INFORMATION HANDOUT

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MATERIALS INFORMATION

Preliminary Site Investigation Report

PRELIMINARY SITE INVESTIGATION REPORT

FREITAS PARKWAY OVERCROSSING
SAN RAFAEL, CALIFORNIA

PREPARED FOR:
CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 4
OFFICE OF ENVIRONMENTAL ENGINEERING
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GEOCON

GEOCON PROJECT NO. E8721-02-12
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NOVEMBER 2014

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REPORT LIMITATIONS

This report has been prepared exclusively for the State of California Department of Transportation (Caltrans) District 4. The information contained herein is only valid as of the date of the report and will require an update to reflect additional information obtained.

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

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.

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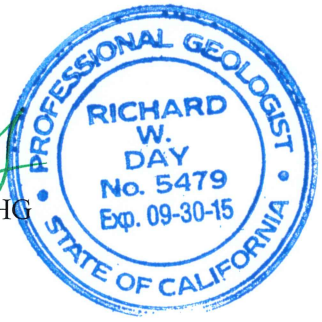

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PRELIMINARY SITE INVESTIGATION REPORT

1.0 INTRODUCTION

This Preliminary Site Investigation Report for bridge improvement activities at the Freitas Parkway Overcrossing (Bridge No. 27-80) along Untied States Highway 101 (US-101) in Marin County, California, was prepared by Geocon Consultants, Inc. under California Department of Transportation (Caltrans) Contract No. 04A4336 and Task Order No. 12 (TO-12), EA 04-4A0001.

1.1 Project Description and Proposed Improvements

The project proposes to remove and replace the existing guardrail and fencing on both sides of the bridge at Freitas Park Overcrossing in San Rafael, Marin County, California. Work will take place within Caltrans right-of-way. The project location is depicted on the attached Site Plan, Figure 1.

1.2 General Objectives

The purpose of the site investigation was to evaluate concentrations of California Assessment Manual 17 (CAM 17) metals, particularly aerially-deposited lead (ADL), total petroleum hydrocarbons as diesel (TPHd), as motor oil (TPHmo), and as gasoline, (TPHg), and naturally-occurring asbestos (NOA) in soil within the project limits. The bridge structure was also evaluated for asbestos containing materials (ACM). A copy of the ACM report is included in Appendix A *(Geocon, 2014)*.

The information obtained from this investigation will be used by Caltrans to evaluate soil handling practices, worker health and safety, and soil reuse and disposal options.

2.0 BACKGROUND

2.1 Hazardous Waste Determination Criteria

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

For waste containing metals, the waste is classified as California hazardous when: 1) the representative total metal content equals or exceeds the respective Total Threshold Limit Concentration (TTLC); or 2) the representative soluble metal content equals or exceeds the respective Soluble Threshold Limit

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

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

2.2 DTSC Variance

The DTSC issued a statewide Variance effective July 1, 2009, regarding the management of ADL-impacted soils within Caltrans right-of-way. Under the Variance, soil that is classified as a non-RCRA hazardous waste, based primarily on ADL content, may be suitable for reuse within Caltrans right-of-way. ADL soil that is classified as a RCRA hazardous waste is not eligible for reuse under the Variance and must be disposed of as a RCRA hazardous waste (Caltrans Type Z-3).

ADL soil reused under the Variance must always be at least five feet above the highest groundwater elevation and, depending on lead concentrations, must be covered with at least one foot of non-hazardous soil or a pavement structure. The ADL soil may not be placed in areas where it might contact groundwater or surface water (such as streams and rivers), and must be buried in locations that are protected from erosion that may result from storm water run-on and run-off.

Review of the statewide Variance indicates the following conditions regarding the reuse and management of ADL-impacted soil as fill material for construction and maintenance operations. If ADL soil meets the Variance criteria but is not intended to be reused within Caltrans right-of-way, then the excavated soil must be disposed of as a California hazardous waste (Caltrans Type Z-2). A copy of the Variance is presented as Appendix B.

Caltrans Type Y-1: ADL soil exhibiting a total lead concentration less than or equal to 1,411 milligrams per kilogram (mg/kg), a DI-WET (WET using deionized water as extractant) lead concentration less than or equal to 1.5 milligrams per liter (mg/l), and a pH value greater than or equal

to 5.5 may be reused within the same Caltrans corridor and must be covered with at least one foot of non-hazardous soil.

Caltrans Type Y-2: ADL soil exhibiting a total lead concentration less than or equal to 1,411 mg/kg, a DI-WET lead concentration less than or equal to 1.5 mg/l, and a pH value greater than 5 and less than 5.5 may be reused within the same Caltrans corridor and must be covered and protected from infiltration by a pavement structure.

ADL soil exhibiting a total lead concentration less than or equal to 1,411 mg/kg, a DI-WET lead concentration greater than 1.5 mg/l and less than or equal to 150 mg/l, and a pH value greater than 5 may be reused within the same Caltrans corridor and must be covered and protected from infiltration by a pavement structure.

ADL soil exhibiting a total lead concentration greater than 1,411 mg/kg and less than or equal to 3,397 mg/kg, a DI-WET lead concentration less than or equal to 150 mg/l, and a pH value greater than 5 may be reused within the same Caltrans corridor and must be covered and protected from infiltration by a pavement structure.

Caltrans Type Z-2: ADL soil exhibiting a total lead concentration greater than 3,397 mg/kg, a DI-WET lead concentration greater than 150 mg/l, or a pH value less than or equal to 5 is not eligible for reuse under the Variance and must be disposed of as a California hazardous waste.

Caltrans Type Z-3: ADL soil exhibiting a TCLP lead concentration greater than or equal to 5 mg/l is not eligible for reuse under the Variance and must be disposed of as a RCRA hazardous waste.

2.3 Environmental Screening Levels

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

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

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

The respective ESLs are listed at the end of Tables 3 and 4 for comparative purposes.

2.4 Naturally Occurring Asbestos

As defined in current California Air Resources Board (CARB) rules, serpentine material refers to any material that contains at least 10% serpentine, and asbestos-containing serpentine refers to serpentine materials with an asbestos content greater than 5% as determined by CARB Test Method 435 (CARB 435). The use of serpentine material for road surfacing is prohibited in California by Title 17 of the California Code of Regulations (CCR) Section 93106, Asbestos Airborne Toxic Control Measure (ATCM) for Surfacing Application (ATCM 93106), unless the material has been tested and determined to have an asbestos content of less than 0.25%. Materials found to contain asbestos of 0.25% or more are considered to be designated waste if transported offsite, requiring disposal at a landfill facility designated to accept asbestos waste. Alternatively, asbestos-containing materials may be reused onsite if buried beneath a minimum 6 inches of soil.

The CARB specifies mitigation practices for construction, grading, quarrying, and surface mining operations that contain natural occurrences of asbestos outlined in Title 17, Section 93105, Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations (ATCM 93105). Based on Part (e) Subpart (2) of ATCM 93105 an asbestos dust mitigation plan is required and must be implemented for a project if NOA is disturbed after the start of construction. Additionally, ATCM 93105 specifies that the air pollution control district (APCD) must be notified and an asbestos dust mitigation plan submitted to the APCD. The ATCM states that air monitoring may be required on the property. NOA potentially poses a health hazard when it becomes an airborne particulate.

The construction/maintenance activities mentioned above could disturb NOA-laden debris and soil, thereby potentially creating an airborne hazard. Mitigation practices can reduce the risk of exposure to airborne NOA containing dust. Dust suppression practices include wetting the materials being disturbed and wearing approved respirators with high-efficiency particulate air (HEPA) filters during construction activities.

3.0 SCOPE OF SERVICES

The scope of services performed under TO-12, EA 04-4A0001 included the following:

3.1 Pre-field Activities

- Prepared the *Preliminary Site Investigation Workplan* and *Health and Safety Plan*, dated September 2014.
- Retained the services of Advanced Technology Laboratories, Signal Hill, California (ATL), a Caltrans-approved and California-certified analytical laboratory, to perform the chemical analyses of soil samples.
- Retained the services of EMSL, Inc. (EMSL), a Caltrans-approved and California-certified analytical laboratory, to perform the asbestos analysis of soil samples.

3.2 Field Activities

The field investigation was performed on September 4, 2014, by Geocon staff. The following field activities were performed during the sampling efforts:

- Advanced eight soil borings at the project location using hand-auger drilling techniques. The borings were advanced to a maximum depth of three feet.

The following samples were collected:

- 16 for total lead analysis
- 8 for CAM 17 metals analysis
- 8 for TPHd and TPHmo analyses
- 8 samples for TPHg analysis
- 8 samples for pH analysis
- 8 soil samples for NOA analysis
- 1 equipment rinse blank for total lead analysis

All samples were transported to ATL and EMSL for analysis under standard chain-of-custody (COC) documentation.

4.0 INVESTIGATIVE METHODS

4.1 Sampling Procedures

Soil samples were collected from the eight boring locations identified by the Caltrans TO Manager using hand-auger drilling techniques. Boring coordinates are presented on Table 1. A Site Plan, Figure 1, shows the project location, and borings locations are shown on Figure 2.

Soil samples were placed in new resealable plastic bags or stainless steel tubes and sealed with Teflon tape and plastic lids prior to being stored in a chest cooled with ice.

Sample containers were labeled and transported to Caltrans-approved, certified environmental laboratories using standard COC documentation. Soil borings were back-filled to surface with soil cuttings.

Geocon provided QA/QC procedures during the field activities. These procedures included washing the sampling equipment with a Liqui-Nox® solution followed by a double rinse with deionized water. Decontamination water was disposed of to the ground surface within Caltrans right-of-way in a manner not to create runoff, away from drain inlets or potential water bodies.

4.2 Laboratory Analyses

Laboratory analyses were performed by ATL and EMSL under standard turnaround-times (TAT) per the Task Order Manager. The laboratory reports and COC documentation are included in Appendix C.

The samples were analyzed as follows:

- 16 samples for total lead using EPA Test Method 6010 ICAP.
- 8 samples for CAM 17 metals using EPA Test Methods 6010 ICAP and 7471.
- 7 samples with a total chromium concentration equal to or exceeding 50 mg/kg (i.e. equal to or exceeding ten times the STLC of 5.0 mg/l) were further analyzed for WET chromium.
- 16 samples with total lead concentrations equal to or exceeding 50 mg/kg (i.e. equal to or exceeding ten times the STLC of 5.0 mg/l) were further analyzed for WET lead.
- 15 samples with WET lead concentrations equal to or exceeding 5 mg/l (i.e. equal to or exceeding the STLC of 5.0 mg/l) and total lead equal to or exceeding 100 mg/kg were further analyzed for TCLP lead.
- 15 samples with WET lead concentrations equal to or exceeding 5 mg/l (i.e. equal to or exceeding the STLC of 5.0 mg/l) and were further analyzed for DI-WET lead.
- 8 samples for TPHd using EPA Test Method 8015B.

- 8 samples for TPHmo using EPA Test Method 8015B.
- 8 samples for TPHg using EPA Test Method 8015B.
- 8 samples for pH using EPA Test Method 9045C.
- 8 samples for NOA using CARB 435.

The QA/QC equipment rinse blank sample was analyzed for total lead using EPA Test Method 6010 ICAP.

4.3 Laboratory QA/QC

QA/QC procedures were performed for each method of analysis with specificity for each analyte listed in the test method's QA/QC. The laboratory QA/QC procedures included the following:

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

Prior to submitting the samples to the laboratories, the COC documentation was reviewed for accuracy and completeness.

5.0 INVESTIGATIVE RESULTS

5.1 Subsurface Conditions

Borings were completed using hand-auger drilling techniques. Soil to a depth of 3 feet consisted predominately of dry, unconsolidated silty sand with cobbles, likely fill material. Refusal was encountered in several of the borings at a depth of 2.5 feet due to the presence of cobbles. Groundwater was not encountered in any borings.

5.2 Laboratory Analytical Results

The analytical results are summarized in Tables 2 through 5 and are summarized below:

Sample Results:

- The following metals were not detected above their respective laboratory reporting limits: antimony, beryllium, cadmium, selenium, silver, and thallium.

- Chromium and lead were reported at concentrations equal to or exceeding ten times their respective STLCs.
- Total chromium was reported at concentrations ranging from 48 mg/kg to 79 mg/kg.
- WET chromium was not detected at or above the reporting limit of 1.0 mg/l.
- Total lead was reported at concentrations ranging from 15 mg/kg to 1,900 mg/kg.
- WET lead was reported at concentrations ranging from 1.9 mg/l to 150 mg/l.
- DI-WET lead was reported at concentrations ranging from <1.0 mg/l to 8.4 mg/l.
- TCLP lead was reported at concentrations ranging from 0.064 mg/l to 1.3 mg/l.
- Remaining CAM 17 metals were reported in the samples at total concentrations below ten times their respective STLCs.
- TPHd was reported at concentrations ranging from 3.2 mg/kg to 130 mg/kg.
- TPHmo was reported at concentrations ranging from 6.8 mg/kg to 500 mg/kg.
- TPHg was not detected at or above the laboratory reporting limit of 1.0 mg/kg.
- pH ranged from 7.2 to 6.8.
- NOA was not detected at a target analytical sensitivity of 0.25% Chrysotile.

QA/QC Sample Results:

- Total lead was not detected at or above the laboratory reporting limit of 0.0050 mg/l in the equipment rinse blank sample.

5.3 Laboratory Quality Assurance/Quality Control

We reviewed the QA/QC results provided with the laboratory analytical reports. The data indicate non-detect results for the method blanks at or above reporting limits. The surrogate was diluted out for one sample. The Relative Percent Difference (RPD) value was outside of acceptance criteria for several samples; therefore, the calculations were based on raw values. The Matrix Spike (MS) recovery was outside of acceptance limits for one sample. The analytical batch was validated by the laboratory control sample.

5.4 Statistical Evaluation for Lead Detected in Soil Samples

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

5.4.1 Calculating the UCLs for the Arithmetic Mean

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

Non-parametric bootstrap techniques were used to calculate the UCLs. The bootstrap test results are included in Appendix D. The following table presents the calculated UCLs and statistics for the site:

Borings B1 to B9

SAMPLE INTERVAL (feet)	TOTAL LEAD 90% UCL (mg/kg)	TOTAL LEAD 95% UCL (mg/kg)	TOTAL LEAD MEAN (mg/kg)	TOTAL LEAD MINIMUM (mg/kg)	TOTAL LEAD MAXIMUM (mg/kg)
0 to 0.5	767	825	556	99	1,600
1 to 1.5	677	731	157	15	1,900
2 to 3	183	201	46	17	350

5.4.2 Correlation of Total and WET Lead

Total and corresponding WET lead concentrations are bivariate data with a linear structure. This linear structure should allow for the prediction of WET lead concentrations based on the 95% UCL total lead concentrations presented in the table above.

To estimate the degree of interrelation between total and corresponding WET lead values (x and y, respectively), the *correlation coefficient [r]* is used. The correlation coefficient is a ratio that ranges from +1 to –1. A *correlation coefficient* of +1 indicates a perfect direct relationship between two variables; a *correlation coefficient* of –1 indicates that one variable changes inversely with relation to the other. Between the two extremes is a spectrum of less-than-perfect relationships, including zero, which indicates the lack of any sort of linear relationship at all. The *correlation coefficient* was calculated for the 16 (x, y) data points (i.e., soil samples analyzed for both total lead [x] and WET lead [y]) from the site. The resulting *coefficient of determination* (r^2) equaled 0.9193, which yields a corresponding *correlation coefficient* (r) of 0.959.

For the *correlation coefficient* that indicates a linear relationship between total and WET lead concentrations, it is possible to compute the line of dependence or a best-fit line between the two variables. A least squares method was used to find the equation of a best-fit line (regression line) by forcing the y-intercept equal to zero since that is a known point. The equation of the regression line was determined to be $y = 0.0712(x)$, where x represents total lead concentrations and y represents predicted WET lead concentrations.

This equation was used to estimate the expected WET lead concentrations for the total lead UCLs for the data set (see Section 5.4.1). Regression analysis results and a scatter plot depicting the (x, y) data points along with the regression line are included in Appendix D. The predicted WET lead concentrations are summarized in Table 6.

6.0 CONCLUSIONS

6.1 Lead in Soil

The following table summarizes the predicted waste classification for excavated soil based on the calculated weighted averages of the total lead UCLs and predicted WET lead concentrations for data collected from the site. Weighted averages are calculated by using the total lead concentration for each 0.5-foot depth interval as the value for the underlying 0.5-foot depth interval (unless a sample was collected from the underlying depth interval). The total and WET lead calculations are summarized below and in Table 6.

Excavation Depth	90% UCL Total Lead (mg/kg)	90% UCL Predicted WET Lead (mg/l)	95% UCL Total Lead (mg/kg)	Waste Classification
0 to 1 ft	767	**54.6**	825	**Hazardous**
Underlying soil (1 to 3 ft)	*430*	***30.6***	*466*	***Hazardous***
0 to 2 ft	722	**51.4**	778	**Hazardous**
Underlying soil (2 to 3 ft)	183	**13**	201	***Hazardous***
0 to 3 ft	542	**38.6**	586	**Hazardous**

90% UCL applicable for waste classification and onsite reuse; 95% UCL applicable for risk assessment and offsite disposal

Based on the data presented in the above table, excavated soil would be classified as California hazardous waste. Based on the TCLP lead results, excavated soil would not be classified as a RCRA hazardous waste. Based on the reported DI-WET and pH results, soil excavated from may be reused (as Caltrans Type Y-2) within Caltrans right-of-way in accordance with the DTSC Variance.

6.2 Remaining CAM 17 Metals in Soil

With the exception of chromium, CAM 17 metals were reported in the samples at total concentrations below ten times their respective STLCs. WET chromium was not detected in the samples at or above the reporting limit of 0.5 mg/l.

The CAM 17 metals concentrations in site soil were compared to ESLs. Arsenic and lead were reported at concentrations greater than one or more ESL values. Statistical methods were used to calculate the total arsenic and lead concentrations.

Non-parametric bootstrap techniques were used to calculate the 95% UCLs. The bootstrap test results are included in Appendix D. ESLs, UCLs, and published background concentrations for arsenic and lead are summarized in the table below.

Metal	Maximum	95% UCL	Shallow Soil Residential ESL	Shallow Soil Commercial/ Industrial ESL	Worker Direct Exposure ESL	Published Background Mean[1]	Published Background Range[1]
Arsenic	41	17.6	0.39	1.6	10	3.5	0.6 to 11.0
Lead	1,900	517	80	320	320	23.9	12.4 to 97.1

Concentrations reported in mg/kg
[1] Kearney Foundation of Soil Science, March 1996
NC – Not Calculated

The 95% UCL arsenic concentration is greater than the residential and commercial land use ESLs, the construction exposure ESL, and above the published background range. The SFRWQCB *November 2007 Update to Environmental Screening Levels (ESLs) Technical Document* states that ambient background concentrations of arsenic typically exceed risk-based screening levels. In such instances, it may be more appropriate to compare site data to regionally specific established background levels.

Total arsenic was detected in one sample at a concentration of 41 mg/kg (boring B7-0). This value was determined to be a statistical outlier and as such is not considered representative of site conditions. With the outlier excluded, the 95% UCL arsenic concentration in the remaining seven samples was 7.9 mg/kg, above the residential and commercial land use ESLs, but below the construction exposure ESL and within the published background range. Results of the outlier test are included in Appendix D.

The 95% UCL lead concentration is above the residential and commercial land use ESLs, the construction exposure ESL, and the published background range.

Based on the reported results for arsenic and lead, reuse or disposal of excavated soil may be restricted depending on proposed use.

Metals results for soil samples are summarized in Table 3.

6.3 Organic Compounds in Soil

TPHg was not detected in the samples at or above the reporting limit of 1.0 mg/kg.

TPHd was reported at concentrations ranging from 3.2 mg/kg to 130 mg/kg. Two sample results met or exceeded the residential land use ESL of 100 mg/kg. One sample result exceeded the

commercial/industrial land use ESL of 110 mg/kg. All results were below the construction/direct exposure ESL of 900 mg/kg. TPHd has a 95% UCL concentration of 82.1 mg/kg.

TPHmo was reported at concentrations ranging from 6.8 mg/kg to 500 mg/kg. Five sample results exceeded the residential land use ESL of 100 mg/kg and one sample result met the commercial/industrial land use ESL of 500 mg/kg. All results were below the construction/direct exposure ESL of 28,000 mg/kg. TPHmo has a 95% UCL concentration of 280 mg/kg.

Based on the reported TPHd and TPHmo concentrations exceeding the residential and commercial/industrial land use ESLs, reuse or disposal of excavated soil may be restricted based on TPHd and TPHmo content depending on proposed use.

A summary of petroleum hydrocarbon concentrations in site soil is presented in Table 4.

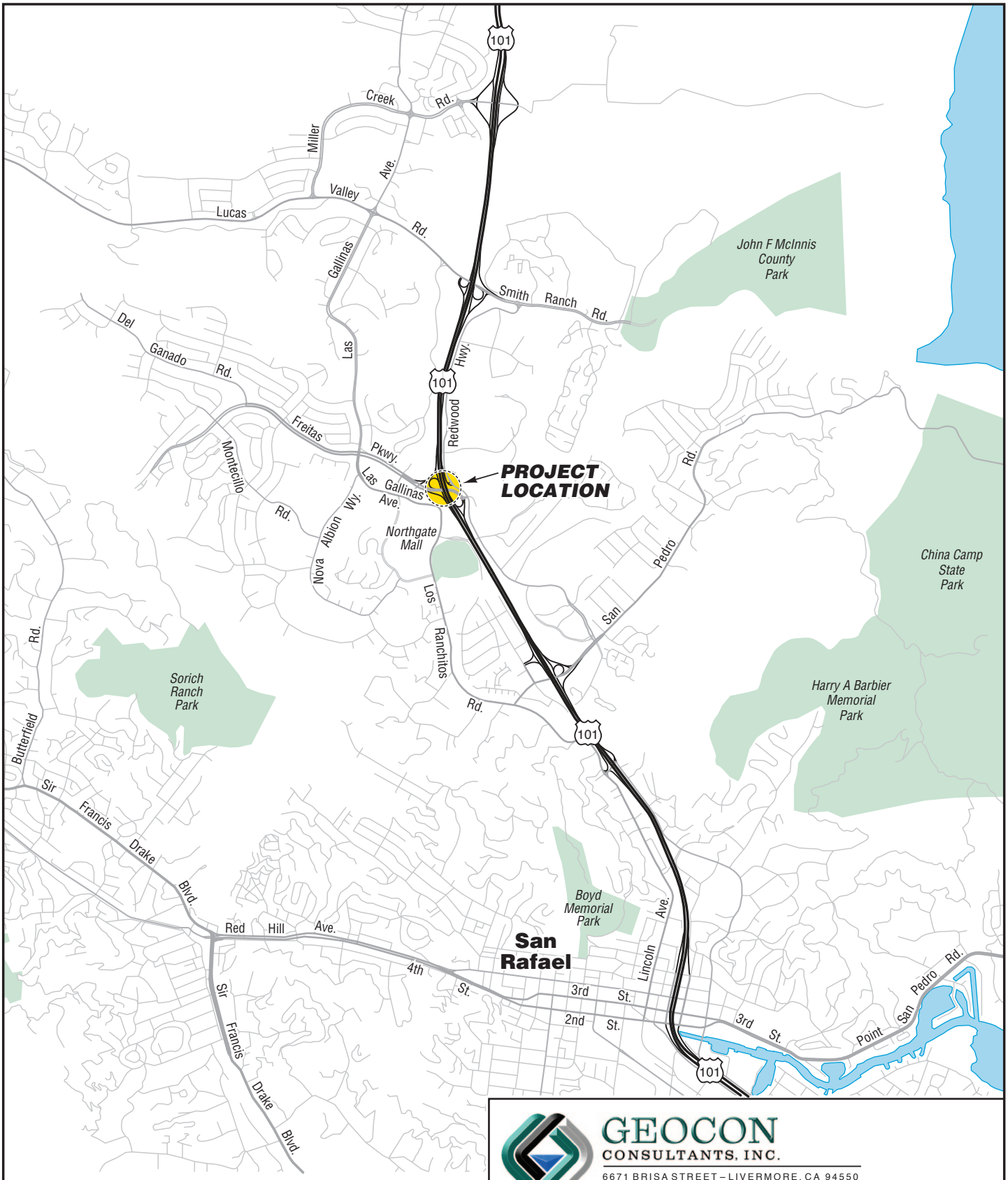
6.4 Naturally Occurring Asbestos

Eight soil samples were collected from the site and analyzed for asbestos by CARB Test Method 435 using polarized light microscopy (PLM) and at a target sensitivity of 0.25% asbestos. Asbestos was not observed.

A summary of NOA results is included in Table 5.

6.5 Worker Protection

The contractor(s) should prepare a project-specific health and safety plan to prevent or minimize worker exposure to metals and hydrocarbons in soil. The plan should include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other health and safety protocols and procedures for the handling of soil.



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Highway 101, Post Mile 13.7 Freitas Parkway Overcrossing

Marin County, California	**VICINITY MAP**	
GEOCON Proj. No. E8721-02-12		
Task Order No. 12, EA 04-4A0001	November 2014	Figure 1

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Freitas Parkway Overcrossing

Marin County, California

SITE PLAN

GEOCON Proj. No. E8721-02-12

EA No. 04-4A0001

November 2014

Figure 2

SITE0914

TABLE 1
Boring Coordinates
Freitas Parkway Overcrossing
San Rafael, California

Boring	Latitude	Longitude
B1	38.0071960000	-122.5420960000
B2	38.0071977654	-122.5420570000
B3	38.0071978485	-122.5411224362
B4	38.0071950000	-122.5410830000
B5	38.0069397144	-122.5409585878
B6	38.0069450000	-122.5409980000
B7	38.0069746970	-122.5420037891
B8	38.0069747006	-122.5419646165

TABLE 2
Summary of Lead and pH Results
Freitas Parkway Overcrossing
San Rafael, California

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	DI-WET Lead (mg/l)	TCLP Lead (mg/l)	pH
B1-0	0 to 0.5	99	5.0	<1.0	0.064	---
B1-1	1 to 1.5	20	---	---	---	8.1
B1-2	2 to 2.5	39	---	---	---	---
B2-0	0 to 0.5	250	14	<1.0	0.22	---
B2-1	1 to 1.5	15	---	---	---	---
B2-2.5	2.5 to 3	23	---	---	---	7.6
B3-0	0 to 0.5	490	39	<1.0	0.27	---
B3-1	1 to 1.5	270	13	<1.0	0.14	---
B3-2	2 to 2.5	52	1.9	---	---	7.2
B4-0	0 to 0.5	900	59	8.4	1.3	---
B4-1	1 to 1.5	600	25	1.4	0.43	---
B4-2	2 to 2.5	350	18	<1.0	0.36	8.2
B5-0	0 to 0.5	170	10	<1.0	0.10	---
B5-1	1 to 1.5	43	---	---	---	7.8
B5-2	2 to 2.5	40	---	---	---	---
B6-0	0 to 0.5	240	14	<1.0	0.16	---
B6-1	1 to 1.5	20	---	---	---	---
B6-2.5	2.5 to 3	17	---	---	---	8.6
B7-0	0 to 0.5	1,600	150	7.2	1.3	---
B7-1	1 to 1.5	1,900	120	3.8	1.1	---
B7-2	2 to 2.5	320	15	1.2	0.20	7.7
B8-0	0 to 0.5	700	44	<1.0	0.42	---
B8-1	1 to 1.5	290	12	<1.0	0.14	---
B8-2.5	2.5 to 3	150	8.4	<1.0	0.084	7.5

TABLE 2
Summary of Lead and pH Results
Freitas Parkway Overcrossing
San Rafael, California

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	DI-WET Lead (mg/l)	TCLP Lead (mg/l)	pH
Rinse Blank		<0.0050 mg/l				
Hazardous Waste Criteria						
TTLC (mg/kg)		1,000	---	---	---	---
STLC (mg/l)		---	5.0	---	---	---
TCLP (mg/l)		---	---	---	5.0	---

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
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration

TABLE 3
Summary of CAM 17 Metals Results
Freitas Parkway Overcrossing
San Rafael, California

Sample ID	Sample Depth (ft)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
B1-0	0 to 0.5	<2.0	5.4	110	<0.99	<0.99	79 *<1.0*	12	33	99	0.14	<0.99	89	<0.99	<0.99	<0.99	33	180
B2-0	0 to 0.5	<2.0	6.3	140	<1.0	<1.0	70 <1.0	13	53	250	0.18	<1.0	84	<1.0	<1.0	<1.0	34	210
B3-0	0 to 0.5	<2.0	9.0	150	<1.0	<1.0	48	12	110	490	0.26	2.1	64	<1.0	<1.0	<1.0	21	340
B4-0	0 to 0.5	<2.0	5.9	250	<1.0	<1.0	53 *<1.0*	12	61	900	0.45	1.1	77	<1.0	<1.0	<1.0	30	300
B5-0	0 to 0.5	<2.0	10	220	<0.99	<0.99	52 *<1.0*	14	66	170	1.3	<0.99	76	<0.99	<0.99	<0.99	36	150
B6-0	0 to 0.5	<2.0	5.8	270	<1.0	<1.0	53 *<1.0*	18	77	240	0.2	<1.0	67	<1.0	<1.0	<1.0	33	330
B7-0	0 to 0.5	<2.0	41	120	<1.0	<1.0	51 *<1.0*	9.9	37	1600	0.6	<1.0	65	<1.0	<1.0	<1.0	28	280
B8-0	0 to 0.5	<2.0	5.6	130	<1.0	<1.0	54 *<1.0*	11	55	700	0.19	1.3	69	<1.0	<1.0	<1.0	32	400
ESLs																		
Residential Land Use		20	0.39	750	4.0	12	1,000	23	230	80	6.7	40	150	10	20	0.78	200	600
Commercial/Industrial Land Use		40	1.6	1,500	8.0	12	2,500	80	230	320	10	40	150	10	40	10	200	600
Construction Worker Exposure		120	10	61,000	180	110	460,000*	49	12,000	320	27	1,500	6,100	1,500	1,500	3.1	1,500	93,000
Hazardous Waste Criteria																		
TTLC (mg/kg)		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
STLC (mg/l)		15	5.0	100	0.75	1.0	5.0	80	25	5.0	0.2	350	20	1.0	5.0	7.0	24	250
TCLP (mg/l)		---	5.0	100	---	1.0	6.0	---	---	5.0	0.2	---	---	1.0	5.0	---	---	---

Notes:

Results are shown in milligrams per kilogram (mg/kg)
*Value listed is for Chromium III, as there is no construction exposure standard for total chromium
Values listed in italics are results of WET analysis
< = Analyte was not detected above the laboratory reporting limit
ESLs = Environmental Screening Levels, Tables A and K-3, SFRWQCB, December 2013
TTLC = total threshold limit concentration
STLC = soluble threshold limit concentration
TCLP = toxicity characteristic leaching procedure

TABLE 4
Summary of Petroleum Hydrocarbons Results
Freitas Parkway Overcrossing
San Rafael, California

Sample ID	Sample Depth (ft)	TPHd (mg/kg)	TPHmo (mg/kg)	TPHg (mg/kg)
B1-1	1 to 1.5	---	---	<1.0
B1-2	2 to 2.5	100	500	---
B2-1	1 to 1.5	---	---	<1.0
B2-2.5	2 to 2.5	37	140	---
B3-1	1 to 1.5	---	---	<1.0
B3-2	2 to 2.5	26	82	---
B4-1	1 to 1.5	---	---	<1.0
B4-2	2 to 2.5	89	310	---
B5-1	1 to 1.5	---	---	<1.0
B5-2	2 to 2.5	14	47	---
B6-1	1 to 1.5	---	---	<1.0
B6-2.5	2 to 2.5	3.2	6.8	---
B7-1	1 to 1.5	---	---	<1.0
B7-2	2 to 2.5	130	250	---
B8-1	1 to 1.5	---	---	<1.0
B8-2.5	2 to 2.5	60	210	---
ESLs				
Residential		100	100	100
Commercial/Industrial		110	500	500
Construction Exposure		900	28,000	2,700

Notes:
mg/kg = milligrams per kilogram
TPHd = Total petroleum hydrocarbons as diesel
TPHmo = Total petroleum hydrocarbons as motor oil
ESLs = Environmental Screening Levels, Tables A and K-3, SFRWQCB, December 2013.

TABLE 5
Summary of NOA Results
Freitas Parkway Overcrossing
San Rafael, California

Sample ID	Sample Depth (feet)	Asbestos Content
B1-1	1 to 1.5	ND
B2-1	1 to 1.5	ND
B3-1	1 to 1.5	ND
B4-1	1 to 1.5	ND
B5-1	1 to 1.5	ND
B6-1	1 to 1.5	ND
B7-1	1 to 1.5	ND
B8-1	1 to 1.5	ND

ND = None detected at 0.25% target analytical sensitivity.

TABLE 6
Summary of Lead Statistical Analysis
Freitas Parkway Overcrossing
San Rafael, California

Borings B1 to B8

TOTAL LEAD

	90% UCL	95% UCL
0 ft	767	825
1 ft	677	731
2 ft	183	201

EXCAVATION SCENARIOS

	Weighted Averages		
Excavation Depth	**90% UCL Total Lead (mg/kg)**	**WET Lead* (mg/l)**	**95% UCL Total Lead (mg/kg)**
0 to 1 ft	767	54.6	825
Underlying Soil (1 to 3 ft)	*430*	*30.6*	*466*
0 to 2 ft	722	51.4	778
Underlying Soil (2 to 3 ft)	*183*	*13*	*201*
0 to 3 ft	542	38.6	586

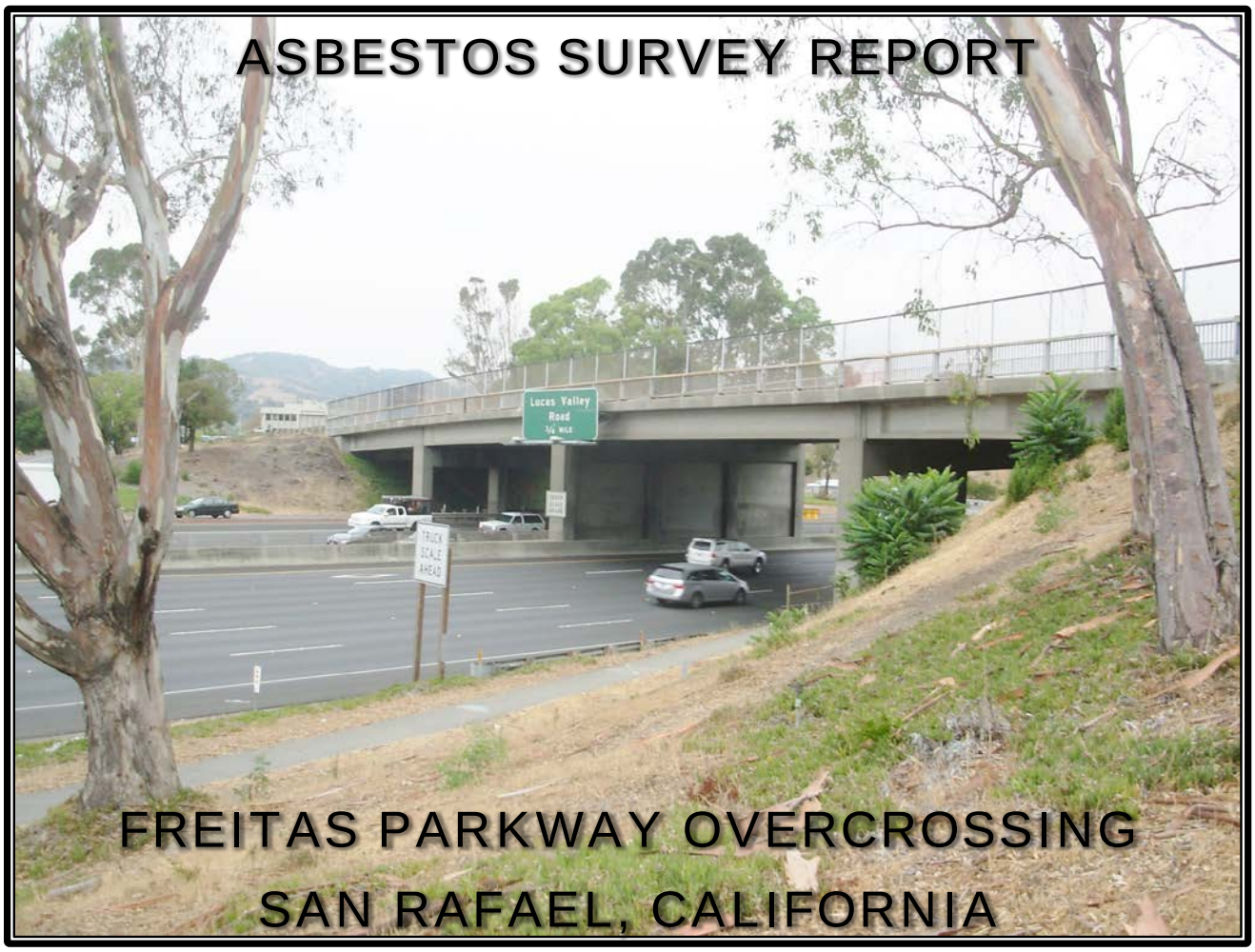
Notes:

UCL = Upper Confidence Limit (90% UCL is applicable for waste classification; 95% UCL applicable for risk assessment)
mg/kg = milligrams per kilogram
mg/l = milligrams per liter
* = WET lead concentrations are predicted using slope of regression line,
where y = predicted WET lead and x = total lead.

Regression Line Slope: $y = 0.0712\ x$

APPENDIX A

ASBESTOS SURVEY REPORT



FREITAS PARKWAY OVERCROSSING
SAN RAFAEL, CALIFORNIA

PREPARED FOR:
CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 4
OFFICE OF ENVIRONMENTAL ENGINEERING
111 GRAND AVENUE
OAKLAND, CALIFORNIA

PREPARED BY:
GEOCON CONSULTANTS, INC.
6671 BRISA STREET
LIVERMORE, CALIFORNIA

GEOCON PROJECT NO. E8721-02-12
CALTRANS EA 04-4A0001
CALTRANS PROJECT NO. 04-1200-0117-1

SEPTEMBER 2014

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ASBESTOS SURVEY REPORT Page

REPORT LIMITATIONS

This asbestos survey was conducted in conformance with generally accepted standards of practice for identifying and evaluating asbestos in structures. Due to the nature of structure surveys, asbestos, and laboratory analytical limitations, some asbestos in the structure may not have been identified. Structure spaces such as cavities, crawlspaces, and pipe chases may have been concealed to our investigator. Previous structure renovation work may have concealed or covered spaces or materials, or may have partially demolished materials and left debris in inaccessible areas. Additionally, renovation activities may have partially replaced asbestos with indistinguishable non-asbestos materials. Asbestos may exist in areas of the structure not accessible or sampled in conjunction with this Task Order.

During renovation or demolition operations, suspect materials may be uncovered which are different from those accessible for sampling during this assessment. Personnel in charge of renovation/demolition should be alerted to note materials uncovered during such activities that differ substantially from those included in this or previous assessment reports. If suspect materials are found, additional sampling and analysis should be performed to determine if the materials contain asbestos.

This report has been prepared exclusively for the State of California Department of Transportation (Caltrans) District 4. The information contained herein is only valid as of the date of the report, and will require an update to reflect additional information obtained.

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

The contents of this report reflect the views of the authors who are 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.

GEOCON CONSULTANTS, INC.

David Watts, CAC No. 98-2404
Senior Project Scientist

CALIFORNIA DEPARTMENT OF TRANSPORTATION – DISTRICT 4
OFFICE OF ENVIRONMENTAL ENGINEERING

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EXECUTIVE SUMMARY

This asbestos survey report was prepared for the Freitas Parkway Overcrossing (Bridge 27-0080) in San Rafael, California. We performed an asbestos survey at the project location. The project location is depicted on the Vicinity Map, Figure 1, and Site Plan, Figure 2. Caltrans has requested an investigation at the project location to provide data regarding the presence of asbestos prior to various structural improvements.

This report documents the investigation sampling methods and laboratory analytical data. The primary objective of our survey was to determine and quantify asbestos at the project location prior to improvements. The information obtained from this investigation will be used by Caltrans to coordinate proposed activities, determine appropriate abatement/disposal costs, and identify health and safety concerns during improvements.

The field investigation was performed on September 4, 2014. The following field activities were performed during our sampling efforts:

- Collected 11 bulk samples of suspect asbestos; and
- Transported samples to a Caltrans-approved, California-certified environmental laboratory.

Samples were collected from locations presented on the Site Plan. Suspect asbestos sample group identification numbers are presented in the report table. Materials represented by the samples collected are presented in the Site Photographs.

Bulk suspect asbestos material samples were collected after first wetting friable materials with a light mist of water. The samples were transferred to labeled containers and sealed. Four suspect asbestos materials were identified during the survey. Sampling locations were distributed throughout the homogeneous areas (spaces where the material was observed).

We relinquished bulk samples using standard chain-of-custody documentation for asbestos analysis. Asbestos content was determined using U.S. Environmental Protection Agency (EPA) Test Method 600/R-93/116 for polarized light microscopy (PLM). We requested laboratory analyses to be within a 120-hour turnaround.

Chrysotile asbestos at a concentration of 7% was detected in samples representing nonfriable cementitious drainpipe observed in the bridge abutments. We were not able to quantify the material.

No asbestos was detected in the remaining samples of suspect materials collected during our survey. Laboratory results for the asbestos samples are summarized on the report table. Reproductions of the laboratory report and chain-of-custody documentation are presented in the report appendix.

We provide the following conclusions and recommendations based on the results of our investigation.

NESHAP regulations require that cementitious drainpipe (a Category II nonfriable/nonhazardous material) be removed and disposed of prior to demolition or other activities that would disturb the material. We recommend that the removal of the material be performed by a licensed contractor who is registered with Cal/OSHA for asbestos-related work. Contractors are responsible for informing the landfill of the contractor's intent to dispose of asbestos waste. Some landfills may require additional waste characterization. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

In accordance with Bay Area Air Quality Management District (BAAQMD) Regulation 11, Rule 2, written notification is required ten working days prior to commencement of *any* demolition activity (whether asbestos is present or not).

ASBESTOS SURVEY REPORT

1.0 INTRODUCTION

This asbestos survey report was prepared for the Freitas Parkway Overcrossing (Bridge 27-0080) in San Rafael County, California. This report documents the investigation sampling methods and laboratory analytical data.

1.1 Site Description and Proposed Improvements

The project consists of the Freitas Parkway Overcrossing (Bridge 27-0080) at Post Mile (PM) 13.71 on US Highway 101 (US 101) in San Rafael, California. The project location is depicted on the Vicinity Map, Figure 1, and Site Plan, Figure 2. Caltrans has requested an investigation at the project location to provide data regarding the presence of asbestos prior to various structural improvements.

1.2 Purpose

The primary objective of our survey was to determine and quantify asbestos at the project location prior to improvements. The information obtained from this investigation will be used by Caltrans to coordinate proposed activities, determine appropriate abatement/disposal costs, and identify health and safety concerns during improvements.

2.0 BACKGROUND

The *Code of Federal Regulations (CFR),* 40 CFR 61, Subpart M, National Emissions Standards for Hazardous Air Pollutants (NESHAP) and Federal Occupational Safety and Health Administration (FED OSHA) classify asbestos-containing material (ACM) as any material or product that contains *greater than* 1% asbestos. Nonfriable ACM is classified by NESHAP as either Category I or Category II material defined as follows:

- **Category I** – asbestos-containing packings, gaskets, resilient floor coverings, and asphalt roofing products.
- **Category II** – all remaining types of non-friable asbestos-containing material not included in Category I that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Regulated asbestos-containing material (RACM), a hazardous waste when friable, is classified as any manufactured material that contains *greater than* 1% asbestos by dry weight *and* is:

- Friable; or
- Category I material that has become friable; or
- Category I material that has been subjected to sanding, grinding, cutting, or abrading; or
- Category II non-friable material that has a high probability of becoming crumbled, pulverized, or reduced to a powder during demolition or renovation activities.

Activities that disturb materials containing *any* amount of asbestos are subject to certain requirements of the California Occupational Safety and Health Administration (Cal/OSHA) asbestos standard contained in Title 8, CCR Section 1529. Typically, removal or disturbance of more than 100 square feet of material containing more than 0.1% asbestos must be performed by a registered asbestos abatement contractor, but associated waste labeling is not required if the material contains 1% or less asbestos. When the asbestos content of a material exceeds 1%, virtually all requirements of the standard become effective.

Materials containing more than 1% asbestos are also subject to NESHAP regulations (40 CFR Part 61, Subpart M). RACM (friable ACM and nonfriable ACM that will become friable during demolition operations) must be removed from structures prior to demolition. Certain nonfriable ACM and materials containing 1% or less asbestos may remain in structures during demolition; however, there are waste handling/disposal issues and Cal/OSHA work requirements that must be followed. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

With respect to potential worker exposure, notification, and registration requirements, Cal/OSHA defines asbestos-containing construction material (ACCM) as construction material that contains more than 0.1% asbestos (Title 8, CCR 341.6).

3.0 SCOPE OF SERVICES

Mr. David Watts, a California-Certified Asbestos Consultant (CAC), certification number 98-2404 (expiration September 16, 2015), performed the asbestos survey on September 4, 2014. Eleven bulk samples representing four suspect asbestos materials were collected.

4.0 INVESTIGATIVE METHODS

Bulk suspect asbestos material samples were collected after first wetting friable materials with a light mist of water. The samples were transferred to labeled containers and sealed. Sampling locations were distributed throughout the homogeneous areas (spaces where the material was observed).

We relinquished bulk samples for asbestos analysis using standard chain-of-custody documentation. Asbestos content was determined using EPA Test Method 600/R-93/116 for polarized light microscopy (PLM). We requested laboratory analyses to be within a 120-hour turnaround.

5.0 INVESTIGATIVE RESULTS

Chrysotile asbestos at a concentration of 7% was detected in samples representing nonfriable cementitious drainpipe observed in the bridge abutments. We were not able to quantify the material.

No asbestos was detected in the remaining samples of suspect materials collected during our survey. Laboratory results for the asbestos samples are summarized on the report table. Reproductions of the laboratory report and chain-of-custody documentation are presented in the report appendix.

6.0 CONCLUSIONS

NESHAP regulations require that cementitious drainpipe (a Category II nonfriable/nonhazardous material) be removed and disposed of prior to demolition or other activities that would disturb the material. We recommend that the removal of the material be performed by a licensed contractor who is registered with Cal/OSHA for asbestos-related work. Contractors are responsible for informing the landfill of the contractor's intent to dispose of asbestos waste. Some landfills may require additional waste characterization. Contractors are responsible for segregating and characterizing waste streams prior to disposal.

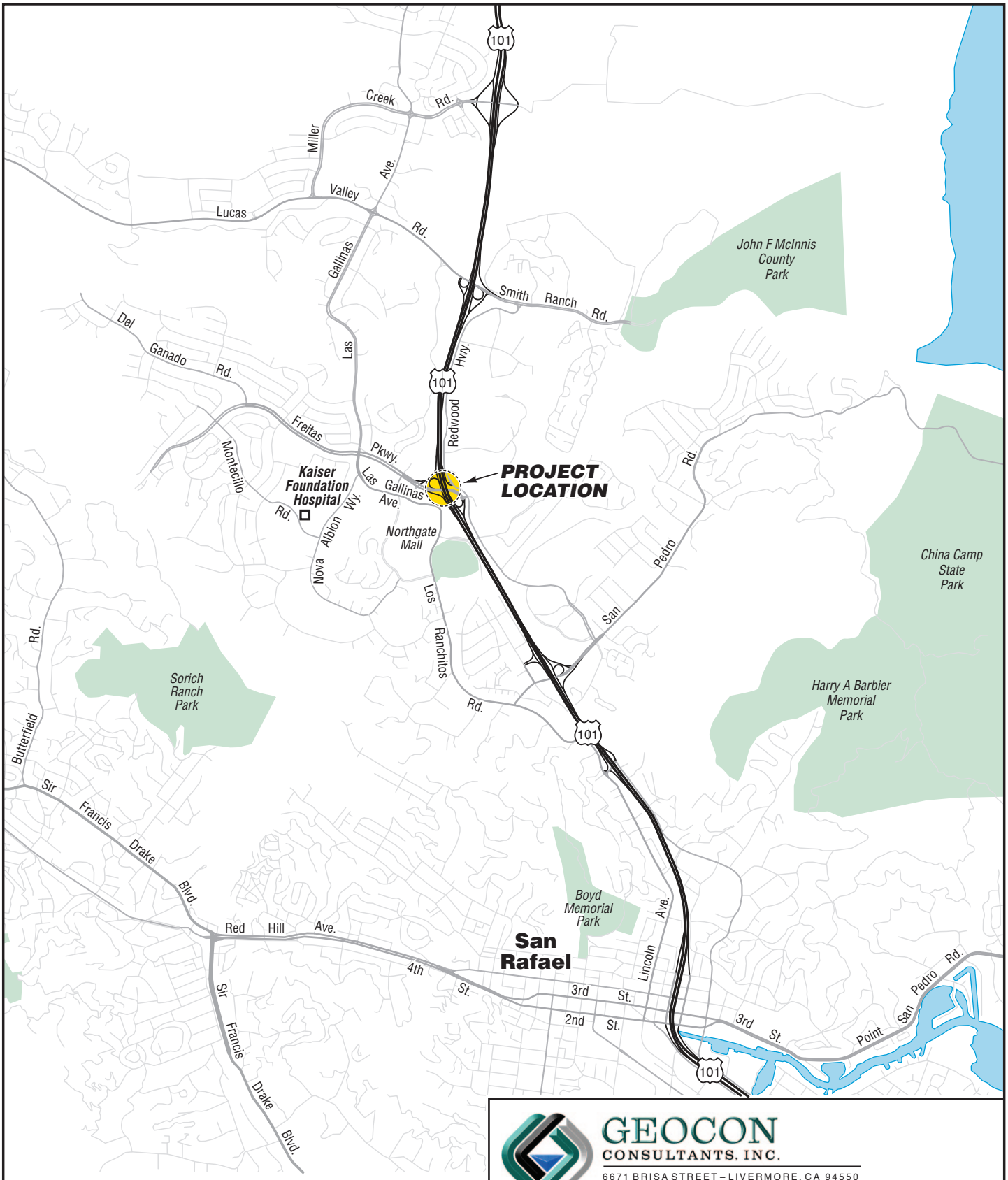
In accordance with Bay Area Air Quality Management District (BAAQMD) Regulation 11, Rule 2, written notification is required ten working days prior to commencement of *any* demolition activity (whether asbestos is present or not).

SUMMARY OF ANALYTICAL LABORATORY TEST RESULTS - ASBESTOS
FREITAS PARKWAY OVERCROSSING (BRIDGE 27-0080)
SAN RAFAEL, CALIFORNIA

Polarized Light Microscopy (PLM) - EPA Test Method 600/R-93/116

Sample Group	Description of Suspect Material	Approximate Quantity	Friable	Site Photos	Asbestos Content
1	Concrete	NA	NA	1 through 3	ND
2	Asphalt	NA	NA	3	ND
3	**Drainpipe**	**Unable to quantify**	**No**	**2**	**7%**
4	Joint fill material	NA	NA	3	ND

Notes:
NA = Not applicable
ND = No asbestos fibers detected



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Highway 101, Post Mile 13.7 Freitas Parkway Overcrossing

Marin County, California

VICINITY MAP

GEOCON Proj. No. E8721-02-12

Task Order No. 12, EA 04-4A0001 | September 2014 | Figure 1

LEGEND:

- ● Approximate Asbestos Sample Location
- *(Ab)* Abutment

N

0 50

Scale in Feet

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Highway 101, Post Mile 13.7 Freitas Parkway Overcrossing

Marin County, California	**SITE PLAN**	
GEOCON Proj. No. E8721-02-12		
Task Order No. 12, EA 04-4A0001	September 2014	Figure 2

Photo 1 – Freitas Parkway Overcrossing (Bridge 27-0080) at PM 13.71 on US 101 in San Rafael, California

Photo 2 – East abutment and concrete girders (asbestos drainpipe is present in abutments)

Photo 3 – Bridge deck and sidewalk

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Phone/Fax: (510) 895-3675 / (510) 895-3680
http://www.EMSL.com sanleandrolab@emsl.com

EMSL Order:	091413904
CustomerID:	GECN21
CustomerPO:	
ProjectID:	E8721-02-xx

Attn: **Dave Watts**
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6671 Brisa Street

Livermore, CA 94550

Phone:	(925) 371-5900
Fax:	(925) 371-5915
Received:	09/04/14 1:00 PM
Analysis Date:	9/11/2014
Collected:	9/4/2014

Project: **FREITAS PKWY/ E8721-02-12**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
1A-Concrete *091413904-0001*	- CONCRETE	Gray Non-Fibrous Homogeneous		40% Quartz 60% Non-fibrous (other)	**None Detected**
1B-Concrete *091413904-0002*	- CONCRETE	Gray Non-Fibrous Homogeneous		40% Quartz 60% Non-fibrous (other)	**None Detected**
1C-Concrete *091413904-0003*	- CONCRETE	Gray Non-Fibrous Homogeneous		40% Quartz 60% Non-fibrous (other)	**None Detected**
1D-Concrete *091413904-0004*	- CONCRETE	Gray Non-Fibrous Homogeneous		40% Quartz 60% Non-fibrous (other)	**None Detected**
1E-Concrete *091413904-0005*	- CONCRETE	Gray Non-Fibrous Homogeneous		40% Quartz 60% Non-fibrous (other)	**None Detected**
2A-Asphalt *091413904-0006*	- ASPHALT	Black Non-Fibrous Homogeneous		25% Quartz 5% Matrix 70% Non-fibrous (other)	**None Detected**
2B-Asphalt *091413904-0007*	- ASPHALT	Black Non-Fibrous Homogeneous		25% Quartz 5% Matrix 70% Non-fibrous (other)	**None Detected**
3A-DrainPipe *091413904-0008*	- DRAINPIPE	Silver Non-Fibrous Homogeneous		10% Matrix 83% Non-fibrous (other)	**7% Chrysotile**

Analyst(s)

Beheshta Ahadi (11)

Derrick Tanner, Laboratory Manager
or other approved signatory

Initial report from 09/11/2014 11:41:51

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EMSL Order:	091413904
CustomerID:	GECN21
CustomerPO:	
ProjectID:	E8721-02-xx

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Fax:	(925) 371-5915
Received:	09/04/14 1:00 PM
Analysis Date:	9/11/2014
Collected:	9/4/2014

Project: **FREITAS PKWY/ E8721-02-12**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos			Asbestos	
Sample	**Description**	**Appearance**	**%**	**Fibrous**	**% Non-Fibrous**	**%**	**Type**
3B-DrainPipe *091413904-0009*	- DRAINPIPE	Silver Non-Fibrous Homogeneous			10% Matrix 83% Non-fibrous (other)	**7%**	**Chrysotile**
4A-Joint Fill Material *091413904-0010*	- JOINT FILL MATERIAL	Black Non-Fibrous Homogeneous	5%	Cellulose	20% Matrix 75% Non-fibrous (other)		**None Detected**
4B-Joint Fill Material *091413904-0011*	- JOINT FILL MATERIAL	Black Non-Fibrous Homogeneous	5%	Cellulose	20% Matrix 75% Non-fibrous (other)		**None Detected**

Analyst(s)

Beheshta Ahadi (11)

Derrick Tanner, Laboratory Manager
or other approved signatory

Initial report from 09/11/2014 11:41:51

THIS IS THE LAST PAGE OF THE REPORT.

OrderID: 091413904

04A4336

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only)

#091413904

EMSL ANALYTICAL, INC.
2235 POLVOROSA DR., STE. 230
SAN LEANDRO, CA 94577
PHONE: (510) 895-3675
FAX: (510) 895-3680

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Company: GEOCON	EMSL-Bill to: ☒ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 6671 BRISA ST.	
City: LIVERMORE State/Province: CA	Zip/Postal Code: 94550 Country: USA
Report To (Name): D. WATTS	Fax #: 925-371-5915
Telephone #: 925-371-5900	Email Address: WATTS@GEOCONINC.COM
Project Name/Number: FREITAS PKWY / E8721-02-12	
Please Provide Results: ☐ Fax ☒ Email	Purchase Order: U.S. State Samples Taken: CA

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☒ 1 Week ☐ 2 Week

**For TEM Air 3 hours/6 hours, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.*

PCM - Air
- ☐ NIOSH 7400
- ☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
- ☒ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0 1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198.6 NOB (non-friable-NY)
- ☐ NIOSH 9002 (<1%)

TEM – Air ☐ 4-4.5hr TAT (AHERA only)
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec. 2.5

TEM – Water: EPA 100.2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
- ☐ PLM CARB 435 - A (0.25% sensitivity)
- ☐ PLM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - C (0.01% sensitivity)
- ☐ EPA Protocol (Semi-Quantitative)
- ☐ EPA Protocol (Quantitative)

Other:
- ☐

☐ Check For Positive Stop – Clearly Identify Homogenous Group

Samplers Name: D. WATTS **Samplers Signature:** [signature]

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
1A-E	Concrete (OK/AB/CG/GO/SW)	N/A	4 SEP 2014
2A/B	Asphalt		
3A/B	Drain Pipe		
4A/B	Joint Fill Material		

Client Sample # (s): Total # of Samples: 11

Relinquished (Client): [signature] Date: 9/4/14 Time: 1300

Received (Lab): [signature] Date: 9/4/14 9/4/14 Time: 1300 1:00PM

Comments/Special Instructions: (W.I)

APPENDIX B

Matthew Rodriquez
Secretary for
Environmental Protection

Department of Toxic Substances Control

Miriam Barcellona Ingenito
Acting Director
1001 "I" Street
P.O. Box 806
Sacramento, California 95812-0806

Edmund G. Brown Jr.
Governor

June 26, 2014

Ms. Katrina C. Pierce, Chief
Division of Environmental Analysis
California Department of Transportation
P.O. Box 942873, MS-27
Sacramento, California 94273-0001

EXTENSION OF STATEWIDE VARIANCE NO. V09HQSCD006 FOR CALTRANS' HANDLING OF AERIALLY DEPOSITED LEAD

Dear Ms. Pierce:

The Department of Toxic Substances Control (DTSC) received a letter dated May 30, 2014, from the California Department of Transportation (Caltrans), regarding Variance No. V09HQSCD006 (Variance), issued June 30, 2009. Caltrans is requesting DTSC to grant a six-month extension on the Variance with the new expiration date of December 31, 2014, instead of June 30, 2014. The Variance waives specified hazardous waste management requirements for purposes of Caltrans' handling of roadside soil contaminated with aerially deposited lead, and applies to Caltrans' highway improvement projects in all Caltrans Districts statewide.

Based on recent discussions between Caltrans and DTSC both agreed a six-month extension is necessary to provide adequate time for DTSC to finalize the new (renewal) variance, and for Caltrans to review and provide comments on the renewal variance. Key next steps in DTSC's review process include finalizing the ecological and health risk assessments, working on the California Environmental Quality Act documents, drafting of the renewal variance, and allowing adequate time for a public notice period for the renewal variance.

This letter hereby extends the effective date of Variance No. V09HQSCD006 to December 31, 2014. If you have any questions regarding this extension, please contact Mr. Bob Gipson of my staff at (916) 327-4061 or via email at Bob.Gipson@dtsc.ca.gov.

Sincerely,

Pauline Batarseh

Pauline Batarseh, Chief
Policy Implementation and Support Branch
Policy and Program Support Division
Hazardous Waste Management Program

cc: See next page.

California Environmental Protection Agency
Department of Toxic Substances Control

VARIANCE

Applicant Names:

State of California
Department of Transportation
(Caltrans)
1120 N Street
Sacramento, California 95814

Variance No. V09HQSCD006

Effective Date: July 1, 2009

Expiration Date: July 1, 2014

Modification History:

Pursuant to California Health and Safety Code, Section 25143, the Department of Toxic Substances Control hereby issues the attached Variance consisting of 9 pages to the Department of Transportation.

Beverly Rikala
Team Leader, Operating Facilities Team
Department of Toxic Substances Control

Date: 6/30/09

1. INTRODUCTION.

a) Pursuant to Health and Safety Code, section 25143, the California Department of Toxic Substances Control (DTSC) grants this variance to the applicant below for waste considered to be hazardous solely because of its lead concentrations and as further specified herein.

b) DTSC hereby grants this variance only from the requirements specified herein and only in accordance with all terms and conditions specified herein.

2. IDENTIFYING INFORMATION.

APPLICANT/OWNER/OPERATOR

State of California
Department of Transportation, (Caltrans)
All Districts

3. TYPE OF VARIANCE.

Generation, Manifest, Transportation, Storage and Disposal.

4. ISSUANCE AND EXPIRATION DATES.

DATE ISSUED: July 1, 2009 EXPIRATION DATE: July 1, 2014

5. APPLICABLE STATUTES AND REGULATIONS. The hazardous waste that is the subject of this variance is fully regulated under Health and Safety Code, section 25100, et seq. and California Code of Regulations, title 22, division 4.5 except as specifically identified in Section 8 of this variance.

6. DEFINITION. For purposes of this variance, "lead-contaminated soil(s)" shall mean soil that meets the criteria for hazardous waste but contains less than 3397 mg/kg total lead and is hazardous primarily because of aerially-deposited lead contamination associated with exhaust emissions from the operation of motor vehicles.

7. FINDINGS/DETERMINATIONS. DTSC has determined that the variance applicant meets the requirements set forth in Health and Safety Code, section 25143 for a variance from specific regulatory requirements as outlined in Section 8 of this variance. The specific determinations and findings made by DTSC are as follows:

a) Caltrans intends to excavate, stockpile, transport, bury and cover large volumes of soil associated with highway construction projects. In the more urbanized highway corridors around the State this soil is contaminated with lead, primarily due to historic emissions from automobile exhausts. In situ sampling and laboratory testing has shown that some of the soil contains concentrations of lead in excess of State regulatory thresholds, and thus any generated waste from disturbance of the soil

would be regulated as hazardous waste. Such soil contains a Total Threshold Limit Concentration (TTLC) of 1000 milligrams per kilogram (mg/kg) or more lead and/or it meets or exceeds the Soluble Threshold Limit Concentration (STLC) for lead of 5 milligrams per liter (mg/l). A Human Health Risk Assessment prepared for this variance concludes that soil contaminated with elevated concentrations of lead can be managed in a way that presents no significant risk to human health.

b) The lead-contaminated soil will be placed only in Caltrans' right-of-way. Depending on concentration levels, the wastes will be covered with a minimum thickness of one (1) foot of non-hazardous soil or asphalt/concrete cover and will always be at least five (5) feet above the highest groundwater elevation. Caltrans will assure that proper health and safety procedures will be followed for workers, including any persons engaged in maintenance work in areas where the waste has been buried and covered.

c) DTSC finds and requires that the lead-contaminated soil excavated, stockpiled, transported, buried and covered pursuant to this variance is a non-RCRA hazardous waste, and that the waste management activity is insignificant as a potential hazard to human health and safety and the environment, when managed in accordance with the conditions, limitations and other requirements specified in this variance.

8. PROVISIONS WAIVED.

Provided Caltrans meets the terms and conditions of this variance, DTSC waives the hazardous waste management requirements of Health and Safety Code, Chapter 6.5 and California Code of Regulations, title 22 for the lead-contaminated soil that Caltrans reuses in projects that would require Caltrans to obtain a permit for a disposal facility and any other generator requirements that concern the transportation, manifesting, storage and land disposal of hazardous waste.

9. SPECIFIC CONDITIONS, LIMITATIONS AND OTHER REQUIREMENTS.

In order for the provisions discussed in section 8 to be waived, lead-contaminated soil must not exceed the contaminant concentrations discussed below and Caltrans management practices must meet all the following conditions:

a) Caltrans implementation of this variance shall comply with all applicable state laws and regulations for water quality control, water quality control plans, waste discharge requirements (including storm water permits), and others issued by the State Water Resources Control Board (SWRCB) and/or a California Regional Water Quality Control Board (RWQCB). Caltrans shall provide written notification to the appropriate RWQCB at least 30 days prior to advertisement for bids of projects that involve invocation of this variance, or as otherwise negotiated with the SWRCB or appropriate RWQCB.

b) The waivers in this variance shall only be applied to lead-contaminated soil that is not a RCRA hazardous waste and is hazardous primarily because of aerially-

deposited lead contamination associated with exhaust emissions from the operation of motor vehicles. The variance is not applicable to any other hazardous waste.

c) Soil containing 1.5 mg/l extractable lead or less (based on a modified waste extraction test using deionized water as the extractant) and 1411 mg/kg or less total lead may be used as fill provided that the lead-contaminated soil is placed a minimum of five (5) feet above the maximum historic water table elevation and covered with at least one (1) foot of nonhazardous soil that will be maintained by Caltrans to prevent future erosion.

d) Soil containing 150 mg/L extractable lead or less (based on a modified waste extraction test using deionized water as the extractant) and 3397 mg/kg or less total lead may be used as fill provided that the lead-contaminated soils are placed a minimum of five (5) feet above the maximum historic water table elevation and protected from infiltration by a pavement structure which will be maintained by Caltrans.

e) Lead-contaminated soil with a pH less than 5.5 but greater than 5.0 shall only be used as fill material under the paved portion of the roadway. Lead-contaminated soil with a pH at or less than 5.0 shall be managed as a hazardous waste.

f) For each project that has the potential to generate waste by disturbing lead-contaminated soil (as defined in 6), Caltrans shall conduct sampling and analysis to adequately characterize the soils containing aerially deposited lead in the areas of planned excavation along the project route. Such sampling and analysis shall include the Toxicity Characteristic Leaching Procedure (TCLP) as prescribed by the United States Environmental Protection Agency to determine whether concentrations of contaminants in soil exceed federal criteria for classification as a hazardous waste.

g) Lead-contaminated soil managed pursuant to this variance shall not be moved outside the designated corridor boundaries (see paragraph t) below. All lead-contaminated soil not buried and covered within the same Caltrans corridor where it originated is not eligible for management under this variance and shall be managed as a hazardous waste.

h) Lead-contaminated soil managed pursuant to this variance shall not be placed in areas where it would become in contact with groundwater or surface water (such as streams and rivers).

i) Lead-contaminated soil managed pursuant to this variance shall be buried and covered only in locations that are protected from erosion that may result from storm water run-on and run-off.

j) The lead-contaminated soil shall be buried and covered in a manner that will prevent accidental or deliberate breach of the asphalt, concrete, and/or cover soil.

k) The presence of lead-contaminated soil shall be incorporated into the projects' as-built drawings. The as-built drawings shall be annotated with the location, representative analytical data, and volume of lead-contaminated soil. The as-built drawings shall also state the depth of the cover. These as-built drawings shall be retained by Caltrans.

l) Caltrans shall ensure that no other hazardous wastes, other than the lead-contaminated hazardous waste soil, are placed in the burial areas.

m) Lead-contaminated soil shall not be buried within ten (10) feet of culverts or locations subject to frequent worker exposure.

n) Excavated lead-contaminated soil not placed into the designated area (fill area, roadbed area) by the end of the working day shall be stockpiled and covered with sheets of polyethylene or at least one foot of non-hazardous soil. The lead-contaminated soil, while stockpiled or under transport, shall be protected from contacting surface water and from being dislodged or transported by wind or storm water. The stockpile covers shall be inspected at least once a week and within 24 hours after rainstorms. If the lead-contaminated soil is stockpiled for more than 4 days from the time of excavation, Caltrans shall restrict public access to the stockpile by using barriers that meet the safety requirements of the construction zone. The lead-contaminated soil shall be stockpiled for no more than 90 days from the time the soil is first excavated. If the contaminated soil is stockpiled beyond the 90 day limit Caltrans shall:

1. notify DTSC in writing of the 90 day exceedance and expected date of removal;
2. perform weekly inspections of the stockpiled material to ensure that there is adequate protection from run-on, runoff, public access, and wind dispersion; and
3. notify DTSC on weekly basis of the stockpile status until the stockpile is removed.

The lead-contaminated soil shall be stockpiled for no more than 180 days from the time the soil is first excavated.

o) Caltrans shall ensure that all stockpiling of lead-contaminated soil remains within the project area of the specified corridor. Stockpiling of lead-contaminated soil within the specified corridor, but outside the project area, is prohibited.

p) Caltrans shall conduct confirmatory sampling of any stockpile area in areas not known or expected to contain lead-contaminated soil after removal of the lead-contaminated soil to ensure that contamination has not been left behind or has not migrated from the stockpiled material to the surrounding soils.

q) Caltrans shall stockpile lead-contaminated soil only on high ground (i.e. no sump areas or low points) so that stockpiled soil will not come in contact with surface

water run-on or run-off.

r) Caltrans shall not stockpile lead-contaminated soil in environmentally and ecologically sensitive areas.

s) Caltrans shall ensure that storm/rain run-off that has come into contact with stockpiled lead-contaminated soil will not flow to storm drains, inlets, or waters of the State.

t) Caltrans may dispose of the lead-contaminated soil only within the operating right-of-way of an existing highway, as defined in Streets and Highways Code, section 23. Caltrans may move lead-contaminated soil from one Caltrans project to another Caltrans project only if the lead-contaminated soil remains within the same designated corridor.

Caltrans shall record any movement of lead-contaminated soil by using a bill of lading. The bill of lading must contain: 1) the US DOT description including shipping name, hazard class and ID number; 2) handling codes; 3) quantity of material; 4) volume of material; 5) date of shipment; 6) origin and destination of shipment; and 7) any specific handling instructions. The bill of lading shall be referenced in and kept on file with the project's as-built drawings. The lead-contaminated soil must be kept covered during transportation.

u) For each specific corridor where this variance is to be implemented, all of the following information shall be submitted in writing to DTSC at least five (5) days before construction of any project begins:

1. plan drawing designating the boundaries of the corridor where lead-contaminated soils will be excavated, stockpiled, buried and covered;

2. a list of the Caltrans projects that the corridor encompasses;

3. a list of Caltrans contractors that will be conducting any phase of work on any project affected by this variance;

4. duration of corridor construction;

5. location where sampling and analytical data used to make lead concentration level determinations are kept (e.g. a particular Caltrans project file);

6. name and phone number (including area code) of project resident engineer and project manager;

7. location where Caltrans and contractor health and safety plan and records are kept;

8. location of project special provisions (including page or section number) for soil excavation, transportation, stockpile, burial and placement of cover material;

9. location of project drawings (including drawing page number) for soil excavation, burial and placement of cover in plan and cross section (for example, "The project plans are located at the resident engineer's office located at 5th and Main Streets, City of Fresno, See pages xxxxx of contract xxxx");

10. updated information if a Caltrans project within the corridor is added, changed or deleted; and

11. type of environmental document prepared for each project, date of adoption, document title, Clearing House number and where the document is available for review. A copy of the Caltrans Categorical Exemption, Categorical Exclusion Form, or if filed, the Notice of Exemption for any project shall be submitted to the DTSC Headquarters Project Manager.

v) Changes in location of lead-contaminated soil placement, quantities or protection measures (field changes) shall be noted in the resident engineer's project log within five (5) days of the field change.

w) Caltrans shall ensure that field changes are in compliance with the requirements of this variance.

x) Operational procedures described in the California Environmental Quality Act (CEQA) Special Initial Study shall be followed by Caltrans for activities conducted under this variance.

y) Caltrans shall implement appropriate health and safety procedures to protect its employees and the public, and to prevent or minimize exposure to potentially hazardous wastes. A project-specific health and safety plan must be prepared and implemented. The monitoring and exposure standards shall be based on construction standards for exposure to lead in California Code of Regulations, title 8, section 1532.1.

z) Caltrans shall provide a district Coordinator for this variance. This Coordinator will be the primary point of contact for information flowing to, or received from, DTSC regarding any matter or submission under this variance. Caltrans shall promptly notify DTSC of the name of Coordinator and any change in the Coordinator.

aa) Caltrans shall conduct regular inspections, consistent with Caltrans' Maintenance Division's current Pavement Inspection and Slope Inspection programs, of the locations where lead-contaminated soil has been buried and/or covered pursuant to this variance. If site inspection reveals deterioration of cover so that conditions in the variance are not met, Caltrans shall repair or replace the cover.

bb) Caltrans shall develop and implement a record keeping mechanisms to record and retain permanent records of all locations where lead-contaminated soil has been buried per this variance. The records shall be made available to DTSC.

cc) If areas subject to the terms of this variance are sold, relinquished or abandoned (including roadways), all future property owners shall be notified in writing in advance by Caltrans of the requirements of this variance, and Caltrans shall provide the owner with a copy of the variance. A copy of such a notice shall be sent to DTSC and contain the corridor location and project. Caltrans shall also disclose to DTSC and the new owner the location of areas where lead-contaminated soil has been buried. Future property owners shall be subject to the same requirements as Caltrans.

dd) For the purposes of informing the public about instances where the variance is implemented, Caltrans shall:

1. maintain current fact sheets at all Caltrans resident engineer offices and the Caltrans District office. Caltrans shall make the fact sheets available to anyone expressing an interest in variance-related work.

2. maintain a binder(s) containing copies of all reports submitted to DTSC at the District office. Caltrans shall ensure that the binders are readily accessible to the public.

3. carry out the following actions when it identifies additional projects:

(A) notify the public via a display advertisement in a newspaper of general circulation in that area.

(B) update and distribute the fact sheet to the mailing list and repository locations.

ee) Lead-contaminated soil may be buried only in areas where access is limited or where lead-contaminated soil is covered and contained by a pavement structure.

ff) Dust containing lead-contaminated soil must be controlled. Water or dust palliative may be applied to control dust. If visible dust migration occurs, all excavation, stockpiling and truck loading and burying must be stopped. The granting of this variance confers no relief on Caltrans from compliance with the laws, regulations and requirements enforced by any local air district or the California Air Resources Board.

gg) Sampling and analysis is required to show the lead-contaminated soil meets the variance criteria. All sampling and analysis must be conducted in accordance with the appropriate methods specified in U.S. EPA SW-846.

hh) DTSC retains the right to require Caltrans or any future owner to remove, and properly dispose of, lead-contaminated soil in the event DTSC determines it is necessary for protection of public health, safety or the environment.

ii) DTSC finds that some projects involving lead-contaminated soil are joint projects between Caltrans and other government entities. In these joint projects, Caltrans may not be the lead agency implementing the project although Caltrans is still involved if the project occurs on its right-of-way.

Caltrans may invoke this variance for joint projects where Caltrans and local government entity are involved provided that 1) the project is within the Caltrans Right-of-Way; 2) Caltrans reviews/ oversees all phases of the project including design, contracting, environmental assessment, construction, operation, and maintenance; and 3) Caltrans oversees the project to verify all variance conditions are complied with. Caltrans will be fully responsible for the variance notification and implementation in these joint projects.

jj) All correspondence shall be directed to the following office:

Hazardous Waste Permitting
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826

Attn: Caltrans Lead Variance Notification Unit

10. DISCLAIMER.

a) The issuance of this variance does not relieve Caltrans of the responsibility for compliance with Health and Safety Code, chapter 6.5, or the regulations adopted thereunder, and any other laws and regulations other than those specifically identified in Section 8 of this variance. Caltrans is subject to all terms and conditions herein. The granting of this variance confers no relief from compliance with any federal, State or local requirements other than those specifically provided herein.

b) The issuance of this variance does not release Caltrans from any liability associated with the handling of hazardous waste, except as specifically provided herein and subject to all terms and conditions of this variance.

11. VARIANCE MODIFICATION OR REVOCATION. This variance is subject to review at the discretion of DTSC and may be modified or revoked by DTSC upon change of ownership and at any other time pursuant to Health and Safety Code, section 25143.

12. CEQA DETERMINATION. DTSC adopted a Negative Declaration on June 30, 2009.

Approved:

6/30/09
Date

Beverly Rikala
Operating Facilities Team
Department of Toxic Substances Control

APPENDIX C

ADVANCED TECHNOLOGY LABORATORIES

September 12, 2014

Rick Day
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
Tel: (925) 961-5270
Fax:(925) 371-5915

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

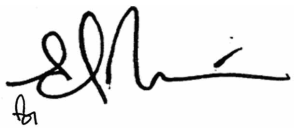
Re: ATL Work Order Number : 1402574

Client Reference : CALTRANS - FREITAS PKWY OC, E8721-02-12

Enclosed are the results for sample(s) received on September 05, 2014 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

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 09/12/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B1-0	1402574-01	Soil	9/04/14 10:34	9/05/14 8:40
B1-1	1402574-02	Soil	9/04/14 10:40	9/05/14 8:40
B1-2	1402574-03	Soil	9/04/14 11:15	9/05/14 8:40
B2-0	1402574-04	Soil	9/04/14 11:20	9/05/14 8:40
B2-1	1402574-05	Soil	9/04/14 11:25	9/05/14 8:40
B2-2.5	1402574-06	Soil	9/04/14 11:30	9/05/14 8:40
B3-0	1402574-07	Soil	9/04/14 9:31	9/05/14 8:40
B3-1	1402574-08	Soil	9/04/14 9:37	9/05/14 8:40
B3-2	1402574-09	Soil	9/04/14 9:51	9/05/14 8:40
B4-0	1402574-10	Soil	9/04/14 9:54	9/05/14 8:40
B4-1	1402574-11	Soil	9/04/14 9:57	9/05/14 8:40
B4-2	1402574-12	Soil	9/04/14 10:04	9/05/14 8:40
B5-0	1402574-13	Soil	9/04/14 9:30	9/05/14 8:40
B5-1	1402574-14	Soil	9/04/14 9:45	9/05/14 8:40
B5-2	1402574-15	Soil	9/04/14 9:55	9/05/14 8:40
B6-0	1402574-16	Soil	9/04/14 8:55	9/05/14 8:40
B6-1	1402574-17	Soil	9/04/14 9:05	9/05/14 8:40
B6-2.5	1402574-18	Soil	9/04/14 9:15	9/05/14 8:40
B8-0	1402574-19	Soil	9/04/14 11:01	9/05/14 8:40
B8-1	1402574-20	Soil	9/04/14 11:07	9/05/14 8:40
B8-2.5	1402574-21	Soil	9/04/14 11:11	9/05/14 8:40
B7-0	1402574-22	Soil	9/04/14 11:14	9/05/14 8:40
B7-1	1402574-23	Soil	9/04/14 11:16	9/05/14 8:40
B7-2	1402574-24	Soil	9/04/14 11:31	9/05/14 8:40
RB	1402574-25	Water	9/04/14 12:01	9/05/14 8:40

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 09/12/2014

Lead by ICP-AES EPA 6010B

Analyte: Lead **Analyst: CB**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1402574-02	B1-1	**20**	mg/kg	1.0	1	B4I0151	09/10/2014	09/11/14 11:57	
1402574-03	B1-2	**39**	mg/kg	1.0	1	B4I0151	09/10/2014	09/11/14 11:58	
1402574-05	B2-1	**15**	mg/kg	1.0	1	B4I0151	09/10/2014	09/11/14 11:59	
1402574-06	B2-2.5	**23**	mg/kg	1.0	1	B4I0151	09/10/2014	09/11/14 11:59	
1402574-08	B3-1	**270**	mg/kg	1.0	1	B4I0151	09/10/2014	09/11/14 12:00	
1402574-09	B3-2	**52**	mg/kg	1.0	1	B4I0151	09/10/2014	09/11/14 12:01	
1402574-11	B4-1	**600**	mg/kg	1.0	1	B4I0151	09/10/2014	09/11/14 12:02	
1402574-12	B4-2	**350**	mg/kg	1.0	1	B4I0151	09/10/2014	09/11/14 12:05	
1402574-14	B5-1	**43**	mg/kg	1.0	1	B4I0151	09/10/2014	09/11/14 12:05	
1402574-15	B5-2	**40**	mg/kg	1.0	1	B4I0151	09/10/2014	09/11/14 12:06	
1402574-17	B6-1	**20**	mg/kg	1.0	1	B4I0151	09/10/2014	09/11/14 12:08	
1402574-18	B6-2.5	**17**	mg/kg	1.0	1	B4I0151	09/10/2014	09/11/14 12:09	
1402574-20	B8-1	**290**	mg/kg	1.0	1	B4I0151	09/10/2014	09/11/14 12:10	
1402574-21	B8-2.5	**150**	mg/kg	1.0	1	B4I0151	09/10/2014	09/11/14 12:11	
1402574-23	B7-1	**1900**	mg/kg	1.0	1	B4I0151	09/10/2014	09/11/14 12:11	
1402574-24	B7-2	**320**	mg/kg	1.0	1	B4I0151	09/10/2014	09/11/14 12:16	

Lead by ICP-AES EPA 6010B

Analyte: Lead **Analyst: CB**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1402574-25	RB	**ND**	mg/L	0.0050	1	B4I0209	09/11/2014	09/11/14 18:04	

Certificate of Analysis

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Mercury by AA (Cold Vapor) EPA 7471A

Analyte: Mercury **Analyst: SB**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1402574-01	B1-0	**0.14**	mg/kg	0.10	1	B4I0206	09/11/2014	09/11/14 17:02	
1402574-04	B2-0	**0.18**	mg/kg	0.10	1	B4I0206	09/11/2014	09/11/14 17:12	
1402574-07	B3-0	**0.26**	mg/kg	0.10	1	B4I0206	09/11/2014	09/11/14 17:14	
1402574-10	B4-0	**0.45**	mg/kg	0.10	1	B4I0206	09/11/2014	09/11/14 17:16	
1402574-13	B5-0	**1.3**	mg/kg	0.10	1	B4I0206	09/11/2014	09/11/14 17:22	
1402574-16	B6-0	**0.20**	mg/kg	0.10	1	B4I0206	09/11/2014	09/11/14 17:24	
1402574-19	B8-0	**0.19**	mg/kg	0.10	1	B4I0206	09/11/2014	09/11/14 17:26	
1402574-22	B7-0	**0.60**	mg/kg	0.10	1	B4I0206	09/11/2014	09/11/14 17:28	

pH by EPA 9045C

Analyte: pH **Analyst: LA**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1402574-02	B1-1	**8.1**	pH Units	0.10	1	B4I0158	09/09/2014	09/10/14 14:21	
1402574-06	B2-2.5	**7.6**	pH Units	0.10	1	B4I0159	09/09/2014	09/10/14 14:17	
1402574-09	B3-2	**7.2**	pH Units	0.10	1	B4I0159	09/09/2014	09/10/14 14:17	
1402574-12	B4-2	**8.2**	pH Units	0.10	1	B4I0159	09/09/2014	09/10/14 14:17	
1402574-14	B5-1	**7.8**	pH Units	0.10	1	B4I0159	09/09/2014	09/10/14 14:17	
1402574-18	B6-2.5	**8.6**	pH Units	0.10	1	B4I0159	09/09/2014	09/10/14 14:17	
1402574-21	B8-2.5	**7.5**	pH Units	0.10	1	B4I0159	09/09/2014	09/10/14 14:17	
1402574-24	B7-2	**7.7**	pH Units	0.10	1	B4I0159	09/09/2014	09/10/14 14:17	

Certificate of Analysis

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Livermore , CA 94550	Reported : 09/12/2014

Client Sample ID B1-0
Lab ID: 1402574-01

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: CB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B4I0202	09/11/2014	09/12/14 10:01	
Arsenic	**5.4**	0.99	1	B4I0202	09/11/2014	09/12/14 10:01	
Barium	**110**	0.99	1	B4I0202	09/11/2014	09/12/14 10:01	
Beryllium	ND	0.99	1	B4I0202	09/11/2014	09/12/14 10:01	
Cadmium	ND	0.99	1	B4I0202	09/11/2014	09/12/14 10:01	
Chromium	**79**	0.99	1	B4I0202	09/11/2014	09/12/14 10:01	
Cobalt	**12**	0.99	1	B4I0202	09/11/2014	09/12/14 10:01	
Copper	**33**	2.0	1	B4I0202	09/11/2014	09/12/14 10:01	
Lead	**99**	0.99	1	B4I0202	09/11/2014	09/12/14 10:01	
Molybdenum	ND	0.99	1	B4I0202	09/11/2014	09/12/14 10:01	
Nickel	**89**	0.99	1	B4I0202	09/11/2014	09/12/14 10:01	
Selenium	ND	0.99	1	B4I0202	09/11/2014	09/12/14 10:01	
Silver	ND	0.99	1	B4I0202	09/11/2014	09/12/14 10:01	
Thallium	ND	0.99	1	B4I0202	09/11/2014	09/12/14 10:01	
Vanadium	**33**	0.99	1	B4I0202	09/11/2014	09/12/14 10:01	
Zinc	**180**	0.99	1	B4I0202	09/11/2014	09/12/14 10:01	

Client Sample ID B1-1
Lab ID: 1402574-02

Gasoline Range Organics by EPA 8015B (Modified) — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B4I0109	09/05/2014	09/05/14 23:09	
Surrogate: 4-Bromofluorobenzene	*97.7 %*	*33 - 151*		B4I0109	09/05/2014	*09/05/14 23:09*	

Client Sample ID B1-2
Lab ID: 1402574-03

Diesel Range Organics by EPA 8015B — **Analyst: CR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**100**	10	10	B4I0131	09/08/2014	09/12/14 09:01	
ORO	**500**	10	10	B4I0131	09/08/2014	09/12/14 09:01	
Surrogate: p-Terphenyl	*0%*	*40 - 112*		B4I0131	09/08/2014	*09/12/14 09:01*	S4

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Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
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Livermore , CA 94550	Reported : 09/12/2014

Client Sample ID B2-0
Lab ID: 1402574-04

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: CB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B4I0202	09/11/2014	09/12/14 10:06	
Arsenic	**6.3**	1.0	1	B4I0202	09/11/2014	09/12/14 10:06	
Barium	**140**	1.0	1	B4I0202	09/11/2014	09/12/14 10:06	
Beryllium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:06	
Cadmium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:06	
Chromium	**70**	1.0	1	B4I0202	09/11/2014	09/12/14 10:06	
Cobalt	**13**	1.0	1	B4I0202	09/11/2014	09/12/14 10:06	
Copper	**53**	2.0	1	B4I0202	09/11/2014	09/12/14 10:06	
Lead	**250**	1.0	1	B4I0202	09/11/2014	09/12/14 10:06	
Molybdenum	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:06	
Nickel	**84**	1.0	1	B4I0202	09/11/2014	09/12/14 10:06	
Selenium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:06	
Silver	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:06	
Thallium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:06	
Vanadium	**34**	1.0	1	B4I0202	09/11/2014	09/12/14 10:06	
Zinc	**210**	1.0	1	B4I0202	09/11/2014	09/12/14 10:06	

Client Sample ID B2-1
Lab ID: 1402574-05

Gasoline Range Organics by EPA 8015B (Modified) — **Analyst: AG**

Analyte		Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics		ND	1.0	1	B4I0109	09/05/2014	09/05/14 23:41	
Surrogate: 4-Bromofluorobenzene	*98.1 %*		*33 - 151*		B4I0109	09/05/2014	*09/05/14 23:41*	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
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Client Sample ID B2-2.5
Lab ID: 1402574-06

Diesel Range Organics by EPA 8015B — **Analyst: CR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**37**	5.0	5	B4I0131	09/08/2014	09/12/14 10:28	
ORO	**140**	5.0	5	B4I0131	09/08/2014	09/12/14 10:28	
Surrogate: p-Terphenyl	*110 %*	*40 - 112*		B4I0131	09/08/2014	*09/12/14 10:28*	

Client Sample ID B3-0
Lab ID: 1402574-07

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: CB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B4I0202	09/11/2014	09/12/14 10:08	
Arsenic	**9.0**	1.0	1	B4I0202	09/11/2014	09/12/14 10:08	
Barium	**150**	1.0	1	B4I0202	09/11/2014	09/12/14 10:08	
Beryllium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:08	
Cadmium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:08	
Chromium	**48**	1.0	1	B4I0202	09/11/2014	09/12/14 10:08	
Cobalt	**12**	1.0	1	B4I0202	09/11/2014	09/12/14 10:08	
Copper	**110**	2.0	1	B4I0202	09/11/2014	09/12/14 10:08	
Lead	**490**	1.0	1	B4I0202	09/11/2014	09/12/14 10:08	
Molybdenum	**2.1**	1.0	1	B4I0202	09/11/2014	09/12/14 10:08	
Nickel	**64**	1.0	1	B4I0202	09/11/2014	09/12/14 10:08	
Selenium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:08	
Silver	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:08	
Thallium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:08	
Vanadium	**21**	1.0	1	B4I0202	09/11/2014	09/12/14 10:08	
Zinc	**340**	1.0	1	B4I0202	09/11/2014	09/12/14 10:08	

Client Sample ID B3-1
Lab ID: 1402574-08

Gasoline Range Organics by EPA 8015B (Modified) — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B4I0109	09/05/2014	09/05/14 23:56	
Surrogate: 4-Bromofluorobenzene	*90.9 %*	*33 - 151*		B4I0109	09/05/2014	*09/05/14 23:56*	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
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Livermore , CA 94550	Reported : 09/12/2014

Client Sample ID B3-2
Lab ID: 1402574-09

Diesel Range Organics by EPA 8015B — **Analyst: CR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**26**	1.0	1	B4I0131	09/08/2014	09/12/14 06:27	
ORO	**82**	1.0	1	B4I0131	09/08/2014	09/12/14 06:27	
Surrogate: p-Terphenyl	*106 %*	*40 - 112*		B4I0131	09/08/2014	*09/12/14 06:27*	

Client Sample ID B4-0
Lab ID: 1402574-10

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: CB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B4I0202	09/11/2014	09/12/14 10:09	
Arsenic	**5.9**	1.0	1	B4I0202	09/11/2014	09/12/14 10:09	
Barium	**250**	1.0	1	B4I0202	09/11/2014	09/12/14 10:09	
Beryllium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:09	
Cadmium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:09	
Chromium	**53**	1.0	1	B4I0202	09/11/2014	09/12/14 10:09	
Cobalt	**12**	1.0	1	B4I0202	09/11/2014	09/12/14 10:09	
Copper	**61**	2.0	1	B4I0202	09/11/2014	09/12/14 10:09	
Lead	**900**	1.0	1	B4I0202	09/11/2014	09/12/14 10:09	
Molybdenum	**1.1**	1.0	1	B4I0202	09/11/2014	09/12/14 10:09	
Nickel	**77**	1.0	1	B4I0202	09/11/2014	09/12/14 10:09	
Selenium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:09	
Silver	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:09	
Thallium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:09	
Vanadium	**30**	1.0	1	B4I0202	09/11/2014	09/12/14 10:09	
Zinc	**300**	1.0	1	B4I0202	09/11/2014	09/12/14 10:09	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
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Livermore , CA 94550	Reported : 09/12/2014

Client Sample ID B4-1
Lab ID: 1402574-11

Gasoline Range Organics by EPA 8015B (Modified)

Analyst: AG

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B4I0109	09/06/2014	09/06/14 00:12	
Surrogate: 4-Bromofluorobenzene	*93.9 %*	*33 - 151*		B4I0109	09/06/2014	*09/06/14 00:12*	

Client Sample ID B4-2
Lab ID: 1402574-12

Diesel Range Organics by EPA 8015B

Analyst: CR

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**89**	2.0	2	B4I0131	09/08/2014	09/12/14 06:43	
ORO	**310**	2.0	2	B4I0131	09/08/2014	09/12/14 06:43	
Surrogate: p-Terphenyl	*102 %*	*40 - 112*		B4I0131	09/08/2014	*09/12/14 06:43*	

Client Sample ID B5-0
Lab ID: 1402574-13

Title 22 Metals by ICP-AES EPA 6010B

Analyst: CB

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B4I0202	09/11/2014	09/12/14 10:20	
Arsenic	**10**	0.99	1	B4I0202	09/11/2014	09/12/14 10:20	
Barium	**220**	0.99	1	B4I0202	09/11/2014	09/12/14 10:20	
Beryllium	ND	0.99	1	B4I0202	09/11/2014	09/12/14 10:20	
Cadmium	ND	0.99	1	B4I0202	09/11/2014	09/12/14 10:20	
Chromium	**52**	0.99	1	B4I0202	09/11/2014	09/12/14 10:20	
Cobalt	**14**	0.99	1	B4I0202	09/11/2014	09/12/14 10:20	
Copper	**66**	2.0	1	B4I0202	09/11/2014	09/12/14 10:20	
Lead	**170**	0.99	1	B4I0202	09/11/2014	09/12/14 10:20	
Molybdenum	ND	0.99	1	B4I0202	09/11/2014	09/12/14 10:20	
Nickel	**76**	0.99	1	B4I0202	09/11/2014	09/12/14 10:20	
Selenium	ND	0.99	1	B4I0202	09/11/2014	09/12/14 10:20	
Silver	ND	0.99	1	B4I0202	09/11/2014	09/12/14 10:20	
Thallium	ND	0.99	1	B4I0202	09/11/2014	09/12/14 10:20	
Vanadium	**36**	0.99	1	B4I0202	09/11/2014	09/12/14 10:20	
Zinc	**150**	0.99	1	B4I0202	09/11/2014	09/12/14 10:20	

Certificate of Analysis

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Livermore , CA 94550	Reported : 09/12/2014

Client Sample ID B5-1
Lab ID: 1402574-14

Gasoline Range Organics by EPA 8015B (Modified) **Analyst: AG**

Analyte		Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics		ND	1.0	1	B4I0109	09/06/2014	09/06/14 00:28	
Surrogate: 4-Bromofluorobenzene	*96.6 %*		*33 - 151*		B4I0109	09/06/2014	*09/06/14 00:28*	

Client Sample ID B5-2
Lab ID: 1402574-15

Diesel Range Organics by EPA 8015B **Analyst: CR**

Analyte		Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO		**14**	1.0	1	B4I0131	09/08/2014	09/12/14 06:10	
ORO		**47**	1.0	1	B4I0131	09/08/2014	09/12/14 06:10	
Surrogate: p-Terphenyl	*122 %*		*40 - 112*		B4I0131	09/08/2014	*09/12/14 06:10*	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 09/12/2014

Client Sample ID B6-0
Lab ID: 1402574-16

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: CB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B4I0202	09/11/2014	09/12/14 10:22	
Arsenic	**5.8**	1.0	1	B4I0202	09/11/2014	09/12/14 10:22	
Barium	**270**	1.0	1	B4I0202	09/11/2014	09/12/14 10:22	
Beryllium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:22	
Cadmium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:22	
Chromium	**53**	1.0	1	B4I0202	09/11/2014	09/12/14 10:22	
Cobalt	**18**	1.0	1	B4I0202	09/11/2014	09/12/14 10:22	
Copper	**77**	2.0	1	B4I0202	09/11/2014	09/12/14 10:22	
Lead	**240**	1.0	1	B4I0202	09/11/2014	09/12/14 10:22	
Molybdenum	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:22	
Nickel	**67**	1.0	1	B4I0202	09/11/2014	09/12/14 10:22	
Selenium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:22	
Silver	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:22	
Thallium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:22	
Vanadium	**33**	1.0	1	B4I0202	09/11/2014	09/12/14 10:22	
Zinc	**330**	1.0	1	B4I0202	09/11/2014	09/12/14 10:22	

Client Sample ID B6-1
Lab ID: 1402574-17

Gasoline Range Organics by EPA 8015B (Modified) — **Analyst: AG**

Analyte		Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics		ND	1.0	1	B4I0109	09/06/2014	09/06/14 00:43	
Surrogate: 4-Bromofluorobenzene	*97.9 %*		*33 - 151*		B4I0109	09/06/2014	*09/06/14 00:43*	

Client Sample ID B6-2.5
Lab ID: 1402574-18

Diesel Range Organics by EPA 8015B — **Analyst: CR**

Analyte		Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO		**3.2**	1.0	1	B4I0131	09/08/2014	09/08/14 15:25	
ORO		**6.8**	1.0	1	B4I0131	09/08/2014	09/08/14 15:25	
Surrogate: p-Terphenyl	*57.7 %*		*40 - 112*		B4I0131	09/08/2014	*09/08/14 15:25*	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
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Client Sample ID B8-0
Lab ID: 1402574-19

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: CB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B4I0202	09/11/2014	09/12/14 10:24	
Arsenic	**5.6**	1.0	1	B4I0202	09/11/2014	09/12/14 10:24	
Barium	**130**	1.0	1	B4I0202	09/11/2014	09/12/14 10:24	
Beryllium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:24	
Cadmium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:24	
Chromium	**54**	1.0	1	B4I0202	09/11/2014	09/12/14 10:24	
Cobalt	**11**	1.0	1	B4I0202	09/11/2014	09/12/14 10:24	
Copper	**55**	2.0	1	B4I0202	09/11/2014	09/12/14 10:24	
Lead	**700**	1.0	1	B4I0202	09/11/2014	09/12/14 10:24	
Molybdenum	**1.3**	1.0	1	B4I0202	09/11/2014	09/12/14 10:24	
Nickel	**69**	1.0	1	B4I0202	09/11/2014	09/12/14 10:24	
Selenium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:24	
Silver	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:24	
Thallium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:24	
Vanadium	**32**	1.0	1	B4I0202	09/11/2014	09/12/14 10:24	
Zinc	**400**	1.0	1	B4I0202	09/11/2014	09/12/14 10:24	

Client Sample ID B8-1
Lab ID: 1402574-20

Gasoline Range Organics by EPA 8015B (Modified) — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B4I0109	09/06/2014	09/06/14 00:59	
Surrogate: 4-Bromofluorobenzene	*85.2 %*	*33 - 151*		B4I0109	09/06/2014	*09/06/14 00:59*	

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Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
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Livermore , CA 94550	Reported : 09/12/2014

Client Sample ID B8-2.5
Lab ID: 1402574-21

Diesel Range Organics by EPA 8015B — **Analyst: CR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**60**	5.0	5	B4I0131	09/08/2014	09/12/14 10:07	
ORO	**210**	5.0	5	B4I0131	09/08/2014	09/12/14 10:07	
Surrogate: p-Terphenyl	*105 %*	*40 - 112*		B4I0131	09/08/2014	*09/12/14 10:07*	

Client Sample ID B7-0
Lab ID: 1402574-22

Title 22 Metals by ICP-AES EPA 6010B — **Analyst: CB**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Antimony	ND	2.0	1	B4I0202	09/11/2014	09/12/14 10:25	
Arsenic	**41**	1.0	1	B4I0202	09/11/2014	09/12/14 10:25	
Barium	**120**	1.0	1	B4I0202	09/11/2014	09/12/14 10:25	
Beryllium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:25	
Cadmium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:25	
Chromium	**51**	1.0	1	B4I0202	09/11/2014	09/12/14 10:25	
Cobalt	**9.9**	1.0	1	B4I0202	09/11/2014	09/12/14 10:25	
Copper	**37**	2.0	1	B4I0202	09/11/2014	09/12/14 10:25	
Lead	**1600**	1.0	1	B4I0202	09/11/2014	09/12/14 10:25	
Molybdenum	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:25	
Nickel	**65**	1.0	1	B4I0202	09/11/2014	09/12/14 10:25	
Selenium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:25	
Silver	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:25	
Thallium	ND	1.0	1	B4I0202	09/11/2014	09/12/14 10:25	
Vanadium	**28**	1.0	1	B4I0202	09/11/2014	09/12/14 10:25	
Zinc	**280**	1.0	1	B4I0202	09/11/2014	09/12/14 10:25	

Client Sample ID B7-1
Lab ID: 1402574-23

Gasoline Range Organics by EPA 8015B (Modified) — **Analyst: AG**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Gasoline Range Organics	ND	1.0	1	B4I0109	09/06/2014	09/06/14 01:14	
Surrogate: 4-Bromofluorobenzene	*80.3 %*	*33 - 151*		B4I0109	09/06/2014	*09/06/14 01:14*	

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Client Sample ID B7-2

Lab ID: 1402574-24

Diesel Range Organics by EPA 8015B **Analyst: CR**

Analyte	Result (mg/kg)	PQL (mg/kg)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
DRO	**130**	2.0	2	B4I0131	09/08/2014	09/12/14 07:00	
ORO	**250**	2.0	2	B4I0131	09/08/2014	09/12/14 07:00	
Surrogate: p-Terphenyl	*99.2 %*	*40 - 112*		B4I0131	09/08/2014	*09/12/14 07:00*	

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Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
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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 B4I0202 - EPA 3050B									
Blank (B4I0202-BLK1)					Prepared: 9/11/2014 Analyzed: 9/12/2014				
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				
Lead	ND	1.0			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 (B4I0202-BS1)					Prepared: 9/11/2014 Analyzed: 9/12/2014				
Antimony	46.1049	2.0	50.0000		92.2	80 - 120			
Arsenic	46.4827	1.0	50.0000		93.0	80 - 120			
Barium	49.9110	1.0	50.0000		99.8	80 - 120			
Beryllium	48.4764	1.0	50.0000		97.0	80 - 120			
Cadmium	47.8017	1.0	50.0000		95.6	80 - 120			
Chromium	50.8525	1.0	50.0000		102	80 - 120			
Cobalt	49.7174	1.0	50.0000		99.4	80 - 120			
Copper	48.8715	2.0	50.0000		97.7	80 - 120			
Lead	48.1142	1.0	50.0000		96.2	80 - 120			
Molybdenum	49.1112	1.0	50.0000		98.2	80 - 120			
Nickel	48.4955	1.0	50.0000		97.0	80 - 120			
Selenium	44.1846	1.0	50.0000		88.4	80 - 120			
Silver	46.3020	1.0	50.0000		92.6	80 - 120			
Thallium	48.0878	1.0	50.0000		96.2	80 - 120			
Vanadium	49.5523	1.0	50.0000		99.1	80 - 120			
Zinc	49.3283	1.0	50.0000		98.7	80 - 120			
Duplicate (B4I0202-DUP1)		**Source: 1402574-01**			Prepared: 9/11/2014 Analyzed: 9/12/2014				
Antimony	0.368094	2.0		0.287383	NR		24.6	20	R
Arsenic	6.05414	1.0		5.40059	NR		11.4	20	
Barium	119.633	1.0		108.572	NR		9.69	20	
Beryllium	0.387129	1.0		0.393314	NR		1.59	20	
Cadmium	ND	1.0		ND	NR			20	
Chromium	60.2533	1.0		79.2175	NR		27.2	20	R
Cobalt	12.5633	1.0		11.8390	NR		5.94	20	

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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 B4I0202 - EPA 3050B (continued)									
Duplicate (B4I0202-DUP1) - Continued		**Source: 1402574-01**			Prepared: 9/11/2014 Analyzed: 9/12/2014				
Copper	39.8764	2.0		32.7665	NR		19.6	20	
Lead	97.9383	1.0		99.1827	NR		1.26	20	
Molybdenum	0.674492	1.0		0.468102	NR		36.1	20	R
Nickel	81.5987	1.0		88.6903	NR		8.33	20	
Selenium	ND	1.0		ND	NR			20	
Silver	ND	1.0		ND	NR			20	
Thallium	ND	1.0		ND	NR			20	
Vanadium	32.6063	1.0		33.0246	NR		1.27	20	
Zinc	191.336	1.0		184.565	NR		3.60	20	
Matrix Spike (B4I0202-MS1)		**Source: 1402574-01**			Prepared: 9/11/2014 Analyzed: 9/12/2014				
Antimony	48.7781	2.0	125.000	0.287383	38.8	21 - 126			
Arsenic	96.5252	1.0	125.000	5.40059	72.9	57 - 113			
Barium	218.684	1.0	125.000	108.572	88.1	29 - 146			
Beryllium	93.1869	1.0	125.000	0.393314	74.2	65 - 110			
Cadmium	85.8616	1.0	125.000	ND	68.7	56 - 107			
Chromium	174.073	1.0	125.000	79.2175	75.9	49 - 127			
Cobalt	106.898	1.0	125.000	11.8390	76.0	57 - 112			
Copper	143.098	2.0	125.000	32.7665	88.3	56 - 127			
Lead	210.275	1.0	125.000	99.1827	88.9	33 - 134			
Molybdenum	88.2242	1.0	125.000	0.468102	70.2	62 - 108			
Nickel	180.701	1.0	125.000	88.6903	73.6	42 - 127			
Selenium	86.4148	1.0	125.000	ND	69.1	58 - 105			
Silver	99.4508	1.0	125.000	ND	79.6	63 - 113			
Thallium	84.1007	1.0	125.000	ND	67.3	53 - 110			
Vanadium	133.072	1.0	125.000	33.0246	80.0	66 - 112			
Zinc	282.548	1.0	125.000	184.565	78.4	28 - 137			
Matrix Spike Dup (B4I0202-MSD1)		**Source: 1402574-01**			Prepared: 9/11/2014 Analyzed: 9/12/2014				
Antimony	62.2366	2.0	125.000	0.287383	49.6	21 - 126	24.2	20	R
Arsenic	97.2712	1.0	125.000	5.40059	73.5	57 - 113	0.770	20	
Barium	195.153	1.0	125.000	108.572	69.3	29 - 146	11.4	20	
Beryllium	98.2104	1.0	125.000	0.393314	78.3	65 - 110	5.25	20	
Cadmium	91.6984	1.0	125.000	ND	73.4	56 - 107	6.57	20	
Chromium	154.674	1.0	125.000	79.2175	60.4	49 - 127	11.8	20	
Cobalt	108.081	1.0	125.000	11.8390	77.0	57 - 112	1.10	20	
Copper	140.532	2.0	125.000	32.7665	86.2	56 - 127	1.81	20	
Lead	150.535	1.0	125.000	99.1827	41.1	33 - 134	33.1	20	R
Molybdenum	93.1282	1.0	125.000	0.468102	74.1	62 - 108	5.41	20	
Nickel	162.776	1.0	125.000	88.6903	59.3	42 - 127	10.4	20	
Selenium	89.2163	1.0	125.000	ND	71.4	58 - 105	3.19	20	
Silver	104.232	1.0	125.000	ND	83.4	63 - 113	4.69	20	
Thallium	88.7892	1.0	125.000	ND	71.0	53 - 110	5.42	20	
Vanadium	134.210	1.0	125.000	33.0246	80.9	66 - 112	0.852	20	
Zinc	215.007	1.0	125.000	184.565	24.4	28 - 137	27.1	20	M1, R

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Lead by ICP-AES EPA 6010B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4I0151 - EPA 3050 Modified									
Blank (B4I0151-BLK1)					Prepared: 9/10/2014 Analyzed: 9/11/2014				
Lead	ND	1.0			NR				
Blank (B4I0151-BLK2)					Prepared: 9/10/2014 Analyzed: 9/11/2014				
Lead	ND	1.0			NR				
LCS (B4I0151-BS1)					Prepared: 9/10/2014 Analyzed: 9/11/2014				
Lead	54.1144	1.0	50.0000		108	80 - 120			
Duplicate (B4I0151-DUP1)		**Source: 1402585-04**			Prepared: 9/10/2014 Analyzed: 9/11/2014				
Lead	8.33703	1.0		9.19914	NR		9.83	20	
Duplicate (B4I0151-DUP2)		**Source: 1402574-15**			Prepared: 9/10/2014 Analyzed: 9/11/2014				
Lead	29.1290	1.0		40.2392	NR		32.0	20	R
Matrix Spike (B4I0151-MS1)		**Source: 1402585-04**			Prepared: 9/10/2014 Analyzed: 9/11/2014				
Lead	225.432	1.0	250.000	9.19914	86.5	33 - 134			
Matrix Spike (B4I0151-MS2)		**Source: 1402574-15**			Prepared: 9/10/2014 Analyzed: 9/11/2014				
Lead	283.647	0.99	247.525	40.2392	98.3	33 - 134			
Matrix Spike Dup (B4I0151-MSD1)		**Source: 1402585-04**			Prepared: 9/10/2014 Analyzed: 9/11/2014				
Lead	238.921	1.0	250.000	9.19914	91.9	33 - 134	5.81	20	
Batch B4I0209 - EPA 3010A									
Blank (B4I0209-BLK1)					Prepared: 9/11/2014 Analyzed: 9/11/2014				
Lead	ND	0.0050			NR				
LCS (B4I0209-BS1)					Prepared: 9/11/2014 Analyzed: 9/11/2014				
Lead	0.994175	0.0050	1.00000		99.4	80 - 120			
LCS Dup (B4I0209-BSD1)					Prepared: 9/11/2014 Analyzed: 9/12/2014				
Lead	1.00078	0.0050	1.00000		100	80 - 120	0.662	20	
Duplicate (B4I0209-DUP1)		**Source: 1402574-25**			Prepared: 9/11/2014 Analyzed: 9/11/2014				
Lead	ND	0.0050		ND	NR			20	

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

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4I0206 - EPA 7471									
Blank (B4I0206-BLK1)					Prepared: 9/11/2014 Analyzed: 9/11/2014				
Mercury	ND	0.10			NR				
LCS (B4I0206-BS1)					Prepared: 9/11/2014 Analyzed: 9/11/2014				
Mercury	0.816629	0.10	0.833333		98.0	80 - 120			
Duplicate (B4I0206-DUP1)		**Source: 1402574-01**			Prepared: 9/11/2014 Analyzed: 9/11/2014				
Mercury	0.173671	0.10		0.143248	NR		19.2	20	
Matrix Spike (B4I0206-MS1)		**Source: 1402574-01**			Prepared: 9/11/2014 Analyzed: 9/11/2014				
Mercury	0.939746	0.10	0.833333	0.143248	95.6	70 - 130			
Matrix Spike Dup (B4I0206-MSD1)		**Source: 1402574-01**			Prepared: 9/11/2014 Analyzed: 9/11/2014				
Mercury	0.890147	0.10	0.833333	0.143248	89.6	70 - 130	5.42	20	
Post Spike (B4I0206-PS1)		**Source: 1402574-01**			Prepared: 9/11/2014 Analyzed: 9/11/2014				
Mercury	0.006810		5.00000E-3	0.001719	102	85 - 115			

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Gasoline Range Organics by EPA 8015B (Modified) - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4I0109 - GCVOAS									
Blank (B4I0109-BLK1)					Prepared: 9/5/2014 Analyzed: 9/5/2014				
Gasoline Range Organics	ND	1.0			NR				
Surrogate: 4-Bromofluorobenzene	*0.1917*		*0.200000*		*95.9*	*33 - 151*			
LCS (B4I0109-BS1)					Prepared: 9/5/2014 Analyzed: 9/5/2014				
Gasoline Range Organics	4.70900	1.0	5.00000		94.2	70 - 130			
Surrogate: 4-Bromofluorobenzene	*0.2000*		*0.200000*		*100*	*33 - 151*			
Duplicate (B4I0109-DUP1)		**Source: 1402574-02**			Prepared: 9/5/2014 Analyzed: 9/5/2014				
Gasoline Range Organics	ND	1.0		ND	NR			20	
Surrogate: 4-Bromofluorobenzene	*0.1960*		*0.200000*		*98.0*	*33 - 151*			
Matrix Spike (B4I0109-MS1)		**Source: 1402574-02**			Prepared: 9/5/2014 Analyzed: 9/5/2014				
Gasoline Range Organics	4.04400	1.0	5.00000	ND	80.9	33 - 119			
Surrogate: 4-Bromofluorobenzene	*0.1950*		*0.200000*		*97.5*	*33 - 151*			
Matrix Spike Dup (B4I0109-MSD1)		**Source: 1402574-02**			Prepared: 9/5/2014 Analyzed: 9/5/2014				
Gasoline Range Organics	3.97900	1.0	5.00000	ND	79.6	33 - 119	1.62	20	
Surrogate: 4-Bromofluorobenzene	*0.1952*		*0.200000*		*97.6*	*33 - 151*			

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Diesel Range Organics by EPA 8015B - Quality Control

Analyte	Result (mg/kg)	PQL (mg/kg)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4I0131 - GCSEMI_DRO_SOIL_LL									
Blank (B4I0131-BLK1)					Prepared: 9/8/2014 Analyzed: 9/8/2014				
DRO	ND	1.0			NR				
ORO	ND	1.0			NR				
Surrogate: p-Terphenyl	*1.168*		*2.66667*		*43.8*	*40 - 112*			
LCS (B4I0131-BS1)					Prepared: 9/8/2014 Analyzed: 9/8/2014				
DRO	18.8137	1.0	33.3333		56.4	51 - 114			
Surrogate: p-Terphenyl	*1.657*		*2.66667*		*62.1*	*40 - 112*			
Duplicate (B4I0131-DUP1)		**Source: 1402574-18**			Prepared: 9/8/2014 Analyzed: 9/8/2014				
DRO	2.92467	1.0		3.19900	NR		8.96	20	
Surrogate: p-Terphenyl	*1.261*		*2.66667*		*47.3*	*40 - 112*			
Matrix Spike (B4I0131-MS1)		**Source: 1402574-18**			Prepared: 9/8/2014 Analyzed: 9/8/2014				
DRO	16.4657	1.0	33.3333	3.19900	39.8	8 - 121			
Surrogate: p-Terphenyl	*1.300*		*2.66667*		*48.7*	*40 - 112*			
Matrix Spike Dup (B4I0131-MSD1)		**Source: 1402574-18**			Prepared: 9/8/2014 Analyzed: 9/8/2014				
DRO	14.6140	1.0	33.3333	3.19900	34.2	8 - 121	11.9	20	
Surrogate: p-Terphenyl	*1.196*		*2.66667*		*44.9*	*40 - 112*			

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pH by EPA 9045C - Quality Control

Analyte	Result (pH Units)	PQL (pH Units)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4I0158 - Prep_WC_1_S									
Duplicate (B4I0158-DUP1)		**Source: 1402450-01**			Prepared: 9/9/2014 Analyzed: 9/10/2014				
pH	7.06000	0.10		6.74000	NR		4.64	20	
Batch B4I0159 - Prep_WC_1_S									
Duplicate (B4I0159-DUP1)		**Source: 1402574-06**			Prepared: 9/9/2014 Analyzed: 9/10/2014				
pH	7.62000	0.10		7.60000	NR		0.263	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 09/12/2014

Notes and Definitions

S4	Surrogate was diluted out.
R	RPD value outside acceptance criteria. Calculation is based on raw values.
M1	Matrix spike recovery outside of acceptance limit. The analytical batch was validated by the laboratory control sample.
ND	Analyte is not detected at or above the Practical Quantitation Limit (PQL). When client requests quantitation against MDL, analyte is not detected at or above the Method Detection Limit (MDL)
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
NR	Not Reported
RPD	Relative Percent Difference
CA2	CA-ELAP (CDPH)
OR1	OR-NELAP (OSPHL)
TX1	TX-NELAP (TCEQ)

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

CHAIN OF CUSTODY RECORD

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

FOR LABORATORY USE ONLY:

P.O.#: _____

Logged By: _____ Date: _____

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FEDEX ☐ Other: GSO

Sample Condition Upon Receipt
1. CHILLED 12° C Y ☑ N ☐ 4. SEALED Y ☐ N ☑
2. HEADSPACE (VOA) n/a Y ☐ N ☐ 5. # OF SPLS MATCH COC Y ☑ N ☐
3. CONTAINER INTACT Y ☑ N ☐ 6. PRESERVED Y ☐ N ☑

Client: GEOCON CONSULTANTS, INC. Address: 6671 Brisa Street TEL: (925) 371-5900
Attn: R.DAY, L.BEAGLE, LIVERMORE City Livermore State CA Zip Code 94550 FAX: (925) 371-5915
Project Name: CALTRANS - FREITAS PKWY OC Project #: E8721-02-12 Sampler: (Printed Name) C.MERRITT, D.WATTS (Signature) CHRIS MERRITT

Relinquished by: (Signature and Printed Name) CHRIS MERRITT Date: 9-4-14 Time: 1500 Received by: (Signature and Printed Name) C. Merritt Date: 9/5/14 Time: 840
Relinquished by: (Signature and Printed Name) Date: Time: Received by: (Signature and Printed Name) Date: Time:
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: CM 9-4-14 (Print Name / Date) CM (Signature)

Send Report To: Attn: _____ Co: SAME AS ABOVE Address _____ City _____ State _____ Zip _____

Bill To: Attn: _____ Co: SAME AS ABOVE Address _____ City _____ State _____ Zip _____

Special Instructions/Comments:

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 : $1.00 / ATL workorder / mo (after 1 year)

Circle or Add Analysis(es) Requested: 8081A (Pesticides), 8082 (PCB), 8260B (Volatiles), 8270C (BNA), 6010B (Total Metal) Pb, 8015B (GRO) / BTEX, 8015B (DRO) + MO, 8021 (BTEX), TITLE 22 / CAM 17 (6010 / 7000), PH - EPA 9045

SPECIFY APPROPRIATE MATRIX: SOIL, WATER, GROUND WATER, WASTEWATER

PRESERVATION

Q A / Q C: RTNE ☐ CT ☑ SWRCB ☐ Logcode ____ OTHER ____

ITEM	LAB USE ONLY: Batch #: / Lab No.	Sample Description: Sample I.D. / Location	Date	Time	TAT	Container(s) #	Container(s) Type	REMARKS
	1402574-1	B1-0	9-4-14	1034	E5	1	T	M C
	-2	5-1		1040				
	-3	6-2		1115				
	-4	B2-0		1120				
	-5	5-1		1125				
	-6	6-2.5		1130				
	-7	B3-0		0931				
	-8	5-1		0937				
	-9	6-2		0951				
	-10	B4-0		0954				

• TAT starts 8 a.m. following day if samples received after 3 p.m.

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

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

Preservatives: H=Hcl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

DISTRIBUTION: White with report Yellow to folder Pink to submitter

CHAIN OF CUSTODY RECORD

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

FOR LABORATORY USE ONLY:

P.O.#: _____

Logged By: _____ Date: _____

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FEDEX ☐ Other: _____

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

Client: GEOCON CONSULTANTS, INC. Address: 6671 Brisa Street TEL: (925) 371-5900
Attn: R. DAY, L. BEASLE, LIVERMORE City Livermore State CA Zip Code 94550 FAX: (925) 371-5915
Project Name: CALTRANS FREITAS PKWY OC Project #: E8721-02-12 Sampler: (Printed Name) CM, DW (Signature) CHRIS MERRITT

Relinquished by: (Signature and Printed Name) CHRIS MERRITT Date: 9-4-14 Time: 1500 Received by: (Signature and Printed Name) Date: 9/5/14 Time: 840
Relinquished by: (Signature and Printed Name) Date: Time: Received by: (Signature and Printed Name) Date: Time:
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: CM 9-4-14 (Print Name / Date) CM (Signature)

Send Report To: Attn: _____ Co: SAME AS ABOVE Address _____ City _____ State _____ Zip _____

Bill To: Attn: _____ Co: SAME AS ABOVE Address _____ City _____ State _____ Zip _____

Special Instructions/Comments:

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 : $1.00 / ATL workorder / mo (after 1 year)

ITEM	LAB USE ONLY: Batch #: / Lab No.	Sample Description: Sample I.D. / Location	Date	Time	8081A (Pesticides)	8082 (PCB)	8260B (Volatiles)	8270C (BNA)	6010B (Total Metal)	8015B (GRO) / BTEX	8015B (DRO)	8021 (BTEX)	TITLE 22 / CAM 17 (6010 / 7000)	pH EPA 9045	SOIL	WATER	GROUND WATER	WASTEWATER	TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
	1402574 -11	BH-1	9-4-14	0957				X	X						X				T5	1	T M		
	-12	BH-2		1004				X		X			X										
	-13	BS-0		0930								X											
	-14	SG-1		0945				X	X				X										
	-15	SG-2		0955				X		X													
	-16	BG-0		0855								X											
	-17	SG-1		0905				X	X														
	-18	SG-2.5		0915				X		X			X										

Circle or Add Analysis(es) Requested
SPECIFY APPROPRIATE MATRIX
Container(s)
PRESERVATION
QA/QC: RTNE ☐ CT ☑ SWRCB ☐ Logcode ____ OTHER ____

- TAT starts 8 a.m. following day if samples received after 3 p.m.

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

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

Preservatives: H=Hcl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

DISTRIBUTION: White with report Yellow to folder Pink to submitter

CHAIN OF CUSTODY RECORD

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

FOR LABORATORY USE ONLY:

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

Method of Transport: Client ☐ ATL ☐ CA OverN ☐ FEDEX ☐ Other: _____

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

Client: GEOCON CONSULTANTS, INC.
Attn: L. BEMDLE
Address: 6671 Brisa Street
City Livermore State CA Zip Code 94550
TEL: (925) 371-5900
FAX: (925) 371-5915

Project Name: FREITAS PKWY Project #: E8721-02-12
Sampler: (Printed Name) C.M, D.W (Signature) CHRIS MERRITT

Relinquished by: (Signature and Printed Name) CHRIS MERRITT Date: 9-4-14 Time: 1500 Received by: (Signature and Printed Name) C. Byrne Date: 9/5/14 Time: 840
Relinquished by: (Signature and Printed Name) Date: Time: Received by: (Signature and Printed Name) Date: Time:
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: SEE Pg 1
Print Name Date
CM
Signature

Send Report To:
Attn: _____
Co: SAME AS ABOVE
Address _____
City _____ State _____ Zip _____

Bill To:
Attn: _____
Co: SAME AS ABOVE
Address _____
City _____ State _____ Zip _____

Special Instructions/Comments:

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 : $1.00 / ATL workorder / mo (after 1 year)

Circle or Add Analysis(es) Requested: 8081A (Pesticides); 8082 (PCB); 8260B (Volatiles); 8270C (BNA); 6010B (Total Metal) – Pb; 8015B (GRO) / BTEX; 8015B (DRO) mo; 8021 (BTEX); TITLE 22 / CAM 17 (6010 / 7000); pH (9045)

SPECIFY APPROPRIATE MATRIX: SOIL; WATER; GROUND WATER; WASTEWATER; H2O

PRESERVATION

QA/QC: RTNE ☐ CT ☒ SWRCB ☐ Logcode ____ OTHER ____

ITEM	LAB USE ONLY: Batch #: / Lab No.	Sample Description: Sample I.D. / Location	Date	Time	TAT	Container(s) #	Container(s) Type	PRESERVATION	REMARKS
	1402574 - 19	B8-0	9/4/14	1101	5-Day	1	T	m C	
	- 20	-1		1107					
	- 21	-2.5		1111					Ref 2.5'
	- 22	B7-0		1114					
	- 23	-1		1116					
	- 24	-2		1131					Ref 2.5'
	- 25	RB	9/4/14	1201	5-DAY	1	J	G C	RINSE BLK

• TAT starts 8 a.m. following day if samples received after 3 p.m.

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

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

Preservatives: H=Hcl N=HNO_3 S=H_2SO_4 C=4°C Z=$Zn(AC)_2$ O=NaOH T=$Na_2S_2O_3$

DISTRIBUTION: White with report Yellow to folder Pink to submitter

ADVANCED TECHNOLOGY LABORATORIES

September 30, 2014

Rick Day
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
Tel: (925) 961-5270
Fax:(925) 371-5915

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

Re: ATL Work Order Number : 1402574

Client Reference : CALTRANS - FREITAS PKWY OC, E8721-02-12

Enclosed are the results for sample(s) received on September 05, 2014 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

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 09/30/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B1-0	1402574-01	Soil	9/04/14 10:34	9/05/14 8:40
B2-0	1402574-04	Soil	9/04/14 11:20	9/05/14 8:40
B3-0	1402574-07	Soil	9/04/14 9:31	9/05/14 8:40
B3-1	1402574-08	Soil	9/04/14 9:37	9/05/14 8:40
B3-2	1402574-09	Soil	9/04/14 9:51	9/05/14 8:40
B4-0	1402574-10	Soil	9/04/14 9:54	9/05/14 8:40
B4-1	1402574-11	Soil	9/04/14 9:57	9/05/14 8:40
B4-2	1402574-12	Soil	9/04/14 10:04	9/05/14 8:40
B5-0	1402574-13	Soil	9/04/14 9:30	9/05/14 8:40
B6-0	1402574-16	Soil	9/04/14 8:55	9/05/14 8:40
B8-0	1402574-19	Soil	9/04/14 11:01	9/05/14 8:40
B8-1	1402574-20	Soil	9/04/14 11:07	9/05/14 8:40
B8-2.5	1402574-21	Soil	9/04/14 11:11	9/05/14 8:40
B7-0	1402574-22	Soil	9/04/14 11:14	9/05/14 8:40
B7-1	1402574-23	Soil	9/04/14 11:16	9/05/14 8:40
B7-2	1402574-24	Soil	9/04/14 11:31	9/05/14 8:40

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 09/30/2014

STLC Metals by ICP-AES by EPA 6010B

Analyte: Lead **Analyst: CB**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1402574-07	B3-0	**39**	mg/L	1.0	20	B4I0543	09/26/2014	09/29/14 15:34	
1402574-08	B3-1	**13**	mg/L	1.0	20	B4I0543	09/26/2014	09/29/14 15:40	
1402574-09	B3-2	**1.9**	mg/L	1.0	20	B4I0543	09/26/2014	09/29/14 15:42	
1402574-11	B4-1	**25**	mg/L	1.0	20	B4I0543	09/26/2014	09/29/14 15:46	
1402574-12	B4-2	**18**	mg/L	1.0	20	B4I0543	09/26/2014	09/29/14 15:49	
1402574-20	B8-1	**12**	mg/L	1.0	20	B4I0543	09/26/2014	09/29/14 16:06	
1402574-21	B8-2.5	**8.4**	mg/L	1.0	20	B4I0543	09/26/2014	09/29/14 16:08	
1402574-23	B7-1	**120**	mg/L	1.0	20	B4I0543	09/26/2014	09/29/14 16:12	
1402574-24	B7-2	**15**	mg/L	1.0	20	B4I0543	09/26/2014	09/29/14 16:15	

Client Sample ID B1-0
Lab ID: 1402574-01

STLC Metals by ICP-AES by EPA 6010B **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chromium	ND	1.0	20	B4I0543	09/26/2014	09/29/14 15:29	
Lead	**5.0**	1.0	20	B4I0543	09/26/2014	09/29/14 15:29	

Client Sample ID B2-0
Lab ID: 1402574-04

STLC Metals by ICP-AES by EPA 6010B **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chromium	ND	1.0	20	B4I0543	09/26/2014	09/29/14 15:32	
Lead	**14**	1.0	20	B4I0543	09/26/2014	09/29/14 15:32	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 09/30/2014

Client Sample ID B4-0
Lab ID: 1402574-10

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chromium	ND	1.0	20	B4I0543	09/26/2014	09/29/14 15:44	
Lead	**59**	1.0	20	B4I0543	09/26/2014	09/29/14 15:44	

Client Sample ID B5-0
Lab ID: 1402574-13

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chromium	ND	1.0	20	B4I0543	09/26/2014	09/29/14 15:51	
Lead	**10**	1.0	20	B4I0543	09/26/2014	09/29/14 15:51	

Client Sample ID B6-0
Lab ID: 1402574-16

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chromium	ND	1.0	20	B4I0543	09/26/2014	09/29/14 15:58	
Lead	**14**	1.0	20	B4I0543	09/26/2014	09/29/14 15:58	

Client Sample ID B8-0
Lab ID: 1402574-19

STLC Metals by ICP-AES by EPA 6010B — **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chromium	ND	1.0	20	B4I0543	09/26/2014	09/29/14 16:00	
Lead	**44**	1.0	20	B4I0543	09/26/2014	09/29/14 16:00	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 09/30/2014

Client Sample ID B7-0

Lab ID: 1402574-22

STLC Metals by ICP-AES by EPA 6010B **Analyst: CB**

Analyte	Result (mg/L)	PQL (mg/L)	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
Chromium	ND	1.0	20	B4I0543	09/26/2014	09/29/14 16:10	
Lead	**150**	1.0	20	B4I0543	09/26/2014	09/29/14 16:10	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 09/30/2014

QUALITY CONTROL SECTION

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

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4I0543 - STLC Extraction									
Blank (B4I0543-BLK1)					Prepared: 9/26/2014 Analyzed: 9/29/2014				
Chromium	ND	1.0			NR				
Lead	ND	1.0			NR				
Blank (B4I0543-BLK2)					Prepared: 9/26/2014 Analyzed: 9/29/2014				
Chromium	ND	1.0			NR				
Lead	ND	1.0			NR				
LCS (B4I0543-BS1)					Prepared: 9/26/2014 Analyzed: 9/29/2014				
Chromium	1.99325	1.0	2.00000		99.7	80 - 120			
Lead	1.98235	1.0	2.00000		99.1	80 - 120			
Duplicate (B4I0543-DUP1)		**Source: 1402187-01**			Prepared: 9/26/2014 Analyzed: 9/29/2014				
Chromium	1.36640	1.0		1.29382	NR		5.46	20	
Lead	13.8996	1.0		11.4550	NR		19.3	20	
Duplicate (B4I0543-DUP2)		**Source: 1402574-13**			Prepared: 9/26/2014 Analyzed: 9/29/2014				
Chromium	0.109895	1.0		0.099204	NR		10.2	20	
Lead	10.8244	1.0		9.99016	NR		8.02	20	
Matrix Spike (B4I0543-MS1)		**Source: 1402187-01**			Prepared: 9/26/2014 Analyzed: 9/29/2014				
Chromium	3.61955	1.0	2.50000	1.29382	93.0	74 - 121			
Lead	12.8921	1.0	2.50000	11.4550	57.5	44 - 130			
Matrix Spike (B4I0543-MS2)		**Source: 1402574-13**			Prepared: 9/26/2014 Analyzed: 9/29/2014				
Chromium	2.45145	1.0	2.50000	0.099204	94.1	74 - 121			
Lead	11.6032	1.0	2.50000	9.99016	64.5	44 - 130			
Matrix Spike Dup (B4I0543-MSD1)		**Source: 1402187-01**			Prepared: 9/26/2014 Analyzed: 9/29/2014				
Chromium	3.59122	1.0	2.50000	1.29382	91.9	74 - 121	0.786	20	
Lead	12.7635	1.0	2.50000	11.4550	52.3	44 - 130	1.00	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 09/30/2014

Notes and Definitions

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

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

Diane Galvan

From: Luann Beadle [beadle@geoconinc.com]
Sent: Tuesday, September 23, 2014 9:13 AM
To: Diane Galvan
Subject: E8721-02-12 Freitas Prkwy (Lab Order 1402574)

Hi Diane,

Please run the following WET analyses on a regular TAT:

1402574-01	B1-0	Chromium
1402574-04	B2-0	Chromium
1402574-10	B4-0	Chromium
1402574-13	B5-0	Chromium
1402574-16	B6-0	Chromium
1402574-22	B7-0	Chromium
1402574-19	B8-0	Chromium
1402574-01	B1-0	Lead
1402574-04	B2-0	Lead
1402574-07	B3-0	Lead
1402574-08	B3-1	Lead
1402574-09	B3-2	Lead
1402574-10	B4-0	Lead
1402574-11	B4-1	Lead
1402574-12	B4-2	Lead
1402574-13	B5-0	Lead
1402574-16	B6-0	Lead
1402574-22	B7-0	Lead
1402574-23	B7-1	Lead
1402574-24	B7-2	Lead
1402574-19	B8-0	Lead
1402574-20	B8-1	Lead
1402574-21	B8-2.5	Lead

Thank you,
Luann

Luann Beadle | *Senior Staff Scientist*
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, California 94550
Tel 925.371.5900 Cell 925.395.1669
www.geoconinc.com

ADVANCED TECHNOLOGY LABORATORIES

October 08, 2014

Rick Day
Geocon Consultants, Inc.
6671 Brisa Street
Livermore, CA 94550
Tel: (925) 961-5270
Fax:(925) 371-5915

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

Re: ATL Work Order Number : 1402574
Client Reference : CALTRANS - FREITAS PKWY OC, E8721-02-12

Enclosed are the results for sample(s) received on September 05, 2014 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

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 10/08/2014

SUMMARY OF SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B1-0	1402574-01	Soil	9/04/14 10:34	9/05/14 8:40
B2-0	1402574-04	Soil	9/04/14 11:20	9/05/14 8:40
B3-0	1402574-07	Soil	9/04/14 9:31	9/05/14 8:40
B3-1	1402574-08	Soil	9/04/14 9:37	9/05/14 8:40
B4-0	1402574-10	Soil	9/04/14 9:54	9/05/14 8:40
B4-1	1402574-11	Soil	9/04/14 9:57	9/05/14 8:40
B4-2	1402574-12	Soil	9/04/14 10:04	9/05/14 8:40
B5-0	1402574-13	Soil	9/04/14 9:30	9/05/14 8:40
B6-0	1402574-16	Soil	9/04/14 8:55	9/05/14 8:40
B8-0	1402574-19	Soil	9/04/14 11:01	9/05/14 8:40
B8-1	1402574-20	Soil	9/04/14 11:07	9/05/14 8:40
B8-2.5	1402574-21	Soil	9/04/14 11:11	9/05/14 8:40
B7-0	1402574-22	Soil	9/04/14 11:14	9/05/14 8:40
B7-1	1402574-23	Soil	9/04/14 11:16	9/05/14 8:40
B7-2	1402574-24	Soil	9/04/14 11:31	9/05/14 8:40

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 10/08/2014

TCLP Metals by ICP-AES EPA 6010B

Analyte: Lead **Analyst: CB**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1402574-01	B1-0	**0.064**	mg/L	0.050	1	B4J0161	10/07/2014	10/07/14 15:39	
1402574-04	B2-0	**0.22**	mg/L	0.050	1	B4J0161	10/07/2014	10/07/14 15:41	
1402574-07	B3-0	**0.27**	mg/L	0.050	1	B4J0161	10/07/2014	10/07/14 15:44	
1402574-08	B3-1	**0.14**	mg/L	0.050	1	B4J0161	10/07/2014	10/07/14 15:46	
1402574-10	B4-0	**1.3**	mg/L	0.050	1	B4J0161	10/07/2014	10/07/14 15:49	
1402574-11	B4-1	**0.43**	mg/L	0.050	1	B4J0161	10/07/2014	10/07/14 15:55	
1402574-12	B4-2	**0.36**	mg/L	0.050	1	B4J0161	10/07/2014	10/07/14 15:58	
1402574-13	B5-0	**0.10**	mg/L	0.050	1	B4J0161	10/07/2014	10/07/14 16:01	
1402574-16	B6-0	**0.16**	mg/L	0.050	1	B4J0161	10/07/2014	10/07/14 16:03	
1402574-19	B8-0	**0.42**	mg/L	0.050	1	B4J0161	10/07/2014	10/07/14 16:06	
1402574-20	B8-1	**0.14**	mg/L	0.050	1	B4J0161	10/07/2014	10/07/14 16:13	
1402574-21	B8-2.5	**0.084**	mg/L	0.050	1	B4J0161	10/07/2014	10/07/14 16:15	
1402574-22	B7-0	**1.3**	mg/L	0.050	1	B4J0161	10/07/2014	10/07/14 16:17	
1402574-23	B7-1	**1.1**	mg/L	0.050	1	B4J0161	10/07/2014	10/07/14 16:22	
1402574-24	B7-2	**0.20**	mg/L	0.050	1	B4J0161	10/07/2014	10/07/14 16:25	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 10/08/2014

STLC DI Metals by ICP-AES by EPA 6010B

Analyte: Lead **Analyst: CB**

Laboratory ID	Client Sample ID	Result	Units	PQL	Dilution	Batch	Prepared	Date/Time Analyzed	Notes
1402574-01	B1-0	**ND**	mg/L	1.0	20	B4J0110	10/05/2014	10/06/14 15:02	
1402574-04	B2-0	**ND**	mg/L	1.0	20	B4J0110	10/05/2014	10/06/14 15:04	
1402574-07	B3-0	**ND**	mg/L	1.0	20	B4J0110	10/05/2014	10/06/14 15:06	
1402574-08	B3-1	**ND**	mg/L	1.0	20	B4J0110	10/05/2014	10/06/14 15:15	
1402574-10	B4-0	**8.4**	mg/L	1.0	20	B4J0110	10/05/2014	10/06/14 15:17	
1402574-11	B4-1	**1.4**	mg/L	1.0	20	B4J0110	10/05/2014	10/06/14 15:19	
1402574-12	B4-2	**ND**	mg/L	1.0	20	B4J0110	10/05/2014	10/06/14 15:21	
1402574-13	B5-0	**ND**	mg/L	1.0	20	B4J0110	10/05/2014	10/06/14 15:27	
1402574-16	B6-0	**ND**	mg/L	1.0	20	B4J0110	10/05/2014	10/06/14 15:29	
1402574-19	B8-0	**ND**	mg/L	1.0	20	B4J0110	10/05/2014	10/06/14 15:31	
1402574-20	B8-1	**ND**	mg/L	1.0	20	B4J0110	10/05/2014	10/06/14 15:34	
1402574-21	B8-2.5	**ND**	mg/L	1.0	20	B4J0111	10/05/2014	10/06/14 15:52	
1402574-22	B7-0	**7.2**	mg/L	1.0	20	B4J0111	10/05/2014	10/06/14 15:55	
1402574-23	B7-1	**3.8**	mg/L	1.0	20	B4J0111	10/05/2014	10/06/14 15:57	
1402574-24	B7-2	**1.2**	mg/L	1.0	20	B4J0111	10/05/2014	10/06/14 15:59	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 10/08/2014

QUALITY CONTROL SECTION

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

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4J0161 - EPA 3010A_SOIL									
Blank (B4J0161-BLK1)					Prepared: 10/7/2014 Analyzed: 10/7/2014				
Lead	ND	0.050			NR				
Blank (B4J0161-BLK2)					Prepared: 10/7/2014 Analyzed: 10/7/2014				
Lead	ND	0.050			NR				
Blank (B4J0161-BLK3)					Prepared: 10/7/2014 Analyzed: 10/7/2014				
Lead	ND	0.050			NR				
Blank (B4J0161-BLK4)					Prepared: 10/7/2014 Analyzed: 10/7/2014				
Lead	ND	0.050			NR				
LCS (B4J0161-BS1)					Prepared: 10/7/2014 Analyzed: 10/7/2014				
Lead	0.968159	0.050	1.00000		96.8	80 - 120			
Duplicate (B4J0161-DUP1)		**Source: 1402574-24**			Prepared: 10/7/2014 Analyzed: 10/7/2014				
Lead	0.198988	0.050		0.199900	NR		0.458	20	
Duplicate (B4J0161-DUP2)		**Source: 1402574-19**			Prepared: 10/7/2014 Analyzed: 10/7/2014				
Lead	0.446604	0.050		0.423580	NR		5.29	20	
Matrix Spike (B4J0161-MS1)		**Source: 1402574-24**			Prepared: 10/7/2014 Analyzed: 10/7/2014				
Lead	2.62791	0.050	2.50000	0.199900	97.1	77 - 121			
Matrix Spike (B4J0161-MS2)		**Source: 1402574-19**			Prepared: 10/7/2014 Analyzed: 10/7/2014				
Lead	2.81801	0.050	2.50000	0.423580	95.8	77 - 121			
Matrix Spike Dup (B4J0161-MSD1)		**Source: 1402574-24**			Prepared: 10/7/2014 Analyzed: 10/7/2014				
Lead	2.57006	0.050	2.50000	0.199900	94.8	77 - 121	2.23	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 10/08/2014

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

Analyte	Result (mg/L)	PQL (mg/L)	Spike Level	Source Result	% Rec	% Rec Limits	RPD	RPD Limit	Notes
Batch B4J0110 - STLC DI Extraction									
Blank (B4J0110-BLK1)					Prepared: 10/5/2014 Analyzed: 10/6/2014				
Lead	ND	1.0			NR				
Blank (B4J0110-BLK2)					Prepared: 10/5/2014 Analyzed: 10/6/2014				
Lead	ND	1.0			NR				
LCS (B4J0110-BS1)					Prepared: 10/5/2014 Analyzed: 10/6/2014				
Lead	2.11432	1.0	2.00000		106	80 - 120			
Duplicate (B4J0110-DUP1)		**Source: 1402574-07**			Prepared: 10/5/2014 Analyzed: 10/6/2014				
Lead	0.485211	1.0		0.690501	NR		34.9	20	R
Duplicate (B4J0110-DUP2)		**Source: 1402603-22**			Prepared: 10/5/2014 Analyzed: 10/6/2014				
Lead	0.047304	1.0		0.053326	NR		12.0	20	
Matrix Spike (B4J0110-MS1)		**Source: 1402574-07**			Prepared: 10/5/2014 Analyzed: 10/6/2014				
Lead	3.23234	1.0	2.50000	0.690501	102	70 - 130			
Matrix Spike (B4J0110-MS2)		**Source: 1402603-22**			Prepared: 10/5/2014 Analyzed: 10/6/2014				
Lead	2.58105	1.0	2.50000	0.053326	101	70 - 130			
Matrix Spike Dup (B4J0110-MSD1)		**Source: 1402574-07**			Prepared: 10/5/2014 Analyzed: 10/6/2014				
Lead	3.19066	1.0	2.50000	0.690501	100	70 - 130	1.30	20	
Batch B4J0111 - STLC DI Extraction									
Blank (B4J0111-BLK1)					Prepared: 10/5/2014 Analyzed: 10/6/2014				
Lead	ND	1.0			NR				
LCS (B4J0111-BS1)					Prepared: 10/5/2014 Analyzed: 10/6/2014				
Lead	2.14274	1.0	2.00000		107	80 - 120			
Duplicate (B4J0111-DUP1)		**Source: 1402574-24**			Prepared: 10/5/2014 Analyzed: 10/6/2014				
Lead	1.10066	1.0		1.23113	NR		11.2	20	
Matrix Spike (B4J0111-MS1)		**Source: 1402574-24**			Prepared: 10/5/2014 Analyzed: 10/6/2014				
Lead	3.73420	1.0	2.50000	1.23113	100	70 - 130			
Matrix Spike Dup (B4J0111-MSD1)		**Source: 1402574-24**			Prepared: 10/5/2014 Analyzed: 10/6/2014				
Lead	3.65146	1.0	2.50000	1.23113	96.8	70 - 130	2.24	20	

Certificate of Analysis

Geocon Consultants, Inc.	Project Number : CALTRANS - FREITAS PKWY OC, E8721-02-12
6671 Brisa Street	Report To : Rick Day
Livermore , CA 94550	Reported : 10/08/2014

Notes and Definitions

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

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

From: Luann Beadle [beadle@geoconinc.com]
Sent: Wednesday, October 01, 2014 8:15 AM
To: Diane Galvan
Subject: Freitas Prkwy (Lab Order 1402574)

Hi Diane,

Please run DI-WET and TCLP lead on the following samples from this lab order on a regular TAT:

B1-0
B2-0
B3-0
B3-1
B4-0
B4-1
B4-2
B5-0
B6-0
B7-0
B7-1
B7-2
B8-0
B8-1
B8-2.5

Thanks,
Luann

Luann Beadle | *Senior Staff Scientist*
Geocon Consultants, Inc.
6671 Brisa Street, Livermore, California 94550
Tel 925.371.5900 Cell 925.395.1669
www.geoconinc.com

EMSL Analytical, Inc
2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577
Phone/Fax: (510) 895-3675 / (510) 895-3680
http://www.EMSL.com sanleandrolab@emsl.com

EMSL Order:	091413903
CustomerID:	GECN21
CustomerPO:	
ProjectID:	E8721-02-xx

Attn: **Luann Beadle**
Geocon Consultants, Inc.
6671 Brisa Street

Livermore, CA 94550

Project: **FREITAS PKWY/ E8721-02-12**

Phone:	(925) 371-5900
Fax:	(925) 371-5915
Received:	09/04/14 1:00 PM
Analysis Date:	9/11/2014
Collected:	9/4/2014

Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
B1-1 *091413903-0001*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B2-1 *091413903-0002*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B3-1 *091413903-0003*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B4-1 *091413903-0004*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B5-1 *091413903-0005*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B6-1 *091413903-0006*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**
B7-1 *091413903-0007*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	**None Detected**

Analyst(s)

Jorge Leon (8)

Derrick Tanner, Laboratory Manager
or other approved signatory

Initial report from 09/11/2014 11:41:24

EMSL Analytical, Inc
2235 Polvorosa Ave , Suite 230, San Leandro, CA 94577
Phone/Fax: (510) 895-3675 / (510) 895-3680
http://www.EMSL.com sanleandrolab@emsl.com

EMSL Order:	091413903
CustomerID:	GECN21
CustomerPO:	
ProjectID:	E8721-02-xx

Attn: **Luann Beadle**
Geocon Consultants, Inc.
6671 Brisa Street

Livermore, CA 94550

Phone:	(925) 371-5900
Fax:	(925) 371-5915
Received:	09/04/14 1:00 PM
Analysis Date:	9/11/2014
Collected:	9/4/2014

Project: **FREITAS PKWY/ E8721-02-12**

Test Report: PLM Analysis of Bulk Samples for Asbestos via EPA 600/R-93/116 Method with CARB 435 Prep (Milling) Level A for 0.25% Target Analytical Sensitivity

			Non-Asbestos			Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**		**% Type**
B8-1 *091413903-0008*		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)		**None Detected**

Analyst(s)

Jorge Leon (8)

Derrick Tanner, Laboratory Manager
or other approved signatory

Initial report from 09/11/2014 11:41:24

OrderID: 091413903

04A4336

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only)

#091413903

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

EMSL ANALYTICAL, INC.
2235 POLVOROSA DR., STE. 230
SAN LEANDRO, CA 94577
PHONE: (510) 895-3675
FAX. (510) 895-3680

Company: GEOCON	EMSL-Bill to: ☒ Same ☐ Different If Bill to is Different note instructions in Comments**
Street: 6671 BRISA ST.	*Third Party Billing requires written authorization from third party*
City: LIVERMORE / State/Province: CA	Zip/Postal Code: 94550 / Country: USA
Report To (Name): L. BEADLE	Fax #: 925-371-5915
Telephone #: 925-371-5900	Email Address: BEADLE@GEOCONINC.COM
Project Name/Number: FREITAS PKWY / E8721-02-12	
Please Provide Results: ☐ Fax ☒ Email	Purchase Order: / U.S. State Samples Taken: CA

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☒ 1 Week ☐ 2 Week

*For TEM Air 3 hours/6 hours, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

PCM - Air
- ☐ NIOSH 7400
- ☐ w/ OSHA 8hr. TWA

PLM - Bulk (reporting limit)
- ☐ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)

Point Count
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)

Point Count w/Gravimetric
- ☐ 400 (<0.25%) ☐ 1000 (<0.1%)
- ☐ NYS 198.1 (friable in NY)
- ☐ NYS 198.6 NOB (non-friable-NY)
- ☐ NIOSH 9002 (<1%)

TEM – Air ☐ 4-4.5hr TAT (AHERA only)
- ☐ AHERA 40 CFR, Part 763
- ☐ NIOSH 7402
- ☐ EPA Level II
- ☐ ISO 10312

TEM - Bulk
- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (non-friable-NY)
- ☐ Chatfield SOP
- ☐ TEM Mass Analysis-EPA 600 sec. 2.5

TEM – Water: EPA 100.2
- Fibers >10µm ☐ Waste ☐ Drinking
- All Fiber Sizes ☐ Waste ☐ Drinking

TEM- Dust
- ☐ Microvac - ASTM D 5755
- ☐ Wipe - ASTM D6480
- ☐ Carpet Sonication (EPA 600/J-93/167)

Soil/Rock/Vermiculite
- ☒ PLM CARB 435 - A (0.25% sensitivity)
- ☐ PLM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - B (0.1% sensitivity)
- ☐ TEM CARB 435 - C (0.01% sensitivity)
- ☐ EPA Protocol (Semi-Quantitative)
- ☐ EPA Protocol (Quantitative)

Other:
- ☐

☐ Check For Positive Stop – Clearly Identify Homogenous Group

Samplers Name: D. WATTS / Samplers Signature: [signature]

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
B1-1	SOIL	NA	9/4/14
B2-1	"	"	"
B3-1	"	"	"
B4-1	"	"	"
B5-1	"	"	"
B6-1	"	"	"
B7-1	"	"	"
B8-1	"	"	"

Client Sample # (s): / Total # of Samples: 8

Relinquished (Client): [signature] Date: 9/4/14 Time: 1300

Received (Lab): [signature] Date: 9/4/14 9/4/14 Time: 1300

Comments/Special Instructions: 1.00pm (W.I.)

APPENDIX D

Outlier Tests for Selected Variables

User Selected Options

From File	Sheet1.wst
Full Precision	OFF
Test for Suspected Outliers with Dixon test	1
Test for Suspected Outliers with Rosner test	1

Dixon's Outlier Test for As - Site

Number of data = 8
10% critical value: 0.479
5% critical value: 0.554
1% critical value: 0.683

1. Data Value 41 is a Potential Outlier (Upper Tail)?

Test Statistic: 0.876

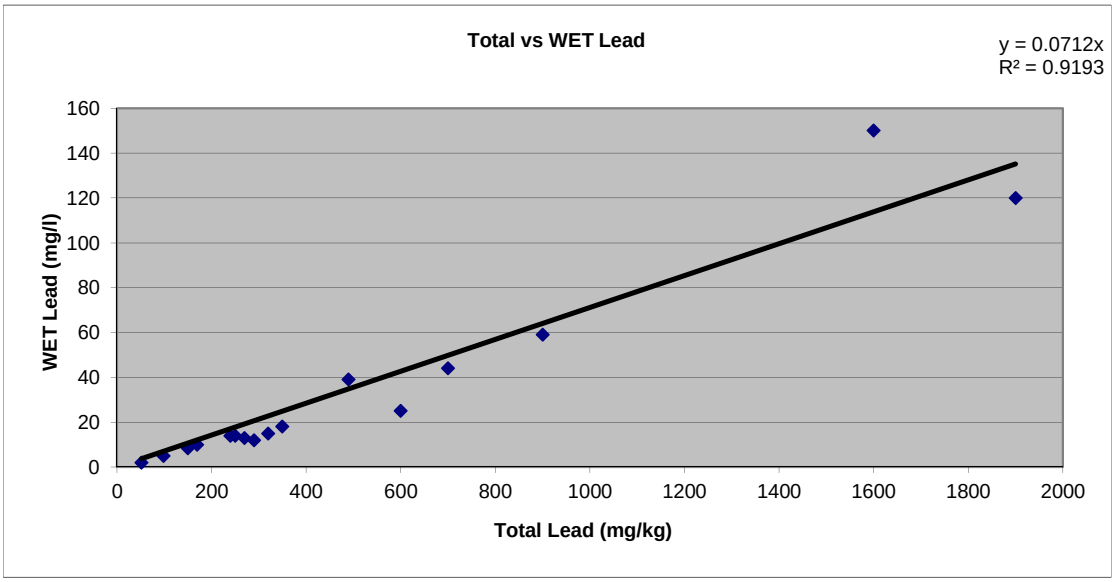
For 10% significance level, 41 is an outlier.
For 5% significance level, 41 is an outlier.
For 1% significance level, 41 is an outlier.

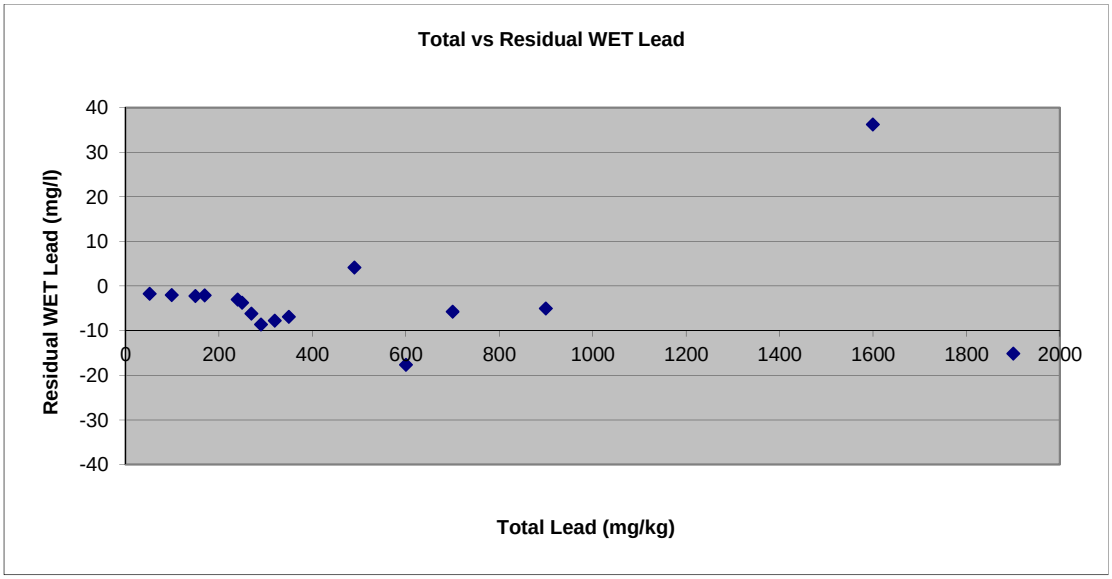
2. Data Value 5.4 is a Potential Outlier (Lower Tail)?

Test Statistic: 0.043

For 10% significance level, 5.4 is not an outlier.
For 5% significance level, 5.4 is not an outlier.
For 1% significance level, 5.4 is not an outlier.

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	WET Lead (mg/l)	Residual WET Lead (mg/l)	Squared Residual WET Lead (mg/l)
B1-0	0 to 0.5	99	5.0	-2.04	4.18
B2-0	0 to 0.5	250	14	-3.79	14.36
B3-0	0 to 0.5	490	39	4.13	17.08
B3-1	1 to 1.5	270	13	-6.21	38.59
B3-2	2 to 2.5	52	1.9	-1.80	3.24
B4-0	0 to 0.5	900	59	-5.04	25.42
B4-1	1 to 1.5	600	25	-17.69	313.09
B4-2	2 to 2.5	350	18	-6.91	47.68
B5-0	0 to 0.5	170	10	-2.10	4.40
B6-0	0 to 0.5	240	14	-3.08	9.47
B7-0	0 to 0.5	1,600	150	36.15	1306.71
B7-1	1 to 1.5	1,900	120	-15.20	231.00
B7-2	2 to 2.5	320	15	-7.77	60.38
B8-0	0 to 0.5	700	44	-5.81	33.76
B8-1	1 to 1.5	290	12	-8.64	74.57
B8-2.5	2.5 to 3	150	8.4	-2.27	5.17





Pb - 0 to 0.5

Number of Valid Observations	8
Number of Distinct Observations	8
Minimum	99
Maximum	1600
Mean	556
Median	370
SD	504.9
Variance	254957
Coefficient of Variation	0.908
Skewness	1.431
Mean of log data	5.957
SD of log data	0.933
90% Standard Bootstrap UCL	**767**
95% Standard Bootstrap UCL	**825**

Pb - 1 to 1.5

Number of Valid Observations	8
Number of Distinct Observations	7
Minimum	15
Maximum	1900
Mean	394.8
Median	157
SD	641.8
Variance	411893
Coefficient of Variation	1.626
Skewness	2.315
Mean of log data	4.709
SD of log data	1.829
90% Standard Bootstrap UCL	**677**
95% Standard Bootstrap UCL	**731**

Pb - 2 to 3

Number of Valid Observations	8
Number of Distinct Observations	8
Minimum	17
Maximum	350
Mean	123.9
Median	46
SD	136.9
Variance	18755
Coefficient of Variation	1.106
Skewness	1.135
Mean of log data	4.239
SD of log data	1.163
90% Standard Bootstrap UCL	**183**
95% Standard Bootstrap UCL	**201**

Pb - Site

Number of Valid Observations	24
Number of Distinct Observations	23
Minimum	15
Maximum	1900
Mean	358.3
Median	205
SD	491.8
Variance	241852
Coefficient of Variation	1.373
Skewness	2.168
Mean of log data	4.968
SD of log data	1.498
95% Standard Bootstrap UCL	**517**

As - Site

Number of Valid Observations	8
Number of Distinct Observations	8
Minimum	5.4
Maximum	41
Mean	11.13
Median	6.1
SD	12.19
Variance	148.6
Coefficient of Variation	1.096
Skewness	2.721
Mean of log data	2.124
SD of log data	0.682
95% Standard Bootstrap UCL	**17.6**

As without Outlier

Number of Valid Observations	7
Number of Distinct Observations	7
Minimum	5.4
Maximum	10
Mean	6.857
Median	5.9
SD	1.849
Variance	3.42
Coefficient of Variation	0.27
Skewness	1.239
Mean of log data	1.897
SD of log data	0.247
95% Standard Bootstrap UCL	**7.90**

TPHd

Number of Valid Observations	8
Number of Distinct Observations	8
Minimum	3.2
Maximum	130
Mean	57.4
Median	48.5
SD	45.22
Variance	2045
Coefficient of Variation	0.788
Skewness	0.435
Mean of log data	3.591
SD of log data	1.232
95% Standard Bootstrap UCL	**82.1**

TPHmo

Number of Valid Observations	8
Number of Distinct Observations	8
Minimum	6.8
Maximum	500
Mean	193.2
Median	175
SD	161.5
Variance	26085
Coefficient of Variation	0.836
Skewness	0.882
Mean of log data	4.742
SD of log data	1.366
95% Standard Bootstrap UCL	**280**