described in this indemnification provision. The parties must cooperate in the defense of such actions brought by others with respect to the matters covered in this indemnity. Nothing set forth

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in this Contract will establish a standard of care for, or create any legal rights in, any person not a party to this Contract.

In addition to any other remedy authorized by law, as much of the money due Contractor under this Contract that is considered necessary by RT may be retained until disposition has been made of any claim for damages.

5. Permits

The Contractor and its subcontractors, regardless of tier, must obtain an RT Permit and comply with provisions therein for any work within 10' of the nearest rail of the operating track and/or within 10' of the overhead catenary system (OCS). Contractor shall complete all training as required by RT. Contact Sharon Fultz (916-556-0308, sfultz@sacrt.com) for Permit information. See Appendix A for RT Permit Application.

6. RT'S On-Track Safety Training (OTS)

Employees of the Contractor and its subcontractors scheduled or expected to perform work on the PROJECT within ten 10' of the nearest rail of the operating track are required to have successfully completed RT's On-Track Safety program. The Program provides information on safety precautions needed while working on or near light rail tracks and the high voltage Overhead Catenary System (OCS), the use of Track Warrants and high voltage Red Tag procedures. Caltrans contractors are responsible for scheduling training sessions with RT's Safety Department. Contractor(s) shall keep records of those individuals successfully completing the course. Caltrans shall require that all workers performing construction work complete RT's On-Track Safety Program (OTS) prior to commencement of the work and that all such workers exercise Program and other applicable safety precautions while performing work. In no event will Contractor be entitled to an extension of time for completion or additional compensation due to failure to timely schedule and complete On-Track safety training. RT will retain training records and sign-up sheets for a period of three years.

7. RT Light Rail Operations

7.01 Coordination with RT Light Rail Operations-Hours of Work

Caltrans shall require its contractor to coordinate all WORK with revenue service operations of the RT Light Rail System ("RT Light Rail Operations"). RT Light Rail Operations operating conditions are in effect and light rail vehicles ("LRVs") will be in revenue service daily from approximately 4:00 a.m. continuous until approximately 1:00 a.m. the next day, seven days a week. LRVs generally run at 15-minute intervals, each direction, with the exception of evening hours and weekend mornings, which are scheduled for 30-minute intervals each direction. Unscheduled trains may run from 4:00 a.m. to 1:00 a.m. for training, maintenance, or train staging. Contractor must obtain and

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be familiar with the current "Daily RT Light Rail Operations Light Rail Schedule" and any revisions issued during performance of the WORK.

Caltrans shall require its contractor to cause all WORK to be performed with regard to time, place and manner so that RT Light Rail Operations scheduled revenue service is not disrupted unless expressly provided otherwise herein. All WORK performed by Contractor or its subcontractors within 10' of the existing LRT track and facilities must be in accordance with RT Light Rail Operations Instructions for Track Warrants. Track Warrants will require that RT dedicates a Lookout for all areas where WORK may occur within 10' of the nearest rail of the operating track. No construction equipment or personnel is allowed to work within 10' of the nearest rail without the RT Lookout on duty.

RT Lookouts must be scheduled at least one week in advance by sending an email request to lookoutrequest@sacrt.com containing the requestors company name, when, where, and how long the Lookout will be needed. Any directions regarding track safety given by the Lookout MUST be followed IMMEDIATELY. The ENTIRE work party MUST have a MANDATORY briefing with the Lookout PRIOR to beginning work within 10' of the nearest rail. The briefing only takes a few moments. If someone comes to the work area after work has begun, they MUST also have the MANDATORY briefing with the Lookout BEFORE going to work in the area. If the work area spreads out and the Lookout, at his/her sole discretion, concludes a satisfactory level of safety cannot be provided, work in the outlying areas must STOP immediately.

All personnel must attend RT's On Track Safety class prior to fouling tracks.

A Red Tag is required when working within 10' of the overhead catenary system (OCS) or any WORK that includes equipment capable of coming in contact with the overhead catenary system. A single red tag request constitutes a request to power off, at a single time of day, one (1) or more substations adjacent to the WORK site described in the Red Tag permit.

It is Contractor's responsibility to apply for and secure the Track Warrant and/or Red Tag for each and every shift of Limited or Full Access construction, as defined below. If Contractor fails to comply with this requirement, and/or if Contractor or its subcontractors violate the terms of the Track Warrants and/or Red Tags, RT will issue a Stop Work Order to Contractor. The Stop Work Order will be in effect until such time as a Track Warrant or Red Tag is secured and/or the violation is corrected. Any delays or costs associated with this requirement must be borne by Contractor.

During hours of revenue service, Contractor and/or its subcontractors will be allowed Limited Access to any track area with RT Light Rail Operations revenue service operations through the construction site. Limited Access construction is defined as WORK to be performed within 10' of the nearest rail of the operating track that does not include equipment capable of coming in contact with the overhead catenary system.

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Limited Access construction must be coordinated daily with RT Light Rail Operations through the Track Warrant procedure.

During the hours when RT Light Rail Operations is not in operation, Contractor and/or its subcontractors of any tier will be permitted Full Access to the existing track and facilities in the construction area. Any WORK performed on the existing track structure and facilities during Full Access will be restored by Contractor to complete operating conditions prior to the resumption of scheduled revenue service. Full Access will be coordinated each and every time with RT Light Rail Operations through the Track Warrant and Red Tag procedures.

Contractor and its subcontractors, regardless of tier, must not perform any WORK that will require an unscheduled disruption of service at any time. All WORK must be performed with sufficient labor, materials, and standby equipment to ensure that unscheduled service disruptions do not occur.

Contractor must submit a WORK Plan detailing hours of WORK, construction methods and activities to Caltrans for the RT's approval. The WORK Plan must indicate the means to ensure conformance to this special condition. Contractor must not do any WORK until Contractor receives written approval of the WORK Plan from RT.

7.02 Cooperation with RT Light Rail Operations

Contractor's communications with RT Light Rail Operations must be limited to coordination regarding Track Warrants and Red Tags. All communications and/or correspondence relating to inspection and coordination between Contractor and RT Light Rail Operations must be given to RT via Caltrans, unless otherwise specifically authorized by RT and Caltrans in writing.

RT will communicate directly with contractor if conditions deemed to be an emergency exist. Under emergency conditions, life or property must be in immediate danger of loss. Should an emergency condition occur, contractor must follow the directions of the RT Light Rail Operations staff without hesitation.

The application for issuance of Track Warrants and Red Tags must be coordinated directly between Contractor and RT Light Rail Operations staff. Contractor must maintain the Track Warrant or Red Tag documentation at the WORK site. Failure to produce the required documentation when requested will result in the cessation of WORK until the documentation is produced. No exceptions will be allowed, and time for completion will not be extended if WORK is stopped for the foregoing reason.

Red Tags will be provided by RT at the rate of \$750.00 per Red Tag. The cost for the Red Tag must be paid to RT at the time of submitting the application for the Red Tag. Call Michael Cormia, Wayside Maintenance Superintendent at (916) 648-8422 to arrange for the Red Tag permit. Red Tags will only be given for the hours between 1:00

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a.m. and 4:00 a.m. Application for a Red Tag must be made at least 7 calendar days prior to the date requested.

8. Construction Staging Plans (CSPs)

8.01 Submittal of Construction Staging Plan

Contractor must submit Construction Staging Plans (CSPs) for review by RT. CSPs must be submitted to RT at least 65 days prior to the planned start of any work on the major track, OCS and signal systems construction stages (including cutovers) that involve keeping RT's existing light rail system fully operational and in accordance with the Technical Specifications. A separate CSP must be submitted for each such cutover or other major construction stage. RT may request explanations and changes to the CSP to conform the plan to Contract requirements.

Contractor must have RT's acceptance of the CSP at least 14 days prior to the planned start of any work subject to this provision to allow time for public notification of the work.

8.02 Compliance with the CSP

All work subject to the requirement for a CSP must be performed in accordance with an approved CSP. Contractor must furnish all labor, materials, and equipment required to perform and complete the Work in the limited time available. Contractor must maintain the approved CSP schedule.

9. Compliance with California Public Utilities Commission Orders

In the performance of this Contract, contractor, including all subcontractors, shall comply with all General Orders of the California Public Utilities Commission pertaining to safety that are applicable to RT or Contractor, including, without limitation, those requirements set out in General Orders Nos. 26-D, 72-B, 75-C, 95, 88-A, 118, 128, 135, 143-A, 164-A. Contractor shall be responsible for any civil penalty imposed by the California Public Utilities Commission under California rail safety laws and regulations arising from or related to Contractor's and its subcontractors, performance or non-performance of any WORK to be performed by Contractor under this Contract.

10. Compliance with Applicable Federal Railroad Administrative Regulations

In the performance of this Contract, Contractor, including all subcontractors on the Project, regardless of tier, must comply with all Federal Railroad Administration safety requirements applicable to RT or to Contractor as a contractor of Caltrans, including, without limitation, those requirements applicable to an "employer" as defined in Part 214 (Railroad Workplace Safety) of Chapter II of Subtitle B of Title 49 of the Code of Federal Regulations (49 C.F.R. Part 214). Contractor is responsible for any civil penalty

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imposed by the Federal Railroad Administration under federal rail safety laws and regulations arising from or related to Contractors and its subcontractors, regardless of tier, performance or non-performance of any work to be performed by Contractor under this Contract.

Service Disruption Bond

SERVICE DISRUPTION BOND

WE HEREBY CERTIFY THAT: _____ as Principal, hereinafter called "Principal," and _____, a corporation, duly organized under the laws of the State of _____, having its principal place of business at _____ in the State of _____, and authorized as a surety in the State of California, hereinafter called "Surety," are hereby held and firmly bound unto Sacramento Regional Transit District, hereinafter called "Obligee" in the Penal Sum of \$50,000.00 lawful money of the United States of America, for which payment well and truly to be made, we bind ourselves, our heirs, executors, administrators, representatives, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into or is about to enter into a certain written agreement with the above-mentioned Obligee, for construction of the Project Title: _____, Project No. _____, hereinafter "Contract," which Contract documents are incorporated herein by reference as if fully set forth herein.

WHEREAS, said Principal is required to furnish a bond in connection with said Contract, to secure payment of costs of service disruptions to Obligee's bus and/or light rail system as a result of work under said Contract.

NOW, THEREFORE, if said Principal, or its heirs, executors, administrators, representatives, successors, assigns, or subcontractors cause disruption to the revenue operations of Obligee's light rail system, the aforesaid Surety will pay Obligee the sum of \$2,500 per hour for every hour of disruption or portion thereof, unless such disruption is solely caused by Obligee; however, in no event will the amount owed by said Surety exceed the amount of this bond.

Said Surety, for value received, hereby stipulates and agrees that, in accordance with the terms of the Contract, no change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed there-under, or to the specifications accompanying the same will in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the specifications.

In the event that an action is brought to enforce this bond or for a declaration of the rights and duties of the parties pursuant to this bond, the prevailing party in any such action will recover its costs and attorney fees from the other party.

IN WITNESS WHEREOF, the above bound parties have executed this instrument under their seals the _____ day of _____, 201_ the name and corporate seal of each corporate party being affixed thereto, and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

(Seal) PRINCIPAL
By _____

(Seal) SURETY

Bond No. _____ By _____

Application For Permit

The RT Application for Permit form and instructions can be obtained at the following web site (by each Contractor and subcontractor): <http://www.sacrt.com/realestate/index.stm>

	Sacramento Regional Transit District P.O. Box 2110 Sacramento, CA 95812-2110				
	APPLICATION FOR PERMIT				
	Permit Number: _____				
APPLICANT: _____ Date: _____					
ADDRESS: _____					
_____ Phone: (____) _____					
Person familiar with details of application: Name: _____ Phone: (____) _____					
APPLICATION IS HEREBY MADE FOR THE PERMIT TO PERFORM THE FOLLOWING:					
1. Applicant's work order or job number: _____					
2. Location of work: Name of Road _____ Between _____					
3. Describe completely work to be done: _____					

4. Submit Plans to Scale (3 copies) showing plan view and cross-section, indicating clearly location of work with respect to centerline of track, face of curb, edge of pavement or property line. Show clearance and type and size of facilities proposed.					
5. Estimated state date: _____ Completion date: _____					
6. Applicant's Inspector, Contractor, Foreman or Supervisor as appropriate:					
Name: _____ Company: _____ Phone: (____) _____					
Note: General Conditions on reverse side and "Special Provisions" below are a part of this Permit. By starting work applicant accepts all General Conditions and Special Provisions. Call RT Metro Wayside Maintenance Superintendent (556-0461) 24 hours prior to starting work to notify RT and request inspection.					
Company: _____					
Title: _____					
Signed: _____ Date: _____					
REVIEW (RT USE ONLY)					
Engineering Services Division	<table border="1"><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr></table>				
Wayside Maintenance	Permit Expires: _____ Permit Fee: \$ _____				
Safety OTS Training	JPA Fee: \$ _____				
SPECIAL PROVISIONS (RT USE ONLY)					
Approved By: _____ Date: _____					

Light Rail Track Warrant

(To be obtained from RT Metro, 2700 Academy Way, by each Contractor and subcontractor)

Light Rail Line Clearance-Red Tag Request

(To be obtained from RT Metro, 2700 Academy Way, by each Contractor and subcontractor)

SERVICE DISRUPTION BOND

WE HEREBY CERTIFY THAT: _____ as Principal, hereinafter called "Principal," and _____, a corporation, duly organized under the laws of the State of _____, having its principal place of business at _____ in the State of _____, and authorized as a surety in the State of California, hereinafter called "Surety," are hereby held and firmly bound unto Sacramento Regional Transit District, hereinafter called "Obligee" in the Penal Sum of \$50,000.00 lawful money of the United States of America, for which payment well and truly to be made, we bind ourselves, our heirs, executors, administrators, representatives, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into or is about to enter into a certain written agreement with the above-mentioned Obligee, for construction of the Project Title: _____, Project No. _____, hereinafter "Contract," which Contract documents are incorporated herein by reference as if fully set forth herein.

WHEREAS, said Principal is required to furnish a bond in connection with said Contract, to secure payment of costs of service disruptions to Obligee's bus and/or light rail system as a result of work under said Contract.

NOW, THEREFORE, if said Principal, or its heirs, executors, administrators, representatives, successors, assigns, or subcontractors cause disruption to the revenue operations of Obligee's light rail system, the aforesaid Surety will pay Obligee the sum of \$2,500 per hour for every hour of disruption or portion thereof, unless such disruption is solely caused by Obligee; however, in no event will the amount owed by said Surety exceed the amount of this bond.

Said Surety, for value received, hereby stipulates and agrees that, in accordance with the terms of the Contract, no change, extension of time, alteration or addition to the terms of the Contract, or to the work to be performed there-under, or to the specifications accompanying the same will in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract or to the work or to the specifications.

In the event that an action is brought to enforce this bond or for a declaration of the rights and duties of the parties pursuant to this bond, the prevailing party in any such action will recover its costs and attorney fees from the other party.

IN WITNESS WHEREOF, the above bound parties have executed this instrument under their seals the _____ day of _____, 201_ the name and corporate seal of each corporate party being affixed thereto, and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

(Seal)

PRINCIPAL
By _____

(Seal)

SURETY

Bond No. _____

By _____



Sacramento Regional Transit District
 P.O. Box 2110
 Sacramento, CA 95812-2110

APPLICATION FOR PERMIT

Permit Number: _____

APPLICANT: _____ Date: _____

ADDRESS: _____

_____ Phone: (____) _____

Person familiar with details of application: Name: _____ Phone: (____) _____

APPLICATION IS HEREBY MADE FOR THE PERMIT TO PERFORM THE FOLLOWING:

1. Applicant's work order or job number: _____

2. Location of work: Name of Road _____ Between _____

3. Describe completely work to be done: _____

4. Submit Plans to Scale (3 copies) showing plan view and cross-section, indicating clearly location of work with respect to centerline of track, face of curb, edge of pavement or property line. Show clearance and type and size of facilities proposed.

5. Estimated state date: _____ Completion date: _____

6. Applicant's Inspector, Contractor, Foreman or Supervisor as appropriate:

Name: _____ Company: _____ Phone: (____) _____

Note: General Conditions on reverses side and "Special Provisions" below are a part of this Permit. By starting work applicant accepts all General Conditions and Special Provisions. Call RT Metro Wayside Maintenance Superintendent (556-0461) 24 hours prior to starting work to notify RT and request inspection.

Company: _____

Title: _____

Signed: _____ Date: _____

REVIEW (RT USE ONLY)

Engineering Services Division

Wayside Maintenance

Safety OTS Training

Permit Expires: _____

Permit Fee: \$ _____

JPA Fee: \$ _____

SPECIAL PROVISIONS (RT USE ONLY)

Approved By: _____ Date: _____

Caltrans Maintenance Program 2013 Pavement Condition Survey Inventory Caltrans Drive Order

District 3, SAC, Rte 160, PM 44.46 - 47

District 3 County SAC Route 160

Begin PM - End PM	Lane	Surface Type	Length			LaneMi. (Est.)	Type	AADT (,000)			MSL	Faulting	Patching		Ride, IRI	Priority	Skid	Defect	
			Alligator Cracking					Rutting, Bleeding	Slab Cracking				Area %	Poor Cond.?					
			A %	B %	C (Y/N)?				1st %	3rd %									Corner %
R 44.456 - R 44.473			0.017			0.119	MLD	53		2									
	L1	F -DG	0	0									66	329	6			RIDE	
	L2	F -DG	0	0									41	229	6			RIDE	
	R1	B											38	207	0			N/A - Bridge	
	R2	B											38	208	0			N/A - Bridge	
	R3	B											N/A	0				N/A - Bridge	
R 44.473 - R 44.581			0.108			0.756	MLD	53		2									
	L1	B											57	259	0			N/A - Bridge	
	L2	B											38	208	0			N/A - Bridge	
	R1	B											39	210	0			N/A - Bridge	
	R2	B											41	216	0			N/A - Bridge	
	R3	B											N/A	0				N/A - Bridge	
R 44.581 - R 44.588			0.007			0.049	MLD	53		2									
	L1	B											N/A	0				N/A - Bridge	
	L2	B											N/A	0				N/A - Bridge	
	R3	R					0	0	0				N/A	33				UNSEALED CRACKS OR	
R 44.588 - R 44.590			0.002			0.014	MLD	53		2									
	L1	B											N/A	0				N/A - Bridge	
	L2	B											N/A	0				N/A - Bridge	
	R3	R					9	0	2				N/A	32				SLAB CRACKING	
R 44.590 - R 44.653			0.063			0.441	MLD	53		2									
	L1	F -DG	0	0									46	249	6			RIDE	
	L2	F -DG	0	0									60	304	6			RIDE	
	R3	R					9	0	2				N/A	32				SLAB CRACKING	
R 44.653 - R 44.711			0.058			0.348	MLD	44		2									
	L1	B											19	158	0			N/A - Bridge	
	L2	B											17	152	0			N/A - Bridge	
	R1	R											55	252	6			RIDE	
	R2	R											53	248	6			RIDE	
	R3	R					9	0	2				N/A	32				SLAB CRACKING	

*Surface type of 'EB' is Enhanced Binder.

Caltrans Maintenance Program 2013 Pavement Condition Survey Inventory Caltrans Drive Order District 3, SAC, Rte 160, PM 44.46 - 47

District 3 County SAC Route 160

Begin PM - End PM	Lane	Surface Type	Length			LaneMi. (Est.)	Type	AADT (,000)			MSL	Faulting	Patching		Ride, IRI	Priority	Skid	Defect	
			Alligator Cracking					Rutting, Bleeding	Slab Cracking				Area %	Poor Cond.?					
			A %	B %	C (Y/N)?				1st %	3rd %									Corner %
R 44.711 - R 44.927			0.216		1.296	MLD	44		2										
L1	B												46	228	0			N/A - Bridge	
L2	B												32	192	0			N/A - Bridge	
R1	B												37	206	0			N/A - Bridge	
R2	B												44	225	0			N/A - Bridge	
R3	B													N/A	0			N/A - Bridge	
R 44.927 - R 44.934			0.007		0.042	MLD	44		2										
L2	B													N/A	0			N/A - Bridge	
R3	R						9	0	2					N/A	32			SLAB CRACKING	
R 44.934 - R 44.936			0.002		0.012	MLD	44		2										
L2	B													N/A	0			N/A - Bridge	
R2	R						4	1	1					N/A	31			SLAB CRACKING	
R 44.936 - R 45.023			0.087		0.522	MLD	44		2										
L1	R												33	196	6			RIDE	
L2	R						5	0	0		Faulting		33	195	4			FAULTING, RIDE	
R1	R												21	163	98			GOOD CONDITION	
R2	R						4	1	1				23	169	31			SLAB CRACKING	
R 45.023 - R 45.080			0.057		0.228	MLD	36		2										
L2	B													N/A	0			N/A - Bridge	
R1	R												22	166	98			GOOD CONDITION	
R2	R						4	1	1				10	136	31			SLAB CRACKING	
R 45.080 - R 45.139			0.059		0.236	MLD	36		2										
L1	R												17	152	98			GOOD CONDITION	
L2	R						5	0	0		Faulting		27	180	4			FAULTING, RIDE	
R2	R						4	1	1					N/A	31			SLAB CRACKING	
45.146 - 45.941			0.795		3.180	MLD	36		2										
L1	R												10	134	98			GOOD CONDITION	
L2	R						5	0	0		Faulting		8	129	10			FAULTING	
R1	R												9	132	98			GOOD CONDITION	
R2	R						4	1	1				13	142	31			SLAB CRACKING	

*Surface type of 'EB' is Enhanced Binder.

Caltrans Maintenance Program 2013 Pavement Condition Survey Inventory Caltrans Drive Order

District 3, SAC, Rte 160, PM 44.46 - 47

District 3 County SAC Route 160

Begin PM - End PM		Length	LaneMi. (Est.)	Type	AADT (,000)			MSL	Ride, IRI		Priority	Skid	Defect		
Lane	Surface Type	Alligator Cracking			Rutting, Bleeding	Slab Cracking			Faulting	Patching		Ride, IRI	Priority	Skid	Defect
		A %	B %	C (Y/N)?		1st %	3rd %	Corner %		Area %	Poor Cond.?				
45.941	-	46.000	0.059	0.236	MLD	36	2								
L2	R				5	0	0				N/A	33			UNSEALED CRACKS OR
R2	R				5	0	0				N/A	33			UNSEALED CRACKS OR
46.000	-	46.253	0.253	1.012	MLD	36	2								
L1	R									17	154	98			GOOD CONDITION
L2	R				12	1	0	Faulting		24	172	4			FAULTING, RIDE
R1	R									23	169	98			GOOD CONDITION
R2	R				5	0	0			15	147	33			UNSEALED CRACKS OR
46.253	-	46.581	0.328	1.312	MLD	34	2								
L1	R									9	132	98			GOOD CONDITION
L2	R				6	1	0	Faulting		16	151	10			FAULTING
R1	R									26	176	6			RIDE
R2	R				5	0	0	Faulting		13	143	10			FAULTING
46.581	-	46.610	0.029	0.116	MLD	34	2								
L2	R				6	1	0				N/A	33			UNSEALED CRACKS OR
R1	R									5	106	98			GOOD CONDITION
R2	R				5	0	0			5	105	33			UNSEALED CRACKS OR
46.610	-	46.913	0.303	1.212	MLD	34	2								
L1	R									18	155	98			GOOD CONDITION
L2	R				6	1	0			17	153	33			UNSEALED CRACKS OR
R1	F-DG	0	0							10	108	99			NO DISTRESS OBSERVED
R2	F-DG	0	0							10	107	98			GOOD CONDITION
46.913	-	47.011	0.098	0.392	MLD	34	2								
L1	F-DG	0	0								N/A	98			GOOD CONDITION
L2	F-DG	0	0								N/A	98			GOOD CONDITION
R1	F-DG	0	0							32	191	6			RIDE
R2	F-DG	0	0							7	96	98			GOOD CONDITION

*Surface type of 'EB' is Enhanced Binder.

Water Availability, 03-OH11U4

(Excerpts from communication efforts regarding water availability)

City of Sacramento:

The City of Sacramento, Department of Utilities has a fire hydrant use program for temporary construction water. The program uses two types of permits, one for water transport vehicles loading from multiple hydrants, and the other is for a site specific connection. In both cases we require the customer pay a deposit for our water meter/backflow and inspection/installation fee as needed. To start the process contact our customer service office @ 1395 35th Ave., 916-808-5454. The City of Sacramento has no non-potable water available for use.

City of Lincoln:

The City of Lincoln will be able to supply reclaimed water in the quantity identified for Project 03-OH11U. Ray Leftwich, P.E. City Engineer, City of Lincoln, Office (916) 434-2457, Ray.Leftwich@Lincolnca.gov

Sacramento Regional County Sanitation District (Regional San):

Wastewater Source Control Section, Sacramento Regional County Sanitation District (Regional San), 10060 Goethe Road, Sacramento, CA 95827, (916) 875-6454 office

Regional San Recycled Water Fill Station is currently closed but expected to open in May 2016. To access recycled water, the Recycled Water Application Package for Commercial use is attached. Please read application package and complete and return required documents. The application process is generalized as follows:

You scan and email the required documents to rwwfillstations@sacsewer.com or fax to 916-854-9286. Once we have a 2016 opening date and we have received required documents from you, we will schedule your training session and email you a map and a Temporary Gate Pass to bring to the training.

- One per business/agency:
 - Completed Commercial Recycled Water Use Permit Application and Agreement
 - Disclaimer and Release of Liability
- One for each person picking up recycled water:
 - Guidelines for Worker Protection
 - Recycled Water Use Requirements
- Copy of vehicle registration for all vehicles picking up recycled water
- Copy of liability insurance
- Copy of workers' compensation insurance

.....Thank you for your interest in the Regional San Recycled Water Fill Station!

D03-OE, JG

Recycled Water Commercial User Permit Application

Recycled Water Fill Station Project
2015



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Rules Governing the Use of Recycled Water

1. Permit to Use Recycled Water

- a) Prospective recycled water user must submit a Recycled Water Use Permit Application and Agreement (RW Use Permit Application).
- b) Following acceptance of the RW Permit Application, the user will be issued a Recycled Water Permit (RW Wallet Card) to be scanned every time recycled water is collected.
- c) Failure to comply with the program requirements and/or adhere to applicable State, County, local codes, or California Code of Regulations Title 17 and 22 will result in suspension or revocation of your RW Permit. Violations of such codes may also result in fines and applicable administrative fees.

2. Use of Recycled Water

- a) The proposed use of recycled water shall be overseen and verified by Regional San as the producer, and the California Division of Drinking Water (CDDW) and the California Regional Water Quality Control Board (Regional Board) as the regulatory and enforcement agencies.
- b) Recycled water shall meet the requirements of disinfected tertiary recycled water as defined in the Water Recycling Criteria in the California Code of Regulations Title 22.
- c) The use of recycled water must comply with all requirements of applicable federal, state, and local statutes, ordinary regulations, and other requirements, including the California Code of Regulations Title 17 and Title 22.
- d) Although recycled water is highly treated, it is non-potable. Recycled water is never to be used for human consumption.
- e) Neither the treatment nor the use of recycled water shall cause pollution or nuisance as defined by the California Code Section 13050.
- f) The use of recycled water shall not cause degradation of any potable water supply.
- g) Working with recycled water is safe if both common sense and the appropriate regulations are followed. Personnel shall exercise good hygiene when working around recycled water, e.g., wash hands before eating or drinking.
- h) Recycled water shall be managed so as to prevent ponding and conditions conducive to the proliferation of mosquitoes and other disease vectors, and to avoid creation of a public nuisance or health hazard.

- i) The quantity of recycled water used shall be controlled to avoid over-application.
- j) Recycled water users shall document the amount of recycled water volumes received by providing the on-site RW Fill Station attendant with volumes filled for residential users and recording the volume collected on the self-monitor log for commercial users.

3. User Protection

- a) Contact with recycled water shall be minimized by warning the user not to drink recycled water and to avoid contact in the mandatory training prior to obtaining recycled water.
- b) Commercial recycled water use areas shall have one or more signs visibly posted to inform the user that recycled water is used at that location. Refer to Item 5.a regarding more information on signage requirements.
- c) Workers shall be notified that recycled water is in use. Notification shall be accomplished through employee training, safety meetings, and perimeter signs at the use site.
- d) Workers shall be informed of the potential health hazards involved with contact or ingestion of recycled water. Information may be forwarded through safety meetings, formal training sessions, handouts, site visits from safety and health professionals or risk managers from workers' compensation and liability insurance carriers.
- e) Hand washing facilities shall be provided and adequate first aid kits shall be available at the site.
- f) Open wounds shall be covered when using recycled water. If contact occurs between the open wound and recycled water, wash wound immediately with potable water and antiseptic wash.
- g) All workers who will regularly access the site where recycled water is applied and/or who will be obtaining recycled water shall verify that they have been properly trained in the use of recycled water by signing the Recycled Water Use Requirements and Guidelines for Worker Protection provided with the RW Permit Application.

4. Designated Staff Member

- a) Regional San will provide training materials to its designated staff member, who will be the primary means for ensuring safe use of recycled water. The following are the responsibilities of the designated staff member:
 - i. Ensure the use of recycled water is in compliance with the requirements of this document, the RW Use Permit Application and Agreement, and the Water Recycling Criteria in the California Code of Regulations Title 22.

- ii. Ensure users attend a safety training prior to the issuing of the RW Wallet Card and the handling of recycled water.
- iii. Collect contact information of users and the volumes of recycled water obtained.
- iv. Report failures and violations.
- v. Monitoring usage and application of recycled water.

5. Use Area

- a) All public areas where recycled water is available must have posted signs that are visible to the public.
 - i. Signs shall measure no less than 8 inches high and 4 inches wide and shall include the following wording: "RECYCLED WATER- DO NOT DRINK."
 - ii. Each sign shall display an international symbol similar to that shown in example **Figure 1** (see below).



Figure 1: International Do Not Drink Symbol

- iii. Alternative signage and wording may be submitted for approval. The alternative signage must provide an equivalent degree of public notification.
 - iv. The signs must be posted at every 500 feet with a minimum of signs at all entrances, corners of the parcel, and access road entrances.
- b) Confine recycled water to the authorized area. Take precaution to ensure that recycled water is not sprayed on any facility or area not designated for recycled water use.
- c) Do not apply recycled water within 50 feet of any domestic water supply well.
- d) Prevent spray, mist, or runoff from enter dwellings, designated outdoor eating areas, or food handling facilities.
- e) Protect drinking water fountains, containers, or other facilities against recycled water spray, mist, or runoff.
- f) Confine runoff to the recycled water use area.

- g) Apply recycled water in a manner that will prevent public or employee contact with the water.

6. Transport of Recycled Water for Residential Users

- a) Residential users will provide their own containers with water tight lids. The size requirements are as follows:
 - i. 1 gallon minimum
 - ii. 300 gallons maximum
- b) Containers must have water-tight valves and fittings that will not leak or spill contents during transport. Water-containing vessels that are open to the atmosphere during hauling are prohibited. Users shall check water-containing vessels for damages or leaks before each use.
- c) All containers carrying recycled water are required to be properly labeled with the international “Do Not Drink” symbol on a purple sticker. The first set of stickers will be provided at no charge. A fee may be charged for misplaced or lost stickers.
- d) Containers should not be used to carry potable water unless thoroughly cleaned and disinfected.
- e) Do not overfill containers.
- f) Regional San is not responsible for checking vehicle hauling capacity. Users should secure their containers for safe transport.

7. Transport of Recycled Water for Commercial Users

- a) Only permitted trucks may be filled with recycled water at the RW Fill Station. Depending on the location of the fill station, the user may be issued either a hydrant meter access key, a gate padlock key, or a special key for below grade vault boxes following the completion of the off-site training and issuance of the permit. A fee may be charged for misplaced or lost keys.
- b) Users must show proof of vehicle registration, liability insurance, and worker’s compensation insurance. Copies must be attached to the permit application for each vehicle.
- c) Users shall monitor the filling operation at all times. Do not overfill containers or trucks.
 - i. For hydrant meter fill station, shut off the meter before disconnecting the fill line and ensure no recycled water is leaking from the meter or hydrant.
 - ii. For gate access fill station and below grade vault box, ensure no recycled water is leaking from the fill pipe or hose and re-lock the station after filling.
- d) Commercial trucks such as tank trucks and water trucks and their associated pipe and hoses shall be thoroughly cleaned of septage or other contaminants.

- e) Recycled water shall be used only for the purposes designated in the permit, and water shall be transported in a manner that prevents spillage. Vehicles, tanks, and containers must have water-tight valves and fittings that will not leak or spill contents during transport, and are cleaned of contaminants. Water-containing vessels that are open to the atmosphere during hauling are prohibited. Users shall check water-containing vessels for damages or leaks before each use.
- f) Users shall be trained regarding the requirements of the RW Use Permit and be informed of the potential health hazards associated with recycled water prior to using recycled water.
- g) Commercial trucks such as tank trucks and water trucks and their associated pipes and hoses used for storage or conveyance of recycled water shall be dedicated solely to that use.
 - i. All pipes or hoses extending from the point of connection shall be identified for use with recycled water.
 - ii. Hoses used for the application of recycled water shall be removable and stored in a disconnected condition during transport. Inspect hoses prior to filling to ensure they are in serviceable condition and free from leaks.
- h) Commercial trucks used to transport recycled water must be clearly marked with Regional San issued magnets or stickers containing the words "RECYCLED WATER- DO NOT DRINK" and the international "DO NOT DRINK" symbol.
 - i. Magnets or stickers should be affixed to at least three areas of the vehicle (both sides of the vehicle and on the rear surface of the tank).
 - ii. All magnets and stickers must be placed where they can easily be seen by the truck's occupants.
 - iii. The first set of stickers/magnets will be provided at no charge. A fee may be charged for misplaced or lost stickers/magnets.
- i) Commercial trucks such as tank trucks and water trucks shall be cleaned and disinfected prior to connecting with a potable water system. Use a water agency or municipality provided meter and backflow device between the truck fill line and the potable source.
- j) Cross connections to dual plumbed systems are prohibited.

8. Piping

- a) All recycled water equipment should be differentiated from potable and/or wastewater equipment. The recycled water equipment should be properly labeled and consistently color-coded purple (Pantone 512). This includes, but is not limited to equipment, pipes, meters, meter boxes and/or covers, valve boxes and covers, air evacuation and vacuum release valve and blow-off assembly covers, irrigation

- heads, recycled water signage and labeling, backflow prevention assemblies on recycled water systems, pumps and fittings, and outlets.
- b) All pipe material used for the distribution of recycled water shall be purple. For PVC pipe, this requirement is met through the use of commercially available purple pipe. For other types of piping, and for valves and other appurtenances, this requirement shall be met using purple paint or purple adhesive tape wrap. The tape wrap must be labeled with the words "Recycled Water - Do Not Drink."
 - c) All recycled water valve lids shall be colored purple and marked "Recycled Water" or "Recycled" in the center of the lid.
 - d) All marking tape for recycled water facilities and adhesive tape for wrapping piping shall be purple, with black lettering stating "Recycled Water- Do Not Drink."
 - e) Service pipes and connections should be kept and maintained in good working condition.
 - f) No connection shall be made between the potable water supply and piping or tank trucks containing recycled water.
 - g) All recycled water valves, outlets, quick couplers, and sprinkler heads shall be secured in a manner that only permits operation by authorized personnel.

9. Inspections

- a) Recycled water systems shall be regularly inspected to assure proper operation, absence of leaks, and absence of illegal connections.
- b) Regional San or a designated staff member may conduct inspections to ensure the proper use of recycled water according to all the Title 17 and Title 22 regulations and the Recycled Water Use Permit conditions, including follow-up phone calls or surveys.
- c) The following items must be checked during the inspections:
 - i. Posted signs regarding the use of recycled water at all required places in the use area.
 - ii. Required signs on the tank trucks.
 - iii. Prevention of runoff/ponding.
 - iv. Controlled spray/mist of recycled water.
 - v. Protected drinking water.
 - vi. Prevention of cross-connections.
 - vii. Hose bibs.
 - viii. Proper color coding of recycled water equipment.
 - ix. Presence of hand washing facilities and first aid kits.



Recycled Water Use Requirements

Recycled Water Quality

Regional San's tertiary-treated recycled water is highly purified wastewater that has undergone additional filtration and disinfection to make it safe for non-potable uses such as landscape, park, and agriculture irrigation and commercial use. The recycled water meets the rigorous and protective standards set by the State of California and qualifies for a variety of allowable uses in the region.

General Program Information

Recycled water is anticipated to be available May through October at the Recycled Water Fill Station Pilot Project located at the Sacramento Regional Wastewater Treatment Plant in Elk Grove (8521 Laguna Station Road). Fill station days and hours of operation are recorded at (916) 876-FILL.

Recycled water users must register for and receive training prior to fill station use.

Program Requirements

1. Live in and apply recycled water in Regional San service area.
2. Request a training appointment via [website](#) or email rfillstations@sacsewer.com. You can also leave a message on the project's 24-hour hotline (916) 876-FILL.
3. Complete all required documents and return to rfillstations@sacsewer.com or fax to (916) 854-9286.
4. Bring your Temporary Gate Pass when checking in for training. This pass will allow you access to the wastewater treatment plant.
5. Complete safety training.
6. Obtain Recycled Water Fill Station Permit card after training. Present the permit card to the attendant at each visit.

Fill Station Requirements

- All collection and storage containers shall have the "Recycled Water-Do Not Drink" sticker attached.
- Do not block any turnaround areas, driveways, or roads while waiting or filling.
- Turn off your car engine while filling containers.
- Do not smoke while filling up containers.
- In the event an emergency alarm sounds, follow Regional San staff directions.
- Do not leave any trash or debris in the fill station area.
- In the event of any spills or leaks, notify fill station attendant immediately.

- There will be construction vehicles working on plant improvements at the wastewater treatment plant. Drive cautiously and follow traffic signs.
- Follow all instructions given by the attendant or treatment plant staff.

Recycled Water Use Requirements

- **Do not drink** recycled water or use it for food preparation.
- Apply hand sanitizer or wash your hands with soap and potable water after coming in contact with recycled water.
- Do not allow recycled water to contact passing vehicles, buildings, areas where food is handled or eaten, or storm drains.
- Do not use recycled water to clean areas where food will be cooked or consumed (e.g., picnic tables, barbecues).
- Keep a first aid kit in your vehicle. Promptly wash, disinfect, and bandage cuts and abrasions.
- Do not spray recycled water on drinking water fountains.
- Do not allow recycled water to overspray, pond within, or run off from the permitted use area.
- Do not use recycled water within 50 feet of any domestic (drinking water) well.
- Do not use your recycled water storage container to carry potable water.

Regional San may revoke your permit if you violate any of the requirements listed.

I certify that I have read, understand, and agree to abide by the requirements above.

Print Name _____

Signature _____ Date _____

Company Name _____
If applicable

Email this form to rwfillstations@sacsewer.com or fax to (916) 854-9286.

**EXPLANATION OF COMMERCIAL RECYCLED WATER USE PERMIT
APPLICATION AND AGREEMENT**

Effective Date of Permit and Expiration Date

Leave blank. To be filled out by Regional San employee.

Company Name, Address

List the name and address of the company that owns the trucks picking up recycled water and that will be applying the recycled water.

Designated Staff Member Name, Phone, Email

List the name and contact info for the person who is designated to oversee pickup and application of recycled water.

Vehicle(s)

List the license plate numbers for any vehicles picking up recycled water.

Driver(s)

List first and last names of all drivers that may be picking up recycled water. All drivers will must be trained by Regional San staff. Coordinate with the Regional San staff at rfillstations@sacsewer.com or (916) 876-FILL to schedule training and first-time water pick-up.

Method of Water Distribution

Leave blank; this will be filled out by Regional San staff.

Application Method and Use of Recycled Water

Check all that apply.

Volume of Recycled Water

This is the estimate, in gallons, of the amount of recycled water to be used per day on the property.

Signage Required

Leave blank; this will be filled out by Regional San staff.

Location(s) Where Will Recycled Water be Applied

Provide Address, City, and County in which the recycled water will be used. Include the expected date you plan to start using the recycled water.

Signature of Producer/Distributor

Leave Blank; this will be filled out by Regional San staff.

Signature of User

Signature of person who is designated to oversee pickup and application of recycled water.



Commercial Recycled Water Use Permit Application and Agreement

This Use Permit must be available for inspection at all times. The recycled water User/User's Agent must carry a copy in the tanker truck at all times and present it to the Producer/Distributor for water pickups. Permit is subject to Master Reclamation Permit Order 97-146.

PRODUCER/ Sacramento Regional County Sanitation District
DISTRIBUTOR: 8521 Laguna Station Road, Elk Grove, CA 95758
(916) 876-FILL

(Office Use Only) EFFECTIVE DATE OF PERMIT _____ EXPIRATION DATE _____

USER INFORMATION

COMPANY NAME _____
COMPANY ADDRESS _____
DESIGNATED STAFF MEMBER NAME _____ PHONE _____
EMAIL _____
VEHICLE(S) _____
DRIVER(S) _____

A Commercial Log Sheet must be filled out at the time of each recycled water pickup, and retained at the site and on the user's vehicle. Users shall adhere to the attached Guidelines for Worker Protection.

Users must show proof of vehicle registration, liability insurance, and worker's compensation insurance. Copies must be attached to the permit application for each vehicle.

RECYCLED WATER USE INFORMATION

NOT TO BE USED FOR STORM DRAIN FLUSHING

VOLUME OF RECYCLED WATER ESTIMATED: _____ GALLONS PER DAY

(Office Use Only) METHOD OF WATER PICKUP: { } FILL STATION AT WASTEWATER TREATMENT PLANT
{ } OTHER: _____

APPLICATION METHOD: { } TANK TRUCK { } SPRAY { } WASH WATER { } OTHER: _____

USE OF THE WATER: { } COMPACTION { } DUST CONTROL { } IRRIGATION { } SEWER FLUSHING
{ } STREET CLEANING { } MOBILE PRESSURE WASHING { } OTHER: _____

(Office Use Only) SIGNAGE REQUIRED: { } TRUCK { } PROJECT SITE COMMENTS: _____

LOCATION(S) WHERE RECYCLED WATER WILL BE APPLIED:

COUNTY: _____ CITY: _____ ADDRESS: _____ START DATE: _____

COUNTY: _____ CITY: _____ ADDRESS: _____ START DATE: _____

COUNTY: _____ CITY: _____ ADDRESS: _____ START DATE: _____

CERTIFICATION

I HEREBY CERTIFY UNDER PENALTY OF PERJURY THAT THE INFORMATION PROVIDED IN THIS APPLICATION AND IN ANY ATTACHMENT IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE. I ALSO CERTIFY THAT I HAVE READ AND AGREE TO ABIDE BY ALL APPLICABLE RULES AND GUIDELINES. MAKING UNAUTHORIZED CONNECTIONS IS PROHIBITED AND PENALIZEABLE. I ALSO AGREE TO WAIVE REGIONAL SAN FROM ANY LIABILITY WHICH MAY OCCUR FROM THE FILL, TRANSPORT, AND USE OF RECYCLED WATER. I AFFIRM THAT RECYCLED WATER WILL BE USED WITHIN THE REGIONAL SAN SERVICE AREA. I FURTHER UNDERSTAND THAT FAILURE TO COMPLY WITH THE CONDITIONS OF THIS AGREEMENT MAY LEAD REGIONAL SAN TO REVOKE MY PERMIT TO USE RECYCLED WATER.

SIGNATURE OF PRODUCER/DISTRIBUTOR _____ PRINT _____ TITLE _____ DATE _____

SIGNATURE OF USER _____ PRINT _____ TITLE _____ DATE _____



REGIONAL SAN RECYCLED WATER FILL STATION PROJECT

DISCLAIMER AND RELEASE OF LIABILITY

By checking this box, user acknowledges that Regional San has made no expressed or implied representation, warranty, or promise to user concerning the condition of the recycled water. User agrees to relieve Regional San from any and all liability and damage arising out of the filling, transport, and ultimate use of recycled water.

Signature _____

Date _____

Printed Name _____

Title _____

Business Name _____

Email this form to rwwillstations@sacsewer.com or fax to (916) 854-9286.

GUIDELINES FOR WORKER PROTECTION
(State of California Department of Health Services Guidelines)

- A. Workers should be informed that although recycled water has been treated to lower health risks, bacterial and viral contamination is still present and potentially may cause illness or infection. Contact with recycled water by ingestion, inhalation of mist, or on cuts or abrasions should be avoided, and the precautionary measures listed below should be carefully reviewed and followed.
- B. Precautionary measures should be taken to minimize worker contact with constituents of recycled water.
 - 1. Workers should not be subjected to recycled water sprays, mists, or aerosols.
 - 2. Workers should be protected with protective clothing when there will be more than casual contact with the recycled water.
- C. Safe drinking water should be supplied for workers. Where bottled water is provided, the water should be in contamination-proof containers and protected from recycled water and dust.
- D. Hand washing facilities should be provided consisting of potable water supply, hand washing soap, and single use sanitary paper towels. The importance of hand washing should be stressed when working with recycled water, especially before eating or smoking.
- E. Workers should not apply recycled water by hand held nozzles or other hand held devices that can produce sprays, mists, or aerosols.
- F. Precautions should be taken to avoid contamination of food taken into recycled water use areas. Food should not be taken into areas still wet with recycled water.
- G. Workers should be notified that recycled water is in use. Notification should include the posting of conspicuous warning signs with proper wording of sufficient size to be clearly read. In those locations where English is not the primary language of the workers, the signs should be in the appropriate language as well as in English.
- H. An adequate first aid kit should be available on location. Cuts or abrasions should be promptly washed, disinfected, and bandaged.
- I. Public contact with recycled water shall be avoided, to the extent practical, under the normal use at the recycled water site.
- J. In all areas where recycled water is used that are accessible to the public, warning signs shall be installed at adequate intervals around the use area as required by the Rules Governing the Use of Recycled Water (RW Rules).
- K. Recycled water shall not be applied where it could contact walkways, passing vehicles, buildings, drinking water facilities, storm drains, or enter areas where food is handled or eaten.
- L. Adequate measures shall be taken to prevent ponding, and to prevent run off of recycled water from the authorized recycled water use area unless it is specifically allowed by the Regional Water Quality Control Board or an attachment to this Permit.
- M. Spray of recycled water shall not be allowed to contact an external drinking water fountain.
- N. There shall be no irrigation or impoundment of recycled water within a minimum of 50 feet of any water well.
- O. Distributor's vehicles used for transportation and distribution of recycled water must have water tight valves and fittings, and must not leak, and tanks must be cleaned of contaminants prior to use. A truck or tank that has contained material from a septic tank or cesspool shall not be used to convey recycled water.
- P. Distributor's vehicles that convey recycled water shall be clearly labeled in a prominent location with language stating in English "Recycled Water - Do Not Drink."
- Q. Recycled water shall not be put into piping or a storage facility without specific written authorization from Regional San.

I HAVE READ AND UNDERSTOOD THESE GUIDELINES.

SIGNATURE OF USER _____ PRINT _____ TITLE _____ DATE _____

Email this form to rfillstations@sacsewer.com or fax to (916) 854-9286.



Recycled Water Frequently Asked Questions

Q. Is tertiary-treated recycled water safe?

YES! Regional San's tertiary-treated recycled water is safe for a variety of intended uses. However, this recycled water is not intended for drinking or for food preparation.

The California Division of Drinking Water has established uniform statewide recycled water standards in the California Code of Regulations (Title 22, Division 4, Chapter 3).

Regional San's tertiary-treated recycled water meets and exceeds the Title 22 standards.

Q. How do I know it's safe?

Regional San tests the recycled water daily to ensure that it has been adequately disinfected.

If a batch of recycled water does not meet regulatory standards, a trained plant operator sends it through the treatment process again until the standards are met.

Q. What's the safety record for recycled water?

Excellent! California adopted water reuse regulations in 1918 and continually monitors and improves recycled water standards and requirements, with the most recent standards for non-potable reuse being adopted in 2000.

Since the first municipal use of recycled water in 1912, there have been no documented diseases, illnesses, or other adverse public health problems traced to the proper and allowed uses of recycled water that meets regulatory requirements.

Recycled water is monitored and tested to ensure that its quality is appropriate and safe for specific permitted uses. Similarly, other states and countries with water recycling regulations as protective as California's have experienced no adverse health effects from proper use of disinfected tertiary-treated recycled water, including Florida, Japan, Australia, and several European countries.

Q. What happens if recycled water splashes on me?

There have been no reported instances of skin rashes resulting from individuals coming in contact with recycled water. However, if you do come in contact with recycled water, apply hand sanitizer or wash hands with soap and potable (drinking) water.

Q. What if recycled water comes into contact with a cut or abrasion on my skin?

As a precaution, clean the affected area with soap and potable water or an antiseptic towelette, apply an antibiotic ointment, and cover with a bandage.

Q. What if I get recycled water in my eyes?

If you get recycled water in your eyes, rinse your eyes with potable water or use eye drops. Recycled water is highly disinfected, so the chlorine may cause a mild burning sensation, just as if you opened your eyes while under water in a swimming pool.

Q. Will I need to use a special set of tools or equipment when I'm using recycled water?

- All equipment (hoses, spray nozzles, containers, etc.) that comes in contact with recycled water must be dedicated for use only with recycled water.
- Containers must be labeled with the "Recycled Water – Do Not Drink" sticker provided by Regional San.
- Equipment must be disinfected with bleach and potable water prior to re-connecting to a potable water system.

Q. Who should I contact with any additional questions or concerns?

Please contact Regional San at (916) 876-FILL or via email at rfillstations@sacsewer.com.

AERIALLY DEPOSITED LEAD REPORT

State Route 160 (03-SAC-160)
Post Mile R43.3 to 47.0
Sacramento, California

PREPARED FOR:

**CALIFORNIA DEPARTMENT OF TRANSPORTATION – DISTRICT 3
703 B STREET
MARYSVILLE, CALIFORNIA 95901**



PREPARED BY:

**GEOCON CONSULTANTS, INC.
3160 GOLD VALLEY DRIVE, SUITE 800
RANCHO CORDOVA, CALIFORNIA 95742**



**GEOCON PROJECT NO. S9805-01-64
TASK ORDER NO. 64
E-FIS 03-1500-0077-0 (EA 03-0H1100)
CONTRACT NO. 03A2132**

JANUARY 2016



Project No. S9805-01-64
January 11, 2016

Ms. Alicia Beyer
California Department of Transportation - District 3
Environmental Engineering Office
703 B Street
Marysville, California 95901

Subject: AERIALY DEPOSITED LEAD SITE INVESTIGATION REPORT
STATE ROUTE 160 (03-SAC-160) POST MILE R43.3 TO 47.0
SACRAMENTO, CALIFORNIA
CONTRACT NO. 03A2132, TASK ORDER NO. 64
EA 03-0H1100, E-FIS: 0315000077-0

Dear Ms. Beyer:

In accordance with California Department of Transportation (Caltrans) Contract No. 03A2132, Task Order No. 64, and Expense Authorization 03-0H1100, we have performed environmental engineering services at the project site. The Site consists of shoulder areas of State Route 160 from the State Route 51 overcrossing to just west of the Northgate Boulevard undercrossing (Post Mile R43.3 to 47.0) in Sacramento, California. The accompanying report summarizes the services performed including the excavation of eleven direct-push borings and nine hand-auger borings for the collection of soil samples for aerially deposited lead analysis.

The contents of this report reflect the views of the author, who is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

Please contact us if you have any questions concerning the contents of this report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

Gemma G. Reblando
Project Geologist

John E. Juhrend, PE, CEG
Senior Engineer



(3 + 2 CD) Addressee

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AERIALLY DEPOSITED LEAD SITE INVESTIGATION REPORT

1.0 INTRODUCTION

This Aerially Deposited Lead (ADL) Site Investigation Report for State Route 160 (SR-160) Post Mile (PM) R43.3 to 47.0 was prepared under California Department of Transportation (Caltrans) Contract No. 03A2132, Task Order (TO) No. 64, and Expense Authorization (EA) 03-0H1100.

1.1 Project Description and Proposed Improvements

The project locations consist of Caltrans right-of-way (ROW) at three unpaved shoulder areas along SR-160 from the State Route 51 (SR-51) overcrossing to just west of the Northgate Boulevard undercrossing (the Site) (PM R43.3 to 47.0) in Sacramento, California. Caltrans proposes to upgrade the existing pavement and roadway. The approximate project locations are depicted on the attached Vicinity Map, Figure 1, and Site Plans, Figures 2-1 through 2-3.

1.2 General Objectives

Construction of planned roadway improvements along SR-160 will require the disturbance of soil at the project locations and will generate excess soil. The purpose of the scope of services outlined in TO No. 64 was to evaluate soil at the project locations for potential impacts due to ADL from motor vehicle exhaust in the surface and near-surface soils within the project boundaries. The investigative results will be used by Caltrans to inform the construction contractor if ADL-impacted soil is present within the project boundaries for construction worker health and safety, and soil management and disposal purposes.

2.0 BACKGROUND

Caltrans requested this site investigation to provide data regarding the potential presence of ADL within the proposed roadway improvement areas.

2.1 Hazardous Waste Determination Criteria

Regulatory criteria to classify a waste as “California hazardous” for handling and disposal purposes are contained in the California Code of Regulations (CCR), Title 22, Division 4.5, Chapter 11, Article 3, § 66261.24. Criteria to classify a waste as “Resource, Conservation, and Recovery Act (RCRA) hazardous” are contained in Chapter 40 of the Code of Federal Regulations (40 CFR), § 261.

For waste containing metals, the waste is classified as California hazardous when: 1) the representative total metal content equals or exceeds the respective Total Threshold Limit Concentration (TTLC); or 2) the representative soluble metal content equals or exceeds the respective Soluble Threshold Limit Concentration (STLC) based on the standard Waste Extraction Test (WET). A waste may have the potential of exceeding the STLC when the waste's total metal content is greater than or equal to ten times the respective STLC value, since the WET uses a 1:10 dilution ratio. Hence, when a total metal is detected at a concentration greater than or equal to ten times the respective STLC, and assuming that 100 percent of the total metals are soluble, soluble metal analysis is required. A material is classified as RCRA hazardous, or Federal hazardous, when the representative soluble metal content equals or exceeds the Federal regulatory level based on the Toxicity Characteristic Leaching Procedure (TCLP).

The above regulatory criteria are based on chemical concentrations. Wastes may also be classified as hazardous based on other criteria such as ignitability and corrosivity; however, for the purposes of this investigation, toxicity (i.e., representative lead concentrations) is the primary factor considered for waste classification since waste generated during the construction activities would not likely warrant testing for ignitability or corrosivity. Waste that is classified as either California-hazardous or RCRA-hazardous requires management as a hazardous waste.

2.2 California Human Health Screening Levels

The California Environmental Protection Agency (Cal/EPA) has prepared technical reports entitled *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties* (Cal/EPA, January 2005) and *Revised California Human Health Screening Levels for Beryllium* (Cal/EPA, March 2009) and *Lead* (Cal/EPA, September 2009), which present CHHSLs for soil, shallow soil gas, and indoor air to assist in evaluating sites impacted by releases of hazardous chemicals.

The CHHSLs are concentrations of 54 hazardous chemicals including Title 22 metals that Cal/EPA considers to be below thresholds of concern for risks to human health. The CHHSLs were developed by the Office of Environmental Health Hazard Assessment (OEHHA) on behalf of Cal/EPA. The thresholds of concern used to develop the CHHSLs are an excess lifetime cancer risk of one in a million and a hazard quotient or 1.0 for noncancer effects. Under most circumstances, the presence of a chemical at a concentration less than its respective CHHSL can be assumed to not pose a significant risk. The presence of a chemical at a concentration greater

than a CHHSL does not indicate that adverse impacts to human health are occurring or will occur but suggests that further evaluation is warranted (Cal/EPA, January 2005).

The CHHSLs for residential and industrial/commercial land use are on Table 2.

2.3 Environmental Screening Levels

The San Francisco Bay Regional Water Quality Control Board (SFRWQCB) prepared a technical report entitled *User's Guide: Derivation and Application of Environmental Screening Levels, Interim Final 2013* (updated December 2013), which presents Environmental Screening Levels (ESLs) for over 100 commonly found contaminants in soil, groundwater, soil gas, and surface water, to assist in evaluating sites impacted by releases of hazardous chemicals. "The ESLs are considered to be protective for typical bay area sites. Under most circumstances, the presence of a chemical in soil, soil gas, or groundwater at concentrations below the corresponding ESL can be assumed to not pose a significant threat to human health, water resources, or the environment." (SFRWQCB, December 2013). ESLs are risk assessment tools and are "not intended to serve as a rule to determine if a waste is hazardous under the state or federal regulations."

Residential and commercial/industrial land use ESLs are commonly used by contractors, soil trucking companies, and private and commercial land owners as default acceptance criteria to evaluate suitability of import soil material. The following ESL tables were used for this characterization:

- Table A. Shallow Soil (≤ 3 m bgs), Groundwater is a Current or Potential Source of Drinking Water
- Table K-3. Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario

The respective ESLs are listed at the end of Table 2.

3.0 SCOPE OF SERVICES

The scope of services requested by Caltrans in TO No. 64 included the collection of soil samples for laboratory analysis to determine lead content, and the preparation of this report.

3.1 Pre-field Activities

- Mr. Cord Dennig with Geocon marked the project limits and boring locations in white paint for subsequent utility clearance on November 6, 2015.
- Prepared a *Health and Safety Plan* dated November 2015 to provide guidelines on the use of personal protective equipment and the health and safety procedures implemented during the field activities.
- Provided at least a 48-hour notification to Underground Service Alert (USA) prior to job site mobilization (USA Ticket Nos. 583469, 583528, 583567, and 583593).
- Retained the services of Advanced Technology Laboratories (ATL), a Caltrans-approved and California-certified analytical laboratory, to perform the chemical analyses of soil samples.

3.2 Field Activities

On December 1, 2015, 80 soil samples were collected from 11 direct-push and 9 hand-auger borings located along the unpaved shoulders of SR-160. The soil borings were advanced to the maximum sampling depth of 3 feet. Soil samples were collected at depth intervals of 0 to 0.5 foot, 0.5 to 1 foot, 1 to 2 feet, and 2 to 3 feet.

The sample locations were selected in the field by the Caltrans Task Order Manager. Following sample collection, the borings were backfilled with the excess soil cuttings. Details of the field activities are presented in the following sections.

4.0 INVESTIGATIVE METHODS

4.1 Soil Sampling Procedures

The following borings were advanced along the unpaved shoulder areas of eastbound (EB) and westbound (WB) SR-160 approximately 3 to 5 feet from the edge of pavement. The approximate boring locations are depicted on Figures 2-1 through 2-3.

- Location 1: Borings B1 through B5 and HA6 through HA8 were advanced along the north side of EB SR-160 in the vicinity of the SR-160/51 junction from approximate PM 46.65 to 46.765;
- Location 2: Borings B9 through B11, HA12, HA13, and B14 through B16 were advanced along WB SR-160 in the vicinity of the Sacramento Light Rail undercrossing (UC) from approximate PM R45.043 to 45.247; and
- Location 3: Borings HA17 through HA20 were advanced within the gore point of the slip onramp from Northgate Boulevard to WB SR-160 at approximate PM R44.1.

Soil samples obtained from the direct-push borings were collected in cellulose thermoplastic (acetate) liners driven by the direct-push rig. The acetate liners were cut to separate the sample by depth, then the sample from a particular interval was opened, and the soil sample was transferred to a Ziploc[®] re-sealable plastic bag. Soil samples collected using a hand-auger were transferred directly into Ziploc[®] re-sealable plastic bags. The soil samples were field homogenized within the sample bags and subsequently labeled, placed in an ice chest, and delivered to ATL for analytical testing under chain-of-custody (COC) documentation. Soil types were noted on the daily field log.

The coordinates of the boring locations were determined using a differential global positioning system (GPS) except borings B4 and B5. We could not obtain the coordinates for borings B4 and B5 due to overhead obstruction. The GPS was utilized during the field activities to locate the horizontal position of the boring locations with an error of no more than 3.3 feet. The latitude and longitude of the boring locations are summarized on Table 1.

4.2 Quality Assurance/Quality Control (QA/QC) Procedures

QA/QC procedures were performed during the field exploration activities. These procedures included the decontamination of sampling equipment before each sample was collected and providing COC documentation for each sample submitted to the laboratory. The soil sampling equipment was cleansed between borings by washing the equipment with an Alconox[®] solution followed by a double rinse with purified water. The decontamination water was discharged to the ground surface within the Caltrans ROW, away from the roadway and storm drain inlets.

4.3 Laboratory Analyses

The soil samples were analyzed under expedited 5-day turnaround time for the following analyses. The laboratory was instructed to homogenize the soil samples prior to analysis in accordance with Contract 03A2132 requirements.

- Each soil sample was analyzed for total lead following Environmental Protection Agency (EPA) Test Method 6010B.
- Thirty-three soil samples with total lead concentrations greater than or equal to 50 milligrams per kilogram (mg/kg) (i.e., ten times the lead STLC) were further analyzed for WET soluble lead using EPA Test Method 6010B.
- Fifteen soil samples with the highest total lead or WET soluble lead concentrations were further analyzed for DI-WET soluble lead using EPA Test Method 6010B.

- Fourteen soil samples with elevated total lead concentrations were further analyzed for TCLP soluble lead using EPA Test Method 6010B.
- Five soil samples selected from samples to be analyzed for DI-WET soluble lead were additionally analyzed for pH using EPA Test Method 9045C.

QA/QC procedures were performed by ATL as applicable for the method of analysis with specificity for each analyte listed in the test method's QA/QC. QA/QC measures for the lead analysis included the following:

- One method blank for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One sample analyzed in duplicate for every ten samples, batch of samples or type of matrix, whichever was more frequent.
- One spiked sample for every ten samples, batch of samples or type of matrix, whichever was more frequent, with the spike made at ten times the detection limit or at the analyte level.

Prior to submitting the samples to the laboratory, the COC documentation was reviewed for accuracy and completeness. Copies of the laboratory reports and COC documentation are in Appendix A.

4.4 Traffic Control

Caltrans provided shoulder closure traffic control using an attenuator truck during the field sampling activities.

5.0 FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS

5.1 Soil Description

Soil encountered during the excavation of borings generally consisted of fine sand to the maximum sampling depth of approximately 3 feet. Groundwater was not encountered in the soil borings.

5.2 Soil Analytical Results

5.2.1 Location 1 – PM 46.65 to 46.765

Total lead was detected in the 32 soil samples analyzed at concentrations ranging from 3.6 to 930 mg/kg. Thirteen of the 32 soil samples had reported total lead concentrations equal to or greater than 50 mg/kg (ten times the STLC for lead of 5.0 milligrams per liter [mg/l]) and were further analyzed for WET soluble lead.

WET soluble lead was reported for the 13 samples analyzed at concentrations ranging from 1.5 to 48 mg/l. Seven of the 13 samples had WET soluble lead concentrations greater than the STLC for lead of 5.0 mg/l. Six of the seven samples with WET lead concentrations greater than the STLC for lead of 5.0 mg/l were further analyzed for DI-WET soluble lead. DI-WET soluble lead was only detected in one of the six samples analyzed at 1.9 mg/l.

TCLP soluble lead was reported for four of the five samples analyzed at concentrations ranging from 0.22 to 1.1 mg/l, less than the Federal RCRA hazardous waste threshold of 5.0 mg/l.

Soil pH for the two samples analyzed were 6.1 and 7.8.

5.2.2 Location 2 – PM R45.043 to 45.247

Total lead was detected in the 32 soil samples analyzed at concentrations ranging from 2.7 to 1,600 mg/kg. Nine of the 32 soil samples had reported total lead concentrations equal to or greater than 50 mg/kg (ten times the STLC for lead of 5.0 milligrams per liter [mg/l]) and were further analyzed for WET soluble lead.

WET soluble lead was reported for the nine samples analyzed at concentrations ranging from 1.0 to 70 mg/l. Seven of the nine samples had WET soluble lead concentrations greater than the STLC for lead of 5.0 mg/l. Five of the seven samples with WET lead concentrations greater than the STLC for lead of 5.0 mg/l were further analyzed for DI-WET soluble lead. DI-WET soluble lead was not detected in the five samples analyzed.

TCLP soluble lead was reported for the five samples analyzed at concentrations ranging from 0.11 to 0.78 mg/l, less than the Federal RCRA hazardous waste threshold of 5.0 mg/l.

Soil pH for the two samples analyzed were 6.0 and 6.5.

5.2.3 Location 3 – PM R44.1

Total lead was detected in the 16 soil samples analyzed at concentrations ranging from 8.6 to 780 mg/kg. Eleven of the 16 soil samples had reported total lead concentrations equal to or greater than 50 mg/kg (ten times the STLC for lead of 5.0 milligrams per liter [mg/l]) and were further analyzed for WET soluble lead.

WET soluble lead was reported for the eleven samples analyzed at concentrations ranging from 1.8 to 42 mg/l. Seven of the eleven samples had WET soluble lead concentrations greater than the STLC for lead of 5.0 mg/l. Four of the seven samples with WET lead concentrations greater than the STLC for lead of 5.0 mg/l were further analyzed for DI-WET soluble lead. DI-WET soluble lead was not detected in the four samples analyzed.

TCLP soluble lead was reported for the four samples analyzed at concentrations ranging from 0.10 to 1.0 mg/l, less than the Federal RCRA hazardous waste threshold of 5.0 mg/l.

Soil pH for the sample analyzed was 7.3.

5.3 Laboratory QA/QC

We reviewed the QA/QC provided with the ATL laboratory reports. The relative percent differences for some sample duplicates were outside acceptance criteria. Calculation is based on raw values as noted in the laboratory reports. Based on the laboratory QA/QC data, no qualification of the data presented herein is necessary, and the data are of sufficient quality for the purposes of this report.

5.4 Statistical Evaluation for Lead Detected in Soil Samples

Statistical methods were applied to the total lead data to evaluate: 1) the upper confidence limits (UCLs) of the arithmetic means of the total lead concentrations for each sampling depth; and 2) if an acceptable correlation between total and WET lead concentrations exists that would allow the prediction of WET lead concentrations based on the calculated UCLs.

Per Caltrans, the lead data were evaluated for each project location since excavated soil from each location would not likely be combined and managed as a whole during construction. Thus, the total lead data were separated into three sample populations according to three project locations for statistical evaluation as described below.

- Location 1: Borings B1 through B5 and HA6 through HA8;
- Location 2: Borings B9 through B11, HA12, HA13, and B14 through B16; and
- Location 3: Borings HA17 through HA20.

5.4.1 Calculating the UCLs for the Arithmetic Mean

Non-parametric bootstrap techniques were used to calculate the UCLs. The upper one-sided 90% and 95% UCLs of the arithmetic mean are defined as the values that, when calculated repeatedly for randomly drawn subsets of site data, equal or exceed the true mean 90% and 95% of the time, respectively. Statistical confidence limits are the classical tool for addressing uncertainties of a distribution mean. The UCLs of the arithmetic mean concentration are used as mean concentrations because it is not possible to know the true mean due to the essentially infinite number of soil samples that could be collected from a site. The UCLs therefore account for uncertainties due to limited sampling data. As data become less limited at a site, uncertainties decrease, and the UCLs move closer to the true mean.

The bootstrap results are in Appendix B. The calculated UCLs and statistical results for each project location are summarized in the following tables:

Location 1 (PM 46.65 to 46.765)

SAMPLE INTERVAL (feet)	90% TOTAL LEAD UCL (mg/kg)	95% TOTAL LEAD UCL (mg/kg)	TOTAL LEAD MEAN (mg/kg)	MINIMUM VALUE (mg/kg)	MAXIMUM VALUE (mg/kg)
0 to 0.5	386.1	431.7	262.5	37	930
0.5 to 1	148.6	162.0	90.1	4.9	390
1 to 2	36.0	39.2	24.5	3.6	71
2 to 3	20.7	22.8	13.3	4.1	57

Location 2 (PM R45.043 to 45.247)

SAMPLE INTERVAL (feet)	90% TOTAL LEAD UCL (mg/kg)	95% TOTAL LEAD UCL (mg/kg)	TOTAL LEAD MEAN (mg/kg)	MINIMUM VALUE (mg/kg)	MAXIMUM VALUE (mg/kg)
0 to 0.5	912.5	987.3	640.5	57	1,600
0.5 to 1	22.3	24.2	16.9	8.4	49
1 to 2	31.9	35.5	19.4	3.0	91
2 to 3	12.4	13.2	9.4	2.7	22

Location 3 (PM R44.1)

SAMPLE INTERVAL (feet)	90% TOTAL LEAD UCL (mg/kg)	95% TOTAL LEAD UCL (mg/kg)	TOTAL LEAD MEAN (mg/kg)	MINIMUM VALUE (mg/kg)	MAXIMUM VALUE (mg/kg)
0 to 1*	363.2	392.0	255.6	8.6	780
1 to 3*	85.1	90.2	65.9	14	150

* For UCL calculation, lead data were combined for samples collected within this interval due to insufficient amount of data for each sample depth interval.

5.4.2 Correlation of Total and Soluble Lead

Total and corresponding WET soluble lead concentrations are bivariate data with a linear structure. This linear structure should allow for the prediction of WET soluble lead concentrations based on the UCLs calculated above in Section 5.4.1.

To estimate the degree of interrelation between total and corresponding WET soluble lead values (x and y , respectively), the *correlation coefficient* [r] is used. The correlation coefficient is a ratio that ranges from +1 to -1. A *correlation coefficient* of +1 indicates a perfect direct relationship between two variables; a *correlation coefficient* of -1 indicates that one variable changes inversely with relation to the other. Between the two extremes is a spectrum of less-than-perfect relationships, including zero, which indicates the lack of any sort of linear relationship at all.

The *correlation coefficient* calculated for the 33 (x , y) data points (i.e., soil samples analyzed for both total lead [x] and WET soluble lead [y]) was 0.9365. A *correlation coefficient* greater than or equal to 0.8 is an acceptable indicator that a correlation exists. Consequently, an acceptable correlation between total and soluble lead concentrations was established for the data points since the *correlation coefficient* is greater than 0.8.

For the *correlation coefficient* that indicates a linear relationship between total and WET soluble lead concentrations, it is possible to compute the line of dependence or a best-fit line between the two variables. A least squares method was used to find the equation of a best-fit line (regression line) by forcing the y -intercept equal to zero since that is a known point. The equation of the regression line was determined to be $y = 0.0445(x)$, where x represents total lead concentrations and y represents predicted WET soluble lead concentrations.

This equation was used to estimate the expected WET lead concentrations for the total lead UCLs for the lead data sets. Regression analysis results and a scatter plot depicting the (x, y) data points along with the regression line are in Appendix B. The 90% and 95% UCLs and the UCL-predicted WET soluble lead concentrations are presented in Section 6.0.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Hazardous waste classification based on the 90% UCL is considered sufficient to satisfy a good faith effort as discussed in SW-846. Risk assessment characterization is typically based on the 95% UCL in accordance with the *Risk Assessment Guidance for Superfund (RAGS) Volume 1 Documentation for Exposure Assessment*. Per Caltrans, 90% UCLs are to be used to evaluate onsite reuse, and 95% UCLs are to be used to evaluate offsite reuse or disposal.

Based on the TCLP soluble lead results of less than 5.0 mg/l for the samples collected from Locations 1 through 3, soil generated within the project locations will not be classified as RCRA hazardous waste.

6.1 Location 1 – PM 46.65 to 46.765

Total lead concentrations ranged from 3.6 to 930 mg/kg with an average total lead concentration of 97.6 mg/kg. The table below summarizes the excavation scenarios, the weighted average based on the calculated total lead UCLs, and the waste classification for excavated soil within this project location as represented by borings B1 through B5 and HA6 through HA8.

Excavation Depth	90% UCL Total Lead (mg/kg)	90% UCL Predicted WET Lead (mg/l)	95% UCL Total Lead (mg/kg)	95% UCL Predicted WET Lead (mg/l)	Waste Classification
0 to 0.5 foot	386.1	17.2	431.7	19.2	Hazardous
Underlying soil (0.5 to 3 feet)	52.4	2.3	57.2	2.5	Non-hazardous
0 to 1 foot	267.4	11.9	296.9	13.2	Hazardous
Underlying soil (1 to 3 feet)	28.4	1.3	31.0	1.4	Non-hazardous
0 to 1.5 feet	190.2	8.5	211.0	9.4	Hazardous
Underlying soil (1.5 to 3 feet)	25.8	1.1	28.3	1.3	Non-hazardous
0 to 2 feet	151.7	6.7	168.0	7.5	Hazardous
Underlying soil (2 to 3 feet)	20.7	0.9	22.8	1.0	Non-hazardous
0 to 2.5 feet	125.5	5.6	139.0	6.2	Hazardous
Underlying soil (2.5 to 3 feet)	20.7	0.9	22.8	1.0	Non-hazardous
0 to 3 feet	108.0	4.8	119.6	5.3	Hazardous

90% UCL applicable for waste classification and onsite reuse; 95% UCL applicable for risk assessment and offsite disposal. Predicted WET lead concentrations were calculated using the equation of the regression line: $y = 0.0445x$.

Based on the above table, soil excavated from the surface to a depth of 0.5 foot would be classified as a California hazardous waste since the 90% UCL-predicted WET soluble lead concentration is greater than the STLC for lead of 5.0 mg/l. Soil excavated from the top 0.5 foot cannot be reused and should be either (1) managed and disposed of as a California hazardous waste or (2) stockpiled and resampled to confirm waste classification in accordance with specific disposal facility acceptance criteria, if applicable.

Underlying soil (from 0.5 to 3 feet) where excavated separately would not be classified as a California hazardous waste. Thus, underlying soil from 0.5 to 3 feet can be reused onsite or disposed of as non-hazardous soil with respect to lead content.

If soil from the surface to a depth of 3 feet is excavated and managed as a whole, then soil generated from the top 3 feet would not be classified as a California hazardous waste since the 90% UCL-predicted WET soluble lead concentration is less than the STLC for lead of 5.0 mg/l. Consequently, excavated soil from the top 3 feet can be reused as non-hazardous soil with respect to lead content. If soil from the top 3 feet will not be reused onsite, then the excavated soil from the top 3 feet should be managed and disposed of as a California hazardous waste since the 95% UCL-predicted WET soluble lead concentration is greater than the STLC for lead of 5.0 mg/l.

The total lead 95% UCL for the samples collected from the surface to a depth of 0.5 foot is greater than the residential and commercial land use CHHSLs and ESLs, and the construction exposure ESL. The total lead 95% UCL for the samples collected from 0.5 to a depth of 1 foot is greater than the residential land use CHHSL and ESL, but is less than the commercial land use CHHSL and ESL, and the construction exposure ESL. The total lead 95% UCLs for the samples collected from depths of 1 to 3 feet are less than the residential and commercial land use CHHSLs, ESLs, and the construction exposure ESL.

6.2 Location 2 – PM R45.043 to 45.247

Total lead concentrations ranged from 2.7 to 1,600 mg/kg with an average total lead concentration of 171.6 mg/kg. The table below summarizes the excavation scenarios, the weighted average based on the calculated total lead UCLs, and the waste classification for excavated soil within this project location as represented by borings B9 through B11, HA12, HA13, and B14 through B16.

Excavation Depth	90% UCL Total Lead (mg/kg)	90% UCL Predicted WET Lead (mg/l)	95% UCL Total Lead (mg/kg)	95% UCL Predicted WET Lead (mg/l)	Waste Classification
0 to 0.5 foot	912.5	40.6	987.3	43.9	Hazardous
Underlying soil (0.5 to 3 feet)	22.2	1.0	24.3	1.1	Non-hazardous
0 to 1 foot	467.4	20.8	505.8	22.5	Hazardous
Underlying soil (1 to 3 feet)	22.2	1.0	24.4	1.1	Non-hazardous
0 to 1.5 feet	322.2	14.3	349.0	15.5	Hazardous
Underlying soil (1.5 to 3 feet)	18.9	0.8	20.6	0.9	Non-hazardous
0 to 2 feet	249.7	11.1	270.6	12.0	Hazardous
Underlying soil (2 to 3 feet)	12.4	0.6	13.2	0.6	Non-hazardous
0 to 2.5 feet	202.2	9.0	219.1	9.8	Hazardous
Underlying soil (2.5 to 3 feet)	12.4	0.6	13.2	0.6	Non-hazardous
0 to 3 feet	170.6	7.6	184.8	8.2	Hazardous

90% UCL applicable for waste classification and onsite reuse; 95% UCL applicable for risk assessment and offsite disposal. Predicted WET lead concentrations were calculated using the equation of the regression line: $y = 0.0445x$.

Based on the above table, soil excavated from the surface to a depth of 0.5 foot would be classified as a California hazardous waste since the 90% UCL-predicted WET soluble lead concentration is greater than the STLC for lead of 5.0 mg/l. Soil excavated from the top 0.5 foot cannot be reused and should be either (1) managed and disposed of as a California hazardous waste or (2) stockpiled and resampled to confirm waste classification in accordance with specific disposal facility acceptance criteria, if applicable.

Underlying soil (from 0.5 to 3 feet) where excavated separately would not be classified as a California hazardous waste. Thus, underlying soil from 0.5 to 3 feet can be reused onsite or disposed of as non-hazardous soil with respect to lead content.

The total lead 95% UCL for the samples collected from the surface to a depth of 0.5 foot is greater than the residential and commercial land use CHHSLs and ESLs, and the construction exposure ESL. The total lead 95% UCLs for the samples collected from depths of 0.5 to 3 feet are less than the residential and commercial land use CHHSLs, ESLs, and the construction exposure ESL.

6.3 Location 3 – PM R44.1

Total lead concentrations ranged from 8.6 to 780 mg/kg with an average total lead concentration of 160.7 mg/kg. The table below summarizes the excavation scenarios, the weighted average based on the calculated total lead UCLs, and the waste classification for excavated soil within this project location as represented by borings HA17 through HA20.

Excavation Depth	90% UCL Total Lead (mg/kg)	90% UCL Predicted WET Lead (mg/l)	95% UCL Total Lead (mg/kg)	95% UCL Predicted WET Lead (mg/l)	Waste Classification
0 to 1 foot	363.2	16.2	392.0	17.4	Hazardous
Underlying soil (1 to 3 feet)	85.1	3.8	90.2	4.0	Non-hazardous
0 to 2 feet	224.2	10.0	241.1	10.7	Hazardous
Underlying soil (2 to 3 feet)	85.1	3.8	90.2	4.0	Non-hazardous
0 to 3 feet	177.8	7.9	190.8	8.5	Hazardous

90% UCL applicable for waste classification and onsite reuse; 95% UCL applicable for risk assessment and offsite disposal. Predicted WET lead concentrations were calculated using the equation of the regression line: $y = 0.0445x$.

Based on the above table, soil excavated from the surface to a depth of 1 foot would be classified as a California hazardous waste since the 90% UCL-predicted WET soluble lead concentration is greater than the STLC for lead of 5.0 mg/l. Soil excavated from the top 1 foot cannot be reused and should be either (1) managed and disposed of as a California hazardous waste or (2) stockpiled and resampled to confirm waste classification in accordance with specific disposal facility acceptance criteria, if applicable.

Underlying soil (from 1 to 3 feet) where excavated separately would not be classified as a California hazardous waste. Thus, underlying soil from 1 to 3 feet can be reused onsite or disposed of as non-hazardous soil with respect to lead content.

The total lead 95% UCL for the samples collected from the surface to a depth of 1 foot is greater than the residential and commercial land use CHHSLs and ESLs, and the construction exposure ESL. The total lead 95% UCL for the samples collected from depths of 1 to 3 feet is greater than the residential land use CHHSL and ESL, but is less than the commercial land use CHHSL and ESL, and the construction exposure ESL.

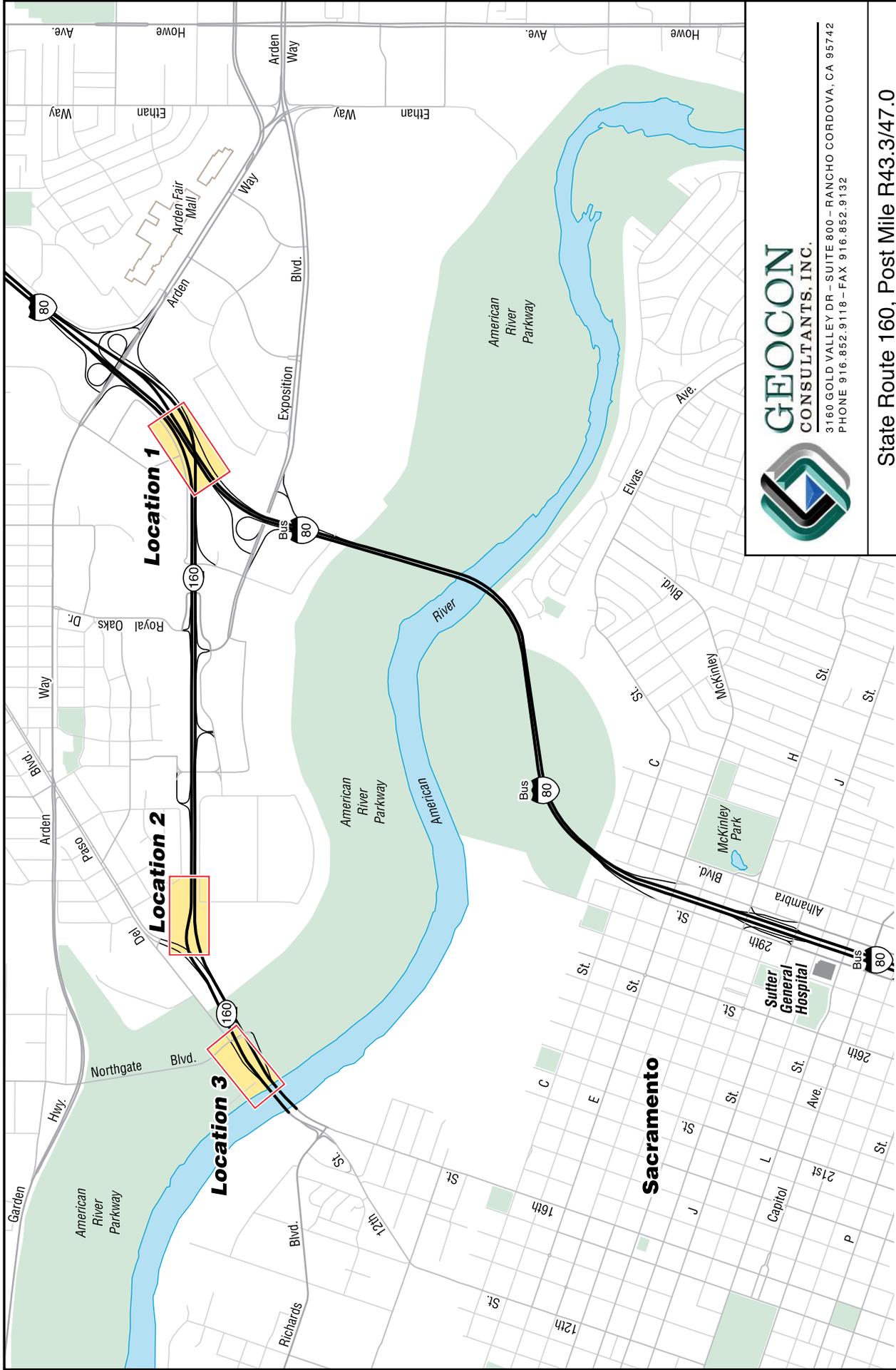
6.4 Worker Protection

Per Caltrans' requirements, the contractor(s) should prepare a project-specific Lead Compliance Plan (CCR Title 8, § 1532.1, the "Lead in Construction" standard) to minimize worker exposure to lead-impacted soil. The plan should include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other health and safety protocols and procedures for the handling of lead-impacted soil.

7.0 REPORT LIMITATIONS

This report has been prepared exclusively for Caltrans. The information contained herein is only valid as of the date of the report and will require an update to reflect additional information obtained.

This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein. Therefore, the report should be deemed conclusive with respect to only the information obtained. We make no warranty, express or implied, with respect to the content of this report or any subsequent reports, correspondence or consultation. We strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.



3160 GOLD VALLEY DR - SUITE 800 - RANCHO CORDOVA, CA 95742
 PHONE 916.852.9118 - FAX 916.852.9132

State Route 160, Post Mile R43.3/47.0

S9805-01-64
 TO No. 64 Contract 03A2132
 E-FIS 03-1500-0077-0
 EA 03-0H1100

VICINITY MAP

January 2016 Figure 1

Note: Font increased per client request





GEOCON
 CONSULTANTS, INC.
 3180 GOLD VALLEY DR., SUITE 800 - RANCHO CORDOVA, CA 95742
 PHONE 916.882.9118 - FAX 916.882.9132

State Route 160, Post Mile R43.3/47.0

S9805-01-64
 TO No. 64 Contract 03A2132
 E-FIS 03-1500-0077-0
 EA 03-0H1100

SITE PLAN
Location 1

January 2016 | Figure 2-1

Note: Font increased per client request

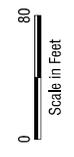
LEGEND:
 HA8 ⊗ Approximate Boring Location
 B5 ⊗ Approximate Boring Location Beneath Bridge

0 80
 Scale in Feet



Note: Font increased per client request

- LEGEND:**
- HA13** ⊗ Approximate Boring Location
 - B15** ⊗ Approximate Boring Location Beneath Bridge



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 CONSULTANTS, INC.
 3180 GOLD VALLEY DR., SUITE 800—RANCHO CORDOVA, CA 95742
 PHONE 916.882.9118—FAX 916.882.9132

State Route 160, Post Mile R43.3/47.0	
S9805-01-64	SITE PLAN
TO No. 64 Contract 03A2132	Location 2
E-FIS 03-1500-0077-0	
EA 03-0H1100	January 2016
	Figure 2-2



Note: Font increased per client request

LEGEND:
HA20 ⊗ Approximate Boring Location



3180 GOLD VALLEY DR., SUITE 800 - RANCHO CORDOVA, CA 95742
 PHONE 916.882.9118 - FAX 916.882.9132

State Route 160, Post Mile R43.3/47.0

S9805-01-64 TO No. 64 Contract 03A2132 E-FIS 03-1500-0077-0 EA 03-0H1100	SITE PLAN Location 3
January 2016	Figure 2-3

TABLE 1
SUMMARY OF SOIL BORING COORDINATES
EA NO. 03-0H1100
STATE ROUTE 160 (03-SAC-160) POST MILE R43.3 TO 47.0
SACRAMENTO, CALIFORNIA

BORING ID	SAMPLE DATE	LATITUDE	LONGITUDE
LOCATION 1 - SR-160/51 JUNCTION (PM 46.65 to 46.765)			
B1	12/1/2015	38.60015759	-121.4405330
B2	12/1/2015	38.60016151	-121.4402887
B3	12/1/2015	38.60015307	-121.4401727
B4	12/1/2015	NA	NA
B5	12/1/2015	NA	NA
HA6	12/1/2015	38.60023219	-121.4395499
HA7	12/1/2015	38.60024116	-121.4391227
HA8	12/1/2015	38.60033171	-121.4387437
LOCATION 2 - SACRAMENTO LIGHT RAIL UC (PM R45.043 to 45.247)			
B9	12/1/2015	38.60031283	-121.4642530
B10	12/1/2015	38.60028996	-121.4648244
B11	12/1/2015	38.60033082	-121.4658270
HA12	12/1/2015	38.60044256	-121.4666759
HA13	12/1/2015	38.60049959	-121.4674805
B14	12/1/2015	38.60028031	-121.4680845
B15	12/1/2015	38.60033066	-121.4680439
B16	12/1/2015	38.60048337	-121.4679768
LOCATION 3 - NORTHGATE BOULEVARD ONRAMP TO WB SR-160 (PM R44.1)			
HA17	12/1/2015	38.59766101	-121.4748197
HA18	12/1/2015	38.59768856	-121.4748186
HA19	12/1/2015	38.59762082	-121.4749113
HA20	12/1/2015	38.59755605	-121.4750033

Notes: Font increased per client request.
NA = GPS data not available

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS
EA NO. 03-0H1100
STATE ROUTE 160 (03-SAC-160) POST MILE R43.3 TO 47.0
SACRAMENTO, CALIFORNIA

SAMPLE ID	SAMPLE DEPTH INTERVAL (feet)	TOTAL LEAD (mg/kg)	WET LEAD (mg/l)	DI-WET LEAD (mg/l)	TCLP LEAD (mg/l)	pH
LOCATION 1 - SR-160/51 JUNCTION (PM 46.65 to 46.765)						
B1-0'	0-0.5	120	6.5	<1.0	<0.05	---
B1-0.5'	0.5-1	24	---	---	---	---
B1-1'	1 - 2	5.4	---	---	---	---
B1-2'	2 - 3	4.7	---	---	---	---
B2-0'	0-0.5	75	2.0	---	---	---
B2-0.5'	0.5-1	9.3	---	---	---	---
B2-1'	1 - 2	31	---	---	---	---
B2-2'	2 - 3	14	---	---	---	---
B3-0'	0-0.5	58	3.4	---	---	---
B3-0.5'	0.5-1	85	4.8	---	---	---
B3-1'	1 - 2	61	1.5	---	---	---
B3-2'	2 - 3	5.8	---	---	---	---
B4-0'	0-0.5	37	---	---	---	---
B4-0.5'	0.5-1	390	19	<1.0	0.51	7.8
B4-1'	1 - 2	12	---	---	---	---
B4-2'	2 - 3	9.6	---	---	---	---
B5-0'	0-0.5	140	6.6	<1.0	---	---
B5-0.5'	0.5-1	4.9	---	---	---	---
B5-1'	1 - 2	3.6	---	---	---	---
B5-2'	2 - 3	4.4	---	---	---	---
HA6-0'	0-0.5	400	25	<1.0	0.38	---
HA6-0.5'	0.5-1	180	8.8	---	---	---
HA6-1'	1 - 2	71	3.8	---	---	---
HA6-2'	2 - 3	57	3.0	---	---	---
HA7-0'	0-0.5	340	19	<1.0	0.22	---
HA7-0.5'	0.5-1	9.8	---	---	---	---
HA7-1'	1 - 2	5.0	---	---	---	---
HA7-2'	2 - 3	4.1	---	---	---	---

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS
EA NO. 03-0H1100
STATE ROUTE 160 (03-SAC-160) POST MILE R43.3 TO 47.0
SACRAMENTO, CALIFORNIA

SAMPLE ID	SAMPLE DEPTH INTERVAL (feet)	TOTAL LEAD (mg/kg)	WET LEAD (mg/l)	DI-WET LEAD (mg/l)	TCLP LEAD (mg/l)	pH
HA8-0'	0-0.5	930	48	1.9	1.1	6.1
HA8-0.5'	0.5-1	18	---	---	---	---
HA8-1'	1 - 2	6.7	---	---	---	---
HA8-2'	2 - 3	6.5	---	---	---	---
LOCATION 2 - SACRAMENTO LIGHT RAIL UC (PM R45.043 to 45.247)						
B9-0'	0-0.5	750	27	<1.0	0.21	---
B9-0.5'	0.5-1	11	---	---	---	---
B9-1'	1 - 2	8.2	---	---	---	---
B9-2'	2 - 3	6.5	---	---	---	---
B10-0'	0-0.5	250	26	<1.0	0.29	---
B10-0.5'	0.5-1	14	---	---	---	---
B10-1'	1 - 2	19	---	---	---	---
B10-2'	2 - 3	17	---	---	---	---
B11-0'	0-0.5	120	13	---	---	---
B11-0.5'	0.5-1	15	---	---	---	---
B11-1'	1 - 2	6.8	---	---	---	---
B11-2'	2 - 3	3.0	---	---	---	---
HA12-0'	0-0.5	1,500	48	<1.0	0.44	6.0
HA12-0.5'	0.5-1	49	---	---	---	---
HA12-1'	1 - 2	10	---	---	---	---
HA12-2'	2 - 3	7.5	---	---	---	---
HA13-0'	0-0.5	1,600	70	<1.0	0.78	6.5
HA13-0.5'	0.5-1	8.4	---	---	---	---
HA13-1'	1 - 2	91	4.8	---	---	---
HA13-2'	2 - 3	22	---	---	---	---
B14-0'	0-0.5	87	6.2	---	---	---
B14-0.5'	0.5-1	12	---	---	---	---
B14-1'	1 - 2	4.5	---	---	---	---
B14-2'	2 - 3	4.6	---	---	---	---

TABLE 2
SUMMARY OF SOIL ANALYTICAL RESULTS
EA NO. 03-0H1100
STATE ROUTE 160 (03-SAC-160) POST MILE R43.3 TO 47.0
SACRAMENTO, CALIFORNIA

SAMPLE ID	SAMPLE DEPTH INTERVAL (feet)	TOTAL LEAD (mg/kg)	WET LEAD (mg/l)	DI-WET LEAD (mg/l)	TCLP LEAD (mg/l)	pH
B15-0'	0-0.5	57	1.0	---	---	---
B15-0.5'	0.5-1	14	---	---	---	---
B15-1'	1 - 2	3.0	---	---	---	---
B15-2'	2 - 3	2.7	---	---	---	---
B16-0'	0-0.5	760	39	<1.0	0.11	---
B16-0.5'	0.5-1	12	---	---	---	---
B16-1'	1 - 2	13	---	---	---	---
B16-2'	2 - 3	12	---	---	---	---
LOCATION 3 - NORTHGATE BOULEVARD ONRAMP TO WB SR-160 (PM R44.1)						
HA17-0'	0-0.5	780	42	<1.0	1.0	7.3
HA17-0.5'	0.5-1	100	4.7	---	---	---
HA17-1'	1 - 2	42	---	---	---	---
HA17-2'	2 - 3	85	7.3	---	---	---
HA18-0'	0-0.5	410	28	<1.0	0.23	---
HA18-0.5'	0.5-1	26	---	---	---	---
HA18-1'	1 - 2	150	9.4	---	---	---
HA18-2'	2 - 3	96	2.2	---	---	---
HA19-0'	0-0.5	280	23	<1.0	0.26	---
HA19-0.5'	0.5-1	160	11	---	---	---
HA19-1'	1 - 2	14	---	---	---	---
HA19-2'	2 - 3	56	1.9	---	---	---
HA20-0'	0-0.5	280	15	<1.0	0.10	---
HA20-0.5'	0.5-1	8.6	---	---	---	---
HA20-1'	1 - 2	15	---	---	---	---
HA20-2'	2 - 3	69	1.8	---	---	---

Hazardous Waste Criteria

TTLIC (mg/kg)	1,000
STLC (mg/l)	5.0
TCLP (mg/l)	5.0

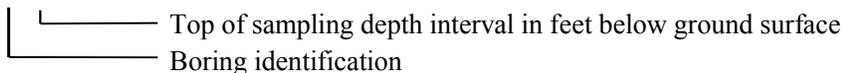
TABLE 2
 SUMMARY OF SOIL ANALYTICAL RESULTS
 EA NO. 03-0H1100
 STATE ROUTE 160 (03-SAC-160) POST MILE R43.3 TO 47.0
 SACRAMENTO, CALIFORNIA

SAMPLE ID	SAMPLE DEPTH INTERVAL (feet)	TOTAL LEAD (mg/kg)	WET LEAD (mg/l)	DI-WET LEAD (mg/l)	TCLP LEAD (mg/l)	pH
<u>CHHSLs</u>						
	Residential Land Use	80				
	Commercial/Industrial Land Use	320				
<u>ESLs</u>						
	Residential Land Use	80				
	Commercial/Industrial Land Use	320				
	Construction Worker Exposure	320				
<u>Background Concentrations ⁽¹⁾</u>						
	Minimum	12.4				
	Mean	23.9				
	Maximum	97.1				

Notes:

Font increased per client request.

B1-0



WET = Waste Extraction Test

TCLP = Toxicity Characteristic Leaching Procedure

TTLIC = Total Threshold Limit Concentration

STLC = Soluble Threshold Limit Concentration

mg/kg = Milligrams per kilogram

mg/l = Milligrams per liter

< = Less than the laboratory reporting limit

--- = Not analyzed

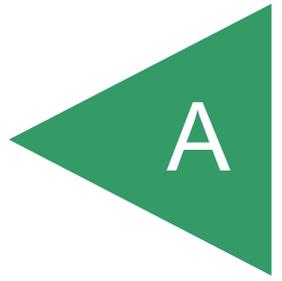
CHHSLs = California Human Health Screening Levels, Table 1, California EPA, January 2005

ESLs = Environmental Screening Levels, Tables A and K-3, SFRWQCB, December 2013.

⁽¹⁾ = Background Concentrations of Trace and Major Elements in California Soils (Kearney Foundation of Soil Science, Division of Agricultural and Natural Resources, University of California, March 1996)

APPENDIX

A





December 09, 2015

Rebecca Silva
Geocon Consultants, Inc.
3160 Gold Valley Drive, Suite 800
Rancho Cordova, CA 95742
Tel: (916) 852-9118
Fax:(916) 852-9132

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003
TCEQ No. : T104704502

RE: ATL Work Order Number : 1504094
Client Reference : Sac 160 ADL, S9805-01-64

Enclosed are the results for sample(s) received on December, 2 2015 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,

A handwritten signature in black ink, appearing to read "Eddie Rodriguez", with a small initial "ER" written below the first few letters.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Geocon Consultants, Inc.

3160 Gold Valley Drive, Suite 800

Rancho Cordova, CA 95742

Project Number : Sac 160 ADL, S9805-01-64

Report To : Rebecca Silva

Reported : 12/09/2015

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B1-0'	1504094-01	Soil	12/01/15 7:38	12/02/15 9:29
B1-0.5'	1504094-02	Soil	12/01/15 7:39	12/02/15 9:29
B1-1'	1504094-03	Soil	12/01/15 7:40	12/02/15 9:29
B1-2'	1504094-04	Soil	12/01/15 7:41	12/02/15 9:29
B2-0'	1504094-05	Soil	12/01/15 7:44	12/02/15 9:29
B2-0.5'	1504094-06	Soil	12/01/15 7:45	12/02/15 9:29
B2-1'	1504094-07	Soil	12/01/15 7:46	12/02/15 9:29
B2-2'	1504094-08	Soil	12/01/15 7:47	12/02/15 9:29
B3-0'	1504094-09	Soil	12/01/15 7:49	12/02/15 9:29
B3-0.5'	1504094-10	Soil	12/01/15 7:50	12/02/15 9:29
B3-1'	1504094-11	Soil	12/01/15 7:51	12/02/15 9:29
B3-2'	1504094-12	Soil	12/01/15 7:52	12/02/15 9:29
B4-0'	1504094-13	Soil	12/01/15 7:54	12/02/15 9:29
B4-0.5'	1504094-14	Soil	12/01/15 7:55	12/02/15 9:29
B4-1'	1504094-15	Soil	12/01/15 7:56	12/02/15 9:29
B4-2'	1504094-16	Soil	12/01/15 7:57	12/02/15 9:29
B5-0'	1504094-17	Soil	12/01/15 7:59	12/02/15 9:29
B5-0.5'	1504094-18	Soil	12/01/15 8:00	12/02/15 9:29
B5-1'	1504094-19	Soil	12/01/15 8:01	12/02/15 9:29
B5-2'	1504094-20	Soil	12/01/15 8:02	12/02/15 9:29
HA6-0'	1504094-21	Soil	12/01/15 8:15	12/02/15 9:29
HA6-0.5'	1504094-22	Soil	12/01/15 8:16	12/02/15 9:29
HA6-1'	1504094-23	Soil	12/01/15 8:17	12/02/15 9:29
HA6-2'	1504094-24	Soil	12/01/15 8:18	12/02/15 9:29
HA7-0'	1504094-25	Soil	12/01/15 8:21	12/02/15 9:29
HA7-0.5'	1504094-26	Soil	12/01/15 8:22	12/02/15 9:29
HA7-1'	1504094-27	Soil	12/01/15 8:23	12/02/15 9:29
HA7-2'	1504094-28	Soil	12/01/15 8:24	12/02/15 9:29
HA8-0'	1504094-29	Soil	12/01/15 8:29	12/02/15 9:29
HA8-0.5'	1504094-30	Soil	12/01/15 8:30	12/02/15 9:29
HA8-1'	1504094-31	Soil	12/01/15 8:31	12/02/15 9:29
HA8-2'	1504094-32	Soil	12/01/15 8:32	12/02/15 9:29
B9-0'	1504094-33	Soil	12/01/15 8:50	12/02/15 9:29
B9-0.5'	1504094-34	Soil	12/01/15 8:51	12/02/15 9:29



Certificate of Analysis

Geocon Consultants, Inc.

Project Number : Sac 160 ADL, S9805-01-64

3160 Gold Valley Drive, Suite 800

Report To : Rebecca Silva

Rancho Cordova , CA 95742

Reported : 12/09/2015

B9-1'	1504094-35	Soil	12/01/15 8:52	12/02/15 9:29
B9-2'	1504094-36	Soil	12/01/15 8:53	12/02/15 9:29
B10-0'	1504094-37	Soil	12/01/15 8:58	12/02/15 9:29
B10-0.5'	1504094-38	Soil	12/01/15 8:59	12/02/15 9:29
B10-1'	1504094-39	Soil	12/01/15 9:00	12/02/15 9:29
B10-2'	1504094-40	Soil	12/01/15 9:01	12/02/15 9:29
B11-0'	1504094-41	Soil	12/01/15 9:28	12/02/15 9:29
B11-0.5'	1504094-42	Soil	12/01/15 9:29	12/02/15 9:29
B11-1'	1504094-43	Soil	12/01/15 9:30	12/02/15 9:29
B11-2'	1504094-44	Soil	12/01/15 9:32	12/02/15 9:29
HA12-0'	1504094-45	Soil	12/01/15 9:36	12/02/15 9:29
HA12-0.5'	1504094-46	Soil	12/01/15 9:38	12/02/15 9:29
HA12-1'	1504094-47	Soil	12/01/15 9:40	12/02/15 9:29
HA12-2'	1504094-48	Soil	12/01/15 9:44	12/02/15 9:29
HA13-0'	1504094-49	Soil	12/01/15 9:45	12/02/15 9:29
HA13-0.5'	1504094-50	Soil	12/01/15 9:46	12/02/15 9:29
HA13-1'	1504094-51	Soil	12/01/15 9:47	12/02/15 9:29
HA13-2'	1504094-52	Soil	12/01/15 9:49	12/02/15 9:29
B14-0'	1504094-53	Soil	12/01/15 10:10	12/02/15 9:29
B14-0.5'	1504094-54	Soil	12/01/15 10:11	12/02/15 9:29
B14-1'	1504094-55	Soil	12/01/15 10:12	12/02/15 9:29
B14-2'	1504094-56	Soil	12/01/15 10:13	12/02/15 9:29
B15-0'	1504094-57	Soil	12/01/15 10:17	12/02/15 9:29
B15-0.5'	1504094-58	Soil	12/01/15 10:18	12/02/15 9:29
B15-1'	1504094-59	Soil	12/01/15 10:19	12/02/15 9:29
B15-2'	1504094-60	Soil	12/01/15 10:20	12/02/15 9:29
B16-0'	1504094-61	Soil	12/01/15 10:47	12/02/15 9:29
B16-0.5'	1504094-62	Soil	12/01/15 10:48	12/02/15 9:29
B16-1'	1504094-63	Soil	12/01/15 10:49	12/02/15 9:29
B16-2'	1504094-64	Soil	12/01/15 10:50	12/02/15 9:29
HA17-0'	1504094-65	Soil	12/01/15 11:09	12/02/15 9:29
HA17-0.5'	1504094-66	Soil	12/01/15 11:10	12/02/15 9:29
HA17-1'	1504094-67	Soil	12/01/15 11:12	12/02/15 9:29
HA17-2'	1504094-68	Soil	12/01/15 11:14	12/02/15 9:29
HA18-0'	1504094-69	Soil	12/01/15 11:16	12/02/15 9:29
HA18-0.5'	1504094-70	Soil	12/01/15 11:17	12/02/15 9:29
HA18-1'	1504094-71	Soil	12/01/15 11:18	12/02/15 9:29
HA18-2'	1504094-72	Soil	12/01/15 11:20	12/02/15 9:29
HA19-0'	1504094-73	Soil	12/01/15 11:21	12/02/15 9:29



Certificate of Analysis

Geocon Consultants, Inc.

3160 Gold Valley Drive, Suite 800

Rancho Cordova, CA 95742

Project Number : Sac 160 ADL, S9805-01-64

Report To : Rebecca Silva

Reported : 12/09/2015

HA19-0.5'	1504094-74	Soil	12/01/15 11:22	12/02/15 9:29
HA19-1'	1504094-75	Soil	12/01/15 11:23	12/02/15 9:29
HA19-2'	1504094-76	Soil	12/01/15 11:24	12/02/15 9:29
HA20-0'	1504094-77	Soil	12/01/15 11:25	12/02/15 9:29
HA20-0.5'	1504094-78	Soil	12/01/15 11:26	12/02/15 9:29
HA20-1'	1504094-79	Soil	12/01/15 11:27	12/02/15 9:29
HA20-2'	1504094-80	Soil	12/01/15 11:28	12/02/15 9:29



Certificate of Analysis

Geocon Consultants, Inc.

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3160 Gold Valley Drive, Suite 800

Report To : Rebecca Silva

Rancho Cordova , CA 95742

Reported : 12/09/2015

Lead by ICP-AES EPA 6010B

Analyte: Lead

Analyst: SB

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1504094-01	B1-0'	120	mg/kg	0.99	1	B5L0165	12/08/2015	12/09/15 08:36	
1504094-02	B1-0.5'	24	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 08:37	
1504094-03	B1-1'	5.4	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 08:38	
1504094-04	B1-2'	4.7	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 08:39	
1504094-05	B2-0'	75	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 08:40	
1504094-06	B2-0.5'	9.3	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 08:42	
1504094-07	B2-1'	31	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 08:46	
1504094-08	B2-2'	14	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 08:47	
1504094-09	B3-0'	58	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 08:47	
1504094-10	B3-0.5'	85	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 08:49	
1504094-11	B3-1'	61	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 08:52	
1504094-12	B3-2'	5.8	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 08:53	
1504094-13	B4-0'	37	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 08:54	
1504094-14	B4-0.5'	390	mg/kg	0.99	1	B5L0165	12/08/2015	12/09/15 08:55	
1504094-15	B4-1'	12	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 08:59	
1504094-16	B4-2'	9.6	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 09:00	
1504094-17	B5-0'	140	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 09:01	
1504094-18	B5-0.5'	4.9	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 09:02	
1504094-19	B5-1'	3.6	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 09:03	
1504094-20	B5-2'	4.4	mg/kg	1.0	1	B5L0165	12/08/2015	12/09/15 09:05	
1504094-21	HA6-0'	400	mg/kg	0.99	1	B5L0166	12/08/2015	12/09/15 09:14	
1504094-22	HA6-0.5'	180	mg/kg	1.0	1	B5L0166	12/08/2015	12/09/15 09:15	
1504094-23	HA6-1'	71	mg/kg	1.0	1	B5L0166	12/08/2015	12/09/15 09:16	
1504094-24	HA6-2'	57	mg/kg	1.0	1	B5L0166	12/08/2015	12/09/15 09:18	
1504094-25	HA7-0'	340	mg/kg	1.0	1	B5L0166	12/08/2015	12/09/15 09:18	
1504094-26	HA7-0.5'	9.8	mg/kg	0.99	1	B5L0166	12/08/2015	12/09/15 09:20	
1504094-27	HA7-1'	5.0	mg/kg	1.0	1	B5L0166	12/08/2015	12/09/15 09:48	
1504094-28	HA7-2'	4.1	mg/kg	0.99	1	B5L0166	12/08/2015	12/09/15 09:22	
1504094-29	HA8-0'	930	mg/kg	1.0	1	B5L0166	12/08/2015	12/09/15 09:26	
1504094-30	HA8-0.5'	18	mg/kg	1.0	1	B5L0166	12/08/2015	12/09/15 09:27	



Certificate of Analysis

Geocon Consultants, Inc.
 3160 Gold Valley Drive, Suite 800
 Rancho Cordova , CA 95742

Project Number : Sac 160 ADL, S9805-01-64
 Report To : Rebecca Silva
 Reported : 12/09/2015

Lead by ICP-AES EPA 6010B

Analyte: Lead

Analyst: SB

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1504094-31	HA8-1'	6.7	mg/kg	1.0	1	B5L0166	12/08/2015	12/09/15 09:31	
1504094-32	HA8-2'	6.5	mg/kg	1.0	1	B5L0166	12/08/2015	12/09/15 09:33	
1504094-33	B9-0'	750	mg/kg	1.0	1	B5L0166	12/08/2015	12/09/15 09:33	
1504094-34	B9-0.5'	11	mg/kg	1.0	1	B5L0166	12/08/2015	12/09/15 09:35	
1504094-35	B9-1'	8.2	mg/kg	1.0	1	B5L0166	12/08/2015	12/09/15 09:36	
1504094-36	B9-2'	6.5	mg/kg	1.0	1	B5L0166	12/08/2015	12/09/15 09:37	
1504094-37	B10-0'	250	mg/kg	1.0	1	B5L0166	12/08/2015	12/09/15 09:40	
1504094-38	B10-0.5'	14	mg/kg	1.0	1	B5L0166	12/08/2015	12/09/15 09:42	
1504094-39	B10-1'	19	mg/kg	1.0	1	B5L0166	12/08/2015	12/09/15 09:43	
1504094-40	B10-2'	17	mg/kg	1.0	1	B5L0166	12/08/2015	12/09/15 09:44	
1504094-41	B11-0'	120	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 09:55	
1504094-42	B11-0.5'	15	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 09:56	
1504094-43	B11-1'	6.8	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 09:58	
1504094-44	B11-2'	3.0	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 09:59	
1504094-45	HA12-0'	1500	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 10:00	
1504094-46	HA12-0.5'	49	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 10:01	
1504094-47	HA12-1'	10	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 10:02	
1504094-48	HA12-2'	7.5	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 10:03	
1504094-49	HA13-0'	1600	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 10:04	
1504094-50	HA13-0.5'	8.4	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 10:08	
1504094-51	HA13-1'	91	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 10:10	
1504094-52	HA13-2'	22	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 10:12	
1504094-53	B14-0'	87	mg/kg	0.99	1	B5L0167	12/08/2015	12/09/15 10:12	
1504094-54	B14-0.5'	12	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 10:14	
1504094-55	B14-1'	4.5	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 10:15	
1504094-56	B14-2'	4.6	mg/kg	0.99	1	B5L0167	12/08/2015	12/09/15 10:16	
1504094-57	B15-0'	57	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 10:17	
1504094-58	B15-0.5'	14	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 10:21	
1504094-59	B15-1'	3.0	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 10:22	
1504094-60	B15-2'	2.7	mg/kg	1.0	1	B5L0167	12/08/2015	12/09/15 10:24	



Certificate of Analysis

Geocon Consultants, Inc.

Project Number : Sac 160 ADL, S9805-01-64

3160 Gold Valley Drive, Suite 800

Report To : Rebecca Silva

Rancho Cordova , CA 95742

Reported : 12/09/2015

Lead by ICP-AES EPA 6010B

Analyte: Lead

Analyst: SB

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1504094-61	B16-0'	760	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:31	
1504094-62	B16-0.5'	12	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:35	
1504094-63	B16-1'	13	mg/kg	0.99	1	B5L0168	12/08/2015	12/09/15 10:36	
1504094-64	B16-2'	12	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:37	
1504094-65	HA17-0'	780	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:38	
1504094-66	HA17-0.5'	100	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:39	
1504094-67	HA17-1'	42	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:40	
1504094-68	HA17-2'	85	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:41	
1504094-69	HA18-0'	410	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:41	
1504094-70	HA18-0.5'	26	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:42	
1504094-71	HA18-1'	150	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:48	
1504094-72	HA18-2'	96	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:49	
1504094-73	HA19-0'	280	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:49	
1504094-74	HA19-0.5'	160	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:50	
1504094-75	HA19-1'	14	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:51	
1504094-76	HA19-2'	56	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:52	
1504094-77	HA20-0'	280	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:53	
1504094-78	HA20-0.5'	8.6	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:54	
1504094-79	HA20-1'	15	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:55	
1504094-80	HA20-2'	69	mg/kg	1.0	1	B5L0168	12/08/2015	12/09/15 10:59	



Certificate of Analysis

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QUALITY CONTROL SECTION

Lead by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5L0165 - EPA 3050 Modified_S									
Blank (B5L0165-BLK1)									
Lead	ND	1.0							Prepared: 12/8/2015 Analyzed: 12/9/2015 NR
Blank (B5L0165-BLK2)									
Lead	ND	1.0							Prepared: 12/8/2015 Analyzed: 12/9/2015 NR
LCS (B5L0165-BS1)									
Lead	48.6771	1.0	50.0000		97.4	80 - 120			Prepared: 12/8/2015 Analyzed: 12/9/2015
Duplicate (B5L0165-DUP1)									
Lead	4.29973	1.0		4.41491			2.64	20	Source: 1504094-20 Prepared: 12/8/2015 Analyzed: 12/9/2015
Duplicate (B5L0165-DUP2)									
Lead	81.4462	1.0		85.4574			4.81	20	Source: 1504094-10 Prepared: 12/8/2015 Analyzed: 12/9/2015
Matrix Spike (B5L0165-MS1)									
Lead	229.084	1.0	250.000	4.41491	89.9	35 - 129			Source: 1504094-20 Prepared: 12/8/2015 Analyzed: 12/9/2015
Matrix Spike (B5L0165-MS2)									
Lead	335.169	1.0	250.000	85.4574	99.9	35 - 129			Source: 1504094-10 Prepared: 12/8/2015 Analyzed: 12/9/2015
Matrix Spike Dup (B5L0165-MSD1)									
Lead	218.585	1.0	250.000	4.41491	85.7	35 - 129	4.69	20	Source: 1504094-20 Prepared: 12/8/2015 Analyzed: 12/9/2015



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Lead by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
Batch B5L0166 - EPA 3050 Modified_S								
Blank (B5L0166-BLK1)								
Lead	ND	1.0						
					Prepared: 12/8/2015 Analyzed: 12/9/2015			
					NR			
Blank (B5L0166-BLK2)								
Lead	ND	1.0						
					Prepared: 12/8/2015 Analyzed: 12/9/2015			
					NR			
LCS (B5L0166-BS1)								
Lead	46.5923	1.0	50.0000		93.2	80 - 120		
					Prepared: 12/8/2015 Analyzed: 12/9/2015			
Duplicate (B5L0166-DUP1)								
		Source: 1504094-40			Prepared: 12/8/2015 Analyzed: 12/9/2015			
Lead	34.0528	1.0		16.7930	NR		67.9	20 R
Duplicate (B5L0166-DUP2)								
		Source: 1504094-30			Prepared: 12/8/2015 Analyzed: 12/9/2015			
Lead	20.6051	1.0		17.8007	NR		14.6	20
Matrix Spike (B5L0166-MS1)								
		Source: 1504094-40			Prepared: 12/8/2015 Analyzed: 12/9/2015			
Lead	237.749	1.0	250.000	16.7930	88.4	35 - 129		
Matrix Spike (B5L0166-MS2)								
		Source: 1504094-30			Prepared: 12/8/2015 Analyzed: 12/9/2015			
Lead	263.199	1.0	250.000	17.8007	98.2	35 - 129		
Matrix Spike Dup (B5L0166-MSD1)								
		Source: 1504094-40			Prepared: 12/8/2015 Analyzed: 12/9/2015			
Lead	224.412	1.0	250.000	16.7930	83.0	35 - 129	5.77	20



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Lead by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
Batch B5L0167 - EPA 3050 Modified_S								
Blank (B5L0167-BLK1)								
Lead	ND	1.0						Prepared: 12/8/2015 Analyzed: 12/9/2015 NR
Blank (B5L0167-BLK2)								
Lead	ND	1.0						Prepared: 12/8/2015 Analyzed: 12/9/2015 NR
LCS (B5L0167-BS1)								
Lead	47.4392	1.0	50.0000		94.9 80 - 120			Prepared: 12/8/2015 Analyzed: 12/9/2015
Duplicate (B5L0167-DUP1)								
Lead	2.42719	1.0		2.66651	NR		9.40 20	Source: 1504094-60 Prepared: 12/8/2015 Analyzed: 12/9/2015
Duplicate (B5L0167-DUP2)								
Lead	9.71546	1.0		8.41508	NR		14.3 20	Source: 1504094-50 Prepared: 12/8/2015 Analyzed: 12/9/2015
Matrix Spike (B5L0167-MS1)								
Lead	239.156	1.0	250.000	2.66651	94.6 35 - 129			Source: 1504094-60 Prepared: 12/8/2015 Analyzed: 12/9/2015
Matrix Spike (B5L0167-MS2)								
Lead	239.567	1.0	250.000	8.41508	92.5 35 - 129			Source: 1504094-50 Prepared: 12/8/2015 Analyzed: 12/9/2015
Matrix Spike Dup (B5L0167-MSD1)								
Lead	239.318	1.0	250.000	2.66651	94.7 35 - 129	0.0676	20	Source: 1504094-60 Prepared: 12/8/2015 Analyzed: 12/9/2015



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Project Number : Sac 160 ADL, S9805-01-64
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 Reported : 12/09/2015

Lead by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
Batch B5L0168 - EPA 3050 Modified_S								
Blank (B5L0168-BLK1)				Prepared: 12/8/2015 Analyzed: 12/9/2015				
Lead	ND	1.0			NR			
Blank (B5L0168-BLK2)				Prepared: 12/8/2015 Analyzed: 12/9/2015				
Lead	ND	1.0			NR			
LCS (B5L0168-BS1)				Prepared: 12/8/2015 Analyzed: 12/9/2015				
Lead	49.8511	1.0	50.0000		99.7 80 - 120			
Duplicate (B5L0168-DUP1)				Source: 1504094-80 Prepared: 12/8/2015 Analyzed: 12/9/2015				
Lead	41.3512	1.0		69.4874	NR	50.8	20	R
Duplicate (B5L0168-DUP2)				Source: 1504094-70 Prepared: 12/8/2015 Analyzed: 12/9/2015				
Lead	25.6473	1.0		25.9100	NR	1.02	20	
Matrix Spike (B5L0168-MS1)				Source: 1504094-80 Prepared: 12/8/2015 Analyzed: 12/9/2015				
Lead	269.755	1.0	250.000	69.4874	80.1	35 - 129		
Matrix Spike (B5L0168-MS2)				Source: 1504094-70 Prepared: 12/8/2015 Analyzed: 12/9/2015				
Lead	261.479	1.0	250.000	25.9100	94.2	35 - 129		
Matrix Spike Dup (B5L0168-MSD1)				Source: 1504094-80 Prepared: 12/8/2015 Analyzed: 12/9/2015				
Lead	271.903	1.0	250.000	69.4874	81.0	35 - 129	0.793	20



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Project Number : Sac 160 ADL, S9805-01-64

Report To : Rebecca Silva

Reported : 12/09/2015

Notes and Definitions

R	RPD value outside acceptance criteria. Calculation is based on raw values.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:

- (1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
- (2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
- (3) Results are wet unless otherwise specified.

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY

Method of Transport: Client 1. CHILLED 2. HEADSPACE (VOA) 3. CONTAINER INTACT 4. SEALED 5. # OF SPLS MATCH COC 6. PRESERVED 7. Y 8. N

P.O. #: _____ Date: _____

Logged By: _____

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

Client: Geocon Consultants, Inc
Attention: Rebecca Silva
Project #: S9805-01-64
Sampler: Cord Dennig
City: Rancho Cordova State: CA Zip Code: 95742
Tel: 916-852-9118 Fax: 916-852-9132

Received by: (Signature and Printed Name) Cord Dennig Date: 12/1/15 Time: 1500

Special Instructions/Comments: Homogenize samples for lead analysis
Caltrans Contract 03A2132
5-Day TAT
Please include an excel file. Thank you.

Received by: (Signature and Printed Name) _____ Date: _____ Time: _____

Send Report To: _____
Attn: _____
Co: _____
Addr: _____
City: _____ State: _____ Zip: _____

Project Mgr / Submitter: Rebecca Silva
Print Name: _____ Date: _____
Signature: _____

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.

Storage Fees (applies when storage is requested):
 ■ Sample: \$2.00 / sample / mo (after 45 days)
 ■ Records: \$1 / ATL workorder / mo (after 1 year)

LAB USE ONLY	LAB No.	Sample ID / Location	Sample Description	Date	Time
	1509094-1	B1-0'	-0.5'	12/1	738
			-1'		739
			-2'		740
		B2-0'	-0.5'		741
			-1'		744
			-0.5'		745
			-2'		746
			-2'		747
		B3-0'	-0.5'		749
			-1'		751
			-2'		752
		B4-0'	-0.5'		754
			-1'		755
			-2'		756
			-2'		757
		B5-0'	-0.5'		759
			-1'		760
			-2'		761
			-2'		762

Circle # of Additional Analysis(es) Requested: X

Total Lead (6010B): X

Container(s): _____

Container Type: T=Tube V=VOA _____ L=Liter _____

Matrix: _____

QA/QC: RTNE CT SWRCB Logcode OTHER _____

REMARKS: _____

Urgent 3 Workdays Critical 2 Workdays Routine 5 Workdays

TAT: A = Overnight ≤ 24 hrs B = Emergency Next Workday C = _____

Preservatives: H=HCl N=HNO₃ S=H₂SO₄ C=4°C Z=Zn(Ac)₂ O=NaOH T=Na₂S₂O₃

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY



Advanced Technology Laboratories
 3275 Walnut Avenue
 Signal Hill, CA 90755
 Tel: (562) 989-4045 • Fax: (562) 989-4040

Method of Transport
 Client ATL CA OverN FedEx Other: airmail

Sample Condition Upon Receipt
 1. CHILLED 2. HEADSPACE (VOA) 3. CONTAINER INTACT 4. SEALED 5. # OF SPLS MATCH COC 6. PRESERVED

P.O. # _____ Date: _____
 Logged By: _____

Address: 3160 Gold Valley Drive, Suite 800
 City: Rancho Cordova State: CA Zip Code: 95742
 Tel: 916-852-9118 Fax: 916-852-9132

Client: Geocon Consultants, Inc
 Attention: Rebecca Silva
 Project Name: Sac 160 ADL
 Project #: S9805-01-64
 Sampler: Cord Dennig

Relinquished by: (Signature and Printed Name)
 Cord Dennig Date: 12/1/15 Time: 1500

Relinquished by: (Signature and Printed Name)
 Rebecca Silva Date: 12/1/15 Time: 1500

Relinquished by: (Signature and Printed Name)
 _____ Date: _____ Time: _____

Special Instructions/Comments:
 Homogenize samples for lead analysis
 Caltrans Contract 03A2132
 5-Day TAT
 Please include an excel file. Thank you.

Bill To: _____ Alt: _____ Co: _____ Addr: _____ City: _____ State: _____ Zip: _____
 Send Report To: _____ Alt: _____ Co: _____ Addr: _____ City: _____ State: _____ Zip: _____

Sampler/Records - Archival & Disposal
 Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.

Storage Fees (applies when storage is requested):
 ■ Sample: \$2.00 / sample / mo (after 45 days)
 ■ Records: \$1 / ATL workorder / mo (after 1 year)

LAB USE ONLY:	Lab No.	Sample ID / Location	Date	Time	SPECIFY APPROPRIATE MATRIX	Container(s)		TAT	Type	REMARKS
						Container #	Volume			
	150-6094-21	HA 6-0'	12/1	815	SOIL			5-Day	5-DAY	
		-0.5'		816	GROUND WATER					
		-1'		817	WASTEWATER					
		-2'		819						
		HA 7-0'		821						
		-0.5'		822						
		-1'		823						
		-2'		824						
		HA 8-0'		829						
		-0.5'		830						
		-1'		831						
		-2'		832						
		BA 9-0'		850						
		-0.5'		851						
		-1'		852						
		-2'		853						
		BA 10-0'		859						
		-0.5'		859						
		-1.5'		860						
		-2'		901						

QA / QC
 RTNE CT SWRCB Logcode OTHER

Preservatives:
 H=HCl N=HNO₃ S=H₂SO₄ C=4°C
 Z=Zn(Ac)₂ O=NaOH T=Na₂S₂O₃

TAT: A = Overnight < 24 hrs B = Emergency Next Workday C = Critical 2 Workdays D = Urgent 3 Workdays E = Routine Workdays

Container Types: T=Tube V=VOA L=Liter P=Print J=Jar B=Tedlar G=Glass P=Plastic M=Metal

TAT starts 8AM the following day if samples received after 3 PM

CHAIN OF CUSTODY RECORD

Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4045 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

Method of Transport: Client ATL FedEx Other:

Sample Condition Upon Receipt: Y N 4. SEALED Y N

1. CHILLED Y N 2. HEADSPACE (VOA) Y N 5. # OF SPLS MATCH COC Y N

3. CONTAINER INTACT Y N 6. PRESERVED Y N

Address: 3160 Gold Valley Drive, Suite 800
City: Rancho Cordova State: CA Zip Code: 95742
Project #: S9805-01-64
Sampler: Cord Dennig
Received by: (Signature and Printed Name) Cord Dennig Date: 12/1/15 Time: 1500

Received by: (Signature and Printed Name) [Signature] Date: 12/1/15 Time: 1500

Received by: (Signature and Printed Name) [Signature] Date: 12/1/15 Time: 1500

Special Instructions/Comments: Homogenize samples for lead analysis
Caltrans Contract 03A2132
5-Day TAT
Please include an excel file. Thank you.

Bill To: _____ City: _____ State: _____ Zip: _____
Attn: _____
Co: _____
Addr: _____
City: _____ State: _____ Zip: _____

Circle for Ahd Analysis(es) Requested: _____
Total Lead (6010B): X

Send Report To: _____ City: _____ State: _____ Zip: _____
Attn: _____
Co: _____
Addr: _____
City: _____ State: _____ Zip: _____

I hereby authorize ATL to perform the work indicated below:
Project Mgr /Submitter: Rebecca Silva
Print Name: _____ Signature: [Signature] Date: _____

Sample/Records - Archival & Disposal
Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.
Storage Fees (applies when storage is requested):
■ Sample: \$2.00 / sample /mo (after 45 days)
■ Records: \$1 /ATL workorder /mo (after 1 year)

LAB USE ONLY: Lab No. _____ Date _____ Time _____

LAB USE ONLY	Lab No.	Sample ID / Location	Date	Time
	1504094-01	B11-0'	12/1	978
		-0.5'		979
		-1'		930
		-2'		937
		W12-0'		926
		-0.5'		938
		-1'		940
		-2'		944
		W13-0'		945
		-0.5'		946
		-1'		947
		-2'		949
		B14-0'		1010
		-0.5'		1011
		-1'		1012
		-2'		1015
		B15-0'		1017
		-0.5'		1018
		-1'		1019
		-2'		1020

Container Types: T=Tube V=VOA L=Liter P=Plastic M=Metal
J=Jar B=Tedlar G=Glass
Urgent 3 Workdays
Critical 2 Workdays
Routine 5 Workdays
TAT: A=Overnight ≤24 hrs B=Emergency Next Workday C=Overnight ≤24 hrs D=Urgent 3 Workdays E=Routine 5 Workdays

Preservatives: H=HCl N=HNO₃ S=H₂SO₄ C=4°C
Z=Zn(Ac)₂ O=NaOH T=Na₂S₂O₃

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY

Advanced Technology Laboratories

3275 Walnut Avenue
Signal Hill, CA 90755

Tel: (562) 989-4045 • Fax: (562) 989-4040

P.O. #: _____ Date: _____
Logged By: _____

Method of Transport
 Client
 ATL
 CA OverN
 FedEx
 Other: STANDARD

Sample Condition Upon Receipt
 Y N 4. SEALED
 Y N 5. # OF SPLS MATCH COC
 Y N 6. PRESERVED

Client: Geoco Consultants, Inc
 Attention: Rebecca Silva
 Project Name: Sac 160 ADL
 Project #: S9805-01-64
 Address: 3160 Gold Valley Drive, Suite 800
 City: Rancho Cordova State: CA Zip Code: 95742
 Sampler: Cord Dennig
 Tel: 916-852-9118 Fax: 916-852-9132

Relinquished by: (Signature and Printed Name)
 Cord Dennig Date: 12/1/15
 Received by: (Signature and Printed Name)
 [Signature] Date: 12/1/15
 Relinquished by: (Signature and Printed Name)
 [Signature] Date: 12/1/15
 Received by: (Signature and Printed Name)
 [Signature] Date: 12/1/15

Special Instructions/Comments:
 Homogenize samples for lead analysis
 Caltrans Contract 03A2132
 5-Day TAT
 Please include an excel file. Thank you.

Bill To: _____
 Attn: _____
 Co: _____
 Addr: _____
 City: _____ State: _____ Zip: _____

Sample/Records - Archival & Disposal
 Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report.
Storage Fees (applies when storage is requested):
 ■ Sample: \$2.00 / sample / mo (after 45 days)
 ■ Records: \$1 / ATL workorder / mo (after 1 year)

LAB USE ONLY: ITEM	Lab No.	Sample ID / Location	Sample Description	Date		Time	Circle or Add Analyst(s) Requested	Total Lead (6010B)	SPECIFY APPROPRIATE MATRIX	Container(s) Type	TAT	QA/QC RTNE <input type="checkbox"/> CT <input checked="" type="checkbox"/> SWRCB Logcode <input type="checkbox"/> OTHER	REMARKS
				Date	Time								
	1047	B16-0'		12/1	1047		X			5-Day			
	1048	-0.5'											
	1049	-1'											
	1050	-2'											
	1109	HA17-0'											
	1110	-0.5'											
	1112	-1'											
	1114	-2'											
	1116	HA18-0'											
	1117	-0.5'											
	1118	-1'											
	1120	-2'											
	1121	HA19-0'											
	1122	-0.5'											
	1123	-1'											
	1124	-2'											
	1125	HA20-0'											
	1126	-0.5'											
	1127	-1'											
	1128	-2'											
	1129												
	1130												

Preservatives:
 H=HCl N=HNO₃ S=H₂SO₄ C=4°C
 Z=Zn(Ac)₂ O=NaOH T=Na₂S₂O₃

TAT: A = Overnight ≤ 24 hrs B = Emergency Next Workday C = Critical 2 Workdays D = Urgent 3 Workdays E = Routine 5 Workdays

Container Types: T=Tube V=VOA L=Liter P=Pinnt J=Jar B=Bedlar G=Glass P=Plastic M=Metal

■ TAT starts 8AM the following day if samples received after 3 PM



December 17, 2015

Rebecca Silva
Geocon Consultants, Inc.
3160 Gold Valley Drive, Suite 800
Rancho Cordova, CA 95742
Tel: (916) 852-9118
Fax:(916) 852-9132

ELAP No.: 1838
CSDLAC No.: 10196
ORELAP No.: CA300003
TCEQ No. : T104704502

Re: ATL Work Order Number : 1504094
Client Reference : Sac 160 ADL, S9805-01-64

Enclosed are the results for sample(s) received on December 02, 2015 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

Thank you for the opportunity to serve the needs of your company. If you have any questions, please feel free to contact me or your Project Manager.

Sincerely,

A handwritten signature in black ink, appearing to read "E. Rodriguez", written in a cursive style.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. Test results contained within this data package meet the requirements of applicable state-specific certification programs. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Certificate of Analysis

Geocon Consultants, Inc.

3160 Gold Valley Drive, Suite 800

Rancho Cordova, CA 95742

Project Number : Sac 160 ADL, S9805-01-64

Report To : Rebecca Silva

Reported : 12/17/2015

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B1-0'	1504094-01	Soil	12/01/15 7:38	12/02/15 9:29
B2-0'	1504094-05	Soil	12/01/15 7:44	12/02/15 9:29
B3-0'	1504094-09	Soil	12/01/15 7:49	12/02/15 9:29
B3-0.5'	1504094-10	Soil	12/01/15 7:50	12/02/15 9:29
B3-1'	1504094-11	Soil	12/01/15 7:51	12/02/15 9:29
B4-0.5'	1504094-14	Soil	12/01/15 7:55	12/02/15 9:29
B5-0'	1504094-17	Soil	12/01/15 7:59	12/02/15 9:29
HA6-0'	1504094-21	Soil	12/01/15 8:15	12/02/15 9:29
HA6-0.5'	1504094-22	Soil	12/01/15 8:16	12/02/15 9:29
HA6-1'	1504094-23	Soil	12/01/15 8:17	12/02/15 9:29
HA6-2'	1504094-24	Soil	12/01/15 8:18	12/02/15 9:29
HA7-0'	1504094-25	Soil	12/01/15 8:21	12/02/15 9:29
HA8-0'	1504094-29	Soil	12/01/15 8:29	12/02/15 9:29
B9-0'	1504094-33	Soil	12/01/15 8:50	12/02/15 9:29
B10-0'	1504094-37	Soil	12/01/15 8:58	12/02/15 9:29
B11-0'	1504094-41	Soil	12/01/15 9:28	12/02/15 9:29
HA12-0'	1504094-45	Soil	12/01/15 9:36	12/02/15 9:29
HA13-0'	1504094-49	Soil	12/01/15 9:45	12/02/15 9:29
HA13-1'	1504094-51	Soil	12/01/15 9:47	12/02/15 9:29
B14-0'	1504094-53	Soil	12/01/15 10:10	12/02/15 9:29
B15-0'	1504094-57	Soil	12/01/15 10:17	12/02/15 9:29
B16-0'	1504094-61	Soil	12/01/15 10:47	12/02/15 9:29
HA17-0'	1504094-65	Soil	12/01/15 11:09	12/02/15 9:29
HA17-0.5'	1504094-66	Soil	12/01/15 11:10	12/02/15 9:29
HA17-2'	1504094-68	Soil	12/01/15 11:14	12/02/15 9:29
HA18-0'	1504094-69	Soil	12/01/15 11:16	12/02/15 9:29
HA18-1'	1504094-71	Soil	12/01/15 11:18	12/02/15 9:29
HA18-2'	1504094-72	Soil	12/01/15 11:20	12/02/15 9:29
HA19-0'	1504094-73	Soil	12/01/15 11:21	12/02/15 9:29
HA19-0.5'	1504094-74	Soil	12/01/15 11:22	12/02/15 9:29
HA19-2'	1504094-76	Soil	12/01/15 11:24	12/02/15 9:29
HA20-0'	1504094-77	Soil	12/01/15 11:25	12/02/15 9:29
HA20-2'	1504094-80	Soil	12/01/15 11:28	12/02/15 9:29



Certificate of Analysis

Geocon Consultants, Inc.

3160 Gold Valley Drive, Suite 800

Rancho Cordova, CA 95742

Project Number : Sac 160 ADL, S9805-01-64

Report To : Rebecca Silva

Reported : 12/17/2015

TCLP Metals by ICP-AES EPA 6010B

Analyte: Lead

Analyst: SB

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1504094-01	B1-0'	ND	mg/L	0.050	1	B5L0320	12/15/2015	12/15/15 12:46	
1504094-14	B4-0.5'	0.51	mg/L	0.050	1	B5L0320	12/15/2015	12/15/15 12:48	
1504094-21	HA6-0'	0.38	mg/L	0.050	1	B5L0320	12/15/2015	12/15/15 12:51	
1504094-25	HA7-0'	0.22	mg/L	0.050	1	B5L0320	12/15/2015	12/15/15 12:53	
1504094-29	HA8-0'	1.1	mg/L	0.050	1	B5L0320	12/15/2015	12/15/15 12:55	
1504094-33	B9-0'	0.21	mg/L	0.050	1	B5L0320	12/15/2015	12/15/15 12:58	
1504094-37	B10-0'	0.29	mg/L	0.050	1	B5L0320	12/15/2015	12/15/15 13:04	
1504094-45	HA12-0'	0.44	mg/L	0.050	1	B5L0320	12/15/2015	12/15/15 13:07	
1504094-49	HA13-0'	0.78	mg/L	0.050	1	B5L0320	12/15/2015	12/15/15 13:09	
1504094-61	B16-0'	0.11	mg/L	0.050	1	B5L0320	12/15/2015	12/15/15 13:18	
1504094-65	HA17-0'	1.0	mg/L	0.050	1	B5L0320	12/15/2015	12/15/15 13:20	
1504094-69	HA18-0'	0.23	mg/L	0.050	1	B5L0320	12/15/2015	12/15/15 13:23	
1504094-73	HA19-0'	0.26	mg/L	0.050	1	B5L0320	12/15/2015	12/15/15 13:25	
1504094-77	HA20-0'	0.10	mg/L	0.050	1	B5L0320	12/15/2015	12/15/15 13:32	



Certificate of Analysis

Geocon Consultants, Inc.

3160 Gold Valley Drive, Suite 800

Rancho Cordova, CA 95742

Project Number : Sac 160 ADL, S9805-01-64

Report To : Rebecca Silva

Reported : 12/17/2015

STLC Metals by ICP-AES by EPA 6010B

Analyte: Lead

Analyst: RR

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1504094-01	B1-0'	6.5	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 14:57	
1504094-05	B2-0'	2.0	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 16:01	
1504094-09	B3-0'	3.4	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 15:01	
1504094-10	B3-0.5'	4.8	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 15:04	
1504094-11	B3-1'	1.5	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 15:06	
1504094-14	B4-0.5'	19	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 15:08	
1504094-17	B5-0'	6.6	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 15:15	
1504094-21	HA6-0'	25	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 15:17	
1504094-22	HA6-0.5'	8.8	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 15:19	
1504094-23	HA6-1'	3.8	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 15:29	
1504094-24	HA6-2'	3.0	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 15:31	
1504094-25	HA7-0'	19	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 16:03	
1504094-29	HA8-0'	48	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 15:36	
1504094-33	B9-0'	27	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 15:42	
1504094-37	B10-0'	26	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 15:44	
1504094-41	B11-0'	13	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 15:47	
1504094-45	HA12-0'	48	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 15:49	
1504094-49	HA13-0'	70	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 15:51	
1504094-51	HA13-1'	4.8	mg/L	1.0	20	B5L0367	12/16/2015	12/16/15 15:54	
1504094-53	B14-0'	6.2	mg/L	1.0	20	B5L0368	12/16/2015	12/16/15 15:21	
1504094-57	B15-0'	1.0	mg/L	1.0	20	B5L0368	12/16/2015	12/16/15 17:17	
1504094-61	B16-0'	39	mg/L	1.0	20	B5L0368	12/16/2015	12/16/15 15:32	
1504094-65	HA17-0'	42	mg/L	1.0	20	B5L0368	12/16/2015	12/16/15 15:36	
1504094-66	HA17-0.5'	4.7	mg/L	1.0	20	B5L0368	12/16/2015	12/16/15 15:40	
1504094-68	HA17-2'	7.3	mg/L	1.0	20	B5L0368	12/16/2015	12/16/15 15:44	
1504094-69	HA18-0'	28	mg/L	1.0	20	B5L0368	12/16/2015	12/16/15 15:47	
1504094-71	HA18-1'	9.4	mg/L	1.0	20	B5L0368	12/16/2015	12/16/15 15:59	
1504094-72	HA18-2'	2.2	mg/L	1.0	20	B5L0368	12/16/2015	12/16/15 16:03	
1504094-73	HA19-0'	23	mg/L	1.0	20	B5L0368	12/16/2015	12/16/15 16:06	
1504094-74	HA19-0.5'	11	mg/L	1.0	20	B5L0368	12/16/2015	12/17/15 10:59	



Certificate of Analysis

Geocon Consultants, Inc.

3160 Gold Valley Drive, Suite 800

Rancho Cordova, CA 95742

Project Number : Sac 160 ADL, S9805-01-64

Report To : Rebecca Silva

Reported : 12/17/2015

STLC Metals by ICP-AES by EPA 6010B

Analyte: Lead

Analyst: RR

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1504094-76	HA19-2'	1.9	mg/L	1.0	20	B5L0368	12/16/2015	12/17/15 11:02	
1504094-77	HA20-0'	15	mg/L	1.0	20	B5L0368	12/16/2015	12/16/15 16:30	
1504094-80	HA20-2'	1.8	mg/L	1.0	20	B5L0368	12/16/2015	12/16/15 16:35	



Certificate of Analysis

Geocon Consultants, Inc.
 3160 Gold Valley Drive, Suite 800
 Rancho Cordova, CA 95742

Project Number : Sac 160 ADL, S9805-01-64
 Report To : Rebecca Silva
 Reported : 12/17/2015

QUALITY CONTROL SECTION

TCLP Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B5L0320 - EPA 3010A_S									
Blank (B5L0320-BLK1)					Prepared: 12/15/2015 Analyzed: 12/15/2015				
Lead	ND	0.050					NR		
Blank (B5L0320-BLK2)					Prepared: 12/15/2015 Analyzed: 12/15/2015				
Lead	ND	0.050					NR		
LCS (B5L0320-BS1)					Prepared: 12/15/2015 Analyzed: 12/15/2015				
Lead	0.933406	0.050	1.00000		93.3	80 - 120			
Duplicate (B5L0320-DUP1)					Prepared: 12/15/2015 Analyzed: 12/15/2015				
Lead	0.811369	0.050		0.779878	NR		3.96	20	
Duplicate (B5L0320-DUP2)					Prepared: 12/15/2015 Analyzed: 12/15/2015				
Lead	0.067211	0.050		0.067419	NR		0.309	20	
Matrix Spike (B5L0320-MS1)					Prepared: 12/15/2015 Analyzed: 12/15/2015				
Lead	3.10162	0.050	2.50000	0.779878	92.9	77 - 121			
Matrix Spike (B5L0320-MS2)					Prepared: 12/15/2015 Analyzed: 12/15/2015				
Lead	2.18181	0.050	2.50000	0.067419	84.6	77 - 121			
Matrix Spike Dup (B5L0320-MSD1)					Prepared: 12/15/2015 Analyzed: 12/15/2015				
Lead	2.89199	0.050	2.50000	0.779878	84.5	77 - 121	7.00	20	



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STLC Metals by ICP-AES by EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
Batch B5L0367 - STLC_S Extraction								
Blank (B5L0367-BLK1)				Prepared: 12/16/2015 Analyzed: 12/16/2015				
Lead	ND	1.0			NR			
Blank (B5L0367-BLK2)				Prepared: 12/16/2015 Analyzed: 12/16/2015				
Lead	ND	1.0			NR			
LCS (B5L0367-BS1)				Prepared: 12/16/2015 Analyzed: 12/16/2015				
Lead	1.92182		2.00000		96.1 80 - 120			
Duplicate (B5L0367-DUP1)		Source: 1504094-22		Prepared: 12/16/2015 Analyzed: 12/16/2015				
Lead	8.17226	1.0		8.81969	NR	7.62	20	
Duplicate (B5L0367-DUP2)		Source: 1504094-51		Prepared: 12/16/2015 Analyzed: 12/16/2015				
Lead	0.211512	0.050		4.79009	NR	183	20	R
Matrix Spike (B5L0367-MS1)		Source: 1504094-22		Prepared: 12/16/2015 Analyzed: 12/16/2015				
Lead	10.5492		2.50000	8.81969	69.2	44 - 130		
Matrix Spike (B5L0367-MS2)		Source: 1504094-51		Prepared: 12/16/2015 Analyzed: 12/16/2015				
Lead	6.64669		2.50000	4.79009	74.3	44 - 130		
Matrix Spike Dup (B5L0367-MSD1)		Source: 1504094-22		Prepared: 12/16/2015 Analyzed: 12/16/2015				
Lead	9.89658		2.50000	8.81969	43.1	44 - 130	6.38	20 M1



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STLC Metals by ICP-AES by EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	Limits	RPD	RPD Limit	Notes
Batch B5L0368 - STLC_S Extraction									
Blank (B5L0368-BLK1)				Prepared: 12/16/2015 Analyzed: 12/16/2015					
Lead	ND	1.0			NR				
Blank (B5L0368-BLK2)				Prepared: 12/16/2015 Analyzed: 12/16/2015					
Lead	ND	1.0			NR				
LCS (B5L0368-BS1)				Prepared: 12/16/2015 Analyzed: 12/16/2015					
Lead	2.39077		2.00000		120	80 - 120			
Duplicate (B5L0368-DUP1)				Source: 1504094-73 Prepared: 12/16/2015 Analyzed: 12/16/2015					
Lead	20.8870	1.0		22.7155	NR		8.39	20	
Duplicate (B5L0368-DUP2)				Source: 1504124-18 Prepared: 12/16/2015 Analyzed: 12/16/2015					
Lead	ND	1.0		7.97226	NR			20	
Matrix Spike (B5L0368-MS1)				Source: 1504094-73 Prepared: 12/16/2015 Analyzed: 12/16/2015					
Lead	21.9170		2.50000	22.7155	-31.9	44 - 130			M1
Matrix Spike (B5L0368-MS2)				Source: 1504124-18 Prepared: 12/16/2015 Analyzed: 12/17/2015					
Lead	5.67366		2.50000	7.97226	-91.9	44 - 130			M1
Matrix Spike Dup (B5L0368-MSD1)				Source: 1504094-73 Prepared: 12/16/2015 Analyzed: 12/16/2015					
Lead	22.0178		2.50000	22.7155	-27.9	44 - 130	0.459	20	M1



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Notes and Definitions

R	RPD value outside acceptance criteria. Calculation is based on raw values.
MI	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

Notes:

- (1) The reported MDL and PQL are based on prep ratio variation and analytical dilution.
- (2) The suffix [2C] of specific analytes signifies that the reported result is taken from the instrument's second column.
- (3) Results are wet unless otherwise specified.

Diane Galvan

From: Gemma Reblando [reblando@geoconinc.com]
Sent: Thursday, December 10, 2015 4:37 PM
To: Diane Galvan
Cc: Rebecca Silva
Subject: Results/EDD/Invoice - Sac 160 ADL (1504094)

Hi Diane – please analyze soil samples (33 samples) with total lead concentrations ≥ 50 mg/k; soluble lead. The following samples will be additionally analyzed for TCLP soluble lead. WET analyses will be performed under 5-day TAT.

B1-0
B4-0.5
HA6-0
HA7-0
HA8-0
B9-0
B10-0
HA12-0
HA13-0
B16-0
HA17-0
HA18-0
HA19-0
HA20-0

Thanks,
Gemma



Gemma Reblando | Project Geologist
Geocon Consultants, Inc.

3160 Gold Valley Drive Suite 800, Rancho Cordova, CA 95742

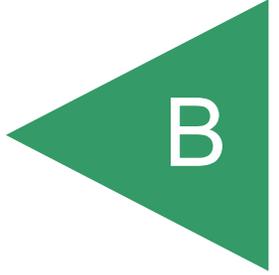
Tel 916.852.9118 Fax 916.852.9132 Cell 916.396.8476

reblando@geoconinc.com / www.geoconinc.com / [Facebook](#) / [LinkedIn](#)

Bay Area - Sacramento - Fairfield - Los Angeles - Orange County - Riverside County - Palm Des

Geotechnical Engineering Environmental Services Engineering Geology Construction
Land Development Transportation Infrastructure Institutional Brownfields/Redevelopment Natural Resources

APPENDIX



Project Name: State Route 160 (03-SAC-160) Post Mile R43.3 to 47.0
Geocon Project No.: S9805-01-64
Sample Location: Location 1 - SR-160/51 Junction (PM 46.65 to 46.765)

Lead - 0.0 to 0.5 ft

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	37	Mean	262.5
Maximum	930	Median	130
SD	300.9	Std. Error of Mean	106.4
Coefficient of Variation	1.146	Skewness	1.882
Mean of logged data	5.047	SD of logged data	1.092
		90% Standard Bootstrap UCL	386.1
		95% Standard Bootstrap UCL	431.7

Lead - 0.5 to 1 ft

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	4.9	Mean	90.1
Maximum	390	Median	21
SD	135.1	Std. Error of Mean	47.78
Coefficient of Variation	1.5	Skewness	1.957
Mean of logged data	3.471	SD of logged data	1.561
		90% Standard Bootstrap UCL	148.6
		95% Standard Bootstrap UCL	162.0

Lead - 1 to 2 ft

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	3.6	Mean	24.5
Maximum	71	Median	9.35
SD	27.23	Std. Error of Mean	9.629
Coefficient of Variation	1.113	Skewness	1.121
Mean of logged data	2.596	SD of logged data	1.183
		90% Standard Bootstrap UCL	36.0
		95% Standard Bootstrap UCL	39.2

Lead - 2 to 3 ft

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	4.1	Mean	13.3
Maximum	57	Median	6.15
SD	17.98	Std. Error of Mean	6.359
Coefficient of Variation	1.356	Skewness	2.646
Mean of logged data	2.127	SD of logged data	0.88

Project Name: State Route 160 (03-SAC-160) Post Mile R43.3 to 47.0
Geocon Project No.: S9805-01-64

90% Standard Bootstrap UCL	20.7
95% Standard Bootstrap UCL	22.8

SUMMARY OF STATISTICAL ANALYSIS
 EA NO. 03-0H1100
 STATE ROUTE 160 POST MILE R43.3 TO 47.0
 SACRAMENTO, CALIFORNIA

Location 1 - SR-160/51 Junction (PM 46.65 to 46.765)

Total Lead UCLs (mg/kg)

Sample Interval (feet)	90% UCL	95% UCL
0 to 0.5	386.1	431.7
0.5 to 1	148.6	162.0
1 to 2	36.0	39.2
2 to 3	20.7	22.8

Excavation Scenarios

Excavation Depth	90% UCL		95% UCL	
	Total Lead (mg/kg)	Soluble (WET) Lead * (mg/l)	Total Lead (mg/kg)	Soluble (WET) Lead * (mg/l)
0 to 0.5	386.1	17.2	431.7	19.2
Underlying Soil (0.5 to 3 feet)	52.4	2.3	57.2	2.5
0 to 1 foot	267.4	11.9	296.9	13.2
Underlying Soil (1 to 3 feet)	28.4	1.3	31.0	1.4
0 to 1.5 feet	190.2	8.5	211.0	9.4
Underlying Soil (1.5 to 3 feet)	25.8	1.1	28.3	1.3
0 to 2 feet	151.7	6.7	168.0	7.5
Underlying Soil (2 to 3 feet)	20.7	0.9	22.8	1.0
0 to 2.5 feet	125.5	5.6	139.0	6.2
Underlying Soil (2.5 to 3 feet)	20.7	0.9	22.8	1.0
0 to 3 feet	108.0	4.8	119.6	5.3

Notes:

UCL = Upper Confidence Limit

90% UCL applicable for waste classification and onsite reuse

95% UCL applicable for risk assessment and offsite disposal

mg/kg = milligrams per kilogram

mg/l = milligrams per liter

* = Soluble (WET) lead concentrations were predicted using slope of the regression line, where y = predicted soluble (WET) lead and x = total lead

Regression Line Slope:

$$y = 0.0445 x$$

Project Name: State Route 160 (03-SAC-160) Post Mile R43.3 to 47.0
Geocon Project No.: S9805-01-64
Sample Location: Location 2 - Sacramento Light Rail UC (PM R45.043 to 45.247)

Lead - 0.0 to 0.5 ft

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	57	Mean	640.5
Maximum	1600	Median	500
SD	627.5	Std. Error of Mean	221.8
Coefficient of Variation	0.98	Skewness	0.734
Mean of logged data	5.845	SD of logged data	1.315
		90% Standard Bootstrap UCL	912.5
		95% Standard Bootstrap UCL	987.3

Lead - 0.5 to 1 ft

Total Number of Observations	8	Number of Distinct Observations	6
		Number of Missing Observations	0
Minimum	8.4	Mean	16.9
Maximum	49	Median	13
SD	13.13	Std. Error of Mean	4.64
Coefficient of Variation	0.775	Skewness	2.685
Mean of logged data	2.672	SD of logged data	0.525
		90% Standard Bootstrap UCL	22.3
		95% Standard Bootstrap UCL	24.2

Lead - 1 to 2 ft

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	3	Mean	19.4
Maximum	91	Median	9.1
SD	29.35	Std. Error of Mean	10.38
Coefficient of Variation	1.51	Skewness	2.667
Mean of logged data	2.368	SD of logged data	1.042
		90% Standard Bootstrap UCL	31.9
		95% Standard Bootstrap UCL	35.5

Lead - 2 to 3 ft

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	2.7	Mean	9.4
Maximum	22	Median	7
SD	7.012	Std. Error of Mean	2.479
Coefficient of Variation	0.745	Skewness	0.961
Mean of logged data	1.989	SD of logged data	0.773

SUMMARY OF STATISTICAL ANALYSIS
 EA NO. 03-0H1100
 STATE ROUTE 160 POST MILE R43.3 TO 47.0
 SACRAMENTO, CALIFORNIA

Location 2 - Sacramento Light Rail UC (PM R45.043 to 45.247)

Total Lead UCLs (mg/kg)

Sample Interval (feet)	90% UCL	95% UCL
0 to 0.5	912.5	987.3
0.5 to 1	22.3	24.2
1 to 2	31.9	35.5
2 to 3	12.4	13.2

Excavation Scenarios

Excavation Depth	90% UCL		95% UCL	
	Total Lead (mg/kg)	Soluble (WET) Lead * (mg/l)	Total Lead (mg/kg)	Soluble (WET) Lead * (mg/l)
0 to 0.5	912.5	40.6	987.3	43.9
Underlying Soil (0.5 to 3 feet)	22.2	1.0	24.3	1.1
0 to 1 foot	467.4	20.8	505.8	22.5
Underlying Soil (1 to 3 feet)	22.2	1.0	24.4	1.1
0 to 1.5 feet	322.2	14.3	349.0	15.5
Underlying Soil (1.5 to 3 feet)	18.9	0.8	20.6	0.9
0 to 2 feet	249.7	11.1	270.6	12.0
Underlying Soil (2 to 3 feet)	12.4	0.6	13.2	0.6
0 to 2.5 feet	202.2	9.0	219.1	9.8
Underlying Soil (2.5 to 3 feet)	12.4	0.6	13.2	0.6
0 to 3 feet	170.6	7.6	184.8	8.2

Notes:

UCL = Upper Confidence Limit

90% UCL applicable for waste classification and onsite reuse

95% UCL applicable for risk assessment and offsite disposal

mg/kg = milligrams per kilogram

mg/l = milligrams per liter

* = Soluble (WET) lead concentrations were predicted using slope of the regression line,
 where y = predicted soluble (WET) lead and x = total lead

Regression Line Slope:

$$y = 0.0445 x$$

Project Name: State Route 160 (03-SAC-160) Post Mile R43.3 to 47.0
Geocon Project No.: S9805-01-64

90% Standard Bootstrap UCL	12.4
95% Standard Bootstrap UCL	13.2

Project Name: State Route 160 (03-SAC-160) Post Mile R43.3 to 47.0
Geocon Project No.: S9805-01-64
Sample Location: Location 3 - Northgate Boulevard Onramp to WB SR-160 (PM R44.1)

Lead - 0.0 to 1 ft

Total Number of Observations	8	Number of Distinct Observations	7
		Number of Missing Observations	0
Minimum	8.6	Mean	255.6
Maximum	780	Median	220
SD	252.7	Std. Error of Mean	89.35
Coefficient of Variation	0.989	Skewness	1.37
Mean of logged data	4.879	SD of logged data	1.502
		90% Standard Bootstrap UCL	363.2
		95% Standard Bootstrap UCL	392.0

Lead - 1 to 3 ft

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	14	Mean	65.9
Maximum	150	Median	62.5
SD	45.21	Std. Error of Mean	15.98
Coefficient of Variation	0.686	Skewness	0.709
Mean of logged data	3.92	SD of logged data	0.856
		90% Standard Bootstrap UCL	85.1
		95% Standard Bootstrap UCL	90.2

SUMMARY OF STATISTICAL ANALYSIS
 EA NO. 03-0H1100
 STATE ROUTE 160 POST MILE R43.3 TO 47.0
 SACRAMENTO, CALIFORNIA

Location 3 - Northgate Boulevard Onramp to WB SR-160 (PM R44.1)

Total Lead UCLs (mg/kg)

Sample Interval (feet)	90% UCL	95% UCL
0 to 1	363.2	392.0
1 to 3	85.1	90.2

Excavation Scenarios

Excavation Depth	90% UCL		95% UCL	
	Total Lead (mg/kg)	Soluble (WET) Lead * (mg/l)	Total Lead (mg/kg)	Soluble (WET) Lead * (mg/l)
0 to 1 foot Underlying Soil (1 to 3 feet)	363.2 85.1	16.2 3.8	392.0 90.2	17.4 4.0
0 to 2 feet Underlying Soil (2 to 3 feet)	224.2 85.1	10.0 3.8	241.1 90.2	10.7 4.0
0 to 3 feet	177.8	7.9	190.8	8.5

Notes:

UCL = Upper Confidence Limit

90% UCL applicable for waste classification and onsite reuse

95% UCL applicable for risk assessment and offsite disposal

mg/kg = milligrams per kilogram

mg/l = milligrams per liter

* = Soluble (WET) lead concentrations were predicted using slope of the regression line,
 where y = predicted soluble (WET) lead and x = total lead

Regression Line Slope:

$$y = 0.0445 x$$

Project Name: State Route 160 (03-SAC-160) Post Mile R43.3 to 47.0
 Geocon Project No.: S9805-01-64

Sample ID	Total Lead (mg/kg)	WET Lead (mg/l)	Residual WET Lead (mg/l)	Squared Residual WET Lead (mg/l)
HA17-0.5'	100	4.7	0.25	0.06
B5-0'	140	6.6	0.38	0.14
HA6-2'	57	3.0	0.47	0.22
HA19-2'	56	1.9	-0.59	0.35
HA6-1'	71	3.8	0.64	0.41
HA13-1'	91	4.8	0.75	0.57
HA6-0.5'	180	8.8	0.80	0.64
B3-0'	58	3.4	0.82	0.67
B3-0.5'	85	4.8	1.02	1.04
HA13-0'	1,600	70	-1.14	1.29
B1-0'	120	6.5	1.16	1.36
B3-1'	61	1.5	-1.21	1.47
HA20-2'	69	1.8	-1.27	1.61
B2-0'	75	2.0	-1.33	1.78
B15-0'	57	1.0	-1.53	2.35
B4-0.5'	390	19	1.66	2.76
HA18-2'	96	2.2	-2.07	4.28
B14-0'	87	6.2	2.33	5.44
HA20-0'	280	15	2.55	6.51
HA18-1'	150	9.4	2.73	7.46
HA17-2'	85	7.3	3.52	12.40
HA7-0'	340	19	3.88	15.08
HA19-0.5'	160	11	3.89	15.10
B16-0'	760	39	5.21	27.14
B9-0'	750	27	-6.35	40.27
HA8-0'	930	48	6.65	44.24
HA6-0'	400	25	7.22	52.07
HA17-0'	780	42	7.32	53.59
B11-0'	120	13	7.66	58.75
HA18-0'	410	28	9.77	95.47
HA19-0'	280	23	10.55	111.32
B10-0'	250	26	14.88	221.56
HA12-0'	1,500	48	-18.69	349.35

slope	y-intercept	predicted WET	residual WET
0.0445	0	4.4	0.25
		6.2	0.38
		2.5	0.47
		2.5	-0.59
		3.2	0.64
		4.0	0.75
		8.0	0.80
		2.6	0.82
		3.8	1.02
		71.1	-1.14
		5.3	1.16
		2.7	-1.21
		3.1	-1.27
		3.3	-1.33
		2.5	-1.53
		17.3	1.66
		4.3	-2.07
		3.9	2.33
		12.4	2.55
		6.7	2.73
		3.8	3.52
		15.1	3.88
		7.1	3.89
		33.8	5.21
		33.3	-6.35
		41.3	6.65
		17.8	7.22
		34.7	7.32
		5.3	7.66
		18.2	9.77
		12.4	10.55
		11.1	14.88
		66.7	-18.69

