

**FOR CONTRACT NO.: 07-4Y7504**

**INFORMATION HANDOUT**

**MATERIALS INFORMATION**

**LEAD INVESTIGATION REPORT**

**ROUTE: 07-LA-Var-Var**

10 #166

**SITE INVESTIGATION REPORT**

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**LEAD INVESTIGATION ON  
ROUTE 91 FROM THE LAKEWOOD  
BOULEVARD UNDERCROSSING  
TO THE ORANGE COUNTY LINE  
07-LA-91 PM14.7/20.74  
LOS ANGELES COUNTY, CALIFORNIA  
CONTRACT 43Y097  
TASK ORDER NO. 07-120981-01  
EA 120991**



**GEOCON**

GEOTECHNICAL  
&  
ENVIRONMENTAL  
CONSULTANTS

Prepared for

**CALIFORNIA DEPARTMENT  
OF TRANSPORTATION  
DISTRICT 7  
LOS ANGELES, CALIFORNIA**

166

OCTOBER 1997

# GEOCON

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS



Project No. 08730-06-41  
Task Order No. 07-120981-01  
October 9, 1997

Mr. Kanwal Singh  
California Department of Transportation  
District 7  
120 South Spring Street  
Los Angeles, California 90012-3606

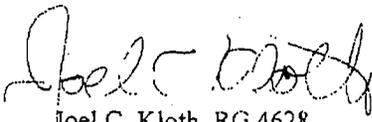
Subject: SITE INVESTIGATION REPORT  
LEAD INVESTIGATION ON ROUTE 91  
FROM THE LAKEWOOD BOULEVARD UNDERCROSSING  
TO THE ORANGE COUNTY LINE  
07-LA-91 PM14.7/20.74  
LOS ANGELES COUNTY, CALIFORNIA  
CONTRACT 43Y097  
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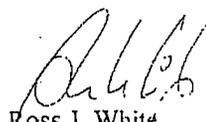
Dear Mr. Singh:

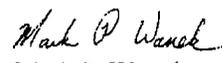
In accordance with Caltrans Contract No. 43Y097 and Task Order No. 07-120981-01, EA 120991, Geocon Environmental Consultants, Inc. (Geocon) has performed environmental engineering services at the site referenced above. The site consisted of the exposed soil adjacent to the side shoulders of westbound Route 91 from the Lakewood Boulevard Undercrossing to the Orange County Line in Los Angeles County, California. The accompanying report summarizes the services performed, including the advancement of hand-auger borings, limited soil sampling, and laboratory analyses. Should questions concerning the contents of this report arise, or if Geocon may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON ENVIRONMENTAL CONSULTANTS, INC.

  
Joel C. Kloth, RG 4628  
Project Geologist

  
Ross J. White  
Staff Environmental Geologist

  
Mark P. Wanek  
Staff Environmental Geologist

MPW:RJW:JCK:dmc

(5) Addressee

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## I. EXECUTIVE SUMMARY

Pursuant to the California Department of Transportation (Caltrans) Task Order (TO) No 07-120981-01, EA 120991, Geocon Environmental Consultants, Inc. (Geocon) has performed a site investigation adjacent to the westbound shoulders of Route 91 from the Lakewood Boulevard Undercrossing to the Orange County Line in Los Angeles County, California (site). Caltrans proposes to install truck turnout locations and a closed circuit television (CCTV) system at the site. The investigation was performed to evaluate for the presence of lead due to the historical combustion of leaded fuels from freeway traffic. Data from the investigation was used to determine the re-use method for soil excavated at the site during the proposed construction. The data was also used to inform Caltrans of potential health and safety issues for workers at the site during construction activities.

Thirty-eight soil samples were collected from 19 boring locations. Soil samples were collected from the surface and from a depth of approximately 1½ feet below the ground surface. Seven borings were located at five truck turnout locations. The borings for conduit trenching were situated approximately 4 to 6 feet away from the edge of the pavement and were spaced approximately ½ mile apart. The soil samples collected were analyzed for lead.

Thirty-seven soil samples exhibited total lead concentrations less than the Total Threshold Limit Concentration (TTLC) of 1,000 mg/kg. One soil sample (CTE8-S) exhibited a total lead concentration of 1010 mg/kg. Of the 25 soil samples analyzed for soluble lead, 23 samples exhibited soluble lead concentrations greater than the Soluble Threshold Limit Concentration (STLC) of 5.0 mg/l. The data indicated that hazardous lead concentrations may be present in soil at the site. Analytical results of the four soil samples analyzed for soluble lead via the WET-DI indicated that soil excavated at truck turnout locations at the site will have to be handled in accordance with a re-use variance issued to Caltrans by the Department of Toxic Substances Control (DTSC). The following tables indicate the intervals in the soil borings that may be impacted with hazardous lead concentrations.

### MAINTENANCE TRUCK TURNOUT/RETAINING WALL LOCATIONS

Boring Nos.	Interval Potentially Impacted by Hazardous Lead Concentrations
HA1, HA2, HA6, and HA7	From the surface to 1½ feet below the ground surface
HA3 - HA5	From the surface to 2 feet below the ground surface

### CONDUIT TRENCH LOCATIONS

Boring Nos.	Interval Potentially Impacted by Hazardous Lead Concentrations
CTE1, CTE2, CTE4, CTE7, CTE11, and CTE12	From the surface to 1½ foot below the ground surface
CTE3, CTE8 - CTE10	From the surface to 2 feet below the ground surface

**i.i Recommendations**

It is recommended that the soil excavated from truck turnout locations at the site be re-used in accordance with a the DTSC re-use variance issued to Caltrans as shown in the table below. It is estimated that approximately 11,125 cubic feet (412 cubic yards) of impacted soil would be excavated from the five truck turnout locations.

**MAINTENANCE TRUCK TURNOUTS/RETAINING WALL LOCATIONS**

<b>Boring Nos.</b>	<b>Recommendations for Re-use</b>
HA1 and HA2	The top 1½ feet of soil excavated adjacent to these borings should be re-used by being placed beneath 1 foot of clean soil at least 5 feet above the maximum groundwater elevation.
HA3 and HA4	The top 2 feet of soil excavated adjacent to these borings should be re-used by being placed beneath 1 foot of clean soil at least 5 feet above the maximum groundwater elevation.
HA5	The top 2 feet of soil excavated adjacent to this boring should be re-used by being placed beneath pavement at least 5 feet above the maximum groundwater elevation.
HA6 and HA7	The top 1½ feet of soil excavated adjacent to these borings should be re-used by being placed beneath 1 foot of clean soil at least 5 feet above the maximum groundwater elevation.

Soil excavated from the conduit trenches may be re-used by placing it back in the trench in accordance with a utility variance issued by the DTSC. If the soil from the truck turnouts and conduit trenches cannot be re-used on-site, it is recommended that the soil be re-used within Caltrans right-of-way at another site following the same method for re-use described above. It is further recommended that Caltrans notify the contractors performing the construction activities that hazardous lead concentrations may be present in soil at the locations and depths given in the tables above. The appropriate health and safety measures should be taken to minimize the exposure of workers to lead.

# SITE INVESTIGATION REPORT

## 1. INTRODUCTION

### 1.1 Project Description and Objectives

Pursuant to the California Department of Transportation (Caltrans) Contract 43Y097 and Task Order (TO) No. 07-120981-01, EA 120991, Geocon Environmental Consultants, Inc. (Geocon) performed environmental engineering services along the portion of Route 91 from the Lakewood Boulevard Undercrossing to the Orange County Line in Los Angeles County, California (site). The site consisted of the exposed soil adjacent to the shoulders of westbound Route 91. The approximate site location is depicted on the Vicinity Map, presented as Figure 1.

The objective of the site investigation was to evaluate soil along the shoulder of the site for the presence of lead due to the historical combustion of leaded fuels from freeway traffic. The information obtained from the limited soil sampling and laboratory testing was used to determine the method of re-use of soil excavated during the proposed construction activities at the site. The data was also used to inform Caltrans of potential health and safety issues for workers at the site during construction activities.

### 1.2 Scope of Work

Geocon performed the following tasks:

#### 1.2.1 Task 1 - Pre-field Activities

- Attended a task order meeting on September 4, 1997 to discuss issues such as field methods, boring locations, health and safety measures, and the completion schedule.
- Prepared a Health and Safety Plan dated September 2, 1997 for the proposed activities. The Health and Safety Plan included guidelines for the use of personal protective equipment for Geocon employees during the field activities.
- Contacted Underground Service Alert (USA) to notify utility companies of the field activities, and Geocon was provided with USA Ticket Numbers 714267, 714276, 714286, 714297, 714306, 714313, 714327, and 714340.

### 1.2.2 Task II - Limited Soil Sampling

- Collected 38 soil samples from 19 boring locations on September 10, 1997. Seven borings were advanced at maintenance truck turnouts/retaining walls locations and 12 borings were advanced at conduit trench locations. The borings were located along the westbound shoulders of Route 91 approximately 4 to 6 feet from the edge of the roadway, and were spaced approximately ½ mile apart. A 3-inch-diameter, stainless steel, hand-held auger was advanced to a maximum depth of approximately 2 feet below the ground surface. Soil samples were collected from the surface and from a depth of approximately 1½ feet below the ground surface. The approximate boring locations are depicted on the Boring Location Maps, Figures 2 through 17.
- Backfilled the borings with the soil cuttings generated.

### 1.2.3 Task III - Laboratory Analyses

- Submitted the soil samples to a California Department of Health Services (CDOHS)-certified analytical laboratory. The soil samples were analyzed for total lead following EPA Test Method 6010. Soil samples that exhibited total lead concentrations greater than or equal to 50 milligrams per kilogram (mg/kg) and less than 1,000 mg/kg were analyzed for soluble lead via the standard Waste Extraction Test (WET) following EPA Test Method 7420. Four soil samples that exhibited soluble lead concentrations greater than 5.0 milligrams per liter (mg/l) were re-analyzed for soluble lead via the WET with deionized water used as the extractant (WET-DI) following EPA Test Method 7420. The laboratory analyses were performed on a 48-hour turn-around-time (TAT).

### 1.2.4 Task IV - Report Preparation

- Prepared this report, as outlined in Contract 43Y097, summarizing the results of the site investigation activities requested by Caltrans.

## 1.3 Previous Site Investigations

Geocon has not performed a previous investigations at the site. In addition, Caltrans has not notified Geocon of previous investigations performed at the site.

## 2. INVESTIGATIVE METHODS

### 2.1 Field Methods

The field methods used by Geocon to complete this TO are outlined in the following Geocon Standard Operating Procedures (SOPs) presented as Appendix A:

- SOP No. 11 - Hand-Augering and Soil Sample Collection
- SOP No. 31 - Soil Sample Handling Procedures

## 2.2 Deviations from Work Plan

A work plan was not prepared for this TO; however, Geocon performed the scope of work as described in TO No. 07-120981-01.

## 3. INVESTIGATIVE RESULTS AND FIELD OBSERVATIONS

### 3.1 Site Geology, Hydrology, and Other Site Conditions

The soil conditions encountered at the site consisted generally of dry to moist, yellow to reddish tan, fine to medium sand to the maximum depth of exploration. Groundwater was not encountered during the advancement of the borings. Other pertinent information requested by Caltrans from the site is given in the table below.

TABLE 3.1

Boring Number	Approximate Distance From EOP in Feet	Sloping or Relatively Flat	Elevation in Feet Below Roadway	Wind Direction	Landsaped	Boring Depth in Feet
HA1	5	Relatively Flat	0	West	Yes	2
HA2	5	Relatively Flat	0	West	Yes	2
HA3	5	Relatively Flat	0	West	Yes	2
HA4	5	Relatively Flat	0	West	Yes	2
HA5	5	Relatively Flat	0	West	Yes	2
HA6	5	Relatively Flat	0	West	Yes	2
HA7	5	Relatively Flat	0	West	Yes	2
CTE1	5	Relatively Flat	0	West	Yes	2
CTE2	5	Relatively Flat	0	West	Yes	2
CTE3	5	Relatively Flat	0	West	Yes	2
CTE4	5	Relatively Flat	0	West	Yes	2
CTE5	5	Relatively Flat	0	West	Yes	2
CTE6	5	Relatively Flat	0	West	Yes	2
CTE7	5	Relatively Flat	0	West	Yes	2
CTE8	5	Relatively Flat	0	West	Yes	2
CTE9	5	Relatively Flat	0	West	Yes	2
CTE10	5	Relatively Flat	0	West	Yes	2
CTE11	5	Relatively Flat	0	West	Yes	2
CTE12	5	Relatively Flat	0	West	Yes	2

Note: EOP = Edge of Pavement

## **3.2 Analytical Laboratory Results**

A summary of the analytical laboratory results is presented as Table I. Reproductions of the laboratory reports and chain-of-custody documentation are presented as Appendix B.

### **3.2.1 Total Lead**

Total lead concentrations ranged from below the laboratory detection limit of 5.0 mg/kg to 1010 mg/kg. Of the 38 soil samples analyzed for total lead, 25 samples exhibited total lead concentrations greater than 50 mg/kg and less than 1,000 mg/kg.

### **3.2.2 Soluble Lead (WET)**

Twenty-four soil samples were analyzed for soluble lead. Soluble lead concentrations ranged from 2.6 mg/l to 140 mg/l.

### **3.2.3 Soluble Lead (WET-DI)**

Four soil samples were analyzed for soluble lead via the WET-DI. Soluble lead WET-DI concentrations ranged from below the laboratory detection limit of 0.15 mg/l to 0.56 mg/l.

## **3.3 Data Validation**

Prior to submitting the soil samples to the laboratory, the chain-of-custody documentation was reviewed for accuracy and completeness. The laboratory reports were reviewed for accuracy (e.g., units of concentration in mg/kg or mg/l) and consistency with chain-of-custody documentation. The matrix-spikes and duplicates were reviewed to ensure the laboratory results were within tolerance control limits. Based upon this validation process, the data quality is adequate for the purposes of this report.

#### 4. CONCLUSIONS

Thirty seven soil samples exhibited total lead concentrations less than the Total Threshold Limit Concentration (TTLC) of 1,000 mg/kg. One soil sample (CTE8-S) exhibited a total lead concentration that exceeded the TTLC. Of the 25 soil samples analyzed for soluble lead, 23 samples exhibited soluble lead concentrations greater than the Soluble Threshold Limit Concentration (STLC) of 5.0 mg/l. This data indicated that hazardous lead concentrations may be present in soil at the site. The analytical WET-DI results indicated that re-use of the soil at the site will have to be performed according to a variance issued to Caltrans by the Department of Toxic Substances Control (DTSC). The following tables indicate the intervals in the soil borings that may be impacted with hazardous lead concentrations.

**TABLE 4.1  
MAINTENANCE TRUCK TURNOUT/RETAINING WALL LOCATIONS**

Boring Nos.	Interval Potentially Impacted by Hazardous Lead Concentrations
HA1, HA2, HA6, and HA7	From the surface to 1½ feet below the ground surface
HA3 - HA5	From the surface to 2 feet below the ground surface

**TABLE 4.2  
CONDUIT TRENCH LOCATIONS**

Boring Nos.	Interval Potentially Impacted by Hazardous Lead Concentrations
CTE1, CTE2, CTE4, CTE7, CTE11, and CTE12	From the surface to 1½ foot below the ground surface
CTE3, CTE8 - CTE10	From the surface to 2 feet below the ground surface

## 5. RECOMMENDATIONS

Based upon the results of the soil samples analyzed, it is recommended that the soil excavated at the site be re-used on-site in accordance with the DTSC variance issued to Caltrans as shown in the table below. It is estimated that approximately 11,125 cubic feet (412 cubic yards) of impacted soil would be excavated from the five truck turnout locations. The truck turnout locations are depicted on Figures 13 through 17.

**TABLE 5  
MAINTENANCE TRUCK TURNOUTS/RETAINING WALL LOCATIONS**

Boring Nos.	Recommendations for Re-use
HA1 and HA2	The top 1½ feet of soil excavated adjacent to these borings should be re-used by being placed beneath 1 foot of clean soil at least 5 feet above the maximum groundwater elevation.
HA3 and HA4	The top 2 feet of soil excavated adjacent to these borings should be re-used by being placed beneath 1 foot of clean soil at least 5 feet above the maximum groundwater elevation.
HA5	The top 2 feet of soil excavated adjacent to this boring should be re-used by being placed beneath pavement at least 5 feet above the maximum groundwater elevation.
HA6 and HA7	The top 1½ feet of soil excavated adjacent to these borings should be re-used by being placed beneath 1 foot of clean soil at least 5 feet above the maximum groundwater elevation.

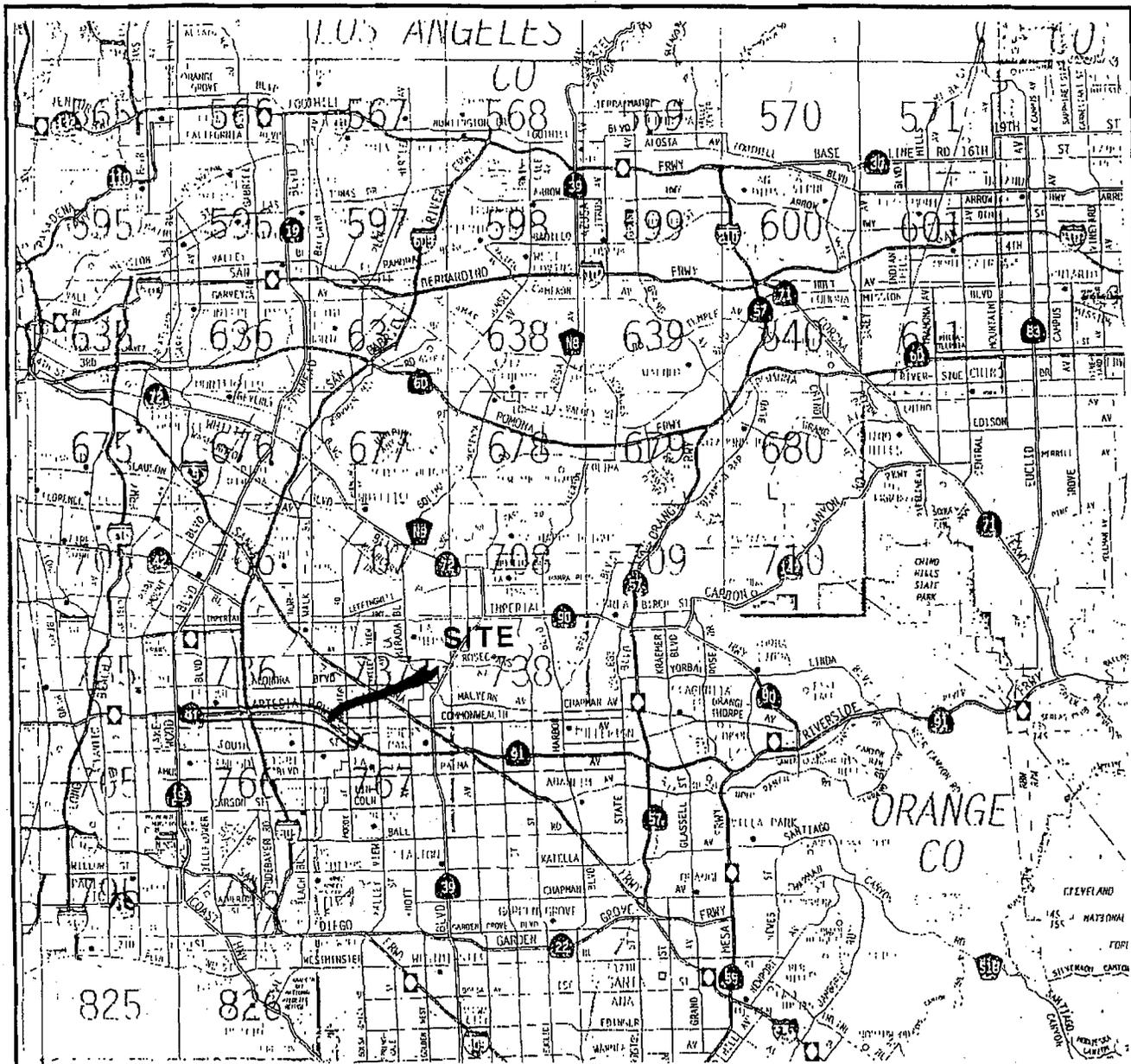
Soil excavated from the conduit trenches may be re-used by placing it back in the trench in accordance with a utility variance issued by the DTSC. The conduit trench boring locations are depicted on Figures 2 through 12. If the soil excavated from the truck turnout locations and conduit trenches cannot be re-used on-site, it is recommended that the soil be re-used within Caltrans right-of-way at another site following the same method for re-use described above. It is further recommended that Caltrans notify the contractors performing the construction activities that hazardous lead concentrations may be present in soil at the site as shown in the tables presented in the "Conclusions" section. The appropriate health and safety measures should be taken to minimize worker exposure to lead.

## 6. REPORT LIMITATIONS

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

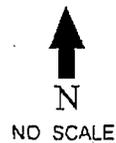
The Client should recognize that this report is not a comprehensive site characterization and should not be construed as such. The DTSC, Los Angeles County Regional Water Quality Control Board, or other appropriate regulatory agency may require additional investigation. The findings and conclusions as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

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



SOURCE: 1996 THOMAS BROTHERS MAP  
LOS ANGELES COUNTY, CALIFORNIA

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**GEOCON**



GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS  
6970 FLANDERS DRIVE, SAN DIEGO, CALIFORNIA 92121 2944  
PHONE 619 558-6100 - FAX 619 558-8437

JCK / RSS

DSK / E000

**VICINITY MAP**

LEAD INVESTIGATION  
ON ROUTE 91 FROM THE LAKEWOOD BLVD UC  
TO THE ORANGE COUNTY LINE  
LOS ANGELES COUNTY, CALIFORNIA

DATE 10-09-97

PROJECT NO. 08730 - 05 - 41

FIG. 1