

# INFORMATION HANDOUT

**For Contract No. 12-0H9004  
At 12-Ora-55-4.6/5.9**

**Identified by  
Project ID 1200020233**

## **MATERIALS INFORMATION**

Aerially Deposited Lead Site Investigation  
State Route 55 between Post Mile 4.6 and Post Mile 5.9  
Costa Mesa, California

February 26, 2013  
Project No. 208449013

Mr. David Yaghoubi  
State of California Department of Transportation  
District 12, Environmental Engineering  
3347 Michelson Drive, Suite 100  
Irvine, California 92612-8894

Subject: Aerially Deposited Lead Site Investigation  
State Route 55 between Post Mile 4.6 and Post Mile 5.9  
Costa Mesa, California  
Task Order No. 12-0H9000-13  
EA No. 0H9000  
Contract No. 12A1340

Dear Mr. Yaghoubi:

In accordance with the State of California Department of Transportation Contract No. 12A1340, Task Order No. 12-0H9000-13, Ninyo & Moore has conducted an aerially deposited lead investigation on State Route 55 in the city of Costa Mesa.

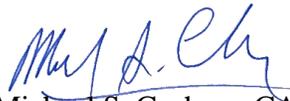
The following report documents our methodologies, findings, conclusions, and recommendations.

We appreciate the opportunity to be of service to you on this project.

Sincerely,  
**NINYO & MOORE**



Jonathan Johnson  
Staff Geologist



Michael S. Cushner, CAC  
Project Environmental Scientist



Walter R. Crone, PG  
Principal Environmental Geologist

JJJ/MS/NA/WRC/lr/mlc

Distribution: (8) Addressee (5 bound copies; 1 unbound copy; 1 CD; 1 via e-mail)

**AERIALLY DEPOSITED LEAD SITE INVESTIGATION  
STATE ROUTE 55 BETWEEN POST MILE 4.6 AND POST MILE 5.9  
COSTA MESA, CALIFORNIA  
TASK ORDER NO. 12-0H9000-13  
EA NO. 0H9000, CONTRACT NO. 12A1340**

**PREPARED FOR:**

State of California  
Department of Transportation  
District 12, Environmental Engineering  
3347 Michelson Drive, Suite 100  
Irvine, California 92612-8894

**PREPARED BY:**

Ninyo & Moore  
Geotechnical and Environmental Sciences Consultants  
475 Goddard, Suite 200  
Irvine, California 92618

February 26, 2013  
Project No. 208449013

## AERIALLY DEPOSITED LEAD INVESTIGATION REPORT

Task Order No. 12-0H9000-13  
E.A. 0H9000

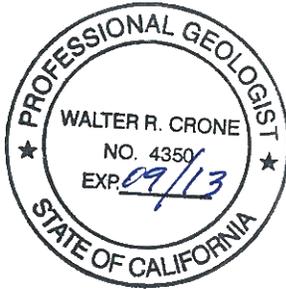
This report was prepared by the staff of Ninyo & Moore Geotechnical and Environmental Sciences Consultants under the supervision of the Engineer and/or Geologist whose signature appears hereon.

The findings, recommendations, specifications, or professional opinions are presented within the limits described by the client, after being prepared in accordance with generally accepted professional engineering and geologic practice. No warranty is expressed or implied.



---

Walter R. Crone, PG  
Principal Environmental Geologist



**TABLE OF CONTENTS**

	<u>Page</u>
EXECUTIVE SUMMARY .....	1
1. INTRODUCTION .....	3
1.1. Project Description and Objective .....	3
1.2. Scope of Work .....	3
1.2.1. Prefield Activities.....	3
1.2.2. Soil Sampling.....	3
1.2.3. Laboratory Analysis.....	4
1.2.4. Global Positioning System Surveying .....	4
1.2.5. Report Preparation .....	4
1.3. Previous Site Investigations.....	4
2. BACKGROUND .....	4
2.1. Aerially Deposited Lead in Soil .....	5
2.2. Hazardous Waste Classification Criteria .....	5
2.3. DTSC Variance.....	5
2.3.1. Reuse – Condition 1 .....	5
2.3.2. Reuse – Condition 2.....	6
2.3.3. Reuse – Condition 3.....	6
2.4. Criteria for Disposal of Soil Not Intended for Reuse On Site .....	6
3. INVESTIGATION METHODS .....	6
3.1. HSP .....	7
3.2. Utility Clearance.....	7
3.3. Hand-Auger Sampling.....	7
3.4. Investigation-Derived Wastes.....	7
3.5. Laboratory Analyses .....	8
4. ANALYTICAL RESULTS .....	8
4.1. Total Lead.....	8
4.2. Soluble Lead – Citric Acid .....	8
4.3. Soluble Lead – Deionized Water.....	8
4.4. Soluble Lead – Toxicity Characteristic Leaching Procedure (TCLP).....	9
4.5. pH .....	9
5. STATISTICAL EVALUATION .....	9
6. CONCLUSIONS .....	9
7. RECOMMENDATIONS.....	9
7.1. Recommendations for Soil for Reuse by Caltrans.....	9
7.2. Recommendations for Soil to be Disposed Off Site .....	9
7.3. Health Effects of Lead.....	10
8. LIMITATIONS.....	10

**Table**

Table 1 – Soil Analytical Results – Aerially Deposited Lead, pH, and GPS Coordinates

**Figures**

Figure 1 – Site Location

Figure 2 – Boring Locations

Figures 3 through 6 – Boring Data

**Appendices**

Appendix A – Aerially Deposited Lead Soil Management Chart

Appendix B – Laboratory Reports and Chain-of-Custody Documentation

## **EXECUTIVE SUMMARY**

The State of California Department of Transportation (Caltrans) authorized Ninyo & Moore to conduct an aerially deposited lead site investigation along State Route 55 (SR-55) from Post Mile (PM) 4.6 to PM 5.9 in the city of Costa Mesa, California (Figure 1). Work was conducted in general accordance with Caltrans Contract No. 12A1340, Task Order No. 12-0H9000-13 (TO 13), dated October 2, 2012.

It is our understanding that Caltrans is planning improvements including slope paving, narrow area paving, paving under guard rails, installation of maintenance vehicle pullouts, fence and gate relocation, and irrigation valve relocation in various locations throughout the site. This investigation was performed to evaluate the presence of lead in soil resulting from the combustion during the age of leaded fuel from nearby traffic. Data collected during this investigation were used to develop recommendations for the potential reuse or disposal of soil excavated from the site and to inform Caltrans of potential health and safety issues concerning the presence of lead in soil for workers at the site during construction activities.

Ninyo & Moore collected 37 soil samples from 31 borings at the site (borings B1 through B31). Five of the 37 samples contained a total lead concentration greater than 50 milligrams per kilogram (mg/kg) and less than 1,000 mg/kg and were subsequently analyzed for soluble lead in accordance with the Waste Extraction Test (WET) using citric acid. Soluble lead in two of those samples was reported to be greater than the Soluble Threshold Limit Concentration for California hazardous waste (Title 22 California Code of Regulations, Section 66261.24) of 5.0 milligrams per liter (mg/l) and were subsequently analyzed for soluble lead by the WET using deionized water as the extractant (WET-DI) and in accordance with the Toxicity Characteristic Leaching Procedure (TCLP). The results of the soluble lead by WET-DI were below 1.5 mg/l and the TCLP results were below 5.0 mg/l (below the threshold for federal hazardous waste under Resource Conservation and Recovery Act [Title 40 Code of Federal Regulations {CFR} 261-24]). Five samples were analyzed for pH. The pH levels ranged from 5.5 to 9.1.

Our recommendations for soil reuse on the site are based on the guidelines set forth by the Department of Toxic Substances Control (DTSC) Lead Variance issued to Caltrans on June 30,

2009 (DTSC Variance). Laboratory analytical results for lead were compared to the guidelines of the DTSC Variance for potential reuse of the soil as fill within the Caltrans right-of-way.

Our recommendations for off-site disposal were based on the comparison of lead concentrations in soil samples to the California Health and Safety Code thresholds and Title 40 Code of Federal Regulations 261.24 thresholds.

Based on the analytical results, the on-site reuse and the off-site disposal recommendations are summarized below.

### **Recommendations for Soil for Reuse by Caltrans**

Soil can be reused on-site with the following restrictions:

- The soil from the vicinity of borings B11 and B26 in the surface layer (surface to 0.5 feet below ground surface [bgs]) for the entire area of the excavation is Type Y1 and may be re-used on-site if it is placed a minimum of 5 feet above the maximum water table elevation and covered with at least 1 foot of non-hazardous soil.
- The remaining soil at the site is suitable for on-site reuse by Caltrans with no restrictions based on total and soluble lead concentrations (Type X).

### **Recommendations for Soil to be Disposed Off Site**

If Caltrans elects to dispose the soil off site, the following restrictions apply:

- The soil from the vicinity of borings B11 and B26 in the surface layer (surface to 0.5 feet bgs) for the entire area of the excavation is classified as California hazardous and should be disposed at a Class 1 disposal site in accordance with Title 22 CCR requirements (Type Z2).
- The remaining soil at the site is classified as non-hazardous (Type X) and may be disposed off-site in accordance with the requirements of the special provisions.

## **1. INTRODUCTION**

The State of California Department of Transportation (Caltrans) authorized Ninyo & Moore to conduct an aerially deposited lead (ADL) site investigation along State Route 55 (SR-55) from Post Mile (PM) 4.6 to PM 5.9 in the city of Costa Mesa, California (Figure 1). Work was conducted in general accordance with Caltrans Contract No. 12A1340, Task Order No. 12-0H9000-13 (TO 13), dated October 2, 2012.

### **1.1. Project Description and Objective**

It is our understanding that Caltrans is planning improvements along SR-55 in the city of Costa Mesa. The project proposes to perform improvements including slope paving, narrow area paving, paving under guard rails, installation of maintenance vehicle pullouts, fence and gate relocation, and irrigation valve relocation in various locations throughout the site. This report has been prepared by Ninyo & Moore to document the results of a study to evaluate the presence of ADL along the unpaved shoulder areas of the site.

### **1.2. Scope of Work**

Ninyo & Moore performed the tasks described in the following sections.

#### **1.2.1. Prefield Activities**

Prefield activities included:

- Preparing a site specific health and safety plan (HSP).
- Marking boring locations at the site.
- Notifying Underground Service Alert (USA) that Ninyo & Moore would be advancing soil borings in the area (USA ticket numbers A30141019, A30141041, A30141049, A30141068, A30141083, A30141097, A30141103, A30141119, A30141130, A30141131, and A30141141).
- Preparing a project schedule and coordinating work with subcontractors.

#### **1.2.2. Soil Sampling**

Soil sampling was conducted on January 18, 2013. Thirty-one boring locations (borings B1 through B31) were advanced for this task order as shown on Figure 2. One boring at

each sampling location was advanced and sampled using a hand auger. One soil sample was attempted for collection from borings B1 through B29 at a depth from the surface to ½ foot below ground surface (bgs). Four samples were attempted for collection from borings B30 and B31 at depths of surface to ½, 1½, 3, and 4 feet bgs. The depths reached for each boring are presented on Table 1.

### **1.2.3. Laboratory Analysis**

Ninyo & Moore submitted the soil samples under chain-of-custody (COC) protocol to Pat-Chem Laboratories of Moorpark, California; a laboratory certified by the State of California Department of Health Services Environmental Laboratory Accreditation Program.

### **1.2.4. Global Positioning System Surveying**

Approximate latitude and longitude (North American Datum 83) of sampling locations were recorded with a handheld global positioning system (GPS) unit (GeoXT, Trimble). The latitude and longitude data for each boring are presented on Table 1.

### **1.2.5. Report Preparation**

This report was prepared in general accordance Caltrans Contract No. 12A1340 and TO 13 dated October 2, 2012.

## **1.3. Previous Site Investigations**

Ninyo & Moore has not performed previous investigations at this site. In addition, Caltrans has not notified Ninyo & Moore of previous investigations performed at the site.

## **2. BACKGROUND**

Caltrans obtained a variance (V09 HQSCD006) from the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC), on June 30, 2009 (DTSC Variance). The DTSC Variance allows for conditional reuse of lead-impacted soil within the Caltrans right-of-way (ROW). Background information regarding the source of ADL and the reuse or disposal of lead-impacted soil is discussed in the following sections.

## **2.1. Aerially Deposited Lead in Soil**

Analyses for lead in soil along highways throughout the state of California have revealed that lead is commonly present along the shoulders of the highways as a result of automobile exhaust containing lead from the combustion of leaded gasoline. Elevated concentrations of lead are commonly found in the upper 2 feet of soil. Lead concentrations in soil are dependent on many variables; but in general, are a function of the age of the highway and the volume of traffic using the highway.

## **2.2. Hazardous Waste Classification Criteria**

Soil that exceeds the following limitations may be classified as hazardous waste with respect to lead concentrations:

- The soil contains 1,000 milligrams per kilogram (mg/kg) or more total lead, exceeding the Total Threshold Limit Concentration (TTLC) for California hazardous waste (Title 22 California Code of Regulations [CCR], Section 66261.24);
- The soil contains 5.0 milligrams per liter (mg/l) or more citric acid-extractable lead, exceeding the Soluble Threshold Limit Concentration (STLC) for California hazardous waste (Title 22 CCR, Section 66261.24);
- The soil contains 5.0 mg/l or more leachable lead using the Toxicity Characteristic Leaching Procedure (TCLP), exceeding the maximum concentration for the toxicity characteristic of the Resource, Conservation, and Recovery Act (RCRA; Title 40 Code of Federal Regulations [CFR] 261.24); or
- The soil pH is less than or equal to 2.0 or greater than or equal to 12.5, which exceeds the limits for the corrosivity characteristic of RCRA hazardous waste (40 CFR 261.22) and California hazardous waste (Title 22 CCR, Section 66261.22).

## **2.3. DTSC Variance**

In accordance with the DTSC Variance, soil that is subject to the guidelines presented below may be reused within the Caltrans ROW. A chart presenting the different ADL soil type classifications is included in Appendix A.

### **2.3.1. Reuse – Condition 1**

Soil containing less than 1.5 mg/l extractable lead by the Waste Extraction Test (WET) using de-ionized water as the extractant (WET-DI) and less than or equal to 1,411

mg/kg total lead (United States Environmental Protection Agency [EPA] Method 6010B) may be used as fill in the Caltrans ROW provided the soil is placed a minimum of 5 feet above the maximum level of the water table and covered with at least 1 foot of non-hazardous soil.

**2.3.2. Reuse – Condition 2**

Soil containing greater than or equal to 1.5 mg/l, but less than 150 mg/l, extractable lead by WET-DI method, or more than 1,411 mg/kg total lead but less than 3,397 mg/kg total lead, may be used as fill in the Caltrans ROW provided the soil is placed a minimum of 5 feet above the maximum level of the water table and protected from infiltration by a paved structure that will be maintained by Caltrans.

**2.3.3. Reuse – Condition 3**

Lead-contaminated soil with a pH less than 5.5 but greater than 5.0 shall 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 a hazardous waste.

**2.4. Criteria for Disposal of Soil Not Intended for Reuse On Site**

If Caltrans elects to dispose soil within the Caltrans ROW that has been excavated during construction activities, the soil may be classified either as hazardous waste or non-hazardous waste. The distinction is based on the total and soluble lead concentrations compared to the TTLC and STLC criteria. As mentioned in Section 2.2, the TTLC for total lead is 1,000 mg/kg and the STLC for citric acid extractable lead is 5.0 mg/l. Waste containing lead concentrations in excess of or equal to those listed must be disposed at a Class I hazardous waste disposal facility pursuant to State of California regulations.

**3. INVESTIGATION METHODS**

The investigation activities are described in the following subsections and were conducted in general accordance with the TO that was approved by Caltrans prior to beginning the field activities.

### **3.1. HSP**

A site-specific HSP dated January 7, 2013, was prepared by Ninyo & Moore and submitted to Caltrans for approval prior to commencing field work.

### **3.2. Utility Clearance**

The boring locations were described to USA during the notification at least 2 working days prior to conducting the soil sampling. USA marked the member utilities known to be in the vicinity of the boring locations.

### **3.3. Hand-Auger Sampling**

The field work was conducted on January 18, 2013. The boring locations were approved by the Caltrans TO Manager and are shown on the attached Figure 2. One soil sample was attempted for collection from borings B1 through B29 at a depth of surface to ½ feet bgs. Four samples were attempted for collection from borings B30 and B31 at depths of surface to ½, 1½, 3, and 4 feet bgs. The depths reached for each boring are presented on Table 1.

Samples were placed into new, 4-ounce, glass jars; capped with Teflon-coated plastic lids; labeled; placed in a resealable plastic bag; and stored in a cooler. The sampling equipment was decontaminated between each boring. Soil samples were transferred under COC protocol to Pat-Chem Laboratories within 24 hours of collection. In accordance with the TO, soil sample homogenization was performed in the laboratory.

Hand augering was conducted by Ninyo & Moore personnel.

### **3.4. Investigation-Derived Wastes**

Soil cuttings generated by hand-auger drilling were returned to their corresponding boreholes after collection of soil samples. Decontamination water was transported to Ninyo & Moore's Irvine office and placed in a drum pending chemical characterization. Based on the analytical result of the decontamination water sample, the decontamination water was subsequently disposed in the sanitary sewer.

### **3.5. Laboratory Analyses**

Once the samples were received by Pat-Chem Laboratories the samples were separately homogenized and analyzed for the following.

- Thirty-seven soil samples were analyzed for total lead using EPA Method 6010B.
- Five soil samples were analyzed for pH using EPA Method 9045.
- One decontamination water sample was analyzed for total lead using EPA Method 6010B.

## **4. ANALYTICAL RESULTS**

The results of this investigation are described in the following subsections. The analytical results of lead and pH are summarized in Table 1 and Figures 3 through 6. Laboratory reports and COC records are included in Appendix B.

### **4.1. Total Lead**

Thirty-seven soil samples were analyzed for total lead. The maximum total lead concentration was 230 mg/kg. The minimum total lead concentration was less than the laboratory practical quantitation limit (PQL) of 1.0 mg/kg.

The decontamination water sample contained 0.33 mg/l of lead.

### **4.2. Soluble Lead – Citric Acid**

Five of the 31 samples contained total lead at a concentration of greater than 50 mg/kg and were subsequently analyzed for soluble lead by WET-citric. The soluble lead concentrations ranged from less than the laboratory PQL of 0.20 to 7.7 mg/l.

### **4.3. Soluble Lead – Deionized Water**

Two samples were analyzed for soluble lead using the WET-DI. Both soluble lead concentrations were less than the PQL of 0.20 mg/l.

#### **4.4. Soluble Lead – Toxicity Characteristic Leaching Procedure (TCLP)**

Two samples were analyzed for soluble lead by the TCLP method. One sample had a concentration of 0.04 mg/l and another sample had a concentration less than the laboratory PQL of 0.02 mg/l.

#### **4.5. pH**

Five of the samples collected were analyzed for pH. The maximum pH level was 9.1 and the minimum pH level was 5.5.

### **5. STATISTICAL EVALUATION**

Based on the data reported (Table 1) for the site, only two samples with a total lead concentration in excess of 50 mg/kg contained a soluble lead concentration equal to or in excess of 5.0 mg/l. Therefore, additional testing was not performed and statistical analyses were not performed.

### **6. CONCLUSIONS**

Assuming the soil has not been disturbed since construction of the routes in the site vicinities, concentrations of total lead would be expected to decrease with depth.

### **7. RECOMMENDATIONS**

Based on the findings of this study, recommendations for the site are as follows:

#### **7.1. Recommendations for Soil for Reuse by Caltrans**

Soil can be reused on-site with the following restrictions:

- The soil from the vicinity of borings B11 and B26 in the surface layer (surface to 0.5 feet below ground surface [bgs]) for the entire area of the excavation is Type Y1 and may be reused on-site if it is placed a minimum of 5 feet above the maximum water table elevation and covered with at least 1 foot of non-hazardous soil.
- The remaining soil at the site is suitable for on-site reuse by Caltrans with no restrictions based on total and soluble lead concentrations (Type X).

#### **7.2. Recommendations for Soil to be Disposed Off Site**

If Caltrans elects to dispose the soil off site, the following restrictions apply:

- The soil from the vicinity of borings B11 and B26 in the surface layer (surface to 0.5 feet bgs) for the entire area of the excavation is classified as California hazardous and should be disposed at a Class 1 disposal site in accordance with Title 22 CCR requirements (Type Z2).
- The remaining soil at the site is classified as non-hazardous (Type X) and may be disposed off-site in accordance with the requirements of the special provisions.

### **7.3. Health Effects of Lead**

Concentrations of lead in soil at the site represent a potential threat to the health of site workers performing earthwork activities.

Lead in its element form is a heavy, ductile, soft, gray metal. The permissible exposure limit for lead is 0.05 milligrams per cubic meter ( $\text{mg}/\text{m}^3$ ) in air based on an eight-hour time-weighted average. The immediately dangerous to life and health exposure limit is  $100 \text{ mg}/\text{m}^3$  as established by the National Institute of Occupational Safety and Health. Exposure may produce several symptoms including weakness, eye irritation, facial pallor, pale eyes, lassitude, insomnia, anemia, tremors, malnutrition, constipation, paralysis of the wrists and ankles, abdominal pain, colic, nephropathy, encephalopathy, gingival lead line, hypertension, anorexia, and weight loss. Target organs are the central nervous system, kidneys, eyes, blood, gingival tissue, and the gastrointestinal tract.

Because of the potential hazard from exposure to lead-contaminated soil, a lead HSP should be prepared by a Certified Industrial Hygienist (CIH). In addition, all site workers (earthwork) should have completed a training program meeting the requirements of 29 CFR 1910.120 and 8 CCR 1532.1. The plan developed by the CIH should include a hazard analysis, dust control measures, air monitoring, signage, work practices, emergency response plans, personal protective equipment, decontamination, and documentation.

## **8. LIMITATIONS**

The services outlined in this report have been conducted in a manner generally consistent with current regulatory guidelines. No warranty, expressed or implied, is made regarding the professional opinions presented in this report. Ninyo & Moore's opinions are based on an analysis of

observed conditions and on information obtained from third parties. It is likely that variations in soil conditions may exist.

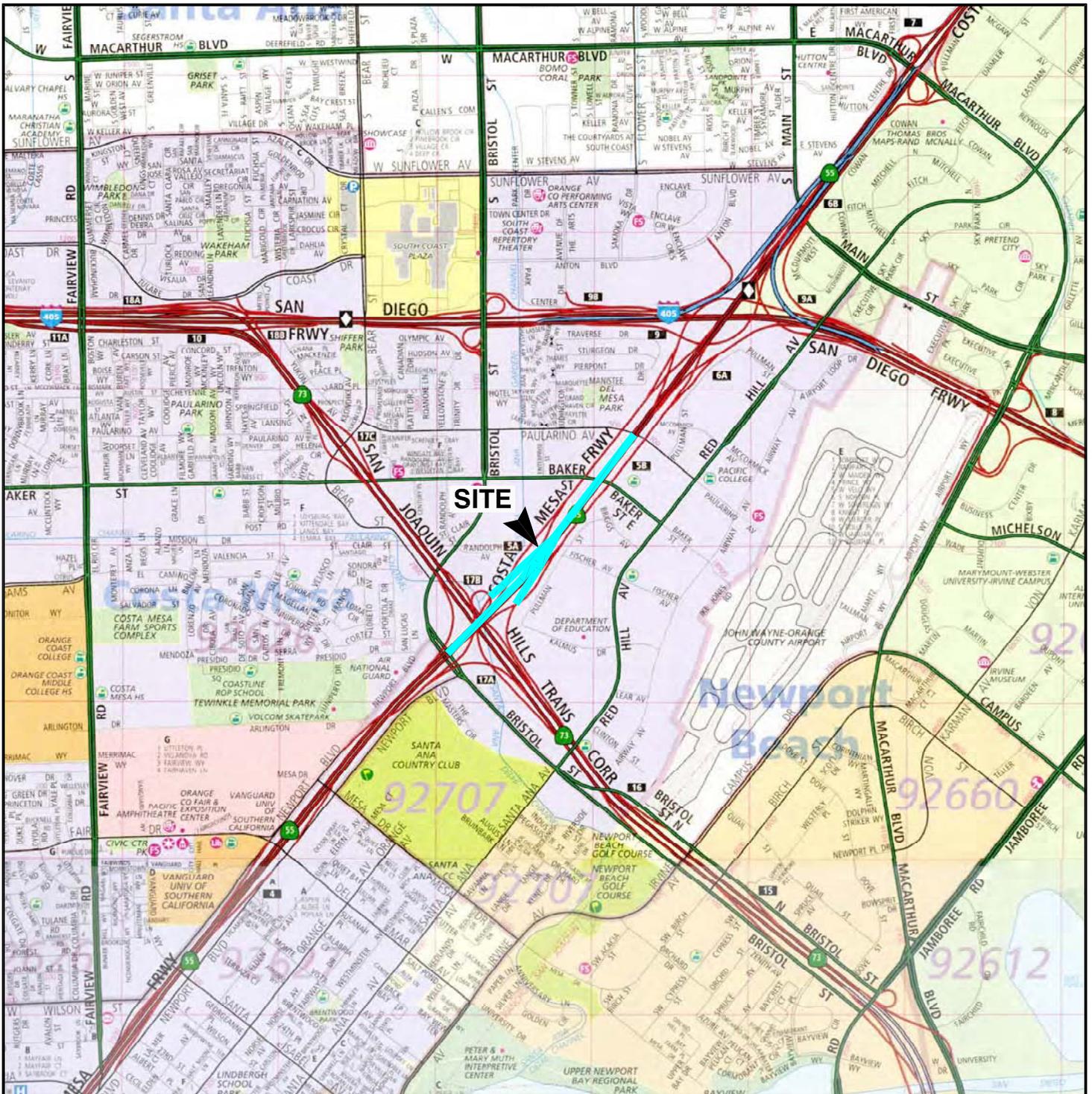
The samples collected and chemically analyzed and the observations made are believed to be representative of the general area evaluated; however, conditions can vary significantly between sampling locations. The interpretations and opinions contained in this report are based on the results of laboratory tests and analyses intended to detect the presence and measure the concentration of selected chemical or physical constituents in samples collected from the site. The analyses have been conducted by an independent laboratory certified by the State of California to conduct such analyses. Ninyo & Moore has no involvement in, or control over, such analyses and has no means of confirming the accuracy of laboratory results. Ninyo & Moore, therefore, disclaims any responsibility for inaccuracy in such laboratory results.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader wants any additional information, or has questions regarding content, interpretations presented, or completeness of this document. Opinions and judgments expressed herein, which are based on our understanding and interpretation of current regulatory standards, should not be construed as legal opinions.

For individuals with sensory disabilities, this document is available in alternate formats upon request. For any questions regarding this document, please call or write David Yaghoubi, Environmental Engineering, 3347 Michelson Drive, Suite 100, Irvine, California 92612-1692. Phone Number (949) 756-7828.

**TABLE 1 – SOIL ANALYTICAL RESULTS – AERIALY DEPOSITED LEAD, pH, AND GPS COORDINATES**

Sample	Sample Depth (feet bgs)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH	Latitude	Longitude
B1-0.5	0.5	1/18/2013	54	3.4	--	--	5.5	33.68204798	-117.8780176
B2-0.5	0.5	1/18/2013	11	--	--	--	7.0	33.68119956	-117.8788502
B3-0.5	0.5	1/18/2013	ND<1.0	--	--	--	--	33.68035309	-117.8797087
B4-0.5	0.5	1/18/2013	6.6	--	--	--	--	33.67971174	-117.8803618
B5-0.5	0.5	1/18/2013	120	3.7	--	--	--	33.67924113	-117.8809148
B6-0.5	0.5	1/18/2013	15	--	--	--	--	33.67904039	-117.8808441
B7-0.5	0.5	1/18/2013	14	--	--	--	--	33.67821447	-117.8815737
B8-0.5	0.5	1/18/2013	74	ND<0.20	--	--	--	33.67805800	-117.8820540
B9-0.5	0.5	1/18/2013	1.3	--	--	--	--	33.67772661	-117.8824303
B10-0.5	0.5	1/18/2013	ND<1.0	--	--	--	--	33.67765980	-117.8820357
B11-0.5	0.5	1/18/2013	230	6.7	ND<0.20	ND<0.02	--	33.67652563	-117.8828535
B12-0.5	0.5	1/18/2013	13	--	--	--	--	33.67612273	-117.8836682
B13-0.5	0.5	1/18/2013	3.4	--	--	--	--	33.67587186	-117.8837052
B14-0.5	0.5	1/18/2013	6.8	--	--	--	--	33.67565200	-117.8840830
B15-0.5	0.5	1/18/2013	2.9	--	--	--	--	33.67532396	-117.8844440
B16-0.5	0.5	1/18/2013	9.4	--	--	--	--	33.67490244	-117.8846826
B17-0.5	0.5	1/18/2013	42	--	--	--	--	33.67281747	-117.8873725
B18-0.5	0.5	1/18/2013	26	--	--	--	9.1	33.67236317	-117.8880346
B19-0.5	0.5	1/18/2013	7.6	--	--	--	--	33.67224833	117.8872146
B20-0.5	0.5	1/18/2013	11	--	--	--	--	33.67140700	-117.8872913
B21-0.5	0.5	1/18/2013	12	--	--	--	--	33.67316183	-117.8860274
B22-0.5	0.5	1/18/2013	3.1	--	--	--	--	33.67381040	-117.8844908
B23-0.5	0.5	1/18/2013	ND<1.0	--	--	--	--	33.67390825	-117.8842572
B24-0.5	0.5	1/18/2013	ND<1.0	--	--	--	--	33.67418005	-117.8841985
B25-0.5	0.5	1/18/2013	3.9	--	--	--	--	33.67434800	-117.8839930
B26-0.5	0.5	1/18/2013	140	7.7	ND<0.20	0.04	--	33.67537395	-117.8834316
B27-0.5	0.5	1/18/2013	12	--	--	--	--	33.67619399	-117.8822829
B28-0.5	0.5	1/18/2013	ND<1.0	--	--	--	--	33.68008600	-117.8791180
B29-0.5	0.5	1/18/2013	ND<1.0	--	--	--	--	33.68078923	-117.8778646
B30-0.5	0.5	1/18/2013	5.2	--	--	--	--	33.68088527	-117.8792540
B30-1.5	1.5	1/18/2013	ND<1.0	--	--	--	9.0		
B30-3.0	3.0	1/18/2013	ND<1.0	--	--	--	--		
B30-4.0	4.0	1/18/2013	ND<1.0	--	--	--	--		
B31-0.5	0.5	1/18/2013	24	--	--	--	--	33.68192717	-117.8782037
B31-1.5	1.5	1/18/2013	4.7	--	--	--	--		
B31-3.0	3.0	1/18/2013	29	--	--	--	8.2		
B31-4.0	4.0	1/18/2013	ND<1.0	--	--	--	--		
<b>Maximum</b>			230	7.7	ND<0.20	0.04	9.1	--	--
<b>Average</b>			24.0	4.3	ND<0.20	0.03	7.8	--	--
<b>Minimum</b>			ND<1.0	ND<0.20	ND<0.20	ND<0.02	5.5	--	--
<b>Regulatory Limits</b>			1411 <sup>(1)</sup>	5 <sup>(2)</sup>	1.5 <sup>(3)</sup>	5 <sup>(4)</sup>	5 <sup>(5)</sup>	--	--
<b>Decontamination Water (mg/l)</b>									
R-1	NA	1/18/2013	0.33	--	--	--	--	NA	NA
<b>Notes:</b>									
1 – Limit specified in addendum to Variance issued by the Department of Toxic Substances Control (DTSC) to Caltrans									
2 – Soluble Threshold Limit Concentration for California Hazardous Waste (California Code of Regulations [CCR] Title 22, Section 66261.24)									
3 – Limit Specified by DTSC Variance									
4 – Maximum concentration for the TCLP of Resource, Conservation, and Recovery Act (RCRA) hazardous waste (40 Code of Federal Regulations, Section 261.24)									
5 – Minimum value specified by DTSC variance									
bgs – below ground surface									
mg/kg – milligrams per kilogram									
mg/l – milligrams per liter									
NA – not applicable									
TCLP – soluble lead by the Toxicity Characteristic Leaching Procedure									
TTLc – total lead for comparison to the Total Threshold Limit Concentration									
WET – Waste Extraction Test									
WET-citric – soluble lead by WET using citric acid for comparison to the Soluble Threshold Limit Concentration									
WET-DI – soluble lead by WET using deionized water for comparison to the Soluble Threshold Limit Concentration									
-- – not analyzed									



REFERENCE: 52ND EDITION, THOMAS GUIDE FOR LOS ANGELES/ORANGE COUNTIES, STREET GUIDE AND DIRECTORY.

APPROXIMATE SCALE



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.  
Map © Rand McNally, R.L.07-S-129

**Ninyo & Moore**

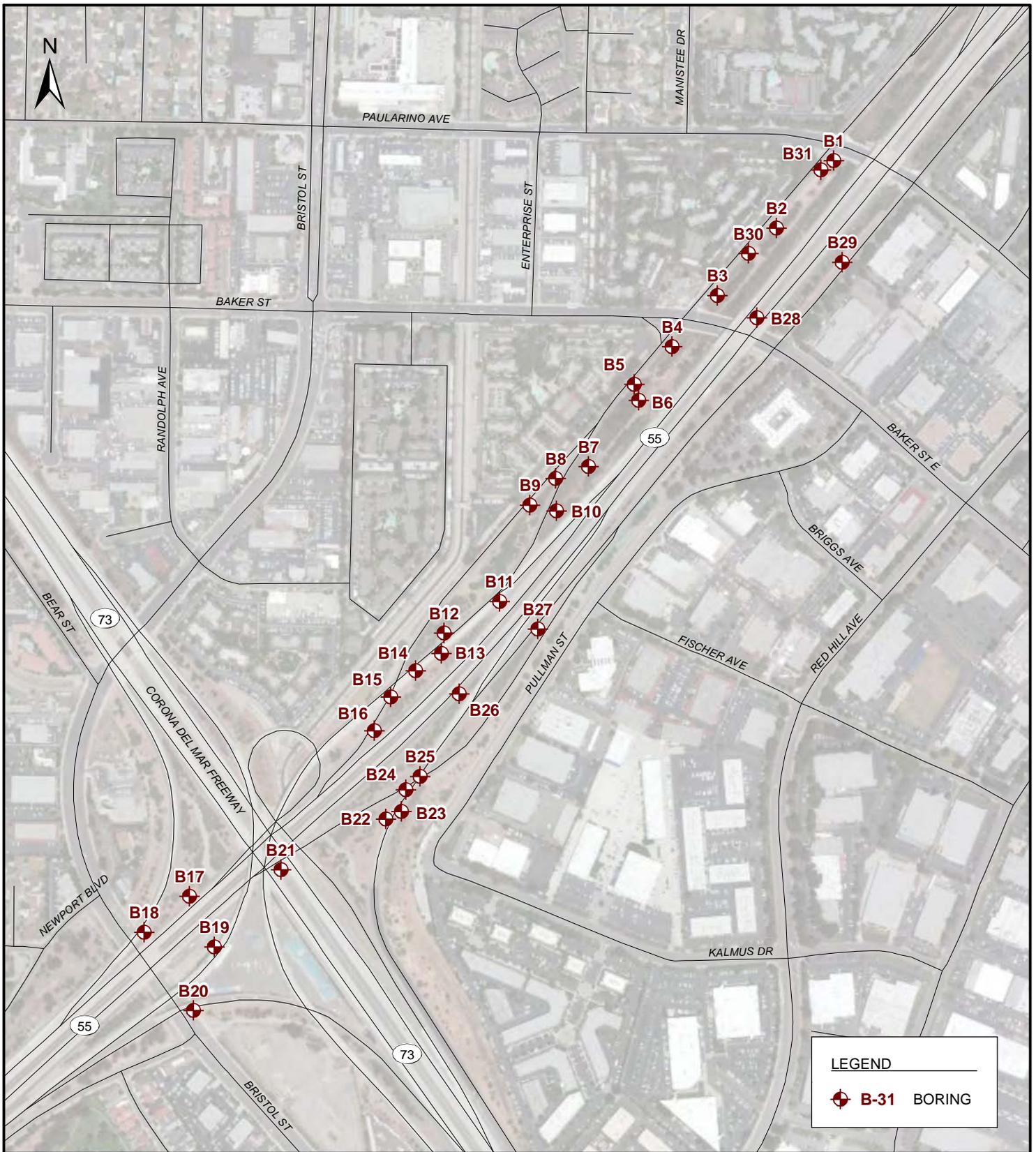
**SITE LOCATION**

FIGURE

PROJECT NO.	DATE
208449013	2/13

SR-55 BETWEEN PM 4.6 AND PM 5.9  
COSTA MESA, CALIFORNIA

**1**



**LEGEND**

 **B-31** BORING

SOURCES: AERIAL IMAGERY - (C) 2013 MICROSOFT CORPORATION AND ITS DATA SUPPLIERS.



NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

**Ninyo & Moore**

**BORING LOCATIONS**

FIGURE

PROJECT NO.

DATE

SR-55 BETWEEN PM 4.6 AND PM 5.9  
COSTA MESA, CALIFORNIA

208449013

2/13

**2**

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B18-0.5	0.5	1/18/2013	26	--	--	--	9.1

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B17-0.5	0.5	1/18/2013	42	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B21-0.5	0.5	1/18/2013	12	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B19-0.5	0.5	1/18/2013	7.6	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B20-0.5	0.5	1/18/2013	11	--	--	--	--

**LEGEND**

 **B21 BORING LOCATION**

mg/kg milligrams per kilogram

mg/l milligrams per liter

WET Waste Extraction Test

WET-citric Soluble lead by WET using citric acid for comparison to Soluble Threshold Limit Concentration

WET-DI Soluble lead by WET using deionized water for comparison to Soluble Threshold Limit Concentration

TCLP Soluble lead by Toxicity Characteristic Leaching Procedure

TTLc Total Lead for comparison to the Total Threshold Limit Concentration



SCALE IN FEET



SOURCES: CALTRANS, 2010; AERIAL IMAGERY - (C) 2013 MICROSOFT CORPORATION AND ITS DATA SUPPLIERS.

NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

**Ninyo & Moore**

PROJECT NO.

208449013

DATE

2/13

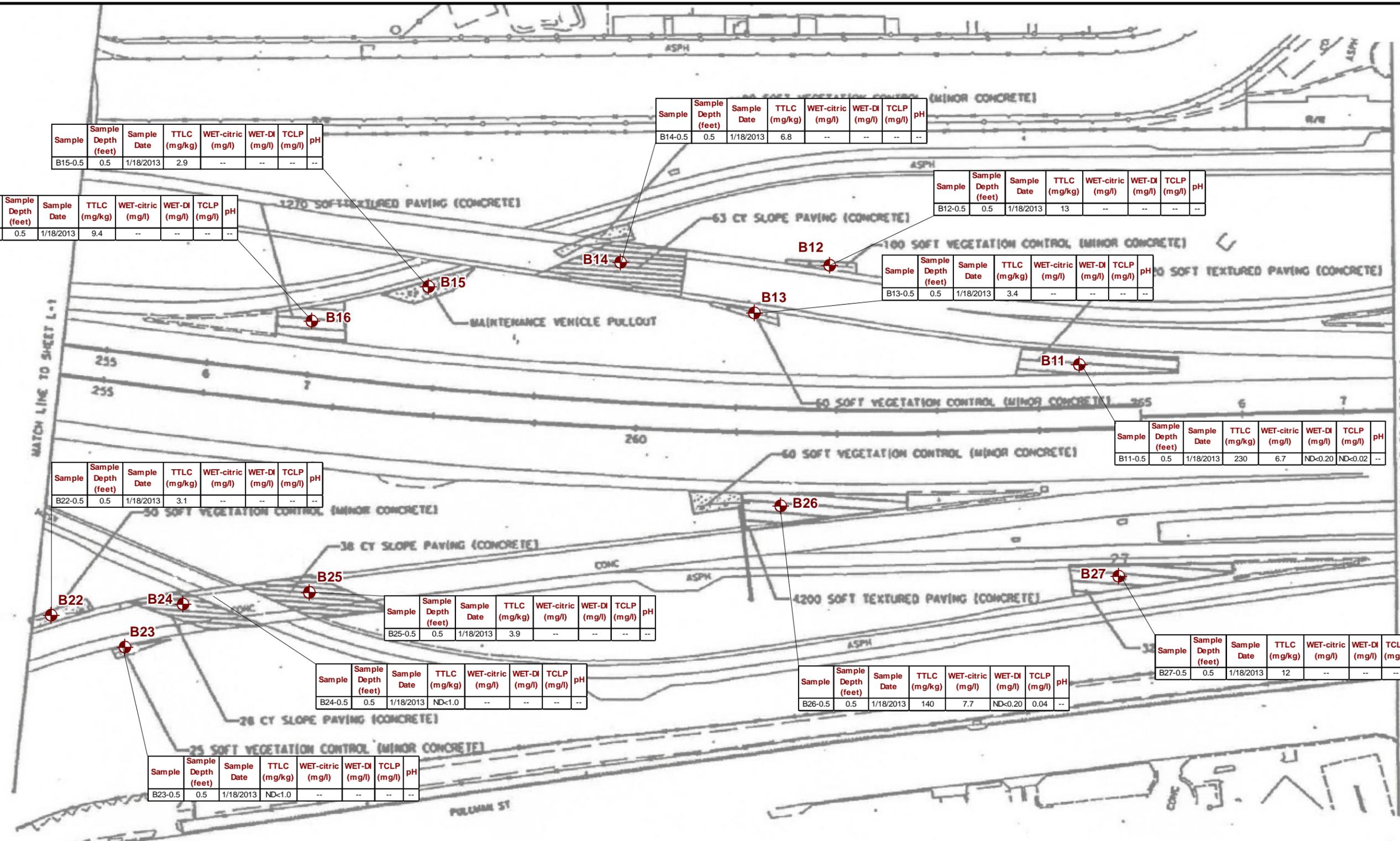
**BORING DATA**

SR-55 BETWEEN PM 4.6 AND PM 5.9  
COSTA MESA, CALIFORNIA

FIGURE

**3**

208449013\_BD4\_B.mxd 2/26/2013 11:52:12 AM JDL



Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B15-0.5	0.5	1/18/2013	2.9	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B16-0.5	0.5	1/18/2013	9.4	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B14-0.5	0.5	1/18/2013	6.8	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B12-0.5	0.5	1/18/2013	13	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B13-0.5	0.5	1/18/2013	3.4	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B11-0.5	0.5	1/18/2013	230	6.7	ND<0.20	ND<0.02	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B22-0.5	0.5	1/18/2013	3.1	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B25-0.5	0.5	1/18/2013	3.9	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B24-0.5	0.5	1/18/2013	ND<1.0	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B26-0.5	0.5	1/18/2013	140	7.7	ND<0.20	0.04	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B27-0.5	0.5	1/18/2013	12	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B23-0.5	0.5	1/18/2013	ND<1.0	--	--	--	--

**LEGEND**

**B27 BORING LOCATION**

mg/kg milligrams per kilogram

mg/l milligrams per liter

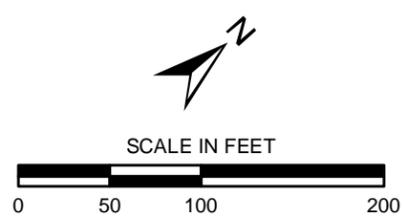
WET Waste Extraction Test

WET-citric Soluble lead by WET using citric acid for comparison to Soluble Threshold Limit Concentration

WET-DI Soluble lead by WET using deionized water for comparison to Soluble Threshold Limit Concentration

TCLP Soluble lead by Toxicity Characteristic Leaching Procedure

TTLc Total Lead for comparison to the Total Threshold Limit Concentration



NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

		<b>BORING DATA</b> SR-55 BETWEEN PM 4.6 AND PM 5.9 COSTA MESA, CALIFORNIA		FIGURE <b>4</b>

SOURCES: CALTRANS, 2010; AERIAL IMAGERY - (C) 2013 MICROSOFT CORPORATION AND ITS DATA SUPPLIERS.

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B9-0.5	0.5	1/18/2013	1.3	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B8-0.5	0.5	1/18/2013	74	ND<0.20	--	--	--

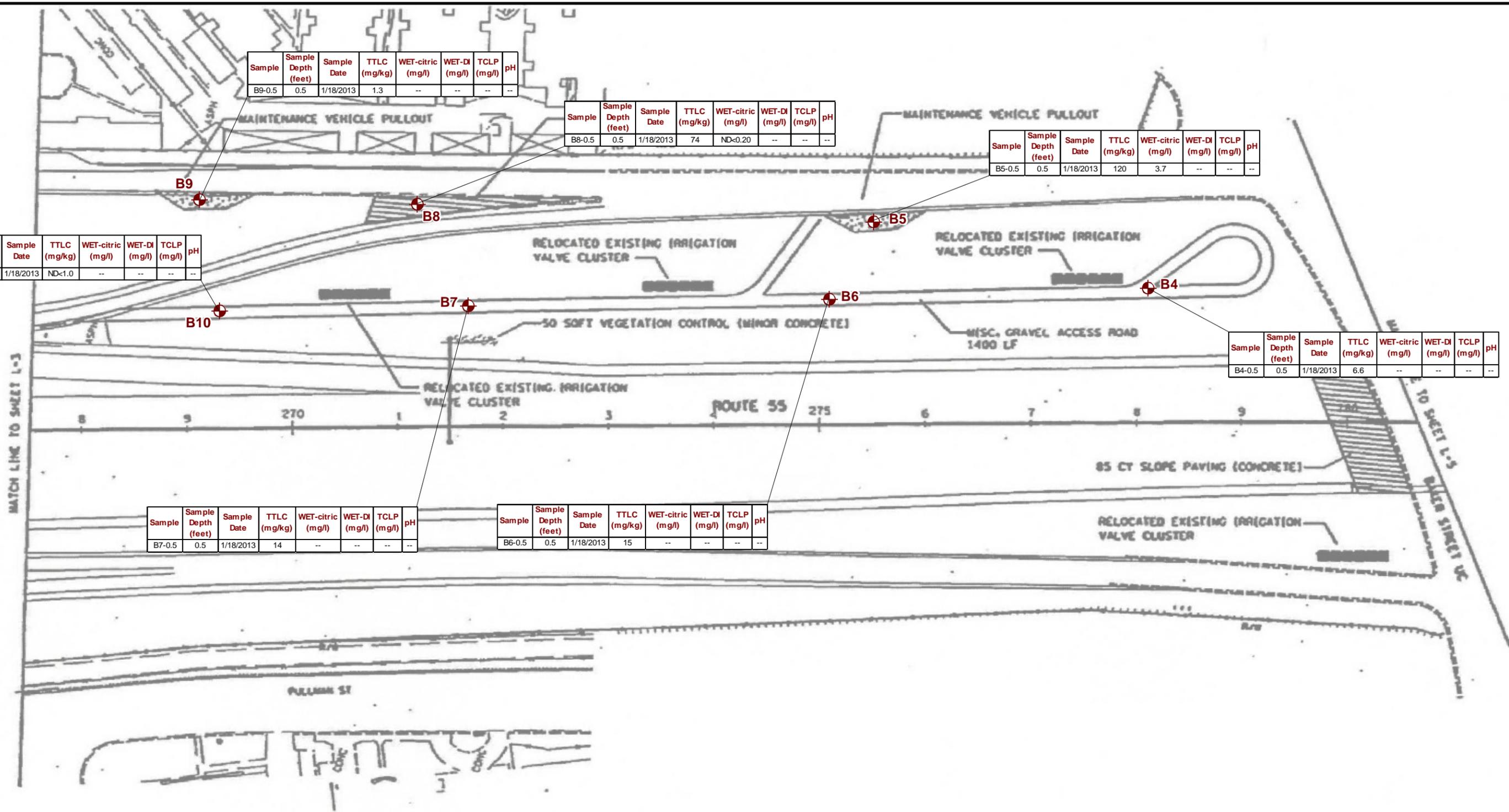
Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B5-0.5	0.5	1/18/2013	120	3.7	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B10-0.5	0.5	1/18/2013	ND<1.0	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B4-0.5	0.5	1/18/2013	6.6	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B7-0.5	0.5	1/18/2013	14	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B6-0.5	0.5	1/18/2013	15	--	--	--	--



**LEGEND**

- B10** BORING LOCATION
- mg/kg milligrams per kilogram
- mg/l milligrams per liter
- WET Waste Extraction Test

- WET-citric Soluble lead by WET using citric acid for comparison to Soluble Threshold Limit Concentration
- WET-DI Soluble lead by WET using deionized water for comparison to Soluble Threshold Limit Concentration
- TCLP Soluble lead by Toxicity Characteristic Leaching Procedure
- TTLc Total Lead for comparison to the Total Threshold Limit Concentration



NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

SOURCES: CALTRANS, 2010; AERIAL IMAGERY - (C) 2013 MICROSOFT CORPORATION AND ITS DATA SUPPLIERS.

Ninyo & Moore		BORING DATA		FIGURE <b>5</b>
PROJECT NO. 208449013	DATE 2/13	SR-55 BETWEEN PM 4.6 AND PM 5.9 COSTA MESA, CALIFORNIA		

208449013\_BDE\_B.mxd 2/22/2013 11:58:18 AM JDL

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B3-0.5	0.5	1/18/2013	ND<1.0	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B2-0.5	0.5	1/18/2013	11	--	--	--	7.0

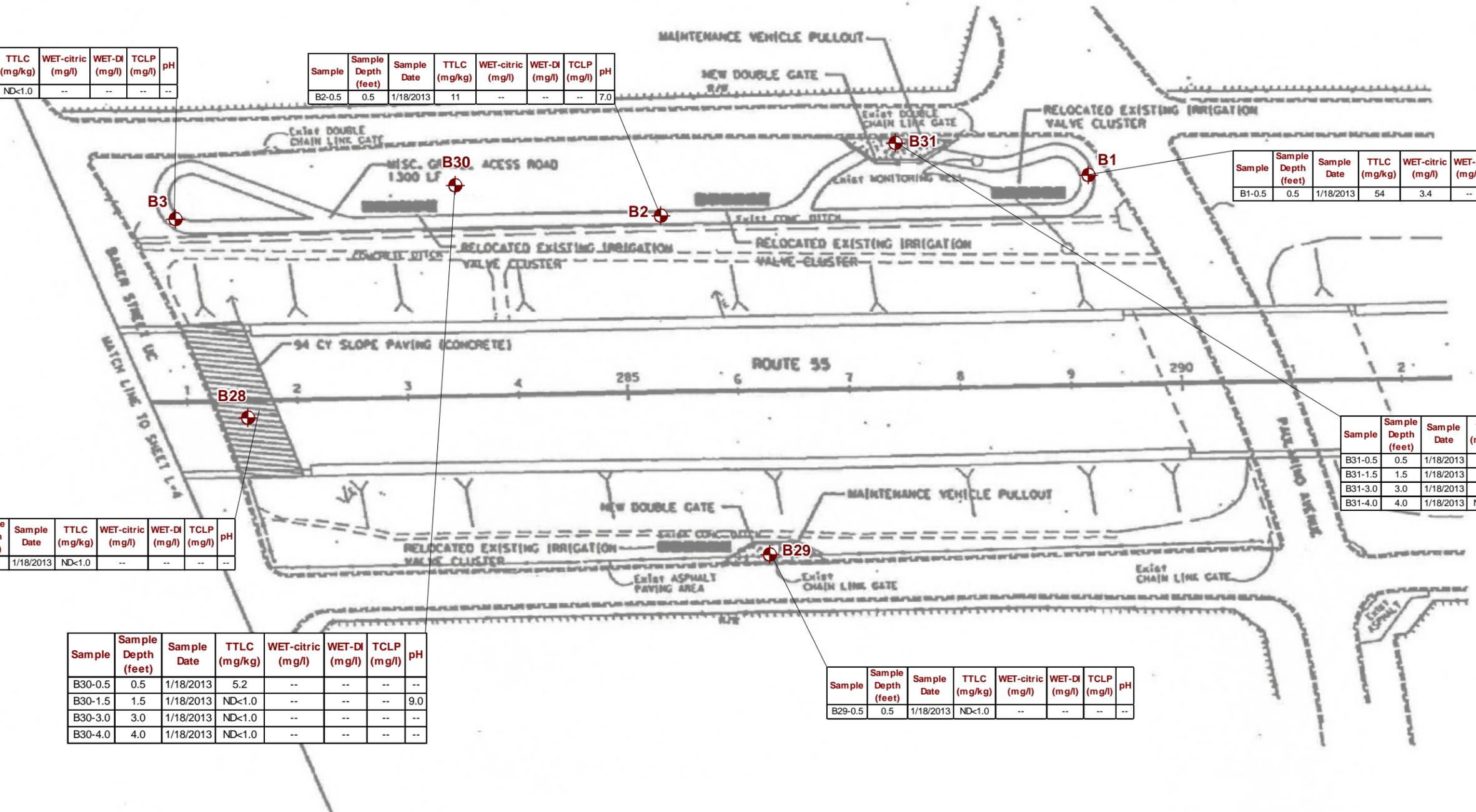
Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B1-0.5	0.5	1/18/2013	54	3.4	--	--	5.5

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B31-0.5	0.5	1/18/2013	24	--	--	--	--
B31-1.5	1.5	1/18/2013	4.7	--	--	--	--
B31-3.0	3.0	1/18/2013	29	--	--	--	8.2
B31-4.0	4.0	1/18/2013	ND<1.0	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B28-0.5	0.5	1/18/2013	ND<1.0	--	--	--	--

Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B30-0.5	0.5	1/18/2013	5.2	--	--	--	--
B30-1.5	1.5	1/18/2013	ND<1.0	--	--	--	9.0
B30-3.0	3.0	1/18/2013	ND<1.0	--	--	--	--
B30-4.0	4.0	1/18/2013	ND<1.0	--	--	--	--

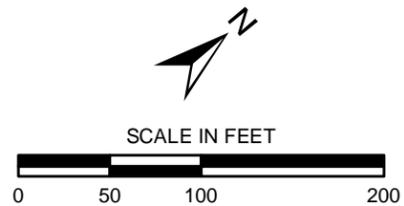
Sample	Sample Depth (feet)	Sample Date	TTLc (mg/kg)	WET-citric (mg/l)	WET-DI (mg/l)	TCLP (mg/l)	pH
B29-0.5	0.5	1/18/2013	ND<1.0	--	--	--	--



**LEGEND**

- B31** BORING LOCATION
- mg/kg milligrams per kilogram
- mg/l milligrams per liter
- WET Waste Extraction Test

- WET-citric Soluble lead by WET using citric acid for comparison to Soluble Threshold Limit Concentration
- WET-DI Soluble lead by WET using deionized water for comparison to Soluble Threshold Limit Concentration
- TCLP Soluble lead by Toxicity Characteristic Leaching Procedure
- TTLc Total Lead for comparison to the Total Threshold Limit Concentration



NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

Ninyo & Moore		BORING DATA		FIGURE <b>6</b>
PROJECT NO. 208449013	DATE 2/13	SR-55 BETWEEN PM 4.6 AND PM 5.9 COSTA MESA, CALIFORNIA		

SOURCES: CALTRANS, 2010; AERIAL IMAGERY - (C) 2013 MICROSOFT CORPORATION AND ITS DATA SUPPLIERS.

**APPENDIX A**

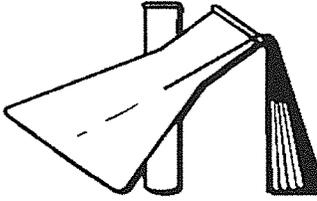
**AERIALY DEPOSITED LEAD SOIL MANAGEMENT CHART**

AERIALY DEPOSITED LEAD SOIL MANAGEMENT			
SOLUBLE LEAD (mg/l)	TOTAL LEAD (mg/kg)	SOIL TYPE	HANDLING
CALIFORNIA TESTING			
STLC <5.0	TTLC <1000	X	Non-hazardous Waste. Notify and require Lead Compliance Plan for worker safety.
	1000 – 1411 and DI WET < 1.5 mg/l	Y1	Hazardous Waste. Variance applies – cover with minimum 1 foot of clean soil.*
	1411 – 3397 and DI WET < 150 mg/l	Y2	Hazardous Waste. Variance applies – cover with pavement structure.*
	1000 – 3397 but Surplus	Z2	Hazardous Waste - Surplus. Dispose at Class 1 disposal site.
	> 3397 or 1000 – 3397 & DI WET > 150 mg/l	Z2	Hazardous Waste – not reusable under Variance. Dispose at Class 1 disposal site.
STLC >5.0	TTLC < 1411 and DI WET < 1.5 mg/l	Y1	Hazardous Waste. Variance applies – cover with minimum of 1 foot of clean soil.*
	1411 – 3397 and DI WET < 150 mg/l	Y2	Hazardous Waste. Variance applies – cover with pavement structure.*
	< 3397 and DI WET < 150 mg/l but Surplus	Z2	Hazardous Waste – Surplus. Dispose at Class 1 disposal site.
	> 3397 or DI WET > 150 mg/l	Z2	Hazardous Waste – not reusable under Variance. Dispose at Class 1 disposal site.
FEDERAL TESTING			
TCLP > 5.0 mg/l	N/A	Z3	RCRA Hazardous Waste Dispose at Class 1 disposal site as a RCRA waste regardless of TTLC and STLC results.

\*Note: For hazardous waste levels of lead - if pH is less than 5.5 soil must be placed under a pavement structure. If pH is less than 5.0 variance can not be used and the soil must be disposed as Z-2 material.

**APPENDIX B**

**LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION**



# PAT-CHEM LABORATORIES

11990 Discovery Ct. • Moorpark, CA 93021 • Ph. (805) 532-0012 • Fax (805) 532-0016

Customer: **Ninyo & Moore, Geo. & Enviro. Sciences Consul**  
475 Goddard, Suite 200  
Irvine CA, 92618

Page 1 of 10

Attention: Mike Cushner  
Report Date: 04-Feb-13 10:59  
Subject: Lead Soil Samples

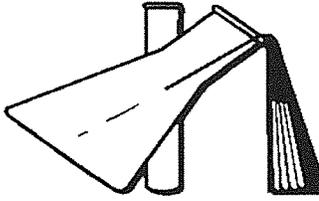
Project/P.O.#: 208449013, Mile 4.6 & 5.9 C.Mesa,  
EA 0H9000

PARAMETER	METHOD	QC BATCH	REPORTING LIMIT	ANALYZED (ANALYST)	RESULT	NOTE
<b>B1-0.5 (Sample I.D.# : 1301217-01) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)	54 mg/kg	
Lead	EPA 6010B(STLC)	AA32427	0.20	24-Jan-13 (AF)	3.4 mg/l	
pH	EPA 9045B	AA32104	0.1	21-Jan-13 (JG)	5.5 pH Units	
<b>B31-0.5 (Sample I.D.# : 1301217-02) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)	24 mg/kg	
<b>B31-1.5 (Sample I.D.# : 1301217-03) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)	4.7 mg/kg	
<b>B31-3.0 (Sample I.D.# : 1301217-04) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)	29 mg/kg	
pH	EPA 9045B	AA32104	0.1	21-Jan-13 (JG)	8.2 pH Units	
<b>B31-4.0 (Sample I.D.# : 1301217-05) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)	< 1.0 mg/kg	
<b>B2-0.5 (Sample I.D.# : 1301217-06) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)	11 mg/kg	
pH	EPA 9045B	AA32104	0.1	21-Jan-13 (JG)	7.0 pH Units	
<b>B30-0.5 (Sample I.D.# : 1301217-07) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)	5.2 mg/kg	
<b>B30-1.5 (Sample I.D.# : 1301217-08) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)	< 1.0 mg/kg	
pH	EPA 9045B	AA32104	0.1	21-Jan-13 (JG)	9.0 pH Units	
<b>B30-3.0 (Sample I.D.# : 1301217-09) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)	< 1.0 mg/kg	
<b>B30-4.0 (Sample I.D.# : 1301217-10) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)	< 1.0 mg/kg	
<b>B3-0.5 (Sample I.D.# : 1301217-11) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)	< 1.0 mg/kg	
<b>B29-0.5 (Sample I.D.# : 1301217-12) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)	< 1.0 mg/kg	

Respectfully Submitted,

Pat Brueckner  
Laboratory Director

2/4/2013



# PAT-CHEM LABORATORIES

11990 Discovery Ct. • Moorpark, CA 93021 • Ph. (805) 532-0012 • Fax (805) 532-0016

Customer: **Ninyo & Moore, Geo. & Enviro. Sciences Consul**  
475 Goddard, Suite 200  
Irvine CA, 92618

Page 2 of 10

Attention: Mike Cushner  
Report Date: 04-Feb-13 10:59  
Subject: Lead Soil Samples

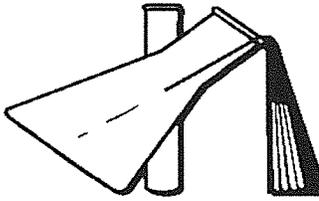
Project/P.O.#: 208449013, Mile 4.6 & 5.9 C.Mesa,  
EA 0H9000

PARAMETER	METHOD	QC BATCH	REPORTING LIMIT	ANALYZED (ANALYST)	RESULT	NOTE
<b>B28-0.5 (Sample I.D.# : 1301217-13) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)	<	1.0 mg/kg
<b>B5-0.5 (Sample I.D.# : 1301217-14) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		120 mg/kg
Lead	EPA 6010B(STLC)	AA32427	0.20	24-Jan-13 (AF)		3.7 mg/l
<b>B6-0.5 (Sample I.D.# : 1301217-15) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		15 mg/kg
<b>B4-0.5 (Sample I.D.# : 1301217-16) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		6.6 mg/kg
<b>B7-0.5 (Sample I.D.# : 1301217-17) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		14 mg/kg
<b>B8-0.5 (Sample I.D.# : 1301217-18) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		74 mg/kg
Lead	EPA 6010B(STLC)	AA32427	0.20	24-Jan-13 (AF)	<	0.20 mg/l
<b>B9-0.5 (Sample I.D.# : 1301217-19) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		1.3 mg/kg
<b>B10-0.5 (Sample I.D.# : 1301217-20) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)	<	1.0 mg/kg
<b>B12-0.5 (Sample I.D.# : 1301217-21) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		13 mg/kg
<b>B15-0.5 (Sample I.D.# : 1301217-22) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		2.9 mg/kg
<b>B14-0.5 (Sample I.D.# : 1301217-23) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		6.8 mg/kg
<b>B16-0.5 (Sample I.D.# : 1301217-24) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		9.4 mg/kg
<b>B11-0.5 (Sample I.D.# : 1301217-25) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		230 mg/kg

Respectfully Submitted,

Pat Brueckner  
Laboratory Director

2/4/2013



# PAT-CHEM LABORATORIES

11990 Discovery Ct. • Moorpark, CA 93021 • Ph. (805) 532-0012 • Fax (805) 532-0016

Customer: **Ninyo & Moore, Geo. & Enviro. Sciences Consul**  
475 Goddard, Suite 200  
Irvine CA, 92618

Page 3 of 10

Attention: Mike Cushner  
Report Date: 04-Feb-13 10:59  
Subject: Lead Soil Samples

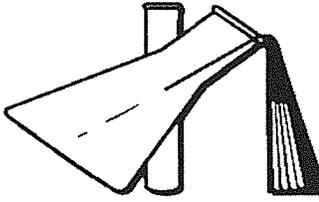
Project/P.O.#: 208449013, Mile 4.6 & 5.9 C.Mesa,  
EA 0H9000

PARAMETER	METHOD	QC BATCH	REPORTING LIMIT	ANALYZED (ANALYST)	RESULT	NOTE
<b>B11-0.5 (Sample I.D.# : 1301217-25) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B(TCLP)	AA32517	0.02	25-Jan-13 (AF)	<	0.02 mg/l
Lead	EPA 6010B(STLC)	AA32427	0.20	24-Jan-13 (AF)		6.7 mg/l
Lead	EPA 6010B(STLC-DI)	AB30402	0.20	04-Feb-13 (AF)	<	0.20 mg/l
<b>B13-0.5 (Sample I.D.# : 1301217-26) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		3.4 mg/kg
<b>B17-0.5 (Sample I.D.# : 1301217-27) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		42 mg/kg
<b>B20-0.5 (Sample I.D.# : 1301217-28) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		11 mg/kg
<b>B18-0.5 (Sample I.D.# : 1301217-29) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		26 mg/kg
pH	EPA 9045B	AA32104	0.1	21-Jan-13 (JG)		9.1 pH Units
<b>B19-0.5 (Sample I.D.# : 1301217-30) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		7.6 mg/kg
<b>B21-0.5 (Sample I.D.# : 1301217-31) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		12 mg/kg
<b>B24-0.5 (Sample I.D.# : 1301217-32) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)	<	1.0 mg/kg
<b>B23-0.5 (Sample I.D.# : 1301217-33) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)	<	1.0 mg/kg
<b>B25-0.5 (Sample I.D.# : 1301217-34) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		3.9 mg/kg
<b>B22-0.5 (Sample I.D.# : 1301217-35) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		3.1 mg/kg
<b>B27-0.5 (Sample I.D.# : 1301217-36) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)		12 mg/kg
<b>B26-0.5 (Sample I.D.# : 1301217-37) Collected: 18-Jan-13 By N&amp;M</b>						

Respectfully Submitted,

Pat Brueckner  
Laboratory Director

2/4/2013



# PAT-CHEM LABORATORIES

11990 Discovery Ct. • Moorpark, CA 93021 • Ph. (805) 532-0012 • Fax (805) 532-0016

Customer: **Ninyo & Moore, Geo. & Enviro. Sciences Consul**  
475 Goddard, Suite 200  
Irvine CA, 92618

Page 4 of 10

Attention: Mike Cushner  
Report Date: 04-Feb-13 10:59  
Subject: Lead Soil Samples

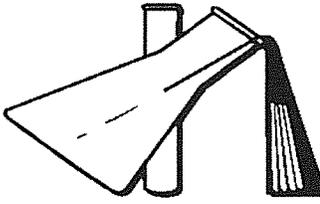
Project/P.O.#: 208449013, Mile 4.6 & 5.9 C.Mesa,  
EA 0H9000

PARAMETER	METHOD	QC BATCH	REPORTING LIMIT	ANALYZED (ANALYST)	RESULT	NOTE
<b>B26-0.5 (Sample I.D.# : 1301217-37) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32103	1.0	21-Jan-13 (AF)	140 mg/kg	
Lead	EPA 6010B(TCLP)	AA32517	0.02	25-Jan-13 (AF)	0.04 mg/l	
Lead	EPA 6010B(STLC)	AA32427	0.20	24-Jan-13 (AF)	7.7 mg/l	
Lead	EPA 6010B(STLC-DI)	AB30402	0.20	04-Feb-13 (AF)	< 0.20 mg/l	
<b>R1 (Sample I.D.# : 1301217-38) Collected: 18-Jan-13 By N&amp;M</b>						
Lead	EPA 6010B	AA32105	0.02	21-Jan-13 (AF)	0.33 mg/l	

Respectfully Submitted,

Pat Brueckner  
Laboratory Director

2/4/2013



# PAT-CHEM LABORATORIES

11990 Discovery Ct. • Moorpark, CA 93021 • Ph. (805) 532-0012 • Fax (805) 532-0016

Customer: **Ninyo & Moore, Geo. & Enviro. Sciences Consul**  
475 Goddard, Suite 200  
Irvine CA, 92618

Page 5 of 10

Attention: Mike Cushner  
Report Date: 04-Feb-13 10:59  
Subject: Lead Soil Samples

Project/P.O.#: 208449013, Mile 4.6 & 5.9 C.Mesa,  
EA 0H9000

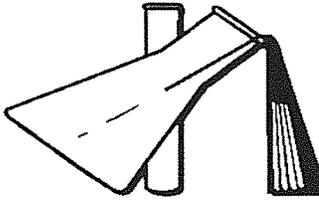
## Metals by EPA 6000/7000 Series Methods - Quality Control

Parameter	Result	Rep. Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Note
<b>Batch AA32103 - EPA 3050B</b>										
<b>Blank (AA32103-BLK1)</b>	Prepared & Analyzed: 21-Jan-13									
Lead	ND	1.0	mg/kg							
<b>Blank (AA32103-BLK2)</b>	Prepared & Analyzed: 21-Jan-13									
Lead	ND	1.0	mg/kg							
<b>LCS (AA32103-BS1)</b>	Prepared & Analyzed: 21-Jan-13									
Lead	26.6	1.0	mg/kg	25.0		106	80-120			
<b>LCS (AA32103-BS2)</b>	Prepared & Analyzed: 21-Jan-13									
Lead	27.2	1.0	mg/kg	25.0		109	80-120			
<b>LCS Dup (AA32103-BSD1)</b>	Prepared & Analyzed: 21-Jan-13									
Lead	27.3	1.0	mg/kg	25.0		109	80-120	2.79	20	
<b>LCS Dup (AA32103-BSD2)</b>	Prepared & Analyzed: 21-Jan-13									
Lead	26.4	1.0	mg/kg	25.0		106	80-120	3.00	20	
<b>Duplicate (AA32103-DUP1)</b>	Source: 1301217-01 Prepared & Analyzed: 21-Jan-13									
Lead	56.0	1.0	mg/kg		53.5			4.48	20	
<b>Duplicate (AA32103-DUP2)</b>	Source: 1301217-21 Prepared & Analyzed: 21-Jan-13									
Lead	13.9	1.0	mg/kg		13.5			3.01	20	
<b>Matrix Spike (AA32103-MS1)</b>	Source: 1301217-01 Prepared & Analyzed: 21-Jan-13									
Lead	201	1.0	mg/kg	125	53.5	118	75-125			
<b>Matrix Spike (AA32103-MS2)</b>	Source: 1301217-21 Prepared & Analyzed: 21-Jan-13									
Lead	129	1.0	mg/kg	125	13.5	92.3	75-125			

Respectfully Submitted,

Pat Brueckner  
Laboratory Director

2/4/2013



# PAT-CHEM LABORATORIES

11990 Discovery Ct. • Moorpark, CA 93021 • Ph. (805) 532-0012 • Fax (805) 532-0016

Customer: **Ninyo & Moore, Geo. & Enviro. Sciences Consul**  
475 Goddard, Suite 200  
Irvine CA, 92618

Page 6 of 10

Attention: Mike Cushner  
Report Date: 04-Feb-13 10:59  
Subject: Lead Soil Samples

Project/P.O.#: 208449013, Mile 4.6 & 5.9 C.Mesa,  
EA 0H9000

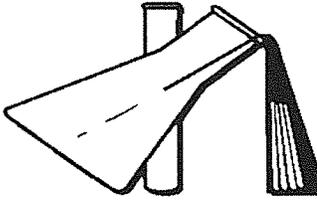
## Metals by EPA 6000/7000 Series Methods - Quality Control

Parameter	Result	Rep. Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Note
<b>Batch AA32103 - EPA 3050B</b>										
<b>Matrix Spike Dup (AA32103-MSD1)</b> Source: 1301217-01 Prepared & Analyzed: 21-Jan-13										
Lead	167	1.0	mg/kg	125	53.5	90.4	75-125	18.5	20	
<b>Matrix Spike Dup (AA32103-MSD2)</b> Source: 1301217-21 Prepared & Analyzed: 21-Jan-13										
Lead	117	1.0	mg/kg	125	13.5	82.5	75-125	9.93	20	
<b>Batch AA32105 - EPA 200 Series</b>										
<b>Blank (AA32105-BLK1)</b> Prepared & Analyzed: 21-Jan-13										
Lead	ND	0.02	mg/l							
<b>LCS (AA32105-BS1)</b> Prepared & Analyzed: 21-Jan-13										
Lead	0.542	0.02	mg/l	0.500		108	80-120			
<b>LCS Dup (AA32105-BSD1)</b> Prepared & Analyzed: 21-Jan-13										
Lead	0.552	0.02	mg/l	0.500		110	80-120	1.84	20	
<b>Duplicate (AA32105-DUP1)</b> Source: 1301213-01 Prepared & Analyzed: 21-Jan-13										
Lead	ND	0.02	mg/l		ND				20	
<b>Matrix Spike (AA32105-MS1)</b> Source: 1301213-01 Prepared & Analyzed: 21-Jan-13										
Lead	1.02	0.02	mg/l	1.00	ND	102	80-120			
<b>Matrix Spike Dup (AA32105-MSD1)</b> Source: 1301213-01 Prepared & Analyzed: 21-Jan-13										
Lead	1.02	0.02	mg/l	1.00	ND	102	80-120	0.738	20	

Respectfully Submitted,

Pat Brueckner  
Laboratory Director

2/4/2013



# PAT-CHEM LABORATORIES

11990 Discovery Ct. • Moorpark, CA 93021 • Ph. (805) 532-0012 • Fax (805) 532-0016

Customer: **Ninyo & Moore, Geo. & Enviro. Sciences Consul**  
475 Goddard, Suite 200  
Irvine CA, 92618

Page 7 of 10

Attention: Mike Cushner  
Report Date: 04-Feb-13 10:59  
Subject: Lead Soil Samples

Project/P.O.#: 208449013, Mile 4.6 & 5.9 C.Mesa,  
EA 0H9000

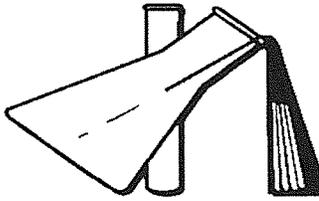
## TCLP Metals by 6000/7000 Series Methods - Quality Control

Parameter	Result	Rep. Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Note
<b>Batch AA32517 - TCLP Metals</b>										
<b>Blank (AA32517-BLK1)</b>				Prepared & Analyzed: 25-Jan-13						
Lead	ND	0.02	mg/l							
<b>LCS (AA32517-BS1)</b>				Prepared & Analyzed: 25-Jan-13						
Lead	0.511	0.02	mg/l	0.500		102	80-120			
<b>LCS Dup (AA32517-BSD1)</b>				Prepared & Analyzed: 25-Jan-13						
Lead	0.499	0.02	mg/l	0.500		99.8	80-120	2.48	20	
<b>Duplicate (AA32517-DUP1)</b>		<b>Source: 1301217-25</b>		Prepared & Analyzed: 25-Jan-13						
Lead	0.0147	0.02	mg/l		0.0147			0.137	20	
<b>Matrix Spike (AA32517-MS1)</b>		<b>Source: 1301217-25</b>		Prepared & Analyzed: 25-Jan-13						
Lead	0.966	0.02	mg/l	1.00	0.0147	95.2	75-125			
<b>Matrix Spike Dup (AA32517-MSD1)</b>		<b>Source: 1301217-25</b>		Prepared & Analyzed: 25-Jan-13						
Lead	0.951	0.02	mg/l	1.00	0.0147	93.6	75-125	1.60	20	

Respectfully Submitted,

Pat Brueckner  
Laboratory Director

2/4/2013



# PAT-CHEM LABORATORIES

11990 Discovery Ct. • Moorpark, CA 93021 • Ph. (805) 532-0012 • Fax (805) 532-0016

Customer: **Ninyo & Moore, Geo. & Enviro. Sciences Consul**  
475 Goddard, Suite 200  
Irvine CA, 92618

Page 8 of 10

Attention: Mike Cushner  
Report Date: 04-Feb-13 10:59  
Subject: Lead Soil Samples

Project/P.O.#: 208449013, Mile 4.6 & 5.9 C.Mesa,  
EA 0H9000

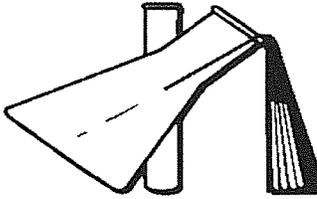
## STLC Metals by 6000/7000 Series Methods - Quality Control

Parameter	Result	Rep. Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Note
<b>Batch AA32427 - TCLP Metals</b>										
<b>Blank (AA32427-BLK1)</b>				Prepared & Analyzed: 24-Jan-13						
Lead	ND	0.02	mg/l							
<b>LCS (AA32427-BS1)</b>				Prepared & Analyzed: 24-Jan-13						
Lead	0.510	0.02	mg/l	0.500	102	80-120				
<b>LCS Dup (AA32427-BSD1)</b>				Prepared & Analyzed: 24-Jan-13						
Lead	0.501	0.02	mg/l	0.500	100	80-120	1.87	20		
<b>Duplicate (AA32427-DUP1)</b>				Source: 1301217-18 Prepared & Analyzed: 24-Jan-13						
Lead	0.141	0.20	mg/l	0.148	4.73	20				
<b>Matrix Spike (AA32427-MS1)</b>				Source: 1301217-18 Prepared & Analyzed: 24-Jan-13						
Lead	8.24	0.20	mg/l	10.0	0.148	80.9	80-120			
<b>Matrix Spike Dup (AA32427-MSD1)</b>				Source: 1301217-18 Prepared & Analyzed: 24-Jan-13						
Lead	8.26	0.20	mg/l	10.0	0.148	81.1	80-120	0.221	20	
<b>Batch AB30402 - TCLP Metals</b>										
<b>Blank (AB30402-BLK1)</b>				Prepared & Analyzed: 04-Feb-13						
Lead	ND	0.02	mg/l							
<b>LCS (AB30402-BS1)</b>				Prepared & Analyzed: 04-Feb-13						
Lead	0.516	0.02	mg/l	0.500	103	80-120				
<b>LCS Dup (AB30402-BSD1)</b>				Prepared & Analyzed: 04-Feb-13						
Lead	0.500	0.02	mg/l	0.500	100	80-120	3.09	20		

Respectfully Submitted,

Pat Brueckner  
Laboratory Director

2/4/2013



# PAT-CHEM LABORATORIES

11990 Discovery Ct. • Moorpark, CA 93021 • Ph. (805) 532-0012 • Fax (805) 532-0016

Customer: **Ninyo & Moore, Geo. & Enviro. Sciences Consul**  
475 Goddard, Suite 200  
Irvine CA, 92618

Page 9 of 10

Attention: Mike Cushner  
Report Date: 04-Feb-13 10:59  
Subject: Lead Soil Samples

Project/P.O.#: 208449013, Mile 4.6 & 5.9 C.Mesa,  
EA 0H9000

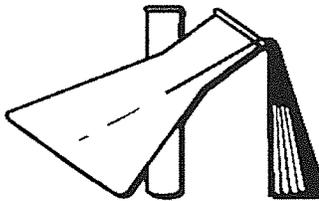
## STLC Metals by 6000/7000 Series Methods - Quality Control

Parameter	Result	Rep. Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Note
<b>Batch AB30402 - TCLP Metals</b>										
<b>Duplicate (AB30402-DUP1)</b> Source: 1301217-25 Prepared & Analyzed: 04-Feb-13										
Lead	ND	0.20	mg/l		ND				20	
<b>Matrix Spike (AB30402-MS1)</b> Source: 1301217-25 Prepared & Analyzed: 04-Feb-13										
Lead	9.82	0.20	mg/l	10.0	ND	98.2	80-120			
<b>Matrix Spike Dup (AB30402-MSD1)</b> Source: 1301217-25 Prepared & Analyzed: 04-Feb-13										
Lead	10.0	0.20	mg/l	10.0	ND	100	80-120	1.80	20	

Respectfully Submitted,

Pat Brueckner  
Laboratory Director

2/4/2013



# PAT-CHEM LABORATORIES

11990 Discovery Ct. • Moorpark, CA 93021 • Ph. (805) 532-0012 • Fax (805) 532-0016

Customer: **Ninyo & Moore, Geo. & Enviro. Sciences Consul**  
475 Goddard, Suite 200  
Irvine CA, 92618

Page 10 of 10

Attention: Mike Cushner  
Report Date: 04-Feb-13 10:59  
Subject: Lead Soil Samples

Project/P.O.#: 208449013, Mile 4.6 & 5.9 C.Mesa,  
EA 0H9000

## General Inorganic Nonmetallic Chemistry by Standard Methods/EPA Methods - Quality Control

Parameter	Result	Rep. Limit	Units	Spike Level	Source Result	%REC %REC	Limits	RPD	RPD Limit	Note
-----------	--------	------------	-------	-------------	---------------	-----------	--------	-----	-----------	------

### Batch AA32104 - General Preparation

Duplicate (AA32104-DUP1) Source: 1301217-01 Prepared & Analyzed: 21-Jan-13

pH	5.49	0.1	pH Units		5.50			0.182	15	
----	------	-----	----------	--	------	--	--	-------	----	--

### Notes and Definitions

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis

Respectfully Submitted,

Pat Brueckner  
Laboratory Director

2/4/2013

#1301217

<b>LABORATORY:</b> Pat Chem Laboratories 11990 Discovery Court Moorpark, CA 93021 (805) 532-0012 / fax (805) 532-0016	<b>SITE:</b> State Route 55 between Post Mile 4.6 & 5.9, Costa Mesa California EA 0H9000 Project Number 208449013	<b>CONSULTANT:</b> Ninyo & Moore 475 Goddard, Suite 200 Irvine, CA 92618 (949) 753-7070 ext (949) 753-7071
---	---	--

**Special Instructions:**  
 Homogenize the samples  
 If total lead is <1,000 mg/kg, but >= 50 mg/kg, run STLC WET test (citric acid extraction EPA Method 7000 series)  
 If STLC WET >= 6 mg/l, run STLC-DI (DI extraction EPA Method 7000 series)  
 If total lead is >=1,000 mg/kg or STLC WET >=6 mg/l, run TCLP (EPA Method 7000 series for leachable lead)

Samplers Name: Jonathan Johnson

Relinquished by (name/date and time): <u>JA Johnson 1/18/13 1505</u>	Received by (name/date and time): <u>Muel A. Cruz 1/18/13 15:05</u>
Relinquished by (name/date and time): <u>Muel A. Cruz 1/18/13 1515</u>	Received by (name/date and time): <u>[Signature] 1/18/13 1515</u>
Relinquished by (name/date and time): <u>[Signature] 1/18/13 1630</u>	Received by (name/date and time): <u>[Signature] 1/18/13 155</u>

Lab No.	Sample I. D.	Date	Time	Total Lead EPA Method 6010	pH EPA Method 9045	Sample Type	Turn-Around Time	Container Type	HOLD
	B1-0.5	1/18/13	0829	X	X	Soil	Normal	Glass Jar	
	B31-0.5		0834	X		Soil	Normal	Glass Jar	
	B31-1.5		0838	X		Soil	Normal	Glass Jar	
	B31-3.0		0900	X	X	Soil	Normal	Glass Jar	
	B31-4.0		0904	X		Soil	Normal	Glass Jar	
	B2-0.5		0916	X		Soil	Normal	Glass Jar	
	B30-0.5		0924	X		Soil	Normal	Glass Jar	
	B30-1.5		0933	X	X	Soil	Normal	Glass Jar	
	B30-3.0		1002	X		Soil	Normal	Glass Jar	
	B30-4.0		1006	X		Soil	Normal	Glass Jar	
	B3-0.5		1013	X		Soil	Normal	Glass Jar	
	B28-0.5		1030	X		Soil	Normal	Glass Jar	
	B28-0.5		1033	X		Soil	Normal	Glass Jar	
	B5-0.5		1100	X		Soil	Normal	Glass Jar	
	B6-0.5		1103	X		Soil	Normal	Glass Jar	
	B4-0.5		1100	X		Soil	Normal	Glass Jar	
	B7-0.5		1113	X		Soil	Normal	Glass Jar	
	B8-0.5		1115	X		Soil	Normal	Glass Jar	
	B9-0.5		1119	X		Soil	Normal	Glass Jar	
	B10-0.5		1115	X		Soil	Normal	Glass Jar	
	B12-0.5		1133	X		Soil	Normal	Glass Jar	
	B15-0.5		1140	X		Soil	Normal	Glass Jar	
	B14-0.5		1143	X		Soil	Normal	Glass Jar	
	B16-0.5		1148	X		Soil	Normal	Glass Jar	
	B11-0.5		1156	X		Soil	Normal	Glass Jar	
	B15-0.5		1159	X		Soil	Normal	Glass Jar	
	B17-0.5		1233	X		Soil	Normal	Glass Jar	
	B20-0.5		1245	X		Soil	Normal	Glass Jar	
	B18-0.5		1248	X	X	Soil	Normal	Glass Jar	
	B19-0.5		1251	X		Soil	Normal	Glass Jar	
	B21-0.5		1257	X		Soil	Normal	Glass Jar	
	B24-0.5		1300	X		Soil	Normal	Glass Jar	
	B23-0.5		1322	X		Soil	Normal	Glass Jar	
	B25-0.5		1333	X		Soil	Normal	Glass Jar	
	B22-0.5		1326	X		Soil	Normal	Glass Jar	
	B27-0.5		1348	X		Soil	Normal	Glass Jar	
	B24-0.5		1402	X		water	Normal	Plastic	
	R1		1440	X		water	Normal	Plastic	