

INFORMATION HANDOUT

For Contract No. 11-413504

At 11-SD-8-15.3/R21.6

Identified by

Project ID 1113000038

MATERIALS INFORMATION

1. [Water Availability Letter dated July 27, 2015](#)
2. [Hazardous Materials Initial Site Assessment Memorandum dated July 10, 2015](#)
3. [Aerially Deposited Lead Survey Report dated May 29, 2015](#)
4. [Corrosion Study dated February 20, 2015](#)

ELECTRONIC FILES

1. [Cross Sections in PDF format](#)



Helix Water District

Setting standards of excellence in public service

7811 University Avenue
La Mesa, CA 91942-0427

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www.hwd.com

July 27, 2015

Abdul Malikyar, P.E.
Caltrans D11, MS 340
4050 Taylor Street
San Diego, CA 92110

RE: Caltrans Project 11-413501

Dear Mr. Malikyar,

Helix Water District's current drought Level 2 (see attached flyer) does not limit the district or have any mandatory water use restrictions on providing adequate water resources necessary to supply the duration of the project. However, the district has enacted an emergency drought action plan to meet the state's mandate to reduce district water use by 20 percent, in addition to the current Level 2 mandatory restrictions in place for all customers. The mandatory actions include:

- Water no more than two days per week, chosen by you.
- Water no more than 10 minutes per station per chosen day, unless using drip, rotating nozzles, etc.
- No irrigation during and within 48 hours of measurable rainfall.
- Eliminate irrigation runoff.
- Water before 10 a.m. and after 6 p.m.
- Temporary 10 percent penalty for all Tier 3 domestic water use.
- Washing down hardscapes is prohibited, unless required for health or safety reasons.
- Repair all leaks within 72 hours.
- Use recirculated water in fountains and water features.
- Use a shut-off nozzle when washing vehicles.

If San Diego County Water Authority (SDCWA) declares Level 3, our current policy states that we "may" enact a moratorium on meter issuance. The district does not currently have a moratorium on new water meters or temporary meters, however that could change if additional drought regulations come down from SDCWA or the state as the drought continues.

Under a Level 3, our current policy has exemptions for the following:

- If a valid, unexpired building permit has already been issued; or
- The project is necessary to protect the public's health, safety, or welfare.

Additional information is available on our website at hwd.com.

Sincerely,

Aneld Anub, P.E.

c: Tim Ross, HWD



Drought LEVEL



1	<input type="checkbox"/>
2	<input checked="" type="checkbox"/>
3	<input type="checkbox"/>
4	<input type="checkbox"/>

Mandatory Water Restrictions

- ◆ Irrigate no more than 3 days per week (chosen by customer).
- ◆ Limit watering to irrigate no more than 10 minutes per station per day (unless using drip, rotating nozzles or rotors).
- ◆ Eliminate runoff from irrigation systems.
- ◆ Water between 6 p.m. and 10 a.m.
- ◆ Repair all leaks within 72 hours.
- ◆ Use recirculated water in water fountains and water features.
- ◆ Use a hose with positive shut-off nozzle when washing vehicles.
- ◆ Washing down of hardscapes is prohibited (unless required for public health and safety).



Helix Water District

www.hwd.com

Memorandum

*Serious drought.
Help Save Water!*

To: KATIE BASINSKI
Environmental Analysis

Date: July 10, 2015

File: 11-413501
1113000038
11-SD-8
PM 15.3 & R21.6
Pavement Rehabilitation

From: DIANE VERMEULEN
Environmental Engineering



Subject: Hazardous Materials Initial Site Assessment for Slab Replacement, Upgrade Dikes and MSGR, Resurface Ramps, Gore Cleanup, ADA Ramp Upgrades on West- and East-bound Route 8 and Install PCC from Magnolia Avenue to Lake Jennings Park Road Route 8 East-bound, San Diego County, California

Updated Hazardous Waste Review Following ADL Study Results

Improvements include slab replacement along the outside lanes, milling and AC overlay of ramps and shoulders west- and east-bound, and the Extension of the Hinge Point with Associated Grading and drainage at Magnolia, and installation of PCC ramp termini along the eastbound exit ramps between Magnolia Avenue and Lake Jennings Park Road. This project also address upgrades to traffic items such as MSGR, dikes and ADA curb ramps where applicable.

Aerially deposited lead (ADL) – Hazardous Levels of ADL exist down to 2 feet at the Magnolia Avenue. All soil excavated from this location will be handled as Z-2 and be disposed of at a class I landfill. The Los Coches Road location has non-hazardous levels of ADL and may be released to the contractor without any restrictions. Soil disturbance requires the SSP 7-1.02K(6)(j)(iii) Earth Material Containing Lead to be included. A bid item will still need to be included for a lead compliance plan. Please use **\$5,000.00** for the bid estimate for the lead compliance plan.

Naturally occurring asbestos (NOA) - NOA will not be an issue on this project since NOA does not occur in the project area.

Asbestos containing materials (ACM), lead containing paint (LCP) - The project does not impact any structures or facilities that would warrant an asbestos containing material or lead containing paint inspection so ACM and LCP will not be issues for this project.

Treated wood waste (TWW) – Treated wood waste is wood that has been treated with a chemical preservative, such as the wood guardrail posts and wood signposts. These must be managed as a non-hazardous designated waste by being disposed at a composite-lined solid waste landfill facility permitted to accept such wastes. Use 14-11.09 for the handling of the TWW.

Yellow thermoplastic or traffic stripe - Hazardous concentrations of lead chromate may be present in the yellow paint material. If yellow traffic paint striping or thermoplastic pavement marking is

July 1, 2015

Page 2.

to be removed by itself as part of the scope of the subject project, it shall be removed according to SSP 14-11.07 for lead-based paint removal so that worker and public exposure is minimized. For all other color paint removal use SSP 15-2.02C(2) for handling since all paint stripe has lead present. A lead compliance plan (LCP) shall be prepared for conducting the paint removal activities. The LCP shall describe proper handling and disposal methods of the paint material and shall provide information regarding limiting exposure to lead chromate containing paint materials.

If yellow traffic stripe or yellow thermoplastic pavement marking is removed with grindings, it shall be removed in accordance with Standard Special Provision 15-1.03S. Hazardous concentrations of lead chromate may be present in the paint material, but with grindings may not be hazardous overall. A Lead Compliance Plan shall be prepared for conducting the paint removal activities. The Lead Compliance Plan shall describe proper handling methods of the paint material and shall provide information regarding limiting exposure to lead chromate containing paint materials. The grinding material may be properly disposed as a non-hazardous material depending upon test results. Regardless of which SSP is included, a bid item will need to be included for a lead compliance plan. Use \$5,000.00 for the bid cost estimate. Only one lead compliance plan is required for this project.

The issues identified in this document are not considered as mitigation under CEQA. These issues are routine construction issues that are handled in the construction contract through inclusion of standard special provisions. This project can proceed with very little risk of impacts due to unanticipated hazardous waste or other contamination related issues.

This determination is based on the information provided so far. Please submit a supplemental request for a hazardous waste assessment to cover the changes in the project if there is a change in the nature or scope of the project.

If you have any questions or comments, please contact Diane Vermeulen at 619-688-3146.

c:

Jayne Dowda - Environmental Engineering (by email only)

**AERIALY DEPOSITED LEAD SURVEY REPORT
FOR INTERSTATE ROUTE 8
AT MAGNOLIA AVENUE AND LOS COCHES ROAD
EL CAJON, CALIFORNIA
CALTRANS DISTRICT 11, EA 413501, PI 1113000038
CONTRACT NO. 11A1996
TASK ORDER NO. 27**

Project: 20155257.001A

May 29, 2015

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**Only the client or its designated representatives may use this document and
only for the specific project for which this report was prepared.**

A Report Prepared for:
Ms. Diane Vermeulen, P.E.
State of California Department of Transportation
Environmental Division, MS 242
4050 Taylor Street
San Diego, California 92110

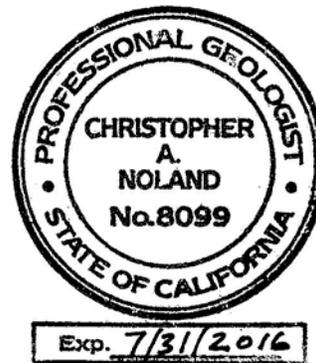
**AERIALLY DEPOSITED LEAD SURVEY REPORT
FOR INTERSTATE ROUTE 8
AT MAGNOLIA AVENUE AND LOS COCHES ROAD
EL CAJON, CALIFORNIA
CALTRANS DISTRICT 11, EA 413501, PI 1113000038
CONTRACT NO. 11A1996
TASK ORDER NO. 27**

Kleinfelder Project No. 20155257.001A

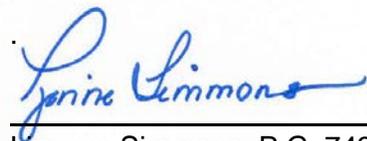
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May 29, 2015

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1 INTRODUCTION.....	1
1.1 PROJECT DESCRIPTION.....	1
1.2 PROJECT OBJECTIVES AND SCOPE OF WORK	1
1.3 REPORT ORGANIZATION.....	2
2 BACKGROUND.....	4
2.1 SITE IMPROVEMENTS.....	4
2.2 WASTE CLASSIFICATION, ADL VARIANCE, AND SOIL REUSE CRITERIA ...	4
3 SAMPLING ACTIVITIES.....	7
3.1 PRE-FIELD ACTIVITIES.....	7
3.2 ADL SAMPLING LOCATIONS AND GPS SURVEY.....	7
3.2.1 Hand Auger Drilling and Soil Sampling Methods	7
3.3 EQUIPMENT BLANKS.....	8
3.4 ANALYTICAL METHODS	8
3.5 DECONTAMINATION AND BORING ABANDONMENT	9
4 FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS.....	10
4.1 SITE CONDITIONS	10
4.2 SOIL SAMPLE RESULTS.....	10
4.2.1 Total Lead	10
4.2.2 California WET Method Soluble Lead Results	10
4.2.3 California DI-WET Method Soluble Lead Results	10
4.2.4 TCLP Soluble Lead	11
4.2.5 Hydrogen Ion Concentration.....	11
5 DATA QUALITY ASSESSMENT	12
6 STATISTICAL EVALUATION	14
7 CONCLUSIONS AND RECOMMENDATIONS	17
7.1 VARIANCE CONCLUSIONS	17
7.2 WASTE CHARACTERIZATION CONCLUSIONS	17
7.3 RECOMMENDATIONS.....	17
8 LIMITATIONS	19
9 REFERENCES.....	21

PLATES

Plate 1	Site Location Map
Plate 2a-2b	Boring Locations
Plate 3	ADL-Impacted Soils Management Flow Chart

TABLE

Table 1	Soil Analytical Results
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APPENDICES

Appendix A	Sample Location Coordinates (Table A-1)
Appendix B	Laboratory Analytical Reports and Chain-of-Custody Documentation
Appendix C	Statistical Analysis of Lead Concentrations in Soil (The Bodhi Group, May 20, 2015)

1 INTRODUCTION

1.1 PROJECT DESCRIPTION

This report has been prepared to summarize procedures and results of an Aerially Deposited Lead (ADL) survey conducted on Interstate 8 (I-8) at the eastbound on ramp from Magnolia Avenue and the westbound off ramp to Los Coches Road in El Cajon, California (Project/Site) (Plates 1, 2a and 2b). The State of California Department of Transportation (Caltrans) is proposing highway improvements in the form of pavement rehabilitation and handicapped pedestrian access ramps. This work was performed for Caltrans, consistent with EA-11-413501 and Contract No. 11A1996, Task Order No. 27 (TO27). This report summarizes soil sampling for ADL conducted during April 2015 at specific locations in the unpaved shoulders at the Site.

1.2 PROJECT OBJECTIVES AND SCOPE OF WORK

Based on historical Site use (freeway), there is the potential that ADL is present within soil adjacent to the existing traveled ways; therefore, Caltrans needs to evaluate the presence, concentration, and distribution of lead in soil in anticipation of future grading/construction activities. The data will be used to evaluate soil within the proposed construction area to assess the potential for reuse on Site. It will also be used to evaluate disposal options for potentially lead-impacted soil, and to evaluate health and safety issues for future on-Site workers.

Based on the age of interchange, there is a potential that ADL may be present within shallow exposed soil (i.e., upper 5 feet) adjacent to the existing traveled ways.

The objective of the ADL study was to provide data for evaluation to allow for management of ADL-impacted soils associated with the above-referenced Caltrans Project, based on Project design information known at this time. Samples were collected to provide information about lead containing soils along the unpaved shoulders (Caltrans right-of-way) within the Project boundaries, and evaluated relative to the variance granted to Caltrans by the Department of Toxic Substance Control (DTSC) (DTSC, 2009).

This report describes the procedures, results, and recommendations from the ADL study performed within the Project limits. The scope of work was provided to Kleinfelder by Caltrans in the Task Order description. Consistent with the Task Order, and as described in the *Aerially Deposited Lead Survey Work Plan* (Kleinfelder, 2015a), Kleinfelder performed the tasks listed below:

- Provided project management and coordination.
- Prepared a Site-specific work plan and prepared a Site-specific health and safety plan (SSHSP) (Kleinfelder, 2015b).
- Coordinated traffic control for shoulder closure, as necessary.
- Advanced 8 borings using hand auger methods to a depth of approximately 2 feet below ground surface (bgs).
- Obtained global positioning system (GPS) location readings at each boring location.
- Submitted 27 soil samples, including 3 field duplicate samples, to Agricultural and Priority Pollutants Laboratories, Inc. (APPL) of Clovis, a state-certified laboratory, for analysis of total lead by United States Environmental Protection Agency (USEPA) Method 6010B.
- Analyzed 27 soil samples, including 3 duplicate samples, for Soluble Threshold Limit Concentration (STLC), or leachable lead, using the California Title 22 waste extraction test (CA-WET) method.
- Analyzed 6 soil samples for STLC by the modified California Title 22 WET method using deionized (DI) water as the extractant.
- Analyzed 5 soil samples for Toxicity Characteristic Leaching Procedure (TCLP) using USEPA Method 1311.
- Analyzed 5 soil samples for hydrogen ion index (pH) by USEPA Methods 9045C.
- Collected and analyzed one equipment blank for total lead by USEPA Method 6010B. One equipment blank was collected at the end of the sampling day.
- Prepared this report, including a summary of the assessment methods and field observations, data evaluation and discussion, findings, conclusions and recommendations.

1.3 REPORT ORGANIZATION

This report is organized into the following sections and appendices. Tables are located behind a tab at the end of the report.

- Section 1 describes the Site, discusses the Project objectives and the purpose of the report, presents the scope of work, and discusses the organization of the report;

- Section 2 discusses pertinent Site background information;
- Section 3 describes sampling activities;
- Section 4 describes field observations and the investigation results, including laboratory analytical data;
- Section 5 presents the statistical analysis of the data;
- Section 6 presents the conclusions and recommendations;
- Section 7 presents the limitations of the report;
- Section 8 lists references;
- Plates;
- Tables;
- Appendix A includes a table with the coordinates of the samples;
- Appendix B includes the analytical reports from the laboratory; and,
- Appendix C presents the evaluation and results of the statistical analysis complete with tables.

2 BACKGROUND

2.1 SITE IMPROVEMENTS

Caltrans is proposing highway improvements in the form of pavement rehabilitation and handicapped pedestrian access ramps. The pavement rehabilitation is proposed for the Magnolia Avenue on ramp to eastbound I-8, and the access ramps are proposed at the termination of the westbound I-8 off ramp to Los Coches Road.

2.2 WASTE CLASSIFICATION, ADL VARIANCE, AND SOIL REUSE CRITERIA

Due to the historic use of lead in gasoline formulations, lead contamination is common in surface soils found along roadways. ADL-impacted soils are regulated at both the federal and state levels for the following reasons:

- They may be classified as hazardous waste.
- They are subject to state regulations when not classified as hazardous waste.
- They may represent an occupational safety and health risk.

According to Title 22, California Code of Regulations (CCR), solid wastes with total lead concentrations equal to or exceeding 1,000 milligrams per kilogram (mg/kg), the Total Threshold Limit Concentration (TTLC), are classified as California hazardous waste. Assembly Bill 2784 (AB 2784), effective January 1, 1999, amended California Health and Safety Code (HSC) Section 25157.8 (a) and Title 22 CCR by reducing the practical disposal limit for non-hazardous solid waste to 350 mg/kg total lead until the California Regional Water Quality Control Board (RWQCB) amends a disposal facility's waste discharge requirements.

Solid wastes with soluble lead concentrations (assessed using California WET procedures) equal to or exceeding 5.0 milligrams per liter (mg/L), the STLC, are classified as California hazardous under California law. California hazardous materials must be transported under a hazardous waste manifest and disposed of at an appropriately permitted facility. Wastes with lead concentrations less than both the TTLC and the STLC are not a California hazardous waste, and may be disposed of at a Class II or III facility, provided that site-specific disposal facility requirements are satisfied. Furthermore, according to federal law, as stipulated in the Resource Conservation and Recovery Act (RCRA), wastes that exceed 5.0 mg/L soluble lead,

extracted using the federal TCLP, are classified as RCRA hazardous waste. This material must be disposed of as RCRA hazardous waste if transported off Site.

In September 2000, the DTSC issued a 5-year variance to Caltrans specifying that ADL-impacted soil within a highway right-of-way could be used as fill material within the right-of-way during earth moving and road construction activities provided that the waste met specific criteria (DTSC, 2000). The DTSC modified the variance for the second time in September 2003; which replaced and superseded the first modification. The variance, originally scheduled to expire on September 22, 2005, was granted extensions by DTSC that allowed Caltrans to keep working under the variance and its modifications until June 30, 2009 (DTSC, 2008). This extension was granted by the DTSC with the expectation that a good faith effort is shown by Caltrans to proceed with the variance renewal. In July 2009, the DTSC issued the current 5-year variance (DTSC, 2009). On June 26, 2014, the DTSC issued a letter to Caltrans extending the expiration date of the variance to December 31, 2014. A second extension of the variance until June 30, 2015 was issued on December 16, 2014 in a letter from DTSC to Caltrans. The following are the current DTSC variance conditions:

- For Variance Condition 9.c, “lead-contaminated” soil containing 1.5 mg/L or less soluble lead (using a modified CA-WET with DI [DI-WET] water as the extractant rather than an acidic, buffered sodium citrate solution) and 1,411 mg/kg or less total lead may be reused in a Caltrans right-of-way provided this soil is placed a minimum of five (5) feet above the maximum water table elevation and is covered by 1 foot of clean soil.
- For Variance Condition 9.d, “lead-contaminated” soil containing less than 150 mg/L soluble lead (DI-WET) and 3,397 mg/kg or less total lead may be reused as fill soil in a Caltrans right-of-way provided that it is placed a minimum of 5 feet above the maximum water table elevation and is covered by a pavement structure which will be maintained by Caltrans.
- For Variance Condition 9.e, “lead-contaminated” soil with a pH less than 5.5, but greater than 5.0 can only be used as fill material under the paved portion of the roadway. “Lead-contaminated” soil with a pH at or less than 5.0 shall be managed as hazardous waste.

Other reuse conditions, soil handling procedures, and notifications are specified in the variance. Soil that exceeds 3,397 mg/kg total lead or 150 mg/L soluble lead (DI-WET) cannot be reused within a Caltrans right-of-way and must be properly disposed of off at an approved facility. Solid wastes with lead concentrations less than both the TTLC and the STLC may be disposed of at a Class II or III facility provided that site-specific disposal facility requirements are satisfied.

Similarly, solid waste that exceeds 5.0 mg/L soluble lead by TCLP is considered to be a federal or RCRA-hazardous waste and cannot be reused within a Caltrans right-of-way.

The information described above is summarized in a soils management flow chart (Plate 3) to evaluate the applicability of the DTSC variance. The flow chart is an updated version of Figure 1 from the *2007 Caltrans ADL Guidance Document* (Caltrans, 2007). Based on information on the flow chart (Plate 3), soils with a 95 percent upper confidence limit (UCL) on the mean for total lead less than 1,000 mg/kg and with a 95 percent UCL for soluble lead by DI-WET less than 1.5 mg/L are considered non-hazardous and can be released to the contractor for use in accordance with project specifications.

Please note that, based on discussions with DTSC personnel, when a new Variance is issued that will be in effect starting July 1, 2015, total lead and soluble lead limit concentrations will be modified from those existing. Therefore, depending on implementation schedule, Variance concentrations listed herein may change.

3 SAMPLING ACTIVITIES

3.1 PRE-FIELD ACTIVITIES

An encroachment permit was prepared by Kleinfelder and submitted on March 30, 2014. The permit (11-SD-8/15.82-20.07) was approved April 2, 2015. Prior to the start of work, Caltrans was notified of the planned work on the unpaved shoulders at the Site.

Kleinfelder prepared and submitted a work plan (Kleinfelder, 2015a) and a SSHSP (Kleinfelder, 2015b). The health and safety plan was reviewed with field personnel for potential hazards, emergency contact information, and hospital routes.

Prior to ground-disturbance activities, Kleinfelder visited each sample point to mark excavation locations with 3-foot lathes and flagging material. Underground utilities were visually checked when marking sampling locations; sample locations with potential utility conflicts were modified. Underground Services Alert of Southern California (DigAlert) was notified at least 48 hours prior to ground-disturbance activities and Kleinfelder was issued a unique ticket number for each boring location at the Site. Conflicts with potential utilities were not reported from any of the utilities notified.

3.2 ADL SAMPLING LOCATIONS AND GPS SURVEY

Three boring locations were selected and placed at the end of the off ramp at Los Coches Road from westbound I-8. Five boring locations were placed on the on ramp from Magnolia Avenue to eastbound I-8. Up to three primary soil samples were collected from each boring location at depths of approximately 0 to 0.5 foot bgs, 1 to 1.5 feet bgs, and 2 to 2.5 feet bgs, or until refusal.

Sample locations were recorded during utility identification using a Trimble GPS unit, capable of providing accuracy to approximately 3 feet. The sample location names, along with their respective latitude and longitude coordinates (x and y coordinates) are included in Table A-1 (Appendix A). The approximate locations of these borings are shown on Plates 2a and 2b.

3.2.1 Hand Auger Drilling and Soil Sampling Methods

Hand auger borings were advanced on April 8, 2015 at locations shown on Plates 2a and 2b. Borings were advanced using a manually operated, pre-cleaned, stainless steel hand auger. Kleinfelder retained the services of CO's Traffic Control to provide temporary shoulder closure

consistent with the Encroachment Permit requirements. Work was performed in the unpaved shoulder areas from 8:00 AM to 4:00 PM, as stipulated in the encroachment permit.

Soil samples were collected from the hand auger and placed into laboratory-supplied, 16-ounce jars with Teflon lids. The sample jars were labeled with a sample identification number and Z (depth) value, along with the date and time of the sample location, and placed in a secured, chilled ice chest. Standard chain-of-custody (COC) procedures were used during sampling and transportation to APPL (via FedEx), a State-certified laboratory subcontracted by Kleinfelder.

3.3 EQUIPMENT BLANKS

An equipment blank, consisting of distilled water poured over the sampling equipment that had been cleaned, was collected at the end of sampling. The equipment blank was collected to document the condition of the sampling equipment following decontamination. Equipment blank samples were collected in a laboratory-supplied, nitric acid-preserved bottle. The sample bottle was labeled with a unique sample identifier, date, time, project number and samplers' initials. The equipment blank sample was placed in the chilled cooler along with the soil samples and transported to APPL (via FedEx) for analysis.

3.4 ANALYTICAL METHODS

A total of 27 soil samples, including 3 duplicate samples, were analyzed for total lead by USEPA Method 6010B and for soluble lead by the CA-WET method (STLC). A modified CA-WET procedure, using DI water extraction (DI-WET), was performed on 6 soil samples, which included the samples with total lead concentrations above 50 mg/kg. Soluble lead was analyzed in 5 samples by TCLP based on total lead concentrations above 100 mg/kg and below 1,000 mg/kg, or soluble concentrations analyzed by CA-WET in excess of 5 mg/L. Additionally, 5 random samples were measured for pH using USEPA Method 9045C.

3.5 DECONTAMINATION AND BORING ABANDONMENT

Sampling equipment (i.e., hand auger cutter head, soil sampler, etc.) was washed with a solution of Liquinox® detergent and rinsed with tap water and DI water, in buckets, prior to each use. Generation of wash water was minimized. Wash water was contained in 5-gallon pails for disposal. At the end of the day, wash water was disposed at the surface in Caltrans right-of-way, in an area that did not cause runoff of fluid or sediment into receptors (i.e., storm drain, creek, or other surface water bodies), consistent with the work plan. Soil cuttings originating from each boring were placed back within the original borehole as described in the work plan (Kleinfelder, 2015a).

4 FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS

This section includes a summary of the Site conditions observed during the field work, a summary of the analytical results, and a discussion of the data quality assessment. The summary of analytical results for the soil samples collected is presented in Table 1. A Certified Level II laboratory report from is included in Appendix B.

4.1 SITE CONDITIONS

Site conditions were favorable enough to collect the number of samples required from the work plan. Soil encountered was generally silty sand with some gravel.

4.2 SOIL SAMPLE RESULTS

4.2.1 Total Lead

Total lead was detected in the 27 soil samples analyzed, including 3 of the duplicate samples (Table 1 and Plates 2a and 2b) ranging in concentration from 1.5 to 786 mg/kg. The maximum total lead concentration was 786 mg/kg, reported in the sample I8-MAG-05-0.5. In general, near surface samples generally contained higher concentrations of total lead compared to the deeper samples.

4.2.2 California WET Method Soluble Lead Results

CA-WET method soluble lead (citrate extraction) was reported at concentrations above 5.0 mg/L (the STLC action level) in 6 of the 27 samples analyzed. The maximum CA-WET method soluble lead concentration was 45.4 mg/L, reported in the sample collected at I8-MAG-05-0.5.

4.2.3 California DI-WET Method Soluble Lead Results

California DI-WET method soluble lead was reported in one of the six samples analyzed (Table 1 and Plates 2a and 2b). The concentrations reported did not contain concentrations greater than 1.5 mg/L, the maximum threshold concentration for DTSC Variance Condition 9.c. The maximum concentration for California DI-WET method soluble lead was 0.53 mg/L, reported in the duplicate sample I8-MAG-102 collected at I8-MAG-04 at a depth of 1.5 feet bgs, corresponded to a total lead concentration of 508 mg/kg and a standard CA-WET method soluble lead concentration of 27.2 mg/L.

4.2.4 TCLP Soluble Lead

Soluble lead was analyzed by TCLP using USEPA Method 1311 extraction in 5 samples that had total lead concentrations exceeding 100 mg/kg and/or 5 mg/L CA-WET. TCLP values ranged from 0.16 mg/L to 1.3 mg/L (Table 1 and Plates 2a and 2b). Pursuant to the DTSC Variance, TCLP analysis is performed to evaluate if soils do not qualify for reuse due to designation as a RCRA hazardous waste. The values reported did not exceed 5.0 mg/L, the value at which soil is considered a RCRA hazardous waste.

4.2.5 Hydrogen Ion Concentration

The pH of the 5 soil samples analyzed ranged from 5.93 to 8.24 (Table 1 and Plates 2a and 2b). All of the samples analyzed had reported pH concentrations greater than the criterion of 5.5 listed in the DTSC variance; therefore, soil in these locations is not limited to reuse in covered areas (DTSC, 2009).

5 DATA QUALITY ASSESSMENT

The following section summarizes the quality assurance (QA) and quality control (QC) program and data quality assessment. The data quality assessment process consisted of a review, verification, validation, and evaluation of the analytical data generated during the project. The limited data quality assessment was performed using the U.S. EPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (USEPA, 2010) as a reference.

A total of 24 primary soil samples, 3 duplicate soil samples, and one equipment rinsate blank were collected and submitted to APPL for one or more of the following analyses:

- Total lead by USEPA Method 6010B (TTLC)
- pH by USEPA Methods 9045C
- CA-WET Method (USEPA Method 6010B)
- DI-WET Method (USEPA Method 6010B)
- Soluble lead by USEPA Method 1311 Extraction (TCLP)

One hundred percent of the data generated for this Project underwent a limited data quality review by a Kleinfelder project chemist, independent of Project activities. One Level II data deliverable report (Work Orders) was evaluated during the data quality assessment, which consisted of evaluating the following parameters:

- Technical holding times and temperature
- COCs
- Sample results and analytical methods selected
- Field and laboratory blanks
- Laboratory control sample (LCS) spike results
- Matrix spike (MS) and matrix spike duplicate (MSD) results.

Field and laboratory personnel implemented QA/QC procedures consistent with the QA criteria specified in the *Aerially-Deposited Lead Survey Work Plan* (Kleinfelder, 2015a) during the soil sampling event. Lead was not reported above the laboratory reporting limit in the equipment

rinsate blanks. Laboratory QC samples were also analyzed consistent with the analytical method requirements.

During the data quality assessment, no quality discrepancies were observed. Based on the data quality assessment, data that have been qualified as estimated (“J” or “UJ” qualified) were retained. Based on the results of the data quality assessment, the project achieved a sample and analytical completeness goal of 100%. The ADL data are acceptable for the intended use of the Project.

6 STATISTICAL EVALUATION

The data were analyzed to identify the appropriate handling of soil affected by ADL under the terms of the variance granted by DTSC to Caltrans District 11 for highway construction projects. During the course of construction, this soil is likely to be excavated, stockpiled, and relocated using methods that tend to homogenize soil constituent concentrations.

Caltrans has prepared an ADL guidance document to support the implementation of the DTSC variance (Caltrans, 2007). Kleinfelder has modified this table based upon the current DTSC ADL variance (DTSC, 2009), which is included in this report as Plate 3. The guidance document provides a flow chart/decision diagram to address DTSC variance applicability based on the various analyses. The decision points for evaluation of the lead data were as follows: If the 95 percent upper confidence limit (UCL) on mean total lead is less than 1,000 mg/kg, and if the 95 percent UCL on mean soluble lead (DI-WET) is less than 1.5 mg/L, then the soil is considered non-hazardous and can be released to the contractor for reuse on Site in accordance with Project specifications.

The USEPA statistical analysis package, ProUCL was used to complete the statistical evaluation (USEPA, 2007). ProUCL allows the computation of a reliable, stable, and conservative 95 percent UCL of the mean concentration in an environmental data set and offers 15 different methods of computing a 95 percent UCL depending on the distribution of a given data set.

Appendix C Section 3.1 provides a summary of the 95 percent UCLs calculated for total lead and soluble lead concentrations reported for soil samples from the subject Site. Based on a comparison of the 95 percent UCL value generated by ProUCL, since the maximum concentration of total lead detected was 786 mg/kg, the data set for total lead passes the first criterion established in the Caltrans ADL guidance: "Is the 95 percent UCL for total lead less than 1,000 mg/kg?"

A statistical analysis of soluble lead from DI-WET analyses was not performed (second criterion in Caltrans ADL flow chart/decision diagram; Plate 3). With the exception of a 0.53 mg/L concentration detected in one sample, DI-WET results were below the laboratory detection limit, therefore, insufficient data are available for meaningful statistical analysis. Since the maximum concentration of 0.53 mg/L is below the 1.5 mg/L DI-WET criterion for the Variance, therefore, DI-WET concentrations would not affect the ADL soil classification at the Site.

The pH was measured in five samples and reported values ranged from 5.93 to 8.24; indicating that the pH concentrations would not change the ADL soil classification pursuant to the Variance either.

Under the DTSC variance and federal and state hazardous waste classifications, soil can be placed into specific ADL Soil Management Types. Based on the results of the analysis, the represented soil units for the Project can be placed into one of two ADL Soil Management Types. Soil classified as “X” is not restricted for on-Site use, but requires a lead compliance plan for worker safety. Surplus soil classified as “X” can be disposed of as non-hazardous waste at a Class III facility. Soil classified as “Y1” requires (at a minimum) one foot of clean soil cover if used on Site, in addition to health and safety requirements. Surplus soil classified as “Y1” is to be disposed of as California-hazardous (non RCRA) waste at a Class I facility. For classification as a “Y1” waste, soils analyzed for total lead must be less than 1,000 mg/kg and soils analyzed for soluble lead by CA-WET must be less than 5 mg/L. Since results of total lead and TCLP analyses were below the respective 1,000 mg/kg and 5 mg/L regulatory thresholds, waste soils would not be considered RCRA (federal) hazardous.

Since the results of the CA-WET were more varied, and the locations 5 miles apart, the two locations (Magnolia and Los Coches) were split up for statistical analyses. The 95 percent UCL for the Los Coches segment is 0.2 mg/L, well below the threshold of 5 mg/L. The 95 percent UCL for the Magnolia segment is 23.8 mg/L, above the 5 mg/L threshold. Even when broken down into various depth horizons, the Magnolia segment still exceeded the 5 mg/L threshold. Therefore, the ADL Soil Management classification for The Los Coches segment is “X” and the soil classification for the Magnolia segment is “Y1”.

In conclusion, based on Caltrans ADL guidance criteria (Caltrans Variance), the soil addressed in this analysis from the westbound I-8 Los Coches Road off ramp is classified non-hazardous, and does not have restrictions for on-Site use. The soil addressed in this analysis from the eastbound I-8 Magnolia Avenue on ramp will require a minimum cover of one foot of clean soil. The basis for this conclusion is as follows:

- For soils at all depths from the I-8 and Magnolia Avenue area, the 95 percent UCL for total lead is less than 1,000 mg/kg for all depths (447.7 mg/kg, Appendix C).
- Although a 95 percent UCL could not be calculated for DI-WET, the single detectable concentration of 0.52 mg/L was below the 1.5 mg/L for I-8 and Magnolia Avenue (Appendix C).

- For soils at all depths from the I-8 and Los Coches Road area, the 95 percent UCL for total lead is less than 1,000 mg/kg for all depths (5.4 mg/kg, Appendix C).
- No detectable DI-WET concentrations were present in samples collected from I-8 and Los Coches Road segment, and therefore, are below the 1.5 mg/L threshold for the Variance(Appendix C).

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 VARIANCE CONCLUSIONS

Based on statistical analysis of the analytical results of this ADL Survey, soil tested within the Caltrans right-of-way at the Magnolia Avenue area is classified with an “Y1” designation, and contains concentrations of lead that are considered a California hazardous waste (Appendix C), but can be used on Site if covered with one foot of clean soil.

Also, based on statistical analysis of the analytical results of this ADL Survey, soil tested within the Caltrans right-of-way at the Los Coches Road area is classified with an “X” designation, contains concentrations of lead that are considered non-hazardous waste (Appendix C), and can be used on-Site without restriction.

Five soil samples had reported pH values at or above the variance criterion of 5.5; therefore, soil tested within the Caltrans right of-way does not contain a pH value below that which would apply to the DTSC Variance conditions (Appendix C).

Since off-Site disposal may be required, the soil should be handled based on the criteria described in Section 7.2.

7.2 WASTE CHARACTERIZATION CONCLUSIONS

Based on the analytical results of this ADL Survey, soil samples collected at the 24 sample locations along the unpaved shoulders did not contain total lead in excess of the California TTLIC of 1,000 mg/kg. The standard CA-WET soluble lead test results indicate that soil concentrations are in excess of the California STLC of 5 mg/L in 6 of the 27 samples analyzed for soluble lead by CA-WET at various locations along the Site.

Based on the results of soil sampling (95% UCL), soil from Magnolia Avenue area is considered California hazardous in comparison to California STLC limits for depths up to 2 feet bgs. Also, based on the results of soil sampling (95% UCL), soil from the Los Coches Road area are considered non-hazardous and have no restrictions for on-Site reuse.

7.3 RECOMMENDATIONS

Based on the results of the soil sampling activities conducted at the Magnolia Avenue area, the soil is considered California hazardous and will require a one foot cover of clean soil. If off-Site

disposal is required, the soil must be disposed at an appropriate facility.

Also, based on the results of the soil sampling activities conducted at the Los Coches Road area, the soil can be reused without restrictions.

Please note that, based on discussions with DTSC, when a new Variance is issued that will be in effect starting July 1, 2015, total lead and soluble lead limit concentrations will be modified from those existing. Therefore, depending on implementation schedule, Variance concentrations listed herein may change.

8 LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the report.

The work performed was based on project information provided by Client. If the Client does not retain Kleinfelder to review any plans and specifications, including any revisions or modifications to the plans and specifications, Kleinfelder assumes no responsibility for the suitability of our recommendations. In addition, if there are any changes in the field to the plans and specifications, the Client must obtain written approval from Kleinfelder's engineer that such changes do not affect our recommendations. Failure to do so will vitiate Kleinfelder's recommendations.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. It should be recognized that definition and evaluation of geologic and environmental conditions are a difficult and inexact science. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies. Although risk can never be eliminated, more-detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service that provide adequate information for their purposes at acceptable levels of risk. More extensive studies, including subsurface studies or field tests, should be performed to reduce uncertainties. Acceptance of this report will indicate that the Client has reviewed the document and determined that it does not need or want a greater level of service than provided.

During the course of the performance of Kleinfelder's services, hazardous materials may have been discovered. Kleinfelder assumes no responsibility or liability whatsoever for any claim,

loss of property value, damage, or injury that results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials. Nothing contained in this report should be construed or interpreted as requiring Kleinfelder to assume the status of an owner, operator, or generator, or person who arranges for disposal, transport, storage or treatment of hazardous materials within the meaning of any governmental statute, regulation or order. The Client is solely responsible for directing notification of all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any hazardous materials observed at the project site, either before or during performance of Kleinfelder's services. The Client is responsible for directing all arrangements to lawfully store, treat, recycle, dispose, or otherwise handle hazardous materials, including cuttings and samples resulting from Kleinfelder's services.

9 REFERENCES

California Department of Transportation (Caltrans), 2007. Caltrans Aerially Deposited Lead Guidance, June.

Department of Toxic Substances Control (DTSC), 2000. Variance No. 00-H-VAR-06. Granted to State of California Department of Transportation, District 11. September 22.

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DTSC, 2009. Lead Contaminated Soil Variance Modification, Variance Number V09HQSCD006, Caltrans District 11, July 1.

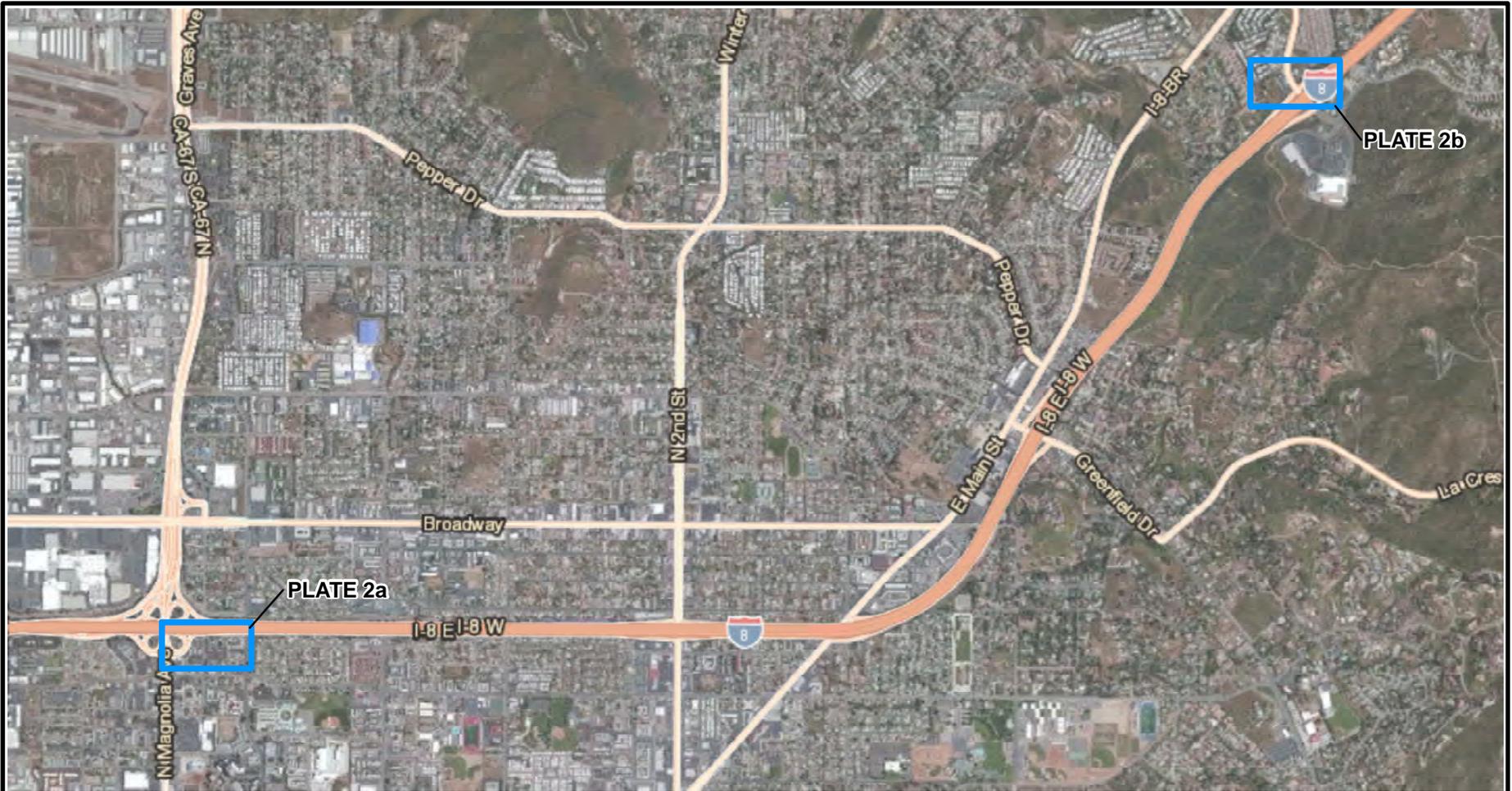
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Kleinfelder, 2015b. Site-Specific Safety and Accident Prevention Plan, Aerially Deposited Lead Survey For Interstate Route 8 at Magnolia Avenue and Los Coches Road, El Cajon, CA. April 3.

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USEPA, 2011. ProUCL version 4.1. July.

PLATES

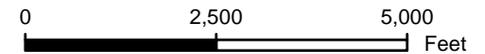


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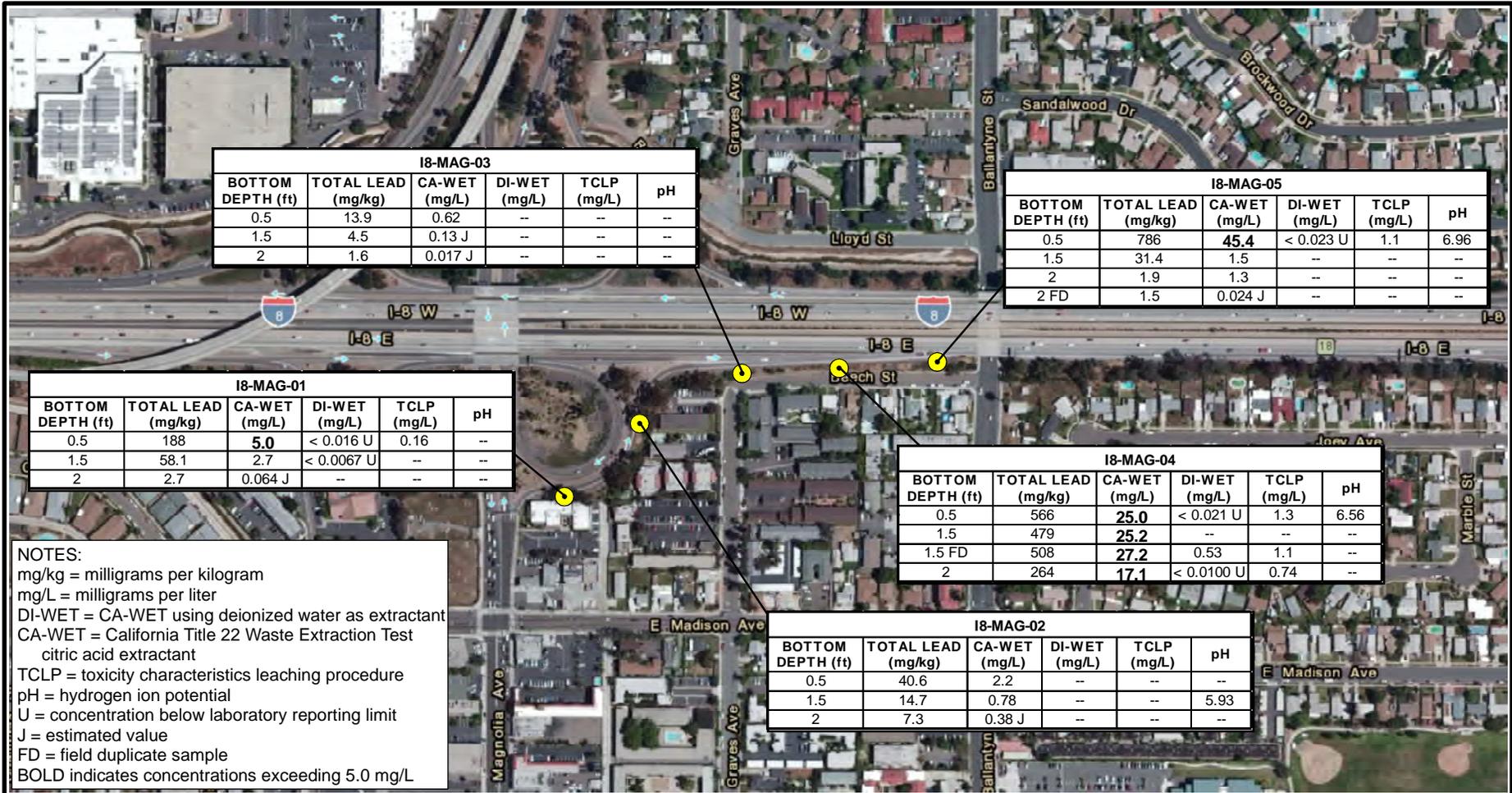
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LEGEND

 PLATE BOUNDARY



	<p>PROJECT NO: 20155257 DRAWN BY: E D GOFF CHECKED BY: C NOLAND DATE: MAY 2015</p> 	<p align="center">SITE LOCATION MAP</p> <p align="center">ADL Survey I-8 at Magnolia Avenue and Los Coches Road El Cajon, California Caltrans EA 11-413501, Task Order 27</p>	<p align="center">PLATE 1</p>
---	---	---	--



I8-MAG-03					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	CA-WET (mg/L)	DI-WET (mg/L)	TCLP (mg/L)	pH
0.5	13.9	0.62	--	--	--
1.5	4.5	0.13 J	--	--	--
2	1.6	0.017 J	--	--	--

I8-MAG-05					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	CA-WET (mg/L)	DI-WET (mg/L)	TCLP (mg/L)	pH
0.5	786	45.4	< 0.023 U	1.1	6.96
1.5	31.4	1.5	--	--	--
2	1.9	1.3	--	--	--
2 FD	1.5	0.024 J	--	--	--

I8-MAG-01					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	CA-WET (mg/L)	DI-WET (mg/L)	TCLP (mg/L)	pH
0.5	188	5.0	< 0.016 U	0.16	--
1.5	58.1	2.7	< 0.0067 U	--	--
2	2.7	0.064 J	--	--	--

I8-MAG-04					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	CA-WET (mg/L)	DI-WET (mg/L)	TCLP (mg/L)	pH
0.5	566	25.0	< 0.021 U	1.3	6.56
1.5	479	25.2	--	--	--
1.5 FD	508	27.2	0.53	1.1	--
2	264	17.1	< 0.0100 U	0.74	--

I8-MAG-02					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	CA-WET (mg/L)	DI-WET (mg/L)	TCLP (mg/L)	pH
0.5	40.6	2.2	--	--	--
1.5	14.7	0.78	--	--	5.93
2	7.3	0.38 J	--	--	--

NOTES:
 mg/kg = milligrams per kilogram
 mg/L = milligrams per liter
 DI-WET = CA-WET using deionized water as extractant
 CA-WET = California Title 22 Waste Extraction Test citric acid extractant
 TCLP = toxicity characteristics leaching procedure
 pH = hydrogen ion potential
 U = concentration below laboratory reporting limit
 J = estimated value
 FD = field duplicate sample
 BOLD indicates concentrations exceeding 5.0 mg/L

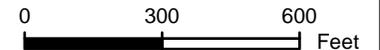
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LEGEND



BORING LOCATION



PROJECT NO: 20155257
 DRAWN BY: E D GOFF
 CHECKED BY: C NOLAND
 DATE: MAY 2015



BORING LOCATIONS
 ADL Survey
 I-8 at Magnolia Avenue and Los Coches Road
 El Cajon, California
 Caltrans EA 11-413501, Task Order 27

PLATE
2a



I8-LC-03					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	CA-WET (mg/L)	DI-WET (mg/L)	TCLP (mg/L)	pH
0.5	5.9	0.17 J	--	--	--
1.5	2.8	0.039 J	--	--	7.98
2	2.8	0.029 J	--	--	--

I8-LC-01					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	CA-WET (mg/L)	DI-WET (mg/L)	TCLP (mg/L)	pH
0.5	5.0	0.18 J	--	--	--
0.5 FD	8.1	0.29 J	--	--	--
1.5	3.0	0.055 J	--	--	8.24
2	2.6	0.039 J	--	--	--

I8-LC-02					
BOTTOM DEPTH (ft)	TOTAL LEAD (mg/kg)	CA-WET (mg/L)	DI-WET (mg/L)	TCLP (mg/L)	pH
0.5	5.0	0.12 J	--	--	--
1.5	2.5	0.059 J	--	--	--
2	4.7	0.17 J	--	--	--

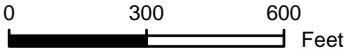
NOTES:
 mg/kg = milligrams per kilogram
 mg/L = milligrams per liter
 DI-WET = CA-WET using deionized water as extractant
 CA-WET = California Title 22 Waste Extraction Test citric acid extractant
 TCLP = toxicity characteristics leaching procedure
 pH = hydrogen ion potential
 J = estimated value
 FD = field duplicate sample

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LEGEND

● BORING LOCATION



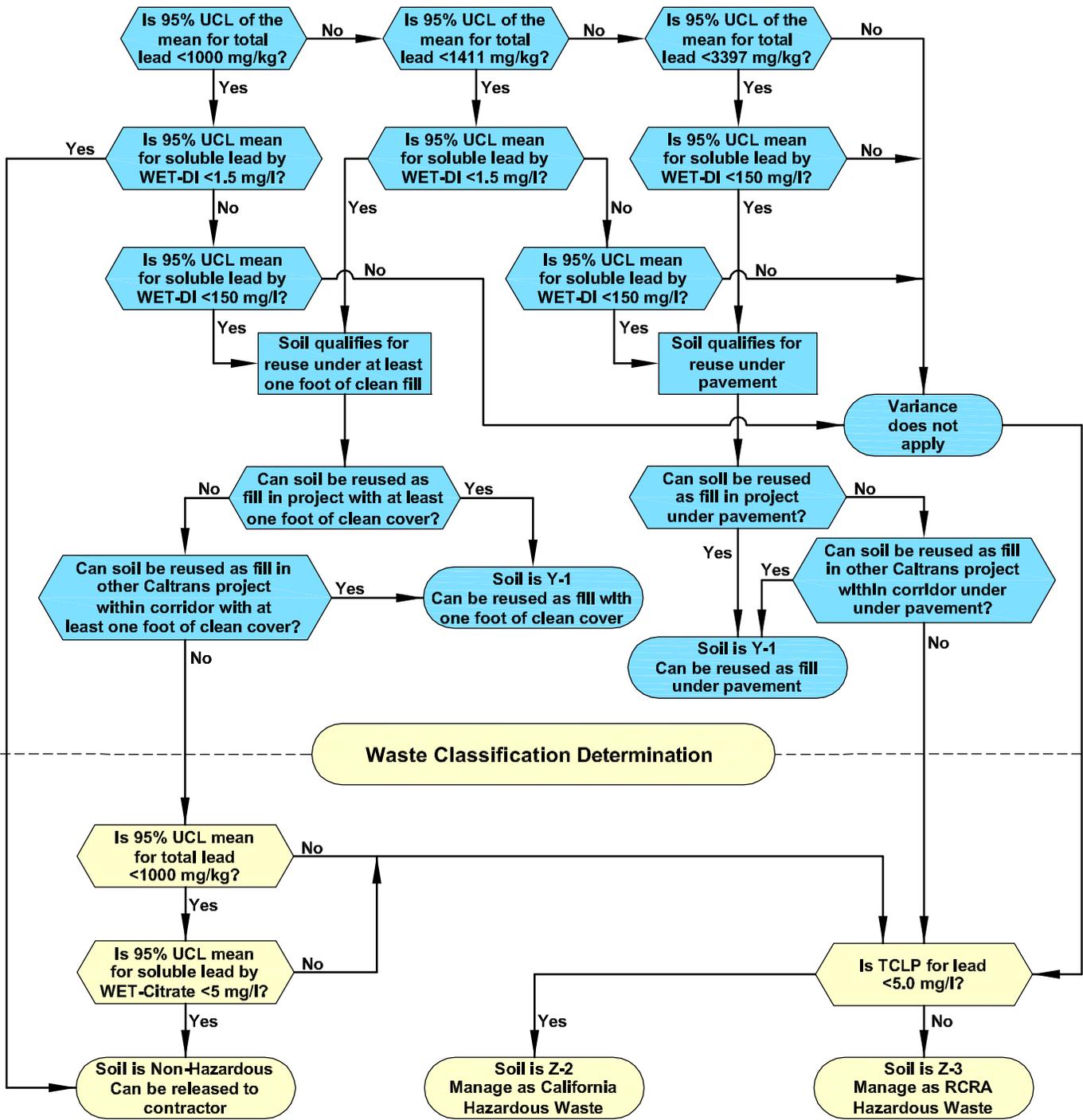
PROJECT NO: 20155257
 DRAWN BY: E D GOFF
 CHECKED BY: C NOLAND
 DATE: MAY 2015



BORING LOCATIONS
 ADL Survey
 I-8 at Magnolia Avenue and Los Coches Road
 El Cajon, California
 Caltrans EA 11-413501, Task Order 27

PLATE
2b

DTSC Variance Applicability Determination



Waste Classification Determination

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SOURCE:

CALTRANS AERIALLY DEPOSITED LEAD GUIDANCE, JUNE 2007. UPDATE BASED ON VARIANCE NUMBER V09HQSCD006 (DTSC, JULY 2009)

ATTACHED IMAGES:
ATTACHED XREFS:



PROJECT NO.	20155257
DRAWN:	5/18/15
DRAWN BY:	JP
CHECKED BY:	CN
FILE NAME:	20155257_flow.dwg

ADL-IMPACTED SOILS MANAGEMENT FLOW CHART

ADL SURVEY REPORT FOR INTERSTATE 8
AT MAGNOLIA AVENUE AND LOS COCHES ROAD
CALTRANS D11, EA 413501, PI 1113000038
EL CAJON, CALIFORNIA

PLATE

3

CAD FILE: J:_clients\CalTrans\20155257\ LAYOUT: Layout1

TABLES

**TABLE 1
SOIL ANALYTICAL RESULTS**



				Chemical Method Leachate Units	Lead SW6010B TTLC mg/kg	Lead SW6010B CA-WET mg/L	Lead SW6010B DI-WET mg/L	Lead SW6010B TCLP mg/L	pH SW9045D NONE pH units
Location Name	Sample Name	Date	Depth (feet)						
I8-LC-01	I8-LC-01-0.5	04/08/2015	0.5		5.0	0.18 J	--	--	--
I8-LC-01	I8-LC-100	04/08/2015	0.5		8.1	0.29 J	--	--	--
I8-LC-01	I8-LC-01-1.5	04/08/2015	1.5		3.0	0.055 J	--	--	8.24
I8-LC-01	I8-LC-01-2.0	04/08/2015	2		2.6	0.039 J	--	--	--
I8-LC-02	I8-LC-02-0.5	04/08/2015	0.5		5.0	0.12 J	--	--	--
I8-LC-02	I8-LC-02-1.5	04/08/2015	1.5		2.5	0.059 J	--	--	--
I8-LC-02	I8-LC-02-2.0	04/08/2015	2		4.7	0.17 J	--	--	--
I8-LC-03	I8-LC-03-0.5	04/08/2015	0.5		5.9	0.17 J	--	--	--
I8-LC-03	I8-LC-03-1.5	04/08/2015	1.5		2.8	0.039 J	--	--	7.98
I8-LC-03	I8-LC-03-2.0	04/08/2015	2		2.8	0.029 J	--	--	--
I8-MAG-01	I8-MAG-01-0.5	04/08/2015	0.5		188	5.0	< 0.016 U	0.16	--
I8-MAG-01	I8-MAG-01-1.5	04/08/2015	1.5		58.1	2.7	< 0.0067 U	--	--
I8-MAG-01	I8-MAG-01-2.0	04/08/2015	2		2.7	0.064 J	--	--	--
I8-MAG-02	I8-MAG-02-0.5	04/08/2015	0.5		40.6	2.2	--	--	--
I8-MAG-02	I8-MAG-02-1.5	04/08/2015	1.5		14.7	0.78	--	--	5.93
I8-MAG-02	I8-MAG-02-2.0	04/08/2015	2		7.3	0.38 J	--	--	--
I8-MAG-03	I8-MAG-03-0.5	04/08/2015	0.5		13.9	0.62	--	--	--
I8-MAG-03	I8-MAG-03-1.5	04/08/2015	1.5		4.5	0.13 J	--	--	--
I8-MAG-03	I8-MAG-03-2.0	04/08/2015	2		1.6	0.017 J	--	--	--
I8-MAG-04	I8-MAG-04-0.5	04/08/2015	0.5		566	25.0	< 0.021 U	1.3	6.56
I8-MAG-04	I8-MAG-04-1.5	04/08/2015	1.5		479	25.2	--	--	--
I8-MAG-04	I8-MAG-102	04/08/2015	1.5		508	27.2	0.53	1.1	--
I8-MAG-04	I8-MAG-04-2.0	04/08/2015	2		264	17.1	< 0.0100 U	0.74	--
I8-MAG-05	I8-MAG-05-0.5	04/08/2015	0.5		786	45.4	< 0.023 U	1.1	6.96
I8-MAG-05	I8-MAG-05-1.5	04/08/2015	1.5		31.4	1.5	--	--	--
I8-MAG-05	I8-MAG-05-2.0	04/08/2015	2		1.9	1.3	--	--	--
I8-MAG-05	I8-MAG-101	04/08/2015	2		1.5	0.024 J	--	--	--

J = Estimated value

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

pH = hydrogen ion potential

STLC = soluble threshold limit concentration

CA-WET = California Title 22 Waste Extraction Test using citric acid as extractant

DI-WET = CA-WET using deionized water as extractant

TCLP = toxicity characteristics leaching procedure

TTLC = total threshold limit concentration

U = concentration below laboratory reporting limit

BOLD indicates STLC concentrations exceeding 5.0 mg/L

APPENDIX A

Sample Location Coordinates (Table A-1)

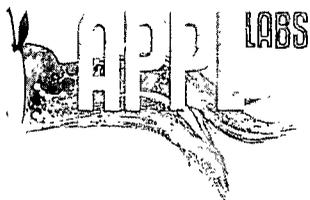
Table A-1
Sample Location Coordinates



Location Identification	Longitude	Latitude
I8-LC-01	-116.903646687	32.827196302
I8-LC-02	-116.903696038	32.827211503
I8-LC-03	-116.903769283	32.827283649
I8-MAG-01	-116.961782211	32.801833359
I8-MAG-02	-116.961155515	32.802383011
I8-MAG-03	-116.960272921	32.802759027
I8-MAG-04	-116.959369040	32.802805601
I8-MAG-05	-116.958542324	32.802843071

APPENDIX B

Laboratory Analytical Reports and Chain-of-Custody Documentation



May 7, 2015

Kleinfelder
550 West C Street, Suite 1200
San Diego, California 92101

Attn: Chris Noland

Subject: Report of Data: Case 76071

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dear Mr. Noland:

Twenty-seven soil samples and one water sample for project "20155257 Caltrans TO27" were received April 9, 2015, in good condition. Written results are being provided on this May 7, 2015, for the requested analyses.

For the EPA 6010B analysis, the soil samples were digested according to EPA method 3050B and the water sample was digested according to EPA method 3010A.

For the EPA 6010B STLCL analysis, the samples were leached according to California Title 22 guidelines, and the leachates were digested according to EPA method 3010A.

For the EPA 9045C analysis, the samples were prepared according to the method. The samples were analyzed for pH as soon as possible.

No unusual problem or complication was encountered with this sample set.

If you have any questions or require further information, please contact us at your convenience. Thank you for choosing APPL, Inc.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC. Release of the hard copy has been authorized by the Laboratory Manager or her designee, as verified by the following signature.

Sharon Dehmlow, Laboratory Director
APPL, Inc.

SD/ab
Enclosure
cc: File

Number of pages: _____

Metals Results

Kleinfelder
550 West C Street, Suite 1200
San Diego, CA 92101

ARF: 76071

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Chris Noland

Method	Analyte	Result	RL	MDL	Units	DF	Prep Date	Analysis Date
APPL ID: AZ14312		-Client Sample ID: I8-LC-01-0.5		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	5.0	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	0.18 J	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14313		-Client Sample ID: I8-LC-100		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	8.1	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	0.29 J	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14314		-Client Sample ID: I8-LC-01-1.5		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	3.0	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	0.055 J	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14315		-Client Sample ID: I8-LC-01-2.0		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	2.6	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	0.039 J	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14316		-Client Sample ID: I8-LC-02-0.5		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	5.0	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	0.12 J	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14317		-Client Sample ID: I8-LC-02-1.5		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	2.5	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	0.059 J	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14318		-Client Sample ID: I8-LC-02-2.0		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	4.7	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	0.17 J	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14319		-Client Sample ID: I8-LC-03-0.5		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	5.9	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	0.17 J	0.50	0.002	mg/L	1	04/24/15	04/24/15

J = Estimated value.

Metals Results

Kleinfelder
550 West C Street, Suite 1200
San Diego, CA 92101

ARF: 76071

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Chris Noland

Method	Analyte	Result	RL	MDL	Units	DF	Prep Date	Analysis Date
APPL ID: AZ14320		-Client Sample ID: I8-LC-03-1.5		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	2.8	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	0.039 J	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14321		-Client Sample ID: I8-LC-03-2.0		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	2.8	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	0.029 J	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14322		-Client Sample ID: I8-MAG-01-0.5		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	0.016 J	0.030	0.0019	mg/L	1	05/01/15	05/05/15
6010B	LEAD (PB)	188	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	5.0	0.50	0.002	mg/L	1	04/24/15	04/24/15
6010B/TCLP	LEAD (PB)	0.16	0.100	0.0016	mg/L	1	05/06/15	05/07/15
APPL ID: AZ14323		-Client Sample ID: I8-MAG-01-1.5		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	0.0067 J	0.030	0.0019	mg/L	1	05/01/15	05/05/15
6010B	LEAD (PB)	58.1	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	2.7	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14324		-Client Sample ID: I8-MAG-01-2.0		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	2.7	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	0.064 J	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14325		-Client Sample ID: I8-MAG-02-0.5		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	40.6	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	2.2	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14326		-Client Sample ID: I8-MAG-02-1.5		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	14.7	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	0.78	0.50	0.002	mg/L	1	04/24/15	04/24/15

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APPL-F1-SC-NoMC-REG MDLs

Metals Results

ARF: 76071

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Kleinfelder
550 West C Street, Suite 1200
San Diego, CA 92101

Attn: Chris Noland

Method	Analyte	Result	RL	MDL	Units	DF	Prep Date	Analysis Date
APPL ID: AZ14327		-Client Sample ID: I8-MAG-02-2.0		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	7.3	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	0.38 J	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14328		-Client Sample ID: I8-MAG-03-0.5		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	13.9	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	0.62	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14329		-Client Sample ID: I8-MAG-03-1.5		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	4.5	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	0.13 J	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14330		-Client Sample ID: I8-MAG-03-2.0		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	1.6	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	0.017 J	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14331		-Client Sample ID: I8-MAG-04-0.5		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	0.021 J	0.030	0.0019	mg/L	1	05/01/15	05/05/15
6010B	LEAD (PB)	566	10.0	1.80	mg/kg	20	04/20/15	04/21/15
6010B/STLC	LEAD (PB)	25.0	10.00	0.040	mg/L	20	04/24/15	04/28/15
6010B/TCLP	LEAD (PB)	1.3	0.100	0.0016	mg/L	1	05/06/15	05/07/15
APPL ID: AZ14332		-Client Sample ID: I8-MAG-04-1.5		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	479	10.0	1.80	mg/kg	20	04/20/15	04/21/15
6010B/STLC	LEAD (PB)	25.2	10.00	0.040	mg/L	20	04/24/15	04/28/15
APPL ID: AZ14333		-Client Sample ID: I8-MAG-102		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	508	10.0	1.80	mg/kg	20	04/20/15	04/21/15
6010B	LEAD (PB)	0.53	0.030	0.0019	mg/L	1	05/01/15	05/05/15
6010B/STLC	LEAD (PB)	27.2	10.00	0.040	mg/L	20	04/24/15	04/28/15
6010B/TCLP	LEAD (PB)	1.1	0.100	0.0016	mg/L	1	05/06/15	05/07/15

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APPL-F1-SC-NoMC-REG MDLs

Metals Results

ARF: 76071

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Kleinfelder
550 West C Street, Suite 1200
San Diego, CA 92101

Attn: Chris Noland

Method	Analyte	Result	RL	MDL	Units	DF	Prep Date	Analysis Date
APPL ID: AZ14334		-Client Sample ID: I8-MAG-04-2.0		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	264	10.0	1.80	mg/kg	20	04/20/15	04/21/15
6010B	LEAD (PB)	0.01000 J	0.030	0.0019	mg/L	1	05/01/15	05/05/15
6010B/STLC	LEAD (PB)	17.1	0.50	0.002	mg/L	1	04/24/15	04/24/15
6010B/TCLP	LEAD (PB)	0.74	0.100	0.0016	mg/L	1	05/06/15	05/07/15
APPL ID: AZ14335		-Client Sample ID: I8-MAG-05-0.5		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	786	10.0	1.80	mg/kg	20	04/20/15	04/21/15
6010B	LEAD (PB)	0.023 J	0.030	0.0019	mg/L	1	05/01/15	05/05/15
6010B/STLC	LEAD (PB)	45.4	10.00	0.040	mg/L	20	04/24/15	04/28/15
6010B/TCLP	LEAD (PB)	1.1	0.100	0.0016	mg/L	1	05/06/15	05/07/15
APPL ID: AZ14336		-Client Sample ID: I8-MAG-05-1.5		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	31.4	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	1.5	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14337		-Client Sample ID: I8-MAG-05-2.0		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	1.9	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	1.3	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14338		-Client Sample ID: I8-MAG-101		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	1.5	0.5	0.09	mg/kg	1	04/20/15	04/20/15
6010B/STLC	LEAD (PB)	0.024 J	0.50	0.002	mg/L	1	04/24/15	04/24/15
APPL ID: AZ14339		-Client Sample ID: QCEB-040815		-Sample Collection Date: 04/08/15		Project: 20155257 Caltrans TO27		
6010B	LEAD (PB)	Not detected	5.0	1.58	ug/L	1	04/20/15	04/22/15

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APPL-F1-SC-NoMC-REG MDLs

Wetlab Results

ARF: 76071

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Kleinfelder
550 West C Street, Suite 1200
San Diego, CA 92101

Attn: Chris Noland

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
APPL ID: AZ14314		-Client Sample ID: I8-LC-01-1.5				-Sample Collection Date: 04/08/15	Project: 20155257 Caltrans TO27
EPA 9045C	PH	8.24@22.3C	NA		pH Units	04/09/15	04/09/15
APPL ID: AZ14320		-Client Sample ID: I8-LC-03-1.5				-Sample Collection Date: 04/08/15	Project: 20155257 Caltrans TO27
EPA 9045C	PH	7.98@21.8C	NA		pH Units	04/09/15	04/09/15
APPL ID: AZ14326		-Client Sample ID: I8-MAG-02-1.5				-Sample Collection Date: 04/08/15	Project: 20155257 Caltrans TO27
EPA 9045C	PH	5.93@22.5C	NA		pH Units	04/09/15	04/09/15
APPL ID: AZ14331		-Client Sample ID: I8-MAG-04-0.5				-Sample Collection Date: 04/08/15	Project: 20155257 Caltrans TO27
EPA 9045C	PH	6.56@22.1C	NA		pH Units	04/09/15	04/09/15
APPL ID: AZ14335		-Client Sample ID: I8-MAG-05-0.5				-Sample Collection Date: 04/08/15	Project: 20155257 Caltrans TO27
EPA 9045C	PH	6.96@22.2C	NA		pH Units	04/09/15	04/09/15

METALS BLANK

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date	QC Group
6010B	LEAD (PB)	0.0050 J	0.50	0.002	mg/L	04/24/15	04/24/15	#MTL5-150424A-AZ14312
6010B	LEAD (PB)	Not detected	0.100	0.0016	mg/L	05/06/15	05/07/15	#61BTC-150506A-AZ14322
6010B	LEAD (PB)	0.0048 J	0.030	0.0019	mg/L	05/01/15	05/05/15	#MTL6M-150501A-AZ14322
6010B	LEAD (PB)	Not detected	0.5	0.09	mg/kg	04/20/15	04/20/15	#MTL3-150420B-AZ14326
6010B	LEAD (PB)	0.0064 J	0.50	0.002	mg/L	04/24/15	04/24/15	#MTL5-150424B-AZ14327
6010B	LEAD (PB)	Not detected	0.5	0.09	mg/kg	04/20/15	04/20/15	#MTL3-150420C-AZ14338
6010B	LEAD (PB)	Not detected	5.0	1.58	ug/L	04/20/15	04/22/15	#MTL1-150420A2-AZ14339

Laboratory Control Spike Recovery

METALS

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Compound Name	Spike Level mg/kg	SPK Result mg/kg	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group
EPA 6010B	LEAD (PB)	25.0	24.0	96.0	80-120	04/20/15	04/20/15	#MTL3-150420B-AZ14326

Comments: _____

Laboratory Control Spike Recovery

METALS

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Compound Name	Spike Level mg/kg	SPK Result mg/kg	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group
EPA 6010B	LEAD (PB)	25.0	24.0	96.0	80-120	04/20/15	04/20/15	#MTL3-150420C-AZ14338

Comments: _____

Laboratory Control Spike Recovery
METALS

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Compound Name	Spike Level mg/L	SPK Result mg/L	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group
EPA 6010B	LEAD (PB)	2.50	2.3	92.0	75-125	04/24/15	04/24/15	#MTL5-150424A-AZ14312

Comments: _____

Laboratory Control Spike Recovery

METALS

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Compound Name	Spike Level mg/L	SPK Result mg/L	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group
EPA 6010B	LEAD (PB)	2.50	2.5	100	80-120	05/01/15	05/05/15	#MTL6M-150501A-AZ14322
EPA 6010B	LEAD (PB)	0.250	0.28	112	80-120	05/06/15	05/07/15	#61BTC-150506A-AZ14322

Comments: _____

Laboratory Control Spike Recovery
METALS

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Compound Name	Spike Level mg/L	SPK Result mg/L	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group
EPA 6010B	LEAD (PB)	2.50	2.4	96.0	75-125	04/24/15	04/24/15	#MTL5-150424B-AZ14327

Comments: _____

Laboratory Control Spike Recovery

METALS

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Method	Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group
EPA 6010B	LEAD (PB)	250	258	103	80-120	04/20/15	04/22/15	#MTL1-150420A2-AZ14339

Comments: _____

PROJECT NO. 5257 CAN 2015 4850		PROJECT NAME CALTRANS TO 27 CAN		NO.	TYPE	ANALYSIS	RECEIVING-LAB: APPL LABS 908 N. TEMPERANCE AVE CLOVIS, CA 93611 INSTRUCTIONS/REMARKS EDD REQD													
LP NO. (PO. NO.)	SAMPLERS (Signature/Number) <i>[Signature]</i>						OF	OF												
DATE MM/DD/YY	SAMPLE I.D. TIME HH-MM-SS	SAMPLE I.D.	MATRIX	CON-TAINERS	CON-TAINERS	TOTAL LEAD 6DIOR	SOLUBLE LEAD CAL-MET	PH - 9045C												
1	4-8-15	0824	I8-LC-01-0.5	SOIL	1	<i>[Signature]</i>	X	X												
2		0824	I8-LC-100		1		X	X												
3		0828	I8-LC-01-1.5		1		X	X	X											
4		0830	I8-LC-01-2.0		1		X	X												
5		0832	I8-LC-02-0.5		1		X	X												
6		0838	I8-LC-02-1.5		1		X	X												
7		0840	I8-LC-02-2.0		1		X	X												
8		0843	I8-LC-03-0.5		1		X	X												
9		0846	I8-LC-03-1.5		1		X	X	X											
10		0848	I8-LC-03-2.0		1		X	X												
11		1023	I8-MAG-01-0.5		1		X	X												
12		1030	I8-MAG-01-1.5		1		X	X												
13		1032	I8-MAG-01-2.0		1		X	X												
14		1035	I8-MAG-02-0.5		1		X	X												
15		1037	I8-MAG-02-1.5		1		X	X	X											
16		1039	I8-MAG-02-2.0		1		X	X												
17		1010	I8-MAG-03-0.5		1		X	X												
18		1012	I8-MAG-03-1.5		1		X	X												
19		1014	I8-MAG-03-2.0		1		X	X												
20	✓	1002	I8-MAG-04-0.5	✓	1		X	X	X											

Relinquished by: (Signature) <i>[Signature]</i>	Date/Time 4-8-15 1530	Received by: (Signature) FedEx	Instructions/Remarks: FedEx: 8065 1601 0335	Send Results To: Cnoland yKellar @kleinfelder.com
Relinquished by: (Signature)	Date/Time	Received by: (Signature)		Attn:
Relinquished by: (Signature)	Date/Time 4-15 9:55	Received for Laboratory by: (Signature) Brown Brown		

PROJECT NO. 5257 2015 4-8-15 AM		PROJECT NAME CALTRANS TOZ-27		NO. OF CONTAINERS	TYPE OF CONTAINERS	ANALYSIS										RECEIVING LAB: APPL LABS 908 N. TEMPERANCE AVE CLOVIS, CA 93611	
LP NO. (PO. NO.)		SAMPLERS: (Signature/Number)				TOTAL LEAD 6010P SOLUBLE LEAD CA-MET PH - 9045C										INSTRUCTIONS/REMARKS EDD REB'D	
DATE MM/DD/YY	SAMPLE I.D. TIME HH-MM-SS	SAMPLE I.D.	MATRIX														
1	4-8-15	1004	IB-MAG-04-1.5	SOIL	1	PEX SAR	X	X									
2		1004	IB-MAG-102		1		X	X									
3		1006	IB-MAG-04-2.0		1		X	X									
4		0953	IB-MAG-05-0.5		1		X	X	X								
5		0955	IB-MAG-05-1.5		1		X	X									
6		0958	IB-MAG-05-2.0		1		X	X									
7		0958	IB-MAG-101		1		X	X									
8	↓	1300	QCEB-040815	WATER	1	POLY HAND	X										
9																	
10																	
11																	
12																	
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18																	
19																	
20																	

CAV
4-8-15

Relinquished by: (Signature) <i>[Signature]</i>	Date/Time 4-8-15 1530	Received by: (Signature) FedEx	Instructions/Remarks: FedEx: 8065 1601 0335	Send Results To: cnoland gkellar@kleinfelder.com
Relinquished by: (Signature)	Date/Time	Received by: (Signature)		
Relinquished by: (Signature)	Date/Time 4-9-15 9:55	Received for Laboratory by: (Signature) Brown Brown		

Renee Patterson

From: Chris Noland [CNoland@kleinfelder.com]
Sent: Friday, April 24, 2015 12:18 PM
To: Cynthia Clark; Jerry Kellar; rpatterson@applinc.com
Cc: Mark Peabody
Subject: RE: APPL 76071

Please see below. Do not run the samples highlighted in red for the additional analyses.

From: Cynthia Clark [mailto:cclark@applinc.com]
Sent: Friday, April 24, 2015 12:16 PM
To: Jerry Kellar; rpatterson@applinc.com
Cc: Chris Noland; Mark Peabody
Subject: RE: APPL 76071
Importance: High

Hi Jerry,

we have had one of our ICPs down, which caused a slight delay. the total lead analyses are complete and attached, and the STLC will be running tonight with the report done on Monday.

this COC did not include the usual comments about adding TCLP or DI-WET. Do we need to be following the same procedure as last time?

if so, I will add the following analyses.

Based on the total Lead results I will add TCLP Lead (results > 100mg/Kg) to samples:

AZ14322 (I8-MAG-01-0.5)
AZ14331 (I8-MAG-04-0.5)
██████████
AZ14333 (I8-MAG-102)
AZ14334 (I8-MAG-04-2.0)
AZ14335 (I8-MAG-05-0.5)

Based on the total Lead results I will add DI-Wet (results > 50mg/Kg) Lead to samples:

AZ14322 (I8-MAG-01-0.5)
AZ14323 (I8-MAG-01-1.5)
AZ14331 (I8-MAG-04-0.5)
██████████
AZ14333 (I8-MAG-102)
AZ14334 (I8-MAG-04-2.0)
AZ14335 (I8-MAG-05-0.5)

Please let me know if that is correct

Sincerely,

Cynthia Clark
Project Manager

APPENDIX C

**Statistical Data Evaluation
(The Bodhi Group, January 21, 2015)**



May 20, 2015
Project No. 9061017

Mr. Mark Peabody
Project Manager
Kleinfelder, Inc.
550 West C Street, Suite 1200
San Diego, California 92101

Subject: Statistical Analysis of Lead Concentrations in Soil
Interstate 8, San Diego County
Caltrans D11 TO27, Kleinfelder Project No. 20155257.001A

Dear Mr. Peabody:

This technical memorandum summarizes the results of our statistical analysis of lead concentrations in soil reported by Kleinfelder from the project ADL survey. The data were provided in Microsoft Excel format.

For questions pertaining to this analysis, please contact the undersigned at 858.513.1469 or by email at sree@thebodhigroup.com.

Sincerely,
The Bodhi Group, Inc.

Sree Gopinath, P.E.
Principal Engineer

1. INTRODUCTION

The California Department of Transportation (Caltrans) is proposing to improve the east bound on-ramp at Interstate 8 (I-8) and Magnolia Avenue and the shoulder along I-8 near Los Coches Road (Project) in San Diego County (Figure 1).

Project construction will result in soil disturbance, excavation, and reuse of excavated soil. In the more urbanized highway corridors, shallow soil is typically contaminated with aurally-deposited lead (ADL) caused by historic emissions from vehicle exhausts. The lead concentrations in shallow soil may exceed State and Federal hazardous waste criteria or may be at concentrations that require special handling and placement.

The California Department of Toxic Substances Control (DTSC) issued a variance to Caltrans (Variance, No. V09HQSCD006) for the management of soil contaminated with ADL. The Variance requires the comparison of representative concentrations of lead (soluble and total) and pH with hazardous waste and other criteria for proper classification of soil.

Kleinfelder collected and analyzed shallow soil samples for lead from the proposed Project Site to classify the ADL soil type and evaluate criteria for reuse of soil excavated during Project construction. Based on the classification, soil could be managed for reuse within the Project or removed for disposal at an off-site in-State permitted facility.

2. OBJECTIVE

Determine representative concentrations of lead and pH in soil that will be co-excavated during Project construction. For co-excavated soil with sufficient data, representative concentrations will be evaluated using statistical methods. Co-excavated soil refers to soil that is excavated and managed as one stockpile distinct from soil in other stockpiles. Representative concentrations of each co-excavated soil is compared with Variance criteria for proper ADL soil type classification to determine reuse or proper disposal.

3. ANALYSIS

A total of twenty-four soil samples were collected from eight soil boring locations (not including field duplicates) from the Project Site (Figure 1). Three soil samples were collected from each soil boring at discrete depth intervals of 0.5, 1.5, and 2 feet below ground surface (bgs). The samples were analyzed for concentrations of total lead (Total) and soluble lead extracted and analyzed by the waste extraction test (WET). Five soil samples were analyzed for soil pH and lead by the toxicity characteristic leaching procedure (TCLP). Six soil samples were analyzed for soluble lead extracted with a modified WET using de-ionized water (WET-DI). Three field duplicates (FD) were also collected and analyzed for lead by one or more of the following: Total; WET; WET-DI; and TCLP as a Quality Assurance measure. Any uncertainty in the difference between the primary and FD sample results was biased toward protecting the environment and human health by selecting the higher concentration.

For each co-excavated soil unit with sufficient data for statistical analysis, parametric procedures were used to evaluate if the true mean concentrations were below the criteria specified in the Variance. That is, the null hypothesis states that the mean concentration is less than the Variance criterion for a false positive rate (α) of 0.05 and a false negative rate (β) of 0.20.

Nine primary soil samples and one FD were collected from three soil borings along I-8 near Los Coches Road and 15 soil primary samples and two FD were collected from five soil borings along the I-8 eastbound

on-ramp from Magnolia Avenue. Since the Los Coches and Magnolia Avenue sites are approximately five miles apart, soil excavated from these two locations are treated as separate stockpiles.

Since the true mean concentration is not known, a value that would not be exceeded 95 percent of the time (95 percent upper confidence limit of the mean, or 95 UCL) was calculated for the selected α and β values. Non-detect concentrations were treated with the Kaplan-Meier method.

3.1. I-8 and Magnolia Avenue All Depths

The table below summarizes the results of the statistical analyses.

Total Concentrations in milligrams per kilogram (mg/kg)								
Depth (ft)	Number of Samples	% of Non Detect	Min. value	Max. value	Mean	Median	Standard Deviation	95% UCL
0.5-2.0	15	0%	1.6	786	165.9	31.4	252.8	447.7

WET Concentrations in milligrams per liter (mg/L)								
Depth (ft)	Number of Samples	% of Non Detect	Min. value	Max. value	Mean	Median	Standard Deviation	95% UCL
0.5-2.0	15	0	0.017	45.4	8.6	1.5	13.7	23.8

TCLP Concentrations in mg/L								
Depth (ft)	Number of Samples	% of Non Detect	Min. value	Max. value	Mean	Median	Standard Deviation	95% UCL
0.5-2.0	15	0	0.16	1.3	0.9	1.1	0.5	1.1

Only one sample reported a detected WET-DI concentration of 0.53 mg/L in the six samples analyzed, indicating insufficient distinct values for meaningful statistical analysis. Since the maximum detected concentration of 0.53 mg/L is below the Variance WET-DI lead criterion of 1.5 mg/L, WET-DI lead concentrations would not change the ADL soil classification at the I-8/Magnolia Avenue Site.

The pH was measured in three samples and reported values ranging from 5.93 to 6.96; indicating that the pH concentrations would not change the ADL soil classification.

The statistically-derived representative values of TOTAL, WET, and TCLP lead concentrations (95 UCL) were compared with Variance criteria to evaluate soil classification. The resulting soil classification is “Y1”, or hazardous waste, based on the WET lead concentrations. Soil with Y1 classification can only be used below 1-foot of clean soil or pavement and requires a Lead Compliance Plan for worker safety.

3.2. I-8 and Magnolia Avenue Categorized by Depth

The I-8 and Magnolia Avenue lead data set was further categorized by depth to determine if different depth horizons correspond to statistically distinct populations and Variance soil type.

Depth (ft)	Total (mg/kg)			WET (mg/L)			ADL Soil Type
	Mean	Maximum	95% UCL	Mean	Maximum	95% UCL	
0.5	318.9	786	644.6	15.6	45.4	34.1	Y1
1.5	123.3	508	409.9	6.5	27.2	23.6	Y1
2.0	55.5	264	127.6	3.8	17.1	9.3	Y1

The results indicate that the soil, regardless of depth within the top 24-inches, is type Y1 (hazardous), which has restrictions for reuse in the Project Site.

3.3. I-8 and Los Coches Road All Depths

The table below summarizes the results of the statistical analyses.

Total Concentrations in mg/kg								
Depth (ft)	Number of Samples	% of Non Detect	Min. value	Max. value	Mean	Median	Standard Deviation	95% UCL
0.5-2.0	9	0%	2.5	8.1	4.2	3	1.9	5.4

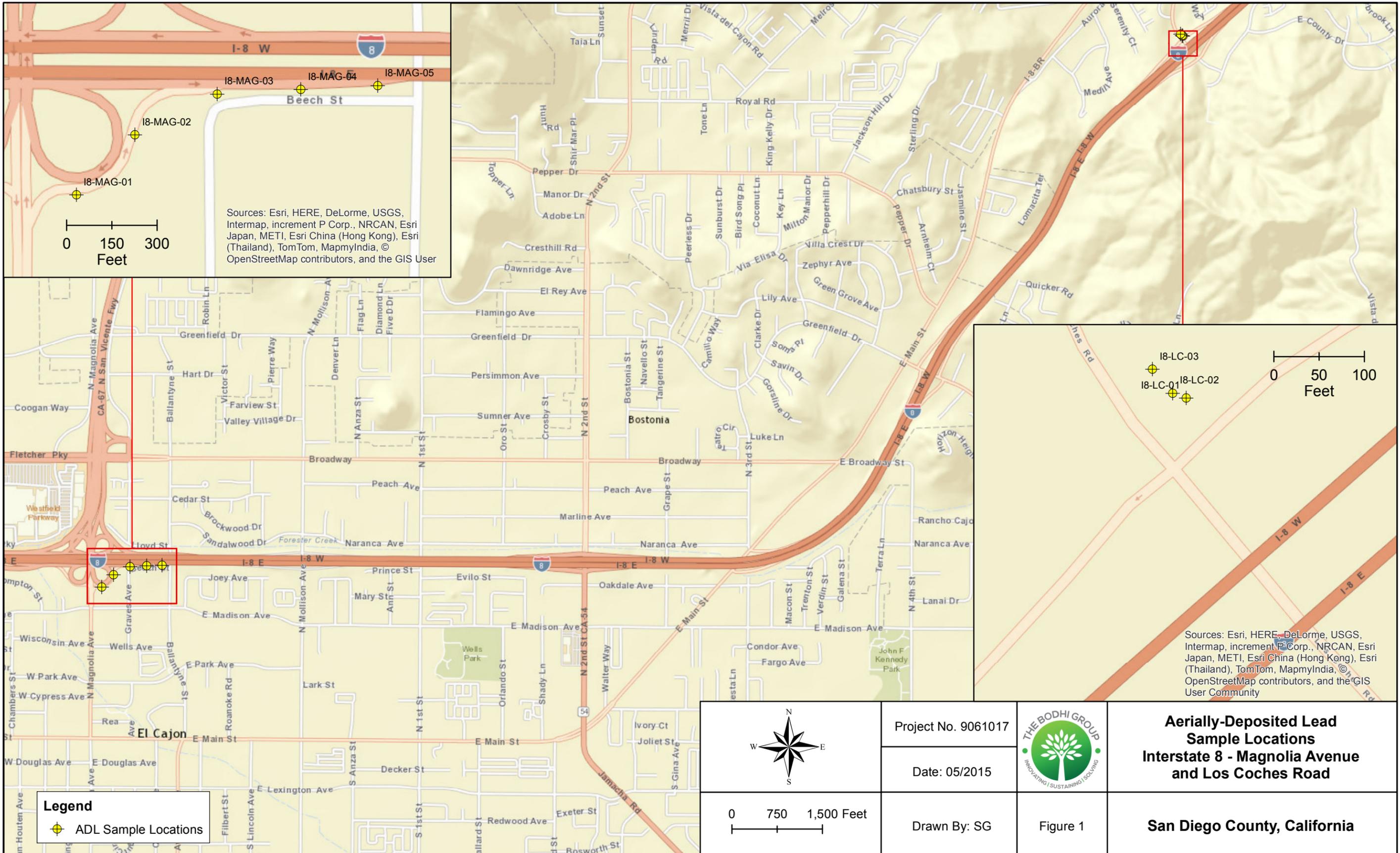
WET Concentrations in mg/L								
Depth (ft)	Number of Samples	% of Non Detect	Min. value	Max. value	Mean	Median	Standard Deviation	95% UCL
0.5-2.0	9	0	0.03	0.3	0.1	0.06	0.09	0.2

The pH was measured in two samples and reported values of 7.98 and 8.24; indicating that the pH concentrations would not change the ADL soil classification.

The statistically-derived representative values of TOTAL and WET lead concentrations (95 UCL) were compared with Variance criteria to evaluate soil classification. The resulting soil classification is “X”, or non-hazardous. Soil with X classification can be used without restriction on the Project Site.

There are insufficient data values for statistically analyzing data sets by discrete depth intervals of 0.5, 1.5, and 2.0 feet. However, since the maximum total and WET lead concentration data values are well below the Variance threshold criteria; soil excavated from the top 2 feet at the I-8 and Los Coches Project Site would be of type “X” or non-hazardous.

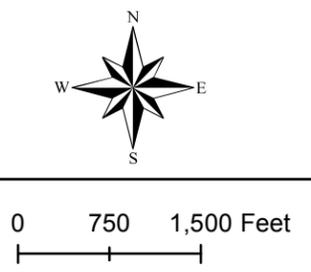
Figures



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User

Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Legend
 ADL Sample Locations



Project No. 9061017
 Date: 05/2015
 Drawn By: SG



Aerially-Deposited Lead Sample Locations
Interstate 8 - Magnolia Avenue and Los Coches Road
San Diego County, California

Memorandum

To : Abdul Malikyar (MS 343)
Project Engineer
Design

Date: February 20, 2015

File: 11-SD-8
PM 15.3/R21.6
EA 11-413501
EFIS 1113000038

From : DEPARTMENT OF TRANSPORTATION - DISTRICT 11
MATERIALS ENGINEERING BRANCH

Subject: CORROSION STUDY

In response to your request we are submitting material recommendations for drainage systems within the above referenced project.

The area soils are considered corrosive to steel.

Design values are as follows:

1. pH = 6.4
2. Minimum Resistivity = 11806 Ohms.cm
3. Sulfates = 2000 mg/kg
4. Chlorides = 2500 mg/kg
5. Non-abrasive flow conditions

Recommendations for culverts

Aluminum or Aluminized pipe is not acceptable

Polymeric Sheet coated (inside and out) pipe 0.52" (18 gage) or thicker may be used.

Plastic Pipes can be used but must incorporate the minimum and maximum fill height requirements. Type-C or S Polyvinyl Chloride pipe and Type-C or S High Density Polyethylene pipe are acceptable. Consideration should be made to end treatments of plastic pipe to avoid UV exposure.

Use of reinforced concrete pipe (RCP) and or reinforced Concrete Box (RCB), must incorporate type IP (MS) modified cement, type II modified cement with mineral admixture or Type V cement with mineral admixture as set forth in subsection 90-1.01 of the Standard Specifications. Concrete pipe shall contain a minimum 5.0 sac (470#) with a minimum 1.0" cover to steel and a maximum water/cement ratio of 0.40.

Hydraulics must be contacted to address minimum/maximum fill and abrasion considerations.

If you have any questions or comments concerning this report, you can contact J. Scandore at 858-467-4069 or David Evans at 858-467-4056.

Prepared by:


John L. Scandore
M&R Eng. Assoc.

Reviewed By:


David Evans
Assoc TE (CT/Reg.)

