

# **INFORMATION HANDOUT**

**For Contract No. 04-1SS594**

**At 04-MRN-580-2.7**

**Identified by**

**Project ID 0412000636**

## **HAZARDOUS MATERIALS INFORMATION**

Preliminary Site Investigation Report

# PRELIMINARY SITE INVESTIGATION REPORT



## I-580 STORM DAMAGE REPAIR MARIN COUNTY, CALIFORNIA

**PREPARED FOR:**

CALIFORNIA DEPARTMENT OF TRANSPORTATION  
DISTRICT 4  
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GEOCON PROJECT NO. E8721-02-17  
CALTRANS EA 04-1SS591  
CALTRANS PROJECT # 04-1200-0636-1

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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.

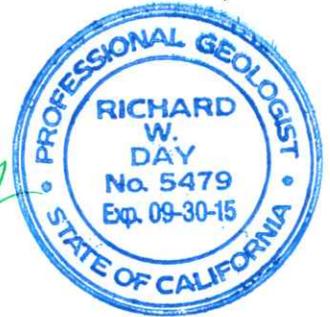
This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts 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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# PRELIMINARY SITE INVESTIGATION REPORT

## 1.0 INTRODUCTION

This Preliminary Site Investigation Report for the storm damage repair project along Interstate 580 (I-580) in Marin County, California was prepared by Geocon Consultants, Inc. under California Department of Transportation (Caltrans) Contract No. 04A4336 and Task Order No. 17 (TO-17), EA 04-1SS591.

### 1.1 Project Description and Proposed Improvements

The project proposes to restore and stabilize the slope at the end of the San Quentin offramp from Eastbound (EB) I-580, Post Mile (PM) 2.7, near Main Street, in San Quentin, California. Work will take place within Caltrans right-of-way. The project location is depicted on the attached Location Map, 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 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 10 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 10 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 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 ( $\leq 3$ m bgs), Groundwater is a Current or Potential Source of Drinking Water
- Table K-3. Direct Exposure Soil Screening Levels, Construction/Trench Worker Exposure Scenario

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

## **2.3 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-17, EA 04-1SS591 included the following:

#### **3.1 Pre-Field Activities**

- Prepared the Preliminary Site Investigation Workplan and Health and Safety Plan, dated November 2014.
- Retained the services of Asset Laboratories, Las Vegas, Nevada (Asset), a Caltrans-approved and California-certified analytical laboratory, to perform the chemical analyses of soil samples.
- Retained the services of EMSL, Inc., 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 December 4, 2014, by Geocon staff. The following field activities were performed during the sampling efforts:

- Advanced 5 soil borings at the project location using hand-auger drilling techniques. The borings were advanced to a maximum depth of 4.5 feet.

The following soil samples were collected:

- 8 for CAM 17 metals analysis
- 6 for total lead analysis
- 10 for TPHd and TPHmo analyses
- 3 for TPHg analysis
- 14 for NOA analysis

All samples were transported to Asset 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 five boring locations identified by the Caltrans TO Manager using hand-auger drilling techniques. Boring coordinates are presented on Table 1. A Location Map, Figure 1, shows the project location, and the Site Plan, Figure 2, shows the boring locations.

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. Hand-auger 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. The equipment rinse blank was collected by pouring deionized water over the cleaned sampling equipment and collecting it into a sample container for laboratory analysis. 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 Asset and EMSL under standard turnaround-time (TAT) per the Task Order Manager. The laboratory reports and COC documentation are included in Appendix A.

The samples were analyzed as follows:

- 8 samples for CAM 17 metals using EPA Test Methods 6010 ICAP and 7471.
- 6 samples were analyzed for total lead using EPA Test Method 6010 ICAP.
- 8 samples with a total chromium concentration equal to or exceeding 50 mg/kg (i.e. equal to or exceeding 10 times the STLC of 5.0 mg/l) were further analyzed for WET chromium.
- 6 samples with a total nickel concentration equal to or exceeding 200 mg/kg (i.e. equal to or exceeding 10 times the STLC of 20 mg/l) was further analyzed for WET nickel.
- 10 samples for TPHd using EPA Test Method 8015B.
- 10 samples for TPHmo using EPA Test Method 8015B.
- 3 samples for TPHg using EPA Test Method 8021.
- 14 samples for NOA using CARB 435.
- 3 samples for pH using EPA Test Method 9045C.

### **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 10 samples, batch of samples or type of matrix, whichever was more frequent.
- One sample analyzed in duplicate for every 10 samples, batch of samples or type of matrix, whichever was more frequent.
- One spiked sample for every 10 samples, batch of samples or type of matrix; whichever was more frequent, with spike made at 10 times the detection limit or at the analyte level.

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

## **5.0 INVESTIGATIVE RESULTS**

### **5.1 Subsurface Conditions**

Observations during field activities indicated that soil in the area generally consisted of moist to wet, dark gray to black Franciscan sandstone and shale with sheared and degraded lighter gray, silty sand present between 3 to 4.5 feet. All borings were met with refusal despite repeated attempts.

Groundwater was not encountered in any of the hand auger 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, mercury, molybdenum, silver, and thallium.
- Chromium and nickel were reported at concentrations equal to or exceeding 10 times their respective STLCS.
- Total chromium was reported at concentrations ranging from 150 mg/kg to 310 mg/kg.
- WET chromium was not detected at or above the reporting limit of <0.25 mg/l.
- Total nickel was reported at concentrations ranging from 130 mg/kg to 410 mg/kg.
- WET nickel was reported at concentrations ranging from 1.2 mg/l to 3.9 mg/l.
- Remaining CAM 17 metals were reported in the samples at total concentrations below 10 times their respective STLCS.
- TPHd was reported at concentrations ranging from <1.0 mg/kg to 1.7 mg/kg.
- TPHmo was reported at concentrations ranging from 1.2 mg/kg to 8.6 mg/kg.
- TPHg was not detected at or above the reporting limit of 1.0 mg/kg.
- NOA was reported not detected or at trace (<0.25% chrysotile asbestos) concentrations.

## 5.3 Laboratory 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 outside of recovery limits for several samples due to matrix interference. The relative percent difference (RPD) was outside of acceptance criteria for one sample; therefore, calculations were based on raw values.

## 6.0 CONCLUSIONS

### 6.1 CAM 17 Metals in Soil

With the exceptions of chromium and nickel, CAM 17 metals were reported in the samples at total concentrations below 10 times their respective STLCs. WET chromium was not detected at or above the reporting limit of 1.0 mg/l. WET nickel was reported at a maximum concentration of 3.9 mg/l, below the STLC of 20 mg/l. Therefore, soil would be not classified as hazardous based on chromium or nickel concentrations.

The CAM 17 metals concentrations in site soil were compared to ESLs. Arsenic, cobalt, and nickel were reported at concentrations greater than one or more ESL values. Because concentrations of arsenic, cobalt, and nickel exceeded one or more ESL, non-parametric bootstrap techniques were used to calculate the UCLs. Risk assessment characterization is based on the 95% UCL of the soil for the site; this is in accordance with the Risk Assessment Guidance for Superfund (RAGS) Volume 1 Documentation for Exposure Assessment.

The bootstrap test result is included in Appendix B. ESLs, UCLs, and published background concentrations for arsenic, cobalt, and nickel are summarized in the table below.

<b>Metal</b>	<b>Maximum</b>	<b>95% UCL</b>	<b>Shallow Soil Residential ESL</b>	<b>Shallow Soil Commercial/Industrial ESL</b>	<b>Worker Direct Exposure ESL</b>	<b>Published Background Mean<sup>1</sup></b>	<b>Published Background Range<sup>1</sup></b>
Arsenic	6.6	5.35	0.39	1.6	10	3.5	0.6 to 11.0
Cobalt	27	24.4	23	80	49	14.9	2.7 to 46.9
Nickel	410	340	150	150	6,100	57	9 to 509

Concentrations reported in mg/kg

<sup>1</sup> Kearney Foundation of Soil Science, March 1996

The 95% UCL arsenic concentration is greater than the residential and commercial land use ESLs; however, it is below the construction exposure ESL and within 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.

The 95% UCL cobalt concentration is greater than the residential land use ESL; however, it is below the commercial land use ESL, the construction exposure ESL, and within the published background range.

The 95% UCL nickel concentration is above the residential and commercial land use ESLs; however, it is below the construction exposure ESL, and within the published background range.

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

Metals results for soil samples are summarized in Table 3.

## **6.2 Organic Compounds in Soil**

TPHg was not detected at or above the reporting limit.

TPHd and TPHmo concentrations were below the ESLs.

Based on the reported TPHd and TPHmo concentrations being below the ESLs, reuse or disposal of excavated soil should not 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.

## **6.3 Naturally-Occurring Asbestos in Soil**

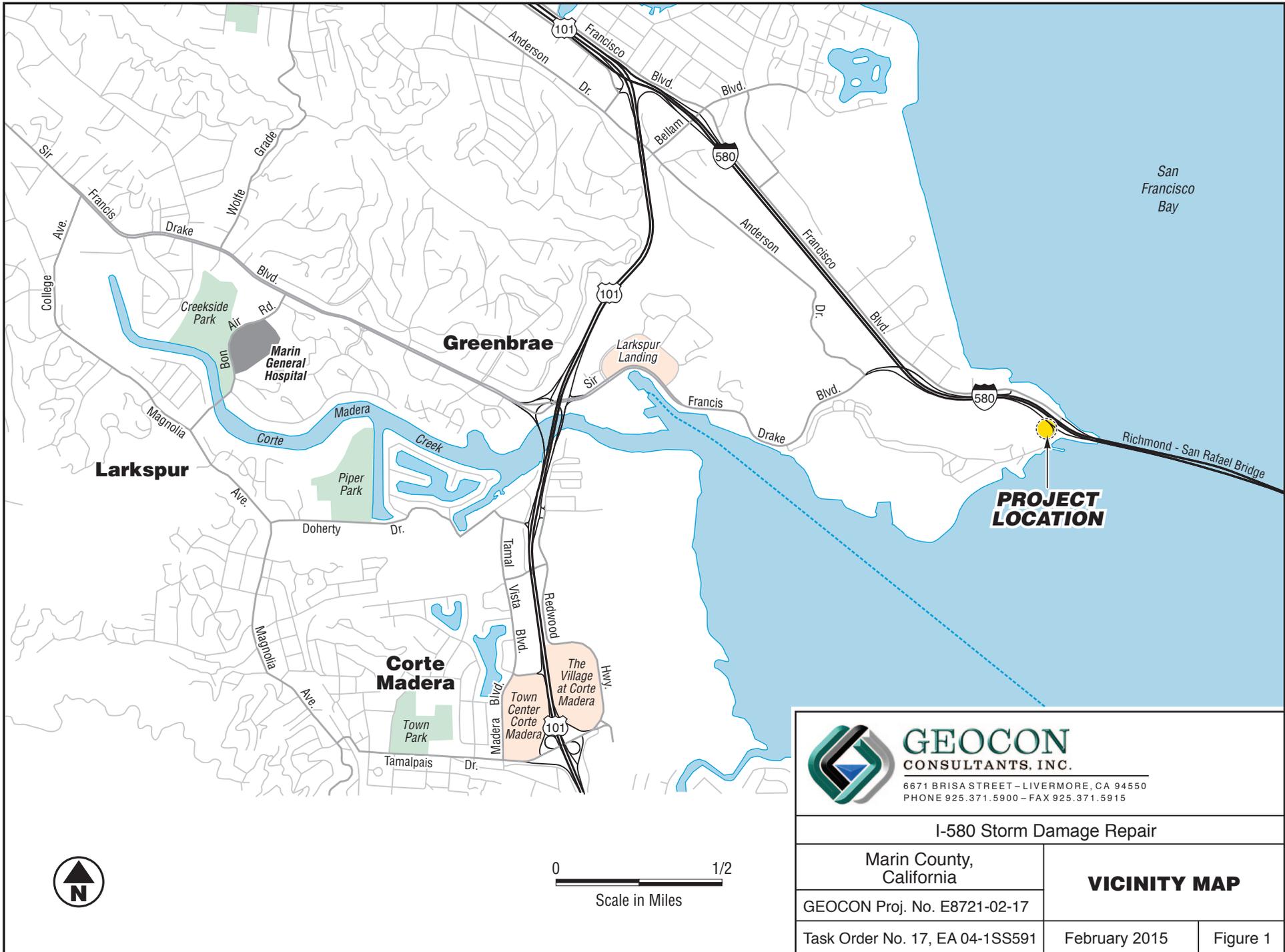
Fourteen soil samples were collected from the site and analyzed for asbestos by CARB Test Method 435 using polarized light microscopy (PLM) and at a target sensitivity of 0.25% asbestos. Three samples were reported to contain trace (<0.25%) chrysotile asbestos. Asbestos fibers were not observed in the remaining 11 samples.

Soil reuse and disposal should not be restricted based on asbestos content, however, it is Caltrans policy that a contractor have an asbestos compliance plan in place on projects where personnel may be in contact with materials known to contain NOA and that wet methods be used to minimize the potential for airborne asbestos.

A summary of NOA results is included in Table 5.

## **6.4 Worker Protection**

The contractor(s) should prepare a project-specific health and safety plan to prevent or minimize worker exposure to metals 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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I-580 Storm Damage Repair

Marin County,  
California

**VICINITY MAP**

GEOCON Proj. No. E8721-02-17

Task Order No. 17, EA 04-1SS591

February 2015

Figure 1



**LEGEND:**  
 ● Boring Location

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I-580 Storm Damage Repair

Marin County,  
 California

**SITE PLAN**

GEOCON Proj. No. E8721-02-17

EA No. 04-1SS591

February 2015

Figure 2

**TABLE 1**  
**Boring Coordinates**  
**I-580 Storm Damage Repair**  
**Marin County, California**

<b>Boring</b>	<b>Latitude</b>	<b>Longitude</b>
B1	37.943313	-122.481180
B2	37.943189	-122.481168
B3	37.943517	-122.480931
B4	37.943291	-122.480999
B5	37.943313	-122.481054

**TABLE 2**  
**Summary of Lead and pH Results**  
**I-580 Storm Damage Repair**  
**Marin County, California**

Sample ID	Sample Depth (feet)	Total Lead (mg/kg)	pH
B1-0	0 to 0.5	9.8	---
B1-1	1 to 1.5	4.2	---
B2-0	0 to 0.5	15	---
B2-1	1 to 1.5	4.6	7.5
B2-2.5	2.5 to 3	4.1	---
B3-0	0 to 0.5	9.3	---
B3-1	1 to 1.5	1.7	---
B4-0	0 to 0.5	7.8	---
B4-1	1 to 1.5	3.5	---
B4-2.5	2.5 to 3	3.1	8.1
B4-4		1.3	---
B5-0	0 to 0.5	15	---
B5-1	1 to 1.5	4.0	8.2
B5-2.5	2.5 to 3	4.8	---
<hr/>			
<u>Hazardous Waste Criteria</u>			
	TTLC (mg/kg)	1,000	---

**Notes:**

mg/kg = Milligrams per kilogram

TTLC = Total Threshold Limit Concentration

**TABLE 3**  
**Summary of CAM 17 Metals Results**  
**I-580 Storm Damage Repair**  
**Marin County, 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	5.9	120	<1.0	<1.0	180 <i>&lt;0.25</i>	17	30	9.8	<0.10	<1.0	210 <i>0.64</i>	2.9	<1.0	<1.0	43	49
B2-0	0 to 0.5	<2.0	4.9	150	<1.0	<1.0	150 <i>&lt;0.25</i>	13	16	15	<0.099	<1.0	130	2.1	<1.0	<1.0	44	42
B2-1	1 to 1.5	<2.0	6.6	450	<1.0	<1.0	280 <i>&lt;0.25</i>	27	34	4.6	<0.099	<1.0	400 <i>1.2</i>	3.6	<1.0	<1.0	55	49
B3-0	0 to 0.5	<2.0	4.0	130	<1.0	<1.0	300 <i>&lt;0.25</i>	24	63	9.3	<0.10	<1.0	260 <i>1.5</i>	4.8	<1.0	<1.0	140	62
B4-1	1 to 1.5	<2.0	3.7	16	<1.0	<1.0	310 <i>&lt;0.25</i>	26	28	3.5	<0.10	<1.0	410 <i>1.5</i>	3.7	<1.0	<1.0	51	45
B4-4	4 to 4.5	<2.0	2.1	150	<1.0	<1.0	110 <i>&lt;0.25</i>	19	8.3	1.3	<0.10	<1.0	150	3.7	<1.0	<1.0	70	29
B5-1	1 to 1.5	<2.0	4.5	68	<1.0	<1.0	310 <i>&lt;0.25</i>	24	29	4.0	<0.10	<1.0	360 <i>1.5</i>	4.0	<1.0	<1.0	52	45
B5-2.5	2.5 to 3	<2.0	5.0	140	<1.0	<1.0	280 <i>&lt;0.25</i>	24	31	4.8	<0.10	<1.0	320 <i>3.9</i>	3.5	<1.0	<1.0	55	43

<u>ESLs</u>		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
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	
<u>Hazardous Waste Criteria</u>		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
TTLIC (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.  
 TTLIC = total threshold limit concentration  
 STLC = soluble threshold limit concentration  
 TCLP = toxicity characteristic leaching procedure

**TABLE 4**  
**Summary of Petroleum Hydrocarbons Results**  
**I-580 Storm Damage Repair**  
**Marin County, California**

Sample ID	Sample Depth (ft)	TPHd (mg/kg)	TPHmo (mg/kg)	TPHg (mg/kg)
B1-0	0 to 0.5	1.6	8.6	---
B2-0	0 to 0.5	1.7	5.9	---
B2-1	1 to 1.5	<1.0	1.7	<1.0
B2-2.5	2.5 to 3	<1.0	1.3	---
B3-0	0 to 0.5	1.0	2.9	---
B4-0	0 to 0.5	1.2	4.2	---
B4-2.5	2.5 to 3	1.1	1.2	---
B4-4	4 to 4.5	1.2	1.6	<1.0
B5-0	0 to 0.5	1.3	3.3	---
B5-2.5	2.5 to 3	1.7	2.0	<1.0
<b>ESLs</b>				
	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**  
**I-580 Storm Damage Repair**  
**Marin County, California**

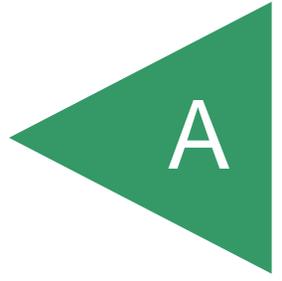
Sample ID	Sample Depth (feet)	Asbestos Content
B1-0	0 to 0.5	None Detected
B1-1	1 to 1.5	<0.25% Chrysotile
B2-0	0 to 0.5	None Detected
B2-1	1 to 1.5	None Detected
B2-2.5	2.5 to 3	None Detected
B3-0	0 to 0.5	None Detected
B3-1	1 to 1.5	None Detected
B4-0	0 to 0.5	<0.25% Chrysotile
B4-1	1 to 1.5	None Detected
B4-2.5	2.5 to 3	None Detected
B4-4	4 to 4.5	None Detected
B5-0	0 to 0.5	None Detected
B5-1	1 to 1.5	<0.25% Chrysotile
B5-2.5	2.5 to 3	None Detected

---

None detected at 0.25% target analytical sensitivity.

APPENDIX

A



December 12, 2014

Luann Beadle\Rick Day  
Geocon Consultants, Inc.  
6671 Brisa Street  
Livermore, CA 94550

TEL: (925) 371-5900  
FAX: (925) 371-5915

CA-ELAP No.: 2676  
NV Cert. No.: NV-00922

Workorder No.: N014059

RE: 580 slope Repair, E8721-02-17

Attention: Luann Beadle\Rick Day

Enclosed are the results for sample(s) received on December 05, 2014 by ASSET Laboratories .  
The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in  
accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,



Glen Gesmundo  
QA Manager

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in  
its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



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**"Serving Clients with Passion and Professionalism"**

**CLIENT:** Geocon Consultants, Inc.  
**Project:** 580 slope Repair, E8721-02-17  
**Lab Order:** N014059

**CASE NARRATIVE**

**SAMPLE RECEIVING/GENERAL COMMENTS:**

Samples were received intact with proper chain of custody documentation.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Samples were analyzed within method holding time.

**Analytical Comments for EPA 6010B:**

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for some analytes possibly due to matrix interference. The associated Laboratory Control Sample (LCS) recovery was acceptable.

RPD for Sample Duplicate (DUP) is outside criteria for some analytes possibly due to non-homogeneity of sample. The associated Laboratory Control Sample (LCS) recovery was acceptable.

**Analytical Comments for EPA 8015B\_DRO/ORO:**

RPD for Sample Duplicate (DUP) is outside criteria for ORO possibly due to non-homogeneity of sample. The associated Laboratory Control Sample (LCS) recovery was acceptable.



**ASSET Laboratories**

Date: 12-Dec-14

**CLIENT:** Geocon Consultants, Inc.  
**Project:** 580 slope Repair, E8721-02-17  
**Lab Order:** N014059  
**Contract No:**

**Work Order Sample Summary**

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N014059-001A	B1-0	Soil	12/4/2014 10:43:00 AM	12/5/2014	12/12/2014
N014059-002A	B1-1	Soil	12/4/2014 10:50:00 AM	12/5/2014	12/12/2014
N014059-003A	B2-0	Soil	12/4/2014 11:00:00 AM	12/5/2014	12/12/2014
N014059-004A	B2-1	Soil	12/4/2014 11:05:00 AM	12/5/2014	12/12/2014
N014059-005A	B2-2.5	Soil	12/4/2014 11:10:00 AM	12/5/2014	12/12/2014
N014059-006A	B3-0	Soil	12/4/2014 11:20:00 AM	12/5/2014	12/12/2014
N014059-007A	B3-1	Soil	12/4/2014 11:25:00 AM	12/5/2014	12/12/2014
N014059-008A	B4-0	Soil	12/4/2014 11:40:00 AM	12/5/2014	12/12/2014
N014059-009A	B4-1	Soil	12/4/2014 11:45:00 AM	12/5/2014	12/12/2014
N014059-010A	B4-2.5	Soil	12/4/2014 11:50:00 AM	12/5/2014	12/12/2014
N014059-011A	B4-4	Soil	12/4/2014 12:10:00 PM	12/5/2014	12/12/2014
N014059-012A	B5-0	Soil	12/4/2014 12:15:00 PM	12/5/2014	12/12/2014
N014059-013A	B5-1	Soil	12/4/2014 12:20:00 PM	12/5/2014	12/12/2014
N014059-014A	B5-2.5	Soil	12/4/2014 12:25:00 PM	12/5/2014	12/12/2014



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**ANALYTICAL RESULTS**

Print Date: 12-Dec-14

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17  
**Lab ID:** N014059-001

**Client Sample ID:** B1-0  
**Collection Date:** 12/4/2014 10:43:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID**

**EPA 3550B**

**EPA 8015B**

RunID: GC1_141210B	QC Batch: 48147				PrepDate 12/10/2014	Analyst: MDM
DRO	1.6	1.0		mg/Kg	1	12/10/2014 05:57 PM
ORO	8.6	1.0		mg/Kg	1	12/10/2014 05:57 PM
Surr: p-Terphenyl	83.8	50-122		%REC	1	12/10/2014 05:57 PM

**TOTAL MERCURY BY COLD VAPOR TECHNIQUE**

**EPA 7471A**

RunID: AA1_141210B	QC Batch: 48135				PrepDate 12/10/2014	Analyst: admin
Mercury	ND	0.10		mg/Kg	1	12/10/2014 02:54 PM

**TOTAL METALS BY ICP**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_141210D	QC Batch: 48134				PrepDate 12/10/2014	Analyst: CEI
Antimony	ND	2.0		mg/Kg	1	12/10/2014 10:15 PM
Arsenic	5.9	1.0		mg/Kg	1	12/10/2014 10:15 PM
Barium	120	1.0		mg/Kg	1	12/10/2014 10:15 PM
Beryllium	ND	1.0		mg/Kg	1	12/10/2014 10:15 PM
Cadmium	ND	1.0		mg/Kg	1	12/10/2014 10:15 PM
Chromium	180	1.0		mg/Kg	1	12/10/2014 10:15 PM
Cobalt	17	1.0		mg/Kg	1	12/10/2014 10:15 PM
Copper	30	2.0		mg/Kg	1	12/10/2014 10:15 PM
Lead	9.8	1.0		mg/Kg	1	12/10/2014 10:15 PM
Molybdenum	ND	1.0		mg/Kg	1	12/10/2014 10:15 PM
Nickel	210	1.0		mg/Kg	1	12/10/2014 10:15 PM
Selenium	2.9	1.0		mg/Kg	1	12/10/2014 10:15 PM
Silver	ND	1.0		mg/Kg	1	12/10/2014 10:15 PM
Thallium	ND	1.0		mg/Kg	1	12/10/2014 10:15 PM
Vanadium	43	1.0		mg/Kg	1	12/10/2014 10:15 PM
Zinc	49	1.0		mg/Kg	1	12/10/2014 10:15 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



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**ANALYTICAL RESULTS**

Print Date: 12-Dec-14

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17  
**Lab ID:** N014059-002

**Client Sample ID:** B1-1  
**Collection Date:** 12/4/2014 10:50:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**TOTAL METALS BY ICP**

	EPA 3050B		EPA 6010B			
RunID: ICP2_141210D	QC Batch:	48134		PrepDate	12/10/2014	Analyst: CEI
Lead		4.2	1.0	mg/Kg	1	12/10/2014 10:22 PM

**Qualifiers:** B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 S Spike/Surrogate outside of limits due to matrix interference  
 DO Surrogate Diluted Out  
 E Value above quantitation range  
 ND Not Detected at the Reporting Limit  
 Results are wet unless otherwise specified



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**ANALYTICAL RESULTS**

Print Date: 12-Dec-14

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17  
**Lab ID:** N014059-003

**Client Sample ID:** B2-0  
**Collection Date:** 12/4/2014 11:00:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID**

**EPA 3550B**

**EPA 8015B**

RunID: GC1_141210B	QC Batch: 48147				PrepDate: 12/10/2014	Analyst: MDM
DRO	1.7	1.0		mg/Kg	1	12/10/2014 06:48 PM
ORO	5.9	1.0		mg/Kg	1	12/10/2014 06:48 PM
Surr: p-Terphenyl	70.4	50-122		%REC	1	12/10/2014 06:48 PM

**TOTAL MERCURY BY COLD VAPOR TECHNIQUE**

**EPA 7471A**

RunID: AA1_141210B	QC Batch: 48135				PrepDate: 12/10/2014	Analyst: admin
Mercury	ND	0.099		mg/Kg	1	12/10/2014 02:57 PM

**TOTAL METALS BY ICP**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_141210D	QC Batch: 48134				PrepDate: 12/10/2014	Analyst: CEI
Antimony	ND	2.0		mg/Kg	1	12/10/2014 10:29 PM
Arsenic	4.9	1.0		mg/Kg	1	12/10/2014 10:29 PM
Barium	150	1.0		mg/Kg	1	12/10/2014 10:29 PM
Beryllium	ND	1.0		mg/Kg	1	12/10/2014 10:29 PM
Cadmium	ND	1.0		mg/Kg	1	12/10/2014 10:29 PM
Chromium	150	1.0		mg/Kg	1	12/10/2014 10:29 PM
Cobalt	13	1.0		mg/Kg	1	12/10/2014 10:29 PM
Copper	16	2.0		mg/Kg	1	12/10/2014 10:29 PM
Lead	15	1.0		mg/Kg	1	12/10/2014 10:29 PM
Molybdenum	ND	1.0		mg/Kg	1	12/10/2014 10:29 PM
Nickel	130	1.0		mg/Kg	1	12/10/2014 10:29 PM
Selenium	2.1	1.0		mg/Kg	1	12/10/2014 10:29 PM
Silver	ND	1.0		mg/Kg	1	12/10/2014 10:29 PM
Thallium	ND	1.0		mg/Kg	1	12/10/2014 10:29 PM
Vanadium	44	1.0		mg/Kg	1	12/10/2014 10:29 PM
Zinc	42	1.0		mg/Kg	1	12/10/2014 10:29 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



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**ANALYTICAL RESULTS**

Print Date: 12-Dec-14

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17  
**Lab ID:** N014059-004

**Client Sample ID:** B2-1  
**Collection Date:** 12/4/2014 11:05:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**PH**

**EPA 9045C**

RunID: WETCHEM_141211D	QC Batch: R97130			PrepDate		Analyst: <b>RB</b>
pH	7.5	0.10		pH Units	1	12/11/2014
Temp. at time of pH Analysis	25	0		°C	1	12/11/2014

**DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID**

**EPA 3550B**

**EPA 8015B**

RunID: GC1_141210B	QC Batch: 48147			PrepDate	12/10/2014	Analyst: <b>MDM</b>
DRO	ND	1.0		mg/Kg	1	12/10/2014 07:14 PM
ORO	1.7	1.0		mg/Kg	1	12/10/2014 07:14 PM
Surr: p-Terphenyl	85.4	50-122		%REC	1	12/10/2014 07:14 PM

**GASOLINE RANGE ORGANICS BY GC/FID**

**EPA 8015B**

RunID: GC4_141208A	QC Batch: E14VS128			PrepDate		Analyst: <b>QBM</b>
GRO	ND	1.0		mg/Kg	1	12/8/2014 02:02 PM
Surr: Chlorobenzene - d5	97.1	57-134		%REC	1	12/8/2014 02:02 PM

**TOTAL MERCURY BY COLD VAPOR TECHNIQUE**

**EPA 7471A**

RunID: AA1_141210B	QC Batch: 48135			PrepDate	12/10/2014	Analyst: <b>admin</b>
Mercury	ND	0.099		mg/Kg	1	12/10/2014 03:00 PM

**TOTAL METALS BY ICP**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_141210D	QC Batch: 48134			PrepDate	12/10/2014	Analyst: <b>CEI</b>
Antimony	ND	2.0		mg/Kg	1	12/10/2014 10:35 PM
Arsenic	6.6	1.0		mg/Kg	1	12/10/2014 10:35 PM
Barium	450	1.0		mg/Kg	1	12/10/2014 10:35 PM
Beryllium	ND	1.0		mg/Kg	1	12/10/2014 10:35 PM
Cadmium	ND	1.0		mg/Kg	1	12/10/2014 10:35 PM
Chromium	280	1.0		mg/Kg	1	12/10/2014 10:35 PM
Cobalt	27	1.0		mg/Kg	1	12/10/2014 10:35 PM
Copper	34	2.0		mg/Kg	1	12/10/2014 10:35 PM
Lead	4.6	1.0		mg/Kg	1	12/10/2014 10:35 PM
Molybdenum	ND	1.0		mg/Kg	1	12/10/2014 10:35 PM
Nickel	400	1.0		mg/Kg	1	12/10/2014 10:35 PM
Selenium	3.6	1.0		mg/Kg	1	12/10/2014 10:35 PM
Silver	ND	1.0		mg/Kg	1	12/10/2014 10:35 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



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**ANALYTICAL RESULTS**

Print Date: 12-Dec-14

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17  
**Lab ID:** N014059-004

**Client Sample ID:** B2-1  
**Collection Date:** 12/4/2014 11:05:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**TOTAL METALS BY ICP**

RunID: ICP2_141210D	EPA 3050B		EPA 6010B			
	QC Batch: 48134			PrepDate	12/10/2014	Analyst: CEI
Thallium	ND	1.0	mg/Kg	1		12/10/2014 10:35 PM
Vanadium	55	1.0	mg/Kg	1		12/10/2014 10:35 PM
Zinc	49	1.0	mg/Kg	1		12/10/2014 10:35 PM

**Qualifiers:** B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 S Spike/Surrogate outside of limits due to matrix interference  
 DO Surrogate Diluted Out  
 E Value above quantitation range  
 ND Not Detected at the Reporting Limit  
 Results are wet unless otherwise specified



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**ANALYTICAL RESULTS**

Print Date: 12-Dec-14

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17  
**Lab ID:** N014059-005

**Client Sample ID:** B2-2.5  
**Collection Date:** 12/4/2014 11:10:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>DIESEL &amp; MOTOR OIL RANGE ORGANICS BY GC/FID</b>						
<b>EPA 3550B</b>			<b>EPA 8015B</b>			
RunID: GC1_141210B	QC Batch: 48147			PrepDate	12/10/2014	Analyst: <b>MDM</b>
DRO	ND	1.0		mg/Kg	1	12/10/2014 07:39 PM
ORO	1.3	1.0		mg/Kg	1	12/10/2014 07:39 PM
Surr: p-Terphenyl	59.5	50-122		%REC	1	12/10/2014 07:39 PM
<b>TOTAL METALS BY ICP</b>						
<b>EPA 3050B</b>			<b>EPA 6010B</b>			
RunID: ICP2_141210D	QC Batch: 48134			PrepDate	12/10/2014	Analyst: <b>CEI</b>
Lead	4.1	1.0		mg/Kg	1	12/10/2014 10:42 PM

**Qualifiers:** B Analyte detected in the associated Method Blank  
 E Value above quantitation range  
 H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 S Spike/Surrogate outside of limits due to matrix interference  
 Results are wet unless otherwise specified  
 DO Surrogate Diluted Out



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**ANALYTICAL RESULTS**

Print Date: 12-Dec-14

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17  
**Lab ID:** N014059-006

**Client Sample ID:** B3-0  
**Collection Date:** 12/4/2014 11:20:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID**

**EPA 3550B**

**EPA 8015B**

RunID: GC1_141210B	QC Batch: 48147				PrepDate: 12/10/2014	Analyst: MDM
DRO	1.0	1.0		mg/Kg	1	12/10/2014 08:05 PM
ORO	2.9	1.0		mg/Kg	1	12/10/2014 08:05 PM
Surr: p-Terphenyl	80.4	50-122		%REC	1	12/10/2014 08:05 PM

**TOTAL MERCURY BY COLD VAPOR TECHNIQUE**

**EPA 7471A**

RunID: AA1_141210B	QC Batch: 48135				PrepDate: 12/10/2014	Analyst: admin
Mercury	ND	0.10		mg/Kg	1	12/10/2014 03:03 PM

**TOTAL METALS BY ICP**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_141210D	QC Batch: 48134				PrepDate: 12/10/2014	Analyst: CEI
Antimony	ND	2.0		mg/Kg	1	12/10/2014 11:04 PM
Arsenic	4.0	1.0		mg/Kg	1	12/10/2014 11:04 PM
Barium	130	1.0		mg/Kg	1	12/10/2014 11:04 PM
Beryllium	ND	1.0		mg/Kg	1	12/10/2014 11:04 PM
Cadmium	ND	1.0		mg/Kg	1	12/10/2014 11:04 PM
Chromium	300	1.0		mg/Kg	1	12/10/2014 11:04 PM
Cobalt	24	1.0		mg/Kg	1	12/10/2014 11:04 PM
Copper	63	2.0		mg/Kg	1	12/10/2014 11:04 PM
Lead	9.3	1.0		mg/Kg	1	12/10/2014 11:04 PM
Molybdenum	ND	1.0		mg/Kg	1	12/10/2014 11:04 PM
Nickel	260	1.0		mg/Kg	1	12/10/2014 11:04 PM
Selenium	4.8	1.0		mg/Kg	1	12/10/2014 11:04 PM
Silver	ND	1.0		mg/Kg	1	12/10/2014 11:04 PM
Thallium	ND	1.0		mg/Kg	1	12/10/2014 11:04 PM
Vanadium	140	1.0		mg/Kg	1	12/10/2014 11:04 PM
Zinc	62	1.0		mg/Kg	1	12/10/2014 11:04 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



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**ASSET Laboratories**

**ANALYTICAL RESULTS**

Print Date: 12-Dec-14

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<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B3-1
<b>Lab Order:</b>	N014059	<b>Collection Date:</b>	12/4/2014 11:25:00 AM
<b>Project:</b>	580 slope Repair, E8721-02-17	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N014059-007		

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Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>TOTAL METALS BY ICP</b>						
	<b>EPA 3050B</b>			<b>EPA 6010B</b>		
RunID: ICP2_141210D	QC Batch: 48134			PrepDate	12/10/2014	Analyst: CEI
Lead	1.7	1.0		mg/Kg	1	12/10/2014 11:10 PM

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<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



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**ANALYTICAL RESULTS**

Print Date: 12-Dec-14

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17  
**Lab ID:** N014059-008

**Client Sample ID:** B4-0  
**Collection Date:** 12/4/2014 11:40:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>DIESEL &amp; MOTOR OIL RANGE ORGANICS BY GC/FID</b>						
<b>EPA 3550B</b>			<b>EPA 8015B</b>			
RunID: GC1_141210B	QC Batch: 48147			PrepDate	12/10/2014	Analyst: <b>MDM</b>
DRO	1.2	1.0		mg/Kg	1	12/10/2014 10:13 PM
ORO	4.2	1.0		mg/Kg	1	12/10/2014 10:13 PM
Surr: p-Terphenyl	65.4	50-122		%REC	1	12/10/2014 10:13 PM
<b>TOTAL METALS BY ICP</b>						
<b>EPA 3050B</b>			<b>EPA 6010B</b>			
RunID: ICP2_141210D	QC Batch: 48134			PrepDate	12/10/2014	Analyst: <b>CEI</b>
Lead	7.8	1.0		mg/Kg	1	12/10/2014 11:28 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



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**ANALYTICAL RESULTS**

Print Date: 12-Dec-14

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17  
**Lab ID:** N014059-009

**Client Sample ID:** B4-1  
**Collection Date:** 12/4/2014 11:45:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**TOTAL MERCURY BY COLD VAPOR TECHNIQUE**

**EPA 7471A**

RunID: AA1_141210B	QC Batch: 48135				PrepDate 12/10/2014	Analyst: admin
Mercury	ND	0.10		mg/Kg	1	12/10/2014 03:06 PM

**TOTAL METALS BY ICP**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_141210D	QC Batch: 48134				PrepDate 12/10/2014	Analyst: CEI
Antimony	ND	2.0		mg/Kg	1	12/10/2014 11:36 PM
Arsenic	3.7	1.0		mg/Kg	1	12/10/2014 11:36 PM
Barium	16	1.0		mg/Kg	1	12/10/2014 11:36 PM
Beryllium	ND	1.0		mg/Kg	1	12/10/2014 11:36 PM
Cadmium	ND	1.0		mg/Kg	1	12/10/2014 11:36 PM
Chromium	310	1.0		mg/Kg	1	12/10/2014 11:36 PM
Cobalt	26	1.0		mg/Kg	1	12/10/2014 11:36 PM
Copper	28	2.0		mg/Kg	1	12/10/2014 11:36 PM
Lead	3.5	1.0		mg/Kg	1	12/10/2014 11:36 PM
Molybdenum	ND	1.0		mg/Kg	1	12/10/2014 11:36 PM
Nickel	410	1.0		mg/Kg	1	12/11/2014 09:21 AM
Selenium	3.7	1.0		mg/Kg	1	12/10/2014 11:36 PM
Silver	ND	1.0		mg/Kg	1	12/10/2014 11:36 PM
Thallium	ND	1.0		mg/Kg	1	12/10/2014 11:36 PM
Vanadium	51	1.0		mg/Kg	1	12/10/2014 11:36 PM
Zinc	45	1.0		mg/Kg	1	12/11/2014 09:21 AM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



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**ANALYTICAL RESULTS**

Print Date: 12-Dec-14

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17  
**Lab ID:** N014059-010

**Client Sample ID:** B4-2.5  
**Collection Date:** 12/4/2014 11:50:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**PH**

**EPA 9045C**

RunID: WETCHEM_141211D	QC Batch: R97130				PrepDate	Analyst: <b>RB</b>
pH	8.1	0.10		pH Units	1	12/11/2014
Temp. at time of pH Analysis	25	0		°C	1	12/11/2014

**DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID**

**EPA 3550B**

**EPA 8015B**

RunID: GC1_141210B	QC Batch: 48147				PrepDate	12/10/2014	Analyst: <b>MDM</b>
DRO	1.1	1.0		mg/Kg	1	12/10/2014 10:39 PM	
ORO	1.2	1.0		mg/Kg	1	12/10/2014 10:39 PM	
Surr: p-Terphenyl	60.2	50-122		%REC	1	12/10/2014 10:39 PM	

**TOTAL METALS BY ICP**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_141210D	QC Batch: 48134				PrepDate	12/10/2014	Analyst: <b>CEI</b>
Lead	3.1	1.0		mg/Kg	1	12/10/2014 11:43 PM	

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
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**ANALYTICAL RESULTS**

Print Date: 12-Dec-14

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17  
**Lab ID:** N014059-011

**Client Sample ID:** B4-4  
**Collection Date:** 12/4/2014 12:10:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID**

**EPA 3550B**

**EPA 8015B**

RunID: GC1_141210B	QC Batch: 48147				PrepDate	12/10/2014	Analyst: <b>MDM</b>
DRO	1.2	1.0		mg/Kg	1	12/10/2014 11:04 PM	
ORO	1.6	1.0		mg/Kg	1	12/10/2014 11:04 PM	
Surr: p-Terphenyl	78.6	50-122		%REC	1	12/10/2014 11:04 PM	

**GASOLINE RANGE ORGANICS BY GC/FID**

**EPA 8015B**

RunID: GC4_141208A	QC Batch: E14VS128				PrepDate		Analyst: <b>QBM</b>
GRO	ND	1.0		mg/Kg	1	12/8/2014 02:34 PM	
Surr: Chlorobenzene - d5	86.1	57-134		%REC	1	12/8/2014 02:34 PM	

**TOTAL MERCURY BY COLD VAPOR TECHNIQUE**

**EPA 7471A**

RunID: AA1_141210B	QC Batch: 48135				PrepDate	12/10/2014	Analyst: <b>admin</b>
Mercury	ND	0.10		mg/Kg	1	12/10/2014 03:09 PM	

**TOTAL METALS BY ICP**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_141210D	QC Batch: 48134				PrepDate	12/10/2014	Analyst: <b>CEI</b>
Antimony	ND	2.0		mg/Kg	1	12/10/2014 11:49 PM	
Arsenic	2.1	1.0		mg/Kg	1	12/10/2014 11:49 PM	
Barium	150	1.0		mg/Kg	1	12/10/2014 11:49 PM	
Beryllium	ND	1.0		mg/Kg	1	12/10/2014 11:49 PM	
Cadmium	ND	1.0		mg/Kg	1	12/10/2014 11:49 PM	
Chromium	110	1.0		mg/Kg	1	12/10/2014 11:49 PM	
Cobalt	19	1.0		mg/Kg	1	12/10/2014 11:49 PM	
Copper	8.3	2.0		mg/Kg	1	12/10/2014 11:49 PM	
Lead	1.3	1.0		mg/Kg	1	12/10/2014 11:49 PM	
Molybdenum	ND	1.0		mg/Kg	1	12/10/2014 11:49 PM	
Nickel	150	1.0		mg/Kg	1	12/11/2014 09:26 AM	
Selenium	3.7	1.0		mg/Kg	1	12/10/2014 11:49 PM	
Silver	ND	1.0		mg/Kg	1	12/10/2014 11:49 PM	
Thallium	ND	1.0		mg/Kg	1	12/10/2014 11:49 PM	
Vanadium	70	1.0		mg/Kg	1	12/10/2014 11:49 PM	
Zinc	29	1.0		mg/Kg	1	12/11/2014 09:26 AM	

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
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DO Surrogate Diluted Out



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**ANALYTICAL RESULTS**

Print Date: 12-Dec-14

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17  
**Lab ID:** N014059-012

**Client Sample ID:** B5-0  
**Collection Date:** 12/4/2014 12:15:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>DIESEL &amp; MOTOR OIL RANGE ORGANICS BY GC/FID</b>						
<b>EPA 3550B</b>			<b>EPA 8015B</b>			
RunID: GC1_141210B	QC Batch: 48147			PrepDate	12/10/2014	Analyst: <b>MDM</b>
DRO	1.3	1.0		mg/Kg	1	12/10/2014 11:30 PM
ORO	3.3	1.0		mg/Kg	1	12/10/2014 11:30 PM
Surr: p-Terphenyl	80.3	50-122		%REC	1	12/10/2014 11:30 PM
<b>TOTAL METALS BY ICP</b>						
<b>EPA 3050B</b>			<b>EPA 6010B</b>			
RunID: ICP2_141210D	QC Batch: 48134			PrepDate	12/10/2014	Analyst: <b>CEI</b>
Lead	15	1.0		mg/Kg	1	12/10/2014 11:56 PM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
H Holding times for preparation or analysis exceeded ND Not Detected at the Reporting Limit  
S Spike/Surrogate outside of limits due to matrix interference Results are wet unless otherwise specified  
DO Surrogate Diluted Out



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**ANALYTICAL RESULTS**

Print Date: 12-Dec-14

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17  
**Lab ID:** N014059-013

**Client Sample ID:** B5-1  
**Collection Date:** 12/4/2014 12:20:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**PH**

**EPA 9045C**

RunID: WETCHEM_141211D	QC Batch: R97130			PrepDate		Analyst: <b>RB</b>
pH	8.2	0.10		pH Units	1	12/11/2014
Temp. at time of pH Analysis	25	0		°C	1	12/11/2014

**TOTAL MERCURY BY COLD VAPOR TECHNIQUE**

**EPA 7471A**

RunID: AA1_141210B	QC Batch: 48135			PrepDate	12/10/2014	Analyst: <b>admin</b>
Mercury	ND	0.10		mg/Kg	1	12/10/2014 03:11 PM

**TOTAL METALS BY ICP**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_141210D	QC Batch: 48134			PrepDate	12/10/2014	Analyst: <b>CEI</b>
Antimony	ND	2.0		mg/Kg	1	12/11/2014 12:02 AM
Arsenic	4.5	1.0		mg/Kg	1	12/11/2014 12:02 AM
Barium	68	1.0		mg/Kg	1	12/11/2014 12:02 AM
Beryllium	ND	1.0		mg/Kg	1	12/11/2014 12:02 AM
Cadmium	ND	1.0		mg/Kg	1	12/11/2014 12:02 AM
Chromium	310	1.0		mg/Kg	1	12/11/2014 12:02 AM
Cobalt	24	1.0		mg/Kg	1	12/11/2014 12:02 AM
Copper	29	2.0		mg/Kg	1	12/11/2014 12:02 AM
Lead	4.0	1.0		mg/Kg	1	12/11/2014 12:02 AM
Molybdenum	ND	1.0		mg/Kg	1	12/11/2014 12:02 AM
Nickel	360	1.0		mg/Kg	1	12/11/2014 09:30 AM
Selenium	4.0	1.0		mg/Kg	1	12/11/2014 12:02 AM
Silver	ND	1.0		mg/Kg	1	12/11/2014 12:02 AM
Thallium	ND	1.0		mg/Kg	1	12/11/2014 12:02 AM
Vanadium	52	1.0		mg/Kg	1	12/11/2014 12:02 AM
Zinc	45	1.0		mg/Kg	1	12/11/2014 09:30 AM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
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**ANALYTICAL RESULTS**

Print Date: 12-Dec-14

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17  
**Lab ID:** N014059-014

**Client Sample ID:** B5-2.5  
**Collection Date:** 12/4/2014 12:25:00 PM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**DIESEL & MOTOR OIL RANGE ORGANICS BY GC/FID**

**EPA 3550B**

**EPA 8015B**

RunID: GC1_141210B	QC Batch: 48147				PrepDate: 12/10/2014	Analyst: MDM
DRO	1.7	1.0		mg/Kg	1	12/10/2014 11:55 PM
ORO	2.0	1.0		mg/Kg	1	12/10/2014 11:55 PM
Surr: p-Terphenyl	84.2	50-122		%REC	1	12/10/2014 11:55 PM

**GASOLINE RANGE ORGANICS BY GC/FID**

**EPA 8015B**

RunID: GC4_141208A	QC Batch: E14VS128				PrepDate:	Analyst: QBM
GRO	ND	1.0		mg/Kg	1	12/8/2014 03:40 PM
Surr: Chlorobenzene - d5	79.2	57-134		%REC	1	12/8/2014 03:40 PM

**TOTAL MERCURY BY COLD VAPOR TECHNIQUE**

**EPA 7471A**

RunID: AA1_141210B	QC Batch: 48135				PrepDate: 12/10/2014	Analyst: admin
Mercury	ND	0.10		mg/Kg	1	12/10/2014 03:14 PM

**TOTAL METALS BY ICP**

**EPA 3050B**

**EPA 6010B**

RunID: ICP2_141210D	QC Batch: 48134				PrepDate: 12/10/2014	Analyst: CEI
Antimony	ND	2.0		mg/Kg	1	12/11/2014 12:09 AM
Arsenic	5.0	1.0		mg/Kg	1	12/11/2014 12:09 AM
Barium	140	1.0		mg/Kg	1	12/11/2014 12:09 AM
Beryllium	ND	1.0		mg/Kg	1	12/11/2014 12:09 AM
Cadmium	ND	1.0		mg/Kg	1	12/11/2014 12:09 AM
Chromium	280	1.0		mg/Kg	1	12/11/2014 12:09 AM
Cobalt	24	1.0		mg/Kg	1	12/11/2014 12:09 AM
Copper	31	2.0		mg/Kg	1	12/11/2014 12:09 AM
Lead	4.8	1.0		mg/Kg	1	12/11/2014 12:09 AM
Molybdenum	ND	1.0		mg/Kg	1	12/11/2014 12:09 AM
Nickel	320	1.0		mg/Kg	1	12/11/2014 09:33 AM
Selenium	3.5	1.0		mg/Kg	1	12/11/2014 12:09 AM
Silver	ND	1.0		mg/Kg	1	12/11/2014 12:09 AM
Thallium	ND	1.0		mg/Kg	1	12/11/2014 12:09 AM
Vanadium	55	1.0		mg/Kg	1	12/11/2014 12:09 AM
Zinc	43	1.0		mg/Kg	1	12/11/2014 09:33 AM

**Qualifiers:** B Analyte detected in the associated Method Blank E Value above quantitation range  
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DO Surrogate Diluted Out



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**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17

**ANALYTICAL QC SUMMARY REPORT**

**TestCode: 6010\_S**

Sample ID <b>MB1-48134</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/10/2014</b>	RunNo: <b>97098</b>						
Client ID: <b>PBS</b>	Batch ID: <b>48134</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>12/10/2014</b>	SeqNo: <b>1888260</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									
Copper	0.168	2.0									
Lead	ND	1.0									
Molybdenum	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	ND	1.0									
Vanadium	ND	1.0									
Zinc	ND	1.0									

Sample ID <b>MB2-48134</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/10/2014</b>	RunNo: <b>97098</b>						
Client ID: <b>PBS</b>	Batch ID: <b>48134</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>12/10/2014</b>	SeqNo: <b>1888261</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0									
Arsenic	ND	1.0									
Barium	ND	1.0									
Beryllium	ND	1.0									
Cadmium	ND	1.0									
Chromium	ND	1.0									
Cobalt	ND	1.0									

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



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"Serving Clients with Passion and Professionalism"

**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_S**

Sample ID: <b>MB2-48134</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/10/2014</b>	RunNo: <b>97098</b>						
Client ID: <b>PBS</b>	Batch ID: <b>48134</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>12/10/2014</b>	SeqNo: <b>1888261</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	ND	2.0									
Lead	ND	1.0									
Molybdenum	ND	1.0									
Nickel	ND	1.0									
Selenium	ND	1.0									
Silver	ND	1.0									
Thallium	ND	1.0									
Vanadium	ND	1.0									
Zinc	ND	1.0									

Sample ID: <b>LCS-48134</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/10/2014</b>	RunNo: <b>97098</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>48134</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>12/10/2014</b>	SeqNo: <b>1888262</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	25.494	2.0	25.00	0	102	80	120				
Arsenic	25.435	1.0	25.00	0	102	80	120				
Barium	25.362	1.0	25.00	0	101	80	120				
Beryllium	25.562	1.0	25.00	0	102	80	120				
Cadmium	25.430	1.0	25.00	0	102	80	120				
Chromium	25.507	1.0	25.00	0	102	80	120				
Cobalt	26.352	1.0	25.00	0	105	80	120				
Copper	25.260	2.0	25.00	0	101	80	120				
Lead	25.161	1.0	25.00	0	101	80	120				
Molybdenum	25.069	1.0	25.00	0	100	80	120				
Nickel	25.338	1.0	25.00	0	101	80	120				
Selenium	25.231	1.0	25.00	0	101	80	120				
Silver	25.430	1.0	25.00	0	102	80	120				
Thallium	25.040	1.0	25.00	0	100	80	120				
Vanadium	25.484	1.0	25.00	0	102	80	120				
Zinc	26.479	1.0	25.00	0	106	80	120				

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_S**

Sample ID	SampType	TestCode	Units	Prep Date	RunNo						
<b>N014058-001B-DUP</b>	<b>DUP</b>	<b>6010_S</b>	<b>mg/Kg</b>	<b>12/10/2014</b>	<b>97098</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>48134</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>12/10/2014</b>	SeqNo: <b>1888266</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0						0	0	20	
Arsenic	8.237	1.0						8.174	0.767	20	
Barium	196.357	1.0						165.3	17.2	20	
Beryllium	0.263	1.0						0.2410	0	20	
Cadmium	ND	1.0						0	0	20	
Chromium	10.653	1.0						10.17	4.61	20	
Cobalt	2.743	1.0						3.032	10.0	20	
Copper	7.518	2.0						7.575	0.746	20	
Lead	5.650	1.0						5.741	1.60	20	
Molybdenum	0.147	1.0						0.2208	0	20	
Nickel	7.399	1.0						9.160	21.3	20	R
Selenium	ND	1.0						0.2466	0	20	
Silver	ND	1.0						0	0	20	
Thallium	ND	1.0						0	0	20	
Vanadium	20.319	1.0						21.46	5.45	20	
Zinc	23.851	1.0						25.20	5.51	20	

Sample ID	SampType	TestCode	Units	Prep Date	RunNo						
<b>N014058-001B-MS</b>	<b>MS</b>	<b>6010_S</b>	<b>mg/Kg</b>	<b>12/10/2014</b>	<b>97098</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>48134</b>	TestNo: <b>EPA 6010B EPA 3050B</b>		Analysis Date: <b>12/10/2014</b>	SeqNo: <b>1888269</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	18.200	2.0	24.99	0	72.8	75	125				S
Arsenic	26.533	1.0	24.99	8.174	73.5	75	125				S
Barium	201.676	1.0	24.99	165.3	146	75	125				S
Beryllium	19.124	1.0	24.99	0.2410	75.6	75	125				S
Cadmium	17.308	1.0	24.99	0	69.3	75	125				S
Chromium	27.638	1.0	24.99	10.17	69.9	75	125				S
Cobalt	20.872	1.0	24.99	3.032	71.4	75	125				S
Copper	28.918	2.0	24.99	7.575	85.4	75	125				S
Lead	23.275	1.0	24.99	5.741	70.2	75	125				S

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_S**

Sample ID	N014058-001B-MS	SampType:	MS	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	12/10/2014	RunNo:	97098
Client ID:	ZZZZZZ	Batch ID:	48134	TestNo:	EPA 6010B EPA 3050B	Analysis Date:	12/10/2014	SeqNo:	1888269		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	18.679	1.0	24.99	0.2208	73.9	75	125				S
Nickel	26.104	1.0	24.99	9.160	67.8	75	125				S
Selenium	18.552	1.0	24.99	0.2466	73.3	75	125				S
Silver	20.676	1.0	24.99	0	82.7	75	125				
Thallium	16.843	1.0	24.99	0	67.4	75	125				S
Vanadium	42.782	1.0	24.99	21.46	85.3	75	125				
Zinc	40.214	1.0	24.99	25.20	60.1	75	125				S

Sample ID	N014058-001B-MSD	SampType:	MSD	TestCode:	6010_S	Units:	mg/Kg	Prep Date:	12/10/2014	RunNo:	97098
Client ID:	ZZZZZZ	Batch ID:	48134	TestNo:	EPA 6010B EPA 3050B	Analysis Date:	12/10/2014	SeqNo:	1888272		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	18.962	2.0	24.95	0	76.0	75	125	18.20	4.10	20	
Arsenic	27.636	1.0	24.95	8.174	78.0	75	125	26.53	4.07	20	
Barium	208.500	1.0	24.95	165.3	173	75	125	201.7	3.33	20	S
Beryllium	20.479	1.0	24.95	0.2410	81.1	75	125	19.12	6.84	20	
Cadmium	17.999	1.0	24.95	0	72.1	75	125	17.31	3.91	20	S
Chromium	28.628	1.0	24.95	10.17	74.0	75	125	27.64	3.52	20	S
Cobalt	21.690	1.0	24.95	3.032	74.8	75	125	20.87	3.84	20	S
Copper	29.889	2.0	24.95	7.575	89.4	75	125	28.92	3.30	20	
Lead	24.198	1.0	24.95	5.741	74.0	75	125	23.27	3.89	20	S
Molybdenum	19.456	1.0	24.95	0.2208	77.1	75	125	18.68	4.08	20	
Nickel	27.089	1.0	24.95	9.160	71.9	75	125	26.10	3.70	20	S
Selenium	19.397	1.0	24.95	0.2466	76.8	75	125	18.55	4.45	20	
Silver	21.684	1.0	24.95	0	86.9	75	125	20.68	4.76	20	
Thallium	17.405	1.0	24.95	0	69.8	75	125	16.84	3.28	20	S
Vanadium	44.216	1.0	24.95	21.46	91.2	75	125	42.78	3.30	20	
Zinc	41.583	1.0	24.95	25.20	65.7	75	125	40.21	3.35	20	S

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_S**

Sample ID	N014059-005A-DUP	SampType: DUP	TestCode: 6010_S	Units: mg/Kg	Prep Date: 12/10/2014	RunNo: 97098					
Client ID:	ZZZZZZ	Batch ID: 48134	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 12/10/2014	SeqNo: 1888278					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	ND	2.0						0	0	20	
Arsenic	4.662	1.0						4.689	0.593	20	
Barium	195.442	1.0						325.7	50.0	20	R
Beryllium	ND	1.0						0	0	20	
Cadmium	ND	1.0						0	0	20	
Chromium	242.054	1.0						226.6	6.61	20	
Cobalt	27.505	1.0						26.77	2.72	20	
Copper	32.182	2.0						32.16	0.0717	20	
Lead	5.267	1.0						4.128	24.2	20	R
Molybdenum	ND	1.0						0	0	20	
Nickel	363.927	1.0						353.2	2.98	20	
Selenium	2.761	1.0						3.175	13.9	20	
Silver	ND	1.0						0	0	20	
Thallium	ND	1.0						0	0	20	
Vanadium	56.299	1.0						63.96	12.7	20	
Zinc	46.754	1.0						45.51	2.71	20	

Sample ID	N014059-005A-MS	SampType: MS	TestCode: 6010_S	Units: mg/Kg	Prep Date: 12/10/2014	RunNo: 97098					
Client ID:	ZZZZZZ	Batch ID: 48134	TestNo: EPA 6010B	EPA 3050B	Analysis Date: 12/10/2014	SeqNo: 1888279					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony	14.961	2.0	24.99	0	59.9	75	125				S
Arsenic	23.615	1.0	24.99	4.689	75.7	75	125				
Barium	842.639	1.0	24.99	325.7	2070	75	125				S
Beryllium	18.364	1.0	24.99	0	73.5	75	125				S
Cadmium	16.784	1.0	24.99	0	67.2	75	125				S
Chromium	274.350	1.0	24.99	226.6	191	75	125				S
Cobalt	45.693	1.0	24.99	26.77	75.7	75	125				
Copper	53.223	2.0	24.99	32.16	84.3	75	125				
Lead	22.021	1.0	24.99	4.128	71.6	75	125				S

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**Work Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_S**

Sample ID	<b>N014059-005A-MS</b>	SampType:	<b>MS</b>	TestCode:	<b>6010_S</b>	Units:	<b>mg/Kg</b>	Prep Date:	<b>12/10/2014</b>	RunNo:	<b>97098</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>48134</b>	TestNo:	<b>EPA 6010B EPA 3050B</b>			Analysis Date:	<b>12/10/2014</b>	SeqNo:	<b>1888279</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	17.448	1.0	24.99	0	69.8	75	125				S
Nickel	386.861	1.0	24.99	353.2	135	75	125				S
Selenium	21.217	1.0	24.99	3.175	72.2	75	125				S
Silver	17.289	1.0	24.99	0	69.2	75	125				S
Thallium	16.295	1.0	24.99	0	65.2	75	125				S
Vanadium	70.525	1.0	24.99	63.96	26.3	75	125				S
Zinc	61.156	1.0	24.99	45.51	62.6	75	125				S

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 7471\_S**

Sample ID <b>MB1-48135</b>	SampType: <b>MBLK</b>	TestCode: <b>7471_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/10/2014</b>	RunNo: <b>97095</b>						
Client ID: <b>PBS</b>	Batch ID: <b>48135</b>	TestNo: <b>EPA 7471A</b>		Analysis Date: <b>12/10/2014</b>	SeqNo: <b>1888022</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.10

Sample ID <b>MB2-48135</b>	SampType: <b>MBLK</b>	TestCode: <b>7471_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/10/2014</b>	RunNo: <b>97095</b>						
Client ID: <b>PBS</b>	Batch ID: <b>48135</b>	TestNo: <b>EPA 7471A</b>		Analysis Date: <b>12/10/2014</b>	SeqNo: <b>1888023</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury ND 0.10

Sample ID <b>LCS-48135</b>	SampType: <b>LCS</b>	TestCode: <b>7471_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/10/2014</b>	RunNo: <b>97095</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>48135</b>	TestNo: <b>EPA 7471A</b>		Analysis Date: <b>12/10/2014</b>	SeqNo: <b>1888024</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.436 0.10 0.4167 0 105 80 120

Sample ID <b>N014108-002D-MS</b>	SampType: <b>MS</b>	TestCode: <b>7471_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/10/2014</b>	RunNo: <b>97095</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>48135</b>	TestNo: <b>EPA 7471A</b>		Analysis Date: <b>12/10/2014</b>	SeqNo: <b>1888025</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.463 0.10 0.4153 0.05843 97.4 75 125

Sample ID <b>N014108-002D-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>7471_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/10/2014</b>	RunNo: <b>97095</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>48135</b>	TestNo: <b>EPA 7471A</b>		Analysis Date: <b>12/10/2014</b>	SeqNo: <b>1888026</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.087 0.099 0.05843 0 20

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 7471\_S**

Sample ID <b>N014059-001A-MS</b>	SampType: <b>MS</b>	TestCode: <b>7471_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/10/2014</b>	RunNo: <b>97095</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>48135</b>	TestNo: <b>EPA 7471A</b>		Analysis Date: <b>12/10/2014</b>	SeqNo: <b>1888030</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.527	0.099	0.4139	0.08695	106	75	125				

Sample ID <b>N014059-001A-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>7471_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/10/2014</b>	RunNo: <b>97095</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>48135</b>	TestNo: <b>EPA 7471A</b>		Analysis Date: <b>12/10/2014</b>	SeqNo: <b>1888031</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.528	0.10	0.4160	0.08695	106	75	125	0.5271	0.212	20	

Sample ID <b>N014059-001A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>7471_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/10/2014</b>	RunNo: <b>97095</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>48135</b>	TestNo: <b>EPA 7471A</b>		Analysis Date: <b>12/10/2014</b>	SeqNo: <b>1888034</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.069	0.10						0.08695	0	20	

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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NEVADA  
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"Serving Clients with Passion and Professionalism"

**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015\_S\_DM LL**

Sample ID <b>LCS-48147</b>	SampType: <b>LCS</b>	TestCode: <b>8015_S_DM L</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/10/2014</b>	RunNo: <b>97091</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>48147</b>	TestNo: <b>EPA 8015B EPA 3550B</b>		Analysis Date: <b>12/10/2014</b>	SeqNo: <b>1887811</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	73.984	1.0	83.30	0	88.8	53	120				
Surr: p-Terphenyl	6.884		6.670		103	50	122				

Sample ID <b>MB-48147</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_S_DM L</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/10/2014</b>	RunNo: <b>97091</b>						
Client ID: <b>PBS</b>	Batch ID: <b>48147</b>	TestNo: <b>EPA 8015B EPA 3550B</b>		Analysis Date: <b>12/10/2014</b>	SeqNo: <b>1887812</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	ND	1.0									
ORO	ND	1.0									
Surr: p-Terphenyl	6.260		6.670		93.9	50	122				

Sample ID <b>N014059-001A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>8015_S_DM L</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/10/2014</b>	RunNo: <b>97091</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>48147</b>	TestNo: <b>EPA 8015B EPA 3550B</b>		Analysis Date: <b>12/10/2014</b>	SeqNo: <b>1887814</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	1.430	1.0						1.552	8.17	20	
ORO	10.828	1.0						8.643	22.4	20	R
Surr: p-Terphenyl	4.513		6.648		67.9	50	122		0		

Sample ID <b>N014059-001A-MS</b>	SampType: <b>MS</b>	TestCode: <b>8015_S_DM L</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/10/2014</b>	RunNo: <b>97091</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>48147</b>	TestNo: <b>EPA 8015B EPA 3550B</b>		Analysis Date: <b>12/11/2014</b>	SeqNo: <b>1888221</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	63.085	1.0	83.16	1.552	74.0	24	120				
Surr: p-Terphenyl	6.165		6.659		92.6	50	122				

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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"Serving Clients with Passion and Professionalism"

**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015\_S\_DM LL**

Sample ID <b>N014059-001A-MSD</b>	SampType: <b>MSD</b>	TestCode: <b>8015_S_DM L</b>	Units: <b>mg/Kg</b>	Prep Date: <b>12/10/2014</b>	RunNo: <b>97091</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>48147</b>	TestNo: <b>EPA 8015B EPA 3550B</b>		Analysis Date: <b>12/11/2014</b>	SeqNo: <b>1888222</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
DRO	55.567	1.0	83.19	1.552	64.9	24	120	63.08	12.7	20	
Surr: p-Terphenyl	6.118		6.661		91.8	50	122		0		

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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"Serving Clients with Passion and Professionalism"

**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015GAS\_S**

Sample ID <b>E141208LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8015GAS_S</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>97066</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>E14VS128</b>	TestNo: <b>EPA 8015B</b>		Analysis Date: <b>12/8/2014</b>	SeqNo: <b>1886701</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

GRO	4.847	1.0	5.000	0	96.9	76	130				
Surr: Chlorobenzene - d5	86.428		100.0		86.4	57	134				

Sample ID <b>E141208MB1</b>	SampType: <b>MBLK</b>	TestCode: <b>8015GAS_S</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>97066</b>						
Client ID: <b>PBS</b>	Batch ID: <b>E14VS128</b>	TestNo: <b>EPA 8015B</b>		Analysis Date: <b>12/8/2014</b>	SeqNo: <b>1886702</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

GRO	ND	1.0									
Surr: Chlorobenzene - d5	116.231		100.0		116	57	134				

Sample ID <b>N014059-011ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>8015GAS_S</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>97066</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>E14VS128</b>	TestNo: <b>EPA 8015B</b>		Analysis Date: <b>12/8/2014</b>	SeqNo: <b>1886708</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

GRO	ND	1.0						0	0	20	
Surr: Chlorobenzene - d5	91.362		100.0		91.4	57	134		0		

Sample ID <b>N014059-014AMS</b>	SampType: <b>MS</b>	TestCode: <b>8015GAS_S</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>97066</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>E14VS128</b>	TestNo: <b>EPA 8015B</b>		Analysis Date: <b>12/8/2014</b>	SeqNo: <b>1886713</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

GRO	5.121	1.0	5.000	0	102	53	136				
Surr: Chlorobenzene - d5	94.812		100.0		94.8	57	134				

Sample ID <b>N014059-014AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8015GAS_S</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>97066</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>E14VS128</b>	TestNo: <b>EPA 8015B</b>		Analysis Date: <b>12/8/2014</b>	SeqNo: <b>1886714</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

GRO	5.284	1.0	5.000	0	106	53	136	5.121	3.13	20	
-----	-------	-----	-------	---	-----	----	-----	-------	------	----	--

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 8015GAS\_S**

Sample ID <b>N014059-014AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8015GAS_S</b>	Units: <b>mg/Kg</b>	Prep Date:	RunNo: <b>97066</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>E14VS128</b>	TestNo: <b>EPA 8015B</b>		Analysis Date: <b>12/8/2014</b>	SeqNo: <b>1886714</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: Chlorobenzene - d5	82.561		100.0		82.6	57	134		0		

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 9045\_S**

Sample ID <b>N014059-004ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>9045_S</b>	Units: <b>pH Units</b>	Prep Date:	RunNo: <b>97130</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R97130</b>	TestNo: <b>EPA 9045C</b>		Analysis Date: <b>12/11/2014</b>	SeqNo: <b>1889408</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.550	0.10						7.530	0.265	20	
Temp. at time of pH Analysis	25.000	0						25.00	0	0	

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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**CHAIN OF CUSTODY RECORD**

Client: <b>Geocon Consultants, Inc.</b>		Report to: <b>beadle@geoconinc.com</b>		Bill to: <b>same</b>		EDD Requirement		QA/QC		Sample Receipt Condition	
Address: <b>6671 Brisa St</b>		Company: <b>and day@geoconinc.com</b>		Address:		Excel EDD <input checked="" type="checkbox"/>		RTNE <input type="checkbox"/>		1. Chilled <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	
Address: <b>Livermore CA 94553</b>		Email: <b>&gt;</b>		Address:		GeoTracker <input type="checkbox"/>		RWQCB <input type="checkbox"/>		2. Headspace <input type="checkbox"/> <input checked="" type="checkbox"/>	
Phone: <b>925 371-5900</b>		Fax:		Address: <b>6671 Brisa St</b>		Labspec <input type="checkbox"/>		CalTrans <input checked="" type="checkbox"/>		3. Container Intact <input checked="" type="checkbox"/> <input type="checkbox"/>	
Submitted By: <b>J. Beadle</b>		Address: <b>6671 Brisa St</b>		Email to:		Others <input type="checkbox"/>		Level III <input type="checkbox"/>		4. Seal Present <input type="checkbox"/> <input checked="" type="checkbox"/>	
Title: <b>sen. staff scientist</b>		Phone:		Fax:		Specify:		LEVEL IV <input type="checkbox"/>		5. IR number <input type="checkbox"/> <b>Z</b>	
Signature: <b>Juanne Beal</b>		Date: <b>12-4-14</b>		Sampled By: <b>Merritt/ Beadle</b>		Global ID:		Regulatory <input type="checkbox"/>		6. Method of Cooling <input type="checkbox"/> <b>W</b>	
Project Name: <b>580 slope Repair</b>		Signature: <b>J. Beadle</b>		Date: <b>12-4-14</b>		Matrix		Specify State: <b>CA</b>		Sample Temp: <b>2.4°C</b>	
Project Number: <b>E8721-02-17</b>		I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.		Ground <input type="checkbox"/> Sediment <input type="checkbox"/>		Analyses Requested		Turn Around Time		Courier: <b>GSO</b>	
				Potable <input type="checkbox"/> Soil <input checked="" type="checkbox"/>		Total Pb		No. of container		Tracking No.	
				NPDES <input type="checkbox"/> Other Solid <input type="checkbox"/>		CAM17		Container Type		PRESERVATION	
				Surface <input type="checkbox"/>		TPH g		PRESERVATION			
						TPH d/mo					
						PH					

Item No.	Laboratory Work Order No.	Sample ID/Location	Date	Time	Water	Solid	Others	Remarks
1	NO14059-01	B1-0	12-4-14	1043		X		EIT
2	-02	B1-1		1050				PT
3	-03	B2-0		1100				T
4	-04	↓ -1		1105				↓
5	-05	↓ -2.5		1110				↓
6	-06	B3-0		1120				↓
7	-07	↓ -1		1125				↓
8	-08	B4-0		1140				PT
9	-09	↓ -1		1145				
10	-10	↓ -2.5		1150				
11	-11	↓ -4		1210				
12	-12	B5-0		1215				

Relinquished by (Signature and Printed Name): <b>Juanne Beal</b>	Date / Time: <b>12-4-14 / 5pm</b>	Received by (Signature and Printed Name): <b>J. Beadle</b>	Date / Time: <b>12/04/14 @ 9:23</b>	Turn Around Time (TAT) <input type="checkbox"/> A < 24 Hrs or Same Day TAT <input type="checkbox"/> B = Next Workday <input type="checkbox"/> C = 2 Workdays <input type="checkbox"/> D = 3 Workdays <input checked="" type="checkbox"/> E = Routine 5-7 Workdays TAT Starts at 8 AM the following day if samples received after 3:00 PM.	Special Instruction:
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:		

**Terms**  
 1. All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report.  
 2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis  
 Less than 24 Hrs = 200%    Next Day = 50%    2 Workdays = 50%    3 Workdays = 35%    4 Workdays = 20%  
 3. Custom EDD formats will be an additional 3% of the total project price.  
 4. 1.5% shipping charge for samples in three packages, 4% for larger, 6% for 7 packages, 8% charge applied on total project price.  
 5. Trip Blanks and Equipment Blanks are billable sample.  
 6. ASSET Laboratories is not responsible for samples collected using incorrect methodology.  
 7. Terms are net 30 Days.  
 8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.  
 9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H = HCl	N = HNO3	S = H2SO4	C = 4°C	T = Tube	V = VOA	P = Pint
Z = Zn(AC)2	O = NaOH	T = Na2S2O3		J = Jar	B = Tedlar	G = Glass
Others/Specify:				M = Metal	P = Plastic	C = Can

# CHAIN OF CUSTODY RECORD

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Page 2 of 2

Client: <u>Geocon Consultants, Inc.</u>		Report to: <u>beadle@geoconinc.com</u>		Bill to:		EDD Requirement		QA/QC		Sample Receipt Condition	
Address: <u>6671 Brika St</u>		Company: <u>day@geoconinc.com</u>		Address: <u>Same</u>		Excel EDD <input checked="" type="checkbox"/>		RTNE <input type="checkbox"/>		Y N	
Address: <u>Livermore CA 94553</u>		Email:				Geotracker <input type="checkbox"/>		RWQCB <input type="checkbox"/>		1. Chilled <input checked="" type="checkbox"/>	
Phone: <u>925-371-5900</u>		Address:		Email to:		Labspec <input type="checkbox"/>		CalTrans <input checked="" type="checkbox"/>		2. Headspace <input type="checkbox"/>	
Fax:		Address:		PO#		Others <input type="checkbox"/>		Level III <input type="checkbox"/>		3. Container Intact <input type="checkbox"/>	
Submitted By: <u>J. Beadle</u>		Address:		Phone:		Specify:		LEVEL IV <input type="checkbox"/>		4. Seal Present <input type="checkbox"/>	
Title: <u>Sen. Staff Scientist</u>		Address:		Fax:		Global ID:		Regulatory <input type="checkbox"/>		5. IR number	
Signature: <u>[Signature]</u>		Address:		Phone:		Specify State:		CA		6. Method of Cooling	
Date: <u>12-4-14</u>		Address:		Phone:		Specify State:		CA		Sample Temp:	

Signature: <u>[Signature]</u>		Date: <u>12-4-14</u>		Sampled By: <u>Merritt / Beadle</u>		I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.		Matrix		Analyses Requested		Turn Around Time		No. of container		Container Type		PRESERVATION		Courier: <u>GSO</u>		Tracking No.	
Project Name: <u>580 slope Repair</u>		Signature: <u>J. Beadle</u>		Date: <u>12-4-14</u>				Ground <input type="checkbox"/>		Sediment <input type="checkbox"/>		Total Pb		CAM 17		TANG		TPH d/mo		pH			
Project Number: <u>E8721-02-17</u>						Potable <input type="checkbox"/>		Soil <input checked="" type="checkbox"/>															
						NPDES <input type="checkbox"/>		Other Solid <input type="checkbox"/>															
						Surface <input type="checkbox"/>																	

Item No.	Laboratory Work Order No.	Sample ID/Location	Date	Time	Water	Solid	Others	Remarks
1	NO14059-13	B5-1		1220		X		X X X X
2	-14	B5-2.5		1225		X		X X X X
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Relinquished by (Signature and Printed Name): <u>[Signature]</u>	Date / Time: <u>12-4-14 / 5pm</u>	Received by (Signature and Printed Name): <u>[Signature]</u>	Date / Time: <u>12/05/14 @ 9:20</u>	<b>Turn Around Time (TAT)</b> <input type="checkbox"/> A < 24 Hrs or Same Day TAT <input type="checkbox"/> B = Next Workday <input type="checkbox"/> C = 2 Workdays <input type="checkbox"/> D = 3 Workdays <input checked="" type="checkbox"/> E = Routine 5-7 Workdays TAT Starts at 8 AM the following day if samples received after 3:00 PM.	<b>Special Instruction:</b>
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:		

**Terms:**  
 1. All samples will be disposed in 45 days upon receipt and records will be destroyed in 5 years upon submission of final report.  
 2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis.  
 3. Less than 24 Hrs = 200% Next Day = 100% 2 Workdays = 50% 3 Workdays = 35% 4 Workdays = 20%  
 4. Custom EDD formats will be an additional 3% of the total project price.  
 5. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharges apply on total project price.

**5. Trip Blanks and Equipment Blanks are billable sample.**  
 6. ASSET Laboratories is not responsible for samples collected using incorrect methodology.  
 7. Terms are net 30 Days.  
 8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.  
 9. For subcontract analysis, TAT and Surcharges will vary.

**Preservatives:**  
 H = HCl N = HNO3 S = H2SO4 C = 4°C  
 Z = Zn(AC)2 O = NaOH T = Na2S2O3  
 Offense/Specify:

**Container Type:**  
 T = Tube V = VOA P = Pint  
 J = Jar B = Tedlar G = Glass  
 M = Metal P = Plastic C = Can

White = Laboratory Copy  
 Yellow = Customer's Copy

# ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On: 12/5/2014 Workorder: N014059  
 Rep sample Temp (Deg C): 2.4 IR Gun ID: 2  
 Temp Blank:  Yes  No  
 Carrier name: Golden State Overnight  
 Last 4 digits of Tracking No.: 7832 Packing Material Used: Bubble Wrap  
 Cooling process:  Ice  Ice Pack  Dry Ice  Other  None

### Sample Receipt Checklist

- |   |   |                             |   |
|---|---|-----------------------------|---|
| 1. Shipping container/cooler in good condition?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/>            |
| 2. Custody seals intact, signed, dated on shipping container/cooler?                    | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 3. Custody seals intact on sample bottles?  | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| 4. Chain of custody present?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 5. Sampler's name present in COC?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 6. Chain of custody signed when relinquished and received?                              | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 7. Chain of custody agrees with sample labels?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 8. Samples in proper container/bottle?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 9. Sample containers intact?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 10. Sufficient sample volume for indicated test?  | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 11. All samples received within holding time?   | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |   |
| 12. Temperature of rep sample or Temp Blank within acceptable limit?                    | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | NA <input type="checkbox"/>                     |
| 13. Water - VOA vials have zero headspace?  | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/>          |
| 14. Water - pH acceptable upon receipt?<br>Example: pH > 12 for (CN,S); pH<2 for Metals | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/>          |
| 15. Did the bottle labels indicate correct preservatives used?                          | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/>          |
| 16. Were there Non-Conformance issues at login?<br>Was Client notified?                 | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/>          |
|   | Yes <input type="checkbox"/>            | No <input type="checkbox"/> | NA <input checked="" type="checkbox"/>          |

Comments

Checklist Completed B JPG 12/05/14

Reviewed By:  12/09/14



**WebShip** >>>>  
800-322-5555 www.gso.com

<b>Ship From:</b> GEOCON - LIVERMORE OFFICE GEOCON, INC. 6671 BRISA STREET LIVERMORE, CA 94550  <b>Ship To:</b> <b>SAMPLE RECEIVING</b> <b>ADVANCED TECHNOLOGY LABS -</b> <b>LAS VEGAS</b> <b>3151 W. POST ROAD</b> <b>LAS VEGAS, NV 89118</b>  <b>COD:</b> \$0.00  <b>Reference:</b> E8721-02-17  <b>Delivery Instructions:</b>  <b>Signature Type:</b> SIGNATURE REQUIRED	<b>Tracking #:</b> 526307832 	<b>CPS</b>
	<b>LVS</b> <b>LAS VEGAS</b>  <b>D89103B</b> 	
	31496468 <small>Print Date : 12/04/14 15:33 PM</small>	

**Package 1 of 1**

Send Label To Printer

Print All

Edit Shipment

Finish

#### LABEL INSTRUCTIONS:

Do not copy or reprint this label for additional shipments - each package must have a unique barcode.

STEP 1 - Use the "Send Label to Printer" button on this page to print the shipping label on a laser or inkjet printer.

STEP 2 - Fold this page in half.

STEP 3 - Securely attach this label to your package, do not cover the barcode.

STEP 4 - Request an on-call pickup for your package, if you do not have scheduled daily pickup service or Drop-off your package at the nearest GSO drop box. Locate nearest GSO dropbox locations using this link.

#### ADDITIONAL OPTIONS:

Send Label Via Email

Create Return Label

#### TERMS AND CONDITIONS:

By giving us your shipment to deliver, you agree to all the service terms and conditions described in this section. Our liability for loss or damage to any package is limited to your actual damages or \$100 whichever is less, unless you pay for and declare a higher authorized value. If you declare a higher value and pay the additional charge, our liability will be the lesser of your declared value or the actual value of your loss or damage. In any event, we will not be liable for any damage, whether direct, incidental, special or consequential, in excess of the declared value of a shipment whether or not we had knowledge that such damage might be incurred including but not limited to loss of income or profit. We will not be liable for your acts or omissions, including but not limited to improper or insufficient packaging, securing, marking or addressing. Also, we will not be liable if you or the recipient violates any of the terms of our agreement. We will not be liable for loss, damage or delay caused by events we cannot control, including but not limited to acts of God, perils of the air, weather conditions, act of public enemies, war, strikes, or civil commotion. The highest declared value for our GSO Priority Letter or GSO Priority Package is \$500. For other shipments the highest declared value is \$10,000 unless your package contains items of "extraordinary value", in which case the highest declared value we allow is \$500. Items of "extraordinary value" include, but are not limited to, artwork, jewelry, furs, precious metals, tickets, negotiable instruments and other items with intrinsic value.

December 29, 2014

Luann Beadle\Rick Day  
Geocon Consultants, Inc.  
6671 Brisa Street  
Livermore, CA 94550  
TEL: (925) 371-5900  
FAX: (925) 371-5915

CA-ELAP No.: 2676  
NV Cert. No.: NV-00922

Workorder No.: N014059

RE: 580 slope Repair, E8721-02-17

Attention: Luann Beadle\Rick Day

Enclosed are the results for sample(s) received on December 05, 2014 by ASSET Laboratories .  
The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in  
accordance with the applicable laboratory certifications.

This is an addendum report. Please incorporate with documentation previously submitted.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

 Nancy Libucaw for

Glen Gesmundo  
QA Manager

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in  
its entirety without written permission from the client and Advanced Technology Laboratories - Las Vegas.



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NEVADA  
3151 W. Post Rd., Las Vegas, NV 89118  
P: 702.307.2659 F: 702.307.2691

"Serving Clients with Passion and Professionalism"

**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17  
**Lab ID:** N014059-001A

**Client Sample ID:** B1-0  
**Collection Date:** 12/4/2014 10:43:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_141226A	QC Batch: R97320				PrepDate:	Analyst: CEI
Chromium	ND	0.25		mg/L	5	12/26/2014 12:26 PM
Nickel	0.64	0.25		mg/L	5	12/26/2014 12:26 PM

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



**CLIENT:** Geocon Consultants, Inc.

**Client Sample ID:** B2-0

**Lab Order:** N014059

**Collection Date:** 12/4/2014 11:00:00 AM

**Project:** 580 slope Repair, E8721-02-17

**Matrix:** SOIL

**Lab ID:** N014059-003A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2\_141226A

QC Batch: R97320

PrepDate:

Analyst: CEI

Chromium

ND

0.25

mg/L

5

12/26/2014 12:34 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B2-1
<b>Lab Order:</b>	N014059	<b>Collection Date:</b>	12/4/2014 11:05:00 AM
<b>Project:</b>	580 slope Repair, E8721-02-17	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N014059-004A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_141226A	QC Batch: R97320	PrepDate:	Analyst: CEI
Chromium	ND	0.25 mg/L	5 12/26/2014 12:39 PM
Nickel	1.2	0.25 mg/L	5 12/26/2014 12:39 PM

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B3-0
<b>Lab Order:</b>	N014059	<b>Collection Date:</b>	12/4/2014 11:20:00 AM
<b>Project:</b>	580 slope Repair, E8721-02-17	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N014059-006A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_141226A	QC Batch: R97320	PrepDate:	Analyst: CEI
Chromium	ND	0.25 mg/L	5 12/26/2014 12:43 PM
Nickel	1.5	0.25 mg/L	5 12/26/2014 12:43 PM

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



**CLIENT:** Geocon Consultants, Inc.  
**Lab Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17  
**Lab ID:** N014059-009A

**Client Sample ID:** B4-1  
**Collection Date:** 12/4/2014 11:45:00 AM  
**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_141226A	QC Batch: R97320	PrepDate:	Analyst: CEI	
Chromium	ND	0.25 mg/L	5	12/26/2014 12:47 PM
Nickel	1.5	0.25 mg/L	5	12/26/2014 12:47 PM

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



**CLIENT:** Geocon Consultants, Inc.

**Client Sample ID:** B4-4

**Lab Order:** N014059

**Collection Date:** 12/4/2014 12:10:00 PM

**Project:** 580 slope Repair, E8721-02-17

**Matrix:** SOIL

**Lab ID:** N014059-011A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2\_141226A

QC Batch: R97320

PrepDate:

Analyst: CEI

Chromium

ND

0.25

mg/L

5

12/26/2014 12:52 PM

**Qualifiers:**

- |    |  |    |  |
|----|--|----|--|
| B  | Analyte detected in the associated Method Blank              | E  | Value above quantitation range             |
| H  | Holding times for preparation or analysis exceeded           | ND | Not Detected at the Reporting Limit        |
| S  | Spike/Surrogate outside of limits due to matrix interference |    | Results are wet unless otherwise specified |
| DO | Surrogate Diluted Out  |    |  |



**CLIENT:** Geocon Consultants, Inc.

**Client Sample ID:** B5-1

**Lab Order:** N014059

**Collection Date:** 12/4/2014 12:20:00 PM

**Project:** 580 slope Repair, E8721-02-17

**Matrix:** SOIL

**Lab ID:** N014059-013A

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_141226A	QC Batch: R97320				PrepDate:	Analyst: CEI
Chromium	ND	0.25		mg/L	5	12/26/2014 01:05 PM
Nickel	1.5	0.25		mg/L	5	12/26/2014 01:05 PM

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



<b>CLIENT:</b>	Geocon Consultants, Inc.	<b>Client Sample ID:</b>	B5-2.5
<b>Lab Order:</b>	N014059	<b>Collection Date:</b>	12/4/2014 12:25:00 PM
<b>Project:</b>	580 slope Repair, E8721-02-17	<b>Matrix:</b>	SOIL
<b>Lab ID:</b>	N014059-014A		

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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**ICP METALS BY STLC**

**WET/ EPA 6010B**

RunID: ICP2_141226A	QC Batch: R97320	PrepDate:	Analyst: CEI
Chromium	ND	0.25 mg/L	5 12/26/2014 01:10 PM
Nickel	3.9	0.25 mg/L	5 12/26/2014 01:10 PM

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	ND Not Detected at the Reporting Limit
	S Spike/Surrogate outside of limits due to matrix interference	Results are wet unless otherwise specified
	DO Surrogate Diluted Out	



**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17

**ANALYTICAL QC SUMMARY REPORT**

**TestCode: 6010\_ST**

Sample ID: <b>MB-R97320</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>97320</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R97320</b>	TestNo: <b>WET/ EPA 60</b>		Analysis Date: <b>12/26/2014</b>	SeqNo: <b>1899334</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	ND	0.050									
Nickel	ND	0.050									

Sample ID: <b>LCS-R97320</b>	SampType: <b>LCS</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>97320</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R97320</b>	TestNo: <b>WET/ EPA 60</b>		Analysis Date: <b>12/26/2014</b>	SeqNo: <b>1899335</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	0.489	0.050	0.5000	0	97.7	85	115				
Nickel	0.485	0.050	0.5000	0	96.9	85	115				

Sample ID: <b>MB-48238 STLC</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>97320</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R97320</b>	TestNo: <b>WET/ EPA 60</b>		Analysis Date: <b>12/26/2014</b>	SeqNo: <b>1899336</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	ND	0.25									
Nickel	ND	0.25									

Sample ID: <b>N014059-001A-DUP</b>	SampType: <b>DUP</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>97320</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R97320</b>	TestNo: <b>WET/ EPA 60</b>		Analysis Date: <b>12/26/2014</b>	SeqNo: <b>1899338</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chromium	0.107	0.25						0.1078	0	20	
Nickel	0.645	0.25						0.6367	1.22	20	

Sample ID: <b>N014059-001A-MS</b>	SampType: <b>MS</b>	TestCode: <b>6010_ST</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>97320</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R97320</b>	TestNo: <b>WET/ EPA 60</b>		Analysis Date: <b>12/26/2014</b>	SeqNo: <b>1899350</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference



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**CLIENT:** Geocon Consultants, Inc.  
**Work Order:** N014059  
**Project:** 580 slope Repair, E8721-02-17

## ANALYTICAL QC SUMMARY REPORT

**TestCode: 6010\_ST**

Sample ID: <b>N014059-001A-MS</b>		SampType: <b>MS</b>		TestCode: <b>6010_ST</b>		Units: <b>mg/L</b>		Prep Date:		RunNo: <b>97320</b>	
Client ID: <b>ZZZZZZ</b>		Batch ID: <b>R97320</b>		TestNo: <b>WET/ EPA 60</b>		Analysis Date: <b>12/26/2014</b>				SeqNo: <b>1899350</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.983	0.25	2.500	0.1078	75.0	75	125				
Nickel	2.443	0.25	2.500	0.6367	72.3	75	125				S

Sample ID: <b>N014059-001A-MSD</b>		SampType: <b>MSD</b>		TestCode: <b>6010_ST</b>		Units: <b>mg/L</b>		Prep Date:		RunNo: <b>97320</b>	
Client ID: <b>ZZZZZZ</b>		Batch ID: <b>R97320</b>		TestNo: <b>WET/ EPA 60</b>		Analysis Date: <b>12/26/2014</b>				SeqNo: <b>1899351</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	2.199	0.25	2.500	0.1078	83.6	75	125	1.983	10.3	20	
Nickel	2.858	0.25	2.500	0.6367	88.8	75	125	2.443	15.6	20	

**Qualifiers:**

- |   |  |  |
|---|--|--|
| B Analyte detected in the associated Method Blank | E Value above quantitation range       | H Holding times for preparation or analysis exceeded           |
| ND Not Detected at the Reporting Limit            | R RPD outside accepted recovery limits | S Spike/Surrogate outside of limits due to matrix interference |
| DO Surrogate Diluted Out                          | Calculations are based on raw values   |  |



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NEVADA  
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## Glen Gesmundo

---

**From:** Luann Beadle [beadle@geoconinc.com]  
**Sent:** Thursday, December 18, 2014 12:19 PM  
**To:** Reports  
**Subject:** RE: Invoice 580 slope Repair, E8721-02-17 (ASSET LABS No. N014059)

Hi Asset,

Please run WET chromium on samples

B4-4  
B2-0  
B1-0  
B2-1  
B5-2.5  
B3-0  
B4-1  
B5-1

And  
WET  
Nickel on

B1-0  
B3-0  
B5-2.5  
B5-1  
B2-1  
B4-1

On a regular TAT.

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](http://www.geoconinc.com)

---

**From:** Reports [<mailto:reports.lv@assetlaboratories.com>]  
**Sent:** Wednesday, December 17, 2014 12:13 PM  
**To:** Rick Day; Luann Beadle  
**Subject:** Invoice 580 slope Repair, E8721-02-17 (ASSET LABS No. N014059)

Thank you for using ASSET Laboratories.



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Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691  
[www.assetlaboratories.com](http://www.assetlaboratories.com)

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ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CALIFORNIA  
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"Serving Clients with Passion and Professionalism"

**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](mailto:sanleandrolab@emsl.com)

EMSL Order:	091418280
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: 12/11/14 9:30 AM  
 Analysis Date: 12/26/2014  
 Collected: 12/4/2014

Project: **E8721-02-17**

### 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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
B1-0 <i>091418280-0001</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	<b>None Detected</b>
B1-1 <i>091418280-0002</i>		Brown Fibrous Homogeneous		100.00% Non-fibrous (other)	<b>&lt;0.25% Chrysotile</b>
B2-0 <i>091418280-0003</i>		Brown Fibrous Homogeneous		100.00% Non-fibrous (other)	<b>None Detected</b>
B2-1 <i>091418280-0004</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	<b>None Detected</b>
B2-2.5 <i>091418280-0005</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	<b>None Detected</b>
B3-0 <i>091418280-0006</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	<b>None Detected</b>
B3-1 <i>091418280-0007</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	<b>None Detected</b>

Analyst(s)

Beheshta Ahadi (14)Chris Dojlidko, Laboratory Manager  
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc San Leandro, CA

Initial report from 12/26/2014 10:35:55

**EMSL Analytical, Inc**

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**Geocon Consultants, Inc.**  
**6671 Brisa Street**  
**Livermore, CA 94550**

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 Collected: 12/4/2014

Project: **E8721-02-17**

### 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

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
B4-0 <i>091418280-0008</i>		Brown Fibrous Homogeneous		100.00% Non-fibrous (other)	<0.25% Chrysotile
B4-1 <i>091418280-0009</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B4-2.5 <i>091418280-0010</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B4-4 <i>091418280-0011</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B5-0 <i>091418280-0012</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected
B5-1 <i>091418280-0013</i>		Brown Fibrous Homogeneous		100.00% Non-fibrous (other)	<0.25% Chrysotile
B5-2.5 <i>091418280-0014</i>		Brown Non-Fibrous Homogeneous		100.00% Non-fibrous (other)	None Detected

Analyst(s)

Beheshta Ahadi (14)Chris Dojlidko, Laboratory Manager  
or other approved signatory

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Samples analyzed by EMSL Analytical, Inc San Leandro, CA

Initial report from 12/26/2014 10:35:55



EMSL ANALYTICAL, INC.  
LABORATORY PRODUCTS TRAINING

**Asbestos Chain of Custody**  
EMSL Order Number (Lab Use Only)

**091418280**

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

Company: Geocon Consultants, Inc. 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): Luann Beadle Fax #:  
 Telephone #: 925-371-5900 Email Address: beadle@geoconinc.com  
 Project Name/Number: E8721-02-17  
 Please Provide Results:  Fax  Email Purchase Order: Contract #1111 U.S. State Samples Taken:

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.

<b>PCM - Air</b> <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA	<b>TEM - Air</b> <input type="checkbox"/> 4-4.5hr TAT (AHERA only) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312	<b>TEM - Dust</b> <input type="checkbox"/> Microvac - ASTM D 5755 <input type="checkbox"/> Wipe - ASTM D6480 <input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167)
<b>PLM - Bulk (reporting limit)</b> <input type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NYS 198.1 (friable in NY) <input type="checkbox"/> NYS 198.6 NOB (non-friable-NY) <input type="checkbox"/> NIOSH 9002 (<1%)	<b>TEM - Bulk</b> <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5	<b>Soil/Rock/Vermiculite</b> <input checked="" type="checkbox"/> PLM CARB 435 - A (0.25% sensitivity) <input type="checkbox"/> PLM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - C (0.01% sensitivity) <input type="checkbox"/> EPA Protocol (Semi-Quantitative) <input type="checkbox"/> EPA Protocol (Quantitative)
<b>TEM - Water: EPA 100.2</b> Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking		

Check For Positive Stop - Clearly Identify Homogenous Group

Samplers Name: Merritt/Beadle Samplers Signature: Luann Beadle

Sample #	Sample Description	Volume/Area (Air) HA # (Bulk)	Date/Time Sampled
			1
	B1-0	Soil	12-4-14
	B1-1		
	B2-0		
	B2-1		
	B2-2.5		
	B3-0		
	B3-1		

Client Sample # (s): 14 Total # of Samples: 14

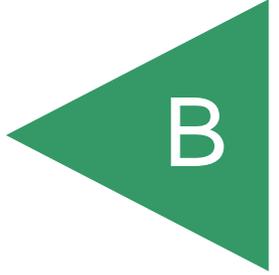
Relinquished (Client): Luann Beadle Date: 12-10-14 Time: 6:00 E

Received (Lab): FCOLON Date: 12-11-14 Time: 9:30

Comments/Special Instructions: Fidel



APPENDIX



<b>As</b>	
Number of Valid Observations	8
Number of Distinct Observations	8
Minimum	2.1
Maximum	6.6
Mean	4.588
Median	4.7
SD	1.382
Variance	1.91
Coefficient of Variation	0.301
Skewness	-0.417
Mean of log data	1.475
SD of log data	0.351
<b>95% Standard Bootstrap UCL</b>	<b>5.35</b>

<b>Co</b>	
Number of Valid Observations	8
Number of Distinct Observations	6
Minimum	13
Maximum	27
Mean	21.75
Median	24
SD	4.892
Variance	23.93
Coefficient of Variation	0.225
Skewness	-0.882
Mean of log data	3.054
SD of log data	0.252
<b>95% Standard Bootstrap UCL</b>	<b>24.4</b>

<b>Ni</b>	
Number of Valid Observations	8
Number of Distinct Observations	8
Minimum	130
Maximum	410
Mean	280
Median	290
SD	109.5
Variance	12000
Coefficient of Variation	0.391
Skewness	-0.206
Mean of log data	5.556
SD of log data	0.442
<b>95% Standard Bootstrap UCL</b>	<b>340</b>