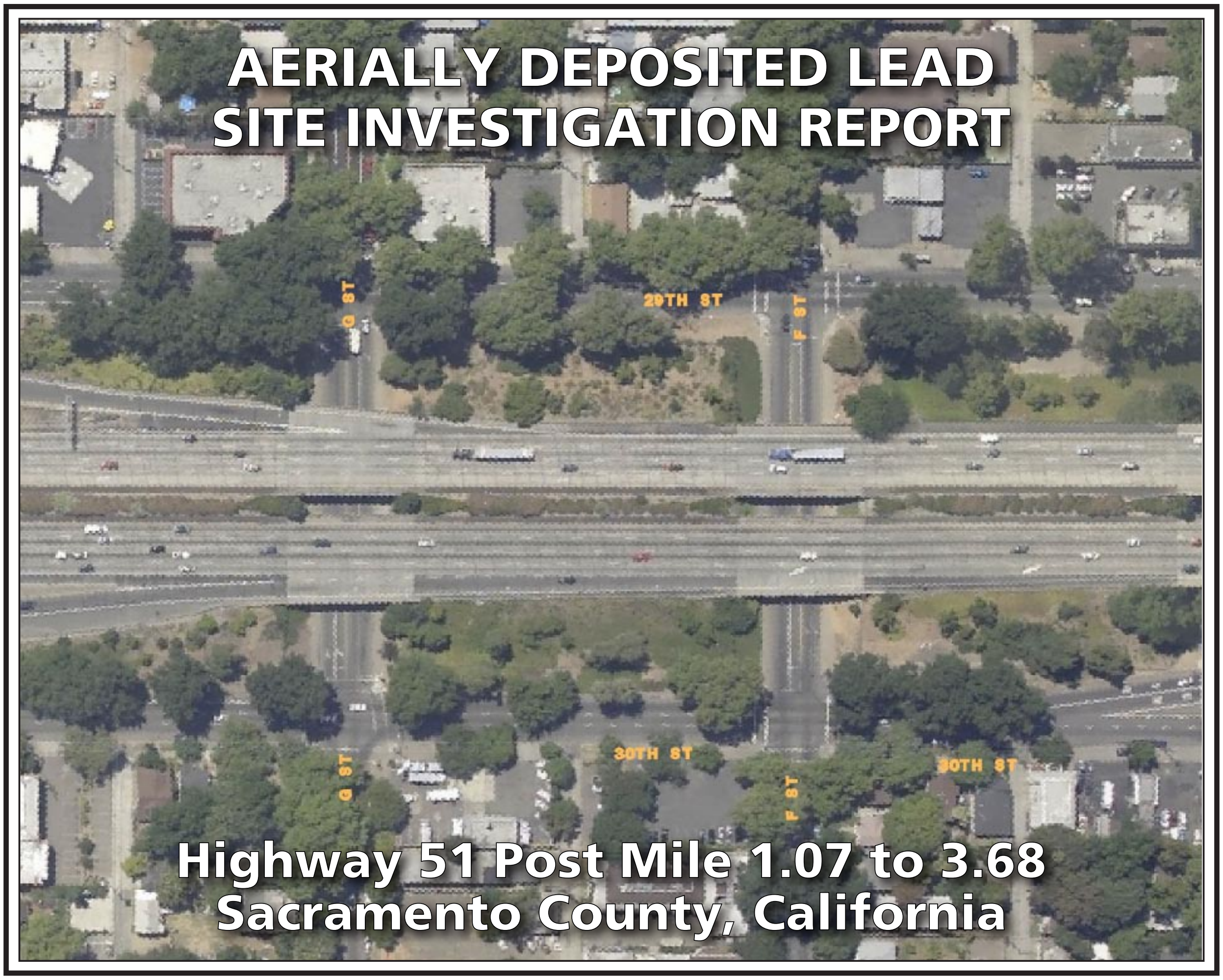
AERIALLY DEPOSITED LEAD SITE INVESTIGATION REPORT

Highway 51 Post Mile 1.07 to 3.68
Sacramento County, California



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GEOCON PROJECT NO. S8875-06-152
TASK ORDER NO. 152, EA NO. 03-3C0201

JULY 2007

Project No. S8875-06-152
July 20, 2007

Mr. Rajive Chadha
California Department of Transportation - District 3
703 B Street
Post Office Box 911
Marysville, California 95901

Subject: HIGHWAY 51 POST MILE 1.07 TO 3.68
SACRAMENTO COUNTY, CALIFORNIA
CONTRACT NO. 03A0937
TASK ORDER NO. 152, EA NO. 03-3C0201
AERIALLY DEPOSITED LEAD SITE INVESTIGATION REPORT

Dear Mr. Chadha:

In accordance with California Department of Transportation (Caltrans) Contract No. 03A0937 and Task Order Number (TO) No. 152, EA 03-3C0201, Geocon Consultants, Inc. has performed environmental engineering services for the subject project. The Site is located along Highway 51 between J Street and the Highway 51/Route 160 overcrossing in Sacramento County, California. The accompanying report summarizes the services performed, including the advancement of 36 direct-push and four hand-auger borings for aerially deposited lead sampling and laboratory testing.

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

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

Sincerely,

GEOCON CONSULTANTS, INC.

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Project Geologist

John E. Juhrend, PE, CEG
Project Manager

GGR:JEJ:jaj

(5 + 3 CD) Addressee

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APPENDICES

AERIALLY DEPOSITED LEAD SITE INVESTIGATION REPORT

1.0 INTRODUCTION

This Aerially Deposited Lead (ADL) Site Investigation (SI) report for the Highway 51 Post Mile 1.07 to 3.68 project was prepared by Geocon Consultants, Inc. under California Department of Transportation (Caltrans) Contract No. 03A0937, Task Order (TO) No. 152 and EA 03-3C0201.

1.1 Project Description and Proposed Improvements

The project area consists of the paved and unpaved median of Highway 51 (HWY-51) between Post Mile (PM) 1.07 and 3.68 (the Site) in Sacramento County, California. Caltrans intends to excavate the median to a maximum depth of 4 feet (ft) for construction of drainage and median barrier improvements. The approximate project location is depicted on the Vicinity Map, Figure 1 and Project Location Map, Figure 2. The approximate boring and paint sample locations are depicted on the Site Plans, Figures 3-1 through 3-11.

1.2 General Objectives

The purpose of the scope of services outlined in TO No. 152 was to evaluate whether impacts due to aerial lead deposition from motor vehicle exhaust exist in the surface and near surface soils within the project boundaries and to determine whether yellow traffic stripe paint on the roadway at the Site contains lead and/or chromium. The investigative results will be used by Caltrans to inform the construction contractor(s) if lead-impacted soil and lead- and chromium-containing traffic paint are present within the project boundaries for health, safety, management and disposal evaluation purposes.

2.0 BACKGROUND

2.1 Potential Lead Soil Impacts

Ongoing testing by Caltrans throughout California has indicated that ADL exists along major freeway routes due to emissions from vehicles powered by leaded gasoline. Caltrans reports that total lead concentrations in soil adjacent to the freeways have typically ranged between 50 and 700 milligrams per kilogram (mg/kg). At sites where soil has not been disturbed, the aerially deposited lead is generally limited to the upper 2.0 ft of soil within unpaved shoulder and median areas.

2.2 Potential Lead/Chromium-Based Paint Impacts

Lead-based paint is defined by *California Code of Regulations (CCR)* Title 17, Division 1, Chapter 8, .35033 as any surface coatings that contain an amount of lead equal to, or in excess of, one milligram per square centimeter (1.0 mg/cm^2) or more than half of one percent (0.5%) by weight. Deteriorated lead-based paint is defined by *CCR* Title 17, Division 1, Chapter 8, .35022 as a surface coating that is cracking, chalking, flaking, chipping, peeling, non-intact, failed, or otherwise separating from a component. Demolition of a deteriorated lead-based paint component would require waste characterization and appropriate disposal. Intact lead-based paint on a component is currently accepted by most landfill facilities. Chromium in paint can pose risks similar to those posed by lead.

Potential hazards exist to workers who remove or cut through lead and/or chromium-based paint coating during demolition. Dust containing hazardous concentrations of lead and/or chromium may be generated during scraping or cutting materials coated with lead/chromium-based paint. Torching of these materials may produce lead and/or chromium oxide fumes. Therefore, air monitoring and/or respiratory protection may be required during the demolition of materials coated with lead and/or chromium-based paint. Guidelines regarding regulatory provisions for construction work where workers may be exposed to lead are presented in the *CCR*, Title 8, Section 1532.1 (*Lead in Construction*).

2.3 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 total metal content exceeds the respective Total Threshold Limit Concentration (TTLC); or 2) the soluble metal content exceeds the respective Soluble Threshold Limit Concentration (STLC) based on the standard Waste Extraction Test (WET). A waste may have the potential of exceeding the STLC when the waste's total metal content is greater than or equal to ten times the respective STLC value, since the WET uses a 1:10 dilution ratio. Hence, when a total metal is detected at a concentration greater than or equal to ten times the respective STLC, and assuming that 100 percent of the total metals are soluble, soluble metal analysis is required. A material is classified as RCRA hazardous, or Federal hazardous, when the soluble metal content exceeds the Federal regulatory level based on the Toxicity Characteristic Leaching Procedure (TCLP). The TTLC value for lead is 1,000 mg/kg. The STLC and TCLP values for lead are both 5.0 milligrams per liter (mg/l).

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., 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 corrosivity. Waste that is classified as either California hazardous or RCRA hazardous requires management as a hazardous waste.

The Department of Toxic Substances Control (DTSC) regulates and interprets hazardous waste laws in California. DTSC generally considers excavated or transported materials that exhibit "hazardous waste" characteristics to be a "waste" requiring proper management, treatment and disposal. Soil that contains lead above hazardous waste thresholds and is left in-place would not be necessarily classified by DTSC as a "waste." The DTSC has provided site-specific determinations that "movement of wastes within an area of contamination does not constitute "land disposal" and, thus, does not trigger hazardous waste disposal requirements." Therefore, lead-impacted soil that is scarified in-place, moisture-conditioned, and recompacted during roadway improvement activities might not be considered a "waste." DTSC should be consulted to confirm waste classification. It is noted that in addition to DTSC regulations, health and safety requirements and other local agency requirements may also apply to the handling and disposal of lead-impacted soil.

3.0 SCOPE OF SERVICES

The following scope of services was performed as requested by Caltrans in TO No. 152:

3.1 Pre-field Activities

- Conducted a pre-work site visit on February 21, 2007, to discuss the TO scope of services. Caltrans representatives Rajive Chadha and design engineer Mohammad Sadiq and Geocon representatives John Juhrend and Mike O'Brien attended this meeting. The purpose of the pre-work site visit was to identify and observe the project boundaries and conditions and mark-out boring locations.
- Contacted the local public utilities via Underground Service Alert on March 6, 2007, (Ticket No. 077556) and on June 4, 2007 (Ticket No. 195219) to attempt to delineate subsurface public utilities and conduits in proximity to the proposed boring locations.
- Prepared a *Workplan* dated February 28, 2007, which describes the requested scope of services and quality assurance/quality control (QA/QC) sampling and laboratory procedures.
- Prepared a *Health and Safety Plan* dated March 2, 2007, to provide guidelines on the use of personal protective equipment and the health and safety procedures implemented during the field activities.
- Retained the services of Sparger Technology, Inc., to perform the chemical analyses of soil and paint-chip samples.

3.2 Field Activities

The initial field activities consisted of collecting soil samples along the paved and unpaved median of HWY-51 between PM 1.07 and PM 1.5. On March 9 and 10, 2007, 79 soil samples were collected from 13 direct-push (B5 through B17) and four hand-auger borings (B1 through B4) at the Caltrans designated soil sampling locations. Four yellow traffic stripe paint samples (PC1 through PC4) were collected at the Caltrans designated sampling locations. The soil borings were excavated to an approximate maximum depth of 4 ft. Soil samples were collected at general depths of 0.0 to 0.5 foot, 0.5 to 1.0 foot, 1.0 to 2.0 ft, 2.0 to 3.0 ft and 3.0 to 4.0 ft. The approximate boring and paint sample locations are depicted on Figures 3-1 through 3-11.

At the request of the Caltrans Quality Assurance manager, we collected additional ADL soil samples along the paved and unpaved median of HWY-51 between PM 1.07 and 3.68. On June 7 and 8, 2007, 104 soil samples were collected from 23 direct-push borings (NB1 through NB5 and SB1 through SB18) at the Caltrans designated soil sampling locations. The soil borings were excavated to an approximate maximum depth of 4 ft. Soil samples were collected at general depths of 0.0 to 0.5 foot, 0.5 to 1.0 foot, 1.0 to 2.0 ft, 2.0 to 3.0 ft and 3.0 to 4.0 ft.

4.0 INVESTIGATIVE METHODS

4.1 Boring Sample Location Rationale

The soil boring locations were designated by Caltrans in the vicinity of proposed improvements. Borings B1 through B12 and SB1 through SB18 were advanced along the median of southbound HWY-51 and borings B13 through B17 and NB1 through NB5 were advanced along the median of northbound HWY-51. Borings B1 through B4, B6, B8, B10, B12 through B17 and SB1 were advanced in the unpaved median. Borings B5, B7, B9, B11, NB1 through NB5 and SB2 through SB18 were advanced in the paved median between the edge of the pavement and the median yellow traffic stripe. The approximate soil boring locations are depicted on Figures 3-1 through 3-11.

The paint sampling locations were designated by Caltrans within the proposed construction area. Paint samples PC1 and PC2 were obtained from the median yellow traffic stripe of southbound HWY-51, and paint samples PC3 and PC4 were obtained from the median yellow traffic stripe of northbound HWY-51 as shown on Figures 3-1 and 3-2.

The coordinates of each sampling location were determined using a differential global positioning system (GPS). The GPS was utilized during the field activities to locate the horizontal position of each location with an error of no more than 3.0 ft. The latitude and longitude of the sampling locations are summarized on Table 1.

4.2 Aerially Deposited Lead Soil Sampling Procedures

Seventy-nine soil samples were collected from 13 direct-push and 4 hand-auger borings excavated at the Site on March 9 and 10, 2007. Soil samples obtained from the direct-push borings were collected in cellulose thermoplastic (acetate) liners driven by the direct-push rig. After collection, the acetate liner that contained the soil sample was cut open, and the soil samples were transferred to Ziploc® re-sealable plastic bags. The soil samples were field homogenized within the sample bags and subsequently labeled, placed in an ice chest, and delivered to Sparger under standard chain-of-custody documentation.

One hundred four additional soil samples were collected from 23 direct-push borings excavated at the Site on June 7 and 8, 2007. The soil samples were field homogenized within the sample bags and subsequently labeled, and placed in an ice chest. Per Caltrans request, discrete samples from two to three consecutive borings were composited, with the exception of discrete samples collected from borings SB1 and NB1 through NB5. The following composite sample identifications are described below:

- Composite sample SB2-3 consisted of discrete samples collected from borings SB2 and SB3 at similar depths;
- Composite sample SB4-6 consisted of discrete samples collected from borings SB4, SB5 and SB6 at similar depths;
- Composite sample SB7-9 consisted of discrete samples collected from borings SB7, SB8 and SB9 at similar depths;
- Composite sample SB10-12 consisted of discrete samples collected from borings SB10, SB11 and SB12 at similar depths;
- Composite sample SB10+12-3.0 consisted of discrete samples SB10-3.0 and SB12-3.0;
- Composite sample SB13-15 consisted of discrete samples collected from borings SB13, SB14 and SB15 at similar depths;
- Composite sample SB16-18 consisted of discrete samples collected from borings SB16, SB17 and SB18; and,
- Composite sample SB16+18 consisted of discrete samples collected from borings SB16 and SB18 at similar depths.

The composite and discrete samples were labeled, placed in an ice chest and delivered to Sparger under standard chain-of-custody documentation. A portion of each discrete sample collected during the June 2007 sampling event was retained at Geocon for further analysis, if warranted.

Quality assurance/quality control (QA/QC) procedures were performed during the field exploration activities. These procedures included decontamination of sampling equipment before each boring was advanced and providing chain-of-custody documentation for each sample submitted to the laboratory. The soil sampling equipment was cleansed between each boring by washing the equipment with an Alconox™ solution followed by a double rinse with deionized water. The field sampling activities were performed under the supervision of Geocon's project manager.

The soil borings were backfilled with the excess soil cuttings generated at each boring. The decontamination water was discharged to the ground surface away from surface water bodies or storm drain inlets.

4.3 Paint Sampling Procedures

Four yellow traffic stripe paint samples (PC1 through PC4) were collected on March 9 and 10, 2007, using a hammer to break a chip off the yellow traffic stripe paint from the traffic stripe. The paint-chip samples were placed in labeled plastic bags and delivered to Sparger under standard chain-of-custody documentation.

4.4 Traffic Control

Lane closure traffic control was provided by Caltrans based on the proximity of the work zone with respect to the active traffic lanes. Soil sampling was performed during night-time hours to facilitate lane closure.

4.5 Laboratory Analyses

The soil and paint-chip samples were submitted to Sparger for the following analyses. Soil samples collected during the March and June 2007 sampling events were submitted to Sparger under five-day and 48-hour turn-around-time (TAT), respectively. The laboratory was instructed to homogenize the soil samples prior to analysis in accordance with Contract 03A0937 requirements.

- One hundred thirty-three soil samples were analyzed for total lead following United States Environmental Protection Agency (EPA) Test Method 6010B.
- Fifty-two soil samples were analyzed for soluble (WET) lead following EPA Test Method 6010B.
- Two soil samples (B1-0.0 and B14-0.0) were further analyzed for TCLP soluble lead following EPA Test Method 6010B.
- Four yellow traffic stripe paint samples were analyzed for total lead and total chromium following EPA Test Method 6010B.
- One composite paint sample was analyzed for TCLP soluble lead and TCLP soluble chromium following EPA Test Method 6010B.
- Fifteen randomly selected soil samples were analyzed for soil pH using EPA Test Method 9045.

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

- One method blank for every ten samples, batch of samples or type of matrix, whichever was more frequent.

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

Prior to submitting the soil samples to the laboratory, the chain-of-custody documentation was reviewed for accuracy and completeness. Reproductions of the laboratory reports and chain-of-custody documentation are presented in Appendix A.

5.0 FIELD OBSERVATIONS AND INVESTIGATIVE RESULTS

5.1 Site Conditions

Asphalt pavement (where present) and road base materials were encountered to a depth between 0.5 and 1.0 foot at each boring location. Underlying fill materials generally consisted of fine silty sand to the maximum depth explored of approximately 4.0 ft. Groundwater was not encountered during the excavation of the soil borings.

5.2 Soil Analytical Results

A summary of the soil analytical results are presented on Table 2. The laboratory reports and chain-of-custody documentation are presented in Appendix A.

Total lead was detected in each of the 133 soil samples analyzed at concentrations ranging from 2.85 to 2,540 mg/kg. Twenty of the 133 soil samples had reported total lead concentrations greater than 50 mg/kg (i.e., greater than ten times the STLC value for lead of 5.0 mg/l).

Soluble (WET) lead was reported for 28 of the 52 soil samples analyzed at concentrations ranging from 0.060 to 112 mg/l. Twelve soil samples had soluble (WET) lead concentrations greater than the STLC value for lead of 5.0 mg/l. TCLP soluble lead was reported for soil samples B1-0.0 and B14-0.0 at 46.5 and 3.71 mg/l, respectively.

Soil pH values ranged from 7.36 to 8.54.

5.3 Paint Sample Analytical Results

Four yellow traffic stripe paint samples (PC1 through PC4) were collected from within the project boundaries. Total lead was reported above the California hazardous waste threshold for lead of 1,000 mg/kg (TTLC) for three of the four paint samples at concentrations ranging from 862 to 2,360 mg/kg. Total chromium was reported for each sample at concentrations ranging from 300 to 852 mg/kg, less than the California hazardous waste threshold for chromium of 2,500 mg/kg (TTLC).

The four paint samples were composited and further analyzed for TCLP soluble lead and TCLP soluble chromium. TCLP soluble lead and TCLP soluble chromium were reported for the composite paint sample at 5.75 and 1.28 mg/l, respectively. The analytical results of the paint samples are summarized on Table 3. Laboratory reports and chain-of-custody documentation are presented in Appendix A.

5.4 Laboratory Quality Assurance/Quality Control

We reviewed the laboratory QA/QC provided with the laboratory report. The data show acceptable surrogate recoveries and non-detect results for the method blanks. However, the relative percent differences (RPDs) for Matrix Spike (MS) and Matrix Spike Duplicate (MSD) samples 80356, 80357, 82421, 82422 were outside the RPD limit. The laboratory states that “High RPD due to high sample concentration. Loss MS/MSD recoveries due to sample matrix effect.” The RPD for duplicate sample 82431 was also outside the RPD limit. The laboratory states that “High RPD due to sample matrix effect.” Percent recoveries for MS and MSD for lead and chromium are also outside recovery criteria for samples 80356 and 80357. The laboratory states “Poor MS/MSD recoveries due to high sample concentration.” The data showed acceptable recoveries and RPDs for the remainder of the matrix spikes and duplicates. Based on this limited data review, no additional qualifications of the soil data are necessary, and the data are of sufficient quality for the purposes of this report.

5.5 Statistical Evaluation for Lead Detected in Soil Samples

Statistical analysis was performed on three different sample populations as requested by Caltrans. Sample population A consists of soil samples collected from borings B1 through B17 and NB1 through NB5. Sample population B consists of soil samples collected from borings SB1 through SB18. Sample population C consists of soil samples collected from borings B1 through B17, NB1 through NB5 and SB1 through SB18.

Statistical methods were applied to the total lead data to evaluate: 1) the upper confidence limits (UCLs) of the true means of the total lead concentrations for each sampling depth; and 2) if an acceptable correlation between total and soluble lead concentrations exists that would allow the prediction of soluble lead concentrations based on calculated UCLs. The statistical methods used are discussed in a book entitled *Statistical Methods for Environmental Pollution Monitoring,* by Richard Gilbert; in an EPA *Technology Support Center Issue* document entitled, *The Lognormal Distribution in Environmental Applications,* by Ashok Singh et. al., dated December 1997; and in a book entitled *An Introduction to the Bootstrap,* by Bradley Efron and Robert J. Tibshirani.

5.5.1 Total Lead Distribution

The presence of non-detects and/or low concentrations in total lead data sets can strongly skew sample data towards low values. In these cases, the data are often lognormally distributed or non-parametric and classical statistical methods do not work properly since they assume that the data exhibit an underlying normal distribution. Consequently, it is necessary to apply the appropriate method when determining the UCLs on the true total lead means.

5.5.2 Calculating the UCLs for the True Mean

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

Non-parametric bootstrap techniques used to calculate the UCLs are discussed in the previously referenced EPA document and in *An Introduction to the Bootstrap.* The bootstrap results are included in Appendix B. The calculated UCLs and statistical results for each sample population are summarized in the tables below:

Sample Population A
(Borings B1 through B17 and NB1 through NB5)

SAMPLE INTERVAL (feet)	90% TOTAL LEAD UCL (mg/kg)	95% TOTAL LEAD UCL (mg/kg)	TOTAL LEAD MEAN (mg/kg)	MINIMUM VALUE (mg/kg)	MAXIMUM VALUE (mg/kg)
0.0 to 0.5	520.6	563.9	368.5	3.71	2,540
0.5 to 1.0	25.7	27.9	18.2	2.85	122
1.0 to 2.0	27.7	30.6	16.2	3.01	188
2.0 to 3.0	15.2	16.5	11.3	4.13	61.7
3.0 to 4.0	8.53	8.72	7.89	2.86	13.7

Sample Population B
(Borings SB1 through SB18)

SAMPLE INTERVAL (feet)	90% TOTAL LEAD UCL (mg/kg)	95% TOTAL LEAD UCL (mg/kg)	TOTAL LEAD MEAN (mg/kg)	MINIMUM VALUE (mg/kg)	MAXIMUM VALUE (mg/kg)
0.0 to 0.5	157.4	180.7	88.7	5.99	440
0.5 to 1.0	29.8	32.1	21.3	3.30	48.7
1.0 to 2.0	16.4	17.3	12.4	3.41	24.3
2.0 to 3.0	14.5	15.6	10.6	4.42	28.1
3.0 to 4.0	41.1	46.4	22.3	4.18	121

Sample Population C
(Borings B1 through B17, NB1 through NB5 and SB1 through SB18)

SAMPLE INTERVAL (feet)	90% TOTAL LEAD UCL (mg/kg)	95% TOTAL LEAD UCL (mg/kg)	TOTAL LEAD MEAN (mg/kg)	MINIMUM VALUE (mg/kg)	MAXIMUM VALUE (mg/kg)
0.0 to 0.5	426.2	459.6	301.0	3.71	2,540
0.5 to 1.0	24.8	26.8	18.9	2.85	122
1.0 to 2.0	23.9	25.9	15.3	3.01	188
2.0 to 3.0	14.1	15.0	11.1	4.13	61.7
3.0 to 4.0	18.1	19.8	12.1	2.86	121

5.5.3 Correlation of Total and Soluble Lead

Total and corresponding soluble (WET) lead concentrations are bivariate data with a linear structure. This linear structure should allow for the prediction of soluble lead (WET) concentrations based on the UCLs calculated above in Section 5.5.2.

To estimate the degree of interrelation between total and corresponding soluble (WET) lead values (x and y, respectively), the *correlation coefficient [r]* is used. The correlation coefficient is a ratio that ranges from +1 to –1. A *correlation coefficient* of +1 indicates a perfect direct relationship between two variables; a *correlation coefficient* of –1 indicates that one variable changes inversely with relation to the other. Between the two extremes is a spectrum of less-than-perfect relationships, including zero, which indicates the lack of any sort of linear relationship at all. The *correlation coefficient* for the data set was calculated for the 52 (x, y) data points (i.e., soil samples analyzed for both total lead [x] and soluble [WET] lead [y]) and equaled 0.973. A *correlation coefficient* greater than or equal to 0.8 is an acceptable indicator that a correlation exists.

For the *correlation coefficient* that indicates a linear relationship between total and soluble (WET) lead concentrations, it is possible to compute the line of dependence or a best-fit line between the two variables. A least squares method was used to find the equation of a best-fit line (regression line) by forcing the y-intercept equal to zero since that is a known point. The equation of the regression line was determined to be $y = 0.0437(x)$, where x represents total lead concentrations and y represents predicted soluble lead (WET) concentrations.

This equation was used to estimate the expected WET soluble lead concentrations for the UCLs calculated in Section 5.5.2. For those samples in which soluble (WET) lead was not detected at concentrations exceeding the laboratory MRL, a value equal to one-half of the MRL was used in the regression. Regression analysis results and a scatter plot depicting the 52 (x, y) data points along with the regression line are included in Appendix B. The predicted WET soluble lead concentrations are summarized in the tables below.

Sample Population A
(Borings B1 through B17 and NB1 through NB5)

SAMPLE INTERVAL (feet)	90% TOTAL LEAD UCL (mg/kg)	PREDICTED SOLUBLE LEAD (mg/l)	95% TOTAL LEAD UCL (mg/kg)	PREDICTED SOLUBLE LEAD (mg/l)
0.0 to 0.5	520.6	22.8	563.9	24.6
0.5 to 1.0	25.7	1.1	27.9	1.2
1.0 to 2.0	27.7	1.2	30.6	1.3
2.0 to 3.0	15.2	0.7	16.5	0.7
3.0 to 4.0	8.53	0.4	8.72	0.4

Equation of the regression line: $y = 0.0437x$

Sample Population B
(Borings SB1 through SB18)

SAMPLE INTERVAL (feet)	90% TOTAL LEAD UCL (mg/kg)	PREDICTED SOLUBLE LEAD (mg/l)	95% TOTAL LEAD UCL (mg/kg)	PREDICTED SOLUBLE LEAD (mg/l)
0.0 to 0.5	157.4	6.9	180.7	7.9
0.5 to 1.0	29.8	1.3	32.1	1.4
1.0 to 2.0	16.4	0.7	17.3	0.8
2.0 to 3.0	14.5	0.6	15.6	0.7
3.0 to 4.0	41.1	1.8	46.4	2.0

Equation of the regression line: $y = 0.0437x$

Sample Population C
(Borings B1 through B17, NB1 through NB5 and SB1 through SB18)

SAMPLE INTERVAL (feet)	90% TOTAL LEAD UCL (mg/kg)	PREDICTED SOLUBLE LEAD (mg/l)	95% TOTAL LEAD UCL (mg/kg)	PREDICTED SOLUBLE LEAD (mg/l)
0.0 to 0.5	426.2	18.6	459.6	20.1
0.5 to 1.0	24.8	1.1	26.8	1.2
1.0 to 2.0	23.9	1.0	25.9	1.1
2.0 to 3.0	14.1	0.6	15.0	0.7
3.0 to 4.0	18.1	0.8	19.8	0.9

Equation of the regression line: $y = 0.0437x$

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 ADL Soil Waste Disposal/Reuse Classification

Summarized below are the total lead UCLs, predicted soluble (WET) lead concentrations that correspond with the UCLs, and the waste classification for soil generated for the different excavation scenarios discussed in Section 5.5.3. The information presented hereinafter may be utilized during evaluation of disposal options for excess soil materials generated during construction of drainage and median barrier improvements within the areas investigated.

Utilizing the calculated UCLs, the following excavation scenarios were evaluated for each sample population:

- Excavation Scenario 1: Excavate the top 0.5 ft of soil.
- Excavation Scenario 2: Excavate the top 1.0 ft of soil.
- Excavation Scenario 3: Excavate the top 2.0 ft of soil.
- Excavation Scenario 4: Excavate the top 3.0 ft of soil.
- Excavation Scenario 5: Excavate the top 4.0 ft of soil.

To evaluate expected total lead concentrations for the different excavation scenarios, weighted averages of respective UCLs were calculated based on the excavation scenarios. The following tables summarize how excavated soil generated at each designated area within the Site is expected to be classified.

6.1.1 Sample Population A - Borings B1 through B17 and NB1 through NB5

Table 6.1.1A
Excavation Scenarios if Soil will be Disposed of as a Waste

Excavation Scenario	95% UCL	Predicted Soluble Lead (WET)	Classification
Scenario 1			
Excavate top 0.5 foot	563.9 mg/kg	24.6 mg/l	**California-hazardous**
Underlying Soil – 0.5 to 4.0 ft	19.9 mg/kg	0.9 mg/l	Non-hazardous
Scenario 2			
Excavate top 1.0 foot	295.9 mg/kg	12.9 mg/l	**California-hazardous**
Underlying Soil – 1.0 to 4.0 ft	18.6 mg/kg	0.8 mg/l	Non-hazardous
Scenario 3			
Excavate top 2.0 ft	163.3 mg/kg	7.1 mg/l	**California-hazardous**
Underlying Soil – 2.0 to 4.0 ft	12.6 mg/kg	0.6 mg/l	Non-hazardous

Excavation Scenario	95% UCL	Predicted Soluble Lead (WET)	Classification
Scenario 4			
Excavate top 3.0 ft	114.3 mg/kg	5.0 mg/l	**California-hazardous**
Underlying Soil – 3.0 to 4.0 ft	8.72 mg/kg	0.4 mg/l	Non-hazardous
Scenario 5			
Excavate top 4.0 ft	87.9 mg/kg	3.8 mg/l	Non-hazardous

Based on the information in Table 6.1.1A, soil between 0.5 and 4.0 ft in depth, or the top 4.0-foot soil profile (Scenario 5) where excavated as a whole during planned grading operations, may be disposed of as non-hazardous soil since the predicted soluble (WET) lead concentrations are less than the STLC value for lead of 5.0 mg/l. Soil generated from the top 0.5 to 3.0 ft (Scenarios 1 through 4) will be classified as a California-hazardous waste, since the predicted soluble (WET) lead concentrations are greater than the lead STLC of 5.0 mg/l. If excavated separately, the top 0.5 foot of soil should be either (1) managed and disposed of as a California hazardous waste or (2) stockpiled and resampled to confirm waste classification in accordance with specific disposal facility acceptance criteria, if applicable.

Table 6.1.1B
Excavation Scenarios if Soil will be Reused Onsite

Excavation Scenario	90% UCL	Predicted Soluble Lead (WET)	Classification
Scenario 1			
Excavate top 0.5 foot	520.6 mg/kg	22.8 mg/l	**California-hazardous**
Underlying Soil – 0.5 to 4.0 ft	18.4 mg/kg	0.8 mg/l	Non-hazardous
Scenario 2			
Excavate top 1.0 foot	273.2 mg/kg	11.9 mg/l	**California-hazardous**
Underlying Soil – 1.0 to 4.0 ft	17.1 mg/kg	0.7 mg/l	Non-hazardous
Scenario 3			
Excavate top 2.0 ft	150.4 mg/kg	6.6 mg/l	**California-hazardous**
Underlying Soil – 2.0 to 4.0 ft	11.9 mg/kg	0.5 mg/l	Non-hazardous
Scenario 4			
Excavate top 3.0 ft	105.4 mg/kg	4.6 mg/l	Non-hazardous
Underlying Soil – 3.0 to 4.0 ft	8.5 mg/kg	0.4 mg/l	Non-hazardous
Scenario 5			
Excavate top 4.0 ft	81.1 mg/kg	3.5 mg/l	Non-hazardous

Based on the information in Table 6.1.1B, soil between 0.5 and 4.0 ft in depth, or the top 3.0-to 4.0-foot soil profile (Scenarios 4 and 5) where excavated as a whole during planned grading operations, may be reused onsite as non-hazardous soil since the predicted soluble (WET) lead concentrations are less than the STLC value for lead of 5.0 mg/l. Soil generated from the top 0.5 to 2.0 ft of soil

(Scenarios 1 through 3) will be classified as a California-hazardous waste, since the predicted soluble (WET) lead concentrations are greater than the lead STLC of 5.0 mg/l. If excavated separately, the top 0.5 foot of soil should be either (1) managed as a California hazardous waste or (2) stockpiled and resampled to confirm waste classification in accordance with specific disposal facility acceptance criteria, if applicable.

6.1.2 Sample Population B - Borings SB1 through SB18

Table 6.1.2A
Excavation Scenarios if Soil will be Disposed of as a Waste

Excavation Scenario	95% UCL	Predicted Soluble Lead (WET)	Classification
Scenario 1			
Excavate top 0.5 foot	180.7 mg/kg	7.9 mg/l	**California-hazardous**
Underlying Soil – 0.5 to 4.0 ft	27.2 mg/kg	1.2 mg/l	Non-hazardous
Scenario 2			
Excavate top 1.0 foot	106.4 mg/kg	4.6 mg/l	Non-hazardous
Underlying Soil – 1.0 to 4.0 ft	26.4 mg/kg	1.2 mg/l	Non-hazardous
Scenario 3			
Excavate top 2.0 ft	61.9 mg/kg	2.7 mg/l	Non-hazardous
Underlying Soil – 2.0 to 4.0 ft	31.0 mg/kg	1.4 mg/l	Non-hazardous
Scenario 4			
Excavate top 3.0 ft	46.4 mg/kg	2.0 mg/l	Non-hazardous
Underlying Soil – 3.0 to 4.0 ft	46.4 mg/kg	2.0 mg/l	Non-hazardous
Scenario 5			
Excavate top 4.0 ft	46.4 mg/kg	2.0 mg/l	Non-hazardous

Based on the information in Table 6.1.2A, soil between 0.5 and 4.0 ft in depth, or the top 1.0-to 4.0-foot oil profile (Scenarios 2 through 5) where excavated as a whole during planned grading operations, may be disposed of as non-hazardous soil since the predicted soluble (WET) lead concentrations are less than the STLC value for lead of 5.0 mg/l. Soil generated from the top 0.5 foot (Scenario 1) will be classified as a California-hazardous waste, since the predicted soluble (WET) lead concentration is greater than the lead STLC of 5.0 mg/l. If excavated separately, the top 0.5 foot of soil should be either (1) managed and disposed of as a California hazardous waste or (2) stockpiled and resampled to confirm waste classification in accordance with specific disposal facility acceptance criteria, if applicable.

Table 6.1.2B
Excavation Scenarios if Soil will be Reused Onsite

Excavation Scenario	90% UCL	Predicted Soluble Lead (WET)	Classification
Scenario 1			
Excavate top 0.5 foot	157.4 mg/kg	6.9 mg/l	**California-hazardous**
Underlying Soil – 0.5 to 4.0 ft	24.8 mg/kg	1.1 mg/l	Non-hazardous
Scenario 2			
Excavate top 1.0 foot	93.6 mg/kg	4.1 mg/l	Non-hazardous
Underlying Soil – 1.0 to 4.0 ft	24.0 mg/kg	1.0 mg/l	Non-hazardous
Scenario 3			
Excavate top 2.0 ft	55.0 mg/kg	2.4 mg/l	Non-hazardous
Underlying Soil – 2.0 to 4.0 ft	27.8 mg/kg	1.2 mg/l	Non-hazardous
Scenario 4			
Excavate top 3.0 ft	41.5 mg/kg	1.8 mg/l	Non-hazardous
Underlying Soil – 3.0 to 4.0 ft	41.1 mg/kg	1.8 mg/l	Non-hazardous
Scenario 5			
Excavate top 4.0 ft	41.4 mg/kg	1.8 mg/l	Non-hazardous

Based on the information in Table 6.1.2B, soil between 0.5 and 4.0 ft in depth, or the top 1.0-to 4.0-foot soil profile (Scenarios 2 through 5) where excavated as a whole during planned grading operations, may be reused onsite as non-hazardous soil since the predicted soluble (WET) lead concentrations are less than the STLC value for lead of 5.0 mg/l. Soil generated from the top 0.5 foot (Scenario 1) will be classified as a California-hazardous waste, since the predicted soluble (WET) lead concentration is greater than the lead STLC of 5.0 mg/l. If excavated separately, the top 0.5 foot of soil should be either (1) managed as a California hazardous waste or (2) stockpiled and resampled to confirm waste classification in accordance with specific disposal facility acceptance criteria, if applicable.

6.1.3 Sample Population C - Borings B1 through B17, NB1 through NB5 and SB1 through SB18

Table 6.1.3A
Excavation Scenarios if Soil will be Disposed of as a Waste

Excavation Scenario	95% UCL	Predicted Soluble Lead (WET)	Classification
Scenario 1			
Excavate top 0.5 foot	459.6 mg/kg	20.1 mg/l	**California-hazardous**
Underlying Soil – 0.5 to 4.0 ft	21.2 mg/kg	0.9 mg/l	Non-hazardous
Scenario 2			
Excavate top 1.0 foot	243.2 mg/kg	10.6 mg/l	**California-hazardous**
Underlying Soil – 1.0 to 4.0 ft	20.2 mg/kg	0.9 mg/l	Non-hazardous

Excavation Scenario	95% UCL	Predicted Soluble Lead (WET)	Classification
Scenario 3			
Excavate top 2.0 ft	134.6 mg/kg	5.9 mg/l	**California-hazardous**
Underlying Soil – 2.0 to 4.0 ft	17.4 mg/kg	0.8 mg/l	Non-hazardous
Scenario 4			
Excavate top 3.0 ft	94.7 mg/kg	4.1 mg/l	Non-hazardous
Underlying Soil – 3.0 to 4.0 ft	19.8 mg/kg	0.9 mg/l	Non-hazardous
Scenario 5			
Excavate top 4.0 ft	76.0 mg/kg	3.3 mg/l	Non-hazardous

Based on the information in Table 6.1.3A, soil between 0.5 and 4.0 ft in depth, or the top 3.0-to 4.0-foot soil profile (Scenarios 4 and 5) where excavated as a whole during planned grading operations, may be disposed of as non-hazardous soil since the predicted soluble (WET) lead concentrations are less than the STLC value for lead of 5.0 mg/l. Soil generated from the top 0.5 to 2.0 ft (Scenarios 1 through 3) will be classified as a California-hazardous waste, since the predicted soluble (WET) lead concentrations are greater than the lead STLC of 5.0 mg/l. If excavated separately, the top 0.5 foot of soil should be either (1) managed and disposed of as a California hazardous waste or (2) stockpiled and resampled to confirm waste classification in accordance with specific disposal facility acceptance criteria, if applicable.

Table 6.1.3B
Excavation Scenarios if Soil will be Reused Onsite

Excavation Scenario	90% UCL	Predicted Soluble Lead (WET)	Classification
Scenario 1			
Excavate top 0.5 foot	426.2 mg/kg	18.6 mg/l	**California-hazardous**
Underlying Soil – 0.5 to 4.0 ft	19.6 mg/kg	0.9 mg/l	Non-hazardous
Scenario 2			
Excavate top 1.0 foot	225.5 mg/kg	9.9 mg/l	**California-hazardous**
Underlying Soil – 1.0 to 4.0 ft	18.7 mg/kg	0.8 mg/l	Non-hazardous
Scenario 3			
Excavate top 2.0 ft	124.7 mg/kg	5.4 mg/l	**California-hazardous**
Underlying Soil – 2.0 to 4.0 ft	16.1 mg/kg	0.7 mg/l	Non-hazardous
Scenario 4			
Excavate top 3.0 ft	87.8 mg/kg	3.8 mg/l	Non-hazardous
Underlying Soil – 3.0 to 4.0 ft	18.1 mg/kg	0.8 mg/l	Non-hazardous
Scenario 5			
Excavate top 4.0 ft	70.4 mg/kg	3.1 mg/l	Non-hazardous

Based on the information in Table 6.1.3B, soil between 0.5 and 4.0 ft in depth, or the top 3.0-to 4.0-foot soil profile (Scenarios 4 and 5) where excavated as a whole during planned grading operations, may be reused onsite as non-hazardous soil since the predicted soluble (WET) lead concentrations are less than the STLC value for lead of 5.0 mg/l. Soil generated from the top 0.5 to 2.0 ft of soil (Scenarios 1 through 3) will be classified as a California-hazardous waste, since the predicted soluble (WET) lead concentrations are greater than the lead STLC of 5.0 mg/l. If excavated separately, the top 0.5 foot of soil should be either (1) managed as a California hazardous waste or (2) stockpiled and resampled to confirm waste classification in accordance with specific disposal facility acceptance criteria, if applicable.

If soil within the project limits is scarified in-place, moisture-conditioned, and recompacted during roadway improvement activities, it may not be considered a "waste."

6.2 Yellow Traffic Stripe Paint Waste Classification/Disposal

The yellow traffic paint stripe was sampled per Caltrans request since it may be removed from the underlying asphalt concrete by grinding or sand blasting, which would create a paint waste stream. The highest reported levels of total lead and total chromium for the yellow traffic stripe paint samples were 2,360 mg/kg and 852 mg/kg, respectively. The reported TCLP soluble lead level for the composite paint sample was 5.75 mg/l. Since the TCLP soluble lead concentration is greater than the federal regulatory TCLP threshold of 5.0 mg/l for lead, the yellow traffic stripe paint may require disposal as a RCRA hazardous waste.

At the time of this report, design plans did not call for the grinding of the yellow paint stripe. The paint stripes will be removed along with the roadway and underlying sub-base. If design plans change, and grinding of the yellow paint stripe is required, additional analytical testing of the paint stripes may be required.

6.3 Worker Protection

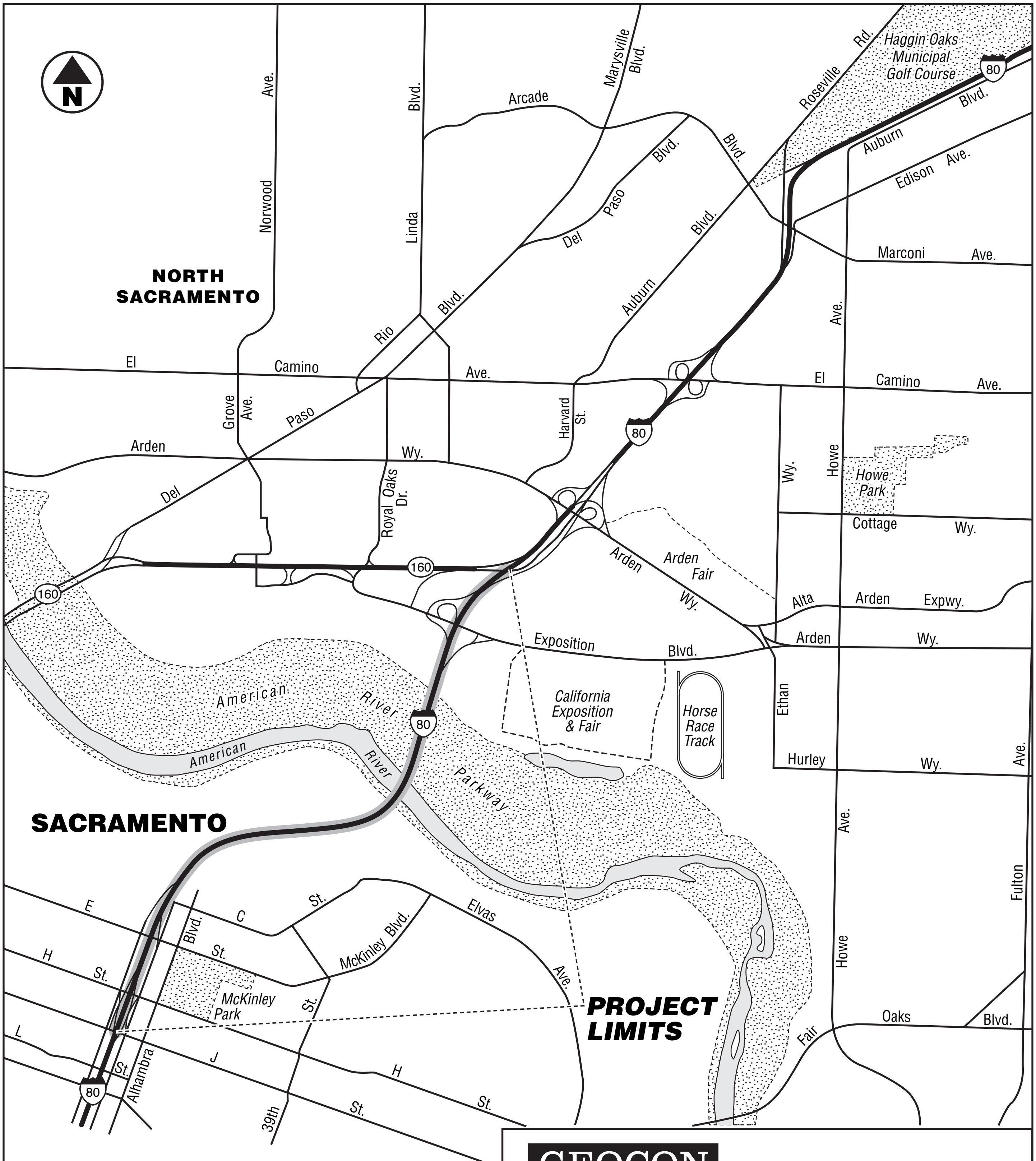
Per Caltrans requirements, the contractor(s) should prepare a project-specific Lead Compliance Plan (CCR Title 8, Section 1532.1, the "Lead in Construction" standard) to minimize worker exposure to lead-impacted soil. The plan should include protocols for environmental and personnel monitoring, requirements for personal protective equipment, and other health and safety protocols and procedures for the handling of lead-impacted soil.

If design plans change so that grinding of the yellow paint stripe is required, and since paint at the Site contains lead and/or chromium which according to Caltrans may produce toxic fumes when heated, we recommend that a Health and Safety Plan be prepared to minimize worker exposure. The Health and Safety plan should include a discussion of the constituents of concern, routes of exposure, permissible exposure limits, and personal protective measures. The health and safety plan should be reviewed and signed by the onsite construction workers prior to any field activities. We also recommend that contractors on the Site grinding asphalt which has been coated with yellow paint prepare a dust control plan. The dust control plan should include dust mitigation and monitoring procedures.

7.0 REPORT LIMITATIONS

This report has been prepared exclusively for Caltrans. 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. We 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.



0 1/2
Scale in Miles

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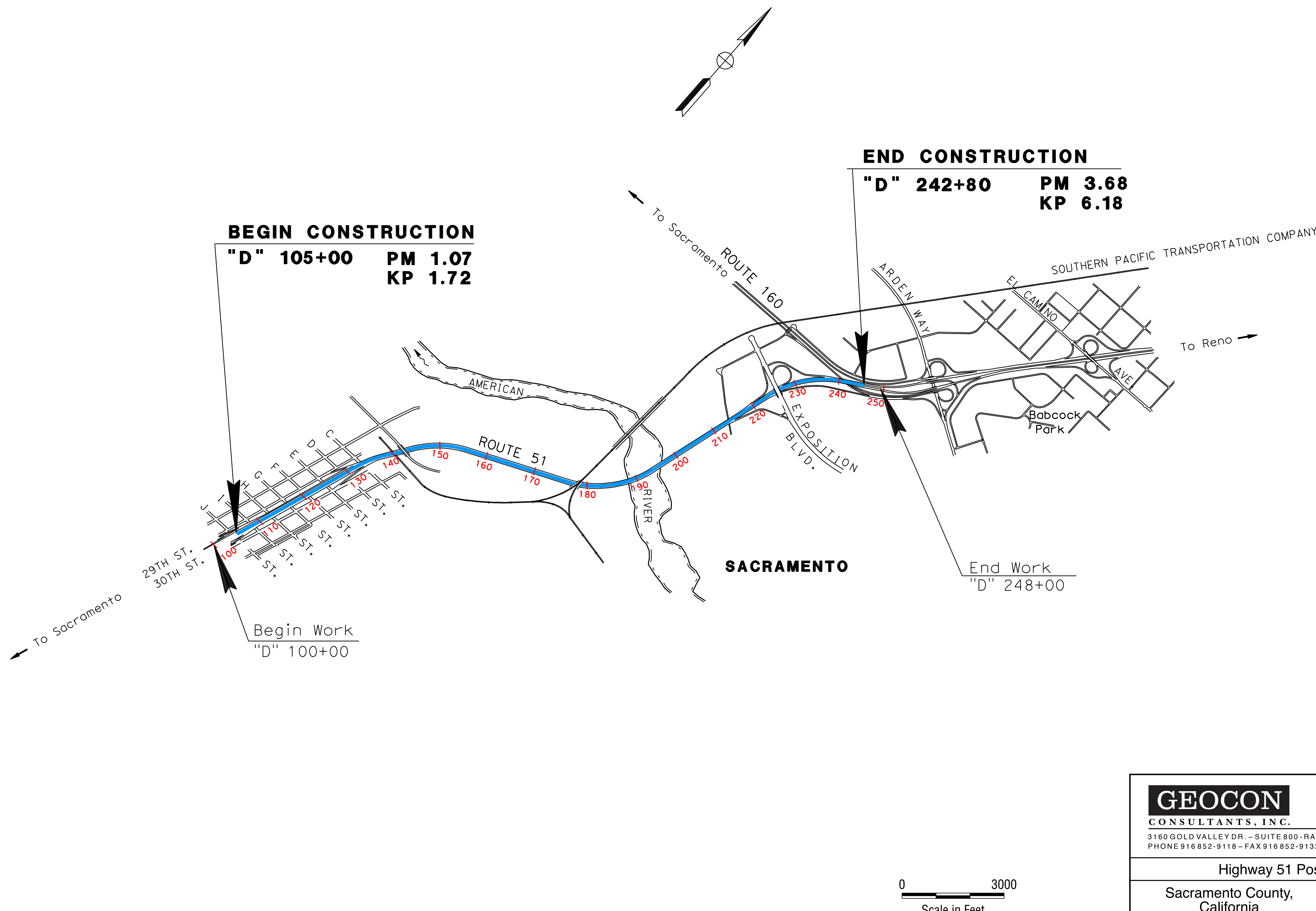
Highway 51 Post Mile 1.07 to 3.68	
Sacramento County, California	**VICINITY MAP**
GEOCON Proj. No. S8875-06-152	
Task Order No. 152	July 2007 / Figure 1



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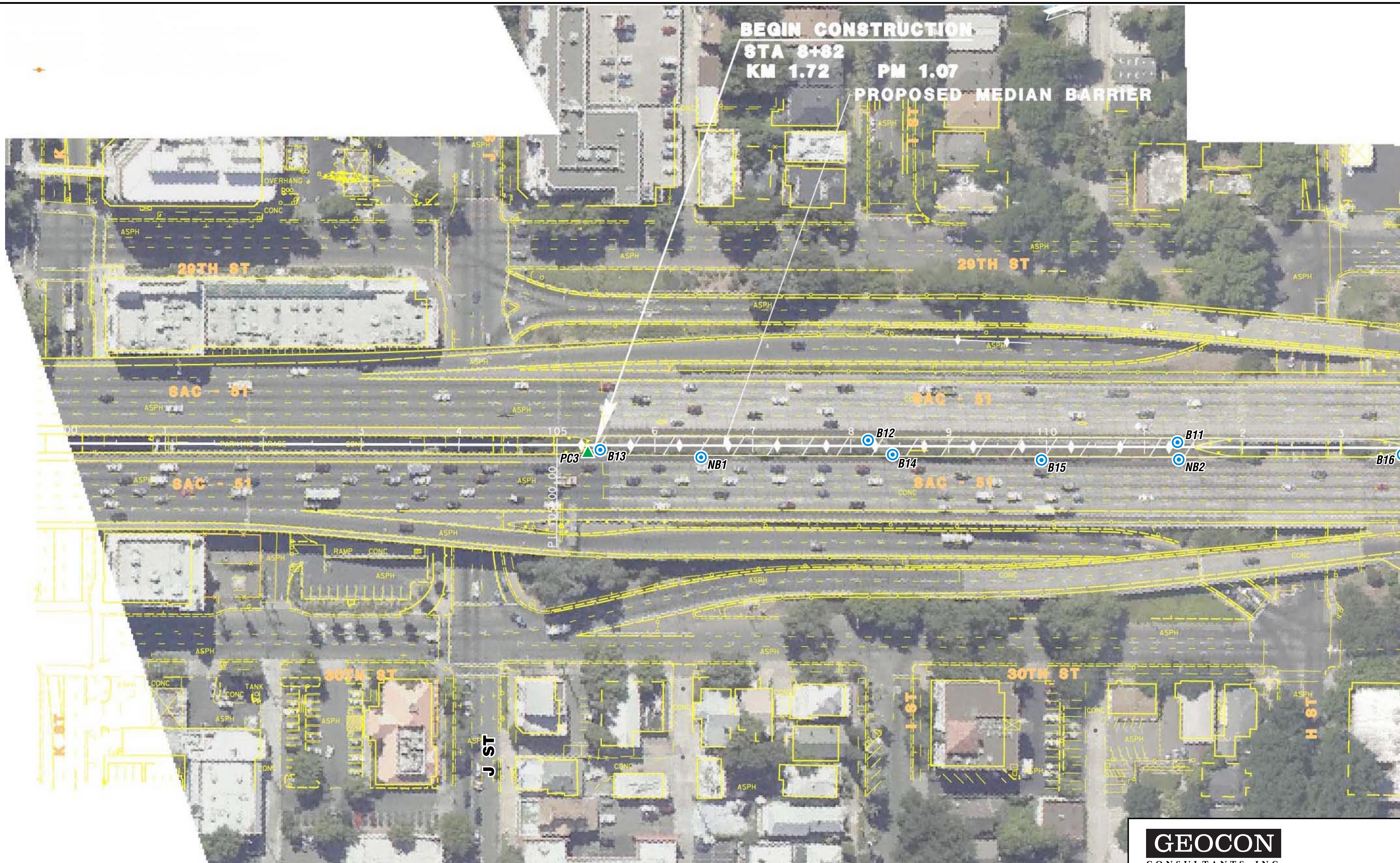
Highway 51 Post Mile 1.07 to 3.68		
Sacramento County, California	**PROJECT LOCATION MAP**	
GEOCON Proj. No. S8875-06-152		
Task Order No. 152	July 2007	Figure 2



LEGEND:

NB1 ◎ Approximate Direct-Push Boring Location

PC1 ▲ Approximate Paint Chip Sample Location

0 100
Scale in Feet

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Highway 51 Post Mile 1.07 to 3.68		
Sacramento County, California	SITE PLAN	
GEOCON Proj. No. S8875-06-152		
Task Order No. 152	July 2007	Figure 3-1

LEGEND:

NB1 Approximate Direct-Push Boring Location

B1 Approximate Hand-Auger Boring Location

PC1 Approximate Paint Chip Sample Location

0 100
Scale in Feet

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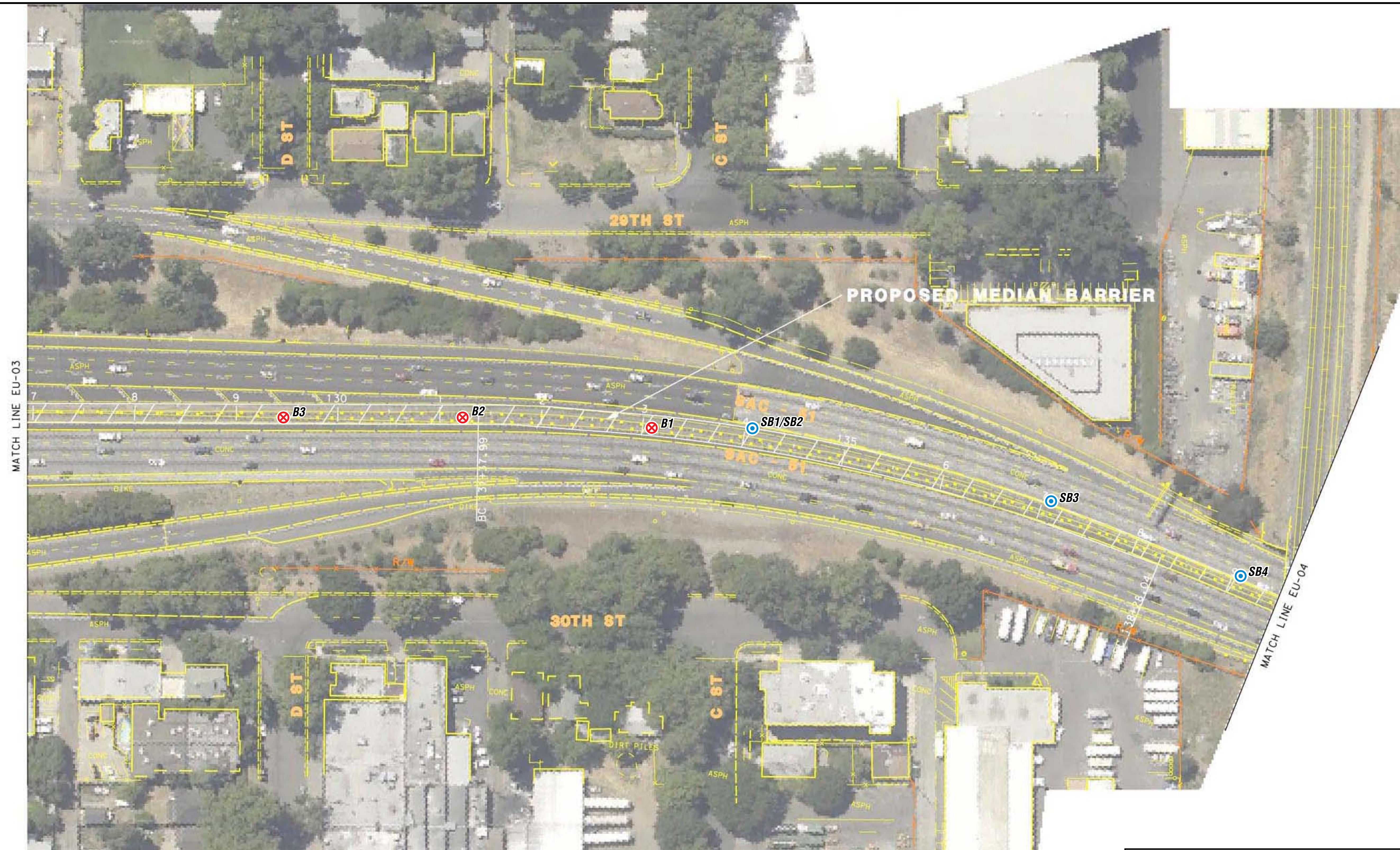
Highway 51 Post Mile 1.07 to 3.68

Sacramento County, California	**SITE PLAN**
GEOCON Proj. No. S8875-06-152	
Task Order No. 152	July 2007 / Figure 3-2



LEGEND:

NB1 Approximate Direct-Push Boring Location

B1 Approximate Hand-Auger Boring Location

0 100
Scale in Feet

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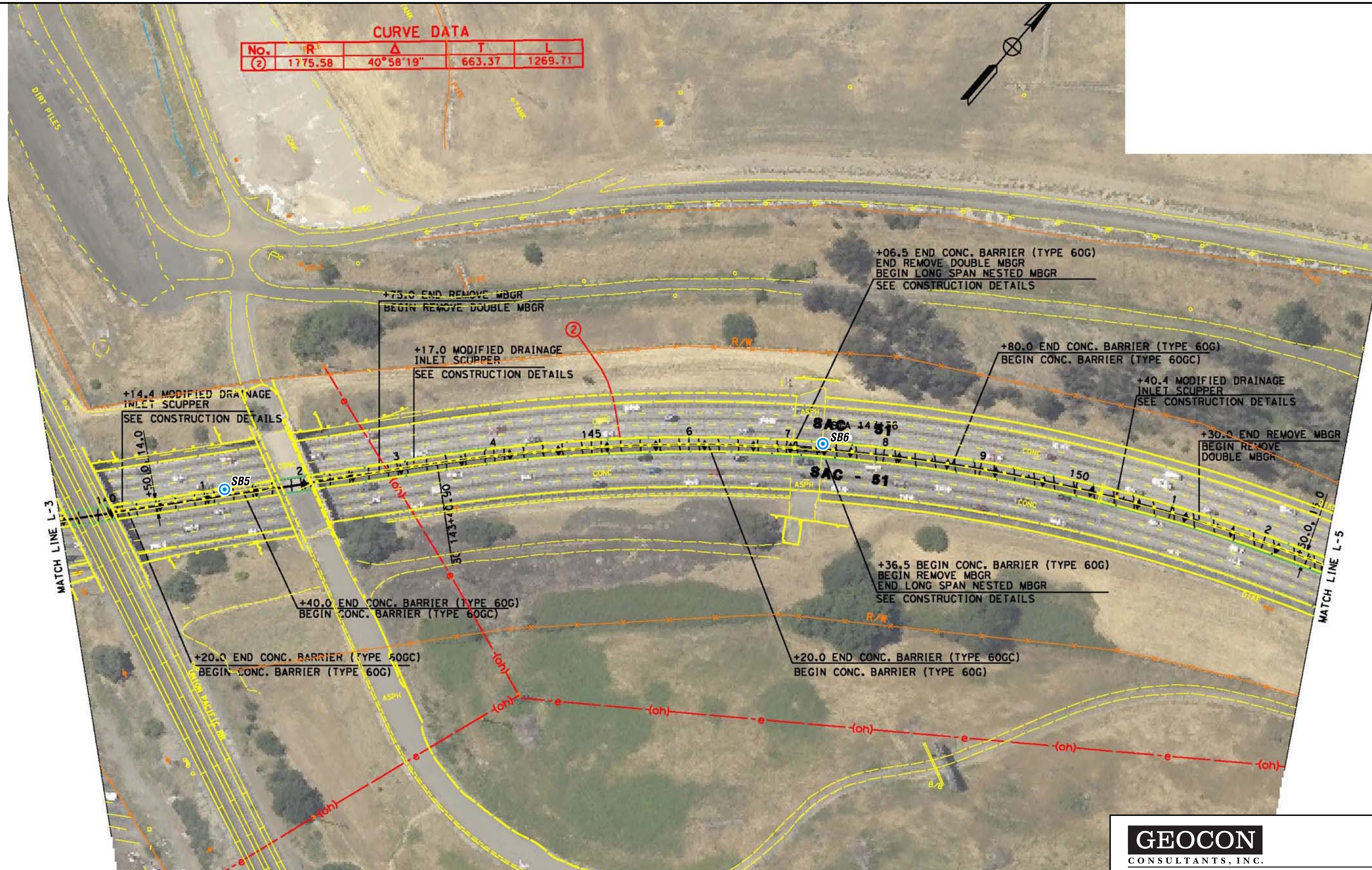
Highway 51 Post Mile 1.07 to 3.68	
Sacramento County, California	SITE PLAN
GEOCON Proj. No. S8875-06-152	
Task Order No. 152	July 2007 — Figure 3-3



LEGEND:

NB1 ⊙ Approximate Direct-Push Boring Location

0 100
Scale in Feet

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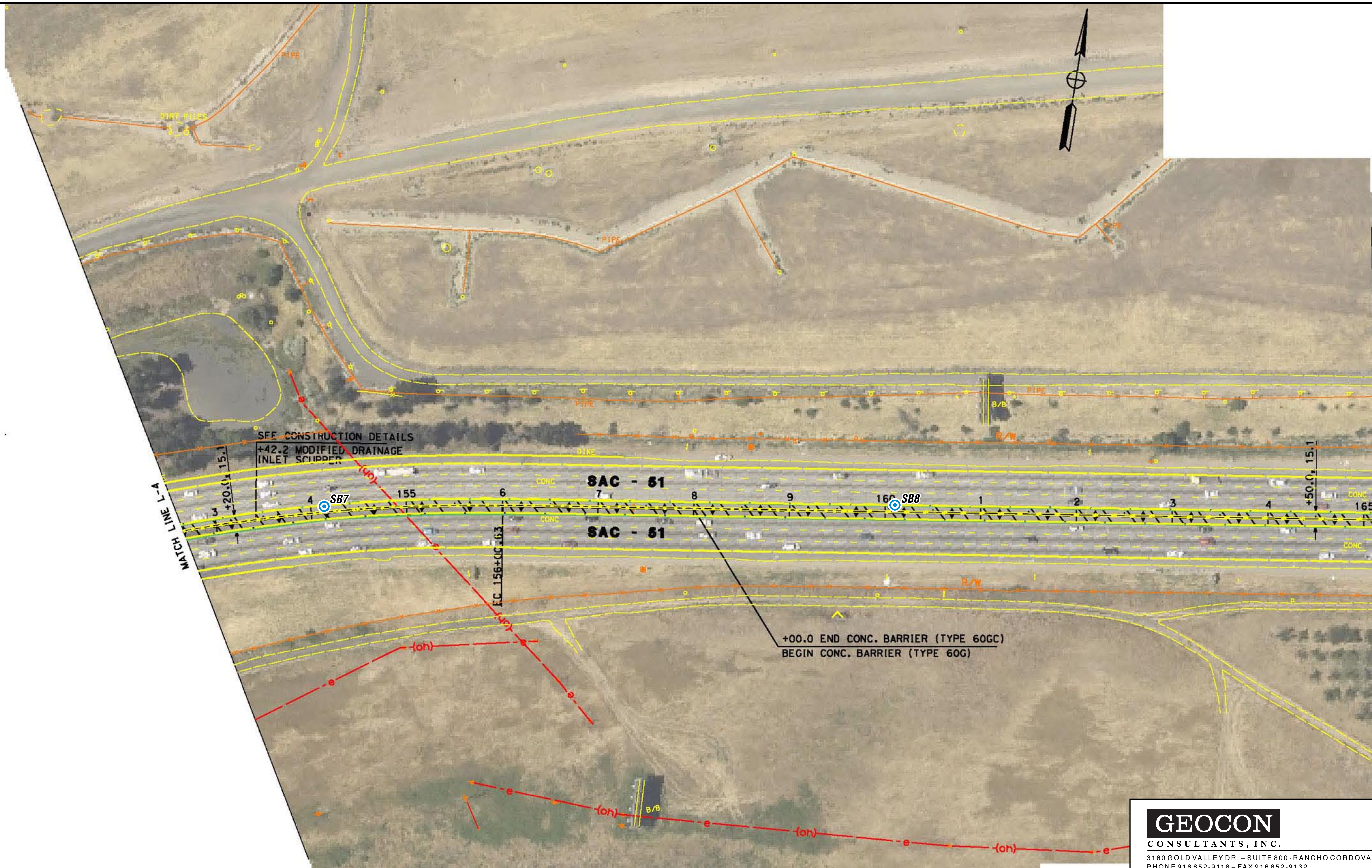
Highway 51 Post Mile 1.07 to 3.68		
Sacramento County, California	**SITE PLAN**	
GEOCON Proj. No. S8875-06-152		
Task Order No. 152	July 2007	Figure 3-4



LEGEND:

NB1 ⦿ Approximate Direct-Push Boring Location

0 — 100
Scale in Feet

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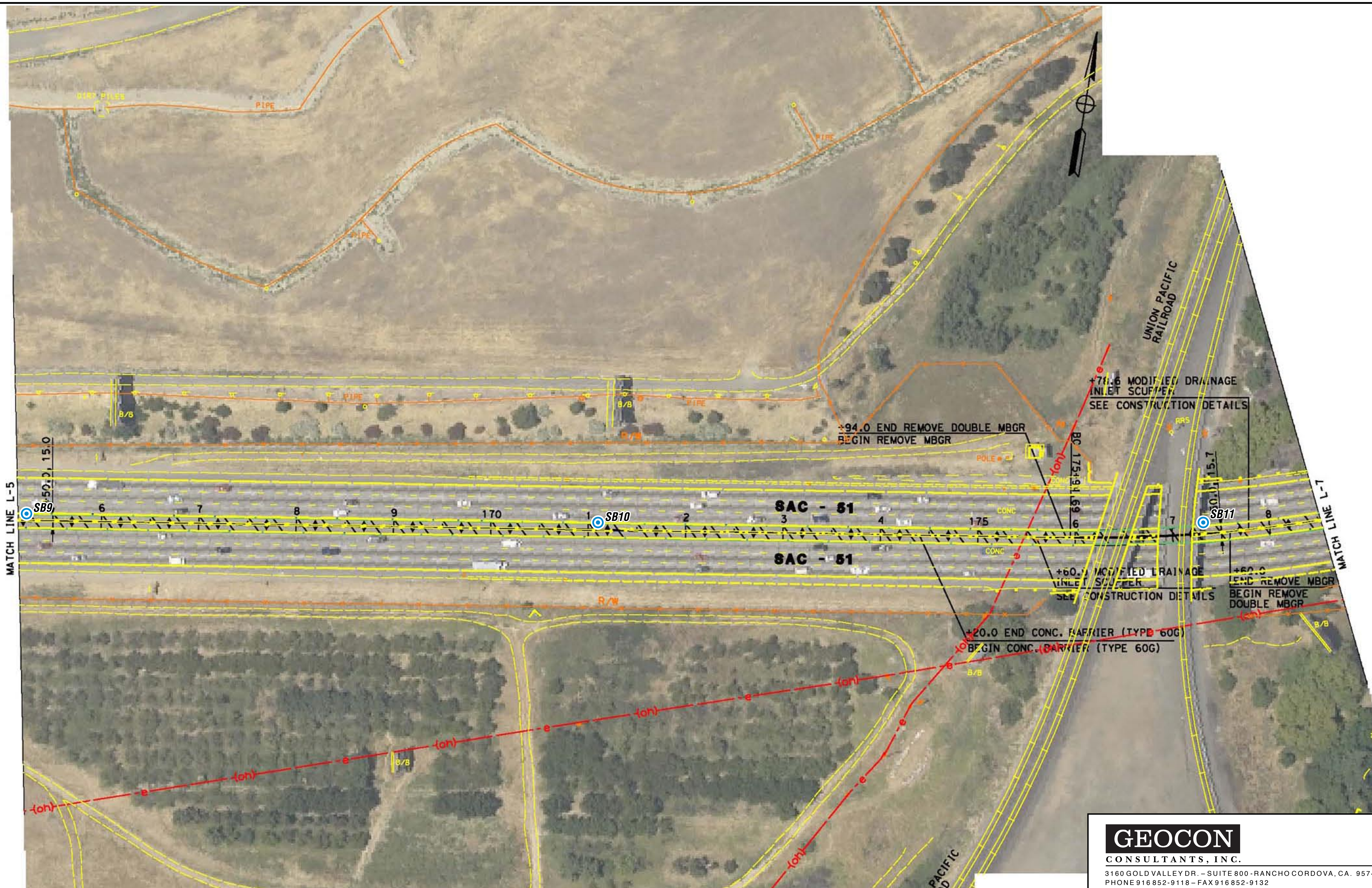
Highway 51 Post Mile 1.07 to 3.68		
Sacramento County, California	**SITE PLAN**	
GEOCON Proj. No. S8875-06-152		
Task Order No. 152	July 2007	Figure 3-5



LEGEND:

NB1 ◉ Approximate Direct-Push Boring Location

0 100
Scale in Feet

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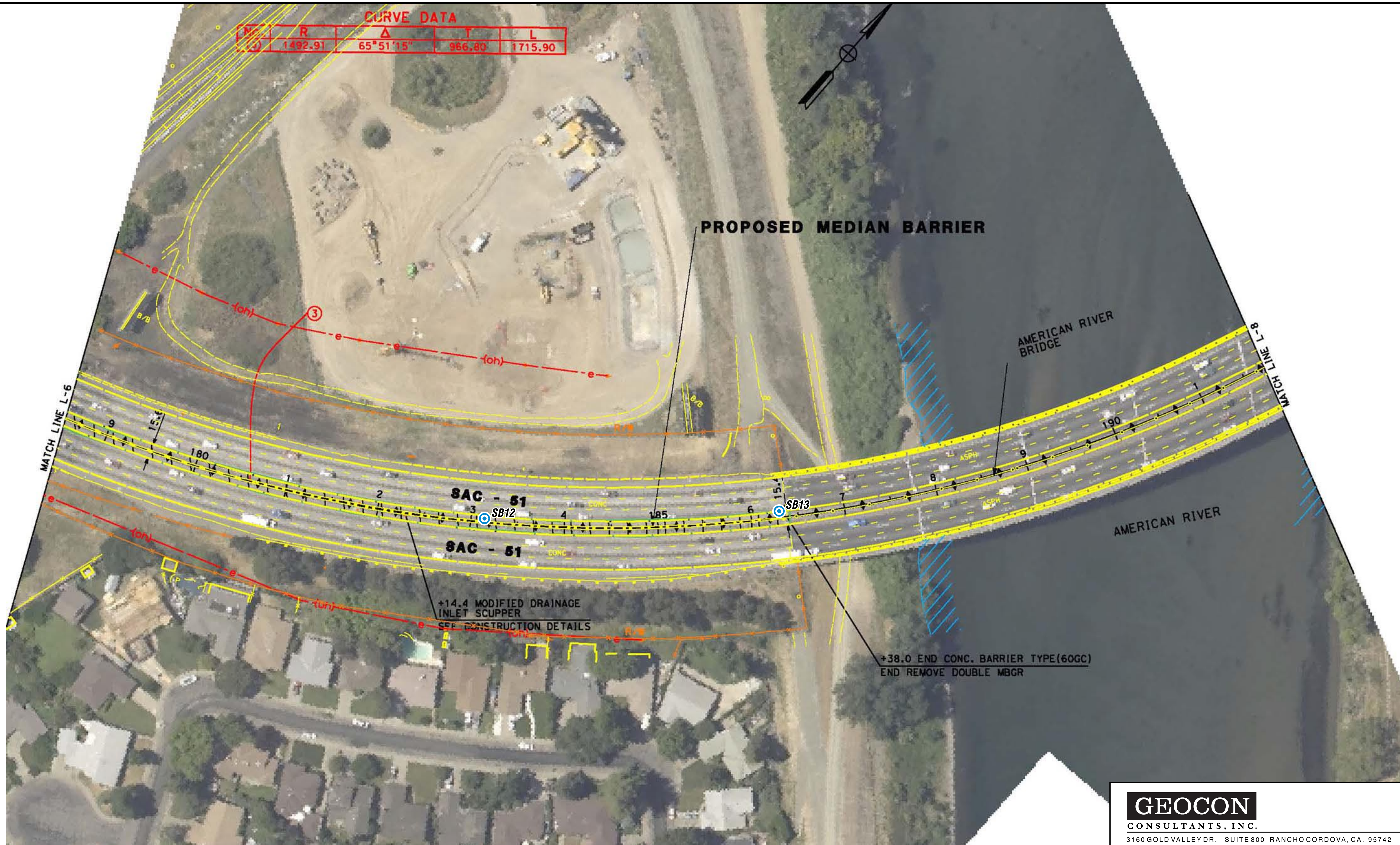
Sacramento County, California	SITE PLAN	
GEOCON Proj. No. S8875-06-152		
Task Order No. 152	July 2007	Figure 3-6



LEGEND:

NB1 ⊙ Approximate Direct-Push Boring Location

0 100
Scale in Feet

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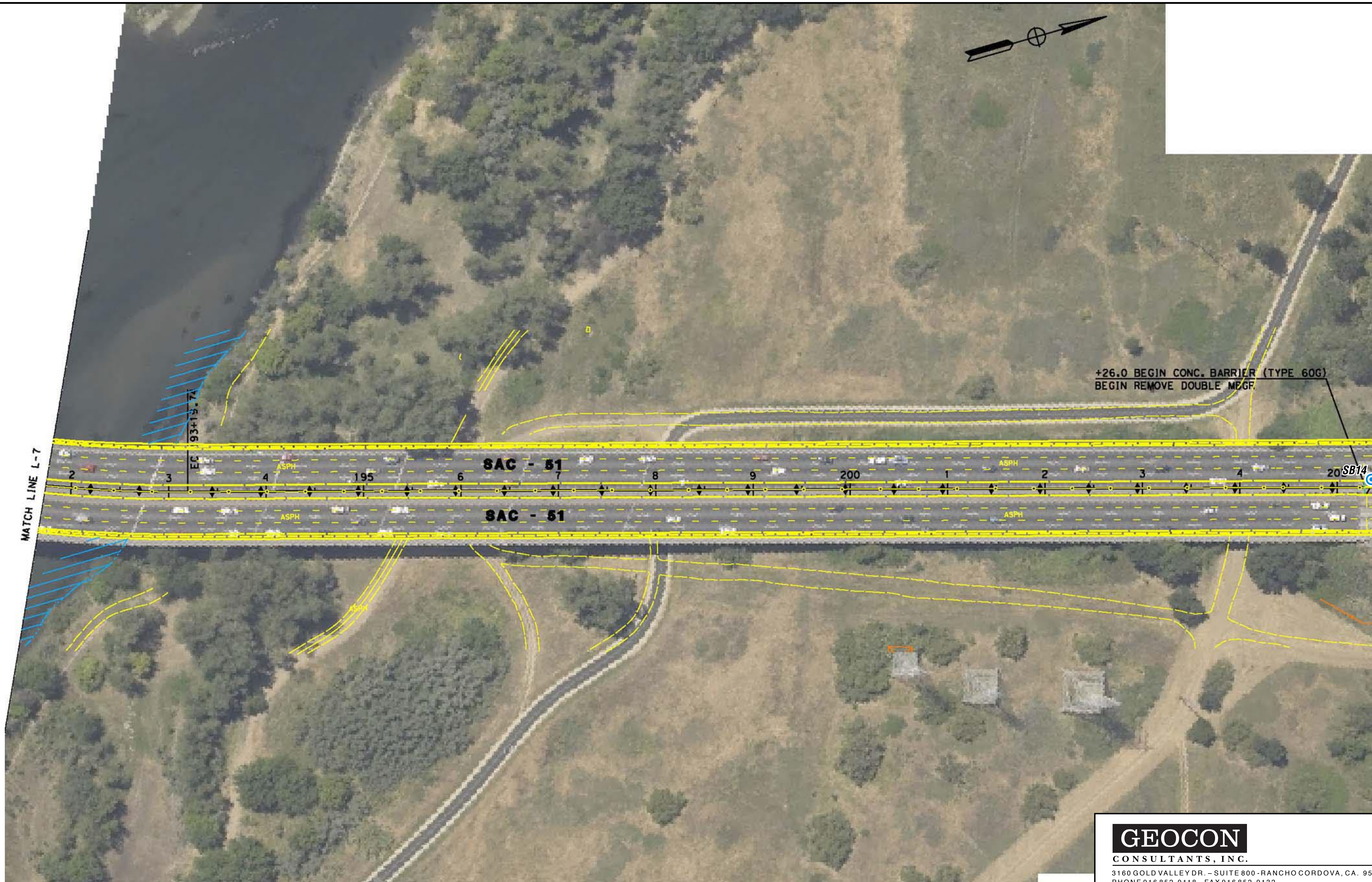
Highway 51 Post Mile 1.07 to 3.68

Sacramento County, California	**SITE PLAN**
GEOCON Proj. No. S8875-06-152	
Task Order No. 152	July 2007	Figure 3-7



LEGEND:

NB1 Approximate Direct-Push Boring Location

0 100
Scale in Feet

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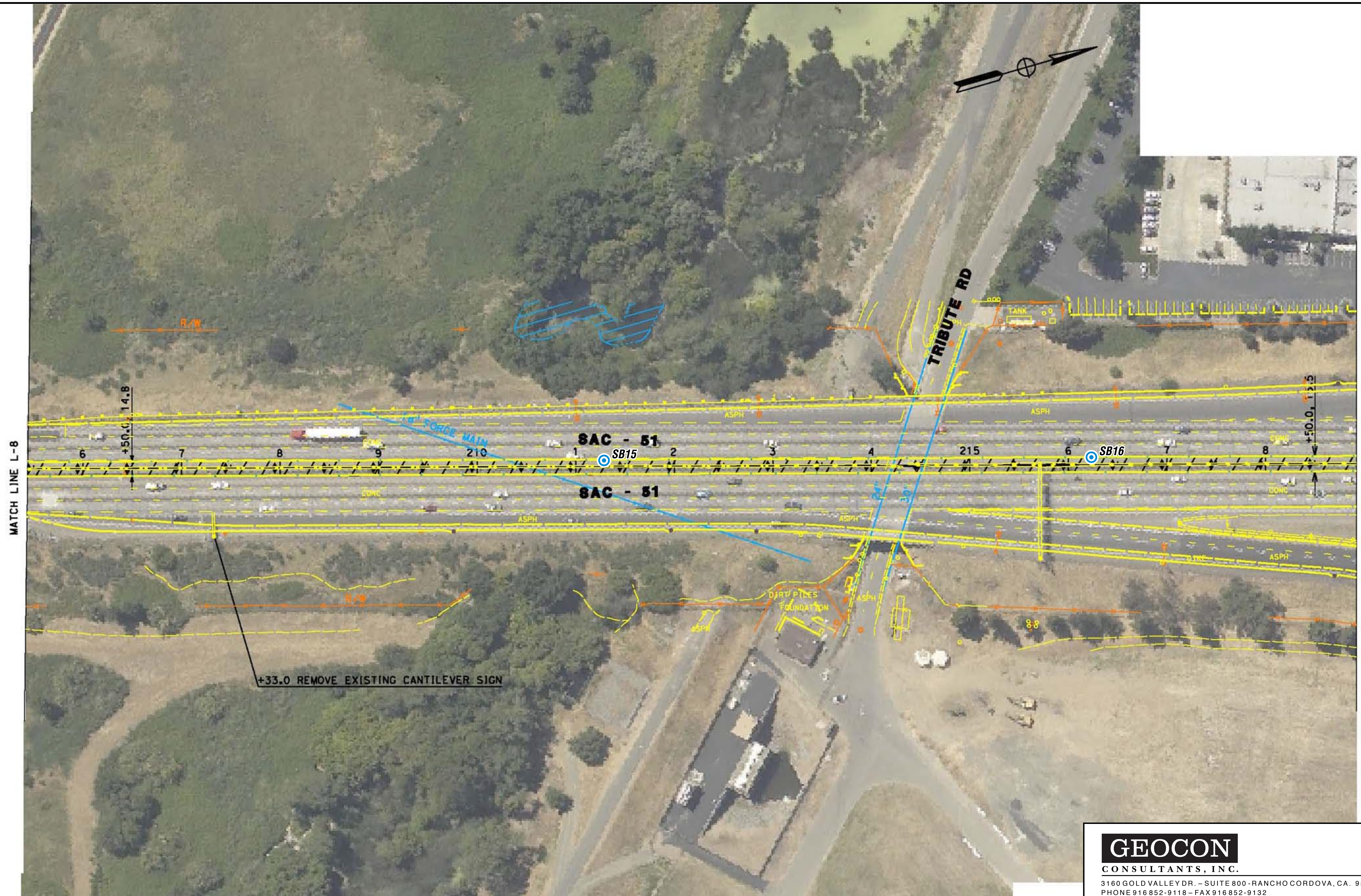
Highway 51 Post Mile 1.07 to 3.68		
Sacramento County, California	SITE PLAN	
GEOCON Proj. No. S8875-06-152		
Task Order No. 152	July 2007	Figure 3-8



LEGEND:

NB1 ⊙ Approximate Direct-Push Boring Location

0 100
Scale in Feet

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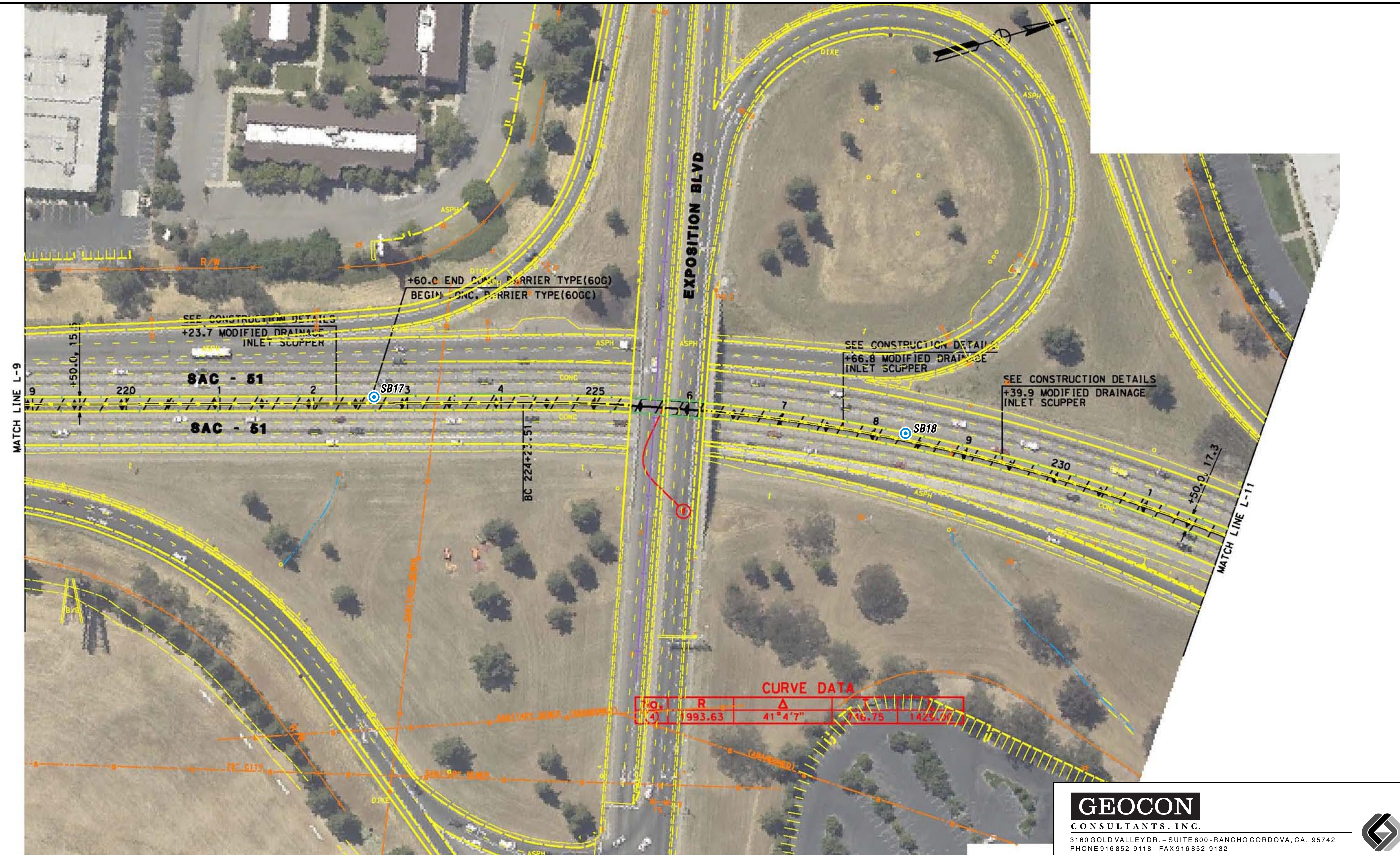
Highway 51 Post Mile 1.07 to 3.68		
Sacramento County, California	SITE PLAN	
GEOCON Proj. No. S8875-06-152		
Task Order No. 152	July 2007	Figure 3-9



LEGEND:

NB1 ⦿ Approximate Direct-Push Boring Location

0 100
Scale in Feet

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Sacramento County, California	SITE PLAN	
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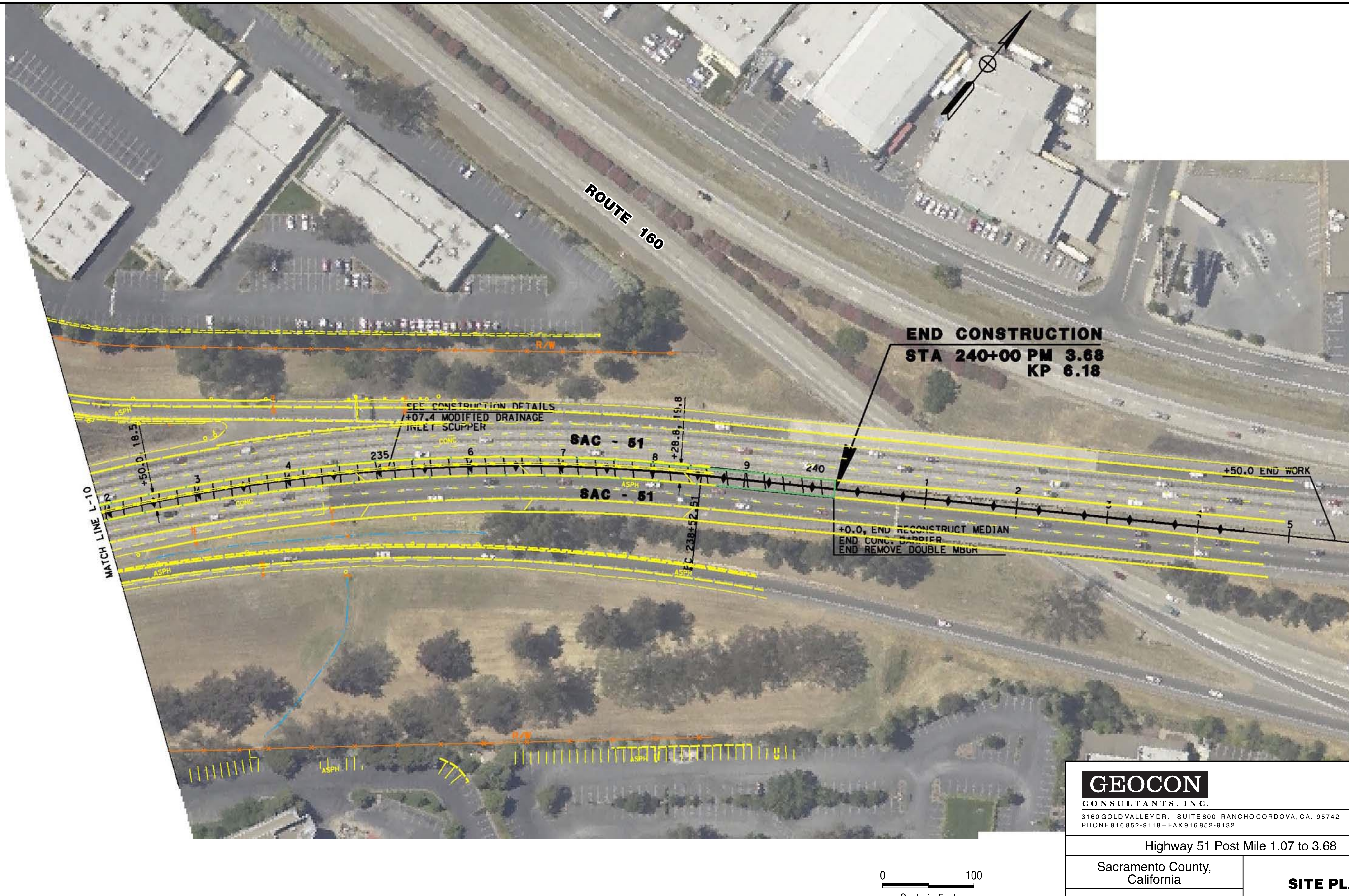
Task Order No. 152	July 2007	Figure 3-10



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Highway 51 Post Mile 1.07 to 3.68	
Sacramento County, California	**SITE PLAN**
GEOCON Proj. No. S8875-06-152	
Task Order No. 152	July 2007 — Figure 3-11

TABLE 1
SUMMARY OF SOIL BORING AND PAINT SAMPLE LOCATION COORDINATES
CALTRANS TASK ORDER NO. 152
HIGHWAY 51 POST MILE 1.07 TO 3.68
SACRAMENTO COUNTY, CALIFORNIA

BORING I.D.	SAMPLE DATE	LATITUDE	LONGITUDE
B1	3/9/2007	38.580737944	-121.463980538
B2	3/9/2007	38.580309861	-121.464178929
B3	3/9/2007	38.579873563	-121.464398990
B4	3/9/2007	38.579240024	-121.464662136
B5	3/9/2007	38.578458900	-121.465032255
B6	3/9/2007	38.578258429	-121.465122943
B7	3/10/2007	38.577293789	-121.465549023
B8	3/10/2007	38.577145095	-121.465609278
B9	3/10/2007	38.576200509	-121.466020116
B10	3/10/2007	38.575995483	-121.466096400
B11	3/10/2007	38.575111430	-121.466493867
B12	3/10/2007	38.574311589	-121.466830105
B13	3/10/2007	38.573624787	-121.467065535
B14	3/10/2007	38.574327774	-121.466757101
B15	3/10/2007	38.574988436	-121.466471143
B16	3/10/2007	38.575845938	-121.466087009
B17	3/10/2007	38.576881904	-121.465651175
NB1	6/8/2007	38.573927150	-121.466900590
NB2	6/8/2007	38.575081766	-121.466416828
NB3	6/8/2007	38.576008861	-121.466013392
NB4	6/8/2007	38.577076770	-121.465550003
NB5	6/8/2007	38.578171043	-121.465070509
SB1	6/7/2007	38.580520320	-121.464117935
SB2	6/8/2007	38.580588271	-121.464102849
SB3	6/8/2007	38.581656089	-121.463326708
SB4	6/8/2007	38.582127733	-121.462823516
SB5	6/8/2007	38.582603122	-121.462308745
SB6	6/8/2007	38.583834697	-121.460717648
SB7	6/8/2007	38.584515823	-121.458916752
SB8	6/8/2007	38.584781483	-121.456928089
SB9	6/8/2007	38.585025354	-121.454927502
SB10	6/8/2007	38.585237946	-121.452838720
SB11	6/8/2007	38.585522109	-121.450520657
SB12	6/8/2007	38.586227896	-121.448622643
SB13	6/8/2007	38.586684208	-121.447974129
SB14	6/8/2007	38.591558767	-121.445571269
SB15	6/8/2007	38.593022551	-121.445032069
SB16	6/8/2007	38.594560235	-121.444454040
SB17	6/8/2007	38.596094824	-121.443887124
SB18	6/8/2007	38.597603444	-121.443177102
PC1	3/9/2007	38.578538577	-121.465025355
PC2	3/10/2007	38.576275100	-121.466012195
PC3	3/10/2007	38.573546100	-121.467062864
PC4	3/10/2007	38.576795047	-121.465660451

TABLE 2
SUMMARY OF LEAD AND SOIL pH ANALYTICAL RESULTS
CALTRANS TASK ORDER NO. 152
HIGHWAY 51 POST MILE 1.07 TO 3.68
SACRAMENTO COUNTY, CALIFORNIA

SAMPLE I.D.	TOTAL LEAD (mg/kg)	SOLUBLE WET LEAD (mg/l)	SOIL pH
B1-0.0	2,540	**112 (46.5 TCLP)**	---
B1-0.5	74.9	0.395	---
B2-0.0	58.2	1.23	---
B2-0.5	21.4	0.126	---
B2-1.0	12.2	<0.05	---
B2-2.0	12.6	---	8.31
B2-3.0	8.33	---	---
B3-0.0	31.6	0.840	---
B3-0.5	9.79	<0.05	---
B3-1.0	9.47	<0.05	---
B3-2.0	9.28	---	---
B3-3.0	7.95	---	---
B4-0.0	537	**17.8**	---
B4-0.5	13.7	<0.05	8.13
B4-1.0	15.8	0.121	---
B4-2.0	9.24	---	---
B4-3.0	13.7	---	---
B5-0.0	6.16	<0.05	---
B5-0.5	6.39	<0.05	---
B5-1.0	7.57	<0.05	---
B5-2.0	8.27	---	---
B5-3.0	7.61	---	---
B6-0.0	787	**58.5**	---
B6-0.5	14.5	0.365	7.92
B6-1.0	6.64	<0.05	---
B6-2.0	6.69	---	---
B6-3.0	6.00	---	---
B7-0.0	7.15	<0.05	---
B7-0.5	6.88	<0.05	---
B7-1.0	7.41	<0.05	---
B7-2.0	8.63	---	---
B7-3.0	8.46	---	---
B8-0.0	187	**7.08**	---
B8-0.5	122	4.83	---
B8-1.0	188	4.24	---
B8-2.0	8.20	---	7.87
B8-3.0	8.75	---	---
B9-0.0	16.5	0.384	---
B9-0.5	6.97	<0.05	---
B9-1.0	7.02	<0.05	---
B9-2.0	7.57	---	---
B9-3.0	7.32	---	---

TABLE 2
SUMMARY OF LEAD AND SOIL pH ANALYTICAL RESULTS
CALTRANS TASK ORDER NO. 152
HIGHWAY 51 POST MILE 1.07 TO 3.68
SACRAMENTO COUNTY, CALIFORNIA

SAMPLE I.D.	TOTAL LEAD (mg/kg)	SOLUBLE WET LEAD (mg/l)	SOIL pH
B10-0.0	688	**33.3**	---
B10-0.5	8.57	<0.05	---
B10-1.0	7.54	<0.05	7.99
B10-2.0	61.7	---	---
B10-3.0	6.07	---	---
B11-0.0	67.4	4.43	---
B11-0.5	6.90	0.060	---
B11-1.0	6.13	<0.05	---
B11-2.0	8.22	---	---
B11-3.0	6.93	---	---
B12-0.0	58.4	1.42	---
B12-0.5	6.93	<0.05	---
B12-1.0	7.15	<0.05	8.54
B12-2.0	8.06	---	---
B12-3.0	8.43	---	---
B13-0.0	806	**22.7**	---
B13-0.5	9.26	0.0625	---
B13-1.0	8.40	<0.05	---
B13-2.0	7.94	---	---
B13-3.0	8.90	---	---
B14-0.0	856	**32.8** (3.71 TCLP)	7.36
B14-0.5	9.66	<0.05	---
B14-1.0	7.50	<0.05	---
B14-2.0	8.23	---	---
B14-3.0	9.25	---	---
B15-0.0	748	**29.6**	---
B15-0.5	20.0	0.310	---
B15-1.0	7.46	<0.05	---
B15-2.0	7.84	---	---
B15-3.0	6.78	---	---
B16-0.0	323	**10.4**	7.43
B16-0.5	35.7	0.660	---
B17-0.0	369	**21.5**	---
B17-0.5	9.14	<0.05	---
B17-1.0	7.65	<0.05	---
B17-2.0	7.38	---	---
B17-3.0	8.22	---	7.69
NB1-0.0	4.05	---	---
NB1-0.5	3.25	---	---
NB1-1.0	3.23	---	---

TABLE 2
SUMMARY OF LEAD AND SOIL pH ANALYTICAL RESULTS
CALTRANS TASK ORDER NO. 152
HIGHWAY 51 POST MILE 1.07 TO 3.68
SACRAMENTO COUNTY, CALIFORNIA

SAMPLE I.D.	TOTAL LEAD (mg/kg)	SOLUBLE WET LEAD (mg/l)	SOIL pH
NB2-0.0	4.48	---	8.53
NB2-0.5	3.23	---	---
NB2-1.0	5.30	---	---
NB2-2.0	7.83	---	8.10
NB2-3.0	8.60	---	---
NB3-0.0	4.79	---	---
NB3-0.5	3.91	---	---
NB3-1.0	4.16	---	---
NB3-2.0	4.13	---	---
NB3-3.0	2.86	---	---
NB4-0.0	3.71	---	---
NB4-0.5	2.85	---	---
NB4-1.0	3.01	---	---
NB5-0.0	3.76	---	7.65
NB5-0.5	3.48	---	---
NB5-1.0	3.21	---	---
SB1-0.0	440	**11.9**	---
SB1-0.5	15.2	---	---
SB1-1.0	24.1	---	8.21
SB1-2.0	5.74	---	---
SB1-3.0	4.46	---	---
SB2-3-0.0-Comp	5.99	---	---
SB2-3-0.5-Comp	4.04	---	---
SB2-3-1.0-Comp	3.41	---	---
SB2-3-2.0-Comp	15.8	---	---
SB2-3-3.0-Comp	6.67	---	---
SB4-6-0.0-Comp	11.4	---	---
SB4-6-0.5-Comp	6.47	---	8.50
SB4-6-1.0-Comp	5.39	---	---
SB4-6-2.0-Comp	5.18	---	---
SB4-6-3.0-Comp	4.18	---	---
SB7-9-0.0-Comp	9.11	---	---
SB7-9-0.5-Comp	3.30	---	---
SB7-9-1.0-Comp	6.97	---	---
SB7-9-2.0-Comp	4.75	---	---
SB7-9-3.0-Comp	7.70	---	---
SB10-12-0.0-Comp	13.0	---	---
SB10-12-0.5-Comp	42.1	---	---
SB10-12-1.0-Comp	24.3	---	---
SB10-12-2.0-Comp	28.1	---	---
SB10+12-3.0-Comp *	121	**6.04**	---

TABLE 2
SUMMARY OF LEAD AND SOIL pH ANALYTICAL RESULTS
CALTRANS TASK ORDER NO. 152
HIGHWAY 51 POST MILE 1.07 TO 3.68
SACRAMENTO COUNTY, CALIFORNIA

SAMPLE I.D.	TOTAL LEAD (mg/kg)	SOLUBLE WET LEAD (mg/l)	SOIL pH
SB13-15-0.0-Comp	128	4.21	---
SB13-15-0.5-Comp	48.7	---	---
SB13-15-1.0-Comp	11.2	---	8.33
SB13-15-2.0-Comp	10.3	---	---
SB13-15-3.0-Comp	4.21	---	---
SB16-18-0.0-Comp	13.2	---	---
SB16+18-0.5-Comp **	29.1	---	---
SB16+18-1.0-Comp **	11.7	---	---
SB16+18-2.0-Comp **	4.42	---	---
SB16+18-3.0-Comp **	7.93	---	---

Notes:

B1-0.0
└── Top of sample depth in feet below surface grade
└── Boring identification

WET = Waste Extraction Test

TCLP = Toxicity Characteristic Leaching Procedure

mg/kg = Milligrams per kilogram

mg/l = Milligrams per liter

--- = Not analyzed

< = Less than the laboratory method reporting limit.

Concentrations in **bold** are greater than the STLC and/or the Federal TCLP regulatory threshold value for lead of 5.0 mg/l.

* = Composite sample consists of discrete soil samples collected from borings SB10 and SB12 only.

** = Composite sample consists of discrete soil samples collected from borings SB16 and SB18 only.

TABLE 3

SUMMARY OF YELLOW TRAFFIC STRIPE PAINT SAMPLE ANALYTICAL RESULTS - LEAD AND CHROMIUM

CALTRANS TASK ORDER NO. 152

HIGHWAY 51 POST MILE 1.07 TO 3.68

SACRAMENTO COUNTY, CALIFORNIA

SAMPLE I.D.	TOTAL LEAD (mg/kg)	TCLP SOLUBLE LEAD (mg/l)	TOTAL CHROMIUM (mg/kg)	TCLP SOLUBLE CHROMIUM (mg/l)
PC1	1,410	**5.75** *	427	1.28 *
PC2	1,500	---	524	---
PC3	2,360	---	852	---
PC4	862	---	300	---

Notes:

TCLP = Toxicity Characteristic Leaching Procedure
mg/kg = Milligrams per kilogram
mg/l = Milligrams per liter
--- = Not analyzed
* = TCLP soluble lead and TCLP soluble chromium performed on a composite sample of PC1, PC2, PC3 and PC4.
Concentration in **bold** is greater than the Federal regulatory threshold value for lead of 5.0 mg/l.