

INFORMATION HANDOUT

For Contract No. 07-4H9004

At 07-LA-60-20.6

Identified by

Project ID 0700021079

MATERIALS INFORMATION

Lead Site Investigation Reports

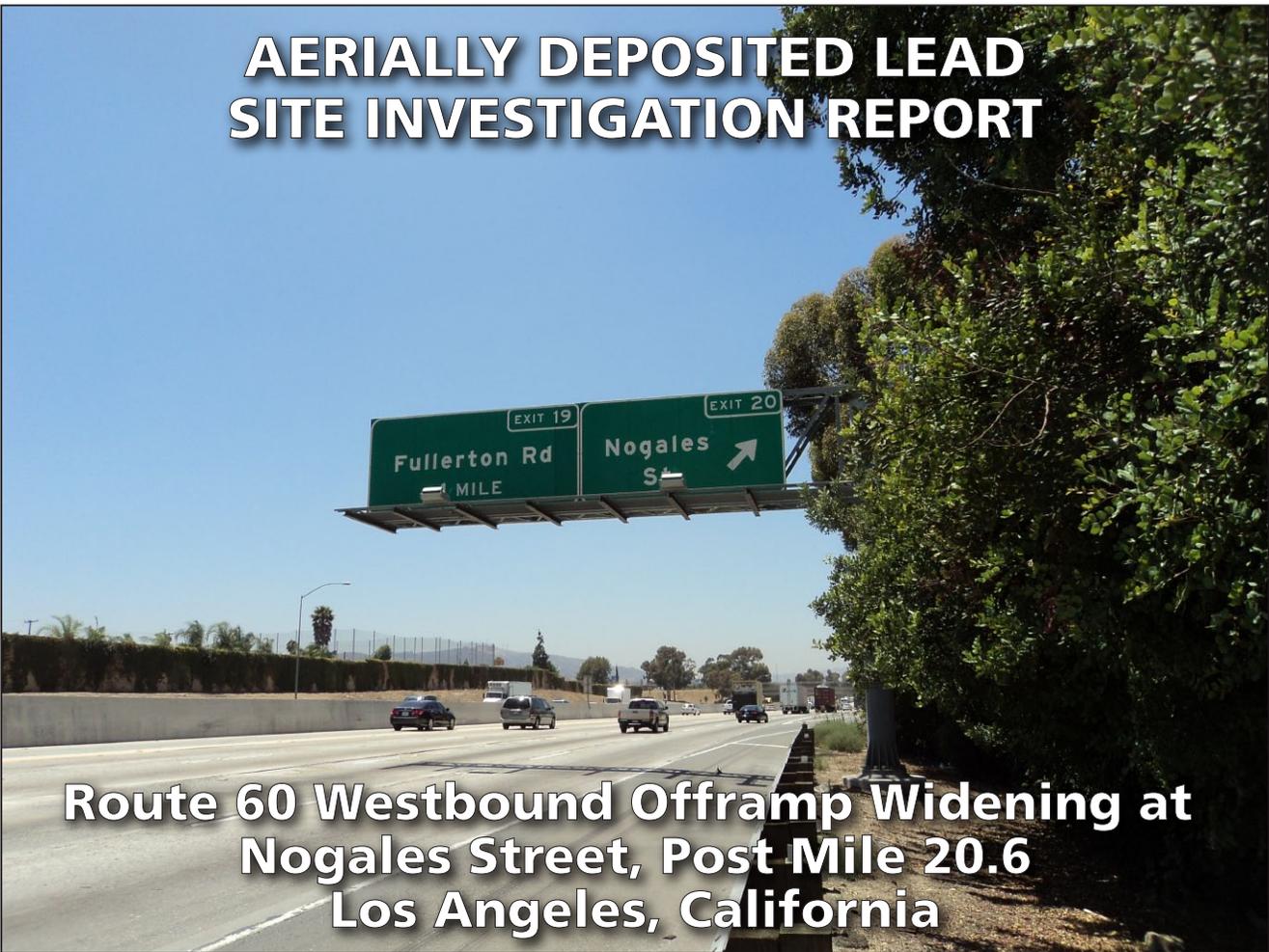
Landscape (recycled water)

Fiber Optic As Built plans in work area

Geotechnical Design Report for Retaining Wall at WB Offramp at Nogales Street

REPLACED PER ADDENDUM No. 2 DATED OCTOBER 10, 2013

AERIALLY DEPOSITED LEAD SITE INVESTIGATION REPORT



Route 60 Westbound Offramp Widening at
Nogales Street, Post Mile 20.6
Los Angeles, California

PREPARED FOR:

**CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 7
100 SOUTH MAIN
LOS ANGELES, CALIFORNIA**

PREPARED BY:

**GEOCON CONSULTANTS, INC.
3303 N. SAN FERNANDO BLVD., SUITE 100
BURBANK, CALIFORNIA 91504**

**CALTRANS CONTRACT NO. 07A2730-A01
TASK ORDER NO. 27**

**EA NO. 07-4H9001,
CALTRANS PROJECT NO. 07000210791-1**

GEOCON PROJECT NO. S9500-06-06



SEPTEMBER 2012



September 24, 2012

Project 0153240270

Mr. Samuel Yang
California Department of Transportation
District 7
100 South Main Street
Los Angeles, California

Re: Aerially Deposited Lead Site Investigation Report for Route 60 Westbound Off-Ramp Widening at Nogales Street, Post Mile 20.6, Los Angeles County, California, Contract No. 07A2730-A01, Task Order 27, EA. 07-4H9001, Caltrans Project No. 07000210791

Dear Mr. Yang:

AMEC Environment and Infrastructure (AMEC), has reviewed the subject report that has been prepared by GEOCON Consultants, Inc. (GEOCON). The subject report was prepared by Geocon under subcontract to AMEC and in partial fulfillment of Task Order 27 to Contract 07A2730-A01. The specifications, findings, and professional opinions are presented within the limits described by the client, after being prepared in accordance with generally accepted professional engineering and geologic practice. We find the report acceptable for its further use by Caltrans in the context of the report limitations provided by GEOCON. No warranty is expressed or implied.

Sincerely yours,
AMEC

Duane G. Paul
Senior Hydrogeologist
Direct Tel.: 949-574-7084
E-mail: duane.paul@amec.com

Calvin H. Hardcastle, PE
Principal Engineer
Direct Tel.: 949-642-0245
E-mail: calvin.hardcastle@amec.com

K:\15324.000.0\Task Order 07A2730-A01-27 Nogales St at SR60 ADL\Geocon Report\TO27 Cover letter.doc

AMEC
121 Innovation Drive, Suite 200
Irvine, CA
USA 92663-3627
Tel (949) 642-0245
Fax (949) 642-4474
www.amec.com



Project No. S9500-06-06
September 24, 2012

Mr. Duane Paul, PG, CHG
AMEC Environment and Infrastructure
510 Superior Avenue, Suite 200
Newport Beach, CA 92663

Subject: AERIALY DEPOSITED LEAD SITE INVESTIGATION REPORT
ROUTE 60 WESTBOUND OFFRAMP WIDENING AT NOGALES STREET
POST MILE 20.6, LOS ANGELES COUNTY, CALIFORNIA
CONTRACT NO. 07A2730-A01, TASK ORDER NO. 27, EA. 07-4H9001,
CALTRANS PROJECT NO. 07000210791-1

Dear Mr. Paul:

In accordance with Caltrans Contract No. 07A2730-A01, Task Order No 27 and the AMEC Environment and Infrastructure (AMEC) Work Order Number C012200876, Geocon Consultants, Inc. performed an aerially deposited lead investigation at the Route 60 westbound offramp at Nogales Street (Post Mile 20.6) in Los Angeles County, California. The accompanying report summarizes the services performed, including the advancement of hand-auger borings, soil sampling, laboratory analyses, and global positioning system data acquisition.

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

Please contact us if there are questions concerning this report or if we may be of further service.

Sincerely,

GEOCON CONSULTANTS, INC.

Gemma Reblando
Staff Geologist

Michael P. Conkle, PG
Project Manager



(4/2CD) Addressee

TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	i
1. INTRODUCTION	1
1.1 Investigation Background/Objective	1
2. SCOPE OF SERVICES	1
2.1 Pre-field Activities.....	1
2.2 Field Activities	2
2.3 GPS Coordinates	2
2.4 Laboratory Analyses.....	2
2.5 Report Preparation.....	3
3. INVESTIGATIVE METHODS	3
3.1 Soil Sampling	3
3.2 Blank Sampling	3
3.3 Deviations from the Task Order	4
4. FIELD OBSERVATIONS and INVESTIGATIVE RESULTS	4
4.1 Soil Conditions	4
4.2 Soil Sample Analytical Results	4
4.3 Data Validation	5
5. FINDINGS	5
6. REPORT LIMITATIONS	7

FIGURES

1. Vicinity Map
2. Site Plan

TABLES

1. Boring Coordinates and Summary of Lead and pH Analytical Results
2. Summary of Soil Analytical Results - Title 22 Metals

APPENDICES

- A. Health and Safety Plan
- B. Site Photographs and Daily Field Notes
- C. Laboratory Reports and Chain-of-Custody Documentation
- D. Field Boring Logs
- E. Data Validation Report

EXECUTIVE SUMMARY

The California Department of Transportation (Caltrans) plans to widen the westbound (WB) offramp along Route 60 at Nogales Street (Post Mile [PM] 20.6) in Los Angeles County, California. Additionally Caltrans plans to install a gross solid removal device (GSRD) and bioswale in the landscaped area between the gore points of the Route 60 WB offramp and the northbound (NB) Nogales Street onramp to WB Route 60. Geocon Consultants, Inc. performed an aerially deposited lead (ADL) investigation along the shoulder of the Route 60 WB offramp to Nogales Street and along the right shoulder of WB Route 60 between the gore points of the Route 60 WB offramp and the NB Nogales Street onramp to WB Route 60. The objective of the investigation was to evaluate soil at this location for the potential presence of elevated concentrations of lead from vehicle exhaust emissions when leaded gasoline was used. Caltrans will use information obtained from the investigation to determine soil disposal options and identify health and safety concerns during proposed construction activities.

Sixteen hand-auger borings were advanced along the offramp shoulder and adjacent areas. Soil samples were collected from borings 1181-101 through 1181-104 located within the proposed bioswale location at depth intervals of 0 to 0.5 foot and 1.0 to 1.5 feet. Soil samples were collected from borings 1181-105 through 1181-109 located within the proposed location of GSRD at depth intervals of 0.5 to 1.0 foot, 2.5 to 3.0 feet and 4.5 to 5.0 feet. Soil samples were collected from borings 1181-110 through 1181-116 located along the offramp shoulder at depth intervals of 0.5 to 1.0 foot, 2.5 to 3.0 feet and 4.5 to 5.0 feet. The soil samples were submitted to the analytical laboratory. Laboratory analytical data verification was performed in accordance with the United States Environmental Protection Agency Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. Based on the data review some of the sample results were qualified as estimated values (J-flagged). A review of the laboratory QA/QC results indicates satisfactory data reporting, and the data are of sufficient quality for the purposes of this report. Sampling results are discussed below.

Forty-four soil samples were collected for this investigation. Total lead was detected in the soil samples at estimated concentrations ranging from 2.7 J to 140 J milligrams per kilogram (mg/kg). Twelve soils samples were analyzed for soluble lead using the waste extraction test (WET). Concentrations of WET lead were reported to range from 1.9 to 9.9 milligrams per liter (mg/l). Five soil samples containing WET soluble lead concentrations greater than or equal to the Soluble Threshold Limit Concentration (STLC) of 5.0 mg/l were further analyzed by the WET using de-ionized water as the extractant (DI-WET). DI-WET lead was not detected in the five samples analyzed. The five soil samples were also analyzed for soluble lead using the Toxicity Characteristic Leaching Procedure (TCLP). TCLP lead was reported for three of the five samples at estimated concentrations ranging from 0.31 J mg/l to 0.35 J mg/l. Soil pH reported for the four samples analyzed ranged from 6.9 to 7.6.

In addition, the three soil samples with the highest total lead concentrations were analyzed for Title 22 metals. Concentrations of the reported Title 22 metals were less than their respective Total Threshold Limit Concentrations (TTLCs) and ten times their respective STLCs. With the exception of arsenic, cadmium, and lead, the reported concentrations of metals are below their respective California Human Health Screening Levels (CHHSLs) for residential and industrial land use. The reported arsenic concentrations ranged from 1.9 to 4.0 mg/kg, which exceed the industrial and residential land use CHHSLs of 0.24 and 0.07 mg/kg, respectively; however, the reported arsenic concentrations are within the reported range of background concentrations in California soils. The reported cadmium concentrations ranged from 1.1 to 3.5 mg/kg, which exceed the residential land use CHHSL of 1.7 mg/kg but are less than the industrial land use CHHSL of 7.5 mg/kg. The concentration of lead reported for the three samples exceed the residential land use CHHSL of 80 mg/kg but are less than the industrial land use CHHSL of 320 mg/kg. With the exception of cadmium and lead, the reported metals concentrations are within the published range of background concentrations in California soils.

AERIALY DEPOSITED LEAD SITE INVESTIGATION REPORT

1. INTRODUCTION

The California Department of Transportation (Caltrans) plans to widen the westbound (WB) offramp along Route 60 at Nogales Street (Post Mile [PM] 20.6) in Los Angeles County, California (Figure 1). Additionally Caltrans plans to install a gross solid removal device (GSRD) and bioswale in the landscaped area between the gore points of the Route 60 WB offramp and the northbound (NB) Nogales Street onramp to WB Route 60.

On behalf of AMEC Environment and Infrastructure (AMEC), and in accordance with the Caltrans Contract No. 07A2730-A01 and Task Order (TO) No. 27, Expense Authorization 07-4H9001 and Caltrans Project No. 07000210791, Geocon Consultants, Inc. performed an aerially deposited lead (ADL) investigation within the footprint of the proposed improvements adjacent to the WB offramp of Route 60 at Nogales Street. A general description of the investigation objectives is summarized below.

1.1 Investigation Background/Objective

Testing by Caltrans throughout the State has shown that ADL exists in soil along major highway routes due to vehicle exhaust containing lead from the combustion of leaded gasoline. The concentration and distribution of ADL in soil is a function of many variables, but (in general) highway age and traffic volume appear to be primary factors. The objective of this investigation was to evaluate soil at the site for the potential presence of elevated concentrations of lead from vehicle exhaust emissions when leaded gasoline was used. Caltrans will use information obtained from the investigation to determine soil management options (e.g., disposal or onsite reuse) and identify health and safety concerns during proposed construction activities.

2. SCOPE OF SERVICES

We performed the scope of services summarized below as requested by Caltrans in TO No. 27.

2.1 Pre-field Activities

- Prepared a *Health and Safety Plan (HSP)* dated July 2012 to provide guidelines on the use of personal protective equipment and the health and safety procedures implemented by Geocon personnel during field activities. The HSP specified the safety procedures for field work, summarized chemical hazard information, and identified site safety officers, emergency contacts, and the locations of emergency medical care facilities. A copy of the HSP is in Appendix A.
- Contacted Underground Service Alert (USA Ticket Number A22020243) to notify utility companies of the field activities.

2.2 Field Activities

Field activities consisted of collecting 44 soil samples from 16 hand-auger borings on July 24 and 25, 2012.

The 16 borings were advanced at locations selected by Caltrans as shown on Figure 2. Photos of the boring locations and copies of the daily field notes are in Appendix B. Soil samples were collected from borings 1181-101 through 1181-104 located within the proposed bioswale location at depth intervals of 0 to 0.5 foot and 1.0 to 1.5 feet. Soil samples were collected at depth intervals of 0.5 to 1.0 foot, 2.5 to 3.0 feet and 4.5 to 5.0 feet from borings 1181-105 through 1181-109 located within the proposed GSRD location and from borings 1181-110 through 1181-116 located along the offramp shoulder. Soil samples were homogenized in the field and placed in laboratory-provided glass jars for subsequent laboratory analysis.

2.3 GPS Coordinates

The borings locations were recorded with a Trimble GeoXT Global Positioning System (GPS) receiver using State Plane 83 coordinates and TerraSync™ software. Boring location latitude/longitude coordinates are on Table 1.

2.4 Laboratory Analyses

Sample laboratory analyses were performed by Advanced Technology Laboratories (ATL). Copies of laboratory reports and chain-of-custody (COC) documentation are in Appendix C. As requested by Caltrans in TO No. 27, samples were analyzed as follows:

- Forty-four soil samples were analyzed for total lead using Environmental Protection Agency (EPA) Test Method 6010B.
- Twelve soil samples with total lead concentrations greater than 50 milligrams per kilogram (mg/kg) were analyzed for soluble lead by the California Waste Extraction Test (WET) using citrate acid as the extractant by EPA Test Method 7420.
- Five soil samples with WET soluble lead concentrations greater than 5.0 milligrams per liter (mg/l) were analyzed for soluble lead using the WET with de-ionized water as the extractant (DI-WET).
- Five soil samples with the highest total lead concentrations were also tested for soluble lead using the Toxicity Characteristic Leaching Procedure (TCLP) by EPA Test Method 7420.
- Three soil samples were analyzed for Title 22 metals according to Title 22 CCR, EPA Test Method 6010B and 7471 (mercury).
- Four soil samples were tested for pH using EPA Test Method 9045C.
- Three equipment blank water samples were analyzed for total lead using EPA Test Method 6010B.
- Three field blank water samples were analyzed for total lead using EPA Test Method 6010B.

2.5 Report Preparation

This report was prepared to summarize the objectives, procedures, and results of the ADL investigation activities requested by Caltrans as performed by Geocon.

3. INVESTIGATIVE METHODS

3.1 Soil Sampling

Soil samples were collected from borings advanced with 2.5-inch-diameter stainless steel hand-augers. Surface vegetation (e.g., native grasses/forbs and landscaping plants) at the boring locations was removed prior to boring/sampling activities. Soil collected from each depth interval was placed into a new re-sealable plastic bag, and the soil was field homogenized within the sample bag. Homogenized soil within the bag was then transferred into a new 4-ounce, laboratory-provided, glass soil jar which was subsequently capped, labeled with the sample date/time and a unique soil sample number, placed in a chilled ice chest, and delivered to the analytical laboratory within 24 hours.

Soil boring numbers were assigned based on a four-digit unique identification number provided by Caltrans (1181) and a sequential location number (101 through 116 for the hand-auger borings). Soil sample numbers were designated by the boring number and the bottom of the 6-inch depth interval from which the sample was collected. For example, the soil sample designated 1181-101-0.5 was obtained from a depth of approximately 0.0 to 0.5 foot from boring 1181-101.

Quality Assurance/Quality Control (QA/QC) procedures conducted during field activities included decontamination of sampling equipment before each boring was advanced, single use of new re-sealable plastic bags and soil jars, and sample COC documentation. Hand-auger sampling equipment was cleansed between samples by washing the equipment with an Alconox™ tap water solution followed by a tap water rinse and a final rinse with distilled/purified water.

The hand-auger borings were backfilled with surface soil from the immediate vicinity of the boring location. Decontamination water was discharged to the ground surface away from areas potentially associated with surface water bodies or storm drain inlets.

3.2 Blank Sampling

Three equipment blank samples were collected by Geocon (one per chain-of-custody completed) to verify proper cleaning of the hand-augers. The equipment blank samples were obtained by collecting distilled water passed over the hand-auger into an unpreserved, laboratory-provided container.

Three field blank samples were collected to identify ambient atmospheric contamination that could potentially become entrained in the samples during collection. The field blank samples were collected

in the field by filling an unpreserved laboratory-provided container with distilled water at a location adjacent to where sampling was performed.

3.3 Deviations from the Task Order

The TO served as the work plan for this investigation. Geocon performed the scope of work as generally summarized in the TO.

4. FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS

4.1 Soil Conditions

Soil encountered within the borings consisted of brown to yellowish-brown, silty fine to coarse sand with varying amounts of fine to coarse gravel and cobbles. Surface water and groundwater were not encountered at the boring locations. Field boring logs are in Appendix D.

4.2 Soil Sample Analytical Results

Soil sample analytical results for total lead, WET lead, DI-WET lead, TCLP lead, and pH are summarized in Table 1. Soil sample analytical results for Title 22 metals are summarized in Table 2. Copies of laboratory reports and COC documentation are in Appendix C. The following summarizes the soil sample analytical results:

- **Total lead** was reported for the soil samples at estimated (J-flagged) concentrations ranging from 2.7 J to 140 J mg/kg.
- **WET lead** was reported for the twelve samples analyzed at concentrations ranging from 1.9 to 9.9 mg/kg. WET lead concentrations that equal or exceed the Soluble Threshold Limit Concentration (STLC) value of 5.0 mg/l were reported for five of the samples.
- **DI-WET lead** was not detected at concentrations equal to or greater than the laboratory detection limit of 0.26 mg/l for the five samples analyzed.
- **TCLP lead** was reported for three of the five samples analyzed at estimated concentrations of 0.31 J, 0.33 J, and 0.35 J mg/l.
- **Title 22 metals** antimony, selenium, silver, and thallium were not detected in the three soil samples analyzed. Excluding lead, concentrations of other reported Title 22 metals were less than their respective Total Threshold Limit Concentrations (TTLCs) and ten times their respective STLCs.
- **Soil pH** values reported for the four samples analyzed ranged from 6.9 to 7.6.
- **Lead** was not detected in the three equipment blanks at a concentration equal to or greater than the laboratory detection limit of 0.005 mg/l.

- **Lead** was not detected in the three field blanks at a concentration equal to or greater than the laboratory detection limit of 0.005 mg/l.

4.3 Data Validation

Geocon and ATL use QA/QC measures to minimize and control errors associated with field and laboratory methods. Field QA/QC measures consist of cleaning sampling equipment before collection of each sample with a detergent solution followed by tap and distilled/purified water rinses. Based on the equipment blank sample analytical results, it appears that the decontamination procedures were sufficient to minimize the potential for cross-contamination resulting from inadequate equipment decontamination.

Laboratory QA/QC measures include the use of matrix spikes, duplicates, and method blanks, in addition to calculation of percent recovery and relative percentage difference (RPD). Laboratory analytical data verification was performed in accordance with the EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. A data validation report based on review of the field and laboratory QA/QC results is in Appendix E. Based on the data review some of the sample results were qualified as estimated values (J-flagged). The data qualifiers have been appended to the respective data in the analytical results summary tables (Tables 1 and 2). A review of the laboratory QA/QC results indicates satisfactory data reporting, and the data are of sufficient quality for the purposes of this report.

5. FINDINGS

Total lead was detected in each of the 44 soil samples collected at estimated concentrations ranging from 2.7 J to 140 J mg/kg. Twelve of the 44 soil samples were further analyzed for soluble lead using the WET method. WET soluble lead was reported for the samples at concentrations ranging from 1.9 to 9.9 mg/l. Five of the twelve soil samples analyzed using the WET method contained soluble lead concentrations greater than or equal to the STLC of 5.0 mg/l and were further analyzed by DI-WET. DI-WET lead was not reported at concentrations exceeding the laboratory detection limit for the five samples analyzed. TCLP lead was reported for three of the five samples analyzed at estimated concentrations of 0.31 J, 0.33 J and 0.35 J mg/l. Soil pH values were reported ranging from 6.9 to 7.6 for the four samples analyzed.

Three soil samples were analyzed for Title 22 metals. The reported concentrations of Title 22 metals were less than their respective TTLCs and ten times their respective STLCs. The concentrations of metals, other than lead, arsenic, and cadmium, reported in the soil samples were below their respective California Human Health Screening Levels (CHHSLs) for residential and/or industrial land use. Arsenic was reported for the samples at concentration ranging from 1.9 to 4.0 mg/kg. The reported arsenic concentrations exceed the industrial and residential use CHHSLs of 0.24 and 0.07 mg/kg,

respectively. Arsenic is a naturally occurring element; therefore, the reported concentrations were compared to regional background concentrations. The March 2008 Department of Toxic Substances Control (DTSC) publication *Determination of a Southern California Regional Background Arsenic Concentration in Soil* establishes a regional background for arsenic within Southern California including Los Angeles County using naturally occurring and anthropogenic concentrations of arsenic. The report finds that the upper-bound background concentration for arsenic within Los Angeles County is 12 mg/kg. The reported arsenic concentrations are less than 12 mg/kg; therefore, the arsenic concentrations reported for the soil samples are considered to be consistent with background concentrations of arsenic in Los Angeles County.

Cadmium was reported for the three samples at concentrations ranging from 1.1 to 3.5 mg/kg. The reported cadmium concentrations for two of the three samples exceed the residential use CHHSL of 1.7 mg/kg; however, the cadmium concentrations for the three samples are less than the industrial use CHHSL of 7.5 mg/kg.

Concentrations of lead reported for the samples exceed the residential land use CHHSL of 80 mg/kg but are less than the industrial land use CHHSL of 320 mg/kg.

With the exception of cadmium and lead, the reported metals concentrations are within the published range of background concentrations in California soils.

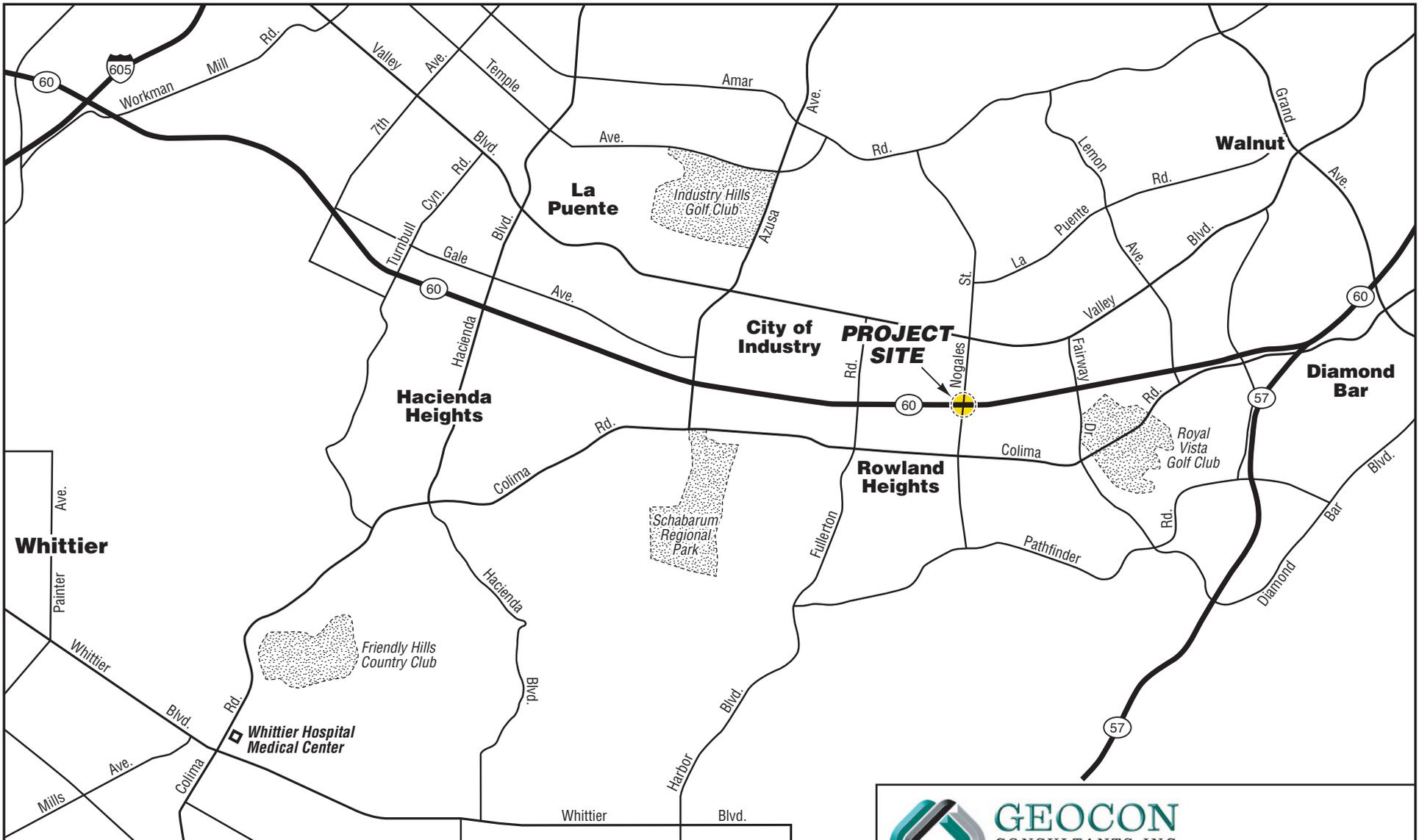
6. REPORT LIMITATIONS

This report has been prepared exclusively for AMEC and Caltrans. The information obtained is only relevant as of the date of the latest site visit and will require an update to reflect additional information obtained.

The findings presented herein are based on laboratory analytical results obtained from a limited number of samples collected from in-place soil and from widely spaced locations according to Caltrans-prescribed protocol. The purpose of these sampling and characterization activities was to allow Caltrans to reasonably predict the character of soil to be disturbed for planned construction activities within the described limits of the Caltrans right-of-way.

The Client should recognize that this report is not a comprehensive site characterization and should not be construed as such. The appropriate regulatory agency may require additional investigations. The findings as presented in this report are predicated on the results of the limited soil sampling and laboratory analyses performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein.

Therefore, the report should only be deemed conclusive with respect to the information obtained. No guarantee or warranty of the results of the report is implied within the intent of this report or any subsequent reports, correspondence, or consultation, either express or implied. Geocon strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.



GEOCON
CONSULTANTS, INC.

3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA. 91504
PHONE 818.841.8388 - FAX 818.841.1704

State Route 60 at Nogales Street (Post Mile 20.6)

City of Industry
Los Angeles County, California

VICINITY MAP

GEOCON Proj. No. S9500-06-06

EA No. 07-4H9001

September 2012

Figure 1



LEGEND

- -Approximate Boring Location
- TOTAL Lead -Total Lead Results in mg/kg
- WET Lead -WET Lead Results in mg/l
- WET DI -WET DI Results in mg/l
- TCLP Lead -TCLP Lead Results in mg/l
- DEPTH -Depth in feet
- <0.26 -Not detected at or above laboratory detection limits
- J -Result qualified as an estimated value due to analytical bias in precision or accuracy



78+23.27 BC, § OFF-RAMP, 70.62' Lt
MATCH EXISTING SIDEWALK
BEGIN MINOR CONCRETE (SIDEWALK AND B2 CURB)
BEGIN CONCRETE TERMINI

BORING NO. 1181-115

DEPTH	Total Lead	WET Lead	WET DI	TCLP Lead	pH
0.5 - 1.0	17 J	---	---	---	---
2.5 - 3.0	51	2.3	---	---	---
4.5 - 5.0	22	---	---	---	---

BORING NO. 1181-116

DEPTH	Total Lead	WET Lead	WET DI	TCLP Lead	pH
0.5 - 1.0	77	3.8	---	---	---
2.5 - 3.0	8.0	---	---	---	---
4.5 - 5.0	28	---	---	---	---

BORING NO. 1181-114

DEPTH	Total Lead	WET Lead	WET DI	TCLP Lead	pH
0.5 - 1.0	6.7 J	---	---	---	---
2.5 - 3.0	7.8 J	---	---	---	---
4.5 - 5.0	12 J	---	---	---	---

BORING NO. 1181-113

DEPTH	Total Lead	WET Lead	WET DI	TCLP Lead	pH
0.5 - 1.0	120 J	6.6	<0.26	<0.26	6.9
2.5 - 3.0	4.3 J	---	---	---	---
4.5 - 5.0	5.7 J	---	---	---	---

BORING NO. 1181-112

DEPTH	Total Lead	WET Lead	WET DI	TCLP Lead	pH
0.5 - 1.0	91 J	4.1	---	---	---
2.5 - 3.0	9.7 J	---	---	---	---
4.5 - 5.0	5.2 J	---	---	---	---

BORING NO. 1181-105

DEPTH	Total Lead	WET Lead	WET DI	TCLP Lead	pH
0.5 - 1.0	52 J	2.3	---	---	---
2.5 - 3.0	9.0 J	---	---	---	---
4.5 - 5.0	21 J	---	---	---	---

BORING NO. 1181-111

DEPTH	Total Lead	WET Lead	WET DI	TCLP Lead	pH
0.5 - 1.0	61 J	2.9	---	---	---
2.5 - 3.0	7.8 J	---	---	---	---
4.5 - 5.0	8.3 J	---	---	---	---

BORING NO. 1181-108

DEPTH	Total Lead	WET Lead	WET DI	TCLP Lead	pH
0.5 - 1.0	31 J	---	---	---	---
2.5 - 3.0	30 J	---	---	---	---
4.5 - 5.0	19 J	---	---	---	---

BORING NO. 1181-110

DEPTH	Total Lead	WET Lead	WET DI	TCLP Lead	pH
0.5 - 1.0	49 J	---	---	---	---
2.5 - 3.0	7.1 J	---	---	---	---
4.5 - 5.0	2.7 J	---	---	---	---

BORING NO. 1181-107

DEPTH	Total Lead	WET Lead	WET DI	TCLP Lead	pH
0.5 - 1.0	87 J	4.7	---	---	---
2.5 - 3.0	13 J	---	---	---	---
4.5 - 5.0	7.6 J	---	---	---	---

BORING NO. 1181-109

DEPTH	Total Lead	WET Lead	WET DI	TCLP Lead	pH
0.5 - 1.0	38 J	---	---	---	---
2.5 - 3.0	10 J	---	---	---	---
4.5 - 5.0	5.8 J	---	---	---	---

BORING NO. 1181-106

DEPTH	Total Lead	WET Lead	WET DI	TCLP Lead	pH
0.5 - 1.0	35 J	---	---	---	---
2.5 - 3.0	15 J	---	---	---	---
4.5 - 5.0	10 J	---	---	---	---

BORING NO. 1181-101

DEPTH	Total Lead	WET Lead	WET DI	TCLP Lead	pH
0 - 0.5	140 J	7.8	<0.26	0.35 J	7.3
1.0 - 1.5	36 J	---	---	---	---

BORING NO. 1181-104

DEPTH	Total Lead	WET Lead	WET DI	TCLP Lead	pH
0 - 0.5	95 J	5.1	<0.26	0.33 J	---
1.0 - 1.5	60 J	1.9	---	---	---

BORING NO. 1181-102

DEPTH	Total Lead	WET Lead	WET DI	TCLP Lead	pH
0 - 0.5	120 J	9.9	<0.26	0.31 J	7.2
1.0 - 1.5	21 J	---	---	---	---

BORING NO. 1181-103

DEPTH	Total Lead	WET Lead	WET DI	TCLP Lead	pH
0 - 0.5	97 J	6.0	<0.26	<0.26	7.6
1.0 - 1.5	21 J	---	---	---	---

BORING NO. 1181-100

DEPTH	Total Lead	WET Lead	WET DI	TCLP Lead	pH
0.5 - 1.0	120 J	6.6	<0.26	<0.26	6.9
2.5 - 3.0	4.3 J	---	---	---	---
4.5 - 5.0	5.7 J	---	---	---	---



GEOCON
CONSULTANTS, INC.

ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

SITE PLAN (SHEET L-1)

CALTRANS
ROUTE 60 WESTBOUND OFFRAMP
AT NOGALES STREET
LOS ANGELES COUNTY, CALIFORNIA

SEP. 2012 PROJECT NO. S9500-06-06 FIG. 2

CHL	8000
-----	------

TABLE 1
 BORING COORDINATES AND SUMMARY OF LEAD AND pH ANALYTICAL RESULTS
 ROUTE 60 WB OFFRAMP WIDENING AT NOGALES STREET
 LOS ANGELES COUNTY, CALIFORNIA

Sample ID	Sample Date	Longitude	Latitude	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	WET DI (mg/l)	TCLP Lead (mg/l)	pH
1181-101-0.5	7/24/2012	33.99438523	-117.8866853	0.5 - 1.0	140 J	7.8	<0.26	0.35 J	7.3
1181-101-1.5	7/24/2012			1.0 - 1.5	36 J	---	---	---	---
1181-102-0.5	7/24/2012	33.99439093	-117.8868422	0.5 - 1.0	120 J	9.9	<0.26	0.31 J	7.2
1181-102-1.5	7/24/2012			1.0 - 1.5	21 J	---	---	---	---
1181-103-0.5	7/24/2012	33.99439318	-117.8870527	0.5 - 1.0	97 J	6.0	<0.26	<0.26	7.6
1181-103-1.5	7/24/2012			1.0 - 1.5	21 J	---	---	---	---
1181-104-0.5	7/24/2012	33.99440592	-117.8872132	0.5 - 1.0	95 J	5.1	<0.26	0.33 J	---
1181-104-1.5	7/24/2012			1.0 - 1.5	60 J	1.9	---	---	---
1181-105-1.0	7/24/2012	33.99442911	-117.8872893	0.5 - 1.0	52 J	2.3	---	---	---
1181-105-3.0	7/24/2012			2.5 - 3.0	9.0 J	---	---	---	---
1181-105-5.0	7/24/2012			4.5 - 5.0	21 J	---	---	---	---
1181-106-1.0	7/25/2012	33.99437186	-117.8872894	0.5 - 1.0	35 J	---	---	---	---
1181-106-3.0	7/25/2012			2.5 - 3.0	15 J	---	---	---	---
1181-106-5.0	7/25/2012			4.5 - 5.0	10 J	---	---	---	---
1181-107-1.0	7/24/2012	33.99440221	-117.8873651	0.5 - 1.0	87 J	4.7	---	---	---
1181-107-3.0	7/24/2012			2.5 - 3.0	13 J	---	---	---	---
1181-107-5.0	7/24/2012			4.5 - 5.0	7.6 J	---	---	---	---
1181-108-1.0	7/24/2012	33.99445475	-117.887409	0.5 - 1.0	31 J	---	---	---	---
1181-108-3.0	7/24/2012			2.5 - 3.0	30 J	---	---	---	---
1181-108-5.0	7/24/2012			4.5 - 5.0	19 J	---	---	---	---
1181-109-1.0	7/24/2012	33.99437029	-117.8874269	0.5 - 1.0	38 J	---	---	---	---
1181-109-3.0	7/24/2012			2.5 - 3.0	10 J	---	---	---	---
1181-109-5.0	7/24/2012			4.5 - 5.0	5.8 J	---	---	---	---
1181-110-1.0	7/24/2012	33.99470814	-117.8869352	0.5 - 1.0	49 J	---	---	---	---
1181-110-3.0	7/24/2012			2.5 - 3.0	7.1 J	---	---	---	---
1181-110-5.0	7/24/2012			4.5 - 5.0	2.7 J	---	---	---	---
1181-111-1.0	7/25/2012	33.99481953	-117.8870888	0.5 - 1.0	61 J	2.9	---	---	---
1181-111-3.0	7/25/2012			2.5 - 3.0	7.8 J	---	---	---	---
1181-111-5.0	7/25/2012			4.5 - 5.0	8.3 J	---	---	---	---
1181-112-1.0	7/25/2012	33.99499122	-117.8871983	0.5 - 1.0	91 J	4.1	---	---	---
1181-112-3.0	7/25/2012			2.5 - 3.0	9.7 J	---	---	---	---
1181-112-5.0	7/25/2012			4.5 - 5.0	5.2 J	---	---	---	---

TABLE 1
 BORING COORDINATES AND SUMMARY OF LEAD AND pH ANALYTICAL RESULTS
 ROUTE 60 WB OFFRAMP WIDENING AT NOGALES STREET
 LOS ANGELES COUNTY, CALIFORNIA

Sample ID	Sample Date	Longitude	Latitude	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	WET DI (mg/l)	TCLP Lead (mg/l)	pH
1181-113-1.0	7/25/2012	33.99521426	-117.8873642	0.5 - 1.0	120 J	6.6	<0.26	<0.26	6.9
1181-113-3.0	7/25/2012			2.5 - 3.0	4.3 J	---	---	---	---
1181-113-5.0	7/25/2012			4.5 - 5.0	5.7 J	---	---	---	---
1181-114-1.0	7/24/2012	33.99531017	-117.8875023	0.5 - 1.0	6.7 J	---	---	---	---
1181-114-3.0	7/24/2012			2.5 - 3.0	7.8 J	---	---	---	---
1181-114-5.0	7/24/2012			4.5 - 5.0	12 J	---	---	---	---
1181-115-1.0	7/25/2012	33.99538697	-117.8876988	0.5 - 1.0	17 J	---	---	---	---
1181-115-3.0	7/25/2012			2.5 - 3.0	51	2.3	---	---	---
1181-115-5.0	7/25/2012			4.5 - 5.0	22	---	---	---	---
1181-116-1.0	7/25/2012	33.9954427	-117.8880096	0.5 - 1.0	77	3.8	---	---	---
1181-116-3.0	7/25/2012			2.5 - 3.0	8.0	---	---	---	---
1181-116-5.0	7/25/2012			4.5 - 5.0	28	---	---	---	---

Notes:

- mg/kg = Milligrams per kilogram
- mg/l = Milligrams per liter
- WET = Waste Extraction Test using citric acid as the extraction fluid
- DI-WET = Waste Extraction Test using deionized water as the extraction fluid
- TCLP = Toxicity Characteristic Leaching Procedure
- J = Results qualified as an estimated value due to analytical bias in precision or accuracy
- < = Analyte was not detected above the laboratory detection limit specified

TABLE 2
 SUMMARY OF SOIL ANALYTICAL RESULTS - TITLE 22 METALS
 ROUTE 60 WB OFFRAMP WIDENING AT NOGALES STREET
 LOS ANGELES COUNTY, CALIFORNIA

Sample ID	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
1181-101-0.5	<0.35	3.2	100	0.54 J	2.5	14	5.9	29	140 J	0.05 J	6.2	21	<0.38	<0.08	<0.30	26	100
1181-102-0.5	<0.35	4.0	140	0.56 J	3.5	19	6.6	45	120 J	0.06 J	11	28	<0.38	<0.08	<0.30	35	160
1181-113-1.0	<0.35	1.9	99	0.44 J	1.1	27	6.9	120	120 J	0.08 J	0.92 J	16	<0.38	<0.08	<0.30	25	220
TTLIC	500	500	10,000	75	100	2,500	8,000	2,500	1,000	20	3,500	2,000	100	500	700	2,400	5,000
10 X STLC	150	50	1,000	7.5	10	50	800	250	50	2.0	3,500	200	10	50	70	240	2,500
CHHSLs Industrial	380	0.24	63,000	190	7.5	100,000	3,200	38,000	320	180	4,800	16,000	4,800	4,800	63	6,700	100,000
Residential	30	0.07	5,200	16	1.7	100,000	660	3,000	80	18	380	1,600	380	380	5.0	530	23,000
Background Concentrations ⁽¹⁾																	
Minimum	0.15	0.6	133	0.25	0.05	23	2.7	9.1	12.4	0.10	0.1	9.0	0.015	0.10	0.17	39	88
Maximum	1.95	12	1,400	2.70	1.70	1,579	46.9	96.4	97.1	0.90	9.6	509	0.430	8.30	1.10	288	236
Mean	0.60	3.5	509	1.28	0.36	122	14.9	28.7	23.9	0.26	1.3	57	0.058	0.80	0.56	112	149

Notes:

Units shown in milligrams per kilogram (mg/kg)

< = Not detected above the laboratory detection limit specified

J = Results qualified as an estimated value due to analytical bias in precision or accuracy

TTLIC = Total Threshold Limit Concentration

STLC = Soluble Threshold Limit Concentration

CHHSLs = California Environmental Protection Agency, California Human Health Screening Levels for industrial and residential land use

TTLIC, STLC, and CHHSLs shown for chromium are for chromium III

⁽¹⁾ Background Concentrations of Trace and Major Elements in California Soils

(Kearney Foundation of Soil Science, Division of Agriculture and Natural Resources, University of California, March 1996)

Maximum arsenic background concentration source - *Determination of a Southern California Regional Background Arsenic Concentration in Soil*, DTSC March 2008

APPENDIX

A

HEALTH AND SAFETY PLAN

AERIALY DEPOSITED LEAD
SITE INVESTIGATION

ROUTE 60 WESTBOUND OFFRAMP
WIDENING PROJECT AT NOGALES
STREET
LOS ANGELES COUNTY, CALIFORNIA

PREPARED BY

GEOCON CONSULTANTS, INC.
3303 N. SAN FERNANDO BLVD., SUITE 100
BURBANK, CALIFORNIA 91504

PROJECT NO. S9500-06-06
CALTRANS CONTRACT NO. 07A2730A01
TASK ORDER NO. 27
EA NO. 07-4H9001

JULY 2012

TABLE OF CONTENTS

HEALTH AND SAFETY PLAN	Page
HEALTH AND SAFETY PLAN SUMMARY	i
1.0 INTRODUCTION.....	1
1.1 Project Location and Description.....	2
1.2 Background.....	2
1.3 Project Objectives	2
1.4 Planned Scope of Services	2
1.5 Schedule.....	2
2.0 ADMINISTRATIVE REQUIREMENTS/CONTROLS	2
2.1 Personnel.....	2
2.1.1 Project Manager.....	2
2.1.2 Site Safety Officer (SSO).....	3
2.1.3 Geocon Certified Industrial Hygienist.....	3
2.1.4 Project Field Staff	4
2.2 Personnel Training	4
2.2.1 General Site Employees.....	4
2.2.2 "Tailgate" Meetings.....	4
2.3 Medical Surveillance	4
3.0 HAZARD AND CONTROL ANALYSIS	5
3.1 Safe Driving.....	5
3.2 Mechanical Hazards.....	6
3.2.1 Material Handling/Back Injury.....	6
3.2.2 "Striking" Injuries	7
3.2.3 "Struck-by" Injuries	7
3.3 Underground Utility Hazards.....	7
3.4 Noise Hazards.....	8
3.5 Thermal Extremes – Heat Stress and Heat Strain	8
3.6 Biological Hazards –Biting Insects (Vectors) & Animals	9
3.7 Chemical Hazards – Inorganic Lead.....	10
4.0 GENERAL HEALTH AND SAFETY REQUIREMENTS	11
4.1 Air Monitoring.....	11
4.2 Personal Hygiene	11
4.3 Buddy System.....	12
4.4 Work Zone Controls	12
4.5 Code of Safe Practices	12
5.0 PERSONAL PROTECTIVE EQUIPMENT	13
5.1 Respiratory Protection	14
5.2 PPE – Level D Protection	14
5.3 PPE – Level "C" Protection.....	15
5.4 Miscellaneous Safety Equipment.....	15
6.0 DECONTAMINATION.....	15
6.1 Equipment Decontamination	15
6.2 PPE Decontamination	15
7.0 EMERGENCY RESPONSE PROCEDURES	16
7.1 Physical Injury	16

TABLE OF CONTENTS
(Continued)

HEALTH AND SAFETY PLAN	Page
7.2 Catastrophic Event.....	16
7.3 Emergency Telephone Numbers.....	16
7.4 Project Site Address.....	16
7.5 Hospital Address and Route.....	17
8.0 PLAN APPROVAL	18

[Attachment A - T8 CCR §1532.1 Lead - Appendix A](#)

Figure 1 – Vicinity Map

HEALTH AND SAFETY PLAN SUMMARY

Site Location/Address: Route 60 at Nogales Street (Post Mile 20.6), City of Industry, Los Angeles County, California

Project Representatives:

- Project Manager/Cell No.: **Mike Conkle** (213) 503-7841
- Site Safety Officer/Cell No.: **Mike Akoto** (818) 809-8975
- Geocon Consulting CIH: **Geocon Office Number** (818) 841-8388
- **Doug Krause** (530) 758-6397
- **Cell No.:** (530) 848.9232
- Caltrans TO Manager: **Samuel Yang** (213) 897-4058

Scope:

- General survey/non-intrusive activities
- Soil sampling (hand-auger)

Hazard Summary:

- Mechanical - material handling, slip/trip, struck-by injuries
- Underground and Overhead Utilities
- Noise – road traffic
- Biological - bites or stings
- Thermal Extremes – Heat Stress
- Chemical – aerially deposited lead (ADL)

Control Summary:

- Personal Protection Equipment (PPE) – ANSI Class II safety vests, hard hats, safety glasses, steel-toed boots
- Site Control - utility location/identification
- Hearing protection – ear plugs/muffs
- Site inspection & awareness; repellent, wasp spray
- Appropriate dress, shade, fluids & rest/work cycle
- Engineering Controls/Isolation/PPE - safe (wet) sampling methods & work practices; protective gloves; sanitation.

Hospital Reference: Whittier Hospital Medical Center
9080 Colima Road, Whittier, CA 90605
(562) 945-3561

Directions: Exit Route 60 at Nogales Street. Proceed south and turn right on Colima Road. Proceed 7 miles and arrive at hospital (see Vicinity Map, Figure 1).

Emergency Assistance:

Fire/Police/Medical Assistance: **911**
Poison Control: **800-876-4766**

1.0 INTRODUCTION

This Health and Safety Plan (HSP) is a compilation of health and safety guidelines, policies and/or performance protocols that, when exercised, are intended to reduce or eliminate the potential for injury and exposure during the performance of the activities at the site described below. Conformance with its contents does not warrant that injuries or exposures will not occur.

This HSP is not a training tool and does not contain the degree of detail necessary to train an employee on the appropriate performance, approach and/or equipment-use protocols referenced, herein. Persons working on this project and referring to this HSP shall meet the minimum training requirements described in Section 2.2.

This HSP has been prepared to specifically support the field activities described herein. The provisions described herein apply to employees of Geocon Consultants, Inc. and its subcontractors, only. Representatives of the Client, Client-retained subcontractors, and representatives of state or local government agencies are expected to observe the safety rules and requirements established by their respective organizations, provided they do not conflict with this HSP. However, Geocon will not be responsible for enforcing the conditions of this HSP on these representatives.

The contents of this HSP are based on factors and conditions understood prior to the start of the field activities. If those factors and conditions change during the performance of the activities, including the service scope, or if conditions exist that were not considered in the preparation of this HSP, then such shall be brought to the immediate attention of the person approving this HSP, and the HSP shall be modified, accordingly. The date indicated in Section 8.0 of this document indicates the latest version of this HSP.

All project personnel, including Caltrans field inspectors will review, and become familiar with the elements of the Plan prior to site work. A copy of the Plan will be provided to all subcontractors and the Caltrans Resident Engineer (RE), Project (Task Order) Manager, or designee involved with project activities.

A pre-job conference will be held to delineate roles and responsibilities, discuss key elements of the Plan, and coordinate activities. This Plan is a "working document" to be used by affected personnel. The Plan may be modified at any time in accordance with Section 1.4 to adequately address changing conditions or previously unrecognized exposure hazards which may be encountered during the project. An updated, current copy of the Plan will be maintained at the project site during and be available to all affected personnel.

This Plan expires 6 months from the date of CIH approval unless updated or amended; ref. T8 CCR §1532.1(e)(2)(E) "Written programs shall be revised and updated at least every 6 months..."

1.1 Project Location and Description

Site Location: Route 60 Westbound Off-ramp Widening at Nogales Street (Post Mile 20.6), City of Industry, Los Angeles County, California

1.2 Background

Caltrans proposes to widen the Route 60 westbound off-ramp to Nogales Street from two lanes to three lanes. Currently the number one lane of the off-ramp is designated as an optional left- and right-turn lane and the number two lane is designated as a right-turn only lane. The off-ramps right-turn demand is the predominant turning movement. During morning and evening periods motorists attempting to turn left from the off-ramp are delayed in the queue by vehicle turning right. Widening the off-ramp to three lanes would provide a separate left-turn lane, thereby facilitating left turns to southbound Nogales Street.

Aerially deposited lead (ADL) may be present on the site, primarily due to historic leaded fuel emissions from automobile exhausts.

1.3 Project Objectives

The purpose of the scope of services is to evaluate whether ADL soil are present at the site at regulated levels. The site investigation can also be used for recommendations on appropriate handling procedures for handling and disposing of soil generated during excavation activities.

1.4 Planned Scope of Services

- Soil Sampling (hand-auger)

1.5 Schedule

Anticipated Period of Performance: July 2012

Anticipated Weather/Temperature: Warm to hot

2.0 ADMINISTRATIVE REQUIREMENTS/CONTROLS

2.1 Personnel

Personnel responsible for project safety include the Project Manager, the Site Safety Officer (SSO), and participating project personnel.

2.1.1 Project Manager

The Project Manager has ultimate authority and responsibility for project Health and Safety. Accordingly, he/she has the responsibility to develop the HSP (or assign its development); audit

compliance with the provisions of this HSP; suspend project activities or modify service practices for health and safety reasons; and, to dismiss from a project site individuals whose onsite conduct either endangers the health and/or safety of others or is judged not to comply with the provisions of the HSP. The Project Manager is responsible for sharing/distributing the HSP to participating field personnel and to an authorized representative of each project subcontractor. The Project Manager is also responsible for implementing all provisions of the HSP and any applicable addenda. Implementation includes:

- Reviewing the HSP requirements (if prepared by another project member);
- Presenting an overview of the provisions of the HSP with project participants;
- Providing the safety equipment specified herein;

Collecting and submitting the requisite health and safety documentation (training rosters/certificates, air monitoring records (exposure assessments); site personnel logs, medical approvals), and copying them to the SSO, if appropriate;

Note: Monitoring and exposure assessment records will be maintained in accordance with the provisions of T8 CCR §1532.1(n) (Lead) and 3204, Access to Employee Exposure and Medical Records.

- Designating/identifying a qualified project member as the SSO.

2.1.2 Site Safety Officer (SSO)

The designated SSO is responsible for assisting the Project Manager with onsite implementation of the HSP. The SSO's responsibilities include:

- Maintaining project safety equipment supplies;
- Perform air monitoring, if and as specified herein (ref: T8 CCR §1532.1(d) Exposure Assessment);
- Directing decontamination procedures, as appropriate;
- Enforcing the provisions of this HSP;
- Directing emergency response operations until public emergency personnel arrive;
- Setting up Site Controls, if and as specified herein; and
- Reporting all incidents and infractions to the Project Manager.

The SSO has the authority to suspend project activities any time he/she determines that the provisions of the HSP are inadequate to provide a service/project environment conducive to employee safety. Further, the SSO is to inform the Project Manager of any individuals whose onsite actions jeopardize either their health and safety or the health and safety of others.

2.1.3 Geocon Certified Industrial Hygienist

The Consulting CIH provides industrial hygiene and safety technical support to the Project Manager/SSO. In this capacity, the CIH:

- Provides training, as requested;
- Approves or recommends airborne sampling strategies and monitoring equipment;
- Provides technical support for the selection and use of Personal Protective Equipment (PPE); and,
- Provides arbitration on project health and safety issues.

2.1.4 Project Field Staff

All project personnel are responsible for:

- Complying with the provisions of this HSP;
- Performing services in a manner that is consistent with good health and safety practice; and
- Reading and being knowledgeable of the contents of this HSP.

2.2 Personnel Training

2.2.1 General Site Employees

Site employees will attend a project orientation prior to starting the project. The orientation will review all elements of the HSP, including: 1) the location of potential health and safety hazards on the site and 2) requirements of the HSP. The training will also address other Cal/OSHA requirements such as the Geocon Hazard Communication Program (T8 CCR §5194), including the potential hazards of exposure to lead (T8 CCR §1532.1(l)) and the Injury and Illness Prevention Program (T8 CCR §3203).

2.2.2 “Tailgate” Meetings

During the active field components of the project, the Project Manager or designee will conduct regular (i.e., weekly or daily, as appropriate) “tailgate” safety meetings. This meeting will include information on the following subjects, as applicable:

- Changes to project scope;
- Recognized changes to site conditions;
- Review of safe work practices;
- On or off the project safety practices;
- Feedback from employees on hazards, safety suggestions, or concerns; and
- Recognition for compliance, good safety performance or attitude.

Attendance at the tailgate meetings is considered a part of each employee’s job responsibilities.

2.3 Medical Surveillance

Based on Negative Exposure Assessments from industrial hygiene monitoring for airborne inorganic lead performed for representative tasks, using similar controls, and carried out within the past twelve months (ref. T8 CCR §1532.1(d)(5)(A)), medical surveillance is not mandate for these tasks nor is respiratory protective equipment required for this project.

Therefore, additional exposure assessments will not be required and Medical Surveillance as specified under T8 CCR §1532.1 is not required or justified for personnel assigned to this project.

Geocon and subcontractor employees required to wear respiratory protection shall have a current medical evaluation and approval by a physician or other licensed health care professional (PLHCP). Medical evaluations will be provided in accordance with the Geocon Respiratory Protective Equipment Program (ref. T8 CCR §5144(e) “Medical Evaluation”).

Project personnel are to arrive at the jobsite well rested and physically prepared to perform assigned tasks.

3.0 HAZARD AND CONTROL ANALYSIS

The following hazards were assessed to either exist, or have the potential to develop, during the performance of the project activities:

TASKS	HAZARDS							
	MECHANICAL	ELECTRICAL/ UTILITY	NOISE	BIOLOGICAL	RADIOLOGICAL	THERMAL	CHEMICAL	OTHER
Driving	X							
Soil sampling – hand auger	X	X	X	X		X	X	

3.1 Safe Driving

Hundreds of workers are injured or die in job-related motor vehicle accidents annually. Motor vehicle accidents are one of the number-one causes of employee injuries and deaths. Most accidents can be avoided by practicing defensive driving. Geocon policies mandate that employees:

- Prepare themselves and their vehicle for the road before travel;
- Drive according to posted speed limits unless adverse conditions necessitate slower speeds;
- Never tailgate, employ the three (3) second rule in following vehicles;
- Follow California State Law and other local laws and regulations regarding the use of cellular phones for communication while driving;
- Additionally, talking on a cell phone and/or texting is prohibited while working near drill rigs or operating sampling equipment; and,
- Use practical driving procedures in cities, on the freeway, and in rural areas.

3.2 Mechanical Hazards

Type(s)/Source:

- Material Handling/Back Injury
- Striking (slips, trips); and
- Struck-by injuries

Qualified Exposure Risk: Moderate

Hazard Control(s):

- Safe Lifting
- Isolation - shoulder closure traffic control/work methods/no work during inclement weather or darkness
- PPE – ANSI safety vests; hard hats; safety-toe shoe or boot; safety glasses

3.2.1 Material Handling/Back Injury

Hazard: It is expected that field personnel will be required to lift heavy equipment and supplies and/or perform arduous tasks during this project. Accordingly, back injuries or physical strain may be caused by: routine lifting or one-time-only lifting; the weight of a lifted object; the frequency of lifting; bending, twisting, or rotating during lifting; prolonged sitting; exposure to vibrations; poor arch support in shoes; and, not stretching prior to physical activity. If the following “control” mechanisms are not exercised, debilitating back injury may occur.

Control(s): Before attempting to lift and carry an object, always test its weight first. If it is too heavy, get help. If possible, use mechanical lifting aids. If manageable, the proper method for lifting is:

- Get a good footing;
- Place feet about shoulder width apart;
- Bend knees to pick up load. Never bend from the waist;
- Keep back straight;
- Get a firm hold. Grasp opposite corners of the load, if possible;
- Keep the back as upright as possible;
- Lift gradually by straightening the legs - don't jerk the load;
- Keep the weight as close to the body as possible; and
- When changing directions, turn the entire body, including the feet. Don't twist the body.

If devices are used for handling materials manually (e.g., two-handed lifters, barrel ring clamps, hand trucks, wheelbarrows, etc.), wear protective equipment like gloves and safety shoes to minimize the potential of appendages becoming pinched or smashed between the load and stationary features. Also, avoid overloading the device.

3.2.2 "Striking" Injuries

Hazard: Injuries can, and often, result when a person (a kinetic mass) unexpectedly instigates contact with another kinetic mass. These occurrences typically result from inadvertent slips, trips and falls.

Control(s): To minimize risks of "slip/trip" hazards, personnel shall maintain a constant program of good housekeeping, keeping areas clear of trip hazards and wet and slippery surfaces. All hand tools shall be regularly secured and care shall be taken when entering areas where work is being performed above eye level.

3.2.3 "Struck-by" Injuries

Hazard: Injuries can, and often, result when workers are the unexpected receptor of contact with another kinetic mass. These occurrences typically result from the worker being struck by a dropped or collapsed mass, a moving piece of equipment, or more likely a moving vehicle.

Control(s): Engage the vehicle's warning light bar whenever planning to pull off or exit the highway. When stopped or parked, continue use of the light bar. Employees/workers shall not exit the vehicle until they have successfully pulled off of the highway. In those instances where it is not possible to clear the shoulder, workers shall exit the vehicle on the side opposite the adjacent traffic flow. Geocon employees will be required to wear hard hats and fluorescent vests and place safety cones at 10-yard intervals for a minimum of 30 yards (if achievable) from the left rear corner of the vehicle so they may be seen by adjacent traffic.

If shoulder and/or lane closure is required to perform the services, it shall be provided in conformance with Caltrans' *Standard Provisions for Maintaining Traffic* as specified in *Standard Plans T-10, T-10A, T-11, T-12, T-13, and T-14*.

Workers shall maintain a constant awareness of traffic patterns/conditions throughout the duration of the field services.

3.3 Underground Utility Hazards

Type(s)/Source: Water, sewer, electric, fiber optic, gas, or fuel

Potential Hazards: Flooding, shock or electrocution, fire or explosion

Qualified Exposure Risk: Low – Hand-auger sampling

Hazard Controls: Site control, isolation, and third-party inspection, i.e., independent utility locator

Demarcate all drilling/digging locations, first. Contact Underground Service Alert (USA) (1-800-227-2600) and review as-built plans before performing any excavation/drilling/coring activity. It is advised that a private utility locator be contacted to supplement USA's demarcations, especially when the project is on private property. Soil intrusive work shall not proceed until all locating activities have

been completed and fully documented in the site records. The initial site safety orientation meeting for all personnel onsite shall include a review of the underground utility locations and the location of the site map, showing the position of any underground utility lines. The site safety orientation shall include a site walkover of each marked utility or line.

Should a sub-surface condition be encountered that creates suspicion that there may be an unidentified underground line or utility, immediately cease work and secure the equipment. Work will not proceed until the potential risk or condition is resolved.

3.4 Noise Hazards

Equipment operated at sampling sites may present a noise hazard to employees. In all cases where the sound pressure levels may exceed a time-weighted average noise dose of 85 decibels (the Action Level), the Project Manager and/or SSO will evaluate exposures according to the Geocon Hearing Conservation Program (ref. T8 CCR §§5095-5100). Selection of hearing protection will be made in accordance with the Geocon Safety Equipment Guide. Only hearing protectors (ear plugs or muffs) with a Noise Reduction Rating of 20 dB, or higher, will be used. When worn, earmuffs will be donned in the "over the head" position with the hair pulled back from the sealing surface.

Note: In general, noise levels in excess of 85 dBA interfere with communication between two individuals speaking in a normal tone of voice at a distance of 3 feet from one another.

3.5 Thermal Extremes – Heat Stress and Heat Strain

Type(s)/Source: Solar load – working outdoors in spring/summer months

Qualified Exposure Risk: High

Primary “Control”:
Compliance with T8 CCR §3395 Heat Illness Prevention
Dress appropriately for the expected weather conditions;
Shade structures for temperatures of 85 degrees F or higher;
Adequate supply of drinking water, fluid consumption.

Hazard: In addition to the chemical, physical and operational hazards referenced above, heat stress may present a potential hazard to onsite personnel during the on-site operations. This hazard can be created when individuals work in warm temperatures while wearing relatively impervious chemical protective clothing (CPC), i.e., Tyvek™ coveralls. When ambient air temperatures at a project site exceed approximately 75 degrees Fahrenheit when CPC is worn, heat stress can result.

Also, when ambient air temperatures at a project site exceed 85 to 95 degrees Fahrenheit, heat stress is a potential risk regardless if CPC is worn or not worn. If these conditions are encountered, the following precautions shall be implemented:

Controls: The Project Manager or SSO will regularly monitor daily weather forecasts and monitor ambient air temperatures. In addition, routinely observe and monitor archaeology field staff for signs and symptoms of heat stress including: dizziness, profuse sweating or lack of perspiration (hot dry skin), and skin color change – flush appearance. If necessary, monitor for increased heart rate and potential vision problems. Personnel who exhibit any of these symptoms will immediately be removed from field work to a shaded location, and required to consume 2 to 4 pints of cool water while resting. Individuals exhibiting symptoms of heat stress should not return to work until the symptoms are no longer recognizable.

Note: If symptoms of hot, dry skin or other critical symptoms appear, immediately implement emergency medical procedures by dialing 911. While awaiting the arrival of emergency medical services attempt to cool the individual's body by saturating their upper clothing (shirt) with cool, but not chilled or cold water.

To control the potential occurrence of heat stress, preventive measures will be evaluated and implemented on a daily basis (ref. T8 CCR §3395 Heat Illness Prevention). These measures will include:

- Schedule periodic cooling and rest (recovery) periods in a shaded area (ref. T8 CCR §3395(d) Heat Illness Prevention);
- Designated shaded rest areas, or portable shade structures must be available when the ambient daily high temperature is predicted to exceed 85 degrees Fahrenheit, or 75 degrees Fahrenheit if CPC will be required to be worn; and,
- Inducement of water intake, the equivalent quantity of 1 quart of water per hour per on-site archaeology staff (2 gallons per person) be available before work begins unless provisions for immediate water replenishments are available (nearby store, plumbed water supply, etc.). Water must always be replenished before running out (ref. T8 CCR §3395(c) Heat Illness Prevention).

The implementation frequency of these measures will be the responsibility of the Project Manager.

3.6 Biological Hazards –Biting Insects (Vectors) & Animals

Qualified Exposure Risk: Low

Hazard Controls:

- Isolation (Attention to detail – avoidance)
- PPE (Gloves/boots/long-sleeve shirts)
- Wear long-sleeve shirts, long pants, and high top stockings
- Repellent, wasp spray, pepper spray

Hazard: Contact with plants, insects, and animals likely to be present at the site should be avoided. Plants (such as poison oak or ivy) can cause an allergic reaction and skin rash in some individuals.

Stinging and biting insects, including bees, spiders, and ticks, can cause extreme discomfort and/or serious allergic responses. Insect bites are generally not dangerous, unless they are from a poisonous insect or mosquitoes potentially carrying West Nile virus.

The primary concern with animal bites and scratches is the potential for infection and/or rabies. Snake or scorpion bites can also be dangerous, but more from infection or trauma than the toxins injected by the snake or scorpion.

Control(s): Avoid conducting site activities from dusk to dawn when the risk of encountering biting mosquitoes is higher. Before beginning fieldwork each day, inspect the work area for the presence of standing water, poisonous plants and inhabitant reptiles, and take measures necessary to minimize the potential for contact. Specially prepared topical barriers, such as Teknu®, for protection against poison oak, and insect repellent containing approximately 50% DEET for protecting exposed skin from biting insects; the more DEET a repellent contains the longer time it can provide protection from mosquito bites. Apply insect repellent sparingly to exposed skin. These products are commercially available and may minimize the potential for development of skin rashes and/or irritations due to such exposures. If unprotected contact with potentially poisonous plants does exist, wash with soap and water as soon as possible. If irritation still develops, apply First Aid and/or seek medical attention, accordingly. If you are allergic to bee or wasp stings, be sure to have the appropriate first aid available (e.g., an epi-pen) on the project. If you are stung, administer first aid and seek immediate medical attention.

Be sure a reptile or animal bite victim obtains medical attention quickly if a bite or scratch occurs, especially if there is a potential that it was poisonous. In the meantime, administer First Aid by scrubbing the wound with soap and water, and rinsing thoroughly under running water. Dry off and place a clean bandage on the wound. Victims of these bites should lie down and remain calm and motionless; cold packs should be applied and medical attention sought immediately.

3.7 Chemical Hazards – Inorganic Lead

The risk of significant exposure to aerially deposited inorganic lead in soils is considered to be low while performing characterization tasks required on this project. Sampling methods and work practices to be employed, as well as damp soil conditions, which are common in the area during the winter season, will reduce the potential for significant exposures to airborne lead or other contaminants.

Detailed information regarding the physical description of inorganic lead, including health hazards, routes of entry into the body, signs and symptoms of exposure, and target organs, published exposure limits (PEL- TWA and Action Level) is available in [Attachment A – Lead](#), which is the Substance Information Sheet referenced in T8 CCR §1532.1 .

Types/Source: Aerially deposited inorganic lead (ADL)

Exposure Routes: Inhalation and ingestion;
 ref. [Attachment A - T8 CCR §1532.1 Lead - Appendix A](#)

Qualified Exposure Risk: Low, due to wet or moist soil conditions

Primary “Control”:

- Site Control – formal work zones will be established around drilling operations (ref. Section 4.2)
- T8 CCR §5145 Media for Allaying Dusts (wet methods) and adherence to safe work practices, and specific sampling methods and procedures

Negative Exposure Assessment: Results of industrial hygiene monitoring of representative tasks and sampling procedures for aerially deposited lead impacted shallow soils using wet controls document exposures consistently below the 30 µg/m³ Action Level for airborne inorganic lead (ref. T8 CCR §1532.1(d)(5)(A))

- Avoid contact with, and inhalation of, airborne contaminated soil/dust.
- PPE (Gloves/glasses)
- Follow good personal hygiene practices (see Section 4.2).

CHEMICAL NAME AND CAS#	ROUTES OF ENTRY	PUBLISHED EXPOSURE LIMITS		
		CATEGORY	CONCENTRATION	SOURCE
Lead, Elemental & Inorganic Compounds 7439-92-1	Inhalation	PEL-TWA	0.05 mg/m ³	Cal/OSHA
	Ingestion	Action Limit	0.03 mg/m ³	

4.0 GENERAL HEALTH AND SAFETY REQUIREMENTS

4.1 Air Monitoring

Industrial hygiene monitoring will not be performed for the inorganic lead sampling tasks being carried out for this project. Based on Negative Exposure Assessments for inorganic lead while performing similar sampling and characterization activities carried out within the past twelve months, the airborne levels were well below the Cal/OSHA Action Level for airborne lead of 30 micrograms per cubic meter of air (30 µg/m³) (ref. T8 CCR §1532.1(d)(5)(A)).

4.2 Personal Hygiene

The Project Manager and/or SSO will establish hand-wash facilities, including clean water, hand soap, waterless hand cleaner, sanitary wipes and clean towels at the project site. All Geocon personnel, subcontractor employees, and Caltrans field inspectors and engineers leaving the project site (work zones) will clean potential impacted soils from their footwear and wash hands prior to leaving the project site (ref. T8 CCR §1527(a)(2)). In addition, the following procedures will be followed to ensure worker protection against potential exposure through ingestion:

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-in-mouth transfer and ingestion of material is prohibited in any area designated as being potentially impacted.
- Hands and face must be thoroughly washed upon leaving the work area, and before eating, drinking, or other non-project activities.
- Avoid unnecessary kneeling, sitting, leaning, or general contact with potentially impacted surfaces or with surfaces suspected of being potentially impacted by hazardous materials (i.e., puddles, mud, leachate, etc.).
- Medicine and alcohol can potentiate the effects of exposure to toxic chemicals. Personnel should take neither if the likelihood of such potentiation exists. Being under the influence of alcohol during the field activities is prohibited.

4.3 Buddy System

Project personnel are to work with another person when performing sampling tasks; the client or a subcontractor's representative can serve as the second person while the work is being conducted in the field. Under no circumstances, other than completion of paper work at the end of the day, are field personnel to work alone at the site.

4.4 Work Zone Controls

With exception to the traffic controls discussed in Section 3.3.3, formal work, as referenced above, although airborne concentrations of lead are not anticipated to exceed the 30 $\mu\text{g}/\text{m}^3$ Action Level, nevertheless, work zones (Exclusion and Support) will be established for this project to minimize risk to non-project personnel and the public. Conventional construction signs, barricades and caution tape shall be utilized to control access and egress of project workers from potential lead impacted areas (zones), maintain security, and prevent access to the project site from the public.

4.5 Code of Safe Practices

General safe work practices to be utilized by all project personnel are summarized below:

- All nonessential personnel will be kept clear of work areas.
- Adequate signs and safety devices will be installed on equipment.
- The use of entertainment and personal communication devices in the work zone shall not be allowed.
- All site employees will wear assigned personal protective equipment and level of protection as designated by the Site Safety Officer.
- Eating, drinking, smoking, chewing gum or tobacco, or application of cosmetics is allowed in designated areas only.
- At a minimum, all personnel will wash with soap and water before lunch, using the restroom, and at the end of work. The face and hands shall be washed before eating, drinking, smoking, chewing gum, applying cosmetics, etc.

- Over-the-counter drugs and prescription medications must be reported to the Site Safety Officer for clearance before an employee is allowed to work near drill rig or other heavy equipment.
- When portable electric tools and equipment are used, three-wire extension cords are required.
- Employees will advise their supervisors of any malfunctioning equipment immediately.
- An ongoing safety maintenance program for tools and equipment will be instituted. Inspections will occur on a regular basis to ensure parts are secure and intact. Defective equipment will be repaired or replaced.
- Appropriate engineering controls and equipment guards will be installed on tools and equipment. This includes seat belts & backup warning lights and signals.
- A list of names of personnel who are trained in CPR and first aid shall be available.
- Labels shall be placed on containers of hazardous materials.
- No one will work alone; the "buddy system" shall be implemented for all field work.
- Employees shall be trained to identify effects and symptoms of toxic exposure and report them immediately.
- Under no circumstances are Geocon personnel authorized to enter a confined space.

5.0 PERSONAL PROTECTIVE EQUIPMENT

The employment of the engineering controls is the preferred method of providing personal protection from hazards identified at this and any site. PPE provides acceptable secondary recourse, but only when engineering controls fail or cannot adequately eliminate exposure to the hazard. The use of PPE is intended to provide protection for onsite personnel from operational hazards that cannot be controlled through other safety procedures or work practices.

PPE required to be onsite for each worker during this project will include:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Hard Hat (without face Shield) | <input checked="" type="checkbox"/> Safety Glasses |
| <input checked="" type="checkbox"/> Leather Safety Toe Boots/Shoe | <input checked="" type="checkbox"/> Disposable inner gloves (for sample handling) |
| <input checked="" type="checkbox"/> Chem. Resistant Boots | <input checked="" type="checkbox"/> Chem. Resistant gloves |
| <input checked="" type="checkbox"/> Leather Gloves (optional) | <input type="checkbox"/> Air-Purifying Respirator |
| <input checked="" type="checkbox"/> Hearing Protection - Ear Plugs/Muffs | <input type="checkbox"/> APR Cartridges |
| <input checked="" type="checkbox"/> ANSI Approved Safety Vest | <input type="checkbox"/> Tyvek coveralls |
| <input type="checkbox"/> Other | |

Only ANSI approved PPE and NIOSH approved respirators will be assigned for use. The use applications for this equipment are summarized in the following matrix. Specific procedures are further described below.

TASKS	PPE												
	Hard Hat	Safety Glasses	Leather or Synthetic Safety Toe Boots	Chemical Resistant Boots	Disposable Inner Gloves	Chemical Resistant Gloves	Leather or Synthetic Work Gloves	Ear Plugs/Muffs	Air-Purifying Respirator	APR Cartridges	ANSI Class II Safety Vest	Tyvek Coveralls	Other
General Survey Non-Sampling Activities	X	X	X					X			X		
Soil sampling – hand auger	X	X	X		X		X	X			X		

5.1 Respiratory Protection

Respiratory protection will not be required during sampling activities. The SSO in consultation with the Project Manager will determine the need for upgrading the level of protection from “D” to “C”. If it is determined that respiratory protection is required, personnel shall don a full facepiece or half-mask air-purifying respirator fitted with a combination organic vapor (Black), or organic vapor-acid gas (Yellow) and HEPA (P100, Magenta) cartridge. If unanticipated conditions arise that warrant the use of respiratory protective equipment, the Project Manager will immediately contact the Consulting Certified Industrial Hygienist.

5.2 PPE – Level D Protection

The protective equipment to be donned by personnel working in the sampling areas (Exclusion Zones) includes:

- **Body Protection:** Body protection shall include the use of "work clothing," including long pants and long- or short-sleeved shirts, and Class II ANSI approve safety vest.
- **Head Protection:** Non-metallic hard hats shall be worn by all personnel; ref. T8 CCR §§1514 & 3385 Head Protection.
- **Hearing Protection:** Hearing protection shall include the use of foam ear inserts or muffs; ref. T8 CCR §5098.
- **Eye Protection:** Protective eye wear (i.e., safety glasses) shall be worn by personnel working in direct proximity to operating heavy equipment and highway traffic; ref. T8 CCR §§1514 & 3385 Eye Protection.
- **Hand Protection:** Appropriate hand protection shall be required for employees whose work involves unusual and excessive exposure of hands to cuts capable of causing injury or impairments; ref. T8 CCR §§1514 & 3384 Hand Protection.
- **Foot Protection:** foot protection, such as steel toed shoes or boots shall be required for employees who are exposed to foot injuries from electrical hazards, falling objects, or crushing or penetrating actions; ref. T8 CCR §§1514 & 3385 Foot Protection.

5.3 PPE – Level “C” Protection

Level D Protection may be up-graded to Level C protection if at any time the effectiveness of controls is a concern. However, Level C protection shall only be downgraded upon approval by Project Manager in consultation with the Consulting CIH.

5.4 Miscellaneous Safety Equipment

Additional protective equipment to be available to personnel working at the site includes portable radios/walkie talkies or cell phones shall accompany all personnel.

6.0 DECONTAMINATION

The Project Manager and/or SSO will establish a work zone around each sampling location. The zone will be established to minimize the potential spread of contaminated soils.

The following decontamination (cleansing/disposal) procedures for equipment and PPE have been developed with the intent of reducing the potential for the transfer of hazardous soil from the site(s). Decontamination should be performed in direct proximity to each work area. The primary principle in consideration of decontamination procedure is: Avoid unnecessary contamination of PPE and Sampling Equipment.

6.1 Equipment Decontamination

Decontamination of soil sampling equipment shall include washing with a solution of TSP, Alconox[®], or Liquinox[®] and water followed by a tap water rinse and a third rinse of deionized water between samples and before vacating the work area.

6.2 PPE Decontamination

The Project Manager and/or SSO will determine the necessity for and arrangement of decontamination appropriate to this project. Consumable PPE may be discarded as general refuse. Brush loose dust and soil from pants and shoes before entering vehicles.

Respirator decontamination, if required, shall include a wash with soap and water followed by a clean water rinse.

7.0 EMERGENCY RESPONSE PROCEDURES

7.1 Physical Injury

In the event of an accident resulting in physical injury, call emergency service personnel immediately and perform first aid commensurate with training and seriousness of the injury. Severely injured personnel are to be transported only by emergency service personnel and/or by ambulance personnel, unless a life-threatening condition is judged to exist that must be addressed immediately.

The Project Manager or designee will prepare a written report within 24 hours of the accident.

7.2 Catastrophic Event

In the event of a catastrophic event (e.g., severe personal injury, fire, explosion, and/or property damage), notify the fire/safety and rescue department immediately by dialing 911.

Any accident involving serious injury will require suspension of site activities until the Project Manager (or designee) has completed a review of the events and site conditions and authorized work to resume.

The Project Manager (or designee) will notify the nearest Cal/OSHA District Office immediately (within 8-hours) by phone or fax upon learning of a death or serious injury:

**West Covina District Office
1906 W Garvey Ave., South, Suite 200
West Covina, CA 91790**

**Tel: (626) 472-0046
Fax: (626) 472-7708**

7.3 Emergency Telephone Numbers

Fire/Police/Medical Assistance: **911**
Poison Control: **(800) 876-4766**

Other phone numbers may be available or required for emergency response at specific sites. Check with onsite representatives before mobilizing to the job site.

7.4 Project Site Address

Site Location: Route 60 Westbound Offramp Widening at Nogales Street (Post Mile 20.6), City of Industry, Los Angeles County, California

7.5 Hospital Address and Route

Hospital Reference: Whittier Hospital Medical Center
9080 Colima Road, Whittier, CA 90605
(562) 945-3561

Directions: Exit Route 60 at Nogales Street. Proceed south and turn right on Colima Road.
Proceed 7 miles and arrive at hospital (see Vicinity Map, Figure 1).

8.0 PLAN APPROVAL

The undersigned has reviewed and approved this Health and Safety Plan prepared for the SR 60 Westbound Offramp Widening Project site investigation as described herein.



 Douglas S. Krause, CIH
 Geocon Consulting Certified Industrial Hygienist
 ABIH Certification No. 2123, Exp. June 1, 2015



July 20, 2012

 Date



 Mike Conkle, PG
 Project Manager

July 23, 2012

 Date

The following personnel, including subcontractors involved with the project activities have reviewed, or received a copy of this Plan and Attachment A and agree to follow the health and safety procedures described herein.

Print Name	Title	Signature	Date
Cesar Curio	Proj. Geologist		7/24/12
Matthew Lewin	Soil tech		7/24/12
Mike Alcot	Staff Geologist		7/24/12
Sam Yanon	CT		7/25/12
Mike Alcot	Staff Geologist		7/25/12
Matthew Lewin	Soil Insp.		7.25.12
Cesar Curio	Proj. Geo		7/25/12
Sam Yanon	Geotech		7/25/12

I. SUBSTANCE IDENTIFICATION INORGANIC LEAD

- A Substance: Pure lead (Pb) is a heavy metal at room temperature and pressure and is a basic chemical element. It can combine with various other substances to form numerous lead compounds.
- B Compounds covered by the standard: The word "lead" when used in this standard means elemental lead, all inorganic lead compounds and a class of organic lead compounds called lead soaps. This standard does not apply to other organic lead compounds.
- C Uses: Exposure to lead occurs in several different occupations in the construction industry, including demolition or salvage of structures where lead or lead-containing materials are present; removal or encapsulation of lead-containing materials, new construction, alteration, repair, or renovation of structures that contain lead or materials containing lead; installation of products containing lead. In addition, there are construction related activities where exposure to lead may occur, including transportation, disposal, storage, or containment of lead or materials containing lead on construction sites, and maintenance operations associated with construction activities.
- D Permissible exposure: The permissible exposure limit (PEL) set by the standard is 50 micrograms of lead per cubic meter of air (50 µg/m³) averaged over an 8-hour workday.
- E Action level: The standard establishes an action level of 30 micrograms of lead per cubic meter of air (30 µg/m³) averaged over an 8-hour workday. The action level triggers several ancillary provisions of the standard such as exposure monitoring, medical surveillance, and training.

II. HEALTH HAZARD DATA

- A Ways in which lead enters your body. When absorbed into your body in certain doses, lead is a toxic substance. The object of the lead standard is to prevent absorption of harmful quantities of lead. The standard is intended to protect you not only from the immediate toxic effects of lead, but also from the serious toxic effects that may not become apparent until years of exposure have passed. Lead can be absorbed into your body by inhalation (breathing) and ingestion (eating). Lead (except for certain organic lead compounds not covered by the standard, such as tetraethyl lead) is not absorbed through your skin. When lead is scattered in the air as a dust, fume or mist it can be inhaled and absorbed through your lungs and upper respiratory tract. Inhalation of airborne lead is generally the most important source of occupational lead absorption. You can also absorb lead through your digestive system if lead gets into your mouth and is swallowed. If you handle food, cigarettes, chewing tobacco, or make-up which have lead on them or handle them with hands contaminated with lead, this will contribute to ingestion. A significant portion of the lead that you inhale or ingest gets into your blood stream. Once in your blood stream, lead is circulated throughout your body and stored in various organs and body tissues. Some of this lead is quickly filtered out of your body and excreted, but some remains in the blood and other tissues. As exposure to lead continues, the amount stored in your body will increase if you are absorbing more lead than your body is excreting. Even though you may not be aware of any immediate symptoms of disease, this lead stored in your tissues can be slowly causing irreversible damage, first to individual cells, then to your organs and whole body systems.
- B Effects of overexposure to lead.
1. Short term (acute) overexposure. Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. Taken in large enough doses, lead can kill you in a matter of days. A condition affecting the brain called acute encephalopathy may arise which develops quickly to seizures, coma, and death from cardiorespiratory arrest. A short term dose of lead can lead to acute encephalopathy. Short term occupational exposures of this magnitude are highly unusual, but not impossible. Similar forms of encephalopathy may, however, arise from extended, chronic exposure to lower doses of lead. There is no sharp dividing line between rapidly developing acute effects of lead, and chronic effects which take longer to acquire. Lead

adversely affects numerous body systems, and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years.

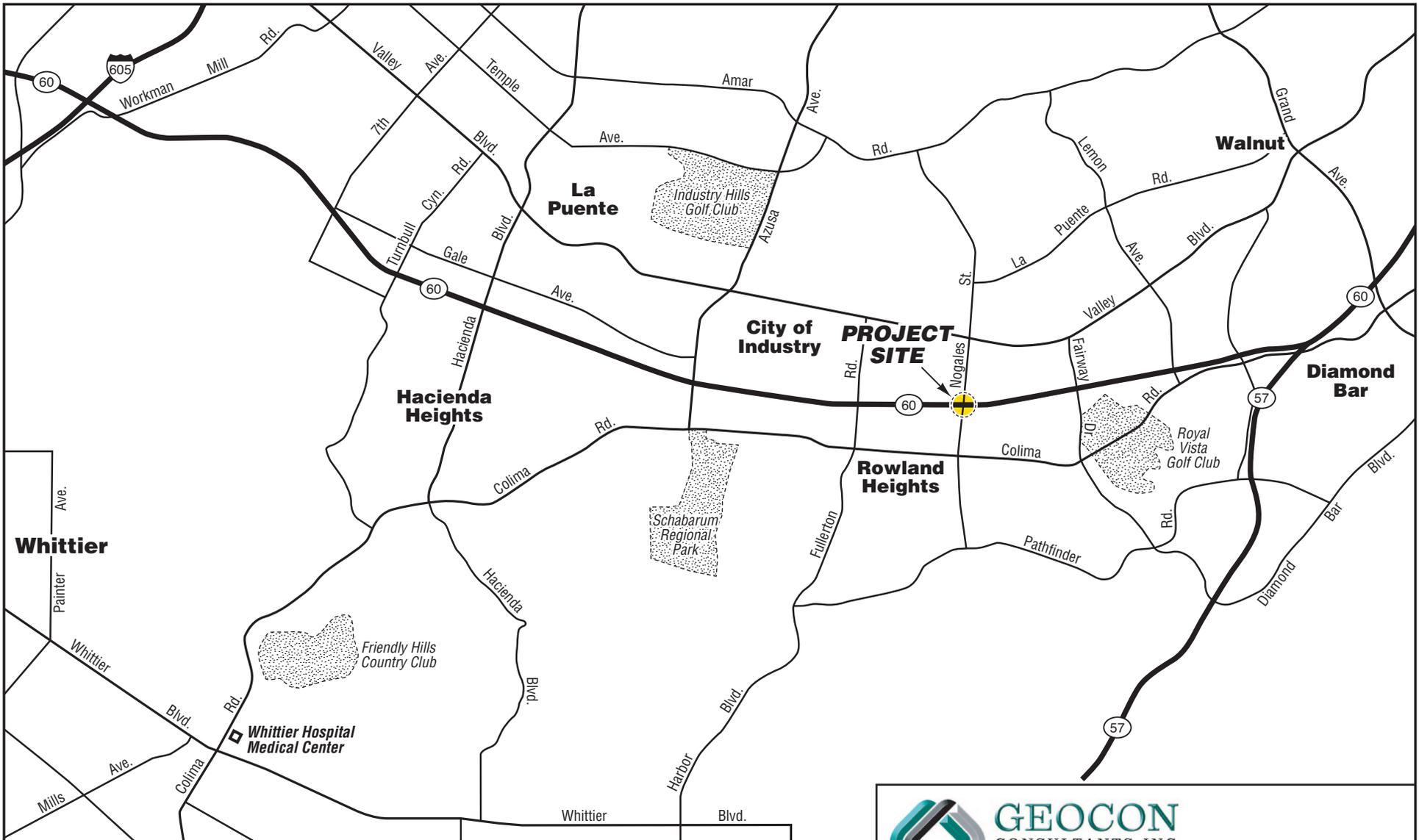
2. Long-term (chronic) overexposure. Chronic overexposure to lead may result in severe damage to your blood-forming, nervous, urinary and reproductive systems. Some common symptoms of chronic overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, hyperactivity and colic. In lead colic there may be severe abdominal pain. Damage to the central nervous system in general and the brain (encephalopathy) in particular is one of the most severe forms of lead poisoning. The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. It may arise suddenly with the onset of seizures, followed by coma, and death. There is a tendency for muscular weakness to develop at the same time. This weakness may progress to paralysis often observed as a characteristic "wrist drop" or "foot drop" and is a manifestation of a disease to the nervous system called peripheral neuropathy. Chronic overexposure to lead also results in kidney disease with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Routine laboratory tests reveal the presence of this kidney disease only after about two-thirds of kidney function is lost. When overt symptoms of urinary dysfunction arise, it is often too late to correct or prevent worsening conditions, and progression to kidney dialysis or death is possible. Chronic overexposure to lead impairs the reproductive systems of both men and women. Overexposure to lead may result in decreased sex drive, impotence and sterility in men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. Lead exposure also may result in decreased fertility, and abnormal menstrual cycles in women. The course of pregnancy may be adversely affected by exposure to lead since lead crosses the placental barrier and poses risks to developing fetuses. Children born of parents either one of whom were exposed to excess lead levels are more likely to have birth defects, mental retardation, behavioral disorders or die during the first year of childhood. Overexposure to lead also disrupts the blood-forming system resulting in decreased hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor and fatigability as a result of decreased oxygen carrying capacity in the blood.
3. Exposure to lead throughout a working lifetime requires that a worker's blood lead level (BLL, also expressed as PbB) be maintained at or below forty micrograms per deciliter of whole blood (40 µg/dl). The blood lead levels of workers (both male and female workers) who intend to have children should be maintained below 30 µg/dl to minimize adverse reproductive health effects to the parents and to the developing fetus. The measurement of your blood lead level (BLL) is the most useful indicator of the amount of lead being absorbed by your body. Blood lead levels are most often reported in units of milligrams (mg) or micrograms (ug) of lead (1 mg=1000 µg) per 100 grams (100g), 100 milliliters (100 ml) or deciliter (dl) of blood. These three units are essentially the same. Sometime BLLs are expressed in the form of mg% or µg%. This is a shorthand notation for 100g, 100 ml, or dl. (Reference to BLL measurements in this standard are expressed in the form of µg/dl.)

BLL measurements show the amount of lead circulating in your blood stream, but do not give any information about the amount of lead stored in your various tissues. BLL measurements merely show current absorption of lead, not the effect that lead is having on your body or the effects that past lead exposure may have already caused. Past research into lead-related diseases, however, has focused heavily on associations between BLLs and various diseases. As a result, your BLL is an important indicator of the likelihood that you will gradually acquire a lead-related health impairment or disease.

Once your blood lead level climbs about 40 µg/dl, your risk of disease increases. There is a wide variability of individual response to lead, thus it is difficult to say that a particular BLL in a given person will cause a particular effect. Studies have associated fatal encephalopathy with BLLs as low as 150 µg/dl. Other studies have shown other forms of diseases in some workers with BLLs well below 80 µg/dl. Your BLL is a crucial indicator of the risks to your health, but one other factor is also extremely important. This factor is the length of time you have had elevated BLLs. The longer you have an elevated BLL, the greater the risk that large quantities of lead are being gradually stored in your organs and tissues (body burden). The greater your overall body burden, the greater the chances of substantial permanent damage. The best way to prevent all forms of lead-related impairments and diseases -- both short term and long term -- is to maintain your BLL below 40 µg/dl. The provisions of the standard are designed with this end in mind.

Your employer has prime responsibility to assure that the provisions of the standard are complied with both by the company and by individual workers. You, as a worker, however, also have a responsibility to assist your employer in complying with the standard. You can play a key role in protecting your own health by learning about the lead hazards and their control, learning what the standard requires, following the standard where it governs your own actions, and seeing that your employer complies with provisions governing his or her actions.

4. Reporting signs and symptoms of health problems. You should immediately notify your employer if you develop signs or symptoms associated with lead poisoning or if you desire medical advice concerning the effects of current or past exposure to lead or your ability to have a healthy child. You should also notify your employer if you have difficulty breathing during a respirator fit test or while wearing a respirator. In each of these cases, your employer must make available to you appropriate medical examinations or consultations. These must be provided at no cost to you and at a reasonable time and place. The standard contains a procedure whereby you can obtain a second opinion by a physician of your choice if your employer selected the initial physician.



GEOCON
CONSULTANTS, INC.

3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA. 91504
PHONE 818.841.8388 - FAX 818.841.1704

State Route 60 at Nogales Street (Post Mile 20.6)

City of Industry
Los Angeles County, California

VICINITY MAP

GEOCON Proj. No. S9500-06-06

EA No. 07-4H9001

July 2012

Figure 1

APPENDIX

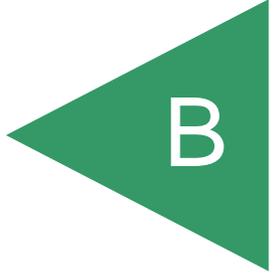




Photo 1 – Boring 1181-101



Photo 2 – Boring 1181-102



GEOCON
CONSULTANTS, INC.

3303 N. SAN FERNANDO BLVD. – SUITE 100 – BURBANK, CA. 91504
PHONE 818.841.8388 – FAX 818.841.1704

SITE PHOTOS 1 and 2

ADL Soil Investigation
Route 60 at Nogales Street
Los Angeles County, California

S9500-06-06

September 2012



Photo 3 – Boring 1181-103



Photo 4 – Boring 1181-104



GEOCON
CONSULTANTS, INC.

3303 N. SAN FERNANDO BLVD. – SUITE 100 – BURBANK, CA. 91504
PHONE 818.841.8388 – FAX 818.841.1704

SITE PHOTOS 3 and 4

ADL Soil Investigation
Route 60 at Nogales Street
Los Angeles County, California

S9500-06-06

September 2012



Photo 5 – Boring 1181-105



Photo 6 – Boring 1181-106



GEOCON
CONSULTANTS, INC.

3303 N. SAN FERNANDO BLVD. – SUITE 100 – BURBANK, CA. 91504
PHONE 818.841.8388 – FAX 818.841.1704

SITE PHOTOS 5 and 6

ADL Soil Investigation
Route 60 at Nogales Street
Los Angeles County, California

S9500-06-06

September 2012



Photo 7 – Boring 1181-107



Photo 8 – Boring 1181-108



GEOCON
CONSULTANTS, INC.

3303 N. SAN FERNANDO BLVD. – SUITE 100 – BURBANK, CA. 91504
PHONE 818.841.8388 – FAX 818.841.1704

SITE PHOTOS 7 and 8

ADL Soil Investigation
Route 60 at Nogales Street
Los Angeles County, California

S9500-06-06

September 2012



Photo 9 – Boring 1181-109



Photo 10 – Boring 1181-110



GEOCON
CONSULTANTS, INC.

3303 N. SAN FERNANDO BLVD. – SUITE 100 – BURBANK, CA. 91504
PHONE 818.841.8388 – FAX 818.841.1704

SITE PHOTOS 9 and 10

ADL Soil Investigation
Route 60 at Nogales Street
Los Angeles County, California

S9500-06-06

September 2012



Photo 11 – Boring 1181-111



Photo 12 – Boring 1181-112



GEOCON
CONSULTANTS, INC.

3303 N. SAN FERNANDO BLVD. – SUITE 100 – BURBANK, CA. 91504
PHONE 818. 841. 8388 – FAX 818. 841. 1704

SITE PHOTOS 11 and 12

ADL Soil Investigation
Route 60 at Nogales Street
Los Angeles County, California

S9500-06-06

September 2012



Photo 13 – Boring 1181-113



Photo 14 – Boring 1181-114



GEOCON
CONSULTANTS, INC.

3303 N. SAN FERNANDO BLVD. – SUITE 100 – BURBANK, CA. 91504
PHONE 818.841.8388 – FAX 818.841.1704

SITE PHOTOS 13 and 14

ADL Soil Investigation
Route 60 at Nogales Street
Los Angeles County, California

S9500-06-06

September 2012



Photo 15 – Boring 1181-115



Photo 16 – Boring 1181-116



GEOCON
CONSULTANTS, INC.

3303 N. SAN FERNANDO BLVD. – SUITE 100 – BURBANK, CA. 91504
PHONE 818.841.8388 – FAX 818.841.1704

SITE PHOTOS 15 and 16

ADL Soil Investigation
Route 60 at Nogales Street
Los Angeles County, California

S9500-06-06

September 2012

GEOCON CONSULTANTS, INC.
 CALTRANS CONTRACT NO. 07A2730A01
 TASK ORDER NO. 27
 GEOCON PROJECT S9500-06-06
 PROJECT FIELD LOG

Date: 7/24/12

PROJECT NAME: 60 Westbound Off-Ramp Widening Project			
CALTRANS ONSITE REP: Samuel Yang		GEOCON PROJECT MANAGER: MIKE CONKLE	
FIELD ACTIVITY:		SUBCONTRACTOR:	
PREVAILING WAGE	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	MILEAGE Start:	End:
0615	Mike Alcott and Matthew Leun arrived at the site, Sam Yang at Caltrans on site.		
0700	Cesar Larios arrived at the site.		
0715	Met with Sam Yang, of Caltrans and held a health and safety meeting.		
0720	Began to set up to start sampling.		
0735	Began to sample borings 1181-101 and 1181-102		
	Cesar Larios began to EPS the borings		
	cordons		
0822	Began to collect soil samples at Boring 1181-101		
0830	Began to collect soil samples at Boring 1181-102		
0836	Began to collect soil samples at Boring 1181-103		
0836	Began to collect soil samples at boring 1181-103. - Completed sampling at 0851		
0858	Began to sample boring 1181-104		
0903	Completed sampling boring 1181-104		
0917	Began to sample boring 1181-105, 1181-107 and 1181-108 and 1181-109		
1000	Completed sampling boring 1181-107		
	Sampled boring 1181-105 to 1 foot and 1181-108 to 3 feet, boring 1181-109 to 1 foot		
1130	Took a 30 min lunch break		
1200	Back to site and continued to sample		
<u>Employee Name</u>		<u>Field Time</u>	
Mike Alcott		8:00	
Cesar Larios		8:00	
<u>Employee Name</u>		<u>Field Time</u>	
Matthew Leun		8:00	
PREPARED BY:		APPROVED BY:	

GEOCON CONSULTANTS, INC.
CALTRANS CONTRACT NO. 07A2730A01
TASK ORDER NO. 27
GEOCON PROJECT S9500-06-06
PROJECT FIELD LOG

Date: 07/28/12

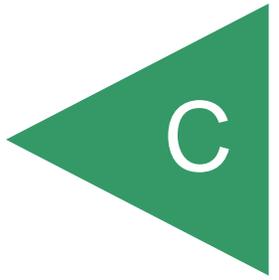
PROJECT NAME: 60 Westbound Off-Ramp Widening Project			
CALTRANS ONSITE REP: Samuel Yang		GEOCON PROJECT MANAGER: MIKE CONKLE	
FIELD ACTIVITY:		SUBCONTRACTOR:	
PREVAILING WAGE	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	MILEAGE Start:	End:
0615	Mike Alcott only, Matthew Leum, on site.		
0700	Sam Yang of Caltrans on site		
0705	Cesar Landa on site		
0710	Held a health and safety meeting for the day and signed the health and safety plans.		
0725	Mike and Matt began working on boring 1181-106 again to collect soil samples.		
0820	Completed collecting all the soil samples at boring 106. Cesar worked on boring 1181-111		
0909	Cesar completed sampling boring 1181-		
0835	Mike Alcott began working on boring 1181-112		
0931	Completed sampling boring 1181-112		
0850	Matt worked on boring 1181-113		
0951	Matt completed sampling boring 1181-113		
0939	Cesar worked began sampling boring 1181-115		
0959	Completed sampling boring 1181-115		
1045	Matt, Mike and Cesar collectively worked on boring 1181-116		
1135	Completed sampling boring 1181-116		
1145	Matt took a lunch break		
1225	Scale to the site, Sam Yang of Caltrans took off for the day. Lab was on site to pick-up soil		
Employee Name		Field Time	
Mike Alcott		7:00	
Cesar Landa		7:00	
Employee Name		Field Time	
Matthew Leum		7:00	
PREPARED BY:		APPROVED BY:	

GEOCON CONSULTANTS, INC.
CALTRANS CONTRACT NO. 07A2730A01
TASK ORDER NO. 27
GEOCON PROJECT S9500-06-06
PROJECT FIELD LOG

Date: 07/25/12

PROJECT NAME: 60 Westbound Off-Ramp Widening Project			
CALTRANS ONSITE REP: Samuel Yang		GEOCON PROJECT MANAGER: MIKE CONKLE	
FIELD ACTIVITY:		SUBCONTRACTOR:	
PREVAILING WAGE <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		MILEAGE Start: _____ End: _____	
<p style="margin-left: 20px;"><i>Samples.</i></p> <p>1255 Mike Alcott began to take pictures of all the bany locations.</p> <p>1330 completely finished all pictures</p> <p>1336 Mike Matt Reser left site for the day</p> <p>1430 Mike Reser and Matt arrived back at the office.</p> <p>All bany locations were logged and GPS</p>			
Employee Name		Field Time	
PREPARED BY:		APPROVED BY:	

APPENDIX



August 01, 2012

Mike Conkle
Geocon Consultants, Inc.
3303 N. San Fernando Blvd., Suite 100
Burbank, CA 91504
Tel: (818) 841-8388
Fax:(818) 841-1704



Re: ATL Work Order Number : 1202646

Client Reference : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06

Enclosed are the results for sample(s) received on July 25, 2012 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

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

Sincerely,

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank , CA 91504

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06

Report To : Mike Conkle

Reported : 08/01/2012

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
EB-072412-1	1202646-01	Water	7/24/12 8:18	7/25/12 12:55
EB-072412-2	1202646-02	Water	7/24/12 15:00	7/25/12 12:55
FB-072412-1	1202646-03	Water	7/24/12 12:35	7/25/12 12:55
FB-072412-2	1202646-04	Water	7/24/12 15:36	7/25/12 12:55
EB-072512-3	1202646-05	Water	7/25/12 7:30	7/25/12 12:55
FB-072512-3	1202646-06	Water	7/25/12 7:30	7/25/12 12:55

CASE NARRATIVE

Results were J-flagged. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100
Burbank, CA 91504

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06

Report To : Mike Conkle

Reported : 08/01/2012

Lead by ICP-AES EPA 6010B

Analyte: Lead

Analyst: KK

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time	Notes
									Analyzed	
1202646-01	EB-072412-1	ND	mg/L	0.005	0.003	1	B2G0601	07/26/2012	07/30/12 09:49	
1202646-02	EB-072412-2	ND	mg/L	0.005	0.003	1	B2G0601	07/26/2012	07/30/12 09:51	
1202646-03	FB-072412-1	ND	mg/L	0.005	0.003	1	B2G0601	07/26/2012	07/30/12 10:04	
1202646-04	FB-072412-2	ND	mg/L	0.005	0.003	1	B2G0601	07/26/2012	07/30/12 10:06	
1202646-05	EB-072512-3	ND	mg/L	0.005	0.003	1	B2G0601	07/26/2012	07/30/12 10:08	
1202646-06	FB-072512-3	ND	mg/L	0.005	0.003	1	B2G0601	07/26/2012	07/30/12 10:10	



Geocon Consultants, Inc.
 3303 N. San Fernando Blvd., Suite 100
 Burbank, CA 91504

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06
 Report To : Mike Conkle
 Reported : 08/01/2012

QUALITY CONTROL SECTION

Lead by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B2G0601 - EPA 3010A									
Blank (B2G0601-BLK1)					Prepared: 7/26/2012 Analyzed: 7/30/2012				
Lead	ND	0.005							NR
LCS (B2G0601-BS1)					Prepared: 7/26/2012 Analyzed: 7/30/2012				
Lead	0.987544	0.005	1.00000		98.8	80 - 120			
Duplicate (B2G0601-DUP1)					Prepared: 7/26/2012 Analyzed: 7/30/2012				
Lead	ND	0.005		ND					20
Matrix Spike (B2G0601-MS1)					Prepared: 7/26/2012 Analyzed: 7/30/2012				
Lead	2.26979	0.005	2.50000	ND	90.8	78 - 117			
Matrix Spike Dup (B2G0601-MSD1)					Prepared: 7/26/2012 Analyzed: 7/30/2012				
Lead	2.39754	0.005	2.50000	ND	95.9	78 - 117	5.47		20
Batch S2G0369 - B2G0410									
Instrument Blank (S2G0369-IBL1)					Prepared: 7/30/2012 Analyzed: 7/30/2012				
Lead	ND	1.0							NR



Geocon Consultants, Inc.

3303 N. San Fernando Blvd., Suite 100

Burbank , CA 91504

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06

Report To : Mike Conkle

Reported : 08/01/2012

Notes and Definitions

ND Analyte not detected at or above reporting limit
PQL Practical Quantitation Limit
MDL Method Detection Limit
NR Not Reported
RPD Relative Percent Difference

CHAIN OF CUSTODY RECORD

 <p>Advanced Technology Laboratories 3275 Walnut Avenue Signal Hill, CA 90755 Tel: (562) 989-4045 • Fax: (562) 989-4040</p>		FOR LABORATORY USE ONLY											
		P.O. #: _____		Method of Transport Client <input type="checkbox"/> ATL <input checked="" type="checkbox"/> CA OverN <input type="checkbox"/> FedEx <input type="checkbox"/> Other: _____		Sample Condition Upon Receipt 1. CHILLED ³⁻⁴ <input checked="" type="checkbox"/> N <input type="checkbox"/> 4. SEALED <input type="checkbox"/> N <input type="checkbox"/> 2. HEADSPACE (VOA) Y <input type="checkbox"/> N <input type="checkbox"/> 5. # OF SPLS MATCH COC Y <input type="checkbox"/> N <input type="checkbox"/> 3. CONTAINER INTACT Y <input type="checkbox"/> N <input type="checkbox"/> 6. PRESERVED Y <input type="checkbox"/> N <input type="checkbox"/>							
Client: Geocon			Address: 3303 N. San Fernando Blvd Suite 100			Tel: 818-841-8388							
Attention: Mike Conkle			City: Burbank			State: CA Zip Code: 91504							
Project Name: Rt. 60 WB Off-Ramp Widening at Nogales Street			Project #: S9500-06-06			Sampler: <u>Mike Alcaraz</u> (Signature)							
Relinquished by: (Signature and Printed Name) <u>Mike Alcaraz</u>		Date: <u>7/25/12</u>		Time: <u>12:55</u>		Received by: (Signature and Printed Name) <u>Mike Conkle</u>		Date: <u>7/25/12</u> Time: <u>12:55</u>					
Relinquished by: (Signature and Printed Name) <u>[Signature]</u>		Date: <u>7/25/12</u>		Time: <u>13:45</u>		Received by: (Signature and Printed Name) <u>[Signature]</u>		Date: <u>7/25/12</u> Time: <u>13:45</u>					
Relinquished by: (Signature and Printed Name) _____		Date: _____		Time: _____		Received by: (Signature and Printed Name) _____		Date: _____ Time: _____					
I hereby authorize ATL to perform the work indicated below: Project Mgr /Submitter: Mike Conkle <u>7/25/12</u> <u>Mike Conkle</u> (Signature) Date			Send Report To: Attn: Mike Conkle Co: Geocon Consultants Addr: 3303 North San Fernando Blvd Suite 100 City: Burbank State: CA Zip: 91504			Bill To: Attn: Mike Conkle Co: Geocon Consultants Addr: 3303 North San Fernando Blvd Suite 100 City: Burbank State: CA Zip: 91504			Special Instructions/Comments: CT Contract 07A2730 FILTER AND PRESEVE WATER SAMPLES AT LAB.				
Sample/Records - Archival & Disposal Unless otherwise requested by client, all samples will be disposed 45 days after receipt and records will be disposed 1 year after submittal of final report. Storage Fees (applies when storage is requested): ■ Sample :\$2.00 / sample /mo (after 45 days) ■ Records: \$1 /ATL workorder /mo (after 1 year)				Circle or Add Analysis(es) Requested				SPECIFY APPROPRIATE MATRIX SOIL _____ WATER _____ GROUND WATER _____ WASTEWATER _____				QA/QC RTNE <input type="checkbox"/> CT <input type="checkbox"/> SWRCB <input type="checkbox"/> Logcode _____ OTHER _____ REMARKS _____	
ITEM	LAB USE ONLY:		Sample Description							Container(s)		PRESERVATION	
	Lab No.	Sample ID / Location	Date	Time	Lead	Soil	Water	Ground Water	Wastewater				TAT
	1202046-01	1844-100 FB-072412-1	7/24/12	0618	x					x	E	1 P	
	2	1811-100 FB-072412-2	7/24/12	1500	x					x	E	1 P	
	3	1844-100 FB-072412-1	7/24/12	1235	x					x	E	1 P	
	4	1844-100 FB-072412-2	7/24/12	1536	x					x	E	1 P	
	5	1844-100 FB-072512-4	7/25/12	0730	x					x	E	1 P	
	6	FB-072512-3	7/25/12	0730									

■ TAT starts 8AM the following day if samples received after 3 PM
 TAT: A = Overnight ≤ 24 hrs B = Emergency Next Workday C = Critical 2 Workdays D = Urgent 3 Workdays E = Routine 7 Workdays
 Preservatives: H=HCl N=HNO₃ S=H₂SO₄ C=4°C
 Container Types: T=Tube V=VOA L=Liter P=Pint J=Jar B=Tedlar G=Glass P=Plastic M=Metal
 Z=Zn(AC)₂ O=NaOH T=Na₂S₂O₃

Diane Galvan

From: Carmen Aguila
Sent: Friday, July 27, 2012 9:23 AM
To: Diane Galvan
Cc: Ed Caballero; Eddie Rodriguez; Edgar Morrison
Subject: FW: Rt. 60 WB Off-Ramp Widening at Nogales Street, S9500-06-06
Attachments: Corrected Chain of Custody.pdf

From: Michael Akoto [<mailto:akoto@geoconinc.com>]
Sent: Friday, July 27, 2012 8:12 AM
To: Carmen Aguila
Subject: RE: Rt. 60 WB Off-Ramp Widening at Nogales Street, S9500-06-06

Hi Carmen,
Please find attached the corrected chain of custody for FB-072512-3 sample.
Thanks

From: Carmen Aguila [<mailto:Carmen@atlglobal.com>]
Sent: Thursday, July 26, 2012 9:43 AM
To: Michael Akoto
Cc: Diane Galvan
Subject: Rt. 60 WB Off-Ramp Widening at Nogales Street, S9500-06-06

Hi Mike,

Sample FB-072512-3 is not marked for analysis on the coc. Please confirm that this needs to be analyze. Attached is the coc.

Thanks,

Carmen Aguila
Sample Control



Advanced Technology Laboratories
www.atlglobal.com
Tel: (562) 989-4045 ext. 237
Fax: (562) 989-4040

Advanced Technology Laboratories is a full-service environmental lab providing organic and inorganic analyses of soil, water, wastewater, storm water and hazardous waste samples. ATL is accredited by the State of California, NELAP and State of Oregon (Air) and holds various SBE, DBE and MBE certificates and a USDA soil permit. ATL takes pride in providing our customers with quick turnaround time, excellent customer service and defensible data while offering very competitive rates. *Advanced Technology Labs - Your Partner for Quality Environmental Testing*

This message is intended for the use of the individual or entity to which it is addressed. This may contain information that is privileged, confidential, and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient, or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone and delete the original message. Thank you.

CHAIN OF CUSTODY RECORD

Page of



Advanced Technology Laboratories
3275 Walnut Avenue
Signal Hill, CA 90755
Tel: (562) 989-4043 • Fax: (562) 989-4040

FOR LABORATORY USE ONLY

Method of Transport: Client ATL ATL CA OverN FedEx Other: _____

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

Address: 3303 N. San Fernando Blvd Suite 100
City: Burbank State: CA Zip Code: 91504
Tel: 818-841-8388 Fax: 818-841-1704

Project Name: Rt. 60 WB Off-Ramp Widening at Nogales Street
Project #: S9600-06-06
Sampler: Mike Conkle
Date: 7/25/12 Time: 12:55
Received by: (Signature and Printed Name) Mike Conkle
Date: 7/25/12 Time: 12:55
Relinquished by: (Signature and Printed Name) Mike Conkle
Date: 7/25/12 Time: 12:55
Relinquished by: (Signature and Printed Name) Mike Conkle
Date: 7/25/12 Time: 12:55

Special Instructions/Comments: CT Contract 07AZ730
FILTER AND PRESERVE WATER SAMPLES AT LAB.

Bill To: Attn: Mike Conkle
Co: Geocoin Consultants
Address: 3303 North San Fernando Blvd Suite 100
City: Burbank State: CA Zip: 91504

Send Report To: Attn: Mike Conkle
Co: Geocoin Consultants
Address: 3303 North San Fernando Blvd Suite 100
City: Burbank State: CA Zip: 91504

I hereby authorize ATL to perform the work indicated below:
Project Mgr./Submitter: Mike Conkle
Signature: *Mike Conkle* Date: 7/25/12

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

LAB USE ONLY:	Lab No.	Sample ID / Location	Date	Time	Lead	SPECIFY APPROPRIATE MATRIX		CONTAINERIZATION	TAT	Type	REMARKS
						SOIL	WATER				
	1811-100	FB-07247-1	7/25/12	0618	x				E	P	
	1811-100	FB-07247-2	7/25/12	0500	x				E	P	
	1811-100	FB-07247-1	7/25/12	0735	x				E	P	
	1811-100	FB-07247-2	7/25/12	0536	x				E	P	
	1811-100	FB-072512-3	7/25/12	0730	x				E	P	
	1811-100	FB-072512-3	7/25/12	0730	x				E	P	

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

TAT: A= Overnight 5-24 hrs B= Emergency Next Workday C= Critical 2 Workdays D= Urgent 3 Workdays E= Routine 7 Workdays

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

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



August 15, 2012

Duane Paul
AMEC Environment & Infrastructure, Inc.
121 Innovation Drive, Suite 200
Irvine, CA 92617
Tel: (949) 574-7084
Fax: (949) 642-4474



Re: ATL Work Order Number : 1202647
Client Reference : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06

Enclosed are the results for sample(s) received on July 25, 2012 by Advanced Technology Laboratories. The sample(s) are tested for the parameters as indicated on the enclosed chain of custody in accordance with applicable laboratory certifications. The laboratory results contained in this report specifically pertains to the sample(s) submitted.

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

Sincerely,

A handwritten signature in black ink, appearing to read 'E. Rodriguez', is written over a white background.

Eddie Rodriguez
Laboratory Director

The cover letter and the case narrative are an integral part of this analytical report and its absence renders the report invalid. The report cannot be reproduced without written permission from the client and Advanced Technology Laboratories.

3275 Walnut Avenue, Signal Hill, CA 90755 • Tel: 562-989-4045 • Fax: 562-989-4040
www.atlglobal.com



AMEC Environment & Infrastructure, Inc.

121 Innovation Drive, Suite 200

Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06

Report To : Duane Paul

Reported : 08/15/2012

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
1181-101-0.5	1202647-01	Soil	7/24/12 8:22	7/25/12 12:55
1181-101-1.5	1202647-02	Soil	7/24/12 8:29	7/25/12 12:55
1181-102-0.5	1202647-03	Soil	7/24/12 8:30	7/25/12 12:55
1181-102-1.5	1202647-04	Soil	7/24/12 8:36	7/25/12 12:55
1181-103-0.5	1202647-05	Soil	7/24/12 8:36	7/25/12 12:55
1181-103-1.5	1202647-06	Soil	7/24/12 8:51	7/25/12 12:55
1181-104-0.5	1202647-07	Soil	7/24/12 8:58	7/25/12 12:55
1181-104-1.5	1202647-08	Soil	7/24/12 9:03	7/25/12 12:55
1181-105-1.0	1202647-09	Soil	7/24/12 9:17	7/25/12 12:55
1181-105-3.0	1202647-10	Soil	7/24/12 13:01	7/25/12 12:55
1181-105-5.0	1202647-11	Soil	7/24/12 13:16	7/25/12 12:55
1181-107-1.0	1202647-12	Soil	7/24/12 9:19	7/25/12 12:55
1181-107-3.0	1202647-13	Soil	7/24/12 9:48	7/25/12 12:55
1181-107-5.0	1202647-14	Soil	7/24/12 10:00	7/25/12 12:55
1181-108-1.0	1202647-15	Soil	7/24/12 10:32	7/25/12 12:55
1181-108-3.0	1202647-16	Soil	7/24/12 11:25	7/25/12 12:55
1181-108-5.0	1202647-17	Soil	7/24/12 13:01	7/25/12 12:55
1181-109-1.0	1202647-18	Soil	7/24/12 10:33	7/25/12 12:55
1181-109-3.0	1202647-19	Soil	7/24/12 11:21	7/25/12 12:55
1181-109-5.0	1202647-20	Soil	7/24/12 12:30	7/25/12 12:55
1181-110-1.0	1202647-21	Soil	7/24/12 14:24	7/25/12 12:55
1181-110-3.0	1202647-22	Soil	7/24/12 14:49	7/25/12 12:55
1181-110-5.0	1202647-23	Soil	7/24/12 15:15	7/25/12 12:55
1181-114-1.0	1202647-24	Soil	7/24/12 13:19	7/25/12 12:55
1181-114-3.0	1202647-25	Soil	7/24/12 13:44	7/25/12 12:55
1181-114-5.0	1202647-26	Soil	7/24/12 14:08	7/25/12 12:55
1181-106-1.0	1202647-27	Soil	7/25/12 7:33	7/25/12 12:55
1181-106-3.0	1202647-28	Soil	7/25/12 8:08	7/25/12 12:55
1181-106-5.0	1202647-29	Soil	7/25/12 8:20	7/25/12 12:55
1181-111-1.0	1202647-30	Soil	7/25/12 7:35	7/25/12 12:55
1181-111-3.0	1202647-31	Soil	7/25/12 7:45	7/25/12 12:55
1181-111-5.0	1202647-32	Soil	7/25/12 9:09	7/25/12 12:55
1181-112-1.0	1202647-33	Soil	7/25/12 8:41	7/25/12 12:55
1181-112-3.0	1202647-34	Soil	7/25/12 9:25	7/25/12 12:55



AMEC Environment & Infrastructure, Inc.
121 Innovation Drive, Suite 200
Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06
Report To : Duane Paul
Reported : 08/15/2012

1181-112-5.0	1202647-35	Soil	7/25/12 9:31	7/25/12 12:55
1181-113-1.0	1202647-36	Soil	7/25/12 8:50	7/25/12 12:55
1181-113-3.0	1202647-37	Soil	7/25/12 9:23	7/25/12 12:55
1181-113-5.0	1202647-38	Soil	7/25/12 9:51	7/25/12 12:55
1181-115-1.0	1202647-39	Soil	7/25/12 9:31	7/25/12 12:55
1181-115-3.0	1202647-40	Soil	7/25/12 9:47	7/25/12 12:55
1181-115-5.0	1202647-41	Soil	7/25/12 9:59	7/25/12 12:55
1181-116-1.0	1202647-42	Soil	7/25/12 10:45	7/25/12 12:55
1181-116-3.0	1202647-43	Soil	7/25/12 11:15	7/25/12 12:55
1181-116-5.0	1202647-44	Soil	7/25/12 11:35	7/25/12 12:55

CASE NARRATIVE

Results were J-flagged. "J" is used to flag those results that are between the PQL (Practical Quantitation Limit) and the calculated MDL (Method Detection Limit). Results that are "J" flagged are estimated values since it becomes difficult to accurately quantitate the analyte near the MDL.



AMEC Environment & Infrastructure, Inc.

121 Innovation Drive, Suite 200
Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06

Report To : Duane Paul
Reported : 08/15/2012

Lead by ICP-AES EPA 6010B

Analyte: Lead

Analyst: SB

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time		Notes
									Analized		
1202647-01	1181-101-0.5	140	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 11:51		
1202647-02	1181-101-1.5	36	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 11:52		
1202647-03	1181-102-0.5	120	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 11:53		
1202647-04	1181-102-1.5	21	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 11:53		
1202647-05	1181-103-0.5	97	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 11:54		
1202647-06	1181-103-1.5	21	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 11:55		
1202647-07	1181-104-0.5	95	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 11:58		
1202647-08	1181-104-1.5	60	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 11:58		
1202647-09	1181-105-1.0	52	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 11:59		
1202647-10	1181-105-3.0	9.0	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 12:01		
1202647-11	1181-105-5.0	21	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 12:02		
1202647-12	1181-107-1.0	87	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 12:02		
1202647-13	1181-107-3.0	13	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 12:03		
1202647-14	1181-107-5.0	7.6	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 12:04		
1202647-15	1181-108-1.0	31	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 12:07		
1202647-16	1181-108-3.0	30	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 12:07		
1202647-17	1181-108-5.0	19	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 12:08		
1202647-18	1181-109-1.0	38	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 12:09		
1202647-19	1181-109-3.0	10	mg/kg	1.0	0.18	1	B2G0609	07/26/2012	07/27/12 12:09		
1202647-20	1181-109-5.0	5.8	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:17		
1202647-21	1181-110-1.0	49	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:18		
1202647-22	1181-110-3.0	7.1	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:19		
1202647-23	1181-110-5.0	2.7	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:20		
1202647-24	1181-114-1.0	6.7	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:20		
1202647-25	1181-114-3.0	7.8	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:21		
1202647-26	1181-114-5.0	12	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:22		
1202647-27	1181-106-1.0	35	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:22		
1202647-28	1181-106-3.0	15	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:23		
1202647-29	1181-106-5.0	10	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:26		
1202647-30	1181-111-1.0	61	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:28		



AMEC Environment & Infrastructure, Inc.
121 Innovation Drive, Suite 200
Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06
Report To : Duane Paul
Reported : 08/15/2012

Lead by ICP-AES EPA 6010B

Analyte: Lead

Analyst: SB

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1202647-31	1181-111-3.0	7.8	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:29	
1202647-32	1181-111-5.0	8.3	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:29	
1202647-33	1181-112-1.0	91	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:30	
1202647-34	1181-112-3.0	9.7	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:31	
1202647-35	1181-112-5.0	5.2	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:31	
1202647-36	1181-113-1.0	120	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:32	
1202647-37	1181-113-3.0	4.3	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:35	
1202647-38	1181-113-5.0	5.7	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:36	
1202647-39	1181-115-1.0	17	mg/kg	1.0	0.18	1	B2G0610	07/26/2012	07/27/12 12:36	
1202647-40	1181-115-3.0	51	mg/kg	1.0	0.18	1	B2G0611	07/26/2012	07/27/12 12:41	
1202647-41	1181-115-5.0	22	mg/kg	1.0	0.18	1	B2G0611	07/26/2012	07/27/12 12:42	
1202647-42	1181-116-1.0	77	mg/kg	1.0	0.18	1	B2G0611	07/26/2012	07/27/12 12:45	
1202647-43	1181-116-3.0	8.0	mg/kg	1.0	0.18	1	B2G0611	07/26/2012	07/27/12 12:45	
1202647-44	1181-116-5.0	28	mg/kg	1.0	0.18	1	B2G0611	07/26/2012	07/27/12 12:46	



AMEC Environment & Infrastructure, Inc.
 121 Innovation Drive, Suite 200
 Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06
 Report To : Duane Paul
 Reported : 08/15/2012

STLC Lead by AA (Direct Aspiration) by EPA 7420

Analyte: Lead

Analyst: VV

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time	Notes
									Analyzed	
1202647-01	1181-101-0.5	7.8	mg/L	0.50	0.26	1	B2H0039	08/02/2012	08/07/12 16:04	
1202647-03	1181-102-0.5	9.9	mg/L	1.0	0.52	2	B2H0039	08/02/2012	08/07/12 16:05	
1202647-05	1181-103-0.5	6.0	mg/L	0.50	0.26	1	B2H0039	08/02/2012	08/07/12 16:05	
1202647-07	1181-104-0.5	5.1	mg/L	0.50	0.26	1	B2H0039	08/02/2012	08/07/12 16:05	
1202647-08	1181-104-1.5	1.9	mg/L	0.50	0.26	1	B2H0039	08/02/2012	08/07/12 16:06	
1202647-09	1181-105-1.0	2.3	mg/L	0.50	0.26	1	B2H0039	08/02/2012	08/07/12 16:06	
1202647-12	1181-107-1.0	4.7	mg/L	0.50	0.26	1	B2H0039	08/02/2012	08/07/12 16:06	
1202647-30	1181-111-1.0	2.9	mg/L	0.50	0.26	1	B2H0039	08/02/2012	08/07/12 16:07	
1202647-33	1181-112-1.0	4.1	mg/L	0.50	0.26	1	B2H0039	08/02/2012	08/07/12 16:07	
1202647-36	1181-113-1.0	6.6	mg/L	0.50	0.26	1	B2H0039	08/02/2012	08/07/12 16:08	
1202647-40	1181-115-3.0	2.3	mg/L	0.50	0.26	1	B2H0039	08/02/2012	08/07/12 16:09	
1202647-42	1181-116-1.0	3.8	mg/L	0.50	0.26	1	B2H0039	08/02/2012	08/07/12 16:09	

STLC-DI Lead by AA (Direct Aspiration) EPA 7420

Analyte: Lead

Analyst: VV

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time	Notes
									Analyzed	
1202647-01	1181-101-0.5	ND	mg/L	0.50	0.26	1	B2H0214	08/10/2012	08/10/12 12:16	
1202647-03	1181-102-0.5	ND	mg/L	0.50	0.26	1	B2H0214	08/10/2012	08/10/12 12:18	
1202647-05	1181-103-0.5	ND	mg/L	0.50	0.26	1	B2H0214	08/10/2012	08/10/12 12:18	
1202647-07	1181-104-0.5	ND	mg/L	0.50	0.26	1	B2H0214	08/10/2012	08/10/12 12:18	
1202647-36	1181-113-1.0	ND	mg/L	0.50	0.26	1	B2H0214	08/10/2012	08/10/12 12:19	



AMEC Environment & Infrastructure, Inc.

121 Innovation Drive, Suite 200

Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06

Report To : Duane Paul

Reported : 08/15/2012

TCLP Lead by AA (Direct Aspiration) EPA 7420

Analyte: Lead

Analyst: VV

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time	Notes
									Analyzed	
1202647-01	1181-101-0.5	0.35	mg/L	0.50	0.26	1	B2H0061	08/03/2012	08/03/12 16:07	J
1202647-03	1181-102-0.5	0.31	mg/L	0.50	0.26	1	B2H0061	08/03/2012	08/03/12 16:11	J
1202647-05	1181-103-0.5	ND	mg/L	0.50	0.26	1	B2H0061	08/03/2012	08/03/12 16:11	
1202647-07	1181-104-0.5	0.33	mg/L	0.50	0.26	1	B2H0061	08/03/2012	08/03/12 16:12	J
1202647-36	1181-113-1.0	ND	mg/L	0.50	0.26	1	B2H0061	08/03/2012	08/03/12 16:13	

Mercury by AA (Cold Vapor) EPA 7471

Analyte: Mercury

Analyst: VV

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time	Notes
									Analyzed	
1202647-01	1181-101-0.5	0.05	mg/kg	0.10	0.008	1	B2H0067	08/03/2012	08/03/12 12:16	J
1202647-03	1181-102-0.5	0.06	mg/kg	0.10	0.008	1	B2H0067	08/03/2012	08/03/12 12:23	J
1202647-36	1181-113-1.0	0.08	mg/kg	0.10	0.008	1	B2H0067	08/03/2012	08/03/12 12:25	J

pH by EPA 9045C

Analyte: pH

Analyst: AG

Laboratory ID	Client Sample ID	Result	Units	PQL	MDL	Dilution	Batch	Prepared	Date/Time	Notes
									Analyzed	
1202647-01	1181-101-0.5	7.3	pH Units	0.10	0.10	1	B2H0110	08/06/2012	08/06/12 11:52	
1202647-03	1181-102-0.5	7.2	pH Units	0.10	0.10	1	B2H0110	08/06/2012	08/06/12 11:52	
1202647-05	1181-103-0.5	7.6	pH Units	0.10	0.10	1	B2H0110	08/06/2012	08/06/12 11:52	
1202647-36	1181-113-1.0	6.9	pH Units	0.10	0.10	1	B2H0110	08/06/2012	08/06/12 11:52	



AMEC Environment & Infrastructure, Inc.

121 Innovation Drive, Suite 200
Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06

Report To : Duane Paul
Reported : 08/15/2012

Client Sample ID 1181-101-0.5

Lab ID: 1202647-01

Title 22 Metals by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	0.35	1	B2H0059	08/03/2012	08/03/12 14:52	
Arsenic	3.2	1.0	0.14	1	B2H0059	08/03/2012	08/03/12 14:52	
Barium	100	1.0	0.15	1	B2H0059	08/03/2012	08/03/12 14:52	
Beryllium	0.54	1.0	0.06	1	B2H0059	08/03/2012	08/03/12 14:52	J
Cadmium	2.5	1.0	0.03	1	B2H0059	08/03/2012	08/03/12 14:52	
Chromium	14	1.0	0.20	1	B2H0059	08/03/2012	08/03/12 14:52	
Cobalt	5.9	1.0	0.03	1	B2H0059	08/03/2012	08/03/12 14:52	
Copper	29	2.0	0.28	1	B2H0059	08/03/2012	08/03/12 14:52	
Molybdenum	6.2	1.0	0.05	1	B2H0059	08/03/2012	08/03/12 14:52	
Nickel	21	1.0	0.19	1	B2H0059	08/03/2012	08/03/12 14:52	
Selenium	ND	1.0	0.38	1	B2H0059	08/03/2012	08/03/12 14:52	
Silver	ND	1.0	0.08	1	B2H0059	08/03/2012	08/03/12 14:52	
Thallium	ND	1.0	0.30	1	B2H0059	08/03/2012	08/03/12 14:52	
Vanadium	26	1.0	0.10	1	B2H0059	08/03/2012	08/03/12 14:52	
Zinc	100	1.0	0.74	1	B2H0059	08/03/2012	08/03/12 14:52	

Client Sample ID 1181-102-0.5

Lab ID: 1202647-03

Title 22 Metals by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	0.35	1	B2H0059	08/03/2012	08/03/12 14:54	
Arsenic	4.0	1.0	0.14	1	B2H0059	08/03/2012	08/03/12 14:54	
Barium	140	1.0	0.15	1	B2H0059	08/03/2012	08/03/12 14:54	
Beryllium	0.56	1.0	0.06	1	B2H0059	08/03/2012	08/03/12 14:54	J
Cadmium	3.5	1.0	0.03	1	B2H0059	08/03/2012	08/03/12 14:54	
Chromium	19	1.0	0.20	1	B2H0059	08/03/2012	08/03/12 14:54	
Cobalt	6.6	1.0	0.03	1	B2H0059	08/03/2012	08/03/12 14:54	
Copper	45	2.0	0.28	1	B2H0059	08/03/2012	08/03/12 14:54	
Molybdenum	11	1.0	0.05	1	B2H0059	08/03/2012	08/03/12 14:54	
Nickel	28	1.0	0.19	1	B2H0059	08/03/2012	08/03/12 14:54	
Selenium	ND	1.0	0.38	1	B2H0059	08/03/2012	08/03/12 14:54	
Silver	ND	1.0	0.08	1	B2H0059	08/03/2012	08/03/12 14:54	
Thallium	ND	1.0	0.30	1	B2H0059	08/03/2012	08/03/12 14:54	
Vanadium	35	1.0	0.10	1	B2H0059	08/03/2012	08/03/12 14:54	
Zinc	160	1.0	0.74	1	B2H0059	08/03/2012	08/03/12 14:54	



AMEC Environment & Infrastructure, Inc.
 121 Innovation Drive, Suite 200
 Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06
 Report To : Duane Paul
 Reported : 08/15/2012

Client Sample ID 1181-113-1.0
Lab ID: 1202647-36

Title 22 Metals by ICP-AES EPA 6010B

Analyst: KK

Analyte	Result (mg/kg)	PQL (mg/kg)	MDL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	0.35	1	B2H0059	08/03/2012	08/03/12 14:56	
Arsenic	1.9	1.0	0.14	1	B2H0059	08/03/2012	08/03/12 14:56	
Barium	99	1.0	0.15	1	B2H0059	08/03/2012	08/03/12 14:56	
Beryllium	0.44	1.0	0.06	1	B2H0059	08/03/2012	08/03/12 14:56	J
Cadmium	1.1	1.0	0.03	1	B2H0059	08/03/2012	08/03/12 14:56	
Chromium	27	1.0	0.20	1	B2H0059	08/03/2012	08/03/12 14:56	
Cobalt	6.9	1.0	0.03	1	B2H0059	08/03/2012	08/03/12 14:56	
Copper	120	2.0	0.28	1	B2H0059	08/03/2012	08/03/12 14:56	
Molybdenum	0.92	1.0	0.05	1	B2H0059	08/03/2012	08/03/12 14:56	J
Nickel	16	1.0	0.19	1	B2H0059	08/03/2012	08/03/12 14:56	
Selenium	ND	1.0	0.38	1	B2H0059	08/03/2012	08/03/12 14:56	
Silver	ND	1.0	0.08	1	B2H0059	08/03/2012	08/03/12 14:56	
Thallium	ND	1.0	0.30	1	B2H0059	08/03/2012	08/03/12 14:56	
Vanadium	25	1.0	0.10	1	B2H0059	08/03/2012	08/03/12 14:56	
Zinc	220	1.0	0.74	1	B2H0059	08/03/2012	08/03/12 14:56	



AMEC Environment & Infrastructure, Inc.
 121 Innovation Drive, Suite 200
 Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06
 Report To : Duane Paul
 Reported : 08/15/2012

QUALITY CONTROL SECTION

Title 22 Metals by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B2H0059 - EPA 3050B

Blank (B2H0059-BLK1)

Prepared: 8/3/2012 Analyzed: 8/3/2012

Antimony	ND	2.0		NR					
Arsenic	ND	1.0		NR					
Barium	ND	1.0		NR					
Beryllium	ND	1.0		NR					
Cadmium	ND	1.0		NR					
Chromium	ND	1.0		NR					
Cobalt	ND	1.0		NR					
Copper	ND	2.0		NR					
Molybdenum	ND	1.0		NR					
Nickel	ND	1.0		NR					
Selenium	ND	1.0		NR					
Silver	ND	1.0		NR					
Thallium	ND	1.0		NR					
Vanadium	ND	1.0		NR					
Zinc	ND	1.0		NR					

LCS (B2H0059-BS1)

Prepared: 8/3/2012 Analyzed: 8/3/2012

Antimony	48.9749	2.0	50.0000	97.9	80 - 120				
Arsenic	46.2549	1.0	50.0000	92.5	80 - 120				
Barium	48.3566	1.0	50.0000	96.7	80 - 120				
Beryllium	49.0217	1.0	50.0000	98.0	80 - 120				
Cadmium	47.5266	1.0	50.0000	95.1	80 - 120				
Chromium	49.4997	1.0	50.0000	99.0	80 - 120				
Cobalt	49.1495	1.0	50.0000	98.3	80 - 120				
Copper	48.3075	2.0	50.0000	96.6	80 - 120				
Molybdenum	50.3042	1.0	50.0000	101	80 - 120				
Nickel	49.5373	1.0	50.0000	99.1	80 - 120				
Selenium	45.5783	1.0	50.0000	91.2	80 - 120				
Silver	47.8147	1.0	50.0000	95.6	80 - 120				
Thallium	50.3093	1.0	50.0000	101	80 - 120				
Vanadium	50.9690	1.0	50.0000	102	80 - 120				
Zinc	48.3008	1.0	50.0000	96.6	80 - 120				

Duplicate (B2H0059-DUP1)

Source: 1202647-01

Prepared: 8/3/2012 Analyzed: 8/3/2012

Antimony	ND	2.0	ND	NR			20		
Arsenic	2.90731	1.0	3.22898	NR		10.5	20		
Barium	112.513	1.0	104.531	NR		7.36	20		
Beryllium	0.508272	1.0	0.538836	NR		5.84	20	J	
Cadmium	2.17068	1.0	2.46635	NR		12.8	20		
Chromium	14.6579	1.0	14.2602	NR		2.75	20		
Cobalt	6.44690	1.0	5.88290	NR		9.15	20		
Copper	29.8324	2.0	28.6121	NR		4.18	20		
Molybdenum	6.23141	1.0	6.21602	NR		0.247	20		



AMEC Environment & Infrastructure, Inc.
 121 Innovation Drive, Suite 200
 Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06
 Report To : Duane Paul
 Reported : 08/15/2012

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	-------------------	----------------	----------------	------------------	-------	-----------------	-----	--------------	-------

Batch B2H0059 - EPA 3050B (continued)

Duplicate (B2H0059-DUP1) - Continued

Source: 1202647-01

Prepared: 8/3/2012 Analyzed: 8/3/2012

Nickel	21.1408	1.0		21.0712	NR		0.329		20
Selenium	ND	1.0		ND	NR				20
Silver	ND	1.0		ND	NR				20
Thallium	ND	1.0		ND	NR				20
Vanadium	27.0614	1.0		25.9871	NR		4.05		20
Zinc	108.050	1.0		101.593	NR		6.16		20

Matrix Spike (B2H0059-MS1)

Source: 1202647-01

Prepared: 8/3/2012 Analyzed: 8/3/2012

Antimony	55.8849	2.0	125.000	ND	44.7	44 - 105			
Arsenic	87.9188	1.0	125.000	3.22898	67.8	57 - 103			
Barium	193.134	1.0	125.000	104.531	70.9	36 - 134			
Beryllium	88.4294	1.0	125.000	0.538836	70.3	64 - 106			
Cadmium	83.9526	1.0	125.000	2.46635	65.2	58 - 102			
Chromium	104.869	1.0	125.000	14.2602	72.5	55 - 105			
Cobalt	90.6998	1.0	125.000	5.88290	67.9	59 - 105			
Copper	128.708	2.0	125.000	28.6121	80.1	64 - 117			
Molybdenum	93.1155	1.0	125.000	6.21602	69.5	59 - 108			
Nickel	123.516	1.0	125.000	21.0712	82.0	52 - 109			
Selenium	104.331	1.0	125.000	ND	83.5	56 - 100			
Silver	90.6738	1.0	125.000	ND	72.5	65 - 107			
Thallium	76.6718	1.0	125.000	ND	61.3	47 - 100			
Vanadium	117.821	1.0	125.000	25.9871	73.5	64 - 110			
Zinc	189.647	1.0	125.000	101.593	70.4	37 - 123			

Matrix Spike Dup (B2H0059-MSD1)

Source: 1202647-01

Prepared: 8/3/2012 Analyzed: 8/3/2012

Antimony	59.4538	2.0	125.000	ND	47.6	44 - 105	6.19		20
Arsenic	90.1258	1.0	125.000	3.22898	69.5	57 - 103	2.48		20
Barium	200.459	1.0	125.000	104.531	76.7	36 - 134	3.72		20
Beryllium	92.7754	1.0	125.000	0.538836	73.8	64 - 106	4.80		20
Cadmium	86.5000	1.0	125.000	2.46635	67.2	58 - 102	2.99		20
Chromium	109.581	1.0	125.000	14.2602	76.3	55 - 105	4.39		20
Cobalt	95.1400	1.0	125.000	5.88290	71.4	59 - 105	4.78		20
Copper	124.663	2.0	125.000	28.6121	76.8	64 - 117	3.19		20
Molybdenum	95.3262	1.0	125.000	6.21602	71.3	59 - 108	2.35		20
Nickel	128.389	1.0	125.000	21.0712	85.9	52 - 109	3.87		20
Selenium	107.026	1.0	125.000	ND	85.6	56 - 100	2.55		20
Silver	94.6092	1.0	125.000	ND	75.7	65 - 107	4.25		20
Thallium	79.5885	1.0	125.000	ND	63.7	47 - 100	3.73		20
Vanadium	123.125	1.0	125.000	25.9871	77.7	64 - 110	4.40		20
Zinc	185.236	1.0	125.000	101.593	66.9	37 - 123	2.35		20

Batch S2H0049 - B2G0410

Instrument Blank (S2H0049-IBL1)

Prepared: 8/3/2012 Analyzed: 8/3/2012

Antimony	ND	2.0			NR				
Arsenic	ND	1.0			NR				
Barium	ND	1.0			NR				



AMEC Environment & Infrastructure, Inc.
 121 Innovation Drive, Suite 200
 Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06
 Report To : Duane Paul
 Reported : 08/15/2012

Title 22 Metals by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD	RPD Limit	Notes
---------	------------------	---------------	----------------	------------------	----------------	-----------------	-----	--------------	-------

Batch S2H0049 - B2G0410 (continued)

Instrument Blank (S2H0049-IBL1) - Continued

Prepared: 8/3/2012 Analyzed: 8/3/2012

Beryllium	ND	1.0							NR
Cadmium	ND	1.0							NR
Chromium	ND	1.0							NR
Cobalt	ND	1.0							NR
Copper	ND	2.0							NR
Molybdenum	ND	1.0							NR
Nickel	ND	1.0							NR
Selenium	ND	1.0							NR
Silver	ND	1.0							NR
Thallium	ND	1.0							NR
Vanadium	ND	1.0							NR
Zinc	ND	1.0							NR



AMEC Environment & Infrastructure, Inc.
 121 Innovation Drive, Suite 200
 Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06
 Report To : Duane Paul
 Reported : 08/15/2012

Lead by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
Batch B2G0609 - EPA 3050 Modified								
Blank (B2G0609-BLK1)				Prepared: 7/26/2012 Analyzed: 7/27/2012				
Lead	ND	1.0			NR			
Blank (B2G0609-BLK2)				Prepared: 7/26/2012 Analyzed: 7/27/2012				
Lead	ND	1.0			NR			
LCS (B2G0609-BS1)				Prepared: 7/26/2012 Analyzed: 7/27/2012				
Lead	50.7696	1.0	50.0000		102 80 - 120			
Duplicate (B2G0609-DUP1)		Source: 1202647-19			Prepared: 7/26/2012 Analyzed: 7/27/2012			
Lead	7.88916	1.0		10.3594	NR	27.1	20	R
Duplicate (B2G0609-DUP2)		Source: 1202647-09			Prepared: 7/26/2012 Analyzed: 7/27/2012			
Lead	34.6708	1.0		51.6565	NR	39.4	20	R
Matrix Spike (B2G0609-MS1)		Source: 1202647-19			Prepared: 7/26/2012 Analyzed: 7/27/2012			
Lead	218.146	1.0	250.000	10.3594	83.1 46 - 116			
Matrix Spike (B2G0609-MS2)		Source: 1202647-09			Prepared: 7/26/2012 Analyzed: 7/27/2012			
Lead	250.455	1.0	250.000	51.6565	79.5 46 - 116			
Matrix Spike Dup (B2G0609-MSD1)		Source: 1202647-19			Prepared: 7/26/2012 Analyzed: 7/27/2012			
Lead	218.519	1.0	250.000	10.3594	83.3 46 - 116	0.171	20	
Batch B2G0610 - EPA 3050 Modified								
Blank (B2G0610-BLK1)				Prepared: 7/26/2012 Analyzed: 7/27/2012				
Lead	ND	1.0			NR			
Blank (B2G0610-BLK2)				Prepared: 7/26/2012 Analyzed: 7/27/2012				
Lead	ND	1.0			NR			
LCS (B2G0610-BS1)				Prepared: 7/26/2012 Analyzed: 7/27/2012				
Lead	48.4405	1.0	50.0000		96.9 80 - 120			
Duplicate (B2G0610-DUP1)		Source: 1202647-39			Prepared: 7/26/2012 Analyzed: 7/27/2012			
Lead	17.4212	1.0		17.3507	NR	0.406	20	
Duplicate (B2G0610-DUP2)		Source: 1202647-29			Prepared: 7/26/2012 Analyzed: 7/27/2012			
Lead	12.3159	1.0		10.0252	NR	20.5	20	R
Matrix Spike (B2G0610-MS1)		Source: 1202647-39			Prepared: 7/26/2012 Analyzed: 7/27/2012			
Lead	243.616	1.0	250.000	17.3507	90.5 46 - 116			
Matrix Spike (B2G0610-MS2)		Source: 1202647-29			Prepared: 7/26/2012 Analyzed: 7/27/2012			
Lead	245.294	1.0	250.000	10.0252	94.1 46 - 116			
Matrix Spike Dup (B2G0610-MSD1)		Source: 1202647-39			Prepared: 7/26/2012 Analyzed: 7/27/2012			
Lead	219.477	1.0	250.000	17.3507	80.9 46 - 116	10.4	20	
Batch B2G0611 - EPA 3050 Modified								



AMEC Environment & Infrastructure, Inc.
 121 Innovation Drive, Suite 200
 Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06
 Report To : Duane Paul
 Reported : 08/15/2012

Lead by ICP-AES EPA 6010B - Quality Control (cont'd)

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes	
Blank (B2G0611-BLK1)					Prepared: 7/26/2012 Analyzed: 7/27/2012				
Lead	ND	1.0			NR				
LCS (B2G0611-BS1)					Prepared: 7/26/2012 Analyzed: 7/27/2012				
Lead	50.8826	1.0	50.0000		102	80 - 120			
Duplicate (B2G0611-DUP1)					Prepared: 7/26/2012 Analyzed: 7/27/2012				
Lead	26.9081	1.0		27.9003	NR		3.62	20	
Matrix Spike (B2G0611-MS1)					Prepared: 7/26/2012 Analyzed: 7/27/2012				
Lead	249.222	1.0	250.000	27.9003	88.5	46 - 116			
Matrix Spike Dup (B2G0611-MSD1)					Prepared: 7/26/2012 Analyzed: 7/27/2012				
Lead	243.252	1.0	250.000	27.9003	86.1	46 - 116	2.42	20	
Batch S2G0354 - B2G0410									
Instrument Blank (S2G0354-IBL1)					Prepared: 7/27/2012 Analyzed: 7/27/2012				
Lead	ND	1.0			NR				



AMEC Environment & Infrastructure, Inc.
 121 Innovation Drive, Suite 200
 Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06
 Report To : Duane Paul
 Reported : 08/15/2012

STLC Lead by AA (Direct Aspiration) by EPA 7420 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
Batch B2H0039 - STLC Extraction								
Blank (B2H0039-BLK1)				Prepared: 8/2/2012 Analyzed: 8/7/2012				
Lead	ND	0.50			NR			
Blank (B2H0039-BLK2)				Prepared: 8/2/2012 Analyzed: 8/7/2012				
Lead	ND	0.50			NR			
LCS (B2H0039-BS1)				Prepared: 8/2/2012 Analyzed: 8/7/2012				
Lead	4.87986	0.05	5.00000		97.6	80 - 120		
Duplicate (B2H0039-DUP1)		Source: 1202647-36		Prepared: 8/2/2012 Analyzed: 8/7/2012				
Lead	6.57118	0.50		6.60635	NR		0.534	20
Duplicate (B2H0039-DUP2)		Source: 1202647-42		Prepared: 8/2/2012 Analyzed: 8/7/2012				
Lead	3.91922	0.50		3.79958	NR		3.10	20
Matrix Spike (B2H0039-MS1)		Source: 1202647-36		Prepared: 8/2/2012 Analyzed: 8/7/2012				
Lead	11.9274	0.10	5.00000	6.60635	106	80 - 120		
Matrix Spike (B2H0039-MS2)		Source: 1202647-42		Prepared: 8/2/2012 Analyzed: 8/7/2012				
Lead	8.98767	0.10	5.00000	3.79958	104	80 - 120		
Matrix Spike Dup (B2H0039-MSD1)		Source: 1202647-36		Prepared: 8/2/2012 Analyzed: 8/7/2012				
Lead	11.8185	0.10	5.00000	6.60635	104	80 - 120	0.917	20
Batch S2H0090 - B2H0039								
Instrument Blank (S2H0090-IBL1)				Prepared: 8/7/2012 Analyzed: 8/7/2012				
Lead	ND	0.50			NR			



AMEC Environment & Infrastructure, Inc.
 121 Innovation Drive, Suite 200
 Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06
 Report To : Duane Paul
 Reported : 08/15/2012

STLC-DI Lead by AA (Direct Aspiration) EPA 7420 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
Batch B2H0214 - STLC DI Extraction								
Blank (B2H0214-BLK1)				Prepared: 8/10/2012 Analyzed: 8/10/2012				
Lead	ND	0.50			NR			
LCS (B2H0214-BS1)				Prepared: 8/10/2012 Analyzed: 8/10/2012				
Lead	4.87611	0.05	5.00000		97.5 80 - 120			
Duplicate (B2H0214-DUP1)		Source: 1202647-01		Prepared: 8/10/2012 Analyzed: 8/10/2012				
Lead	ND	0.50		ND	NR		20	
Matrix Spike (B2H0214-MS1)		Source: 1202647-01		Prepared: 8/10/2012 Analyzed: 8/10/2012				
Lead	5.13704	0.05	5.00000	ND	103 80 - 120			
Matrix Spike Dup (B2H0214-MSD1)		Source: 1202647-01		Prepared: 8/10/2012 Analyzed: 8/10/2012				
Lead	4.95968	0.05	5.00000	ND	99.2 80 - 120	3.51	20	



AMEC Environment & Infrastructure, Inc.
 121 Innovation Drive, Suite 200
 Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06
 Report To : Duane Paul
 Reported : 08/15/2012

TCLP Lead by AA (Direct Aspiration) EPA 7420 - Quality Control

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
Batch B2H0061 - EPA 3010A_SOIL								
Blank (B2H0061-BLK1)								
Lead	ND	0.50						Prepared: 8/3/2012 Analyzed: 8/3/2012 NR
Blank (B2H0061-BLK2)								
Lead	ND	0.50						Prepared: 8/3/2012 Analyzed: 8/3/2012 NR
LCS (B2H0061-BS1)								
Lead	1.03654	0.50	1.00000		104 80 - 120			Prepared: 8/3/2012 Analyzed: 8/3/2012
Duplicate (B2H0061-DUP1)								
Lead	0.286271	0.50		0.352159			20.6 20	Source: 1202647-01 Prepared: 8/3/2012 Analyzed: 8/3/2012 NR R, J
Matrix Spike (B2H0061-MS1)								
Lead	2.93013	0.50	2.50000	0.352159	103 80 - 120			Source: 1202647-01 Prepared: 8/3/2012 Analyzed: 8/3/2012
Matrix Spike Dup (B2H0061-MSD1)								
Lead	2.95414	0.50	2.50000	0.352159	104 80 - 120	0.816	20	Source: 1202647-01 Prepared: 8/3/2012 Analyzed: 8/3/2012
Batch S2H0052 - B2H0061								
Instrument Blank (S2H0052-IBL1)								
Lead	ND	0.50						Prepared: 8/3/2012 Analyzed: 8/3/2012 NR



AMEC Environment & Infrastructure, Inc.
 121 Innovation Drive, Suite 200
 Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06
 Report To : Duane Paul
 Reported : 08/15/2012

Mercury by AA (Cold Vapor) EPA 7471 - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec Limits	RPD	RPD Limit	Notes
Batch B2H0067 - EPA 7471								
Blank (B2H0067-BLK1)								
Mercury	ND	0.10						Prepared: 8/3/2012 Analyzed: 8/3/2012 NR
LCS (B2H0067-BS1)								
Mercury	0.820436	0.10	0.833333		98.5 80 - 120			Prepared: 8/3/2012 Analyzed: 8/3/2012
Duplicate (B2H0067-DUP1)								
Mercury	0.047162	0.10		0.046997	NR	0.351	20	J Source: 1202647-01 Prepared: 8/3/2012 Analyzed: 8/3/2012
Matrix Spike (B2H0067-MS1)								
Mercury	0.884659	0.10	0.833333	0.046997	101	70 - 130		Prepared: 8/3/2012 Analyzed: 8/3/2012
Matrix Spike (B2H0067-MS2)								
Mercury	5.7236E-3		5.00000E-3	0.000957	95.3	70 - 130		Prepared: 8/3/2012 Analyzed: 8/3/2012
Matrix Spike Dup (B2H0067-MSD1)								
Mercury	0.827089	0.10	0.833333	0.046997	93.6	70 - 130	6.73	20 Source: 1202647-01 Prepared: 8/3/2012 Analyzed: 8/3/2012
Batch S2H0048 - B2H0069								
Instrument Blank (S2H0048-IBL1)								
Mercury	ND	0.10						Prepared: 8/3/2012 Analyzed: 8/3/2012 NR



AMEC Environment & Infrastructure, Inc.
 121 Innovation Drive, Suite 200
 Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06
 Report To : Duane Paul
 Reported : 08/15/2012

pH by EPA 9045C - Quality Control

Analyte	Result (pH Units)	PQL (pH Units)	Spike Level	Source Result	% Rec % Rec	% Rec Limits	RPD RPD	RPD Limit	Notes
---------	----------------------	-------------------	----------------	------------------	----------------	-----------------	------------	--------------	-------

Batch B2H0110 - Prep_WC_1_S

Duplicate (B2H0110-DUP1)

Source: 1202647-36

Prepared: 8/6/2012 Analyzed: 8/6/2012

pH	6.83000	0.10		6.92000	NR		1.31	20	
----	---------	------	--	---------	----	--	------	----	--



AMEC Environment & Infrastructure, Inc.
121 Innovation Drive, Suite 200
Irvine, CA 92617

Project Number : Rt.60 WB Off-Ramp Widening at Nogales, S9500-06-06
Report To : Duane Paul
Reported : 08/15/2012

Notes and Definitions

- R RPD value outside acceptance criteria. Calculation is based on raw values.
- J Analyte detected below the Practical Quantitation Limit but above or equal to the Method Detection Limit. Result is an estimated concentration.
- ND Analyte not detected at or above reporting limit
- PQL Practical Quantitation Limit
- MDL Method Detection Limit
- NR Not Reported
- RPD Relative Percent Difference

CHAIN OF CUSTODY RECORD



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

FOR LABORATORY USE ONLY

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

Client: Geocon
Address: 3303 North San Fernando Blvd Suite 100
City: Burbank State: CA Zip Code: 91504
Tel: 818-841-8388 Fax: 818-841-1704

Project Name: Rt:60 WB Off-Ramp Widening at
Nogales Street
Project #: SP500-06-06
Sampler: Mike Hoad
Relinquished by: (Signature and Printed Name) Mike Hoad Date: 7/25/12 Time: 12:55
Relinquished by: (Signature and Printed Name) Mike Conkle Date: 7/25/12 Time: 13:45
Relinquished by: (Signature and Printed Name) Mike Conkle Date: 7/25/12 Time: 13:45

Special Instructions/Comments:
CT Contract 07A2730A01
Run samples with total lead greater than or equal to 50 mg/kg by WET. Run samples with WET results greater than or equal to 5.0 mg/l by DI-WET. Filter and preserve water samples at lab. Report MDL & PQL limits.

Bill To:
Attn: Duane Paul
Co: Amec Environmental \$ Infrastructure, Inc.
Addr: 121 Innovation Drive, Suite 200
City: Irvine State: CA Zip: 92617

Send Report To:
Attn: Duane Paul
Co: Amec Environmental \$ Infrastructure, Inc.
Addr: 121 Innovation Drive, Suite 200
City: Irvine State: CA Zip: 92617

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

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

LAB USE ONLY:	Sample Description		Date	Time	Lead	SPECIFY APPROPRIATE MATRIX		TAT #	Type	CONTAINER(S)	REMARKS	
	LAB No.	Sample ID / Location				WATER	GROUND WATER					WASTEWATER
120264721	1181-110	-1.0	7/24/12	1424	x				E	1	G	J
	1181-110	-3.0		1449	x				E	1	G	J
	1181-110	-5.0		1515	x				E	1	G	J
	1181-114	-1.0		1319	x				E	1	G	J
	1181-114	-3.0		1347	x				E	1	G	J
	1181-114	-5.0		1408	x				E	1	G	J
	1181-106	-1.0	7/25/12	0733	x				E	1	G	J
	1181-106	-3.0		0808	x				E	1	G	J
	1181-106	-5.0		0820	x				E	1	G	J
	1181-111	-1.0		0735	x				E	1	G	J
	1181-111	-3.0		0745	x				E	1	G	J
	1181-111	-5.0		0909	x				E	1	G	J
	1181-112	-1.0		0841	x				E	1	G	J
	1181-112	-3.0		0925	x				E	1	G	J
	1181-112	-5.0		0937	x				E	1	G	J
	1181-113	-1.0		0830	x				E	1	G	J
	1181-113	-3.0		0723	x				E	1	G	J
	1181-113	-5.0		0951	x				E	1	G	J
	1181-115	-1.0		0931	x				E	1	G	J
	1181-115	-3.0		0947	x				E	1	G	J

TAT: A = Overnight ≤ 24 hrs B = Emergency Next Workday C = Critical 2 Workdays D = Urgent 3 Workdays E = Routine 7 Workdays

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

Other: RTNE CT SWRCB Logcode OTHER

Diane Galvan

From: Paul, Duane [Duane.Paul@amec.com]
Sent: Thursday, August 02, 2012 8:32 AM
To: Diane Galvan
Cc: Mike Conkle
Subject: RE: TTLC Results/EDD - Rt.60 WB Off-Ramp Widening at Nogales Street (1202647)
Attachments: Nogales ADL Results Summary.xls

Diane,

Attached please find additional analyses for the subject project that we would like to have run on a standard, 5 business day turnaround time.

Please call me should you have any questions.

Thank you,

Duane

Duane G. Paul, PG, CHG
Senior Hydrogeologist
AMEC

Environment & Infrastructure
121 Innovation, Suite 200, Irvine, CA 92617, USA
Tel 1-949-642-0245 x 7084, fax 1-949-642-4474
Direct 1-949-574-7084, mobile/cell 1-949-892-8244
duane.paul@amec.com
amec.com

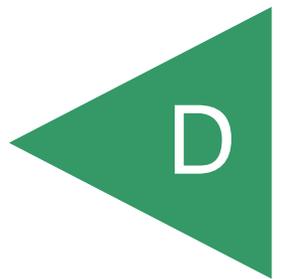
Business sustainability starts here... AMEC is committed to reducing its carbon footprint

The materials transmitted by this electronic mail are confidential, are only for the use of the intended recipient, and may also be subject to applicable privileges. Any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please immediately notify the sender. Please also remove this message from your hard drive, diskette, and any other storage device.

SAMPDATA

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	DI WET Lead (mg/l)	TCLP Lead (mg/l)	Metals	pH
DRAFT: 1181-101-0.5	0.5	140	X		X	X	X
DRAFT: 1181-101-1.5	1.5	36					
DRAFT: 1181-102-0.5	0.5	120	X		X	X	X
DRAFT: 1181-102-1.5	1.5	21					
DRAFT: 1181-103-0.5	0.5	97	X		X		X
DRAFT: 1181-103-1.5	1.5	21					
DRAFT: 1181-104-0.5	0.5	95	X		X		
DRAFT: 1181-104-1.5	1.5	60	X				
DRAFT: 1181-105-1.0	1.0	52	X				
DRAFT: 1181-105-3.0	3.0	9.0					
DRAFT: 1181-105-5.0	5.0	21					
DRAFT: 1181-107-1.0	1.0	87	X				
DRAFT: 1181-107-3.0	3.0	13					
DRAFT: 1181-107-5.0	5.0	7.6					
DRAFT: 1181-108-1.0	1.0	31					
DRAFT: 1181-108-3.0	3.0	30					
DRAFT: 1181-108-5.0	5.0	19					
DRAFT: 1181-109-1.0	1.0	38					
DRAFT: 1181-109-3.0	3.0	10					
DRAFT: 1181-109-5.0	5.0	5.8					
DRAFT: 1181-110-1.0	1.0	49					
DRAFT: 1181-110-3.0	3.0	7.1					
DRAFT: 1181-110-5.0	5.0	2.7					
DRAFT: 1181-114-1.0	1.0	6.7					
DRAFT: 1181-114-3.0	3.0	7.8					
DRAFT: 1181-114-5.0	5.0	12					
DRAFT: 1181-106-1.0	1.0	35					
DRAFT: 1181-106-3.0	3.0	15					
DRAFT: 1181-106-5.0	5.0	10					
DRAFT: 1181-111-1.0	1.0	61	X				
DRAFT: 1181-111-3.0	3.0	7.8					
DRAFT: 1181-111-5.0	5.0	8.3					
DRAFT: 1181-112-1.0	1.0	91	X				
DRAFT: 1181-112-3.0	3.0	9.7					
DRAFT: 1181-112-5.0	5.0	5.2					
DRAFT: 1181-113-1.0	1.0	120	X		X	X	X
DRAFT: 1181-113-3.0	3.0	4.3					
DRAFT: 1181-113-5.0	5.0	5.7					
DRAFT: 1181-115-1.0	1.0	17					
DRAFT: 1181-115-3.0	3.0	51	X				
DRAFT: 1181-115-5.0	5.0	22					
DRAFT: 1181-116-1.0	1.0	77	X				
DRAFT: 1181-116-3.0	3.0	8.0					
DRAFT: 1181-116-5.0	5.0	28					

APPENDIX





GEOCON
CONSULTANTS, INC.

BORING 1181-101

Project No. S9500-06-06
Client: Caltrans
Location: Route 60
 Los Angeles, California

Excavation Date: July 24, 2012
Excavation Method: Hand Auger
Excavation Size: 3-inch diameter
Logged By: Mike Akoto

Sample Type	Sample Number	Time	Depth (in feet)	USCS Class.	Surface Conditions: Bare ground Description
G	1181-101-0.5	0822	0 --	ML	Sandy Silt, Dark brown (10YR 3/3), moist, 20% fine to coarse-grained sand, some gravel, no plasticity
G	1118-101-1.5	0829	1 --		
			2 --	ML	Sandy Silt, yellowish brown (10YR 5/6), moist, 15% fine-grained sand, some gravel, no plasticity
			3 --		
			4 --		End at 1.5 feet
			5 --		
			6 --		
			7 --		
			8 --		
			9 --		
			10 --		
			11 --		
			12 --		
			13 --		
			14 --		
			15 --		
			16 --		
			17 --		
			18 --		
			19 --		
			20 --		

G - Grab Sample



GEOCON
CONSULTANTS, INC.

BORING 1181-102

Project No. S9500-06-06
Client: Caltrans
Location: Route 60
 Rowland Heights, California

Excavation Date: July 24, 2012
Excavation Method: Hand Auger
Excavation Size: 3-inch diameter
Logged By: Mike Akoto

Sample Type	Sample Number	Time	Depth (in feet)	USCS Class.	Surface Conditions: Bare ground Description
G	1181-102-0.5	0830	0 --	ML	Sandy Silt, dark brown (10YR 3/3), moist, 30% fine to coarse-grained sand, some gravel, some rootlets, no plasticity
G	1181-102-1.5	0836	1 --		
			2 --	ML	Sandy Silt, yellowish brown (10YR 5/6), moist, 20% fine to coarse-grained sand, some gravel, some rootlets, no plasticity
			3 --		
			4 --		End at 1.5 feet
			5 --		
			6 --		
			7 --		
			8 --		
			9 --		
			10 --		
			11 --		
			12 --		
			13 --		
			14 --		
			15 --		
			16 --		
			17 --		
			18 --		
			19 --		
			20 --		

G - Grab Sample



GEOCON
CONSULTANTS, INC.

BORING 1181-103

Project No. S9500-06-06
Client: Caltrans
Location: Route 60
 Rowland Heights, California

Excavation Date: July 24, 2012
Excavation Method: Hand Auger
Excavation Size: 3-inch diameter
Logged By: Mike Akoto

Sample Type	Sample Number	Time	Depth (in feet)	USCS Class.	Surface Conditions: Bare ground Description
G	1181-103-0.5	0836	0 --	ML	Sandy Silt, brown (10YR 4/3), moist, 20% fine to coarse-grained sand, some gravel, some rootlets, no plasticity
G	1181-103-1.5	0851	1 --		
			2 --	ML	Sandy Silt, yellowish brown (10 YR 5/6), moist, 15% fine to coarse-grained sand, trace gravel, some rootlets, no plasticity
			3 --		
			4 --		End at 1.5 feet
			5 --		
			6 --		
			7 --		
			8 --		
			9 --		
			10 --		
			11 --		
			12 --		
			13 --		
			14 --		
			15 --		
			16 --		
			17 --		
			18 --		
			19 --		
			20 --		

G - Grab Sample



GEOCON
CONSULTANTS, INC.

BORING 1181-104

S9500-06-06

Client: Caltrans
Location: Route 60
Rowland Heights, California

Excavation Date: July 24, 2012
Excavation Method: Hand Auger
Excavation Size: 3-inch diameter
Logged By: Mike Akoto

Sample Type	Sample Number	Time	Depth (in feet)	USCS Class.	Surface Conditions: Bare ground Description
G	1181-104-0.5	0858	0 --	SM	Silty Sand, grayish brown (10YR 5/2), moist, fine to coarse-grained, some gravel, some rootlets
G	1181-104-1.5	0903	1 --		
			2 --	SM	Silty Sand, grayish brown (10YR 5/2), moist, fine to coarse-grained, some gravel, some rootlets End at 1.5 feet
			3 --		
			4 --		
			5 --		
			6 --		
			7 --		
			8 --		
			9 --		
			10 --		
			11 --		
			12 --		
			13 --		
			14 --		
			15 --		
			16 --		
			17 --		
			18 --		
			19 --		
			20 --		

G - Grab Sample



GEOCON
CONSULTANTS, INC.

BORING 1181-105

Project No. S9500-06-06
Client: Caltrans
Location: 90 Fwy
Rowlands Heights, California

Excavation Date: July 24, 2012
Excavation Method: Hand Auger
Excavation Size: 3-inch diameter
Logged By: Mike Akoto

Sample Type	Sample Number	Time	Depth (in feet)	USCS Class.	Surface Conditions: Bare ground Description
G	1181-105-1.0	0917	0 -- - 1 -- - 2 -- -	ML	Sandy Silt, brown (10YR 5/3), dry, soft, 15% fine to coarse-grained sand, some gravel, some rootlets, no plasticity
G	1181-105-3.0	1301	3 -- - 4 -- -	ML	Sandy Silt, yellowish brown (10YR 5/6), moist, 20% fine to coarse-grained sand, some gravel, some cobbles, no plasticity
G	1181-105-5.0	1316	5 -- - 6 -- - 7 -- - 8 -- - 9 -- - 10 -- - 11 -- - 12 -- - 13 -- - 14 -- - 15 -- - 16 -- - 17 -- - 18 -- - 19 -- - 20 --	ML	Sandy Silt, yellowish brown (10YR 5/6), moist, 10% fine to coarse-grained sand, some gravel, some cobbles, no plasticity End at 5.0 feet

G - Grab Sample



GEOCON
CONSULTANTS, INC.

BORING 1181-106

Project No. S9500-06-06
Client: Caltrans
Location: 90 Fwy
 Rowland Heights, California

Excavation Date: July 25, 2012
Excavation Method: Hand Auger
Excavation Size: 3-inch diameter
Logged By: Mike Akoto

Sample Type	Sample Number	Time	Depth (in feet)	USCS Class.	Surface Conditions: Bare ground Description
			0 --		
			-		
G	1181-106-1.0	0733	1 --	ML	Sandy Silt, dark grayish brown (10YR 4/2), dry, soft, 10% fine to coarse-grained sand some gravel, some cobbles, no plasticity
			-		
			2 --		
			-		
G	1181-106-3.0	0808	3 --	ML	Sandy Silt, dark brown (10YR 3/3), dry, soft, 20% fine to coarse-grained sand, some gravel, some cobbles, no plasticity
			-		
			4 --		
			-		
G	1181-106-5.0	0820	5 --	ML	Sandy Silt, dark brown (10YR 3/3), dry, soft, 20% fine to coarse-grained sand, some gravel, some cobbles, no plasticity
			-		
			6 --		End at 5.0 Feet
			-		
			7 --		
			-		
			8 --		
			-		
			9 --		
			-		
			10 --		
			-		
			11 --		
			-		
			12 --		
			-		
			13 --		
			-		
			14 --		
			-		
			15 --		
			-		
			16 --		
			-		
			17 --		
			-		
			18 --		
			-		
			19 --		
			-		
			20 --		

G - Grab Sample



GEOCON
CONSULTANTS, INC.

BORING 1181-107

Project No. S9500-06-06

Client: Caltrans

Location: 60 Fwy
Rowland Heights, California

Excavation Date: July 24, 2012

Excavation Method: Hand Auger

Excavation Size: 3-inch diameter

Logged By: Mike Akoto

Sample Type	Sample Number	Time	Depth (in feet)	USCS Class.	Surface Conditions: Bare ground Description
G	1181-107-1.0	0919	0 --	ML	Sandy Silt, brown (10YR 5/3), dry, soft, 20% fine to coarse-grained sand, some gravel, some rootlets, no plasticity
			1 --		
			2 --		
G	1118-107-2.5	0948	3 --	SM	Silty Sand, yellowish brown (10YR 5/6), dry, loose, fine to coarse-grained, 20% fines some gravel, some rootlets
			4 --		
			5 --		
G	1181-107-5.0	1010	6 --	ML	Sandy Silt, yellowish brown (10 YR 5/8), dry, soft, 20% fine to coarse-grained sand, some gravel End at 5.0 Feet
			7 --		
			8 --		
			9 --		
			10 --		
			11 --		
			12 --		
			13 --		
			14 --		
			15 --		
			16 --		
			17 --		
			18 --		
			19 --		
			20 --		

G - Grab Sample



GEOCON
CONSULTANTS, INC.

BORING 1181-108

Project No. S9500-06-06
Client: Caltrans
Location: 60 Fwy
 Rowland Heights, California

Excavation Date: July 24, 2012
Excavation Method: Hand Auger
Excavation Size: 3-inch diameter
Logged By: Mike Akoto

Sample Type	Sample Number	Time	Depth (in feet)	USCS Class.	Surface Conditions: Bare ground Description
			0 --		
			-		
G	1181-108-1.0	1032	1 --	ML	Sandy Silt with Gravel, brown (10 YR 4/3), slightly moist, fine to coarse-grained sand and gravel, some cobbles, no plasticity
			-		
			2 --		
			-		
G	1181-108-3.0	1125	3 --	ML	Sandy Silt with Gravel, brown (10 YR 4/3), slightly moist, fine to coarse-grained sand and gravel, some cobbles, no plasticity
			-		
			4 --		
			-		
G	1181-108-5.0	1301	5 --	ML	Sandy Silt with Gravel, brown (10 YR 4/3), slightly moist, fine to coarse-grained sand and gravel, some cobbles, no plasticity
			-		
			6 --		End at 5.0 feet.
			-		
			7 --		
			-		
			8 --		
			-		
			9 --		
			-		
			10 --		
			-		
			11 --		
			-		
			12 --		
			-		
			13 --		
			-		
			14 --		
			-		
			15 --		
			-		
			16 --		
			-		
			17 --		
			-		
			18 --		
			-		
			19 --		
			-		
			20 --		

G - Grab Sample



GEOCON
CONSULTANTS, INC.

BORING 1181-109

Project No. S9500-06-06
Client: Caltrans
Location: Route 60
Rowland Heights, California

Excavation Date: July 24, 2012
Excavation Method: Hand Auger
Excavation Size: 3-inch diameter
Logged By: Mike Akoto

Sample Type	Sample Number	Time	Depth (in feet)	USCS Class.	Surface Conditions: Bare ground Description
			0 --		
			-		
G	1181-109-1.0	1033	1 --	ML	Sandy Silt with Gravel, yellowish brown (10YR 5/6), slightly moist, fine to coarse grained sand, some cobbles, some rootlets, no plasticity
			-		
			2 --		
			-		
G	1181-109-3.0	1121	3 --	SM	Silty Sand with Gravel, light yellowish brown (10YR 6/4), slightly moist, fine to coarse-grained sand, some gravel, some cobbles, some rootlets, no plasticity
			-		
			4 --		
			-		
G	1181-109-5.0	1230	5 --	ML	Sandy Silt with Gravel, light yellowish brown (10YR 6/4), slightly moist, fine to coarse-grained sand, some cobbles, no plasticity
			-		
			6 --		End at 5.0 feet
			-		
			7 --		
			-		
			8 --		
			-		
			9 --		
			-		
			10 --		
			-		
			11 --		
			-		
			12 --		
			-		
			13 --		
			-		
			14 --		
			-		
			15 --		
			-		
			16 --		
			-		
			17 --		
			-		
			18 --		
			-		
			19 --		
			-		
			20 --		

G - Grab Sample



GEOCON
CONSULTANTS, INC.

BORING 1181-110

Project No. S9500-06-06
Client: Caltrans
Location: Route 60
Rowland Heights California

Excavation Date: July 24, 2012
Excavation Method: Hand Auger
Excavation Size: 3-inch diameter
Logged By: Mike Akoto

Sample Type	Sample Number	Time	Depth (in feet)	USCS Class.	Surface Conditions: Bare ground Description
G	1181-110-1.0	1424	0 -- -		
G	1181-110-3.0	1449	1 -- - 2 -- -	ML	Sandy Silt, dark yellowish brown (10YR 4/4), dry, soft, 30% fine to coarse-grained sand, some gravel, no plasticity
G	1181-110-5.0	1515	3 -- - 4 -- -	ML	Clayey Silt, light yellowish brown (10YR 6/4), slightly moist, 50% clay trace fine to coarse gravel, low plasticity
			5 -- - 6 -- - 7 -- - 8 -- - 9 -- - 10 -- - 11 -- - 12 -- - 13 -- - 14 -- - 15 -- - 16 -- - 17 -- - 18 -- - 19 -- - 20 --	ML	Clayey Silt, very dark grayish brown (10YR 4/2), slightly moist, 30% silt trace fine gravel. low plasticity End at 5.0 feet

G - Grab Sample



GEOCON
CONSULTANTS, INC.

BORING 1181-111

Project No. S9500-06-06
Client: Caltrans
Location: Route 60
 Rowland Heights, California

Excavation Date: December 23, 2010
Excavation Method: Hand Auger
Excavation Size: 3-inch diameter
Logged By: Mike Akoto

Sample Type	Sample Number	Time	Depth (in feet)	USCS Class.	Surface Conditions: Bare ground Description
			0 --		
			-		
G	1181-111-1.0	0735	1 --	ML	Sandy Silt, brown (10YR 5/3), dry, soft, 15% fine to coarse-grained sand, some gravel, some cobbles, no plasticity
			-		
			2 --		
			-		
G	1181-111-3.0	0745	3 --	ML	Sandy Silt, dark grayish brown (10YR 4/2), dry, soft, 20% fine to coarse-grained sand, some gravel, some cobbles, no plasticity
			-		
			4 --		
			-		
G	1181-111-5.0	0909	5 --	ML	Sandy Silt, dark grayish brown (10YR 4/2), dry, soft, 20% fine to coarse-grained sand, some gravel, some cobbles, no plasticity
			-		
			6 --		End at 5.0 feet
			-		
			7 --		
			-		
			8 --		
			-		
			9 --		
			-		
			10 --		
			-		
			11 --		
			-		
			12 --		
			-		
			13 --		
			-		
			14 --		
			-		
			15 --		
			-		
			16 --		
			-		
			17 --		
			-		
			18 --		
			-		
			19 --		
			-		
			20 --		

G - Grab Sample



GEOCON
CONSULTANTS, INC.

BORING 1181-112

Project No. S9500-06-06
Client: Caltrans
Location: Route 60
Rowland Heights, California

Excavation Date: July 25, 2012
Excavation Method: Hand Auger
Excavation Size: 3-inch diameter
Logged By: Mike Akoto

Sample Type	Sample Number	Time	Depth (in feet)	USCS Class.	Surface Conditions: Bare ground Description
G	1181-112-1.0	0841	0 -- - 1 -- - 2 --	ML	Sandy Silt, gray (10YR 5/1), dry, soft, 20% fine to coarse-grained sand
G	1181-112-3.0	0925	- 3 -- - 4 --	ML	Sandy Silt, black (10YR 2/1), slightly moist, 40% fine to coarse-grained sand, some gravel
G	1181-112-5.0	0931	- 5 -- - 6 -- - 7 -- - 8 -- - 9 -- - 10 -- - 11 -- - 12 -- - 13 -- - 14 -- - 15 -- - 16 -- - 17 -- - 18 -- - 19 -- - 20 --	ML	Sandy Silt, black (10YR 2/1), slightly moist, 40% fine to coarse-grained sand, some gravel End at 5.0 Feet

G - Grab Sample



BORING 1181-113

Project No. S9500-06-06
Client: Caltrans
Location: 60 Fwy
 Rowland Heights, California

Excavation Date: July 25, 2012
Excavation Method: Hand Auger
Excavation Size: 3-inch diameter
Logged By: Mike Akoto

Sample Type	Sample Number	Time	Depth (in feet)	USCS Class.	Surface Conditions: Bare ground Description
G	1181-113-1.0	0850	0 --		
			1 --	ML	Sandy Silt, dark gray (10YR 4/1), dry, soft, 40% fine to coarse-grained sand, some gravel, some rootlets
			2 --		
G	1181-113-3.0	0923	3 --	ML	Clayey Silt, black, (10YR 2/1), moist, soft, 40% clay, medium plasticity
			4 --		
			5 --	ML	Clayey Silt, black, (10YR 2/1), moist, soft, 40% clay, medium plasticity
G	1181-113-5.0	0951	6 --		End at 5.0 feet
			7 --		
			8 --		
			9 --		
			10 --		
			11 --		
			12 --		
			13 --		
			14 --		
			15 --		
			16 --		
			17 --		
			18 --		
			19 --		
			20 --		

G - Grab Sample



GEOCON
CONSULTANTS, INC.

BORING 1181-114

Project No. S9500-06-06
Client: Caltrans
Location: Route 60
 Rowland Heights, California

Excavation Date: July 25, 2012
Excavation Method: Hand Auger
Excavation Size: 3-inch diameter
Logged By: Mike Akoto

Sample Type	Sample Number	Time	Depth (in feet)	USCS Class.	Surface Conditions: Bare ground Description
			0 --		
			-		
G	1181-114-1.0	1319	1 --	ML	Sandy Silt, brown (10YR 5/3), slightly moist, 15% fine-to coarse grained sand, some gravel, some cobbles, no plasticity
			-		
			2 --		
			-		
G	1181-114-3.0	1344	3 --	ML	Sandy Silt, dark yellowish brown (10YR 3/6), slightly moist, 20% fine to coarse-grained sand, some gravel, some cobbles, no plasticity
			-		
			4 --		
			-		
G	1181-114-5.0	1408	5 --	ML	Sandy Silt, dark yellowish brown (10YR 3/6), slightly moist, 20% fine to coarse-grained sand, some gravel, some cobbles, no plasticity
			-		
			6 --		End at 5.0 Feet
			-		
			7 --		
			-		
			8 --		
			-		
			9 --		
			-		
			10 --		
			-		
			11 --		
			-		
			12 --		
			-		
			13 --		
			-		
			14 --		
			-		
			15 --		
			-		
			16 --		
			-		
			17 --		
			-		
			18 --		
			-		
			19 --		
			-		
			20 --		

G - Grab Sample



GEOCON
CONSULTANTS, INC.

BORING 1181-115

Project No. S9500-06-06
Client: Caltrans
Location: Route 60
 Rowland Heights, California

Excavation Date: July 24, 2012
Excavation Method: Hand Auger
Excavation Size: 3-inch diameter
Logged By: Mike Akoto

Sample Type	Sample Number	Time	Depth (in feet)	USCS Class.	Surface Conditions: Bare ground Description
			0 --		
			-		
G	1181-115-1.0	1319	1 --	ML	Sandy Silt, brown (10YR 4/3), slightly moist, 15% fine to coarse-grained sand, some gravel, some cobbles, no plasticity
			-		
			2 --		
			-		
G	1181-115-3.0	1344	3 --	ML	Sandy Silt, dark yellowish brown (10 YR 4/4), moist, 15% fine to coarse-grained sand, some gravel, some cobbles, no plasticity
			-		
			4 --		
			-		
G	1181-115-5.0	1408	5 --	ML	Sandy Silt, very dark gray (10YR 3/1), moist, 20% fine to coarse-grained sand, some gravel, some cobbles, no plasticity
			-		
			6 --		End at 5.0 feet
			-		
			7 --		
			-		
			8 --		
			-		
			9 --		
			-		
			10 --		
			-		
			11 --		
			-		
			12 --		
			-		
			13 --		
			-		
			14 --		
			-		
			15 --		
			-		
			16 --		
			-		
			17 --		
			-		
			18 --		
			-		
			19 --		
			-		
			20 --		

G - Grab Sample



GEOCON
CONSULTANTS, INC.

BORING 1181-116

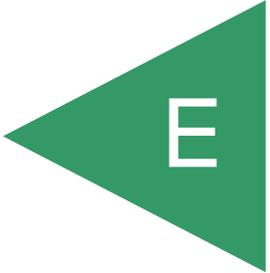
Project No. S9500-06-06
Client: Caltrans
Location: Route 60
 Rowland Heights, California

Excavation Date: July 25, 2012
Excavation Method: Hand Auger
Excavation Size: 3-inch diameter
Logged By: Mike Akoto
Reviewed By:

Sample Type	Sample Number	Time	Depth (in feet)	USCS Class.	Surface Conditions: Bare ground Description
			0 --		
			-		
G	1181-116-1.0	1045	1 --	ML	Sandy Silt, brown (10YR 5/5), dry, soft, 20% fine to coarse-grained sand, some gravel, no plasticity
			-		
			2 --		
			-		
G	1181-116-3.0	1115	3 --	ML	Sandy Silt, dark yellowish brown, (10YR 4/6), dry, soft, 20% fine to coarse-grained sand, some gravel, some cobbles, no plasticity
			-		
			4 --		
			-		
G	1181-116-5.0	1135	5 --	ML	Sandy Silt, dark yellowish brown, (10YR 4/6), dry, soft, 20% fine to coarse-grained sand, some gravel, some cobbles, some rootlets, no plasticity
			-		
			6 --		End at 5.0 feet
			-		
			7 --		
			-		
			8 --		
			-		
			9 --		
			-		
			10 --		
			-		
			11 --		
			-		
			12 --		
			-		
			13 --		
			-		
			14 --		
			-		
			15 --		
			-		
			16 --		
			-		
			17 --		
			-		
			18 --		
			-		
			19 --		
			-		
			20 --		

G - Grab Sample

APPENDIX

A solid green triangle pointing to the left, containing the letter 'E' in white.

E

APPENDIX E

DATA VALIDATION REPORT

AERIALY DEPOSITED LEAD (ADL) INVESTIGATION REPORT ROUTE 60 WESTBOUND OFFRAMP WIDENING AT NOGALES STREET POST MILE 20.6

Caltrans Contract Number 07A2730-A01, Task Order # 27

EA 07-4H9001

Los Angeles County, California

INTRODUCTION

This report summarizes the findings of the data validation for soil samples collected by Geocon Consultants, Inc. (Geocon), on behalf of the California Department of Transportation (Caltrans), for the State Route 60 Westbound Offramp Widening at Nogales Street Project (Project) located in Los Angeles County, California. Samples were submitted to Advanced Technology Laboratories in Signal Hill, California (ATL) for laboratory analysis; a State of California laboratory certified by the National Environmental Laboratory Accreditation Program (NELAP).

Field Quality Assurance and Quality Control (QA/QC) samples for soil samples collected within the Project area consisted of equipment blanks and field blanks. Laboratory QA/QC samples consisted of method blanks, matrix spike / matrix spike duplicate (MS/MSDs) samples, laboratory control samples (LCS), and laboratory duplicate samples .

The field quality control samples were submitted to the laboratory for analyses along with the primary soil samples collected in the Project area. Data validation was performed in accordance with the United States Environmental Protection Agency (U.S. EPA) Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (U.S. EPA, 2010). The data quality evaluation for the soil samples analyzed is described below.

Data qualified as estimated (J) are likely to be quantitatively biased to some degree. Such data provide only an approximate measure of the respective analyte concentration(s). These data qualifiers have been appended to the respective data and are reflected in the data summary tables. The data, as qualified, are acceptable and can be used for decision-making purposes; however, the limitations identified by the applied qualifiers should be considered when using the data.

1.1 DATA COMPLETENESS

A total of 50 samples (including field QC samples) were submitted to ATL for analysis. Results for all samples were reported by ATL. The project goal of a minimum of 90% completeness for collected data was achieved. A total of 50 samples (including field QC samples) listed on the chain-of-custody were analyzed and reported by ATL. Shallow soil samples were collected at depths up to 5.0 feet. Soil samples were placed into plastic bags, homogenized in the field, and then placed into laboratory-provided 4 ounce glass sample jars.

1.2 SAMPLE HOLD TIMES

All samples submitted to the laboratory for analysis were properly preserved according to guidelines established by the appropriate methods as verified by the laboratory. Recommended hold times were achieved for all analyses performed.

1.3 BLANK SAMPLES

Equipment Blank Samples

Equipment blank samples are used to evaluate for potential residual contamination on sampling equipment. The equipment blank sample was obtained by collecting distilled water passed over the hand-augers into an unpreserved, laboratory-provided container. Three equipment blank samples were collected during the two days of field work. The equipment blanks were analyzed for total lead using EPA Method 6010B. The Project met the frequency of collection requirements as specified in the Caltrans Contract #07A2730-A01, Task Order #27 (Task Order). The target analyte (lead) was not detected in any of the equipment blanks at a concentration equal to or greater than the method detection limit (MDL); therefore, data qualification for the associated project soil samples based on equipment blank results was not required.

Field Blank Samples

Preparing blank samples in the field may identify ambient atmospheric contamination that could potentially become entrained in the samples during collection. Three field blank samples were collected in the sampling area by directly filling the laboratory-provided sample containers with distilled water. The field blank samples were analyzed for total lead using EPA Method 6010B. The target analyte (lead) was not detected in the field blanks at a concentration equal to or greater than the MDL; therefore, data qualification for the associated project soil samples based on field blank results was not required.

Method Blank Samples

The laboratory analyzed method blanks to provide an additional measure of internal quality control. Method blank results for all analytes were less than the reported practical quantitation limit (PQLs), therefore, data qualification based on method blank results was not required for the associated project samples.

1.4 LABORATORY CONTROL SAMPLES

LCSs were analyzed as a measure of data accuracy. Internal laboratory QA/QC data associated with these analyses met criteria, including percent recoveries (%Rs). The Project laboratory met the frequency requirements for LCS analyses established by U.S. EPA National Functional Guidelines.

1.5 LABORATORY DUPLICATE SAMPLES

As another estimate of precision, the laboratory performed duplicate analyses of unspiked project samples at the frequency of collection requirements established by U.S. EPA National Functional Guidelines. The relative percent differences (RPDs) did not exceed the control limit of 20% established by the National Functional Guidelines (U.S. EPA, 2010) for the technical review of non-homogenous soil samples, with the following exceptions.

- Laboratory batch ID B2G0609 – Method 6010B lead analysis; RPD for lead result in the laboratory duplicate sample B2G0609-DUP1 was 27.1%. The RPD value in this batch exceeded the control limit of 20%, therefore, lead results in the soil sample associated with this QA/QC batch was qualified as estimated “J.”
- Laboratory batch ID B2G0609 – Method 6010B lead analysis; RPD for lead result in the laboratory duplicate sample B2G0609-DUP2 was 39.4%. The RPD value in this batch exceeded the control limit of 20%, therefore, lead results in the soil sample associated with this QA/QC batch was qualified as estimated “J.”
- Laboratory batch ID B2G0610 – Method 6010B lead analysis; RPD for lead result in the laboratory duplicate sample B2G0610-DUP2 was 20.5%. The RPD value in this batch exceeded the control limit of 20%, therefore, lead results in the soil sample associated with this QA/QC batch was qualified as estimated “J.”
- Laboratory batch ID B2H0061 – Method 7420 TCLP lead analysis; RPD for TCLP lead result in the laboratory duplicate sample B2G0610-DUP2 was 20.6%. The RPD value in this batch exceeded the control limit of 20%, therefore, TCLP lead results in the soil sample associated with this QA/QC batch was qualified as estimated “J.”

1.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLES

The laboratory also analyzed MS/MSD samples to assess data accuracy. The purpose of spiked samples is to evaluate the effect of the matrix on a method's recovery efficiency (percent recovery). A sample prepared by adding a known concentration of a target analyte to an aliquot of a specific homogenized environmental sample for which an independent estimate of the target analyte concentration is available. The matrix spike is accompanied by an independent analysis of the unspiked aliquot of the environmental sample. Only MS/MSD samples collected on site are considered appropriate for assessing matrix conditions. When recoveries from MS/MSD samples exceeded acceptance limits for both the primary and duplicate samples, the detections are qualified as estimated biased high (J+), and the non-detects are not qualified. When recoveries from MS/MSD samples were less than compound-specific acceptance limits, the detections are qualified as estimated biased low (J-) and non-detects are qualified as estimated (UJ).

The purpose of matrix spike duplicate (MSD) samples is to evaluate the precision of the intralaboratory analytical process for specific analytes in a sample matrix. The duplicate sample is prepared simultaneously as a split with the matrix spike sample, and each is spiked with identical, known concentrations of targeted analyte(s). The precision is measured by the RPD between the spiked results. The percent recoveries and RPDs of target analytes were within the laboratory determined control limits.

1.7 Summary of Qualified Data

All other quality assurance data met the acceptance criteria for soil samples. Except for the qualified data discussed above, the results of field and laboratory quality control indicate that the sampling and analysis were performed consistent with the analytical methods. Overall, the results of the QA/QC review indicate that the test results are valid and usable. The following table summarizes the sample data warranting qualification based on the data review elements discussed above.

Lab ID	Sample ID	Compound	Laboratory Work Order Number	Analytical Method	Qualified Result	Units
1202647-01	1181-101-0.5	Lead	1202647	USEPA Method 6010B	140 J	mg/kg
1202647-02	1181-101-1.5	Lead	1202647	USEPA Method 6010B	36 J	mg/kg
1202647-03	1181-102-0.5	Lead	1202647	USEPA Method 6010B	120 J	mg/kg
1202647-04	1181-102-1.5	Lead	1202647	USEPA Method 6010B	21 J	mg/kg
1202647-05	1181-103-0.5	Lead	1202647	USEPA Method 6010B	97 J	mg/kg
1202647-06	1181-103-1.5	Lead	1202647	USEPA Method 6010B	21 J	mg/kg

1202647-07	1181-104-0.5	Lead	1202647	USEPA Method 6010B	95 J	mg/kg
1202647-08	1181-104-1.5	Lead	1202647	USEPA Method 6010B	60 J	mg/kg
1202647-09	1181-105-1.0	Lead	1202647	USEPA Method 6010B	52 J	mg/kg
1202647-10	1181-105-3.0	Lead	1202647	USEPA Method 6010B	9.0 J	mg/kg
1202647-11	1181-105-5.0	Lead	1202647	USEPA Method 6010B	21 J	mg/kg
1202647-12	1181-107-1.0	Lead	1202647	USEPA Method 6010B	87 J	mg/kg
1202647-13	1181-107-3.0	Lead	1202647	USEPA Method 6010B	13 J	mg/kg
1202647-14	1181-107-5.0	Lead	1202647	USEPA Method 6010B	7.6 J	mg/kg
1202647-15	1181-108-1.0	Lead	1202647	USEPA Method 6010B	31 J	mg/kg
1202647-16	1181-108-3.0	Lead	1202647	USEPA Method 6010B	30 J	mg/kg
1202647-17	1181-108-5.0	Lead	1202647	USEPA Method 6010B	19 J	mg/kg
1202647-18	1181-109-1.0	Lead	1202647	USEPA Method 6010B	38 J	mg/kg
1202647-19	1181-109-3.0	Lead	1202647	USEPA Method 6010B	10 J	mg/kg
1202647-20	1181-109-5.0	Lead	1202647	USEPA Method 6010B	5.8 J	mg/kg
1202647-21	1181-110-1.0	Lead	1202647	USEPA Method 6010B	49 J	mg/kg
1202647-22	1181-110-3.0	Lead	1202647	USEPA Method 6010B	7.1 J	mg/kg
1202647-23	1181-110-5.0	Lead	1202647	USEPA Method 6010B	2.7 J	mg/kg
1202647-24	1181-114-1.0	Lead	1202647	USEPA Method 6010B	6.7 J	mg/kg
1202647-25	1181-114-3.0	Lead	1202647	USEPA Method 6010B	7.8 J	mg/kg
1202647-26	1181-114-5.0	Lead	1202647	USEPA Method 6010B	12 J	mg/kg
1202647-27	1181-106-1.0	Lead	1202647	USEPA Method 6010B	35 J	mg/kg
1202647-28	1181-106-3.0	Lead	1202647	USEPA Method 6010B	15 J	mg/kg
1202647-29	1181-106-5.0	Lead	1202647	USEPA Method 6010B	10 J	mg/kg
1202647-30	1181-111-1.0	Lead	1202647	USEPA Method 6010B	61 J	mg/kg
1202647-31	1181-111-3.0	Lead	1202647	USEPA Method 6010B	7.8 J	mg/kg
1202647-32	1181-111-5.0	Lead	1202647	USEPA Method 6010B	8.3 J	mg/kg
1202647-33	1181-112-1.0	Lead	1202647	USEPA Method 6010B	91 J	mg/kg
1202647-34	1181-112-3.0	Lead	1202647	USEPA Method 6010B	9.7 J	mg/kg
1202647-35	1181-112-5.0	Lead	1202647	USEPA Method 6010B	5.2 J	mg/kg
1202647-36	1181-113-1.0	Lead	1202647	USEPA Method 6010B	120 J	mg/kg
1202647-37	1181-113-3.0	Lead	1202647	USEPA Method 6010B	4.3 J	mg/kg
1202647-38	1181-113-5.0	Lead	1202647	USEPA Method 6010B	5.7 J	mg/kg
1202647-39	1181-115-1.0	Lead	1202647	USEPA Method 6010B	17 J	mg/kg
1202647-01	1181-101-0.5	TCLP Lead	1202647	USEPA Method 7420	0.35 J	mg/kg
1202647-03	1181-102-0.5	TCLP Lead	1202647	USEPA Method 7420	0.31 J	mg/kg
1202647-07	1181-104-0.5	TCLP Lead	1202647	USEPA Method 7420	0.33 J	mg/kg

2.0 REFERENCES

- U.S. EPA, 2010, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, Final, Office of Superfund Remediation and Technology Innovation, Washington, D.C., January.

INFORMATION HANDOUT

LANDSCAPE (RECYCLED WATER)

- ARTICLE 8 - BACKFLOW AND CROSS-CONNECTION CONTROL
- ARTICLE 9 - RECYCLED WATER USE REGULATIONS
- CROSS-CONNECTION PLAN APPROVAL APPLICATION
- RECYCLED WATER ANNUAL PERMIT
- RECYCLED WATER NOTES

ARTICLE 8 BACKFLOW AND CROSS-CONNECTION CONTROL

8.01 CROSS-CONNECTIONS

8.01.01 **General Provisions:** These regulations are adopted pursuant to the State of California Code of Regulations, Title 17, Sections 7583 through 7605 inclusive, entitled "Regulations Relating to Cross-Connections." These provisions shall be in addition to, but not in lieu of, the controls and requirements of other regulatory agencies such as local government agencies and local and State health departments. These regulations are intended to protect the District's potable water supply and are not intended to provide regulatory measures for protection of consumers from the hazards of cross-connections within their own premises. Backflow prevention devices, as required in these provisions, shall be provided and maintained by the applicant, owner, or consumer at his/her expense. Such devices shall be located on the premises of the property served and shall not be considered part of the District's water distribution system.

It is the intent of these regulations to prevent any person, firm, or corporation from making or maintaining or causing to be made or maintained, temporarily or permanently, for any period of time whatsoever, any cross-connection between plumbing pipes or water fixtures being served with water by the District and any other source of water supply, or to maintain any sanitary fixture or other appurtenance or fixture which, by reason of its construction, may cause or allow backflow of water or other substances into the water supply system of the District.

The purpose of these regulations are:

- 8.01.01.01 To protect the District's water system against actual or potential cross-connections by isolating, within the premises, contamination that may occur because of some undiscovered or unauthorized cross-connection on the premises.
- 8.01.01.02 To eliminate existing connections between the District's water system and other sources of water that are not approved as safe and potable for human consumption.
- 8.01.01.03 To eliminate cross-connections between drinking water systems and other sources of water or processed water used for any purpose whatsoever which jeopardize the safety of the potable water supply.
- 8.01.01.04 To prevent the making of cross-connections in the future.

8.02 CROSS-CONNECTION PROTECTION

- 8.02.01 Whenever backflow protection has been determined necessary by the District, the consumer will be required to install an approved backflow prevention assembly at his/her expense. Any such assembly will be installed as close as practicable to the downstream side of the consumer's metered service or the connection to the District's distribution system in accordance with District Standard Drawing No. 4.
- 8.02.02 Whenever backflow protection has been determined to be necessary on a water supply line entering a consumer's premises, then any and all water supply lines from the District's mains entering such premises, buildings, or structures shall be protected by an approved backflow prevention assembly. The type of assembly to be installed shall be in accordance with the requirements set forth in these Rules and Regulations.

8.03 REQUIREMENT FOR PROTECTION ASSEMBLIES

- 8.03.01 **Protection from an Auxiliary Supply:** Each service connection originating from the District's water system for supplying water to premises having an auxiliary water supply shall be protected against backflow of water from the premises into the public water system, unless the auxiliary water supply is accepted as an additional source by the District and is approved by the health agency.
- 8.03.02 **Protection from Processed Water:** Each service connection originating from the District's water system for supplying water to premises on which any substance is handled in such fashion as to permit its entry into the water system shall be protected against backflow of water from the premises into the public system. This shall include the handling of processed waters and waters originating from the District's water supply system which have been subject to deterioration in quality.
- 8.03.03 **Protection from Internal Cross-Connection:** Backflow prevention assemblies shall be installed on the service connection to any premises that has: (a) internal cross-connections, (b) intricate plumbing and piping arrangements, or (c) restrictions where entry to all portions of the premises is not readily accessible for inspection purposes, making it impractical or impossible to determine whether or not cross-connections exist.
- 8.03.04 **Protection from Recycled Water:** A property which is also supplied with recycled water, in addition to the District's potable water supply, shall also comply with such additional cross-connection provisions specified in these Rules and Regulations pertaining to recycled water service. Protective devices will be required on the District's potable water services, although under no circumstances will the District tolerate an actual or potential cross-connection between the District's potable water supply and the consumer's on-site recycled water facilities. Tracer dyes may be periodically required to be introduced into the recycled water system by the owner, where feasible, so that the existence of cross-

connections with (or backflow into) the potable water system will be visible. In all cases in which recycled water is used on individually and privately owned premises and is under individual and private control, such as in the case of an industrial user, or in which recycled water is used at schools and public parks with extensive systems and high public exposure and use, or in which the on-site recycled water system has additional pressure added through pumping, the District shall require a backflow prevention device on its potable water supply. The type of protection device shall be determined by the District in accordance with Article 8.07 herein.

8.04 TYPE OF PROTECTION REQUIRED

The type of protection that shall be provided to prevent backflow shall be commensurate with the degree of hazard that exists on the consumer's premises. The type of protective assembly that may be required includes: Double Detector Check Assembly (DDC), Reduced Pressure Principle Backflow Prevention Assembly (RP), and an Air-Gap Separation (AG). The consumer may choose a higher level of protection than is required by the District. The minimum types of backflow protection to premises with varying degrees of hazard are listed below. Situations which are not covered shall be evaluated on a case-by-case basis, and the appropriate backflow protection assembly shall be determined by the District and/or health agency.

8.05 APPROVED BACKFLOW PREVENTION ASSEMBLIES

8.05.01 Only backflow prevention assemblies which have been approved by the District shall be acceptable for installation by a consumer at his/her connection to the District's potable water system. The approved list shall be based on the current list periodically published by the University of Southern California Foundation for Cross-Connection Control.

8.05.02 The District will provide, upon request, to any interested or affected consumer a list of approved backflow prevention assemblies.

8.06 BACKFLOW PREVENTION ASSEMBLY INSTALLATION

Backflow prevention assemblies shall be installed in a manner prescribed in Section 7603, Title 17, of the California Code of Regulations. Location of the assemblies should be as close as practical to the consumer's connection. The District shall have the final authority in determining the required location of a backflow prevention assembly. In any event, no connections will be permitted to be made to the service piping between the District's facilities and the backflow prevention assembly.

8.07 PROTECTIVE ASSEMBLIES

The protective assembly required shall depend on the degree of hazard as tabulated below:

8.07.01 **Assembly for Auxiliary Water Supply:** At the service connection to any premises where there is an auxiliary water supply handled in a separate piping system with no known cross-connection, the District's water supply

shall be protected by an approved, reduced-pressure principle backflow prevention assembly or air-gap separation assembly.

- 8.07.02 **Assembly for Recycled Water:** At the service connection to any premises where the District's potable water system is used to supplement a recycled water supply, or where recycled water is used and there is no interconnection, the District's water supply shall be protected by an air-gap separation. The air-gap separation shall be located as close as practicable to the metered service, and all piping between the metered service and the receiving tank shall be visible or available for inspection. If these conditions cannot be reasonably met, the potable water supply shall be protected with an approved, reduced-pressure principle backflow prevention assembly, providing this alternative is acceptable to both the District and the health agency.
- 8.07.03 **Assembly for Objectionable Substance:** At the service connection to any premises on which a substance that would be objectionable (but not necessarily hazardous to health), if introduced into the District's water supply, is handled so as to constitute a cross-connection, the District's water supply shall be protected with an approved, reduced-pressure principle backflow prevention assembly installed in accordance with District standards.
- 8.07.04 **Assembly for Internal Cross-Connections:** At the service connection to any premises on which there is an auxiliary water supply where cross-connections are known to exist and which cannot be presently eliminated, the District's water supply shall be protected with an approved, reduced-pressure principle backflow prevention assembly installed in accordance with District standards.
- 8.07.05 **Assembly For Toxic Substance:** At the service connection to any premises on which any material dangerous to health or toxic substance in toxic concentration is or may be handled, the District's water supply shall be protected by an air-gap separation. The air-gap separation shall be located as close as practicable to the metered service, and all piping between the metered service and receiving tank shall be visible or available for inspection. If these conditions cannot be reasonably met, the potable water supply shall be protected with an approved, reduced-pressure principle backflow prevention assembly, providing this alternative is acceptable to both the District and the health agency.
- 8.07.06 **Assembly for Sewage:** At the service connection to any sewage treatment plant or sewage pumping station, the District's water supply shall be protected by an air-gap separation. The air-gap separation shall be located as close as practicable to the metered service, and all piping between the metered service and receiving tank shall be visible or available for inspection. If these conditions cannot be reasonably met, the potable water supply shall be protected with an approved, reduced-pressure principle backflow prevention assembly, providing this alternative is acceptable to both the District and the health agency.

- 8.07.07 **Assemblies for Master Metered Connections and Looped Private Fire Protection Systems:** At service connections to any premises served by a master meter assembly, or which have a looped private fire protection system that is not maintained by the District, the District's water supply shall be protected with an approved, reduced-pressure principle backflow prevention assembly installed in accordance with District standards.
- 8.07.08 **Assemblies for Commercial and Industrial Developments:** At the service connection to any commercial or industrial development, the District's water supply shall be protected with an approved, reduced-pressure principle backflow prevention assembly installed in accordance with District standards.
- 8.07.09 **Assemblies for Private Fire Protection Systems:** At the service connection to any Class I or II private fire protection system, the District's water supply shall be protected with an approved, double-detector check assembly installed in accordance with District Standard Drawing No. 20A. Other classes of private fire protection systems shall be protected with a minimum of an approved, double-detector check assembly installed in accordance with District standards. Higher levels of protection, as determined by the District, may be required for Class III or higher private fire protection systems.
- 8.07.10 **Assemblies for Landscape Irrigation Service:** At the service connection to any landscape irrigation service, including those for landscape maintenance districts, the District's water supply shall be protected with an approved, reduced-pressure principle backflow prevention assembly installed in accordance with District standards.
- 8.07.11 **Fire Protection System:** The District's water supply shall be protected by an air-gap separation on premises where the fire protection system is directly connected to the District's system and is interconnected with an unapproved auxiliary water supply. If these conditions cannot be reasonably met, the potable water supply shall be protected with an approved reduced pressure principle backflow prevention assembly, providing this alternative is acceptable to both the District and the health agency.
- 8.07.12 **Use of Pumps on Consumer's Side of the Meter:** When a consumer receiving service at the District's main or service connection must, by means of a pump of any kind, elevate or increase the pressure of the water received, the pump shall not be attached to any pipe directly connected to the District's main or service pipe. Such pumping or boosting of pressure shall be done from a sump, cistern, or storage tank which shall be served by the District's distribution facilities through an approved air-gap assembly. If these conditions cannot be reasonably met, the potable water supply shall be protected with an approved, reduced-pressure principle backflow prevention assembly, providing this alternative is acceptable to both the District and the health agency.

8.08 BACKFLOW PREVENTION ASSEMBLY CHANGES

Approval must be obtained before a backflow prevention assembly is removed, relocated, or replaced. All costs related to removal, relocation, replacement, repair, or testing of a backflow prevention assembly shall be borne by the consumer.

- 8.08.01 **Removal:** The use of an assembly may be discontinued and the assembly removed from service upon presentation of sufficient evidence acceptable to the District to verify that a hazard no longer exists or is not likely to be created in the future.
- 8.08.02 **Relocation:** An assembly may be relocated following confirmation by the District that the relocation will continue to provide the required protection and satisfy installation requirements. A retest will be required following the relocation of the assembly.
- 8.08.03 **Repair:** An assembly may be removed and replaced, provided the water use is either discontinued until repair is completed and the assembly is returned to service or the service connection is equipped with other backflow protection approved by the District. A retest will be required following the repair of the assembly.
- 8.08.04 **Replacement:** An assembly may be removed and replaced provided the water use is discontinued until the replacement assembly is installed. All replacement assemblies must be approved by the District and must be commensurate with the degree of hazard involved.

8.09 SITE SUPERVISOR

At each premises, where it is determined by the District to be necessary, a site supervisor shall be designated by and at the expense of the consumer. This site supervisor shall be responsible for the monitoring of the consumer's backflow prevention assemblies and for avoidance of cross-connections. In the event of contamination or pollution of the drinking water system resulting from a cross-connection on the premises, the District shall be immediately notified by the site supervisor so that appropriate measures may be taken to overcome the contamination. The consumer shall provide the District with the names of all site supervisors and notify the District whenever a change occurs, or on an annual basis, whichever occurs first.

8.10 RESPONSIBILITIES

- 8.10.01 **Cross-Connection Protection Determination:** It shall be the responsibility of the General Manager to determine whether any service connection or the handling of substances within the premises served is deemed to constitute a hazard to the District's water system and to determine the degree of hazard and to establish the requirements for protection. The General Manager shall accomplish the requirements for protection in conjunction with the health agency.

- 8.10.02 **Cross-Connection Protection Installation and Maintenance:** It shall be the responsibility of the consumer to install and maintain the required protective assembly and to have the assembly inspected and tested at least once a year, or upon change of ownership, whichever occurs first. Testing shall be performed by a person who has demonstrated to the District his/her competency in testing backflow devices. The assembly shall be repaired, overhauled, or replaced at the expense of the consumer whenever it is found to be defective. It shall be the duty of the District to see that these tests are made in accordance with the responsibility designated in Section 7584 of Title 17, California Code of Regulations.

8.11 WATER SYSTEM SURVEY

- 8.11.01 The District shall review all requests for new services to determine what degree and type of backflow protection is required. Plans and specifications must be submitted to the District upon request for review of possible cross-connection hazards as a condition of service for new service connections. If it is determined that a backflow prevention assembly is necessary to protect the public water system, the required assembly must be installed before service will be granted.
- 8.11.02 The District may require an on-premise inspection to evaluate cross-connection hazards. Any consumer who cannot or will not allow an on-premise inspection of his/her piping system shall be required to immediately install a District-approved backflow prevention assembly immediately downstream from the consumer's metered service.
- 8.11.03 The District may, at its discretion, require a re-inspection for cross-connection hazards on any premise to which it serves water. Any consumer who cannot or will not allow an on-premise inspection of his/her piping system shall be required to immediately install a District-approved backflow prevention assembly immediately downstream from the consumer's metered service.

8.12 CONSUMER NOTIFICATION – ASSEMBLY INSTALLATION

- 8.12.01 The District will notify the consumer of the findings of any such inspection provided for in Article 8.11 above, listing corrective action to be taken if required. A period of approximately sixty (60) days will be given to complete all corrective action required, including installation of backflow prevention assemblies.
- 8.12.02 A second notice will be sent to each consumer who fails to take the required corrective action prescribed in the first notice within the time period allowed. The second notice shall give the consumer a two (2) week period to comply with the required corrective action. If no action is taken within the two (2) week period, the District will disconnect water service to the affected consumer until the required corrective actions are taken.

8.13 BACKFLOW PREVENTION ASSEMBLY TESTING

- 8.13.01 The owners of any premises on which, or on account of which, backflow prevention assemblies are installed shall have the assemblies tested by a person who has demonstrated to the District his/her competency in testing these assemblies. Backflow prevention assemblies must be tested at least annually and immediately after installation, relocation, repair, or when the ownership or downstream water use has been changed. Testing intervals shall be set by the District. Required intervals for such testing may be shortened if it is determined by the District that a history of malfunctioning has been established, or if the degree of hazard makes more frequent inspections advisable. No assembly shall be placed back into service unless it is functioning as required. A report in a form provided by the District shall be returned to the District each time an assembly is tested, relocated, repaired, or when ownership or downstream water use has been changed.
- 8.13.02 The District will supply affected consumers with a list of persons acceptable to the District to test backflow prevention assemblies. The District will notify affected consumers by mail when initial, annual, or periodic testing of an assembly is required and also supply consumers with the necessary forms, which must be filled out and returned to the District each time an assembly is tested or repaired.

8.14 CONSUMER NOTIFICATION – TESTING AND MAINTENANCE

- 8.14.01 The District will annually notify each affected consumer by mail when it is time for the backflow prevention assembly installed at his/her service connection to be tested. This written notice shall provide the consumer approximately thirty (30) days in which to have the assembly tested and shall supply the consumer with the necessary form to be completed and submitted to the District.
- 8.14.02 A second notice shall be sent to each consumer who fails to test his/her backflow prevention assembly as prescribed in the first notice within the thirty (30) day period allowed. The second notice will give the consumer a two (2) week period to have the backflow prevention assembly tested.
- 8.14.03 A third notice shall be sent if no action is taken within the two (2) week period following the second notice. This notice shall provide the consumer with a final two (2) week period to have the backflow prevention assembly tested.
- 8.14.04 If the backflow prevention assembly still remains untested at the end of this final two (2) week period, the District shall proceed to disconnect the consumer's water service as set forth in Article 8.15. The water service will remain terminated until acceptable documentation of a successful test on the backflow prevention assembly is received at the District office.

8.15 **DISCONNECTION OF SERVICE FOR CROSS-CONNECTION VIOLATION**

Service of water to any premises may be disconnected by the District after reasonable notification if unprotected cross-connections exist on the premises, if any defect is found in an installed backflow prevention assembly, or if a backflow prevention assembly has been removed or bypassed. Service will not be reconnected until such conditions or defects are corrected. Disconnection of service may be summary, immediate, and without notice whenever, in the judgment of the General Manager or health agency, such action is necessary to protect the purity of the water supply or the safety of the water system.

8.15.01 **Basis for Disconnection:** Conditions or water uses that create a basis for water service disconnection shall include, but are not limited to, the following:

- 8.15.01.01 Refusal to install a required backflow prevention assembly
- 8.15.01.02 Refusal to test a backflow prevention assembly
- 8.15.01.03 Refusal to repair a faulty backflow prevention assembly
- 8.15.01.04 Refusal to replace a faulty backflow prevention assembly
- 8.15.01.05 Direct or indirect connection between the District water system and a sewer line
- 8.15.01.06 Unprotected direct or indirect connection between the District water system and a system or equipment containing contaminants
- 8.15.01.07 Unprotected direct or indirect connection between the District water system and an auxiliary water system
- 8.15.01.08 A situation which presents an immediate health hazard to the District water system
- 8.15.01.09 If ordered by local or State Health Department

8.15.02 **Water Service Disconnection Procedures:** For conditions 8.15.01.01 through 8.15.01.09, the District will disconnect service to a consumer's premises after two (2) written notices have been sent specifying the corrective action needed and the time period in which it must be done. If no action is taken within the allowed time period, water service will be disconnected. The District may disconnect any service without notice if an immediate health threat to other consumers or to the District's potable supply is evident.

- END OF ARTICLE 8 -

ARTICLE 9 RECYCLED WATER USE REGULATIONS

9.01 GENERAL

The Walnut Valley Water District (District) operates and maintains a recycled water distribution system, which provides recycled water service for landscape irrigation, agricultural irrigation, or any industrial process purpose.

It is the intent of the District that recycled water be used in a manner that, in compliance with any and all applicable Federal, State and local statutes, ordinances, regulations, and other requirements, will achieve the following:

- Prevent direct human consumption of recycled water
- Limit direct human contact with recycled water
- Limit runoff of recycled water by controlling the installation and operation of recycled water facilities

Where water is required for landscape irrigation, agricultural irrigation, or industrial process purposes, it is the intent of the District to provide the applicant, owner, or customer with recycled water in lieu of potable water where feasible. Each use must be approved on a case-by-case basis. Determination of the specific uses to be allowed shall be in accordance with the treatment standards and water quality requirements set forth in Title 22, Division 4, Chapter 3, of the California Code of Regulations and with the intent of these Rules and Regulations to protect the public health. In addition, each use shall be subject to the availability of distribution facilities and the feasibility of making such facilities available.

9.02 AREA SERVED

The requirements set forth herein pertain to recycled water service to land or improvements, or both, lying within and without the boundaries of the District.

The District may, at its discretion from time to time, contract with an applicant, owner, or customer to construct the necessary service lines and appurtenant facilities as a condition to obtaining service from the District.

9.03 SERVICE CONNECTIONS

Recycled water may be used for landscape irrigation, agricultural irrigation, or industrial process purposes, provided that all such use is in accordance with these Rules and Regulations and provided further that:

- 9.03.01 The design and construction of the on-site recycled water system shall be approved by the District.
- 9.03.02 The operator of the on-site recycled system is able to obtain a permit to receive such water and use it only for approved purposes.

- 9.03.03 Violation of permit conditions will result in reprimand, fines, and/or disconnection of service, depending on the severity of the violation.

Any such permit may be revoked by the District and thereupon such recycled water service shall cease in the manner provided in Article 9.06.

9.04 APPLICATION PROCEDURE

- 9.04.01 An application for recycled water service must be made in writing and signed by the applicant, owner, or customer if he/she is not one and the same. The application form shall be furnished by the District (Appendix G).

- 9.04.02 The applicant for a recycled water service permit under these Rules and Regulations must state thereon that he/she agrees to comply with the requirements or any and all applicable Federal, State, and local statutes, ordinances, regulations, and other requirements. The District may, at its discretion, require specific prior approval of any permit by any Federal, State, or local agency having jurisdiction over the operation of the District's facilities.

- 9.04.03 Upon receipt of an application, the District shall review the application, as it deems necessary. If the application is approved by the District, the General Manager will prescribe requirements in writing to the applicant as to the facilities necessary to be constructed, the manner of connection, and any other applicable requirements.

9.05 PERMITS

The permit for recycled water service shall include the following (Appendix G):

- Name and address of applicant
- A drawing of the proposed system showing the location and size of all valves, pipes, outlets, and appurtenances
- A statement that no changes in the proposed system will be undertaken without application and approval of an amended permit
- A statement acknowledging the applicant's liabilities due to violation of these Rules and Regulations, and the District's rights regarding water service as outlined in these Rules and Regulations

9.06 DISCONNECTION OF SERVICE

By reason of circumstances beyond the control of the District and in order to protect facilities of the District, or for the protection of the public health, safety, and welfare of the residents and property owners of the District, service may be disconnected under the conditions set forth below, notwithstanding the existence of a valid and subsisting permit for recycled water service:

- 9.06.01 Recycled water service may be disconnected on a temporary or permanent basis in the manner provided in Articles 8 and 9 herein at any

time the applicant's, owner's, or customer's operations do not conform to the applicable requirements as provided in Articles 8 and 9.

- 9.06.02 The District may disconnect recycled water service on a temporary basis at any time recycled water at the terminal point of the District's distribution system does not meet the requirements of regulatory agencies, including those prescribed by Title 22, Division 4, Chapter 3, of the California Code of Regulations. Recycled water service would, in such case, be reconnected at such time that recycled water at the terminal point of the distribution system would again meet the requirements of regulatory agencies, or at such time that the District would supplement the recycled water system with water from other sources.

9.07 OTHER LIMITATIONS OF SERVICE

Whenever possible, the District shall operate the recycled water system at a lower pressure than the potable water system so that the flow would be from the potable to the recycled system in the event of a cross-connection.

9.08 SIZE, LOCATION, AND INSTALLATION OF SERVICE

The District reserves the right to determine the size and location of the recycled water lines, service connections, and meters, including the flow rate of recycled water deliveries. The District shall have the right to determine the kind and size of backflow protection devices for potable water service in accordance with Article 8 and any and all other appurtenances to the service. The recycled water service lines shall be installed to the curb line or property line of the customer's property abutting upon a public street, highway, alley, easement, lane, or road (other than a freeway) in which are installed recycled water mains of the District.

9.09 LIMITATIONS ON SERVICE CONNECTIONS

No permit shall be issued except upon the following conditions:

- 9.09.01 The District reserves the right to limit the area of land under one ownership to be supplied by one recycled water service connection and recycled water meter.
- 9.09.02 The District reserves the right to require recycled water customers to install on-site storage facilities, at the discretion of the General Manager, to meet requested demands in order to maintain the operational capability of the recycled water system.
- 9.09.03 A recycled water service connection and recycled water meter shall not be used to supply adjoining property of a different owner.
- 9.09.04 When property provided with a recycled water service connection and recycled water meter is subdivided, such connection and meter shall be considered as serving the lot or parcel of land that it directly or first enters. Additional recycled water mains and/or recycled water service

lines will be required for all subdivided areas in accordance with these Rules and Regulations.

9.09.05 All recycled water used on any premises where a meter is installed must pass through the meter. Customers shall be held responsible and charged for all recycled water passing through their meters.

9.09.06 Every recycled water service line installed by the District is equipped with an angle meter stop on the inlet side of the meter. The angle meter stop is intended for the exclusive use of the District in controlling the recycled water supply through the recycled water service line. If the angle meter stop is damaged by the customer's use to an extent requiring replacement, such replacement shall be at the customer's expense.

9.09.07 Recycled water service may be supplied to residential property under the following conditions, provided that all attributes of the system are in compliance with Article 9 of these Rules and Regulations.

9.09.07.01 The property area proposed to be irrigated with recycled water is: (i) under ownership and/or control of a municipality or approved homeowner's association; (ii) has been designated as permanent open space; (iii) or is part of a Lighting and Open Space Maintenance District (LOSMD).

9.09.07.02 Upon application to the District by a property owner who can demonstrate major irrigation needs, the General Manager or designee shall evaluate such request on a case-by-case basis.

9.10 RELOCATION OF RECYCLED WATER SERVICE LINE

Should a recycled water service line installed by the District pursuant to the request of the applicant, owner, or customer be of the wrong size or installed at a wrong location, the cost of all changes required shall be paid by the applicant, owner, or customer. The costs for all repairs or changes required to be performed by the District shall also be paid by the applicant, owner, or customer.

9.11 ILLEGAL CONNECTIONS

No person shall make connection to recycled water facilities of the District without a permit, except as provided in the permit issued by the District.

9.12 RECYCLED WATER METERS

9.12.01 Water meters suspected by the customer of failing to register correctly (either high or low) may be requested by the customer to be tested. Testing and payment of costs are to be conducted according to Article 4.04.08, Adjustment of Bills for Meter Error; and Article 4.03.06.03, Meter Test Charge.

9.12.02 Water meters used for recycled water service shall not be interchanged or used for domestic water service after repairs or meter testing has been accomplished.

9.13 AUTHORIZED USES FOR RECYCLED WATER

In accordance with the provisions of Article 9.01, the uses of recycled water may include, but not necessarily be limited to, landscape irrigation, agricultural irrigation, and industrial process water. Each such use must be considered for approval by the District on a case-by-case basis, and the District may determine, at its discretion, whether it is necessary or desirable to furnish recycled water for the specific uses involved. Determination as to specific uses to be allowed shall be in accordance with the treatment standards and water quality requirements set forth in Title 22, Division 4, Chapter 3, of the California Code of Regulations. Prior to approving such uses, the District may, at its discretion, set forth specific requirements as conditions to providing such services and/or require specific prior approval from the appropriate regulatory agencies.

9.14 SCHEDULING USE OF RECYCLED WATER

The District reserves the right to control and schedule the use of recycled water if, in the opinion of the General Manager or his/her designated representative, scheduling is necessary for purposes including, but not limited to, the maintenance of an acceptable working pressure in the recycled water system and providing for reasonable safeguards in relation to public health. Such scheduling may involve programming deliveries to different customers and to various portions of a single customer's on-site system.

9.15 RESPONSIBILITY FOR MAINTENANCE

The applicant, owner, or customer is responsible for maintaining all on-site facilities (downstream of the customer's service meter) and the District has no ownership interest therein.

9.16 WATER CONSERVATION

It is the desire of the District to effect conservation of water resources whenever possible and to limit direct human contact with recycled water. In accordance with the above, the rate and extent of application of recycled water shall be controlled by the customer so as to minimize runoff from irrigated areas.

9.17 RECYCLED WATER SITE SUPERVISOR

The local health department and the District shall be kept informed of the identity of the person responsible for the water piping on all premises concerned with these regulations. At each premises, a "Recycled Water Site Supervisor" shall be designated. This supervisor shall be responsible for the installation and use of pipelines and equipment and for the prevention of cross-connections. All conditions set forth in Article 8.09 shall apply to the Recycled Water Site Supervisor.

9.18 RECYCLED WATER FACILITIES DESIGN AND CONSTRUCTION

9.18.01 **General:** All off-site recycled water facilities and all on-site recycled water facilities shall be designed and constructed according to the requirements, conditions, and standards set forth in a separate supplement as adopted and revised by the District from time to time entitled, "Standard Specifications for the Construction of Water Facilities." This document is on file at the District office and by this reference is incorporated herein. The recycled water system, including both off-site and on-site facilities, shall be separate and independent of any potable water system.

9.18.02 **Off-Site Recycled Water Facilities:** Any recycled water distribution facilities determined by the District to be required to serve the property of an applicant, owner, or customer shall be provided by the applicant, owner, or customer at his/her expense.

The District shall prepare all plans and specifications and perform the installation of any facilities. In some cases, the District may require larger facilities to be installed than are actually required to serve the property of the applicant. In such event, the District will bear the difference in cost between the size required and the larger size of pipe, valves, fittings, labor, and other appurtenances specified by the District.

The District will assume responsibility for providing recycled water service to the point of connection upon completion of all distribution facilities and conveyance of any necessary easements. All easements shall be in a form acceptable to the District and shall not be subject to outstanding obligations to relocate such facilities or to any Deeds of Trust, except in instances where such is determined by the Board or the General Manager to be in the best interests of the District.

9.18.03 **On-Site Recycled Water Facilities:** Any on-site recycled water facility shall be provided by the applicant, owner, or customer at his/her expense. The applicant, owner, or customer shall retain title to all such on-site facilities.

9.18.03.01 **Plans and Specifications:** On-site recycled water facilities, in addition to conforming to these Rules and Regulations and the District's Standard Specifications for the Construction of Water Facilities, shall conform to State and local governing codes, rules, and regulations. When the District's Standard Specifications for the Construction of Water Facilities require a higher quality material, equipment, design or construction method than that required by State or local governing codes, rules, and regulations, the District's Rules and Regulations and specifications shall take precedence.

Plans and specifications must be approved by the District prior to commencing construction. Controller charts for

landscape sprinkler irrigation systems must be prepared and approved in accordance with the above-referenced specifications. Prior to commencement of service to any on-site system using recycled water, as-built record drawings shall be provided and approved by the District. The installed system shall be tested under active conditions to ensure that the operation is in accordance with the intent of these Rules and Regulations.

9.18.03.02 **Marking Safe and Unsafe Water Lines.** Where the premises contain dual or multiple water systems and piping, the exposed portions of pipelines shall be painted, banded, or marked at sufficient intervals to distinguish clearly, which water is safe and which is not safe in accordance with health department requirements. The same color purple or lavender shall always be used to indicate recycled water throughout the system. All outlets from recycled systems shall be posted as being contaminated and unsafe for drinking purposes.

9.18.03.03 **Water Main Separation.** Potable water mains shall be at a location as far as possible above the elevation of nearby recycled water lines, and recycled water lines shall be at a location as far as possible above the elevation of nearby sanitary sewers. These separation distances shall comply with the minimum separation criteria in the State and local health requirements. In the event that particular conditions create a situation where minimum separation criteria cannot be met, the California Department of Health Services' "Criteria for the Separation of Water Mains and Sanitary Sewers" shall be used.

9.19 RECYCLED WATER FACILITIES OPERATION

9.19.01 **Interruption of Service:** All recycled water delivery shall be on an interruptible basis, depending on the quantity and quality of the recycled water delivered to the District, in accordance with the terms of the individual service agreement between the District and the applicant, owner, or customer. Supplemental supplies from potable water sources are available to the recycled system and may be used in lieu of recycled water in the event of an interruption.

9.19.02 **Operation of Off-Site Recycled Water Facilities:** Operation and surveillance of all of the District's off-site recycled water system facilities, including but not limited to, recycled water pipelines, reservoirs, pumping stations, manholes, valves, connections, supply inerties, and other appurtenances and property, up to and including the District's meter assembly, shall be under the management and control of the District. No other persons, except authorized employees of the District, shall have any right to enter upon, inspect, operate, adjust, change, alter, move, or relocate any portion of the foregoing or any of the District's property.

9.19.03

Operation of On-Site Recycled Water Facilities: The operation and surveillance of all on-site recycled water system facilities, including but not limited to, landscape irrigation systems, agricultural irrigation systems, and systems utilized for industrial process purposes shall be under the management of a Recycled Water Site Supervisor designated by the applicant, owner, or customer. The District may, from time-to-time, require that a Recycled Water Site Supervisor obtain instruction in the use of recycled water, such instruction being provided or approved by the District. The District, as well, may inspect the on-site system per Article 9.20.

9.19.03.01 The applicant, owner, or customer shall have the following responsibilities in relation to operation of on-site facilities:

- a) To make sure that all operations personnel are trained and familiarized with the use of recycled water.
- b) To furnish their operations personnel with maintenance instructions, controller charts, and record drawings to ensure proper operation in accordance with the on-site facilities' design and these Rules and Regulations.
- c) To prepare and submit to the District one (1) set of record drawings of all on-site facilities installed for the conveyance of recycled water.
- d) To notify the District of any and all updates or proposed changes, modifications, or additions to the on-site facilities. Such changes shall be reviewed by the District and shall be designed and constructed in accordance with Article 9.18.03 herein. In accordance with the above-referenced requirements, conditions, and standards, changes must be submitted to the District for review and approval prior to construction. The construction shall be inspected by the District and revised record drawings and controller charts shall be delivered to the District. The District may, if it deems such to be in the best interests of the District, waive or modify any of the foregoing.
- e) To ensure that the design and operation of the recycled water facilities remain in compliance with these Rules and Regulations, including the District's Standard Specifications for the Construction of Water Facilities.
- f) To operate and control the system in order to prevent direct human consumption of recycled water, to limit direct human contact with recycled water, and to control and limit runoff. The applicant, owner, or customer shall be responsible for any and all subsequent uses of the recycled water. Operation and

control measures to be utilized in this regard shall include, where appropriate but not limited to, the following:

- (1) On-site recycled water facilities shall be operated to prevent discharge onto areas not under control of the customer. Semi-circle sprinklers shall be used adjacent to sidewalks, roadways, and property lines to confine the discharge from sprinklers to the design area.
- (2) Recycled water shall be applied at a rate that does not exceed the infiltration rate of the soil. Where varying soil types are present, the design and operation of the recycled water facilities shall be compatible with the lowest infiltration rate present.
- (3) When the application rate exceeds the infiltration rate of the soil, automatic systems shall be utilized and programmed to prevent the ponding and runoff of recycled water.
- (4) Any and all failures in the on-site system that cause an unauthorized discharge of recycled water shall be immediately reported to the District.
- (5) To comply with any and all applicable Federal, State, and local statutes, ordinances, regulations, and contracts, these Rules and Regulations, and all requirements prescribed by the Board and the General Manager.

9.19.03.02 **Implementation of On-Site Controls:** On-site controls have been promulgated by the Los Angeles County Department of Health Services (LACDHS) and the California Department of Health Services (CDHS) to protect the health of the public at large and the employees of recycled water users. The minimum necessary on-site controls are contained in *Guidelines for use of Reclaimed Water* issued by the CDHS, in the Los Angeles County Public Health Code, and in Title 17 of the California Code of Regulations.

9.19.03.03 **Local Regulation:** Recycled water system on-site controls shall meet or exceed all of the requirements established by the applicable State and local regulatory agencies to protect the public health.

9.19.03.04 **Operational Controls:** The minimum necessary operational controls shall include, but not be limited to, those stipulated below:

- a) **Irrigation Usage.** Irrigated areas must be kept completely separated from domestic water wells and reservoirs. A minimum of 500 feet shall be provided. Irrigation should be controlled to minimize ponding of wastewater and runoff should be contained and properly disposed.
- b) **Landscape Irrigation.** Irrigation should be done so as to prevent or minimize contact by the public with the sprayed material, and precautions should be taken to ensure that recycled water will not be sprayed on walkways, passing vehicles, buildings, picnic tables, domestic water facilities, or areas not under control of the user. Irrigation should be practiced during periods when the grounds will have maximum opportunity to dry before use by the public unless provisions are made to exclude the public from areas during and after spraying with recycled water. Windblown spray from the irrigation area should not reach areas accessible to the public. Drinking water fountains should be protected from direct or windblown recycled water spray.
- c) **Additional Protection.** All persons entering the premises for any reason shall be made aware by the user of the potential health hazards involved with contact or ingestion of recycled water. All recycled water valves, outlets, and sprinkler heads should be appropriately tagged to warn such persons that the water is not safe for drinking or direct contact. Adequate first aid kits should be available on location, and all cuts and abrasions should be treated promptly to prevent infection. A doctor should be consulted where infection is likely. Precautionary measures should be taken to minimize direct human contact with recycled water or recycled water sprays. All persons involved in more than a casual contact with recycled water should be provided with protective clothing. At crop irrigation sites, the crops and soil should be allowed to dry before harvesting. Provisions should be made for a supply of safe drinking water. Where bottled water is used for drinking purposes, the water should be in contamination-proof containers and protected from contact with recycled water or dust. The water should be of a source approved by the local health authority. Toilet and washing facilities should be provided. Precautions should be taken to avoid contamination of food taken to areas irrigated with recycled water

and food should not be taken to areas still wet with recycled water.

9.19.03.05 **Physical Attributes of On-Site System (General):** All recycled water valves, outlets, and sprinkler heads should be of a type that can only be operated by authorized personnel. Identification of facilities should include the following:

- a) All valve boxes shall be purple plastic with the words, "Recycled Water," cast into the plastic lid.
- b) All control valves must have a plastic label attached with a nylon tie wrap with the words, "Recycled Water – Do Not Drink," in English and Spanish.
- c) All aboveground risers shall be labeled with a self-adhesive label with the same warning as the label for control valves.
- d) All flush, pop-up sprinkler heads must be made of purple plastic.
- e) All below-grade piping must be purple "Alert Line" pipe with the words, "Recycled Water – Do Not Drink." This applies to both permanent and intermittent pressure pipe. This requirement does not apply to fittings and risers.
- f) No hose bibs are allowed on recycled water systems. Quick couplers are allowed but must be made for recycled water systems. Quick couplers must also be placed in purple plastic valve boxes.
- g) No on-site backflow prevention assembly shall be allowed on any recycled water system serving landscape, turf, or crop irrigation.

9.19.03.06 **Retrofit of Existing Irrigation Systems.** All existing systems to be retrofitted are subject to inspection by the County Health Department. All existing irrigation systems to be converted to recycled water must have the same identification as a system installed per Article 9.19.03.05 with the following exceptions:

- a) The existing piping need not be changed to purple plastic. However, any new PVC installed must be purple (i.e., the new connection piping to the recycled water source).
- b) The existing flush pop-up sprinkler heads may have snap-on purple plastic warning rings attached.
- c) Any existing concrete control valve boxes may be painted purple and stenciled with the words, "Recycled Water – Do Not Drink," in lieu of replacing them with purple plastic boxes.

The operator of the irrigation system to be retrofitted to recycled water must provide to the District the following prior to the District allowing final tie-over to the recycled water system:

- a) A detailed site plan identifying the location of heads, valves, hose bibs, quick couplers, point of connection, etc., for the system to be converted to recycled water. This site plan shall have notes identifying the retrofit work to be done (i.e., snap-on rings, hose-bib to quick coupler, etc.). The plan shall identify the disconnect and new connection location. The location for the new recycled water meter must appear on the site plan.
- b) A dye test or dual pressure test of the existing irrigation system must be performed by an experienced, licensed backflow or cross-connection contractor at the customer's expense. A dual pressure test may be performed in lieu of the dye test if it is permitted by the Health Department. The isolation testing must be witnessed by the County Health Department. A letter from the contractor performing the dye/pressure test must be forwarded to the District office certifying the absolute separation of the domestic and irrigation systems.
- c) Following completion of all retrofit work, the system shall be inspected by the District's cross-connection control technician and Health Department for compliance with these Rules and Regulations. Any discrepancies with the requirements must be remedied by the customer at the customer's sole expense prior to final tie-in to the recycled water system.
- d) Following final approval and inspection by the District and County Health Department, the applicant may perform the tie-in to the recycled water system. The final tie-in and severing of the original source of supply must be inspected by District staff.

9.19.03.07

Posting of On-Site Warnings. Adequate means of notification shall be provided to inform the public at large and employees of users that recycled water is being used. Such notification shall include the posting of conspicuous warning signs with proper wording of sufficient size to be clearly read, which shall be posted at adequate intervals around the use area. In some locations, especially at crop irrigation use areas, the warning signs shall be in Spanish as well as English.

At golf courses, notices should be printed on scorecards stating that recycled water is used, and the spacing and locations of signs shall be coordinated with the District.

9.20 RECYCLED WATER MONITORING AND INSPECTION

The General Manager, or authorized representatives of the District, shall monitor and inspect the entire recycled water system, including both on-site and off-site facilities. The District shall conduct monitoring programs, maintain a record as deemed necessary, and provide reports as requested by regulatory agencies, including the California Regional Water Quality Control Board. The General Manager, or authorized representatives of the District, in carrying out these functions, shall have the right to enter upon the customer's premises during reasonable hours for the purpose of inspecting on-site recycled water facilities and areas of recycled water use and to ensure compliance with these Rules and Regulations, including the provision that runoff be controlled and limited and the provision that cross-connections between potable water facilities and recycled water facilities do not exist. Monitoring of the on-site system may include periodic dual pressure tests to ensure that no cross-connections exist.

9.21 RECYCLED WATER APPLICABLE FEES AND CHARGES

- 9.21.01 **Establishment of Rates:** Rates to be charged and collected and terms, provisions, and conditions to be effective, respecting such rates for recycled water service supplied by the District, shall be as fixed and established by the Board from time-to-time and published in Appendix A herein. Such charges shall be subject to the terms of any existing recycled water service agreements. This provision is in addition to and not by way of derogation of any other remedies or procedures available to the District pursuant to any law or regulations, or by any of the provisions of these Rules and Regulations.
- 9.21.02 **Change of Service Charge:** The District reserves the right to change the schedule of recycled water service charges and other charges at any time, or from time-to-time, subject to the terms of any existing recycled water service agreements.
- 9.21.03 **Service Charge Billing:** Recycled water service charges will be rendered as part of the District Recycled Water Service Bill at intervals of one (1) month or multiples thereof.
- 9.21.04 **Metering:** For the purpose of computing charges, each meter upon the customer's premises will be considered separately.
- 9.21.05 **Time and Manner of Payment:** All bills and charges for recycled water service hereunder shall be due and payable upon presentation and shall become delinquent after the term defined in the service agreement, or thirty (30) days after presentation. Such bills and charges shall be deemed to have been presented upon having been deposited in the United States mail, postage paid and addressed to the applicant, owner, or customer as reflected in the records of the District.

9.21.05.01 If payment is not made within the term defined in the service agreement, or thirty (30) days after presentation, the recycled water service may be disconnected without further notice and recycled water service shall not again be supplied until all overdue bills, including a penalty as established from time-to-time by the District, have been paid. Payment shall be made in person or by mail at offices of the District.

9.21.05.02 Disconnection of service by reason of an overdue bill shall not automatically constitute revocation of permit. However, such delinquency may be considered as sufficient reason for a revocation of permit in accordance with the provisions of these Rules and Regulations.

9.21.06 **Disputed Bills:** The procedure to be used to contest the accuracy of charges for retail recycled water delivery is as follows:

9.21.06.01 Within five (5) days of receipt of the bill for recycled water service, the consumer may initiate an investigation into the accuracy of the charges set forth on the bill. Such protest shall be in writing, shall set forth in detail the basis for the dispute, and shall be delivered to the District at its office.

9.21.06.02 The consumer shall be required to pay the disputed bill in full at the time the protest is filed with the District.

9.21.06.03 Upon receipt of the protest, the District hearing officer shall review the protest to determine whether additional information or clarification is necessary to adequately evaluate the dispute. If additional information or clarification is deemed necessary, the hearing officer may request such additional information or clarification from the consumer. Upon receipt of all information required to evaluate the consumer's dispute, a hearing date shall be set before the hearing officer. After evaluation of the evidence provided by the consumer and the information on file with the District concerning the recycled water charges in question, the hearing officer shall render a decision as to the accuracy of the recycled water charges and shall provide the consumer with a brief written summary of the decision.

a) If the charges are determined to be incorrect, a corrected invoice will be provided, and either a refund or a credit will be issued, as directed by the consumer.

b) If the charges are determined to be correct, no further billing will be provided, and the consumer's account will reflect payment in full of the bill in question.

c) At the time the hearing officer renders his or her decision, the consumer will be advised of the right to

further appeal to the General Manager, and that such further appeal must be made in writing and delivered to the District within ten (1) days of the date the hearing officer's decision is rendered.

9.21.06.04 Upon receipt of a written appeal to the General Manager, a hearing date will be scheduled. The consumer will be required to personally appear before the General Manager and present evidence and reasons as to why the decision of the hearing officer should not be upheld. The General Manager shall evaluate the evidence presented by the consumer and the information on file with the District concerning the charges in question, and shall render a decision as to the accuracy of those charges. The General Manager's decision is final and binding.

9.22 ENFORCEMENT AND PENALTIES

Any person, firm, corporation, association, or agency found to be violating any provision of these Rules and Regulations, or the terms and conditions of the applicant's, owner's, or customer's service agreement, permit, or any applicable Federal, State, or local statutes, regulations, ordinances, or other requirements, shall be served by the District with written notice stating the nature of the violation and providing a reasonable time limit for the satisfactory correction thereof. The offender shall, within the period of time stated in such notice, permanently cease all violations. This provision is in addition to and not by way of derogation of any other remedies or procedures available to the District by law, regulation, or pursuant to any of the provisions of these Rules and Regulations.

Failure to permanently cease all violations within the time stated shall result in revocation of the permit by the District and disconnection of recycled water service. Violations regarding any restrictions within these Rules and Regulations may result, at the sole discretion of the General Manager, in disconnection of recycled water service in the following manner.

9.22.01 Interim Revocation: In cases where the serious nature of the violations described above require immediate action, the General Manager may, at the sole discretion of the General Manager, immediately revoke the permit on an interim basis and thereupon disconnect recycled water service, subject to a timely decision on permanent revocation of permit pursuant to a public hearing as provided herein.

9.22.02 Permanent Revocation: Permanent revocation of a recycled water permit shall occur only subsequent to a public hearing held in the manner hereinafter provided. The applicant, owner, or customer shall be given written notice ten (10) calendar days prior to a hearing on the possible permanent revocation of any permit by the District. The notice shall specify the grounds of the proposed revocation of any such permit in reasonable detail and it may, but need not, describe corrective action acceptable to the District. Notice may be delivered personally to the applicant, owner, or customer, or it may be given by deposit in the United States mail with postage prepaid, addressed to the applicant, owner, or

customer either at the address for the applicant, owner, or customer as reflected in the records of the District or as shown on the last equalized assessment roll of the County as defined in the Revenue and Taxation Code of the State of California. Any such action to permanently revoke the permit shall be effective ten (10) consecutive calendar days after notice of the Board's decision and shall be either personally delivered to the applicant, owner, or customer or placed in the United States mail, postage prepaid, addressed to the applicant, owner, or customer in the manner herein above specified. Any request to re-establish service subsequent to the revocation of a permit and the disconnection of recycled water service shall be in the manner prescribed for initially obtaining service from the District, which may include the collection of a security deposit in an amount determined by the Director of Finance. However, in addition, the District may, at its discretion, require that a service agreement and financial security conditioned upon compliance with the District's Rules and Regulations be provided in an amount, manner, and for a period of time as determined by the Board.

9.23 FUTURE RECYCLED WATER EXPANSION

The District requires the installation of separate meters for potable and landscape irrigation needs for commercial and industrial property per Section 4.07.05. In the event recycled water is currently unavailable at the property but expansion of the recycled system to the property is foreseeable, the District may require the installation of new commercial irrigation systems to be in compliance with Sections 9.18 and 9.19.

9.24 WHOLESALE RECYCLED WATER SERVICE

In some instances the District may, by special agreement, provide recycled water on a wholesale basis. All applicable regulations apply to such sale of recycled water, as provided in this Article 9, except in those instances where the wholesale recycled consumer undertakes to comply with such regulations on its own, and applicable law authorizes such undertaking by the consumer. In all instances, the responsibility for compliance with laws and regulations applicable to the sale and delivery of recycled water will be provided for in a written agreement between the District and the wholesale recycled water consumer. The applicable rate for such water service shall be set forth in the agreement between the District and the wholesale recycled water consumer. Unless otherwise set forth in the agreement, the provisions of Article 9.21 regarding billing, payment of bills, and billing disputes shall apply.

The foregoing provisions of these Rules and Regulations are a requirement of any permit, and any application for service and permit therefore shall be subject to such provisions. The Board, if it deems such to be in the best interests of the District, may, on an interim basis or otherwise, waive or modify any of the foregoing.

- END OF ARTICLE 9 -

**COUNTY OF LOS ANGELES - DEPARTMENT OF PUBLIC HEALTH
BUREAU OF ENVIRONMENTAL PROTECTION
CROSS-CONNECTION AND WATER POLLUTION CONTROL PROGRAM
5050 Commerce Drive, Rm 116, Baldwin Park, CA. 91706-1423
(626) 430-5290 Fax # (626) 813-3025**

CROSS-CONNECTION PLAN APPROVAL APPLICATION

Plan Approvals invalid after one year from the date of application

Fill in all appropriate blanks (incomplete applications will delay the application).

Date	Project Name:		
Job Address:	City:	Zip:	
Contractor:	Phone:		
Address:	City:	Zip:	
Owner:	Phone:		
Address:	City:	Zip:	
Email:			

Domestic Water Purveyor:	Walnut Valley Water District
Recycled Water Purveyor:	Walnut Valley Water District

Plans submitted by (Name)	Sheryl L. Shaw
Company Name:	Walnut Valley Water District
Address & Phone #:	271 S. Brea Canyon Rd. Walnut, CA 91789
Email:	sshaw@wvwd.com

Project Description/Type: (Recycled, Gray and/or Cistern Water System, Industrial, Dental, Dialysis, Manufacturing, etc.)
Recycled

Number of copies being submitted (minimum 2 copies required) 2

A letter of approval/denial is issued to the persons submitting the plans, owner, water purveyor and State DPH.

Recycled Water Plan Checking Fee : \$1,348.00
All other project proposal plan checking fee: CALL

INSTRUCTIONS FOR SUBMISSION OF PLANS

- Typical Plan submittals must include the plumbing, landscaping, utility, and overall site plan..
- Make check or money order (cash not accepted) payable to: **LOS ANGELES COUNTY TREASURER**
- Checks and money orders must be made out for the exact amount of the fee.
- Personal checks must bear a name, address, and telephone number.
- This fee is not refundable nor is the application transferable.
- Your plans will not be reviewed or approved until a fee is paid.
- You will be contacted when your plans are ready.
- Attach the TOP copy of this form with your plans, keep the Second copy of this form for your records.

PLANS ARE APPROVED IN THE ORDER THEY ARE RECEIVED. MISSING INFORMATION OR IMPROPERLY PREPARED PLANS WILL DELAY THE APPROVAL PROCESS.

FOR OFFICE USE ONLY

Date _____ Amount paid _____

(Rev. 07/2007)

Walnut Valley Water District

271 South Brea Canyon Road, Walnut, CA 91789
(626) 964-8551-or- (909) 595-1268 - Fax (909) 594-9532

RECYCLED WATER ANNUAL PERMIT

<i>Permittee</i>	
<i>Service Address</i>	
<i>Application Area</i>	
<i>Intended Use</i>	
<i>Account Number(s)</i>	
<i>Module Number(s)</i>	
<i>Meter Number(s)</i>	
<i>Meter Size(s)</i>	



Pursuant to the District and Regulations, the above Permittee, hereby makes application for the use of recycled water under the following terms and conditions:

1. Permittee shall comply with Articles 8 and 9 of the District Rules and Regulations and State Health Department Regulations (Title 22) regarding cross connections, and the Requirements for the Use of Recycled Water (listed on reverse side), copies of which are available upon request.
2. The facilities described herein shall be constructed and maintained according to District standards by the property owner.
3. Permittee shall provide to the District, prior to rendering recycled water service to the facilities described herein, a complete set of "as-built" plumbing and irrigation plans showing the following:
 - a) the location and size of all water pipelines (recycled and potable)
 - b) the location of all valves and other appurtenances
 - c) the location with respect to all related structures
4. Permittee agrees to allow the District periodic access to the premises during reasonable business hours for the purpose of inspecting the Permittee's system for compliance with District standards for recycled water use.
5. Permittee shall protect, indemnify and hold harmless the District, its officers, directors, employees, agents and representatives from and against all liabilities, cause of action, whether legal, equitable or administrative, damages, claims, demands, judgments, losses, costs, expenses, and shall defend District in any claim, investigation, proceeding or suit, including appeals, for any and all matters which may arise or be claimed to have arisen as a result of any act or omission to act by District or on behalf of District with respect to the construction, installation, operation or repair of the recycled water system and related facilities and with respect to the safe delivery and use of recycled water.
6. Prior to commencement of service, Permittee shall pay to the District all applicable fees and service charges in effect as of the date of issuance of the permit for said service.
7. Permittee shall not change or modify the approved on-site recycled water distribution system without prior written approval of the District. If Permittee changes or modifies the approved system or fails to maintain the approved system in a state of good repair, the District may, in addition to other legal remedies, disconnect recycled water service.
8. Permittee designates the following person, as "Site Supervisor," as having complete working knowledge of the system and delegated responsibility for ensuring the proper use of the on-site recycled water system. Permittee also agrees to notify WVWD of a change in "Site Supervisor."

Site Supervisor:	
Name & Title (Print): _____	E-Mail (Print): _____
Working Hours Phone: _____	24 Hr. Emergency Phone: _____

THE TERMS OF THIS PERMIT ARE HEREBY ACCEPTED:

By: _____
Signature
Print Name & Title

E-Mail: _____ *Print* Date: _____

APPROVED BY:

 Thomas Monk, Production Supervisor Date: _____ Permit Expires: _____

RECYCLED WATER NOTES:

1. All valve boxes shall be purple plastic with the words "Recycled Water" cast into the plastic lid.
2. All control valves must have a plastic label attached with a nylon tie wrap with the words "Recycled Water – Do Not Drink" in English and Spanish.
3. All above-ground risers shall be labeled with a self-adhesive label with the same warning as the label for control valves.
4. All flush, pop-up sprinkler heads must be made of purple plastic.
5. All below grade piping must be purple pipe with the words "Recycled Water – Do Not Drink". This applies to both permanent and intermittent pressure pipe. This requirement does not apply to fittings and risers.
6. No hose bibs are allowed on recycled water systems.
7. Quick couplers are allowed, but must be made for recycled water systems. Quick couplers must also be placed in purple plastic valve boxes.
8. No on-site backflow prevention assembly shall be allowed on any recycled water system serving landscape, turf, or crop irrigation.
9. Signs indicating the use of recycled water are required and will be placed at the discretion of the District inspector.
10. Prior to pressure testing, potable water with an approved reduced pressure principle device may be temporarily used to establish planting. The system must be checked for cross-connections before converting to recycled water.
11. Potable water is required during initial pressure testing.
12. All required permits to be completed and signed before activation of recycled water.
13. Installation of recycled water irrigation shall comply with the requirements of Article 9 of the District's Rules and Regulations and County of Los Angeles Department of Public Health.

Required clearance between potable and recycled water lines is 10 feet horizontally and 1 foot vertically (with potable water line crossing perpendicularly over recycled water line). If a recycled water line crosses over a potable water line, the recycled water line shall be installed inside a sleeve with the sleeve centered over the potable water line and extended at least 10 feet on both sides.

Notify Joe Yersky at Walnut Valley Water District at (909) 595-1268 for his observations and inspections: 1) inspect pipe prior to

backfill; 2) initial pressure test; and 3) above-ground inspection – 2 day notification.

L.A. County must also dual pressure or dye test the system before allowing permanent connection.

Notify Joe Yersky @ W.V.W.D. and Dan Bacani @ L.A. County @ (626) 430-5290, for final inspections – 2 day notification.

Please add the above notes to your irrigation plans.

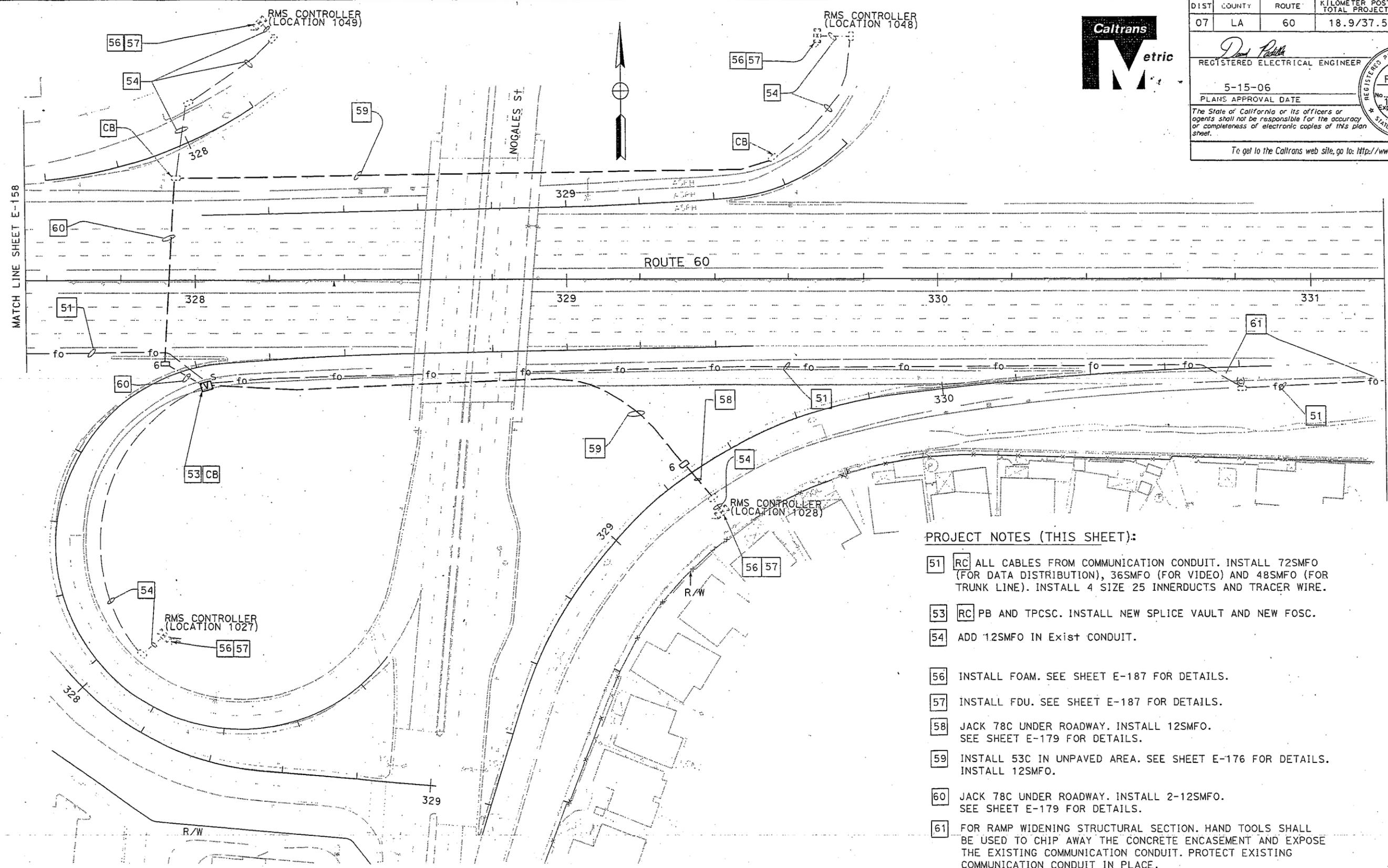
FOR CONTRACT NO. 07-4H9004
PROJECT NO. 0700021079

INFORMATION HANDOUT

FIBER OPTIC AS BUILT PLANS IN WORK AREA

ROUTE: 07-LA-60-20.6

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
ITS DEVELOPMENT
 PROJECT ENGINEER
 DAVID PADILLA
 CALCULATED/DESIGNED BY
 CHECKED BY
 DP
 AJ
 DATE REVISIONS
 1/05
 1/06



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.
07	LA	60	18.9/37.5	111

David Padilla
 REGISTERED ELECTRICAL ENGINEER
 5-15-06
 PLANS APPROVAL DATE
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.
 To get to the Caltrans web site, go to: <http://www.bili.dti.ca.gov>

REGISTERED PROFESSIONAL ENGINEER
 DAVID PADILLA
 No. E162
 Exp. 12-31-06
 ELECTRICAL

PROJECT NOTES (THIS SHEET):

- 51 RC ALL CABLES FROM COMMUNICATION CONDUIT. INSTALL 72SMFO (FOR DATA DISTRIBUTION), 36SMFO (FOR VIDEO) AND 48SMFO (FOR TRUNK LINE). INSTALL 4 SIZE 25 INNERDUCTS AND TRACER WIRE.
- 53 RC PB AND TPCSC. INSTALL NEW SPLICE VAULT AND NEW FOSC.
- 54 ADD 12SMFO IN Exist CONDUIT.
- 56 INSTALL FOAM. SEE SHEET E-187 FOR DETAILS.
- 57 INSTALL FDU. SEE SHEET E-187 FOR DETAILS.
- 58 JACK 78C UNDER ROADWAY. INSTALL 12SMFO. SEE SHEET E-179 FOR DETAILS.
- 59 INSTALL 53C IN UNPAVED AREA. SEE SHEET E-176 FOR DETAILS. INSTALL 12SMFO.
- 60 JACK 78C UNDER ROADWAY. INSTALL 2-12SMFO. SEE SHEET E-179 FOR DETAILS.
- 61 FOR RAMP WIDENING STRUCTURAL SECTION. HAND TOOLS SHALL BE USED TO CHIP AWAY THE CONCRETE ENCASMENT AND EXPOSE THE EXISTING COMMUNICATION CONDUIT. PROTECT EXISTING COMMUNICATION CONDUIT IN PLACE.

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

MODIFY COMMUNICATION SYSTEM ROUTING

SCALE 1:500

FOR COMPLETE R/W AND ACCURATE ACCESS DATA, SEE R/W RECORD MAPS AT THE DISTRICT OFFICE.

THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

1/06 DATE REVISIONS
 CHECKED BY
 AJ

FOR C

FOR CONTRACT NO. 07-4H9004
PROJECT NO. 0700021079

INFORMATION HANDOUT

GEOTECHNICAL DESIGN REPORT
FOR
RETAINING WALL AT WB OFFRAMP AT NOGALES STREET

ROUTE: 07-LA-60-20.6

Memorandum

To : Mr. Matt Holm
Branch Chief
Bridge Design-Branch 12
Office of Bridge Design South 1

Date: January 4, 2013

Attn. : Mr. Doug Menzmer
Senior Bridge Engineer

File: 07-LA-60-PM 20.6
0700021079(EA 07-4H9001)
Widen WB Offramp at
Nogales St., Rowland Heights

From : **DEPARTMENT OF TRANSPORTATION**
Division of Engineering Services
METS-Geotechnical Service
Office of Geotechnical Design South-1

Subject : Geotechnical Design Report For Retaining Wall at WB Offramp at Nogales Street.

INTRODUCTION

As requested by your office in the memo dated February 6, 2012, the following is the geotechnical recommendations for the above-referenced retaining wall. This project was shelved in 2005, and has recently been brought off the shelf.

The wall will be designed under Load and Resistance Factor Design (LRFD) Design Specifications. This report is based on information obtained from subsurface exploration performed in February and April, 2003.

PROJECT LOCATION

The retaining wall will be constructed to widen west bound Offramp of State Route 60 at Nogales Street. The job site is located in the City of Rowland Heights, California, as shown in Figure 1.

SCOPE OF WORK

This report provides review of obtained geotechnical information, and derived geotechnical recommendation.

The following information was reviewed

- Subsurface exploration including five Cone Penetration Tests (CPTs) and two hollow stem auger borings conducted on February 6, 2003, and April 2, 2003.
- Laboratory test.

- Foundation Report for current project, dated April 10, 2003, prepared by this office, and
- Log of Test Borings.

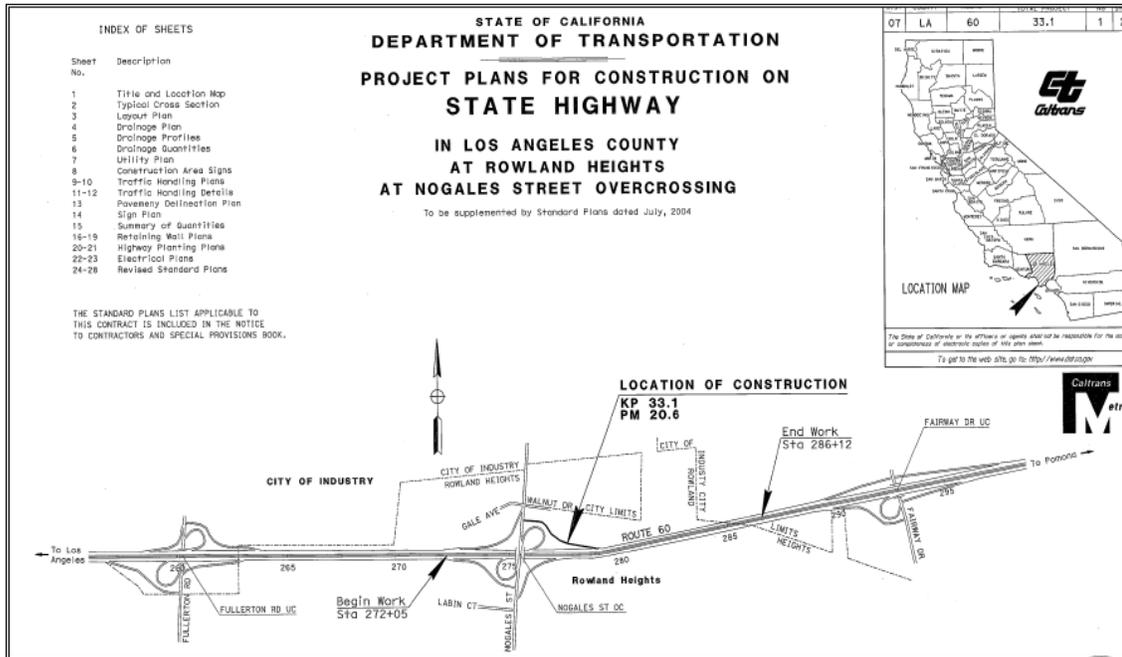


Figure 1 Job Site Location

PROJECT DESCRIPTION

This project is to widen the north side of State Route 60 westbound off ramp to Nogales Street to add an extra lane. A retaining wall is needed for the widening. The wall is about 480 feet long between Station 78+56.15 and 83+00.19 of Off-Ramp Nogales Street "F" line. The height of wall varies from 6 to 14 feet.

FIELD EXPLORATION

As stated above, the site reconnaissance, and subsurface exploration have been performed in 2003 by this office. The subsurface exploration included five Cone Penetration Tests (CPT) and two hollow stem auger borings. All five CPTs were completed on February 6, 2003. Two boreholes (BH-1, and BH-2) were advanced using Mobile CME-75 rig with a six-inch diameter hollow stem auger in the week of April 2, 2003. The borehole locations and elevations are summarized in Table 1.

Borings were logged based on visual observations of the soil cuttings and collected samples. Soil samples were collected using a Standard Penetration Test (SPT) sampler and California Modified sampler. The SPT was performed under ASTM D1584-84.

Table 1 - Summary of Borehole Information

Borehole Number (Types)	Location (ft)		Reference Line	Surface Elevation (ft)	Borehole Termination Elevation (ft)
	Station	Offset			
CPT-1	82+63.4	24.9 RT	F	462.2	429.4
CPT-2	81+66.0	24.9 RT	F	463.9	442.6
CPT-3	79+74.7	25.6 RT	F	465.4	457.2
CPT-4	78+82.9	25.3 RT	F	466.2	450.8
CPT-4A	78+76.3	25.3RT	F	466.2	438.6
BH-1	82+63.4	24.9 RT	F	462.2	430.1
BH-2	80+86.3	25.6 RT	F	465.1	433.6

LABORATORY TESTING PROGRAM

Laboratory tests including particle size, moisture content, plasticity index and unit weight were performed on selected split-spoon SPT samples. Bulk samples were collected near surface of the slope to test for pH, resistivity and chloride and sulfate content as deemed necessary.

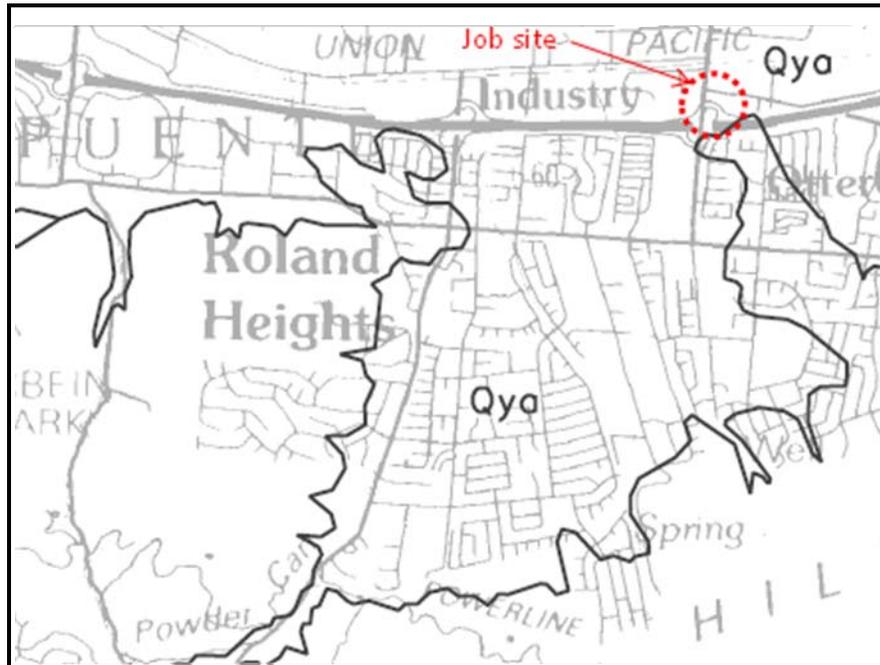
SITE GEOLOGY AND SUBSURFACE CONDITIONS

Site Geology

As shown in Figure 2, according to the geologic map of La Habra 7.5 minute Quadrangle from California Geologic Survey, the project site is underlain by Younger Quaternary alluvium (Qya) and generally consists of alluvial deposits composed of sand, clay, and silty sand/sandy silt with gravel. The site is underlain by Tertiary sedimentary rocks (Tscs), which are mostly rusty brown, coarse to fine-grained sandstone.

Subsurface Conditions

Based on obtained subsurface exploration information, the soils encountered were mainly silty sand to a depth of about 16 to 20 feet below existing ground surface, underlain by about 5 feet of silty clay with fine sand. Further down there is a layer of silty sand with gravel consists mainly of medium dense to very dense fine sand and gravel. For detailed description of the soils, please refer to the Log of Test Borings (LOTBs).



**Figure 2 Quaternary geology of La Habra 7.5-minute quadrangle
(Seismic Hazard Zone Report 09, Dept. of Conservation)**

Groundwater

The groundwater table at CPT 1, and 2 are interpreted to be at elevation 445.9 feet while the groundwater table at CPT 4A is interpreted to be at elevation 448.2 feet. Groundwater was encountered at elevation 444.2 feet borehole BH-1. Groundwater was not measured at BH-2. From the above information, ground water is about 18 ft below ground surface.

SEISMIC RECOMMENDATIONS

Fault Rupture Hazard

The retaining wall is not susceptible to fault rupture hazard since no known faults pass through the general area.

Design Ground Motion

Based on the Department's current fault database, the Puente Hills Blind Thrust Fault is the nearest seismic source to the proposed project site. Based on the subsurface information obtained from the exploration performed, the soil profile at the site can be classified as Type D as specified in the Table 1613.5 of the 2007 California Building Code. The project site is not located within a California Geological Survey (CGS) designated Alquist-Priolo Earthquake Fault zone (EFZ). A seismic hazard analysis was performed to develop the design ground motion parameters. For the seismic hazard analysis, an average $(V_s)_{30}$ of 250 m/sec is assumed. Table 2 summarizes the Maximum Moment Magnitude (M_{max}) of the fault,

type of faulting, distance, and Peak Ground Acceleration (PGA) of the fault mentioned above. The PGA is based on the 2009 ARS Online Report.

Table 2 - Summary of Seismic Parameters

Fault	Fault Type	M _{max}	R _{rup} (km)	PGA
Puente Hills Blind Thrust	R	7.3	5.6	0.60

Based on the above information, seismic design of retaining walls with a seismic horizontal acceleration coefficient $k_h = 0.2$ are considered adequate.

Liquefaction

Based on the ground water table and site geology, the project site is considered susceptible to soil liquefaction during seismic events.

CORROSIVITY

Corrosivity of subsurface materials was tested in accordance with CTM 532, 643, 417, and 422. The results of the corrosion testing are summarized in Table 3.

Table 3 - Corrosion Test Result Summary

SIC Number (TL101)	pH	Minimum Resistivity (ohm-cm)	Sulfate Content (ppm)	Chloride Content (ppm)
C638044	7.95	670	2552	61

Note: Caltrans currently considers a site to be corrosive to foundation elements if one or more of the following conditions exist: Chloride concentration is greater than or equal to 500 ppm, sulfate concentration is greater than or equal to 2000 ppm, or the pH is 5.5 or less.

The test indicated that the subsurface materials in the project area are corrosive.

GEOTECHNICAL ENGINEERING PROPERTIES

Relevant soil parameters were evaluated for the design of the wall. Table 4 presents the interpreted engineering properties of the subsurface materials.

Table 4 – Idealized Soil Profile and Strength Parameters

Section	App. Station	App. Elevation (ft)	Predominant Soil Type (USCS)	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (degree)
1	78+56.15 to 78+80.15	456 to 458	SM	120	500	32
		451 to 456	CL	110		
		433 to 451	SM	120		35
2	78+80.15 to 79+04.15	453 to 455	SM	120	500	32
		448 to 453	CL	110		
		430 to 448	SM	120		35
3	79+04.15 to 79+52.15	451 to 453	SM	120	500	32
		446 to 451	CL	110		
		428 to 446	SM	120		35
4	79+52.15 to 81+96.54	448 to 450	SM	120	500	32
		443 to 448	CL	110		
		425 to 443	SM	120		35
5	81+96.54 to 82+48.70	439 to 450	SM	120	400	32
		434 to 439	CL	110		
		425 to 434	SM	120		34
6	82+48.70 to 83+00.19	441 to 452	SM	120	400	32
		436 to 441	CL	110		
		427 to 436	SM	120		34

GEOTECHNICAL RECOMMENDATIONS

Due to elevated liquefaction potential, expected long-term settlements, and high seismicity of the job site, deep foundation is recommended to support the retaining wall. Drilled shaft option was considered for its relatively low installation noise and vibration during construction. However, due to the expected presence of groundwater in drilled holes during shaft installation, and site constraint for the foundation size, driven pile option is recommended for the retaining wall. Based on boring BH-2, at 5 to 15 ft below the bottom of footing there is a very dense soil layer with SPT N values between 52 and 70. Precast prestressed concrete piles and Steel pipe pile, Alternative "V" will have drivability issues. Steel pipe pile, Alternative "W" is not recommended for corrosive environments. Instead, H-pile is recommended. The recommended pile tip elevation and other geotechnical design requirements and parameters are shown in the Tables 5 and 6.

Table 5 – Retaining Wall Foundation Design Recommendations

Section	Wall Height (ft)	Cut-off Elevation (ft)	Service-I Limit State Load per Support (kip)	Total Permissible Support Settlement (inch)	Required Factored Nominal Resistance (kip)				Design Tip Elevations (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance (kips)
					Strength Limit		Extreme Event				
					Compression ($\psi = 0.7$)	Tension ($\psi = 0.7$)	Compression ($\psi = 1$)	Tension ($\psi = 1$)			
1	6	457.92	178	1	54	0	128	63	432 (a-I) 420 (a-II) 435 (b-II) 441 (d)	420	128
2	10	455.17	278	1	73	0	107	57	422 (a-I) 421 (a-II) 434 (b-II) 439 (d)	421	107
3	12	453.17	704	1	83	0	103	27	417 (a-I) 420 (a-II) 442 (b-II) 436 (d)	417	119
4	14	450.42	5317	1	94	0	99	7	411 (a-I) 418 (a-II) 444 (b-II) 432 (d)	411	135
5	10	452.42	556	1	91	0	138	49	411 (a-I) 409 (a-II) 428 (b-II) 435 (d)	409	138
6	6	457.67	357	1	60	0	140	70	427 (a-I) 414 (a-II) 432 (b-II) 440 (d)	414	140

Note:

- a-I: Compression for Strength Limit, a-II: Compression for Extreme Event, b-II: Tension for Extreme Event,
 d: Lateral Load

Table 6 – Pile Data Table

Pile Data Table						
Section	Pile Type	Nominal Resistance (kips)		Design Tip Elevations (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance (kips)
		compression	Tension			
1	HP 10X57	128	63	420 (a) 435 (b) 441 (d)	420	128
2	HP 10X57	107	57	421 (a) 434 (b) 439 (d)	421	107
3	HP 10X57	119	27	417 (a) 442 (b) 436 (d)	417	119
4	HP 10X57	135	7	411 (a) 444 (b) 432 (d)	411	135
5	HP 10X57	138	49	409 (a) 428 (b) 435 (d)	409	138
6	HP 10X57	140	70	414 (a) 432 (b) 440 (d)	414	140

Notes:

- Design Tip Elevations are controlled by: (a) Compression, (b) Tension, and (d) Lateral load.
- The specified tip elevation shall not be raised above the design tip elevations for tension, and lateral load.

SETTLEMENT

Total settlement of the proposed wall supported on the deep foundation was estimated to be negligible. Differential settlement within any 100 feet segment of the walls should be negligible.

CONSTRUCTION CONSIDERATIONS

Groundwater may be expected. Due to seasonal rainfall and fluctuating groundwater elevations, there is the high potential for perched groundwater and groundwater to be encountered in excavation area.

If you have any questions or comments, please call Sungro Cho at (916) 227-5398, or Deh-Jeng Jang at (916) 227-5722.

Prepared by: Date: 1/4/2013



Sungro Cho

Sungro Cho, Ph.D., P.E.
Transportation Engineer
Branch A